



ANNUAL REPORT **2021**

Contents

- 4 People
- 6 From the Chair
- 7 From the Provost
- 10 Quick facts
- 12 Class of 2021
- 14 Kayla Barron:
Gates Cambridge in Space
- 18 Community news
- 22 Dima Krayem:
Refugee aid in a collapsing state
- 24 Christian Boehm:
Policy for a green recovery
- 26 Reflecting on the 20th anniversary
- 30 Valentina Ndolo:
Mapping anthrax hot spots
- 32 Richard Dear:
Understanding depression
- 34 Financial summary



26



18



30



32



People

PATRONS



Melinda French Gates
Co-chair and Trustee of the Bill & Melinda Gates Foundation



Bill Gates
Co-chair and Trustee of the Bill & Melinda Gates Foundation

TRUSTEES



Professor Stephen Toope OC, LL.D.
Vice-Chancellor of the University of Cambridge (Chair)



Timothy Harvey-Samuel
Bursar of Trinity Hall, Cambridge (Honorary Treasurer)



Amy K Carter
Director, Community Engagement & Family Interest Grants Bill & Melinda Gates Foundation



Professor Mary Sue Coleman
President of the University of Michigan and former President of the Association of American Universities



Dame Sally Davies GCB, DBE, FRS, FMedSci
Master of Trinity College, Cambridge, UK Special Envoy on Antimicrobial Resistance and former Chief Medical Officer for England



Dr Mimi Gates
Trustee Emerita. Former Director of the Seattle Art Museum and Yale University Art Gallery



Professor Usha Goswami CBE FRS FBA
Professor of Cognitive Developmental Neuroscience at the University of Cambridge and a Fellow of St John's College, Cambridge. Founding Director of the Centre for Neuroscience in Education



Dr Julia Li
Co-Founder & CEO, Micrographia Bio and Gates Cambridge Alumna



Professor Bhaskar Vira
Professor of Political Economy and Head of Department, Department of Geography, University of Cambridge and Fellow and Graduate Tutor at Fitzwilliam College, Cambridge



Lord Simon Woolley Kt
Principal, Homerton College, Cambridge and Crossbencher in the House of Lords

STAFF



Professor Barry Everitt FRS FMedSci ScD Provost
Professor of Behavioural Neuroscience, University of Cambridge and former Master of Downing College, Cambridge



Dr Jade Tran
Director of Finance



Dr Regina Sachers
Secretary
Head of Governance and Compliance Division, University of Cambridge



Jim Smith
Programme Director
Senior Member of Wolfson College, Cambridge and Trustee of Jimmy's Cambridge



Luisa Clarke
Programme Manager



Ms Celine Ophelders
Alumni & Events Officer (until February 2022)



Dr Carlos Podadera
Programme Officer



Usha Virdee
Accounts Officer



Mandy Garner
Communications Officer



FROM THE CHAIR

Professor Stephen Toope OC LL.D. Vice-Chancellor of the University of Cambridge

I am delighted to see the achievements of Gates Cambridge Scholars and alumni over the scholarship's first 20 years.

The University of Cambridge is incredibly proud to have partnered with the Bill and Melinda Gates Foundation in hosting one of the world's most important international scholarship programmes. The Foundation's historic gift, in October 2000, brought two world-leading institutions together to deliver something exceptional.

The scholarship's impact on Cambridge, on our scholars, and on the wider world over two decades has been truly impressive. As you will see from this report, our scholars and alumni are meeting the programme's aim of creating a global network of future leaders committed to improving the lives of others in countless ways.

I reiterate my deep gratitude to the Bill and Melinda Gates Foundation for choosing the University of Cambridge for their visionary philanthropy. In particular I wish to recognise Bill Gates Sr. for his passion for

establishing the scholarship at Cambridge, and for stewarding it so effectively while he was a Trustee. His legacy will be felt for generations to come.

I also warmly thank all those involved in the delivery of the scholarship programme - trustees, staff, interviewers, academic departments and Colleges all play an important part in selecting and supporting our scholars. I note with sadness that Barry Everitt, our Provost, steps down this September after nine years leading the programme. I warmly thank Barry and his team for outstanding management of the programme, and for putting it on such a solid footing for the future.

Finally, I wish all Gates Cambridge Scholars and alumni every success in their lives and careers. The University and the Trust are incredibly proud of you all. You truly give us hope for the future.



FROM THE PROVOST

Professor Barry Everitt FRS FMedSci ScD, Provost

This is my final Annual Report and so I have naturally been reflecting on some key events during my nine years as Provost.

In many ways, the core business of Gates Cambridge has remained the same: we receive thousands of applications for the scholarship each year and we select between 80 and 90 exceptional Gates Scholars to come and join our vibrant Scholar community in Cambridge. It is such a privilege to be involved in this process. However, there have been significant challenges during this period. Brexit has meant that all scholars from Europe now attract the international fee rate, which, being about triple the home fee rate, has added a significant additional annual cost to the scholarship. These EU students are also now required to have study visas (more cost and bureaucracy) rather than their previous freedom of movement to study and work in the UK. This is, in my view, a major loss to the UK and one that is compounded by the still unsettled status of the UK in the European Research Council

research funding schemes, notably Horizon Europe, that profoundly affects UK researchers.

The COVID-19 pandemic has of course dealt a heavy blow to the experience of studying and living in Cambridge, as well as to academic research and teaching. Although the severe constraints during 2020-21 have eased, life as a graduate student remains far from optimal. Nevertheless, we were able to welcome 92 scholars to Cambridge in October 2021 (10 having deferred from 2020) and they experienced both induction and orientation in person, thanks to the efforts of Gates staff in helping scholars with travel and visa arrangements and the Scholars' Council in establishing COVID-secure in-person events. We were also able to hold a long-deferred welcome event for scholars who arrived in 2020 - our 20th anniversary class - many of whom had not met another scholar during their first year in Cambridge, except perhaps on-line. This may all sound like a rather gloomy situation. But in fact, what has been so impressive and heart-warming is the great resilience shown by our scholars: they have adapted and pivoted their

research to cope with the restrictions necessitated by the pandemic, while also finding ways to thrive in the special environments of both the Gates community and Cambridge University.

The most important task undertaken by the Trust each year is the selection of new scholars. Over the last two years, the pandemic created challenges for us in terms of how we select, given the impossibility of conducting in-person interviews. However, the Trust worked closely with departments and institutes in the University to refine our selection processes and our review panels adapted their procedures to select another outstanding and diverse class of scholars. You can read about the 2021 entry in our [announcement](#) and some statistical details are provided later in this report.

All of us involved with the programme are acutely aware that the more diverse our scholar and alumni communities are the stronger and more effective they become. As an international scholarship programme, Gates Cambridge is already diverse on most measures, but there is always more that can and should be done, not least in attracting more applicants from countries and backgrounds that are presently underrepresented. Our trustees have therefore set up a Task Force on Diversity and Inclusion, chaired by trustee Professor Bhaskar Vira and with membership drawn from the scholar and alumni communities as well as from senior members of the University. This group will work to identify where more can be done to increase diversity in all its forms in terms of applications to the University and therefore to Gates Cambridge.

Another core area of our work is supporting current scholars. We currently have almost 300 in residence – a record number that is the result of two decisions by the Trust. The first, taken four years ago, was to fund all PhD scholars for a fourth year at the outset, enabling them the time to complete their theses without financial uncertainty. The second decision was to fund into a fifth year all those scholars whose research was impeded by the pandemic, since many of them had to leave, and were unable to return to, Cambridge. There is no doubt that these extended investments in our scholars to enable them to complete their PhD degrees is the right course of action in such challenging times. The Trust of course continues to provide its scholars with one of the most generous and comprehensive packages of financial graduate scholarship support available. It also provides substantial support for

important community building activities which are largely delivered via the excellent work of successive Scholars' Councils. I wish to thank them for all of their work, especially when conducted under the constraints of lockdown.

Since the start of the programme, the Trust has provided a physical hub for our scholars in the form of the Scholars' Common Room in the University Centre. However, this building is scheduled to be redeveloped for other uses by the University, and the Trust began searching for a new location during my first year as Provost. We eventually settled on 17 Mill Lane, which will provide a much larger and much improved space for scholars, and will also provide excellent accommodation for the Gates Trust office and staff. There have been significant delays in progressing this project, but I very much hope that it will move into the delivery phase in the summer of 2022 and that scholars and staff move into the building in 2023/4.

