Inspiring Change
Hillary Gyebi-Ababio on her role at the National Union of Students

COVID-19
A focus on Bristol’s research

Inside BBC Studios Natural History Unit
With Creative Director Mike Gunton
Left: Palm Temple, a spectacular installation by internationally renowned artist and Bristol resident Luke Jerram (DLitt 2020), now on permanent display outside the main entrance of the University’s School of Chemistry. It was originally commissioned by Sky Arts in Italy as a celebration of the 600th anniversary of Brunelleschi’s dome of Florence Cathedral (Duomo di Firenze). Based on a spiralling lamella dome structure, this dome is cut in half and the two halves placed parallel, like the palms of two hands coming together in prayer. While Florence Cathedral is a temple for contemplating God, this new artwork is designed for contemplating nature. Suspended in the apex of the dome is an ‘Extinction Bell’, which tolls once, 150 to 200 times a day, at random intervals, indicating the number of species lost worldwide every 24 hours. The bell raises awareness of the issue of biodiversity loss and makes audible those events which are invisible to us, and which are occurring simultaneously across the world in multiple habitats.

This theme reflects the work of a number of researchers at the University of Bristol, particularly in the fields of environmental science and ecology. The University of Bristol was also the first UK university to declare a climate emergency, in April 2019, reaffirming our strong and positive commitment to take action on climate change.

Palm Temple has been generously donated to the University by Luke and is open to the public.
As we look back on the maelstrom of 2020 and the continued impact of COVID-19, I hope you will take some solace in the way in which your University has been weathering this storm and continuing to be excellent in all its endeavours, many of which you can read about in this edition of Nonesuch.

While face-to-face interaction among our alumni community has been severely limited, the number of ways in which we’ve been working together has actually expanded. We have more alumni volunteers than ever before, with a 30% increase on last year. Thanks to all of you who have been (at a social distance or via digital means) supporting the student experience and employability, helping potential students, and building our alumni communities and networks through our various volunteering programmes. In such a time of chaos and anxiety it has been more important than ever for students to know that alumni are there for them, whether through mentoring, careers advice, or a friendly contact on our Bristol Connects platform. You as alumni are important advocates for Bristol, playing a key role in expanding our profile and reputation, which has been crucial during these challenging times. Many of you will have supported our Bristol Volunteers team in the Development and Alumni Relations Office (DARO), who have held six Bristol Connects Live career support talks online, and they have been a lifeline for our new graduates as they struggle to get to grips with what the pandemic means for the job market. A total of 21 alumni volunteers from around the world shared their career stories and, on average, 150 global students and recent graduates attended each one.

The Committee has also been involved in our new Digital Events programme, where many of you will have joined us for a series of exciting online talks and meetings. The Events Team in DARO swung into action very early on in the pandemic, switching rapidly to online platforms, to ensure continued delivery of excellent events to you all. The Committee has also been supporting them – and you – whether through hosting, speaking or attending. To date we have run 20 online events with over 2,000 alumni attending, which is incredible. It’s great to see you so engaged with Bristol – at least count we had alumni join us from over 70 countries around the globe. And on that note, please do mark your diaries for our inaugural digital Alumni Festival, which takes place throughout the month of May 2021 and will be an even greater bonanza of intellectual stimulation from the great minds at Bristol. More information will be forthcoming soon – do make sure we have your most up-to-date contact details. It’s easy to let us know of any changes via the Bristol Connects platform.

bristol.ac.uk/alumni/alumni-association
alumni@bristol.ac.uk

Join your fellow alumni and get involved now

Bristol Connects
Update your contact details, connect with fellow alumni, give careers advice online
bristol.ac.uk/bristol-connects

Attend a Digital Event
Get together online with alumni around the world and enjoy top speakers from Bristol’s University community
bristol.ac.uk/alumni/events

Bristol Mentors
Mentors provide students from underrepresented backgrounds with career support to help them achieve their potential

Volunteer
Choose how you’d like to give back – find out how you can support our students and recent graduates, as well as strengthen your alumni community, by signing up to one of our volunteering opportunities.
bristol.ac.uk/alumni/get-involved/volunteering-opportunities

A message from your Alumni Association Chair

Jonathan Phillips (BSc 1994) gives an update on your Alumni Association

Join Bristol Connects, our exclusive, online platform for your Bristol community.

It’s the place to make new connections and find old friends. You can also support students and recent graduates by sharing your expertise in a way that suits you.

Creating an account on Bristol Connects is easy, and you can choose what information, if any, is visible to others on the platform. You can also use Bristol Connects to update your contact details with the University of Bristol team.

Find out more at bristol.ac.uk/bristol-connects

These images of people socializing were taken prior to any restrictions enforced by COVID-19.
University

Black Bristol Scholarship

Last October, the University launched the Black Bristol Scholarship Programme—a brand new £1 million initiative which will enable around 130 Black and mixed-Black heritage students to take up places at the University over the next four years.

The scholarship programme has benefited from generous donations from alumni and friends and seeks to address the lack of representation of Black and mixed-Black heritage students at many leading UK universities. This exciting new programme will support students across a variety of areas including undergraduate, postgraduate and PGCE students. Applications for these scholarships opened last year and we will be welcoming the first cohort of Black Bristol Scholarship students in September 2021.

Speaking about the scholarships, Professor Judith Squires, Provost and Deputy Vice-Chancellor, said: “We are determined to create a diverse and inclusive university community and recognise that positive support is needed to address the historical underrepresentation of Black and mixed-Black heritage students in particular.

I am confident that together with our other initiatives to support our Black students and to decolonise the curriculum, this will help to make our University a truly inclusive environment for everyone.”

Research

Student and artist-led collaboration

100 years of Postgraduate Research

This year, the University is celebrating 100 years of postgraduate research. Lily Batten was awarded Bristol’s first PhD in 1921 for her thesis ‘The British Species of the Genus Polysiphonia’ from the School of Biology. Today, the University has over 3,500 postgraduate researchers, conducting work in every discipline.

As part of the centenary celebrations this year, four postgraduate research students are working with the Bigstow Institute, Bristol Doctoral College and Associate Pro Vice-Chancellor (Postgraduate Research) to conduct research into the first PhDs undertaken at Bristol between 1921 and 1919.

The students will work with an artist to produce a digital artwork, celebrating the last century of postgraduate research and imagining the next 100 years. The output will be screened at a public event in spring 2021.

To join us for the screening or to find out more about the project, please contact doctoral-college@bristol.ac.uk.

Research

World-leading scarring research project launched

In November, scientists at the University began working on a new £1.5 million project launched by medical research charity The Scar Free Foundation. The five-year study is aiming to identify the gene or genes that cause scarring, which could inform future treatments and enable a future in which scar free healing is possible.

This study will be the first of its kind in the world and will combine large-scale population health data with model organism studies. These will explore the roles that genes play both in wound repair and scar formation. A team of researchers from the University will identify genetic differences and investigate the genetic make-up of scarring by drawing on DNA data from large groups of people. Included in the research will be people with BCG vaccination scarring, children with cleft lip surgery, women with Caesarean section scarring, patients with internal lung scarring, people with BCG vaccination scarring, children with cleft lip surgery, women with Caesarean section scarring and patients with internal lung scarring.

The scientists will then compare this data with studies which focus on zebrafish, translucent fish which can regenerate and repair wounds quickly.

