DARWIN COLLEGE
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THE Darwinian

Making sense of space

From black holes and exoplanets to missions on Mars, and the down-to-earth realities of our reliance on satellites, Darwinians explain their obsession with the stars.

Also inside:

Emeritus Fellow Professor Andy Fabian shares the story of how childhood curiosity led to out-of-this-world discoveries.

From the weather to communications, manufacturing to defence, alumna Dr Alice Bunn explains why space is 'the ultimate high ground'.

Alumnus Lane Painter is on a mission to Mars. He talks us through his journey to NASA.

News for the Darwin College Community

A Message from the Master
Dr Mike Rands

Dr Mike Rands with a telescope belonging to the Darwin family.

The name Darwin immediately brings to mind the naturalist and geologist Charles Robert Darwin, whose scientific enquiry and intellectual curiosity led to the theory of natural selection and his seminal publication *On the Origin of Species*. Punt guides passing Darwin College regularly, but erroneously, attribute the College's name to its occupation by Charles. As Darwinians know, the College is actually named after the whole Darwin family: a long line of distinguished individuals including Charles' grandfather Erasmus Darwin, the physician and natural philosopher who put forward some of the first ideas foreshadowing the modern theory of evolution.

It was Charles's second son, Professor Sir George Howard Darwin, who together with his wife Maude acquired Newnham Grange and The Old Granary in 1885. They and their children – the artist and author of *Period Piece* Gwen Raverat; the physicist Sir Charles Darwin; Margaret Keynes (who wrote a fascinating social history of life in and around the College, *A House by the River*); and William, the youngest – lived here for almost 80 years in what became, in 1964, the cornerstone of the Darwin College estate. To recognise the connection to the family, it was agreed that the family coat of arms be incorporated into that of the College upon its foundation.

I am delighted to say our ties to the family remain strong to this day. Angela Darwin, an Honorary Fellow of the College, Chair of the Darwin Heirlooms Trust and widow of George Darwin (a son of Sir Charles), is a valued and engaged member of the community. Angela and her family have loaned the College a fine collection of portraits, and she and her husband generously established the Charles and Katharine Darwin Research Fellowship in memory of his father and mother (herself a notable mathematician).

Last year, Angela and her family kindly agreed that the College could create a new category of College membership, the Sir George Darwin Fellow Benefactors, enabling Governing Body to recognise those who have made an exceptionally important gift to the College. I am happy to say that five such individuals have already been elected, and their support has been a significant contribution to our current fundraising campaign *Scholarship for Solutions* (see page 20).

Professor Simon Keynes, also an Honorary Fellow of Darwin College and Emeritus Elrington and Bosworth Professor of Anglo-Saxon at the University of Cambridge, is the grandson of Margaret Keynes. He also regularly joins us in College and has generously donated artwork, books, correspondence and archival material relating to the research for *A House by the River* and other family artefacts to Darwin. This includes a six-volume collection of Gwen Raverat's Woodcuts, one of the most complete inventories of her work.

This year Dr Carola Darwin, a singer and professor at the Royal College of Music, London will be delivering a lecture on Women Musicians in Vienna in what promises to be

The Darwin College crest incorporates the red band with scallop shells of the Darwin family crest, as well as components of that of the Rayne family.

another exciting Darwin College Lecture Series, on the theme of Song (see the inside-back page for full listings). Other family members, including Barlows, Littletons and Cornfords, have been generous in adding to our collection of Darwiniana and sometimes join us in College, sharing wonderful stories from the family who once lived here.

Recently the College library received a magnificent donation of books by and about Charles Darwin and Victorian science more generally from the library of Frederick H. Burkhardt and Anne Schlabach Burkhardt. Frederick Burkhardt was founding director of the major humanities initiative *The Correspondence of Charles Darwin* (1985–2023). The donation was received from Harvard University and the Burkhardt family and facilitated by Honorary Fellow Professor Janet Browne, herself an eminent Darwin scholar and author of the two-volume *Darwin: A Biography*. These books reflect 40 years of scholarship on Charles Darwin's daily life and science. In addition to facilitating the donation of the Burkhardt collection, Professor Browne donated many volumes from her own library, thereby creating one of the most significant collections of Darwin books housed in the UK.

Sir George Howard Darwin was the Plumian Professor of Astronomy and Experimental Philosophy at the University of Cambridge from 1883 to 1912. That post was later filled by one of our eminent Honorary Fellows Lord Rees, who delivered our Erasmus Seminar last term – an inspiring exploration of *The World in 2050 and Beyond* (see page 8). While at Cambridge, Sir George studied the origin of the moon, and his research involved gathering data (by post from collaborators all over the world) that formed the basis of the tide tables used to this day for navigating our oceans and coastlines. As this issue of the *Darwinian* illustrates, Astronomy remains one of many fascinating disciplines studied by our Fellows, students, alumni and some of the speakers in the Darwin College Lecture Series. It is a subject full of surprises, innovations and hope for the future of life in, and beyond, our solar system.

It was with great pride that the College celebrated the awarding of the 2025 Nobel Prize for Physics to Darwin alumnus Professor John Clarke for his groundbreaking discovery of macroscopic quantum mechanical tunnelling and energy quantisation in an electric circuit. John is the 12th Nobel Laureate from the Darwin community and the third former student to be recognised in this way. The other alumni are Professor Elizabeth Blackburn (PhD Biology 1975) who received the Nobel Prize in Physiology or Medicine in 2009 for her research on telomeres and the enzyme telomerase; and Professor Eric Maskin (Visiting Student 1975) who was awarded the Nobel Prize for Economics in 2007 for having laid the foundations of mechanism design theory. For a College that is only just over 60 years of age, this is an impressive record of scholarship across disciplines.