“My time as Provost comes to an end this September, after nine years in post. Being Provost of Gates Cambridge has been a most rewarding, inspiring and enjoyable role. It has been a privilege to lead the Gates Cambridge programme, engage with all those involved and to see the scholarship go from strength to strength.”

Beyond Cambridge, the Gates Cambridge Alumni Association (GCAA) has found new and innovative ways to connect our alumni community across the world, holding a series of impressive virtual events. Our network of more than 1,600 alumni continues to grow and be impactful in many ways in many countries. You can read about some of their inspiring work on our website and in this report. The GCAA Board has impressive plans for the future, which the Trust is supporting through funding, employing a dedicated member of staff and the establishment of a Task Force on the Future of the GCAA, led by alumna and Trustee Dr Julia Li. I thank the GCAA Board Co-Chairs, Halliki

Voolma and Alex Kong, and the entire GCAA Board for all their impressive and hard work over the last year.

In terms of our finances, the Trust remains in a strong position. The large majority of our endowment is invested in the Cambridge University Endowment Fund, which has performed well against most benchmarks. But the world outlook remains uncertain and the Trust still has many challenges ahead: above-inflation increases in University fees, the continuing impact of Brexit and the pandemic and balancing the need to support as many outstanding scholars as we can while offering a highly competitive package of support. Jade Tran, our Director of Finance, sets out more details later in this report.

Our board of Trustees has continued to provide exceptional strategic direction and support during the year and I am delighted to take this opportunity to thank them all. I would especially like to warmly welcome Professor Usha Goswami and Lord Simon Woolly as new Trustees, and Dr Mimi Gates as our first Trustee-Emerita in recognition of her long and dedicated service to the Trust, its scholars and alumni. Mary Sue Coleman completes her three terms as a Trustee this year, and I thank her for her distinguished service to the Trust. I congratulate Professor Bhaskar Vira on his appointment as Pro-Vice-Chancellor for Education in the University from October 2022. Finally, I thank most sincerely our Chair and Vice-Chancellor of the University, Professor Stephen Toope, who steps down from both roles in September 2022. Stephen has been an exceptional leader of both organisations and I have personally benefitted enormously from his attention to detail, support, and guidance during the last five years. We all wish him a happy and fulfilling future.

I cannot write my final report without special mention of, and my sincere thanks to, the small, but dedicated staff team at the Trust. All have worked flexibly and often under very difficult circumstances during the pandemic, each one of them motivated by their commitment to our scholars in residence as well as our alumni across the world. Jade Tran has brought great skill and dedication to the role of Director of Finance and is ably supported by Usha Virdee; Jim Smith, who I can safely say all alumni will know as he has been with the Trust since it was established, knows everything about the Trust and University and has unquenchable enthusiasm for the programme. Luisa Clarke is exceptional in her support of scholars, enabling their arrival and facilitating



their time in Cambridge; she is supported by Carlos Podadera who is the front line in the office. Mandy Garner maintains a continuous flow of informative articles about scholars and alumni on our website and helps scholars tell their stories and publicise their work. Finally, I am sad to report, but happy to recognise and thank, Celine Ophelders who stepped down as the Trust's Alumni & Event Officer in February after more than 4 years; we wish her every success in her new role at Alzheimer's UK.

We have just come to the end of the Gates Cambridge pandemic-disrupted 20th anniversary year. It is therefore appropriate to reflect on the celebrations during 2020/21 and what has been achieved in our first two decades. Since there is too much to include in a foreword, we have set out a summary later in this report. It is heart-warming to see what the programme, its scholars and alumni have achieved so far, and the many ways these achievements were celebrated across our 20th anniversary year. We have one Gates 20th anniversary event still to take place – our delayed Annual Lecture – and we are excited that this will be given by Professor Devi Sridhar later this year.

My time as Provost comes to an end this September, after nine years in post. Being Provost of Gates Cambridge has been a most rewarding, inspiring and enjoyable role. It has been a privilege to lead the Gates Cambridge programme, engage with all those involved and to see the scholarship go from strength to strength. I am incredibly grateful to have had this opportunity and am excited to see how the next Provost and their team develop this exceptional and successful programme over the next decade.

Quick facts



296

Scholars studying in Cambridge

More than **1,600**



Alumni spread across the world improving the lives of others



£333m

in investments at 31 July 2021 and £131m spent to date



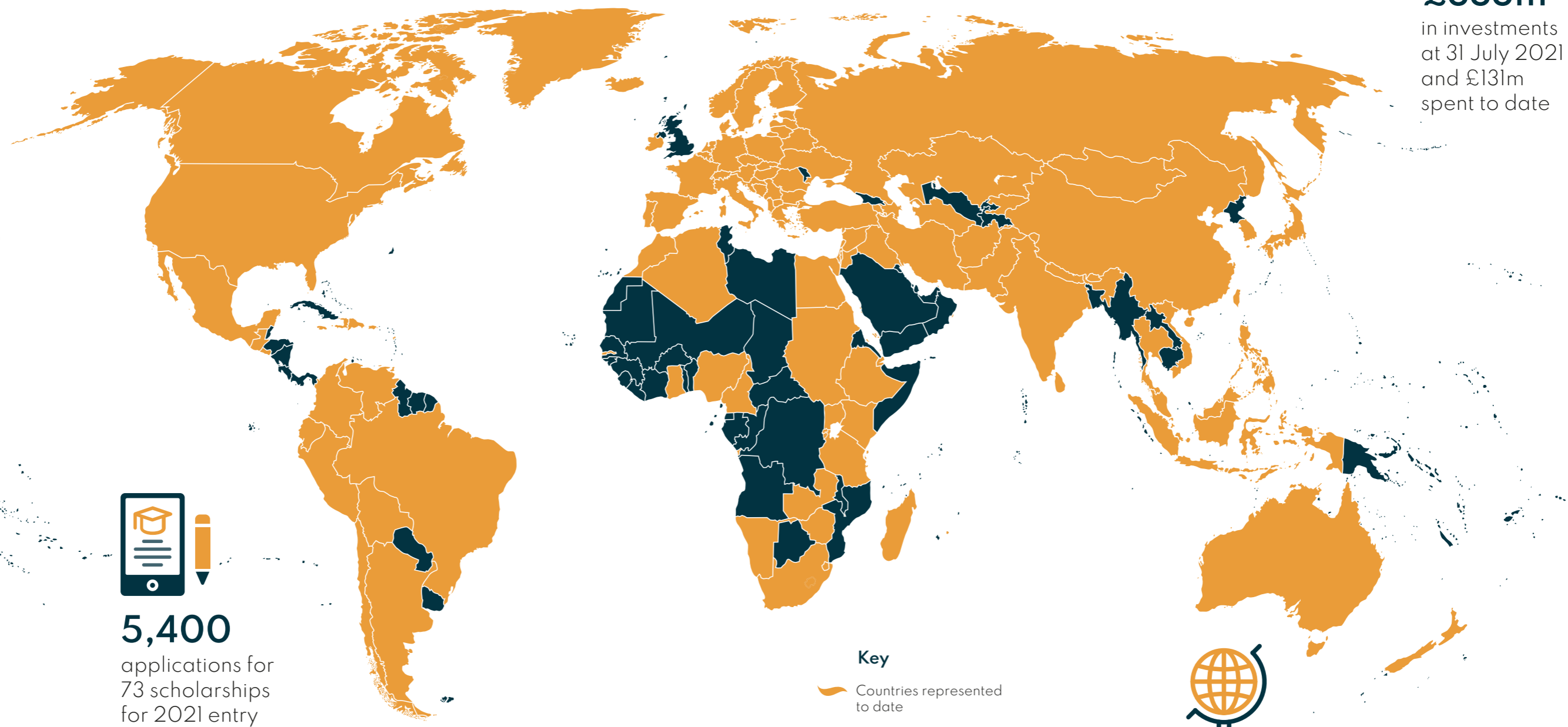
2,003

scholarships awarded to date



5,400

applications for 73 scholarships for 2021 entry



Key

Countries represented to date

Countries not yet represented



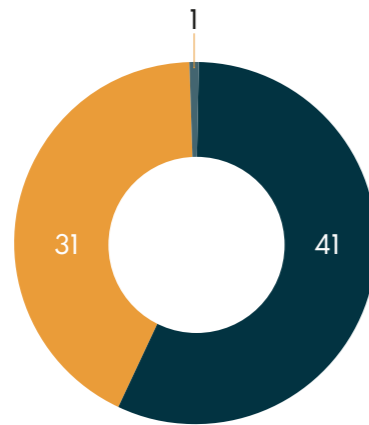
Scholars from **111** countries and counting

Class of 2021: Summary

For 2021 entry, Gates Cambridge Scholarships were awarded to 73 outstanding candidates from 29 countries. They are pursuing postgraduate degrees at 43 University departments and are members of 24 Cambridge Colleges.