The University’s Professor Paul Martin said: “We began working on a new £1.5 million project launched by medical research charity The Scar Free Foundation. The five-year study is aiming to identify the gene or genes that cause scarring, which could inform future treatments and enable a future in which scar free healing is possible.

The Scar Free Foundation’s investment with the University of Bristol gives us a unique opportunity to undertake world class research into the genetics of scarring. The programme will enable us to marry up the fantastic population health cohort approaches that Bristol does so well, with our own wet lab experimental and cell biology studies in order to break new ground in scarring research.”

University

New Economics, Finance and Management Schools form

Last summer, the University launched three new schools to replace the School of Economics, Finance and Management (EFM). New Economics, Finance and Management Schools form

The newly created School of Accounting and Finance, School of Economics and School of Management will champion disciplinary excellence in their own research areas, while continuing to work closely together to deliver a broad range of multidisciplinary programmes.

We will continue to celebrate the legacy of the School of EFM with our alumni and you will also have opportunities to take part in alumni activities for the new schools.

Alumni

Beautiful manuscript leaf acquired with help from legacy gift

The University Library’s Special Collections has acquired a beautiful manuscript leaf from a thirteenth-century Latin Bible, with the help of a generous bequest by the late Anthony John Edwards (BA 1952).

Alumnus Mr Edwards was a History graduate who went on to become the first librarian of Canterbury Christ Church University. Likely to have originated from Gloucester Abbey, the handwritten page in question contains the beginning of the Old Testament Books of Chronicles, which tell the story of Israel and Judah from the Creation. The first word of the book, ‘Adam’, is marked by an intricately illustrated A, which features creatures and foliage. The fine penwork in the text is indicative of the monks’ devotion to their work and the Scripture.

Speaking about the manuscript leaf, Professor Ad Putter, Co-Director of the Centre for Medieval Studies, said: “This is a wonderful treasure. I have often visited nearby Gloucester Abbey with students, and it is amazing to think that this was written there some 850 years ago, vanished and has now come home to the South West of England where it was originally created.

This beautiful and historic artefact will help us to teach our students how to decipher medieval handwriting.”

Above: Dr Beck Richardson with astlabfish

University

Research

Scarring research

Above: Undergraduate students in Queen Square, Bristol

Below: Undergraduate students in Queen Square, Bristol

Dispatches

Latest from Bristol

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University

Wellspring Settlement
University of Bristol students have produced a research report to demonstrate the impact of emergency work undertaken by the Wellspring Settlement during the COVID-19 lockdown. The report supported a successful bid by the Wellspring Settlement to secure funding to boost aspirations for people living in Lawrence Hill, one of the most deprived wards in the UK.

Wellspring Settlement is an independent charity and community anchor organisation, formed in February 2020 through the merging of two community organisations, Wellspring Healthy Living Centre and Barton Hill Settlement. As part of Bristol’s new Temple Quarter Enterprise Campus, the University has a new micro-campus on the Wellspring Settlement to support work with the community, including teaching, research, widening participation and extracurricular learning opportunities for residents in the area.

Housed in one of three adjoining shipping containers, the University is excited to be one of the new tenants at the Wellspring Settlement, using it as a base to work collaboratively with a range of partners and communities in East Bristol.

University

Be More Empowered Portraits
In 2020, the University of Bristol unveiled a series of seven photographic portraits to celebrate some of its Black, Asian and minority ethnic staff, students and alumni who have brought about significant change in Bristol and across the world. The portraits are presented by current and recent staff, students and alumni (pictured) who are themselves leaders in their fields. You can see the full suite of portraits on page 14.

Alumni

Digital Events Programme
From meteorite gazing with Dr Tim Gregory (PhD 2020) (pictured) to an exploration of the science of sleep with the Director of Bristol Neuroscience Professor Matt Jones, career insights from successful alumni and Professor Bruce Hood’s advice on dealing with adversity, our digital events programme has been packed with topical discussions and amazing contributions from our alumni community.

Since we moved our events programme online back in May last year, we’ve delivered over 20 digital events to more than 2,000 people and have been joined by alumni in over 70 countries, including the Dominican Republic, Greece, Iraq, Kenya and New Zealand, as well as those closer to home in the UK.

More than 650 people have joined our Bristol Connects Live series, where over 20 alumni volunteers have shared their career insights to inspire students and recent graduates who are looking to establish or progress their careers.

Reaching our global community has been a spectacular result of our online programme and it is fantastic to be able to bring alumni from all over the world together in one digital space. We look forward to seeing you again at our digital events programme for 2021.

In pictures
I'm a local boy who grew up on a farm in the Forest of Dean, where I still live now with my wife and baby. It's a small family farm and we have a few horses, a couple of yappy Jack Russells and a herd of suckler cows. Farmers' kids always seem very reluctant to move away from their farms and I'm no exception. So I've always felt phenomenally lucky to have a university like Bristol as my local university. A working day for me is always busy – invigoratingly busy – and it begins with a very early start in order to get to Bristol in good time. Pre-pandemic the University would be buzzing with a mass of people marching off to lectures and seminars at ten to the hour. Every time you make that movement your heart rate goes up and you start to get a bundle of nervous energy. Then you get one of the greatest privileges of all: to be able to have a fascinating conversation with a group of very intelligent people, hear their ideas and debate with them. I first arrived at the University of Bristol in 2008 to undertake an MA in Medieval and Early Modern History under the supervision of Professor Ronald Hutton. I fondly remember attending the department's weekly research seminars as an MA student, where you'd hear about an interesting new paper or research project. They were some of my favourite moments – staying after formal teaching had ended and enjoying a glass of wine as it was starting to get dark outside.

After I completed the MA I knew that I wanted to pursue doctoral research but I wasn't in a position to self-fund three or four years of study. I applied for the Keil Scholarship, a fund which was set up by the late Dr Ian Keil (BA 1955, PhD 1965), himself a historian who studied at the University of Bristol. Ian sadly died in 2012, and since then his wife Mrs Teresa Keil has continued the Keil Scholarship in his memory, which is one of the greatest privileges of all: to be able to have a fascinating conversation with a group of very intelligent people, hear their ideas and debate with them.

Ian received a scholarship, which enabled him to take on full-time research at Bristol. It was very moving to discover that and to know that when he was in a position to do so, Ian Keil went full circle and gave that opportunity to someone else. Since I joined for my MA, the University – and certainly the Department of History – has changed a great deal. In our department, student and staff numbers have doubled but we've managed to maintain a close sense of community. Last year, of course, because of the pandemic we had to adapt to teaching online and it would be truthful to say that it was a challenging process. Over the summer we had to completely overhaul the curriculum, which required a huge amount of hard work. But we've been able to continue to deliver teaching in the most extreme circumstances, which I'm really proud of.

That being said, I'm really looking forward to getting back to in-person teaching in the future; the excitement that comes with getting people in a room together talking face to face is something that you can't replace. Lecturing is a performance piece, it requires energy, it requires you to use your body and your voice in a way that keeps people engaged and that is best conveyed in a certain type of place. If you take the Tyndall Lecture Theatre in the Physics Building for example, it has a huge blackboard at the back and it always smells of chalk dust. It has these amazing acoustics and a stage that you can march around as you're delivering your material. I feel like you could be giving your lecture in 2021 or back in 1928 when it was built and it's perfect for the theatre of a lecture.