We enter 2026 facing a growing number of global challenges. Funding for research and higher education from the traditional sources, especially in support for the arts and humanities, is being reduced. The value of knowledge, decision-making based on evidence, and the importance of working collaboratively across disciplines, nations and communities is increasingly dismissed. Freedom of speech is being challenged, as are equity, diversity and inclusion. Darwin College remains a vibrant, supportive and collaborative community, committed to fostering interdisciplinary scholarship and harnessing the hearts and minds of our community to address such challenges.

With this in mind, we are launching two initiatives this year: Small Grants for Big Ideas and a series of Darwin Dialogues, both designed to enable students, Fellows and alumni to generate innovative ideas with a tangible and beneficial impact. We welcomed Dr Zara Goldstone to College this January as our first Global Challenges Programme Coordinator to help drive these projects forward. I hope many of you will be inspired to join us in these two new initiatives. Please contact Zara on zg251@cam.ac.uk if you are interested in finding out more.

Alumnus Professor John Clarke receives Nobel Prize in Physics

Darwin alumnus **Professor John Clarke** was announced on 7th October as the recipient of the 2025 Nobel Prize in Physics, an honour which he shares with Michel H. Devoret and John M. Martinis, in recognition of their work revealing quantum physics in action.

The Master, Dr Mike Rands, said:

"We are delighted and deeply proud to see our early alumnus and Honorary Fellow, Professor John Clarke FRS, awarded the 2025 Nobel Prize for Physics in recognition of his groundbreaking research in quantum mechanics. Typically, John described this accolade as 'the surprise of my life' but those of us who have been lucky enough to know him recognise it is richly deserved and recognition of his science, integrity and brilliant mind."

John joined Darwin in 1965 as part of the College's earliest cohort of PhD students, following his undergraduate studies at Christ's. Born in Cambridge in 1942, he attended the Perse School on an academic scholarship.

His PhD research was focused on the Josephson Effect, which had been established by Brian Josephson several years earlier, and for which he won the Nobel Prize in 1973. While at Darwin he developed the SLUG (Superconducting Low-inductance Undulatory Galvanometer) and the SQUID (Superconducting Quantum Interference Device), the basis for the past half-century of research.

"During my career I've developed many different applications involving SQUIDs," he said in an interview with Darwin last year.

"I've worked on geophysics, developing a new technique to look for minerals under the surface of the ground by pulsing the ground with a large magnetic field. I became very involved in astrophysics projects because it turns out we could make very sensitive devices for looking at stars. Something I've always been really happy about is the fact that I could take the basic idea of the SQUID and apply it to very many fields."

John took up a research position in 1968 at the University of California at Berkeley, becoming Professor of Physics and, latterly, Professor Emeritus of the Graduate School. However he maintains close ties to Cambridge, accepting a role as Honorary Fellow at Darwin in 2023.

In 2024, on the College's 60th anniversary, he recalled the experience of being one of the first Darwinians.

"At the time, I have a feeling there were more Fellows than research students. So we would enjoy our excellent dinner and wine and chat about all kinds of different things. It was a wonderful experience talking to these somewhat older, more knowledgeable people about your life in general and research in particular. Darwin had a huge impact on my life."

Robert Rayne appointed as Sir George Darwin Fellow Benefactor

The College was delighted to celebrate the appointment of **The Honourable Robert Rayne** as a Sir George Darwin Fellow Benefactor on 31st October, in recognition of his significant generosity to Darwin over many years. Mr Rayne was elected as an Honorary Fellow in 2004.

The Honourable Robert Rayne with the Master, Dr Mike Rands.

A distinguished business leader, financier and philanthropist, Mr Rayne was until recently Chair of the Rayne Foundation, and remains Chair of the Rayne Trust. The support of the Rayne Foundation, and the personal support of Mr Rayne's father, Lord Rayne, were instrumental to the foundation of Darwin College in 1964. The Rayne Foundation and the Rayne Trust have recently contributed generously towards the planned Garden Room, which will sit underneath the 1960s Dining Hall, itself funded by the Rayne Foundation.

Vaccines safer than COVID infections in children, study shows

COVID-19 infection posed a greater and longer-lasting risk of rare heart and inflammatory complications in children than vaccination, which was associated with a short-term higher risk of myocarditis and pericarditis, according to a study published in *The Lancet Child and Adolescent Health*.

Principal author on the study was Darwin Postdoctoral Associate at the Cardiovascular Epidemiology Unit, **Dr Alexia Sampri** (above left), while Darwin Vice-Master **Professor Angela Wood** (above centre), Associate Director at the BHF Data Science Centre, was co-author.

Researchers analysed linked electronic health records for nearly 14 million children in England under the age of 18 between 1st January 2020 and 31st December 2022, covering 98% of this population.

"Our whole-population study during the pandemic showed that although these conditions were rare, children and young people were more likely to experience heart, vascular or inflammatory problems after a COVID-19 infection than after having the vaccine – and the risks after infection lasted much longer," says Alexia.

"Using electronic health records from all children and young people in England, we were able to study very rare but serious heart and clotting complications, and found higher and longer-lasting risks after COVID-19 infection than after vaccination," explains Angela.

"Whilst vaccine-related risks are likely to remain rare and short-lived, future risks following infection could change as new variants emerge and immunity shifts. That's why whole-population health data monitoring remains essential to guide vaccine and other important public health decisions."

Professor Emily Shuckburgh appointed CSA at Department for Energy Security and Net Zero

Darwin Fellow **Professor Emily Shuckburgh** (above right) has been appointed as the new Chief Scientific Adviser (CSA) at the Department for Energy Security and Net Zero. She took up the role, which involves delivering independent and impartial science and engineering advice to ministers and policymakers, on 3rd November.

A climate scientist, Director of Cambridge Zero, and Professor of Environmental Data Science at the Department of Computer Science and Technology, Emily was awarded an OBE in 2016 and a CBE last year. A graduate of Magdalen College, Oxford, and Trinity College, Cambridge, she became a Fellow at Darwin in 2000.