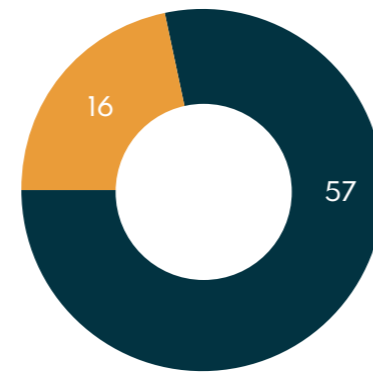
Scholarships awarded by gender

Female
Male
Non-binary



Scholarships awarded by degree type

PhD
Other



In 2018 the Trustees agreed that the ratio of PhD to Masters scholarships should be approximately 2:1.

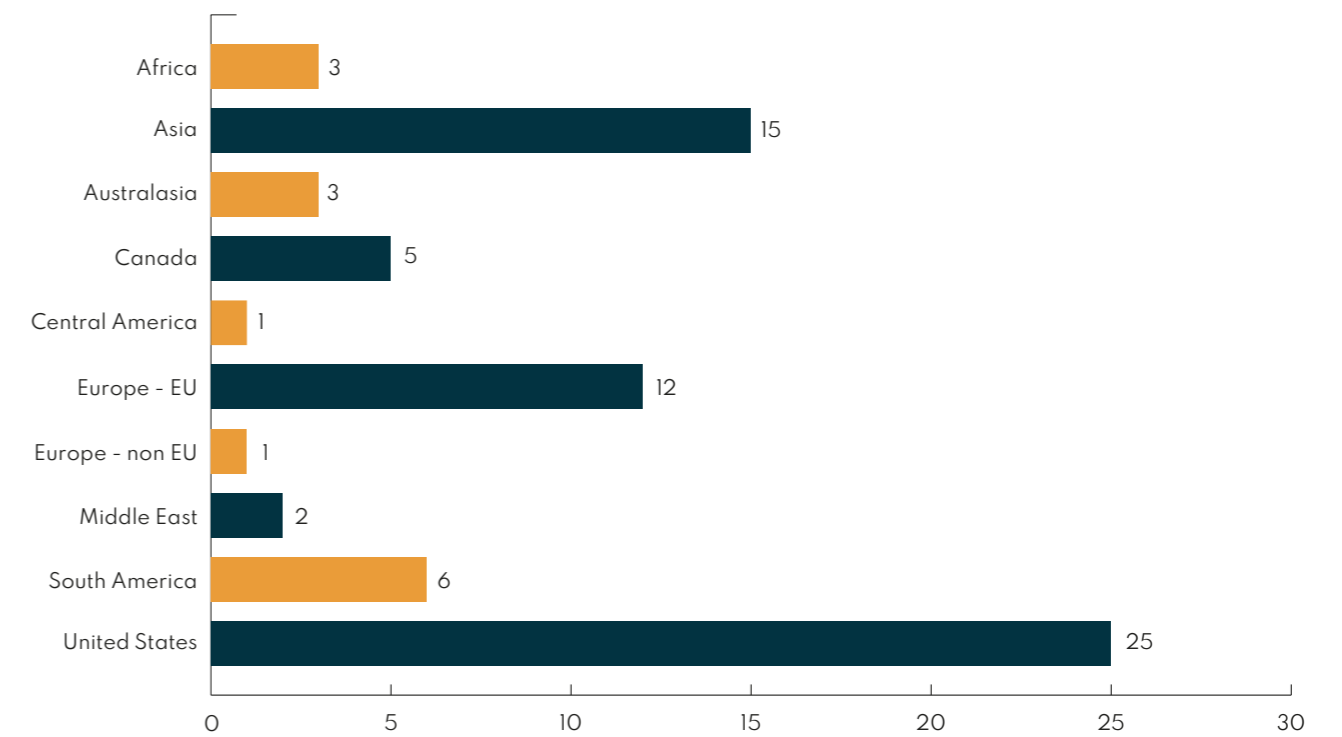


New scholar announcement and bios

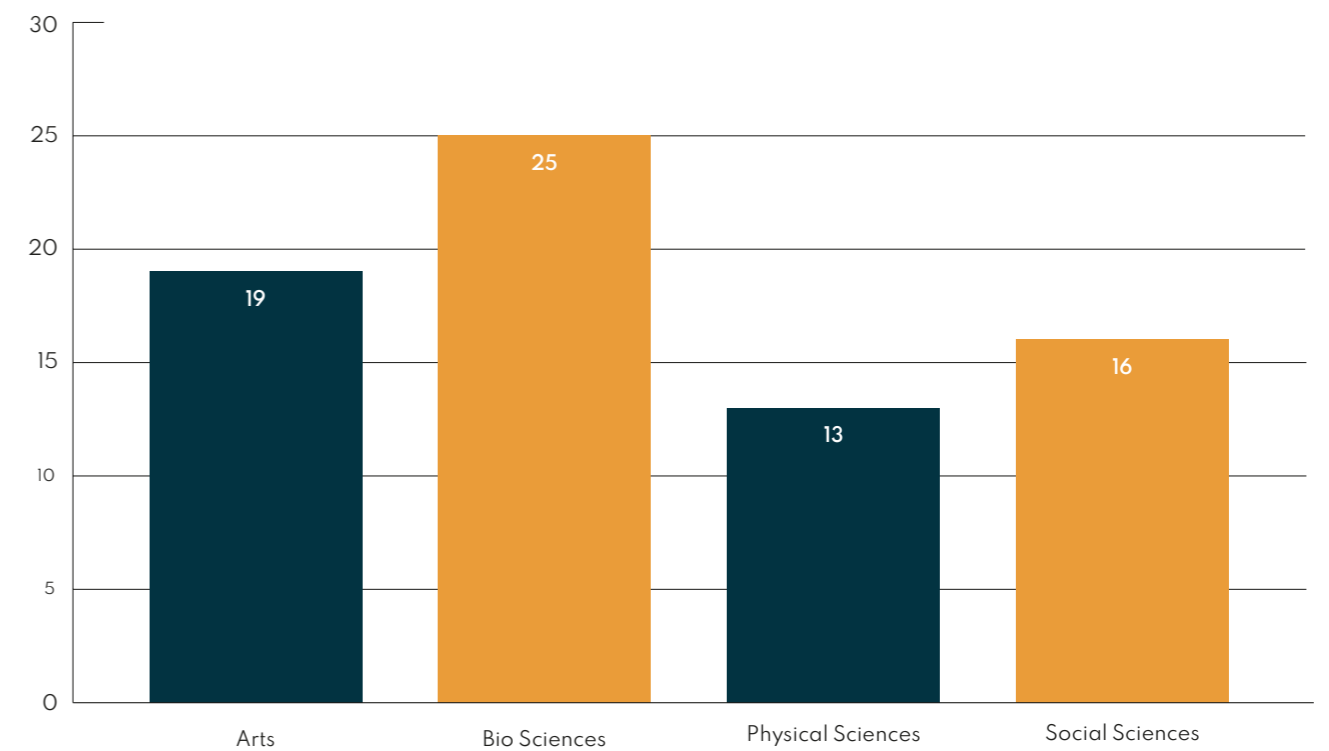
Read our announcement of the class of 2021 [here](#).

Read the bios of the class of 2021 [here](#).