I'm fortunate to work in one of the best departments of History in the country, if not the world. It's friendly, collegial and respectful and that has a massive bearing on the way that we teach our students. What keeps me enthused and energised on a day-to-day basis is my colleagues and the way that we work with and support one another. That's something that's always made me love the University and it's one of the reasons why I hope to stay here for many more years to come.
Hillary Gyebi-Ababio (BSc 2019) was elected Vice-President (Higher Education) for the National Union of Students last summer. She is the former Undergraduate Education Officer for the University of Bristol’s Students’ Union and a passionate advocate for education. Here, Hillary reflects on how students have been impacted by the COVID-19 pandemic and the resurgence of the Black Lives Matter movement, and how the national student body is responding to these major global issues.

I come from a family of teachers. My Grandad and my Mum were both teachers in Ghana. For my Grandad, education is a fundamental human right and one of the most important things we can do for ourselves and others. When my parents first moved to this country, my Grandad was insistent on us getting a good education. I don’t come from a privileged background, but my parents put a lot of work into making sure my education allowed me to be free, seek opportunities and inspire me to go for what I was really passionate about. When I think about my career, I think about my family and those foundational principles. My family always taught me to work hard and strive for what I believe in, so when I was elected as Vice-President (Higher Education) for the National Union of Students (NUS) in June 2020 they were very proud. The NUS supports over seven million students from across the UK. It has been both exciting and challenging starting this job in the midst of the COVID-19 pandemic and the resurgence of the Black Lives Matter movement.

It is difficult starting a new job from home, particularly such a personal one as this one where I give a lot of talks to students and government figures. Ultimately, though, I have felt a strong sense of grief for young people who have been so impacted by the pandemic and the resurgence of the Black Lives Matter movement. My job connects me with a lot of students who are feeling uncertain about their futures. Work experience opportunities have been postponed or cancelled and their longer-term job prospects have been jeopardised. Black students have felt the deeply traumatic reopening of the wounds of racism. Responding to the Black Lives Matter resurgence as a Black woman, I have been speaking on behalf of students and on behalf of myself and that can be challenging. When speaking to national and government figures, my own experience does add a personal element to my speeches and that humanity is really important when we are trying to figure out things that sometimes feel bigger than us or beyond our comprehension.

The student movement has responded very quickly to some of the major issues happening in the world today. There is a lot of social change happening and students are galvanised. In its uncertainty and obscurity, COVID-19 obliges us to look and dig deeper, to seek the information that is out there but easy to ignore. The student movement, and education more broadly, is talking about decolonisation, racism, dismantling barriers and structures that have stopped people from being able to thrive. This is meaningful and important work. Higher education can be hugely transformative to the way society operates.

Higher education does, however, still have a long way to go in terms of making everybody feel empowered. Coming to Bristol, I started to become more aware of my race and my identity. I was a Black woman in a space where there weren’t many other Black women. There weren’t many people who looked like me, or who were teaching me. Having to grapple with that is a very confronting experience but it’s something that many students experience at university. You are made to look at yourself in a way you haven’t had to before. This hyper-awareness that came about during my time at university pushed me to educate myself more on the implications of race in everyday life and to better understand structural and interpersonal racism. It gave me the push to educate younger students about the implications of race and the more I understood about myself, the more I enabled myself to dismantle those structures.

Gaining insight and advice from Bristol alumni was a turning point for me that galvanised me to proactively seek change and develop my career. Charity Joseph (BSc 2018) and Winner of the Vice-Chancellor’s Alumni Award in 2019), for example, was in the year above me doing the same degree in Social Policy. I saw another Black woman pushing the boundaries so fearlessly. Izzy Obeng (BSc 2014), Managing Director of Foundervine, who like me sits on the Alumni Association Committee, was very inspirational. Seeing another Ghanaian woman being so innovative in her field was empowering.

Alumni are informed, experienced and validated by the institutions they come from. They have a deep awareness of what has come before them and they have the hindsight to reflect on their own experience and share their insight. Alumni can be a beacon of light for students. They advise, mentor and welcome a new generation of students.

Students are going through an incredibly difficult time right now, but as alumni we have the agency to create change for them through our support and guidance.

‘Students are passionate about and deeply aware of what is going on in their society. Students bring about change in really powerful ways and it is truly inspiring to be a part of that.’
Owning our digital destinies

The digital revolution has transformed every facet of our lives in ways that few of us could have imagined – from our choice of partner through to our future career prospects. Even the engineers who developed the underpinning technologies cannot have foreseen the full extent of it. Indeed, once a technology is released into the world, it tends to evolve in complex and contingent ways – in response to market forces, government regulation and the communities and endusers themselves. There are beneficial outcomes, of course, but also challenges, and not everyone benefits equally.

This has been brought into sharp focus by the COVID-19 pandemic. We have managed to keep our society and economy going as best as possible by relying on digital technologies. We’ve tried to understand the spread of the virus through prediction and epidemiological computer modelling; we’ve worked remotely where possible; bought essentials online; and even taken part in virtual gym classes. But many have also struggled.

“We used to refer to the digital divide, but some in the field have started talking about a digital chasm opening up now,” says Professor Susan Halford, whose work focuses on the sociotechnical aspects of digital innovation. “We hear of people trying to do home schooling with a mobile phone and no keyboard, really basic fundamental things. And it’s not just to do with access to devices or networks, though that’s clearly important. It’s about digital skills, education and opportunities. Who is able to work from home and who is going out to work at risk of exposure to the virus? So, in many ways, it’s an opportune time to start talking about some of these issues with respect to digital futures.”

Proactively shaping futures

The next wave of the digital revolution, which will include the extension of technologies including artificial intelligence, augmented reality, virtual worlds and superfast connectivity, presents perhaps even greater challenges and opportunities. But rather than sitting back and letting the invisible hand of market forces, government regulation and the communities and endusers shape the future, say Professors Susan Halford and Dimitra Simeonidou. “What we would like to do within BDFI is to include social, ethical, environmental and privacy considerations as an integral part of the digital technical design so we can innovate responsibly.”

Collaborative engagement

The Bristol Digital Futures Institute (BDFI) has been made possible through £116 million in funding from a variety of sources, including Research England, philanthropic contributions and the BDFI’s partner organisations. The diverse group of 27 partners includes BT, Dyson, BBC, Airbus, Black South West Network, Ashley Community Housing and the West of England Combined Authority.

The full-scale BDFI facility will be based at the University’s planned Temple Quarter Enterprise Campus, which is set to deliver more than £600m of employment and financial benefit to the Bristol region’s economy over the next ten years. The innovative spaces there will include a neutral lab co-creation environment for University and BDFI partners; a Reality Emulator (an advanced digital twin facility) to test new technologies in alternative futures; and a highly interactive instrumented auditorium for groups of people to make collective decisions.

“Our approach is participatory and experience-based,” says Professor Simeonidou. “Our digital design methodology will be informed in the very early stages by how technology is being used in context. This will be key in driving technology creation fit for future society. The way technology is consumed, for example, by academics is going to be very different to how it is being consumed by a youth group in their own environment, and it is important to understand such differences. We’re involving the end user from the very beginning in our innovation process.”

As soon as COVID-19 allows, the BDFI will physically bring people together into the shared co-creation spaces and labs, including academics, students, industry and local communities, to start the conversation and to start identifying among themselves, in addition, the BDFI will reach out – through high-speed fibre connectivity – with its collaborative, distributed community across the city, effectively creating its own ‘internet for social-technical innovation’. Ultimately, the hope is to take the BDFI approach across the UK and eventually globally.