Emily said of her new appointment:

"It's a great honour to join the Department for Energy Security and Net Zero as Chief Scientific Adviser at a time when scientific evidence is so crucial to informing the UK's response to the twin challenges of climate change and energy security."

Anglesey's Public Map Platform project, led by Flora Samuel, awarded further funding

A team led by Darwin Fellow **Professor Flora Samuel** (MSt Architecture, 1988), Head of the Department of Architecture, has been awarded a grant of £3.12 million to chart green transition on the Isle of Anglesey/Ynys Môn.

The Green Transition Ecosystem Grant, administered by the Arts and Humanities Research Council, will enable the team to continue their work to create a Public Map Platform, bringing together layers of spatial information to give a social,

environmental, cultural and economic picture of what is happening in Anglesey. The project began in 2023, with an initial grant of £4.625 million, and has seen the team engage with hundreds of children. The second phase of funding will allow the project to expand beyond the island, to other parts of Wales and England.

"Climate change cannot be addressed without revealing and tackling the inequalities within society and where they are happening. Only when we know what is happening where, and how people are adapting to climate change can we make well informed decisions," said Flora.

"The aim of this pragmatic project is to create a Public Map Platform that will bring together multiple layers of spatial information to give a social, environmental, cultural and economic picture of what is happening in a neighbourhood, area, local authority, region or nation."

School founded by Darwinians wins global sustainability award

The Arbor School was opened in Dubai in 2018 by **Sa'ad Al Omari** (PhD, Zoology, 2004) and **Pirin Erdoğdu** (PhD, Astronomy, 2004). An international school based on the British curriculum, it was founded on principles of ecology, sustainability and environmental justice, which shape both its curriculum and its culture. The school was announced in October as the recipient of the World's Best School Prize for Environmental Action, by online education platform T4 Education.

With six biodomes, or 'living classrooms' on-site, students grow their own food while learning about plant cultivation, ecosystems and sustainability, as well as more context-specific issues such as mangrove and coral reef conservation, and protecting turtles. School buses are fuelled by biodiesel, and students are engaged in an eco-council, as eco-ambassadors and eco-influencers.

"It's more than knowing facts about the environment, it's about developing skills and values and a sense of responsibility among young people," the Principal, Gemma Thornley, told UAE newspaper the *National*.

"Not every school has biodomes, but every school can develop an eco-literacy curriculum. There's lots of opportunities for schools to get involved in beach clean-ups... you can integrate that into the curriculum. All schools, no matter how small or big, can prepare people for a future that's uncertain. Part of that is looking at environmental sustainability."

Just seven years after its foundation, the Arbor has 1,500 students representing 87 different nationalities, ensuring that its embedding of sustainable action throughout a child's school experience has a potentially global impact.

"We are proud that an idea first sparked in conversations at Darwin Bar and Frank Young House has now gained international recognition," said Pirin. "We are delighted to share this news with the Darwin community."

Welcome to our Mastercard Foundation Scholars

Darwin has welcomed its first cohort of Mastercard Foundation Scholars this year, six remarkable students from across Africa pursuing a diverse array of research with an emphasis on conservation and sustainability.

Since its creation in 2012, the Mastercard Foundation Scholars Programme has supported over 40,000 scholars (over 70% of them young women) to study at 29 global partner institutions. At the University of Cambridge, the programme is designed to provide students from under-represented communities in Africa with fully-funded opportunities to complete their master's training, grow their leadership potential, and contribute to climate resilience and sustainability efforts.

Darwin's Master, Dr Mike Rands, has been involved with the programme since its outset, having supported its creation in his previous role as Director of the Cambridge Conservation Initiative. He is joined on the board by Darwin Fellow Professor Chris Sandbrook, Director of both the Conservation Research Institute and the MPhil in Conservation Leadership.

Jacqueline Niyodusenga, from Rwanda, is working towards an MPhil in Education, Globalisation and International Development. She intends to deepen her understanding of how educational policies shape opportunities for marginalised communities in Africa, with the long-term aspiration to effect change in educational systems across the continent.

Abubakar Abass is a scholar from Ghana pursuing an MPhil in Development Studies. His research is on the influence of technology on economic development. He is interested in researching how youth-led enterprises can leverage the use of digital tools to integrate into the Global Value Chain.

Esther Barakengera is a civil engineer from Eswatini with experience supervising road construction projects and structural works. She advocates for prioritising long-term resilience over short-term goals, and for financial strategies that foster innovation and sustainable investment. Esther is pursuing an MPhil in Engineering for Sustainable Development and aims to broaden her expertise to include infrastructure policymaking and sustainability evaluation. Through her studies, she hopes to contribute to driving these transformative changes and developing climate-resilient cities.

Samson Oluwatosin Adewoye is a mechanical engineer driven by a passion for advancing clean combustion energy and sustainable technologies that can transform lives across Africa and beyond. His MPhil in Engineering will explore the transient flame propagation and stabilisation of hydrogen jet flames, laying the foundation for cleaner, safer combustion systems that can shape Africa's energy future and contribute to a more sustainable world. With over a decade of teaching experience, Samson also strives to lead, inspire and mentor young energy enthusiasts to become the next generation of problem-solvers and changemakers.

Ruquaiya Shuaaibu is a backend developer from Nigeria interested in leveraging tech to address environmental challenges. Through her research, she hopes to use imaging technology to simulate environmental landscapes to predict and prevent environmental disasters. Ruquaiya is pursuing an MPhil in Advanced Computer Science and hopes to return to industry after her programme to actualise her research.

Isaac Ebwol, from Uganda, is pursuing an MPhil in Children's Literature. He intends to critically examine fundamental issues addressed in writing for children which are sometimes overlooked as trivial, including race, gender, class, and social concerns. Isaac also plans to thematically focus on environmental awareness as an ideology in children's literature and Young Adult Fiction.