Scholarships awarded by area of the world (primary nationality)



Scholarships awarded by selection panel





Gates Cambridge in space

Kayla Barron

When Kayla Barron [2011] approached the International Space Station in November after a day-long journey there from NASA's base in Florida, it was a huge moment for her.

She told journalist Kip Hill, "It was an absolutely fantastic moment, and really the fulfillment of a dream. We have some awesome training facilities at NASA, even a scale mock-up of the space station that looks almost exactly like the real space station. So it was pretty surreal to be floating through the hatch and kind of recognising it from training."

In addition to adapting to microgravity, Kayla and her crew also faced sudden drama. Two days after arriving, a Russia anti-satellite operation created debris and there were fears it could hit the station. The astronauts had to get into transport spacecraft for several hours for their safety and listen out for the all-clear from NASA.

Kayla's science mission to the international space laboratory will last six months. She was one of four astronauts on the SpaceX Crew Dragon. The trip is the third crew rotation mission and the fourth flight with astronauts as part of NASA's Commercial Crew Programme.

The other astronauts are Raja Chari and Tom Marshburn from NASA, like Kayla, and Matthias Maurer from the European Space Agency.

Three of the four, including Kayla, are first-time flyers. Kayla was a mission specialist on the flight into space and worked closely with the commander and the pilot to monitor the spacecraft during the launch phase, as she will on the re-entry phase.

At the space station she is working as a flight engineer for Expedition 66. Since arriving, she has been involved in a number of science experiments, including researching

how to manipulate nanoparticles for the InSPACE-4 space manufacturing study. Early on in the mission, Kayla also completed a six and a half hour spacewalk to replace a malfunctioning communications antenna.

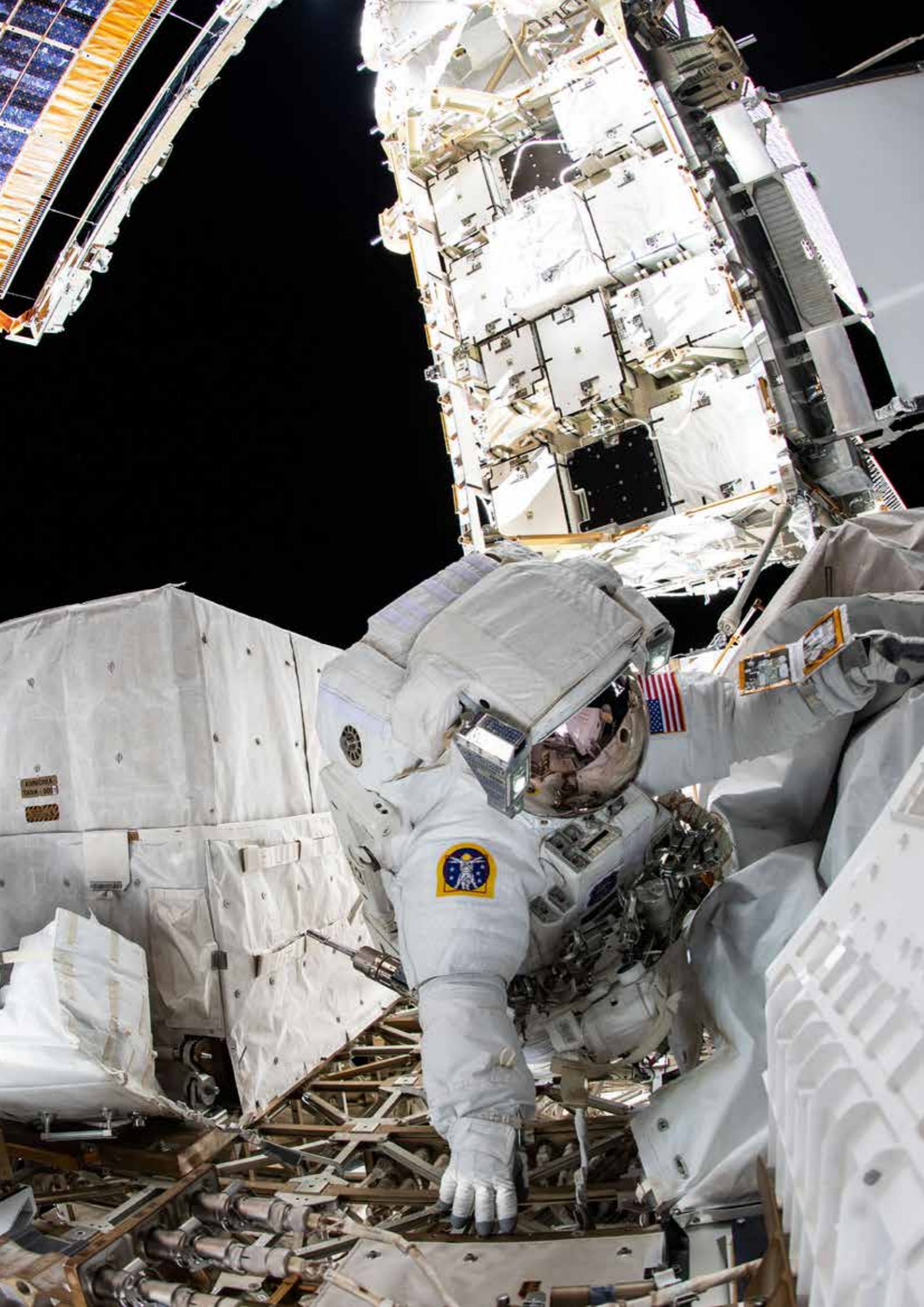
BACKGROUND

Kayla began her career in the US Navy and in 2010 moved to Cambridge to do an MPhil in Nuclear Engineering where she met her husband, Tom Barron, also a Gates Cambridge Scholar.

Her master's focused on modeling the fuel cycle for a next-generation, thorium-fuelled nuclear reactor concept. "It was really cool to work on a new engineering design project," says Kayla. "It is challenging to work through the nit-picky details. I really do rely on that experience for what I am doing now. On the submarine and here team work is vital. Different people in the team bring different expertise and you have to be good at communicating that knowledge under stress. Cambridge taught me important lessons that serve me here."

Since arriving, she has been involved in a number of science experiments, including researching how to manipulate nanoparticles for the InSPACE-4 space manufacturing study. Early on in the mission, Kayla also completed a six and a half hour spacewalk to replace a malfunctioning communications antenna.

After completing her MPhil, she returned to the Navy where she completed three strategic deterrent patrols while serving as a division officer aboard the USS Maine, a ballistic missile submarine.



At the time of her selection as an astronaut candidate in 2017, she was serving as the flag aide to the superintendent of the US Naval Academy.

Kayla only applied to NASA as a result of a serendipitous meeting with an astronaut who told her about her mission to the International Space Station and the engineering challenges she faced. Through talking to the astronaut, Kayla realised that working on the space station was similar to working on a submarine.

Kayla was one of 11 trainees chosen from 18,000 applicants to NASA's Artemis programme. She says her fellow trainees all shared certain characteristics: an appetite for adventure and a passion for working in teams.

Her two-year training course, which finished in late 2019, involved learning a lot of new skills. For instance, she had to learn how to walk in zero gravity at a neutral buoyancy lab. This included underwater training to mimic buoyancy effects. She also had to do aviation training in a T38 jet – the world's first supersonic trainer jet, learn robotics and ISS systems as well as study Russian.

“While being a Gates Cambridge Scholar is about pursuing a degree, whether studying or conducting research, a big part of the experience is also joining this global community and exploring opportunities at Cambridge.”

A PIONEER

Kayla has been a pioneer throughout her working life. One of the first class of women commissioned into the US Navy's submarine community, she could, after her trip to the ISS, become one of the first women to set foot on the Moon.

Artemis will send astronauts to land and live on the Moon by 2024 and around once a year after that. In addition to exploring the Moon they will learn how to live and operate on the surface of another celestial body and test the technologies needed to send astronauts on missions to Mars.



Kayla recently told The Scholar magazine about her excitement at being chosen for the ISS mission: “The opportunity to live and work on one of the most incredible engineering marvels in the history of the world is amazing to me.”

“The space station, which is due to be decommissioned in 2024, has been up there for over 20 years with continuous human presence, doing amazing science and inspiring people, so the chance to be a part of that mission is really exciting.”