A lot of people are talking about futures at the moment, but for the most part in a rhetorical way; whereas we’re really serious in thinking about how to engage much more directly, constructively and proactively with the futures we’re creating here in the present,” says Professor Halford. “The way that we’re engaging different ecosystems and different forms of knowledge in the context of creating futures, with the kinds of technical facilities that we are building, I think that’s really quite unique. I’m not sure anybody is doing anything quite like that.”

…”if your design is not informed in the very early stages by how it is going to be used in context, it’s very difficult to create technology fit for future society.”
Be More Empowered portraits

A new suite of portraits has been unveiled to commemorate the first anniversary of the University’s Be More Empowered for Success programme, which aims to positively enhance the university experience for Bristol’s Black, Asian and minority ethnic students. The portraits celebrate some of the University’s staff, students and alumni who have led the way in education, the arts, economics, politics, activism and social change, and are on permanent display in the Reception Room of the Wills Memorial Building.

1 Professor Leon Tikly from the School of Education chose to appear with a portrait of Dr Andrew Sheng (BSc 1969, Hon LLD 1999), one of the University’s Pro-Chancellors.

2 Raeesah Ellis-Haque, Widening Participation and Undergraduate Recruitment Officer, appears with a portrait of Professor Nishan Canagarajah, former Pro Vice-Chancellor for Research and Enterprises.

3 Cyril Ip, Student Advocate, is pictured with Liv Little (BSc 2016), founder of gal-dem, a media company committed to sharing the perspectives of women and non-binary people of colour.

4 Antonette Clarke-Akalanne (BA 2018), current master’s student, is pictured with the renowned 20th-century poet Okot p’Bitek, who took a Diploma in Education at Bristol in the 1960s before writing his breakthrough work Song of Lawrence in 1966.

5 Hillary Gyebi-Ababio (BSc 2019), Vice-President (Higher Education) for the NUS and former Undergraduate Education Officer at the University of Bristol, is pictured with a portrait of Hannah Dualeh (BSc 2016), former Sabbatical Officer at Bristol Students’ Union.

6 Robiu Salisu, BAME Student Inclusion Officer, currently leads the Be More Empowered programme and coordinated these portraits. He chose to appear with a portrait of Lord Paul Boateng (LLB 1973, LLD 2007), whose activism, which has led to meaningful change within the British political system, inspired Robiu.

7 Olivette Otele, Professor of the History of Slavery, presents a portrait of Dame Pearlette Louisy (PhD 1994), Governor-General of Saint Lucia from 1997 to 2017.

Photography from left to right top row: Dr Andrew Sheng © Reproduced with the kind permission of Dr Andrew Sheng; Professor Nishan Canagarajah © Nick Smith Photography; Liv Little © Jeff Spicer/Getty Images; Okot p’Bitek © Reproduced with the kind permission of the Okot Bitek Family Archives.

From left to right bottom row: Hannah Dualeh © Jessica Augarde, Bristol SU; Lord Paul Boateng © McAndrew, reproduced under Creative Commons Attribution 3.0 Unported (CC BY 3.0) licence (https://creativecommons.org/licenses/by/3.0/).
When husband-and-wife dynamic duo Professor Imre Berger (Max Planck-Bristol Centre for Minimal Biology) and Christiane Schaffitzel (School of Biochemistry) found themselves in lockdown in March 2020, unable to teach or run their normal workday at the University of Bristol, they did not hang up their lab coats. Instead (while complying with all necessary safety measures) they assembled a cohort of volunteers from their teams and set to work to do what they could to stop COVID-19 in its tracks, as part of the bigger Bristol-University COVID-19 Emergency Research Group (UNCOVER).

With only their COVID-19 lab work to focus on, the progress made was unusually fast. In just a few short months they published a seminal peer-reviewed paper in the journal Science, one of the most renowned scientific periodicals worldwide, detailing their discovery of a potential ‘Achilles’ heel’ in SARS-CoV-2, the virus causing COVID-19, and how this weakness could help in the fight against the pandemic.

While many teams were looking at the possibility of a vaccine, the Berger – Schaffitzel team focused on the structure of the virus itself, and what it could tell us about its rapid and invasive progression through the body. Their discovery could well lead to a prophylactic approach to stopping the spread of this and any similar virus, potentially forestalling future outbreaks.

SARS-CoV-2 is decorated by multiple copies of a glycoprotein, known as the ‘spike protein’, which plays an essential role in viral infectivity. The spike binds to the human cell surface to allow the virus to penetrate the cells and start replicating, causing widespread damage.

The team used electron cryo-microscopy (cryo-EM) to analyse the SARS-CoV-2 spike at near-atomic resolution and generated a 3D structure allowing them to peer deep into the spike, for the first time, they discovered a druggable pocket that could be used to stop the virus infecting human cells. Intriguingly, their analysis also revealed a molecule that fits tightly into the pocket, (linoleic acid, LA).

Moreover, they could show a dramatic effect – the spike protein could no longer bind as tightly to human cells when LA occupied the pocket, indicating that LA-bound virus may be less infectious. Working with Andrew Davidson, a coronavirus specialist, they confirmed that the LA functions as an anti-viral, stopping the SARS-CoV-2 virus from multiplying. Thus, the researchers had not only discovered a druggable pocket in the spike, but also a drug – LA.

There had been a wealth of studies elsewhere which highlighted crucial roles in cellular metabolism. LA is essential, it cannot be synthesised in our body, and we take it up with diet. A huge thank you to all of you now reading about the impact you’ve had.

It is known from other diseases that tinkering with LA metabolites to control, for example, immune reactions and inflammation. LA is also needed to maintain cell membranes in our lungs so that we can breathe properly.

It is known from other diseases that tinkering with LA metabolic pathways can trigger systemic inflammation, acute respiratory distress and pneumonia. These pathologies are all observed in patients suffering from severe COVID-19. It appears that the virus, by grabbing and holding onto LA, scavenge exactly the molecule, LA, we depend on to regain control, effectively disarming our body’s defences. Indeed, in patients suffering from COVID-19, the serum LA levels are markedly reduced. If a patient with severe COVID-19 ends up on a ventilator, their intake of LA will be even lower, further aggravating their predicament. The team’s discovery provides the first direct link between LA, COVID-19 pathological manifestations, and the virus itself. Taken together, this makes it so important to develop possible treatment strategies based on LA.

The next step is looking at how to turn this new knowledge against the virus, and previous studies show reason to be optimistic. In rhinovirus, which causes the common cold, a similar pocket was exploited to develop potent small molecules that bound tightly to the pocket distorting the structure of the minivirus, stopping its infecting. These small molecules were successfully used as anti-viral drugs in human trials and show promise for treating rhinovirus clinically.

A key precursor from which our bodies make many important metabolites to control, for example, immune reactions and inflammation. LA is also needed to maintain cell membranes in our lungs so that we can breathe properly. It is known from other diseases that tinkering with LA metabolic pathways can trigger systemic inflammation, acute respiratory distress and pneumonia. These pathologies are all observed in patients suffering from severe COVID-19. It appears that the virus, by grabbing and holding onto LA, scavenge exactly the molecule, LA, we depend on to regain control, effectively disarming our body’s defences. Indeed, in patients suffering from COVID-19, the serum LA levels are markedly reduced. If a patient with severe COVID-19 ends up on a ventilator, their intake of LA will be even lower, further aggravating their predicament. The team’s discovery provides the first direct link between LA, COVID-19 pathological manifestations, and the virus itself. Taken together, this makes it so important to develop possible treatment strategies based on LA.