University Challenge

Following in the capable footsteps of last year's team, who equalled Darwin's previous record by reaching the semi-finals, a new quartet of Darwinians is ably representing the College on *University Challenge*.

The team's first-round match, against Oxford's Green Templeton College, was broadcast on Monday 8th September, with Darwin securing victory in the final seconds of a fiercely contested fight. In their second appearance on 3rd November, they beat Magdalen College, Oxford by 190 points to 80, making it "almost look easy", according to host Amol Rajan. Their first quarter-final match airs as we go to print.

This year's captain, **Louis Cameron** (PhD English) is joined by team-mates **Lewis Strachan** (PhD Medical Science), **Ruth Ní Mhuircheartaigh** (MEd with Mathematics) and **Jon White** (PhD Geography). The reserve is **Ben Rudd** (PhD Education).

"It's a privilege to represent Darwin on *University Challenge* this year, so hot on the heels of the College's brilliant performance last season, and I feel personally very lucky to have done so with such a wonderful team," says Louis.

"What gets shown on TV represents only a tiny fraction of the time we spent together in the run up to the audition and the filming itself, and while their quizzing expertise goes without saying, it was their tireless enthusiasm and incomparable team spirit that made the whole experience not only memorable and rewarding but also enormously fun. Last year's Darwin team left us with a tough act to follow, but their journey to the semis was a continual inspiration, and I hope our appearance will encourage a further generation of Darwin quizzers to try out for the programme in October."

The World in 2050 and Beyond – Lord Rees gives Erasmus Seminar

Lord (Martin) Rees, who counts among his many titles and accolades the role of Honorary Fellow at Darwin, gave the first Erasmus Seminar of the academic year on Wednesday 29th October. To a capacity audience including the Vice-Chancellor in the Bradfield Room, and additional attendees watching via video link in the Old Library, he discussed his predictions for *The World in 2050 and Beyond*.

Lord Rees held the position of Astronomer Royal for 30 years until 2025, in which capacity, he joked, people often asked whether he was responsible for the Queen's horoscopes. A globally renowned cosmologist and astrophysicist, he is a former President of both the Royal Society and the Royal Astronomical Society and former Master of Trinity College, where he completed his own undergraduate studies and PhD in the 1960s.

Within Cambridge, he was Plumian Professor of Astronomy and Experimental Philosophy from 1973-1991, a post previously held by Sir George Darwin, former resident of Newnham Grange. For a decade he was Director of the Institute of Astronomy, and he was the co-founder of the Centre for the Study of Existential Risk. Since accepting a life peerage in 2005, he has been an active member of the House of Lords, speaking out on issues ranging from the Assisted Dying Bill to the wellbeing of future generations.

Despite an early disclaimer that "*astronomers aren't very good at predictions…all they can say is that they're better than economists*," Lord Rees's Erasmus Seminar explored his forecasts for humanity, based on the assumption that our future will depend on whether science is applied wisely or dangerously.

Population trends, global food supply, biodiversity, mass extinctions, climate change, viruses, designer babies, AI and space exploration all featured in a talk filled with existential threats to humanity, but also with humour, compassion and wisdom.

While there were glimpses of despair over our continuing failure to act on our knowledge ("*Politicians will focus on immediate threats like COVID-19, but they won't prioritise the global and long-term measures needed to deal with climate change, nor with biodiversity loss…because the worst impact of all those things stretches beyond the time horizon of political and investment decisions.*") there were also glimmers of hope, as well as a forceful rejection of some aspirational technologies such as cryogenics: "*I'd rather end my days in an English churchyard than in an American refrigerator.*"

A whistlestop tour of the history of space took in everything from Sputnik to Elon Musk, but concluded that the prospect of settling on Mars was unlikely to provide any form of solution to difficulties faced on earth.

"*It's a dangerous delusion to think that space offers escape from the Earth's problems. Dealing with climate change on Earth is a doddle compared to terraforming Mars. Mars isn't a planet B.*"

Lord Rees concluded with a poignant reminder, looking back on a lifetime devoted to understanding the universe, that this planet and the life it enables, is all that we have.

"Our pale blue dot in the cosmos is a special place. It may be a unique place, and we're its stewards at an especially crucial era. That's an important message for us all. We need to think globally, rationally, and long term. We need to be good ancestors, empowered by 21st century technology, but guided by values which science alone can't provide."

Alumna's second play swaps scientists for socialites

Congratulations to Darwin alumna Katherine Moar, whose second play, *Ragdoll*, opened at London's Jermyn Street Theatre on 9th October.

Inspired by the real-life trial of Patty Hearst, the play imagines the relationship and shifting power dynamics between an heiress, Holly, and her lawyer, Robert, in 1978 and again in 2017. While the spark of its characters was drawn from life, the play is a work of fiction, to a far greater extent than Katherine had previously attempted.

"For *Farm Hall* I had a roadmap," she says, referring to her debut play, which opened at the Jermyn Street Theatre in March 2023, before touring, culminating in a West End run at the Theatre Royal, Haymarket.

"*Ragdoll* was much more fluid. It was liberating, and really exciting, to be able to rely on my imagination."

Farm Hall was based on an extraordinary real-life scenario, in which six of Germany's top nuclear scientists were detained in a house in the Cambridgeshire countryside following Hitler's death. The play follows their response to the news that the United States has succeeded in building and using an atom bomb, the ambition which had evaded them. The house was bugged throughout their detention, and Katherine used the transcripts of the men's conversations as a starting point for the play.

"I came to know those characters so well, that it feels almost like a betrayal to abandon them now to write about someone new!" she says. "I sat with them for so long."