Kayla also told the magazine that, when applying to be a Gates Cambridge Scholar, she had no idea how much influence the experience would have on her life.

“While being a Gates Cambridge Scholar is about pursuing a degree, whether studying or conducting research, a big part of the experience is also joining this global community and exploring opportunities at Cambridge,” she said.

“Coming from the somewhat cloistered environment of a US military academy, the chance to go to Cambridge and be part of such a diverse community allowed me to form friendships with people who grew up all around the world and are passionate about things I had never even thought about before.

“Those friendships had a big influence on me in terms of how I interact with the world and my curiosity as a person.

“Also, Tom and I met during the Gates Cambridge orientation weekend, and the rest is sort of history. So I can credit the Gates Cambridge community with finding my partner!”

Anna Kathryn Kendrick published her book *Humanizing Childhood in Early Twentieth-Century Spain*, which is based on her PhD research on origins and influence of the education reformers in early 20th Spain. The book won the prestigious International Standing Conference for the History of Education's **First Book Award** and the Modern Language Association of America **Katherine Singer Kovacs Prize**.



Emma Soneson and **Maša Josipović** were joint winners of the Bill Gates Sr Prize 2021, in recognition of their outstanding research and social leadership. The prize was established by the Gates Cambridge Trustees in June 2012 in recognition of the late Bill Gates Sr.'s role in establishing the Gates Cambridge Scholarships, being a Trustee and engaging with, and inspiring, many generations of Gates Cambridge Scholars. [Read more.](#)



Dr Pradipta Biswas and his colleague received a \$75K grant from Facebook Reality Labs for tech to aid people with disabilities. [Read more.](#)

Moneythink, an ed-tech non-profit co-founded by **Greg Nance**, has received a \$980,000 grant from the Bill & Melinda Gates Foundation to develop its free college affordability tool. Greg, MoneyThink's Board Chair, says the money will help it to accelerate the development and reach of DecidED, its free college affordability comparison tool to help underrepresented students achieve college success. [Read more.](#)



Luis Welbanks won the prestigious NASA Hubble Fellowship to study exoplanet atmospheric properties at Arizona State University. Luis will be one of seven Sagan Fellows focused on the 'Are we alone?' theme. The Director of Astrophysics at NASA Headquarters in Washington said: "These outstanding young scientists are the future of astrophysics, and their impact on our understanding of the cosmos will be felt for decades to come." [Read more.](#)

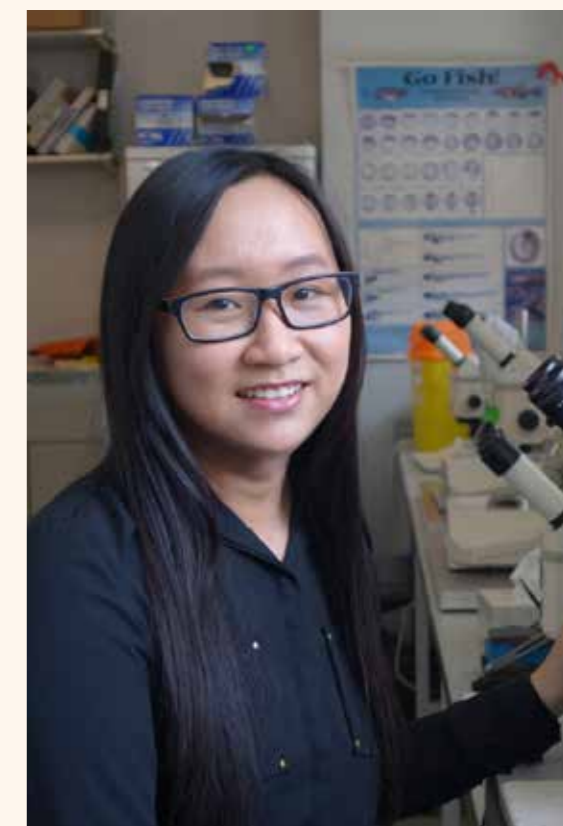


Rebecca Love's company Vira Health launched a new app called *Stella* which helps women manage the menopause. [Read more.](#)



Amanda Dennis published her debut novel *Her Here*, an existential detective novel, which has garnered enthusiastic reviews from the

likes of The Washington Post, which called it "Spellbinding...wholly engrossing". Amanda says "the Gates Cambridge community reminds me of what's possible...To write a novel, you have to believe with so much force in something that doesn't exist - until it does." [Read more.](#)



Dr Julie Qiaojin Lin has been named an emerging leader in dementia research by the UK Dementia Research Institute. Dr Lin is one of 11 Emerging Leaders in the new initiative of the UK DRI and is a Sir Henry Wellcome Postdoctoral Fellow in Professor Giovanna Mallucci's Lab in the UK DRI at Cambridge University. [Read more.](#)

Kamiar Mohaddes has been appointed co-director of a new King's College, Cambridge initiative to promote socially responsible entrepreneurship. Kamiar says: "I am hoping we will have Gates Cambridge Scholars help us mentor the student projects and visit us and stay at King's for a few weeks as, for instance, an Entrepreneur in Residence" [Read more.](#)



Mona Jebri's play *The Loop* featured at the Hotbed Theatre Festival in July. She has also set up a series of podcasts about life and education in Gaza. Mona says: "through creating a podcast, animations, photo films, a research GIF, research games, comic scripts and now a theatrical play, I am creating a platform through which I can share important research on the significantly under-researched context of Gaza." [Read more.](#)



Reid Lidow has started his campaign to be City Controller of his home town, Los Angeles. Reid wants to address problems ranging from homelessness to economic hardship. [Read more.](#)



Gitte Marianne Hansen has co-edited a book on the works of the leading Japanese writer Murakami Haruki entitled *Murakami Haruki and Our Years of Pilgrimage.* [Read more.](#)

Alice Musabende presented a five-part BBC radio series about how to speak to young people about genocide and why it is necessary. In the very personal and powerful series, entitled *Unspeakable*, Alice – a former journalist and survivor of the Rwandan genocide – tries to "find people to discuss ways to tell children and young people about genocide – and other mass atrocities in a way that is mindful and tries to mitigate generational trauma." [Read more.](#)



Kate Brandt has been named one of Fortune Magazine's 40 Under 40 for the year 2021 for her work on sustainability. Kate has held several federal government climate-focused and environmental leadership roles. As President Obama's first federal chief sustainability officer in 2015, she was tasked with overseeing the actions of the single largest user of energy in the world. Her current role at Google involves her directing and coordinating sustainability efforts across the tech giant's data centres, real estate, supply chain and product teams. [Read more.](#)

Tom Barron and **Victoria Herrmann** were selected for the prestigious White House Fellowship and, with 17 other fellows, will work full time for White House staff, Cabinet Secretaries and other senior government officials for a year. [Read more.](#)





Refugee aid in a collapsing state

Dima Krayem

Dima Krayem has spent the last years addressing the fallout from the financial collapse in her home country, Lebanon. From late 2019 until September 2021, her job involved getting emergency aid to Syrian refugees in Lebanon.

As Senior Project Manager at Lebanon One Unified Inter-Organisational System for E-cards, she coordinated life-saving assistance from three UN agencies – the UNHCR, the World Food Programme and UNICEF. She has recently been appointed to the role of economist for the UN office in Lebanon which coordinates humanitarian aid.

She says that, at a time of acute poverty and financial collapse, those at the very margins – migrant workers and refugee populations – have seen their living standards rapidly deteriorate in the current crisis, following decades of structural and systemic discrimination against them.

“It is no secret that Lebanon’s current economic and financial collapse is very much the result of an accumulation of structural crises, of a largely failing post-war economic model and political system that has guaranteed the unequivocal interest of a minority of political elites, commercial banks and the Central Bank at the expense of the rest of the population,” she says.

She feels humanitarian aid can only go so far, adding: “We need a more rights-based approach which can provide a more dignified future for all residents alike,

rooted in a comprehensive macro-stabilisation strategy and long-term development vision, that makes access to healthcare, education, shelter and basic services an acquired right, neither a privilege nor a reality you are actively barred from,” she says.

Dima was born in Beirut in 1988 where she developed an early interest in economics due to the precarity of the region and her father’s influence. He was a professor of political science at the American University of Beirut before he joined the UN as a governance advisor.