The next step is looking at how to turn this new knowledge against the virus, and previous studies show reason to be optimistic. In rhinovirus, which causes the common cold, a similar pocket was exploited to develop potent small molecules that bound tightly to the pocket distorting the structure of the minivirus, stopping its infecting. These small molecules were successfully used as anti-viral drugs in human trials and show promise for treating rhinovirus clinically.

The Bristol team, based on their data, believes that a similar strategy can now be pursued to develop anti-viral drugs against SARS-CoV-2. In fact, because LA itself is already bound so tightly by the virus, the team believes LA could already be a powerful and immediately available first anti-viral drug before even better anti-virals arrive.

While news of vaccines is important and encouraging, their efficacy and longevity is still unknown. 2020 has shown us how fast a vaccine can arrive which opens crucial roles in cellular metabolism. LA is essential, it cannot be synthesised in our body, and we take it up with diet. LA is a key precursor from which our bodies make many important

‘That time during the first lockdown in 2020 was unique. Terrible, in many ways, but also unique and an opportunity we will likely never have again.’
anti-viral treatment using this discovered pocket could shut down and eliminate the virus before it even enters human cells, stopping it firmly in its tracks. The authors found that this pocket is not only present in SARS-CoV-2, but also in SARS 1 and MERS, which caused the previous coronavirus outbreaks. So, if deadly coronaviruses presented themselves, chances are they would also have this ‘Achilles heel’, and an LA-based anti-viral treatment could therefore work against them just as well. So, what has it been like to deal with this global crisis as a scientist at Bristol? Speaking about the rapid results of their research, Professor Berger said: ‘We were able to work at a faster pace because of lockdown, essentially. We didn’t manage our other projects, focusing minds on our work. Our team members and all the scientists we worked with had this unique sense of purpose and incredible dedication to do what they could to help defeat the crisis. It was a special time. We are very proud of them.’

‘Professor Adam Finn, of the Bristol Medical School, did a fantastic job organising the effort, and the resulting UNCOURC group really brought everyone together, University-wide. It was very exciting to have our Friday morning meetings, listening to clinicians, epidemiologists and scientists from all walks of life, and to watch our horizons broadening rapidly. It’s amazing to see what can be accomplished with such an interdisciplinary taskforce.’

With their return to teaching and a somewhat more ‘normal’ workload, the team will now require dedicated funding to enable them to realise their vision of a potent antiviral treatment targeting the ‘Achilles heel’ in SARS-CoV-2 they found. The ambition of the team is to bring their discovery to the clinic as fast as possible, and Bristol, with its outstanding clinical expertise, is an ideal place to set this in motion.

A pool of talent and strength

Above left: Cryo-EM structure of the SARS-CoV-2 S trimer and complex. Cryo-EM density of the S trimers is shown. Monomers are in cyan, green and purple, respectively. The structures are shown in a cartoon representation in a side view. Bound LA is illustrated as orange spheres. One LA binding pocket is surrounded by the red box. Above right: Composite LA binding pocket formed by adjacent RBDs. Tube-shaped EM density is shown.

About Professor

Professor Christiane Schaffitzel is also a Welcome Trust Investigator and coordinator of the ISC Horizon2020 ADDovekin consortium and Academic Lead of the Welcome Trust/BBBRC-funded GWA Cryo-EM Facility at the University of Bristol.

About Professor Imre Berger

Imre Berger is also Director of BrisSynBio, a BBBSRC/EPSRC Research Centre for Synthetic Biology in Bristol, and a partner in the Wellcome Trust COVID-19 Protein/Portal Consortium OPPO. BrisSynBio is part of the Bristol Bio Design Institute.

As Director of the EPSRC Centre for Doctoral Training in Aerosol Science and the Bristol Aerosol Research Centre, Professor Jonathan Reid’s approach to tackling COVID-19 is, naturally, focused on aerosols. ‘Aerosols’ is a term that is used to refer to a collection of particles that are airborne and have sizes typically smaller than the diameter of a human hair. When we speak, laugh, cough or even sing, we generate hundreds of these particles that someone else could breathe in, transmitting the virus responsible for COVID-19. A key piece of work from Professor Reid has shown that there is significantly less risk of COVID-19 transmission from anaesthesia procedures than was previously thought. This is an important finding at a time when many operations and NHS procedures have been postponed or cancelled, causing problems for patients in the UK. Since the outset of the COVID-19 pandemic, there has been much debate about the danger to hospital staff from anaesthetic procedures. Concerns include that inserting a tube in the patient’s airway (intubation) before surgery or removing it at the end (extubation) may produce a fine mist of small aerosol particles and spread the COVID-19 virus to nearby staff. This risk was judged so high that the procedures are classified ‘aerosol generating procedures’ (AGPs) for which respirators and high-level personal protective equipment (PPE) are worn routinely, and after which surgery stops while the operating room is cleared of aerosols and special cleaning is undertaken. These requirements have dramatically slowed surgery and contributed to increases in NHS waiting lists for surgery, with similar problems in hospitals worldwide. Despite the presumed risk, no direct measurements of aerosols have ever been made during these potential anaesthetic procedures.

In a paper published in Anaesthesia Professor Reid and fellow researchers at Bristol have shown that anaesthetic procedures may only produce a fraction of aerosols previously thought, much less than would be produced during a single cough.

This now brings into question whether the procedures should in fact be designated AGPs. These results should help inform future PPE guidelines by providing evidence on the relative risk of aerosol generation associated with tracheal intubation and extubation. For safety reasons, this study was not performed on patients with COVID-19, but on other patients to demonstrate the aerosols produced during these procedures which are common during anaesthesia and in intensive care. While the evidence around aerosol generation during these procedures is reassuring, the risk of SARS-CoV-2 transmission has not been directly studied. The team’s interpretation rests on the widely accepted link between aerosol generation and infection risk. The paper detailing these research results has gone to the UK government, with the expectation that the information will support further studies and a change in guidance around AGPs. In the meantime, the team has moved on to doing similar work but looking at dental surgeries and orthopaedic operations.

In another study led by Professor Reid – himself a keen singer and choir member – collaborative research has shown that singing does not produce substantially more respiratory particles than when speaking at a similar volume. These findings are crucial in providing COVID-19 guidance for live musical performances and the safe distancing of performers and audiences. The performing arts have been badly affected during the coronavirus pandemic with live musical performances cancelled for many months because singing was identified as a potential high-risk activity.

This study was influential in changing government guidance on performance and opened up some elements of performing. The study has now been extended for a further 12 months. In Professor Reid’s most recent work a team of researchers is suspending the virus in an aerosol to see how long it remains infectious, for working within a containment level-three laboratory designed to handle bacteria and viruses that cause severe human disease. They are also measuring how much aerosol a patient emits while infected with COVID-19 and whether this varies depending on the stage of the disease progression. This has implications for the current pandemic guidelines and especially around social distancing. It has been believed that COVID-19 is passed on through droplets released from the nose and mouth during activities such as breathing or coughing, where the droplets rapidly fall to the ground. However, there is a growing school of thought that in fact the virus may remain in aerosol droplets and collect in places that may be poorly ventilated. Professor Reid’s work in this field is expected to further inform government policy.