She wrote *Farm Hall* in 2017 during the third year of her undergraduate degree at Edinburgh University, where she studied History. While preparing to stage the play through student drama societies, she also sent it on spec to numerous theatres.

"Most of them I never heard back from, but then Tom Littler, who was then at the Jermyn Street Theatre, got in touch and said he wanted to stage it."

In the meantime, Katherine completed an MPhil in the History and Philosophy of Science at Darwin, before beginning a PhD at King's College London, where she is now in her third year.

"I'm looking at public perceptions of Churchill and how those have changed, talking to curators of his memory including his family and museums."

A break from teaching responsibilities over the summer has allowed her to take an active role in rehearsals for *Ragdoll*.

"I've been much more a part of the rehearsals this time round, and it's really interesting to see how open and collaborative it is. On the whole the director, Josh Seymour, understands and interprets the script in the same way as I did, but when, occasionally, an actor has delivered a line differently to how I had heard it in my head, it's quite exciting. You think 'oh, of course that's how they would have said it!'"

Ragdoll *premiered at the Jermyn Street Theatre from 9th October-15th November 2025.*

Dr Alice Bunn

From cosmic congestion to work-life balance, a very down-to-earth Dr Alice Bunn discusses her career at the top of the practical side of space.

After 25 years working on the UK's interests in space, it's fair to say Alice Bunn is a fan. But, she admits, her fascination for the cosmos took a while to unfold.

"I'd had a number of brushes with space before I got the bug," she says. "When I was at Cambridge, doing my PhD, I had an experiment flown in space."

That's quite the throwaway line. Alice's PhD in Metallurgy, which she completed in 1998, focused on the grain refinement of aluminium alloys.

"I was looking very specifically at the nucleation and growth stage, so the very early stages of the liquid turning to a solid, and as the liquid turns to a solid the density changes, so you start to get these settling effects. Whereas if you do the same transformation in space you've got no gravity, so you just get a different perspective."

At the time, however, space was little more than a practical solution to a research hurdle.

"I was very kind of: 'gravity's getting in the way of what I'm trying to study, settling effects are getting in the way, so if we can just do it in zero gravity that would be really helpful'."

Following her doctorate, Alice took up a place on the Science Museum's graduate trainee scheme, spending part of her placement in the space gallery which, then as now, attracted a large proportion of the museum's visitors.

"It was a big cash cow for the museum, because everyone wanted to see the rockets. I get it from a business perspective, but I wasn't that fussed."

Her mindset changed when she was involved in the museum's development of an exhibition on the environmental research which can be realised from space.

"It talked about the fact that over 50% of the essential climate variables can only be measured from space, the fact that all our meteorological data, the data that goes into weather forecasts, and also things like emergency response, is enabled from space. At that moment I went 'OH! Oh it's really useful!'"

From the Science Museum, Alice moved to the Natural Environment Research Council (NERC), and then to the UK Space Agency where she variously held the roles of Assistant Director and International Director. She is currently President of the UK Space Trade Association, and has recently stepped down from a full-time role as CEO of the Institution of Mechanical Engineers.

In various capacities, over the past 25 years, Alice has been immersed in the practicalities of space, and the multitude of ways in which 21st century life depends upon it.

"There are so many ways in which we rely on space – it's like the ultimate high ground. You have the ability for communications, you have that unique perspective where you can see exactly what's going on. It's also satellite navigation systems that enable precision targeting. So this stuff is not necessarily cheerful, but it's the reality of how we live our lives and fight wars."

"There are so many ways in which we rely on space – it's like the ultimate high ground."

The use of space as just another facet of human infrastructure has led to very down-to-earth considerations about congestion and, increasingly, sustainability.

"It's really pivoting at the moment," explains Alice.

"What we've been doing to date has been a bit of a throwaway space culture, insofar as you build the satellite, you fuel the satellite, you launch it, you use the satellite and then that's it. You'd never go to a new car showroom, buy a car, fill the tank and then when the petrol ran out just leave it on the road. But that's sort of what we've been doing."

The development of reusable launch, and the ability to refuel in space is transforming both the sustainability of the operating environment and the business approach. But simultaneously, and counterintuitively, space is becoming increasingly cluttered.

"People think 'oh, space, it's massive!' Whereas actually the bits that we use the most are very discrete. I often talk about them as being like ring roads. And those bits are the bits that are strategic from the point of view of wanting your mission there because the physics works best for what you're trying to study, or trying to communicate, but they're getting really congested."

In another road analogy, Alice describes the current situation as like cars breaking down on the fast lane of the motorway, with no ability to move them out of the way, or to warn other road users because of a historic resistance to sharing plans and positions.

"You're now getting people talking about the need for increased space domain awareness. To date, people have quite deliberately not shared their operating manoeuvres because they might have been defence missions etc. But we're getting to the point where you can't do that any more because if you get a collision in space everyone suffers, because you get this big debris field. Geopolitically it's really interesting."

With a background in metallurgy and engineering, Alice was never attracted to a career in space by the lure of the unknown or the romance of exploration. Instead she was drawn in by a gradual appreciation for its practical applications. The current publicity around celebrity space travel, she unsurprisingly has little time for, and while she's excited by scientific discovery, she's sceptical about whether this requires people to leave earth, seeing rovers as "more than adequate, probably more fit for purpose, certainly a lot cheaper."

She is, however, enthusiastic about the potential for manufacturing in space, a possibility which links directly back to her own PhD research.

"What we're now discovering is that you can manufacture some incredible materials in that environment that you can't do on earth. So there's already one commercial production on the International Space Station which is fibre optic cables. Because of the microgravity, because of the vacuum, because of the cold, you can generate ultra ultra ultra low loss fibre optic cables, to the extent that it makes business sense to fly your materials into space, do your manufacturing and bring it back down to earth."

Similar possibilities are under investigation for semi-conductors and pharmaceuticals, raising the prospect that the successor to the International Space Station might be a centre for commercial production.