Dima’s fieldwork was conducted through social development centres in Beirut and Mount Lebanon where refugees and other vulnerable populations access basic services. She was keen to look at the evolution of refugees’ experience of the labour market in urban settings which, she says, has been relatively understudied.

Dima began her undergraduate degree in economics at the American University of Beirut [AUB], but following the 2006 war and its aftermath she transferred to the University of California Santa Cruz a year later. There she did a BA in Economics.

After graduation she worked for the IMF then returned to Beirut to work as a research assistant at the AUB. In 2012, realising that her interest lay in questions of development, she went back to the US to do a masters at Yale in international development economics.

After she finished, she was offered a job at the World Bank in Beirut. She spent three years working as a research analyst in the human development department. It was the beginning of the influx of Syrian refugees into Lebanon and Dima’s role was two-pronged: it involved working on an analysis of the economic and social impact of the Syrian conflict on Lebanon as well as operationalising large scale emergency social programmes aimed at offsetting that impact and working with policymakers to strengthen them.

Wanting to set her work in a broader context, she then started a PhD in Development Studies at Cambridge University, spending the months before she started working as Country Director for global development firm Sayara International.

Dima’s fieldwork was conducted through social development centres in Beirut and Mount Lebanon where refugees and other vulnerable populations access basic services. She was keen to look at the evolution of refugees’ experience of the labour market in urban settings which, she says, has been relatively understudied. Many had previously been migrant workers, but had become ‘refugees’ due to the war.

Dima posited that the Lebanese labour market has never been structured in favour of workers, and that the Syrian refugee influx resulting in an increase in the labour supply did not transform market relations but epitomised market dynamics rooted in labour exploitation, informalisation and segmentation.

She graduated in 2021, having done her viva in August 2020 two weeks after the Beirut explosion. Dima is committed to helping her country weather the current collapse. She says: “The magnitude of suffering is unprecedented, particularly for those marginalised populations already living in abysmal conditions prior to the collapse, pensions and deposits have evaporated and with them many dreams for generations to come, and all those outcomes are the result of deliberate policy. It is a daily struggle to seek justice from this political regime rather than revenge. I genuinely hope that the next parliamentary elections in Lebanon scheduled for the summer, will be the beginning of much needed change.”

Dima posited that the Lebanese labour market has never been structured in favour of workers, and that the Syrian refugee influx resulting in an increase in the labour supply did not transform market relations but epitomised market dynamics rooted in labour exploitation, informalisation and segmentation.



Policy for a green recovery

Christian Boehm

Christian Boehm [2013] has been at the centre of Germany’s Covid-19 vaccine response. Having joined Germany’s Federal Ministry of Education and Research in 2019, he found himself assigned to a new Division in March 2020 where his responsibilities were broadened substantially. They embraced not only “new methods in life sciences”, covering green and marine biotechnology but also drug and vaccine development and research on biodiversity and ecosystems.

However, while the Division, of which Christian is now Deputy Head, has mostly been in the spotlight for its efforts regarding Covid-19 vaccine development, his primary focus remains on green and marine biotechnologies and biodiversity.

His fascination with the latter dates back to his childhood. Christian was born in Tirschenreuth in Bavaria where he developed a keen interest in nature. After school, he pursued an undergraduate degree in biochemistry at the Technical University of Munich.

From early on he was interested in how molecular biology could be utilised to address the issues of climate change and biodiversity loss through green biotechnology. At university, he became involved in the young national think tank of the Club of Rome and co-organised social media campaigns raising awareness for sustainable lifestyles.

He also became fascinated by synthetic biology, drawn by the way it harnessed computer science and engineering principles while being focused on application. He did a research internship at MIT working on protein engineering and his undergraduate thesis at the Max Planck Institute of Biochemistry focused on engineering adhesive proteins which could be used in bone repair and dentistry.

Christian says that, while this protein engineering work was focused on medical applications, he was already thinking of it as a way to acquire the toolset he would need to apply synthetic biology to sustainability issues.

Between his undergraduate and master’s studies Christian joined one of the world’s leading laboratories in synthetic biology at Harvard University for a six-month research internship. Given at the time there was no postgraduate degree programme in Germany with a focus on synthetic biology, Christian chose to pursue a master’s degree in systems and synthetic biology at Imperial College in London, where he designed a prototype microreactor for the sustainable production of chemicals.

He then did a master’s in scientific computing at Cambridge to boost his skills in computational modelling for his future synthetic biology research. For his PhD he joined Professor Jim Haseloff’s laboratory in the Department of Plant Sciences which had just won a big grant to establish a research centre for synthetic biology in plants.

His PhD focused on engineering multi-cellular biological systems for sustainability applications. Starting with the *Marchantia*, a basal lineage of land plants, as a simple testbed he aimed to create a way of engineering plants’ genetic functionality. This was so they could in the future, for instance, fix nitrogen from the atmosphere, thereby reducing the need for the energy-intensive process of nitrogen fertiliser production.

His studies involved genetically engineering chloroplasts [the sites of photosynthesis] in plants, based on the engineering concept of logic gates that control when and in what context certain functions are switched on.

During the first year of his PhD, inspired by Gates Cambridge, Christian also founded the European Synthetic Biology Society (EUSynBioS) which aims to build a community of young synthetic biology researchers across Europe.

He states: “I never expected that a PhD student could from scratch build a community of hundreds of young researchers across 15 countries in one year and that it would keep growing to this day.”

As chair of EUSynBioS, Christian expanded his engagement with policy, serving as an expert on the emerging issue of synthetic biology to the Convention of Biological Diversity (CBD). During the last year of his PhD, Christian also became a research affiliate at the Cambridge Centre for the Study of Existential Risk [CSER] where he assessed the risks and benefits associated with modern biotechnologies.

“My role brings together the different threads of my life – including my work at Cambridge, my interest in policy and my determination to protect biological diversity.”

After Cambridge, he took up a postdoctoral research associate position at the Max Planck Institute of Molecular Plant Physiology. But little more than a year into this position he received an offer by the German Federal Ministry of Research to contribute to building a bio-based economy.

At that point Christian was certain that he wanted to move into policy as he had experienced how restrictive regulation on promising new biotechnologies, such as gene editing, affected the work of his and others on plant systems.

Christian’s responsibilities in the Ministry have included developing and managing research funding programmes; negotiating national and international strategy documents; and providing expert advice to national politicians.

He says: “My role brings together the different threads of my life – including my work at Cambridge, my interest in policy and my determination to protect biological diversity.”

20TH ANNIVERSARY

Reflections

UNIVERSITY ALUMNI WEEKEND

To kick off the 20th anniversary, the University's alumni weekend in September 2020 featured a series of Gates Cambridge sessions, with scholars and alumni speaking on topics such as how to secure a lasting peace after conflict, decolonization in Africa and the impact of social entrepreneurship on development. Click the icons below to watch them.



 **DECOLONIZATION IN AFRICA**

 **IMPACT OF SOCIAL ENTREPRENEURSHIP**


 **SECURING PEACE AFTER CONFLICT**



"One of the ways to make the world a better place is to have more, smarter, energetic people in it"

Bill Gates Sr.

20TH ANNIVERSARY FILM

 The University's Alumni and Development Office created a short film which celebrates Gates Cambridge at 20 and asked the question: can a scholarship change the world? Click the icon to watch.



FUELING SUCCESS: CAM MAGAZINE


Cam magazine featured Gates Cambridge in a 20th anniversary piece showcasing how international students come to Cambridge to change the world. [Read it here.](#)




LIVE SESSIONS

The University's Alumni and Development Office led on a series of live discussions hosted by the Vice-Chancellor and featuring Gates Cambridge Scholars and Alumni, Bill Gates, senior Gates Foundation staff and Cambridge academics on three important topics. Click the icons below to watch them.