‘Very few other universities are as collaborative as Bristol. I’m proud to have been part of a wider team working on almost every aspect of the pandemic’

Reference


Reference

A pool of talent and strength

Dr Laura Rivino

Immune correlates of hyperinflammation and protective immunity in COVID-19

For many people, the reports that COVID-19 was disproportionately affecting those in Black, Asian, and minority ethnic communities was new to them. For Dr Saffron Karlsen, however, it was all too familiar. As an Associate Professor in Sociology, and a specialist in inequalities in health research, Dr Karlsen has spent over 20 years looking at how structural and societal inequalities harm health and healthcare for those in ethnic minority communities.

Together with her colleague Dr Rosie Nelson, and in collaboration with third sector partner Black South West Network (BSWN), Dr Karlsen spent five months during the spring and summer of 2020 researching what was happening in Bristol’s Black, Asian and minority ethnic communities. This has shone a spotlight on the different ways COVID-19 is affecting different communities within Bristol. The rapid release of funds from alumni and friends allowed them to proceed at speed and gather information in real time, while the pandemic was happening. This vital work will inform future research and should feed into implementing systemic changes.

As one of the University of Bristol’s representatives on Bristol Council’s Race Equality COVID-19 Steering Group, involving 90 local stakeholders working together to respond to these issues, and someone also involved in setting up the Bristol Race Equality Network involving partners from across the region, Dr Karlsen can give this evidence the attention it needs. BSWN completed a study looking at the effect of COVID-19 on Black-run businesses early in the spring, as lockdown commenced. This showed the precarious position of many Black-run businesses in Bristol – unable either to continue working or to access support such as furlough, people were forced to fend for themselves, often without the resources to do so. Other research by University of Bristol colleagues Dr Louise Mbamalu and Dr Tim Jones also shows that more people with Black, Asian and minority ethnic backgrounds are key workers on the front line which puts them at greater risk of being infected. They also face more structural and societal barriers, leading to being infected at home, and make them much less resilient when they do.

This research shows how much the COVID-19 pandemic has affected those in Black, Asian and minority ethnic communities. The voice of the public is powerful in shaping policy. For Dr Saffron Karlsen, there is much as they could do, they were following rules. And then you've got the protest, which was keeping their distance, they were wearing masks, as much as they could. They didn't help me. But while research shows that these inequalities are driven by societal, not individual, factors, people in Dr Karlsen and Dr Rivino's study felt the media were presenting them as something else – encouraging ideas that Black, Asian and minority ethnic people were to blame for the pandemic and the resulting lockdowns, public health restrictions or conditions, or the way that they chose to live their lives. While this led to further fear among those trying to manage this risk, it also caused frustration. Similarly, people talked about the way the media tried to use the murder of George Floyd and the escalation of the Black Lives Matter Movement in response, to encourage a belief among the public that they were the cause of the problem. One of the interviewees said, “There’s been a bit of the rubbish Black Lives Matter. The news focused on this is really going to help the surge of coronavirus, the numbers are going to go up and up and up and actually everyone on that protest was keeping their distance, they were wearing masks, as much as they could do, they were following rules. And then you've got those pictures of Black South West Network – hundreds of people hoarding on the beach and nothing was mentioned.”

Not only did this enable the government to further scapegoat Black people and others involved in the protests as dangerous and criminal, but also directly limited the scale, and therefore the impact, of the protests and people’s ability to respond to this perceived threat.

The interviewees for Dr Karlsen's research self-selected and were predominantly young to middle-aged Black Caribbean women in quite secure economic positions. While this sample probably does not reflect all the vulnerabilities that might have been caused by the pandemic or the lockdown, it does give a novel perspective compared with much of the research done in the area. This voices of Black people in these socio-economic circumstances has been missing from the conversation.

While there were some positive effects for those with economic security, the spectrum of racism from local support networks to national media and government engagement – had a significant impact on these lives lived in lockdown.

Dr Karlsen and Dr Rivino are now working with local partners to ensure this evidence is fed into policy while they develop a paper for publication.

About Dr Saffron Karlsen

Dr Saffron Karlsen is an Associate Professor in Sociology, Dr Karlsen's work aims to enable a better understanding of the different ways in which ethnicity has meaning and relevance in people's lives, both for developing awareness of pervasive discrimination and as a driver of health and other inequalities.

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References

We talk with Bristol alumnus Mike Gunton (BSc 1979) about his incredible career and learn more about his role as the Creative Director of BBC Studios Natural History Unit.

In 2016, millions of people up and down the UK gathered in their living rooms, biting their nails and peeping through their fingers as a newly hatched iguana fled from a swarm of snakes – narrowly escaping with its life. The iconic scene from Planet Earth II went viral worldwide and continued on to win the ‘Must-See Moment’ BAFTA award a year later. It’s a sequence that Mike Gunton, Creative Director of BBC Studios Natural History Unit, has watched hundreds of times, both in the editing room and during the talks he’s given on the Natural History Unit in recent years.

‘I still love it every time I see it,’ says Mike, ‘especially the reaction it gets. It’s an extraordinary combination of brilliant camerawork and brilliant editing. That’s a once-in-a-generation kind of sequence to be honest.’

With a career spanning over 30 years and hundreds of credits including Planet Earth II (2016), Dynasties (2018) and Primates (2020), Mike has seen more than his fair share of incredible animal behaviour. But one of his favourite moments is also one of the first he witnessed.

‘We were in Madagascar in around 1989, filming ploughshare tortoises – which are one of the world’s rarest tortoises,’ says Mike. ‘During their mating season, the males will fight with each other and flip their opponent onto their back. Once one has flipped the other over, they’ll run to the female as quickly as they can and mate with her while the other is trying to get off its back.

‘To film them, we put our cameraman on a skateboard and wheeled him alongside these male tortoises, who were so crazed with lust that they didn’t even notice us! It was hilariously funny and we managed to get some nice shots of this male on his back, looking over his shoulder helplessly while the other one was mating with the female.

‘That technique of tracking the camera alongside the animals was quite unusual for wildlife filmmaking at the time, and it helped people to feel that they were right there with the animals rather than observing them. That’s what I’ve tried to do through all of my time: to get people to feel like they’re in the animal’s world.’

After initially wanting to be a social documentary filmmaker, Mike’s path was altered during his time as a Zoology student at the University of Bristol.

‘Before I started university, I’d taken a year out which was almost unheard of in
those days. Arriving in Bristol was a bit of a shock and I did find that first term quite difficult. But there’s no question that university was the absolute making of me.

“Very lucky to make friends with an amazing fellow student who was an extraordinary natural historian. I’d always loved natural history, but I’d never been fully immersed in it and this friend really got me interested in it. Combined with that, I had a whole raft of brilliant professors. Professor Sagan, who is sadly no longer with us, sticks out in my mind. He was a palaeontologist who was utterly inspiring, charismatic and incredibly knowledgeable. He took a few of us under his wing and I went from struggling in that first term to being an obsessive student, especially when it came to natural history.’

After his undergraduate degree, Mike went on to complete a PhD in Zoology at Cambridge University, before heading back to Bristol to join the BBC Natural History Unit. Since it was formally established in 1957 the institution has welcomed a host of talented individuals through its doors — many of whom also studied at the University of Bristol.

“If you look at the veterans of natural history,” says Mike, “almost everybody is ex-Bristol Zoology or certainly they’ve come through some part of the University.”