No one achieves a PhD and sustains a career at the top of their field without a certain amount of drive. But Alice is clear that, for her, balance has always been crucial. She has four children, ranging in age from 21 to nine, and the past two decades have included a five-year career break when her eldest three children were small, as well as multiple stints of part-time working and job shares. Following a further year's leave after the adoption of her fourth child, she accepted her first full-time position in 17 years, with her husband taking up the slack at home.

"I am so passionate about part-time working," she says now. "It's been really nice for my daughter but also really nice for my sons, to see mum and dad just swapping over a lot. It's really healthy."

With her tenure at IMechE having come to a close, Alice is supposedly taking a break between roles, but her schedule appears full to bursting. She has presented an *Archive on Four* documentary for the BBC marking the 25th anniversary of the International Space Station; and, in support of the charity SwimTayka, is preparing to swim the Channel.

Whether talking about her children, the charities she supports, her career ambitions or the future of space, Alice's curiosity, energy and enthusiasm are palpable.

"I'm just still learning, is the main message," she says as we conclude our conversation. "Still learning. It's fun."

Professor Andy Fabian

From homemade telescopes to the Chandra Observatory, Emeritus Fellow Professor Andy Fabian talks us through a life in thrall to the stars.

Professor Andy Fabian still remembers the book which sparked his interest in astronomy. As a seven-year-old in the mid-1950s, he had a children's encyclopaedia with illustrations of different coloured stars, which explained how it was possible to work out what they were made of.

"I struggled to understand how you could measure what something's made of when you couldn't touch it," he recalls.

Growing up against the backdrop of the space race, a fascination with the cosmos was not unusual. But Andy took it further than most, writing to NASA to request posters and publicity materials, following the lunar programme, and making his own telescope at the age of 15.

By the time he applied to university, it was clear that astronomy was more than a passing childhood fad. But, with few universities offering specialist astronomy degrees at the time, he instead went to King's College London to study Physics, before completing his PhD in Astronomy at UCL.

"During my PhD I had two rocket flights, one from Woomera in the Australian desert, and the other from Sardinia with the European Space Research Organisation as it then was – now the European Space Agency."

Following his PhD Andy's life hit a crossroads when he applied to work in the United States with Italian astrophysicist Riccardo Giacconi, who was developing the concept of X-ray astronomy, the focus of Andy's research.

"To study the X-rays from outer space you have to go above the atmosphere," he explains. "They had launched the first rocket flight, and then partway through my PhD work they launched their first satellite, which started to discover lots of exciting things. I applied to join their team and was offered a job, but it was a time when obtaining a visa was difficult, and I didn't get one. And then in the February I was told that I didn't have a job any more because the project I was going to be funded on had been cancelled by NASA!"

Instead, Andy came to Cambridge, where he has remained for over 50 years. While still a student he had got to know Martin Rees, now Lord Rees of Ludlow, who was making a name for himself as an astronomer and introduced him to colleagues in the field. From early on, Andy was clear where his own strengths lay, as he describes with a modesty which belies his significant success.

"I decided I didn't want to continue the building of apparatus on what we called the hardware side; I decided I would go and do the more theoretical side. But it's always important in your career to find out what you're not good at, and while I was ok at maths there were so many people around who were much better mathematicians than me. So I stayed close to the observations made by satellites."

A Royal Society Research Professorship awarded in his early 30s supported Andy's research throughout his career, allowing him to pursue a line of enquiry which transformed understanding of how black holes influence their surrounding galaxies.

"Every galaxy's got a giant black hole at its core; but it will also contain much smaller black holes, each with stellar-sized mass," he explains.

"We haven't run out of discoveries."

"We think they originate from the collapse of a massive star at the end of its life – when they run out of nuclear fuel the core just collapses inwards, while the outer parts explode outwards."

All black holes grow by accreting gas from their surroundings; with some at the centres of galaxies becoming a staggering 10 billion times the mass of the sun, meaning that their radius or event horizon can be the size of our solar system. But even that vast scale is completely dwarfed by the size of the host galaxy.

"Such a supermassive black hole at the core of a galaxy releases an enormous amount of energy over its lifetime. What happens to this energy? Where does it go? Some energy emerges in the form of radiation powerful enough to push dust around, which is in turn coupled with galactic gas. The whole evolution of a 100 billion solar mass galaxy can be influenced by a 100 million solar mass black hole at the centre which is smaller than our solar system."

Andy's work on the topic of how supermassive black holes can impact on the evolution of the surrounding galaxy saw him awarded the prestigious Kavli prize in Astrophysics in 2020. He believes he has been fortunate in the way his career has straddled a unique period for astronomy, in which rapidly evolving technology has made possible significant leaps forward in knowledge and understanding. He has enjoyed regular international travel to observe with some of the largest telescopes in the world.

"I've carried out observations at visible, radio and infra-red wavebands at these telescopes, which complement the data collected remotely by the X-ray satellites. Nowadays there are fewer opportunities to observe in person, and if you succeed in gaining time on a telescope somebody else will carry out the programme for you."

However, while he relished the opportunities for both global travel and cosmic exploration, he has kept his feet firmly on the ground.

"I've been involved in some major international projects like the *Chandra Observatory*, which is a big NASA orbiting observatory. I joined back in the mid-1980s when it was called the AXAF – the Advanced X-ray Astrophysics Facility. It was destined to become a large telescope in orbit, and the work required me to go to Huntsville, Alabama a couple of times a year. My family were there with me when *Chandra* was launched on a Space Shuttle. It was a night launch, and pretty exciting. But after that I would never have wanted to go in the Shuttle myself. So many things went wrong even on that launch."

Andy continues to make use of *Chandra* data, with new research projects currently in operation, including exploring why the gas at the centre of a cluster of galaxies appears to be less turbulent than previously imagined.