 **CLIMATE CHANGE:**
The world's greatest challenge

 **CLOSING GAPS FOR GOOD:**
Ensuring equitable recovery in a postpandemic world

 **BUILDING AN ENERGY REVOLUTION:** *meeting demand and de-carbonising supply*



BILL GATES VIDEO AND BLOG

"Of all our foundation's grants, this was my dad's favorite. I couldn't be prouder of the difference these scholars are making, and the leaders they have become." [Read the blog and watch the video here](#)

ANNA MALAIKA TUBBS: AWARD-WINNING AUTHOR

Cambridge in America hosted a conversation with Gates Cambridge Scholar and author Anna Malaika Tubbs and Dr. Mónica Moreno Figueroa, Senior Lecturer in Sociology at Cambridge, about Anna's journey from activist and advocate to Gates Scholar to author of the groundbreaking book *The Three Mothers: How the Mothers of Martin Luther King, Jr., Malcolm X and James Baldwin Shaped a Nation*. [Listen here.](#)



EDUCATION PODCAST

The University's Office of Communications and External Affairs created a podcast entitled *Education's moment of reckoning: access and inclusion in schools*, featuring Gates Cambridge Scholars Arif Naveed and



Aya Waller-Bey and Sara Allen from the Bill and Melinda Gates Foundation. [Listen here.](#)



FACING NEW FRONTIERS: 20 YEARS OF GATES CAMBRIDGE

A web story by Mandy Garner summarised just some of the many ways Gates Cambridge Scholars and alumni have had and are having a positive impact on the world. [Read it here.](#)



THE SCHOLAR MAGAZINE: 20TH ANNIVERSARY EDITION

The editorial team of *The Scholar* – the magazine of the Gates Cambridge community – put together a special anniversary edition which featured a wide range of scholars and alumni who are making a positive impact on the world. The magazine was, for the first time, published in a fully on-line format. [Read it here.](#)

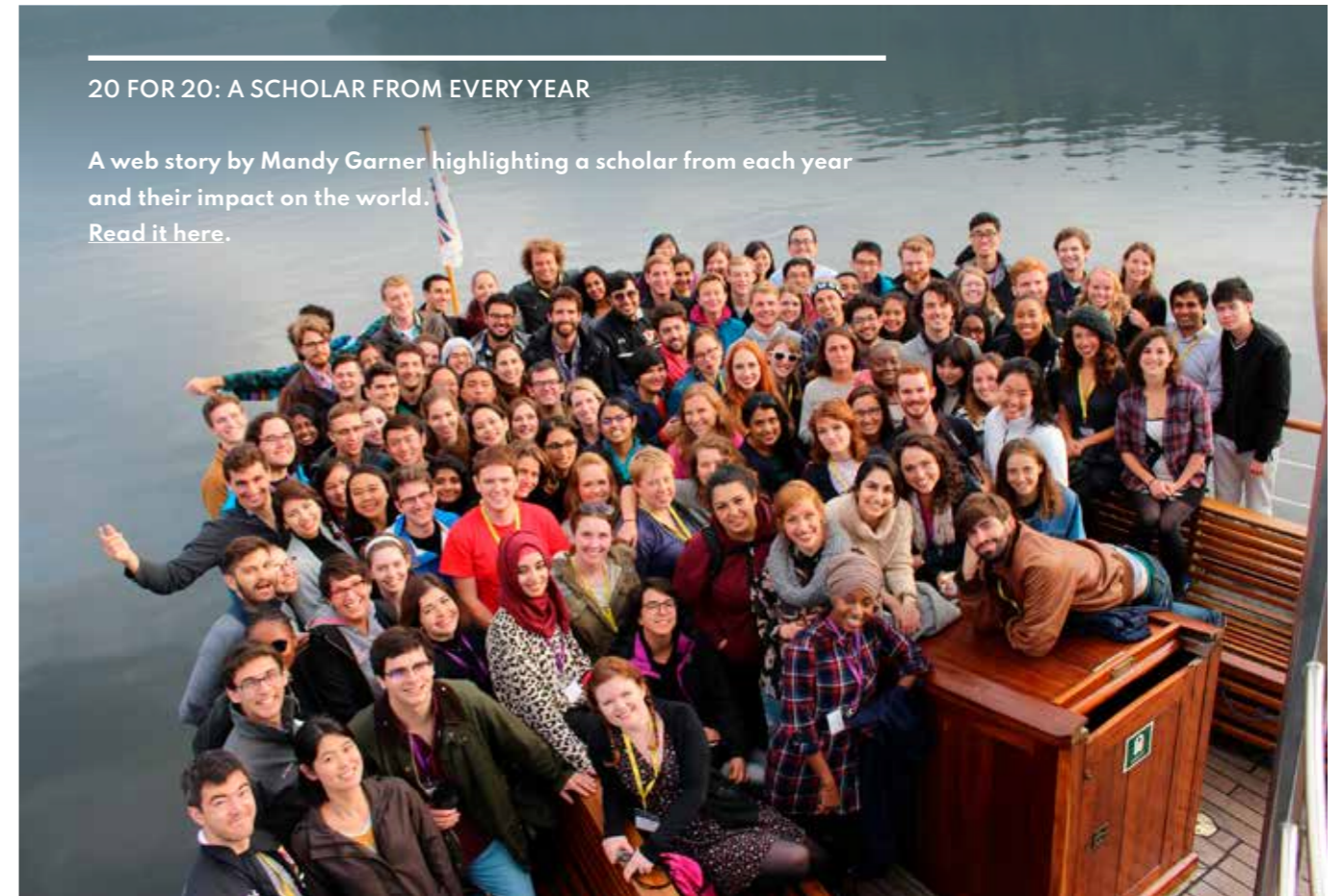
ANNUAL LECTURE 2022

We are delighted that the delayed Annual Lecture will be given by Professor Devi Sridhar (Chair in Global Public Health at the University of Edinburgh) later this year. Further details will be available on our website and social media channels soon.



20 FOR 20: A SCHOLAR FROM EVERY YEAR

A web story by Mandy Garner highlighting a scholar from each year and their impact on the world. [Read it here.](#)



20TH ANNIVERSARY COMMUNITY CELEBRATION

To wrap up celebrations, the GCAA Board, with support from the Scholars' Council and Trust, hosted a special event to celebrate the 20th anniversary of the scholarship. The hybrid event – partly virtual, partly in person on the Scholars' Common Room – featured Dr Mimi Gates, Professor Barry Everitt, Jim Smith and a range of scholars and alumni as speakers, sharing their memories of the programme over its first two decades.



Mapping anthrax hot spots

Valentina Ndolo

Over 60% of infectious diseases in the world are now zoonotic diseases – diseases that are passed from animals to humans. One of these is anthrax which is a huge problem for farmers in Africa and is highly infectious. Anthrax attacks mainly grazing animals and can kill hundreds of livestock within a very short time span. Valentina Ndolo's PhD is investigating how to prevent its spread.

A big problem is underreporting. "When it is reported, restrictions have to be brought in. Farmers cannot sell their products," says Valentina. "There is a big stigma around it and it can lead to boycotts of farms and much underreporting. If the symptoms look like anthrax, many people bury the animal and keep quiet or slaughter it and sell the meat."

Valentina's PhD is modelling the areas which have conditions which are conducive for the bacteria that causes anthrax so outbreaks can be better predicted and governments can target preventive campaigns better. In Uganda, Valentina has been working with the Ministry of Agriculture, the Centres for Disease Control

and the Ministry of Health. She is now doing the same in Kenya, but in more detail to create a time series of hot spot maps dating back to 1990. "That way we can see patterns emerging and understand how hot spots move over time," says Valentina. This could help governments to predict the impact of climate change on anthrax infection. There are good records available from 2010, but Valentina has also unearthed older records that no-one has looked at yet.

Valentina's PhD is modelling the areas which have conditions which are conducive for the bacteria that causes anthrax so outbreaks can be better predicted and governments can target preventive campaigns better.

There are also implications for human health. The bacteria that causes anthrax can live in the soil for a long time. As population growth leads to people moving deeper into wilderness areas, construction work can disrupt old carcasses which can trigger outbreaks and lead to human exposure. Mostly anthrax is passed onto humans through touching infected meat. That can result in fluid-filled ulcers and black scars on the skin. It can also be passed on through eating infected food, causing severe gastrointestinal illness, but the most dangerous form of anthrax infection is through inhalation of anthrax spores, for instance, by people working in the leather or wool industries. This can cause severe respiratory illness and, ultimately, death. Even with aggressive treatment, 45% of patients with inhalation anthrax still die. Injection anthrax has also been recently added as a form of anthrax infection affecting heroin-injecting drug users.