As well as being a vibrant university city, for wildlife filmmakers Bristol held the benefits of being close to the countryside, home to the South West’s regional media outlets and far enough away from London for the Natural History Unit to establish its own creative freedom.

“Over time, the BBC Natural History Unit became a kind of epicentre that spawned satellites around it,” says Mike. “Independent production companies started springing up, as well as post-production facilities focused on editing, camerawork, grading and sound. The Natural History Unit was like a stone falling into a puddle that created ripples going out. It drew the super-talented to the city. The number of BAFTA, and Emmy-winning shows that have been won by the sound designers, editors and camera teams who live around here is enormous. They are literally the best in the world.”

Mike found that, even after leaving the University, the connections he had made there proved incredibly useful when it came to creating wildlife films.

“As a young producer I would often phone up one of the professors at the University and say, ‘Is this animal found in that place?’ or ‘I have found the right species?’ They were effectively our Google. People don’t realise that when I started working, all I had was a desk, a notebook and a phone. There was no computer of course — there was no internet! You relied on books and your contacts.”

“On a broad level there’s always been that connection between the Natural History Unit and the University,” says Mike. “So for example, we’re currently filming The Green Planet and we’ve been working specifically with a couple of the University’s academics and with experts at the University’s Botanic Garden, who have been very helpful.”

Described as ‘Planet Earth for plants’, the BBC’s upcoming series is due for release in 2022 – the BBC’s centenary year — and will delve into the hidden life of the green world that surrounds us. Sir David Attenborough fans will be pleased to hear that the veteran presenter will be returning to an onscreen role in the series.

“David has done everything,” says Mike, “but when I want to talk to him about The Green Planet and the approach we wanted to take he used this wonderful phrase. He said: ‘This is ploughing a new furrow.’ I don’t think there was meant to be a horticultural pun in there but nevertheless!”

“We still don’t understand enough about the intricacies of these webs of life. It’s like a jungle tower — you can keep pulling blocks out but eventually someone will pull out one and wanting to beat all those other ones to the light. When you talk about it an individual, suddenly you care about it and you’re fiercely passionate. If you can empathise with an iguana, a little scaly lizard, then it’s a small step to empathise with a seed, or with a tree.”

“While Mike and his colleagues spend much of their time documenting the wonders of the world, they also find themselves regularly bearing witness to the harrowing impact of the climate crisis.

“Do you see amazing endeavours and meet people who are taking action to reverse some of the transgressions that humans have placed upon the earth,” says Mike. “That dedication is a wonderful element of humanity and it gives you hope. But you also see the opposite. You see rapacious destruction and self-centred greed which can make you feel depressed and helpless.”

“At 94, David has seen things change in his lifetime and I’ve seen a lot change in mine. There have certainly been some positives and the awareness around the environment is greater now, but I’ve returned to places which are in much worse situations than they were when I first visited them.”

For those who are passionate about protecting the planet and its biodiversity, Mike has a simple message:

“Consumes less. That’s what it all boils down to. This species consumes so much more than it needs in terms of resources like land, which is where the rest of the natural world needs to. If we’re using that land or space to generate product for our consumption, then animals and plants can’t compete with us as we’re too powerful and therefore they get squeezed out more and more.

“We still don’t understand enough about the intricacies of these webs of life. It’s like a jungle tower — you can keep pulling blocks out but eventually someone will pull out one that makes the whole tower fall down. That’s the reason why I’ve become a bit less optimistic over time; there are still too many of those, Jenga blocks being pulled out and nobody knows quite when the last one is going to go.”

So what role does television have to play in all of this? During his career, Mike has heard arguments on both sides: “Sometimes there’s a criticism that the celebratory natural history programmes that show people the wonders of the world paint a false picture,” he says. “But you can also argue that they inspire people. People want to protect things that they care about and to care about them you need to understand them.

And while advances in technology may go some way in furthering our understanding and empathy for the natural world, for Mike, strong storytelling is still key.

“Fundamentally, you need imaginative, sensitive, and creative storytelling and to work out what an audience will value. What will give them pleasure and insight and make them feel that they’ve spent a valuable hour with your programme? I think that’s more important than any tech. The tech is a way to get people to experience that, but it still comes down to that key question: what do I want people who watch this to take away?”

“You hope that it’s not just an utterly ephemeral experience. So much television is of course and I’m sure ours is to a degree. But you hope that when somebody’s watched it, that some of what sticks in their memory is a care, concern, love for and will to protect the natural world. If it’s the opposite of anthropocentrism, it’s trying to make people a little less anthropocentric. You hope that it’ll remind people that we have these other, extraordinary cohabitees on the planet and that, in the long run, it will be to our benefit to look after them and give them what they need.”

Mike Gunton
Eco-entrepreneur

Alumna Rhea Singhal (BSc 2004), Founder and CEO of Ecoware – India’s first and largest sustainable food packaging company – tells Nonesuch about her move from Pharmacology to environmentally friendly tableware, what she learned from her time at Bristol, and how to confidently follow your passion.

I fell in love with Bristol on my open day at the University. The city had such a nice feel to it, not too large but big enough to be interesting. It was easy to navigate as a student and I always felt at home, which was particularly important, as I was an international student. I made a great bunch of friends at Bristol that I still in touch with today. I had wanted to be a medical doctor since I was very little, but when it came to actually applying where we should remove wavered, and I wasn’t so sure. So instead I chose to study Pharmacology. But I found the degree to be very research based and I personally didn’t like that, I wanted more face-to-face interaction. It was very hard, but I also knew that nothing lasts forever. I was also lucky in that the faculty were always super supportive and honestly felt like family. And I loved all of the societies and extracurriculars that I was part of. My time at Bristol taught me a valuable lesson – that sometimes there are things you just must do, you must power through, even if you don’t always love it. What you study doesn’t define you. Your life experiences do. There is so much more in life that’s still to happen after you graduate.

In fact, my Pharmacology degree meant that after I graduated I was offered a job at Pfizer in London, where I worked for five years. I absolutely loved it; it was transformational for me. I was in a customer-facing role working on brandin and marketing and I learned so much. In 2009 my husband and I moved to India, and Pfizer in India wanted me to have an MBA to work there, my work experience didn’t count. I started studying for the GMAT™ exam for an MBA but I hated it. Instead I chose to become an eco-entrepreneur. The day I was registering my company Ecoware, Glaxo Smith Kline called and offered me a job, so I just had to start trialling and see how it went. Initially I was part of. I started my company. There are 1.3 billion people in India, so there are things you just must do, you must power through, even if you don’t always love it. What you study doesn’t define you. Your life experiences do. There is so much more in life that’s still to happen after you graduate.

I have 120 employees, 30% of whom are women, and I’m passionate about increasing the role of women in Science, Technology, Engineering and Maths (STEM) and manufacturing. My company is also working with rural women living in poverty, helping them to go into business with environmentally friendly packaging. Scaling up my company means that I can offer employment and improve livelihoods, as well as helping the environment. We have a 100% renewable circular economy model, with no waste. The agricultural waste that we use to make our products is typically burnt which causes air pollution. So we’re also able to make a reduction in that. And I’m so proud that at the end of each year we can say how much we sold and how much single-use plastic that replaced. Last year alone we replaced 50 million items of single-use plastic with our ecoware.