A career which has seen him serve as Director of Cambridge's Institute of Astronomy, as well as President of the Royal Astronomical Society has not robbed him of the lifelong curiosity and passion for his subject which saw the teenage Andy devote 30 hours to building a telescope. His holidays, from Texas to Iceland, are sometimes built around experiencing solar eclipses with his wife Professor Carolin Crawford, astronomer, science communicator and Emeritus Fellow at Emmanuel College. When we meet, the couple have begun the day looking at the sun from their Cambridge garden.

"We have what's called a Coronado, which is a small telescope with an interference filter that cuts out most of the sun's light. This enables you to look at the sun safely in the light of hydrogen. It's on a tripod in our garden, and when the sun came out this morning we could see surface activity in the form of dark sunspots, cool filaments, and enormous prominences."

A former Vice-Master, Andy has been a committed and active member of the Darwin Fellowship since joining the College in the early 1980s, making a significant and lasting impact as the creator of the Darwin College Lecture Series.

"I'm delighted that it's continuing and going from strength to strength."

But it's his passion for the stars which has driven Andy's career, and which he continues to find endlessly engrossing.

"The whole subject has evolved a lot, but I would say one of the things that's been fantastic about it is almost every month there's something new. We haven't run out of discoveries."

Edouard Barrier

PhD student Edouard Barrier discusses exoplanets, extraterrestrial life, and the unexpected appeal of committees.

When Edouard Barrier was born, the area of astrophysics to which he has dedicated his PhD was in its infancy. The first exoplanets, or planets beyond our solar system, were discovered in the 1990s, with more than 6,000 confirmed in the 30 years since.

"It's just a generation ago – it's nothing," Edouard explains. "Since then we've discovered loads of different types of planets, some Earth-like enough that we can start to do actual statistics on the kinds of planets, which is not something we thought would be possible even five or 10 years ago."

This sense of being at the cutting edge of a rapidly expanding comprehension of the nature of the universe clearly drives much of Edouard's passion for his subject. His PhD, currently in its final stages, is

"It really feels like we're on the edge of something big."

"essentially looking at which planets are habitable or not", applying the kinds of 3D models created to assess climate change to exoplanets, in search of water.

"My group, in the past few years, has got very into the idea of hycean planets, which is a portmanteau of hydrogen ocean. The idea is that, given current facilities, they may be the most detectable habitable planets over the next 10, 15, 20 years or so. So my PhD specifically has focused on under which conditions these could have liquid water at the surface, and in which there'd be sort of massive steam atmospheres."

Having grown up in London, where he attended French schools and enjoyed a bilingual upbringing in a French/English family, Edouard first came to Cambridge to pursue a Natural Sciences degree at Gonville & Caius.

"Some people have taken very fun, very meandering pathways to Cambridge, whereas I kind of went to school, got on the train from King's Cross and never really left."

Despite a childhood interest in space, astronomy wasn't initially part of the game plan, until he was talked into giving it a try in the third year of his undergraduate degree by a friend who said "it's a bit like physics, but there are no labs." The opportunity to explore on the broadest possible scale rapidly became addictive.

"There's a whole class of objects out there which are fascinating even if they're not habitable. What it tells us about the solar system, what it tells us about Earth, what it tells us about Mars and Venus and so on. And the second angle is, even if we can't go there, there's the prospect of detecting bio signatures. So not necessarily life, but signs of life elsewhere. Especially with the James Webb Space Telescope is the past couple of years, we've got to the point where we can now start to realistically have the chance of observing it. That's a fantastic step forward."

After four years at Caius, the switch to Darwin provided the chance to be part a collegiate community built around the needs of postgraduate students. Edouard has taken particular advantage of this through sport, playing rugby for the All Greys and taking the Darwin squash team to the semi-finals of Cuppers; as well as serving as DCSA Events Officer.