Valentina [2018] was born in the city of Kisumu in western Kenya on the banks of Lake Victoria. Over the course of her school life, Valentina developed a passion for science. She wanted to be a doctor, but missed out on a scholarship so took the closest subject to medicine, which was biochemistry, at the University of Nairobi.

In her final year she applied for an internship at the KEMRI/Wellcome Trust Research Programme and

worked on a project led by Professor Faith Osier, an award-winning immunologist and paediatrician, on the impact of decreasing exposure to malaria on children's immunity to the disease. The Trust also ran seminars from visiting researchers and experts in infectious diseases. They inspired Valentina not only to become more interested in infectious disease, but also to consider studying abroad.

She studied for her master's in international health and tropical medicine at Oxford where she did an internship project at the Jenner Institute on malaria immunity in adults. After finishing, she decided, after much thought, that she wanted her PhD to focus on anthrax due to increasing scientific interest in zoonotic diseases and the rising frequency and intensity of anthrax outbreaks.

Her research is field- and epidemiology-based and involves not just mapping hot spots for the disease, but also using powerful algorithms to help governments to forecast outbreaks. Before starting at Cambridge Valentina set up [the STEMing Africa Initiative](#) to mentor female undergraduates and help them to apply for scholarships. Between 2017 and 2019 the organisation helped five girls get scholarships and several others apply for postgraduate studies. At Cambridge she has been working with the African Society of Cambridge University alongside other PhD and masters students to mentor prospective students seeking to apply to Cambridge and support them through the process.

While Covid has delayed some of her work, Valentina [2018] hopes to finish her PhD with only a minimal delay. After she finishes, she says she would like to do similar work on other zoonotic diseases, particularly those that are most neglected but with significant global health burden.

At Cambridge she has been working with the African Society of Cambridge University alongside other PhD and masters students to mentor prospective students seeking to apply to Cambridge and support them through the process.



Understanding depression

Richard Dear

Richard Dear is applying big data and neuroscience to help unravel the underlying biological causes of depression.

His PhD in Psychiatry explores the underlying biological patterns behind the overarching psychiatric diagnosis of Major Depressive Disorder, now identified by the World Health Organization as the leading cause of disability worldwide. By leveraging large datasets

of gene expression from post-mortem brains and applying natural language processing to patient clinical records it will look underneath the traditional diagnostic categories. After identifying potential subtypes of depression, Richard hopes to validate his results by linking them to neuroimaging, genetic and blood test data from a randomised trial of a new antidepressant.

For Richard [2021], mental health research is personal, as he suffered and recovered from depression himself only a few years ago.

He describes himself as “a cross-cultural child of academics”, a British dad and Singaporean mum who lived in England and the US before settling in Australia.

Singapore was always a second home to Richard. With three passports, Richard travelled widely from a young age and says he has never felt he fully belongs anywhere, but instead has always been curious to explore the privileges of his cosmopolitan background. At school, he played violin and was first violin in the internationally-recognised school orchestra. At 16, Richard was even considering becoming a professional musician, but then had the opportunity to take part in the physics Olympiad. He took it. He made it onto the Australian team.

The year before, he had spent half a year at an international boarding school in China with a friend. That allowed him to explore the Asian part of his background. The school was two years ahead in maths which gave him extra time to hone his physics ability on his return, leading to the Olympiad participation.

When he finished school, Richard had no idea what he wanted to do. He took a year off to travel and won a scholarship to do a joint Physics degree across two universities, the Australian National University and the National University of Singapore.

He spent 18 months at each. Because of his work at the Olympiad he got free credits so he was able to take some philosophy classes. By his second year he knew he didn't want to be a physicist or a philosopher and became insatiably curious about the world beyond academia.

For Richard, mental health research is personal, as he suffered and recovered from depression himself only a few years ago.

After his third year, Richard took up a job at a tech start-up in China, having interned at the company between his third and fourth year. The company made competitive smartphone games. Richard left after a year and went travelling and “soul searching”, trying to

figure out what he wanted to do with his life. He went to Tibet, crossed the Himalayas into Nepal, and then continued to India. Eventually he returned to China and worked for another mobile games start-up in a job that involved constant travel until he felt so tired of living out of hotels and so burnt out that he quit. This coincided with the loss of his grandfather.

“We haven't made any major advances in treating depression in the last half a century and I believe we need to start from the fundamental questions: What is depression? What is happiness? To what extent are these experiences ‘just biology’ or to what extent are they about who we are as individual people and our personal life stories?”

Richard decided to change his life and volunteered for an NGO consultancy based in Nairobi that designed healthcare systems before moving to South Africa to work on a health project with a local university. Richard questioned, however, if the work he was doing benefited anyone except himself. It was then that he went on a 10-day Vipassana silent meditation course.

He moved to the US to take up a job at Silicon Valley where he worked for Airbnb as a data scientist. Two years in, however, Richard started suffering from depression and started taking medication. On another 10-day meditation course the idea came to him of becoming a neuroscientist to try and contribute to depression research.

His PhD focuses on understanding what depression is and developing novel treatments. Richard says: “We haven't made any major advances in treating depression in the last half a century and I believe we need to start from the fundamental questions: What is depression? What is happiness? To what extent are these experiences ‘just biology’ or to what extent are they about who we are as individual people and our personal life stories?”



Financial Summary 2020/21

Jade Tran, Director of Finance

The Trust was founded with an endowment of US\$210m from the Bill and Melinda Gates Foundation in 2000. Since that time the Trust has awarded 2,003 scholarships to scholars from 111 countries. As at 31 July 2021, the net value of the Trust stands at ~£333m.

Due to the pandemic, a higher number of scholar-elect delayed their starting date, which resulted in a decrease in expenditure. However, the Trust provided additional support to current Scholars whose degrees were disrupted by the lock-down.

Maintenance and fees remain the Trust's biggest expenses and an increase of £0.3m in student liability was accrued for scholar maintenance.

Support and Governance costs decreased in absolute terms during the year to approx. 5.4% of total reported expenditure. There were also changes in operations of the Trust due to COVID-19 impact e.g. all staff worked from home for the entire financial year 2020-21.

The Trust funds a variety of activities to support the Scholar community in Cambridge, including the provision of a Scholars' Room, and funding for the many activities organised by the Scholars' Council. Due to COVID-19 all activities moved on-line. The Trust greatly values the work of the Gates Cambridge Alumni Association in facilitating an effective network of Scholars past and present, and supports their activities financially.

The Trust is entirely reliant on the income from and long-term growth of its investments, and continues to use the Cambridge University Endowment Fund (CUEF) as its primary investment vehicle. The CUEF declares a monthly dividend at the start of each year and these distributions result in predictable cash flows for the Trust. In the year to 31 July 2021, investment income totalled £10.7m, and the market value of the Trust's investments increased by £55.5m (19.9%), with the CUEF performing reasonably against benchmarks.

In order to maintain expenditure within agreed limits, also whilst preserving the real value of the Trust's assets, the Trustees have decided to admit 79 scholars in 2022/23.

SUMMARY OF FINANCIAL STATEMENTS Year ended 31 July 2021

Summary Statement of Financial Activity

	2021 £'000	2020 £'000
Income		
Income from Investments	10,727	10,454
Expenditure		
Charitable activities	9,594	10,219
Total expenditure	9,594	10,219
Net (expenditure)/income before gains and losses on investments	1,133	235
Net gains/(loss) on investments	55,508	(13,338)
Net income and net movement in funds	56,641	(13,103)
Reconciliation of funds		
Total funds brought forward	276,111	289,214
Total funds carried forward	332,752	276,111

Summary Balance Sheet

	2021 £'000	2020 £'000
Fixed assets (Including fixed asset investments)	332,935	277,664
Current assets	11,132	9,511
Liabilities (creditors falling due within one year)	(6,361)	(6,116)
Net current assets	4,771	3,395
Total assets less current liabilities	337,706	281,059
Creditors falling due after more than one year	(4,954)	(4,948)
Net assets	332,752	276,111
The funds of the Trust (unrestricted income funds)	332,752	276,111



T 44 (0) 1223 338467
E info@gatescambridge.org

Ground Floor, The Warehouse,
33 Bridge Street, Cambridge CB2 1UW
United Kingdom
www.gatescambridge.org