Sustainability and profitability can go hand in hand. I’m often asked what makes someone an entrepreneur. I think that everyone else sees a problem, but an entrepreneur sees an opportunity and a solution. The biggest injustice is not to try. The world needs solutions and who knows if you can do what you want unless you try? Failure is only failure if you don’t learn from it. Otherwise it’s the part of the journey. The highlight of my career so far has been the recognition of my work from the President of India. But you know, I was told that this was not for what I did, but for the huge possibility of what I could still do. And so I go on.

Rhea Singhal is Founder and CEO of Ecoware, India’s largest sustainable food packaging company. Ecoware supplies eco-friendly products that are 100% natural, biodegradable and easily affordable. Ecoware disrupted the food packaging industry by introducing a fully compostable alternative to plastic and Styrofoam. The packaging is made from the waste of common agricultural crops that would otherwise be burnt in the open to clear farmland. In 2019 Rhea was awarded the Nari Shakti Puraskar, the highest civilian honour for women, by the President of India.

Education was key to getting this off the ground in India. No one understood why they should change, and this remains a challenge. Bans on plastic are not always enforced. Also, there are no industry standards for this in India, so we run to global standards. India is a very large nation, so it’s a huge task to change the consumer mindset and help it stick. I go out to schools, businesses and offices giving educational talks about why we should remove single-use plastic. I love it now, but I used to be very shy. But I was recognised for my work by The World Economic Forum and so many things changed. I changed – I had to step into this role to make a difference.

‘Everyone else sees a problem, but an entrepreneur sees an opportunity and a solution. The biggest injustice to the world is not to try.’
The University of Bristol Spelaeological Society (UBSS), founded in 1919, is the longest-running student society at Bristol. As the society celebrated their centenary in 2019, husband-and-wife duo, Bristol alumni and UBSS members Linda Wilson (LLB 1982) and Graham Mullan (1972) reflect on the magic of caving and the significance of alumni and student partnerships for sustaining a society.

On 31 December 2018, members of the Spelaeological Society sat round a glowing fire in their field headquarters, known affectionately as ‘The Hut’, in Burrington on the Mendip Hills near Bristol. They were entering their 100th year as a University of Bristol student society, continuing the new year in the same way they have done every year since their initiation: a fire, drinks and a communal dinner.

‘The tradition dates back to 1919 and has not since been broken,’ says Linda Wilson. ‘Although this year it was a bit of an outside gathering in compliance with COVID-19 guidelines.’

Linda is a Vice-President of the society and museum curator of the UBSS collection. She joined the society in 1979, when she met her husband Graham Mullan, a fellow long-term member who is also Treasurer and editor of the society’s peer-reviewed annual journal, Proceedings.

‘Go straight on’ is our society motto,’ Graham explains. ‘It relates to an incident where two students were lost and one of them, at every turning, proclaimed “go straight on!” That was fine, until they both ended up in a ditch! In caving, going “straight on” is as good an option as any other, though!’

UBSS members have always used The Hut on the Mendips as their base for archaeological digging, caving expeditions and explorations. Known as an Area of Outstanding Natural Beauty, the Mendip Hills is a significant caving spot and is the site where the caving tradition was first formed.

‘When the Bristol Spelaeological Research Society found human remains at Aveline’s Hole on the Mendips, they realised it was a site of huge archaeological significance. After the First World War, the group re-formed under the aegis of the University to continue their research, and the University of Bristol Spelaeological Society was born.’

Initially made up of a mixture of people – some already associated with the University and others who weren’t – UBSS has always welcomed a diverse group of people with different relationships to caving and it is this unique formation that generates its distinct character. Part of its success, Graham Mullan (1972) reflect on the magic of caving and the significance of these partnerships.

‘Having the long-term knowledge and history to pass on and make available to new members and new caves is one of the society’s strengths,’ says Graham. ‘Absolutely,’ Linda agrees. ‘Right from the beginning the society has always had alumni, student and staff members and a small number of outside members. The partnership between alumni and students gives it continuity and equips us with the knowledge to fully engage with the historic parts of the society and run our own museum, library and publications. While the longer-standing members bring insight, the newer student members bring fresh perspectives while continuing the traditions. It’s a special dynamic.

‘Delving the depths of the subterranean world is an intricate business. It requires technical skill, scientific knowledge of the region and a brave taste for adventure. For Graham, the friends you make on an expedition are with you for life.

‘It’s easy to become close to the people you cave with very quickly, especially on an expedition. I’ve been doing this for a number of years and the friends I’ve met while caving and through the society are some of my oldest friends. I went on a caving trip to Yugoslavia in 1972 at the end of my first year, and of the ten others on the trip, I still regularly see six of them.’

‘The strength of the friendships formed through this society adds a special dimension,’ Linda reflects. ‘And of course there are the relationships, too – there have been so many caver marriages!’

Linda was 19 when she started caving with Bristol’s Spelaeological Society. ‘The one thing I didn’t have with me was a pair of boots. So Graham offered to lend me some, which lasted precisely two caving trips. Forty years later and we’re happy to say we’ve stayed together slightly longer than the boots did!’

While the Mendips are a particularly significant site for UBSS, the society have also travelled all over the world, to countries such as Indonesia, China, Thailand, Slovenia, Austria, Greece and across the UK. Their first overseas caving expedition was to Ireland in 1948 and there have been trips to County Clare almost every year since.

‘It was a difficult trip to organise last summer, given COVID regulations,’ Graham tells us, ‘but we managed to adhere to the necessary guidelines and were delighted that six undergraduate students and three alumni members were able to go. We have surveyed many kilometres of cave passage in County Clare, and made significant discoveries, including a 2km stream cave in Poulnagree. To be somewhere that very few others, sometimes no one else, has seen is just incredible. It is a very vivid experience.’

Celebrating 100 years of the society is an enormous achievement.

In March 2019, UBSS hosted an annual dinner and drinks reception underground in Winkley Hole Caves in Somerset. In October they published their fourth book, The Caves of Mid-West Ireland, which was edited by Graham. This was followed by a two-day Centenary Symposium, Travels Beneath the Earth, hosted by the University’s Geography Department. For Linda, the important thing about the centenary was celebrating the partnership between alumni and students: ‘It’s so nice to see generations of students involved. Making friends in different age groups was so important for me when I was a student and now, it’s nice to be able to give back.’

University is an abstract concept. When people arrive here, it is the smaller things such as their course, their department, the societies they get involved in that really make a difference to their experience and allow them to form memories. People like ourselves are still so engaged with the University through volunteering and our work with UBSS and I hope that helps inspire the same for other generations.

So what will UBSS cavers look like in another 100 years?

‘The classic Bristol caving student hasn’t changed a huge amount!’ Graham and Linda chime. ‘We regularly get replies to our monthly e-newsletter from older members telling us how familiar everything looks!’ says Linda. ‘Students still enjoy going to The Hut, sitting around the fire, singing caving songs and playing games.’ And, of course, going caving.

Clockwise left to right: Linda Wilson and a team of cavers explore the GB Cave in the Mendip Hills; UBSS enjoy a campfire at their headquarters, The Hut; the cavern at GB cave in the Mendip Hills, which was discovered during World War II; the UBSS headquarters, The Hut, among the trees.
In 2020 the University had to adapt more rapidly than ever before. It was an extraordinary year of change, in which the University reimagined and strengthened its role in society, the alignment of its research and the way in which education is delivered.

You can help us to continue to grow and prepare for future challenges and opportunities by leaving a legacy gift in your Will. These incredible gifts help to support the University for years to come, securing our vital research, scholarships and world-class campuses.

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