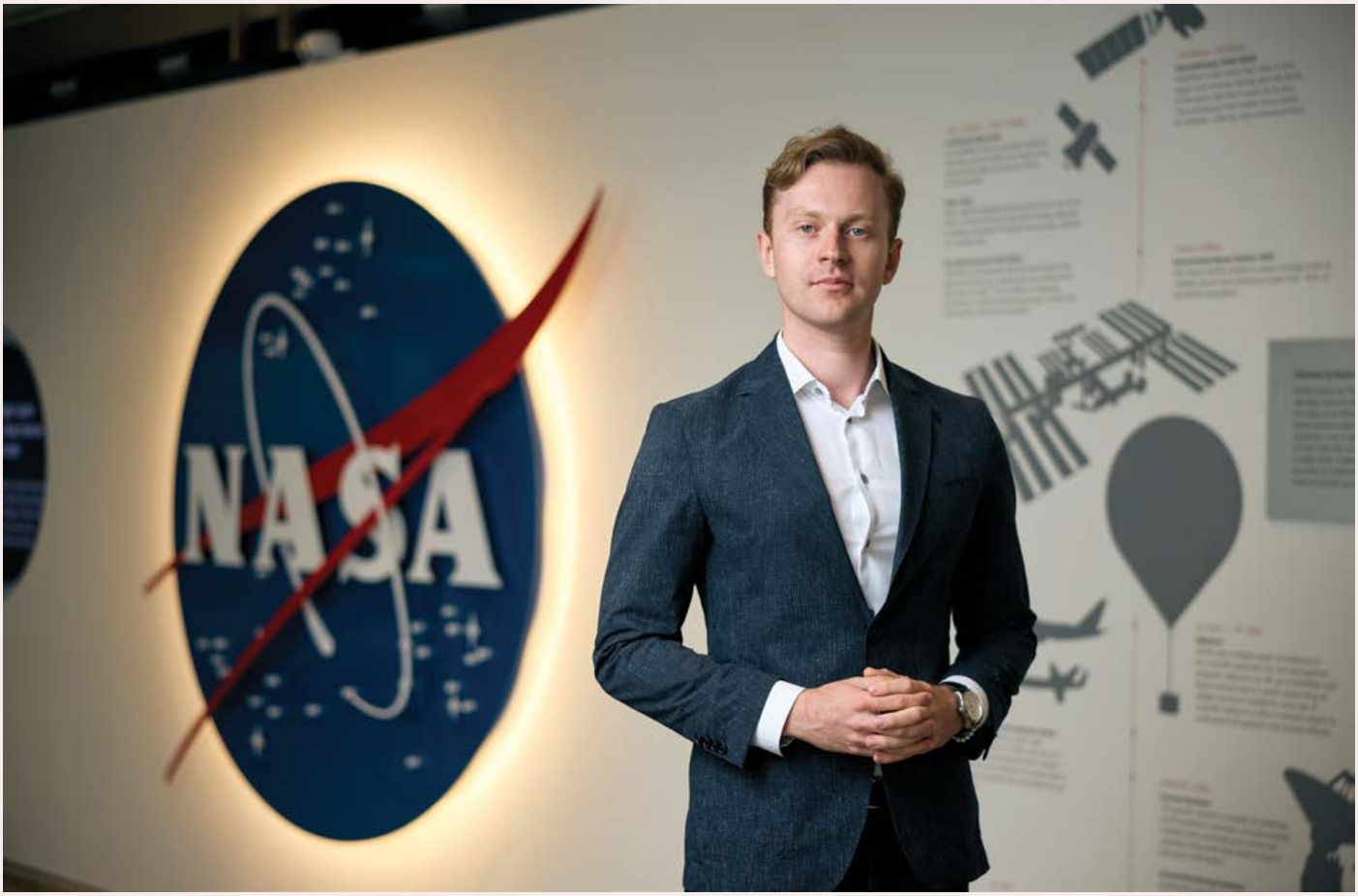
"When I started there was a huge amount of energy from the committee, which was matched by the energy from the students, in terms of making Darwin a real community and making sure there was lots going on, and I felt like I wanted to contribute a bit to that. I've met lots of fantastic people, made lifelong friends, and I always like seeing the inner workings of College."

Next year he'll be off to explore the inner workings of a new institution, with a postdoctoral position in Seattle exploring the co-evolution of life and the planet, pursuing the interest in bio-signatures which his PhD has cemented.

"The idea that in the next 10, 20, 25 years we might detect a plausible sign of life? That's what really keeps a lot of things going. It really feels like we're on the edge of something big."

Lane Painter

Darwin alumnus Lane Painter explains his route to working on the robotics of Mars exploration – and the surprising similarities between Darwin and NASA.



The bench on Darwin's small island played an unlikely role in Lane Painter's journey to NASA. Sitting there one evening, looking at the stars, he determined that his next chapter would see him play a part in the future of space exploration.

"I became so unbelievably focused on working at NASA. And for me that came in the form of Mars exploration."

Lane's unusual academic combination of economics and engineering, and a proactive approach to researching the opportunities available all came together. Within a week of completing his dissertation he was in Washington, taking up a role at NASA headquarters.

"NASA headquarters is where senior leadership and programmatic direction come together. So most people have spent 10, 15, 20 plus years at NASA centres or in industry before they've been tapped to lead a specific mission directorate programme or function. As someone earlier in my career, I really do feel incredibly lucky to work alongside these people. There aren't a lot of people in the world who have been able to see these projects go from concept to flight to landing and operating on the Martian surface – and NASA's lucky to have a large pocket of them."

Lane completed the MPhil in Industrial Systems, Manufacturing and Management at Cambridge's Department of Engineering in 2023. Having previously majored in Economics as an undergraduate at the University of Chicago, it was his involvement in a Human-Robot Interactions Lab that triggered an academic pivot.

"They made what felt like science fiction become real. And I wanted to be a part of that."

"It gave me a fantastic viewpoint into the future of robotics, and it was my first time working on interdisciplinary teams, primarily engineers and computer scientists. I really started craving the desire to switch and dive a little bit deeper into the world of STEM, particularly at the intersection of robotic systems and industrial manufacturing."

During Lane's one-year MPhil programme he developed an interest in sustainability in manufacturing.

"I was exploring how large manufacturing companies could use financial mechanisms to drive their productivity also becoming more sustainable. It was a striking realisation to understand that there doesn't necessarily need to be a trade-off when you want to become more sustainable. What I found was many companies pursuing sustainability initiatives were inadvertently building internal engines of innovation that reduced resource use and elevated overall performance."

The course involved practical interactions with 30 different companies, both within the UK and internationally, including trips to Vietnam and Japan to view high-tech robotics in action.

"One of the things that drew me to Cambridge in addition to the actual topic of study was that the programme offered a very hands-on learning approach – I've never seen anything like it offered out there. We got to take those lessons learned and then apply them almost directly when we started working with organisations. It was clear that we could make a real impact."

The Cambridge collegiate system was entirely new after the US format, so Lane's Darwin affiliation was luck of the draw. But it proved a perfect fit.

"It was my first opportunity to be around people who were truly passionate about their research. A lot of times people find themselves in an environment of single-minded research where people are all doing the same thing. But at Darwin, whether I was just grabbing a coffee or going to Formals discovering what colleagues were working on was enough for a whole evening's conversation. I think if I choose to continue to surround myself with people like I did at Darwin, I'll have a lifelong journey of learning about new things. It was a match made in heaven."

With his interdisciplinary background of economics and engineering, Lane's options post-Darwin were wide open. But he was clear that NASA was the goal.

This fascination has always been specifically tied to robotics, and their increasingly central role in the future of space exploration.

"Growing up I got to see a ton of really famous and amazing robotic mobility systems go to Mars, like Spirit, Opportunity, Curiosity, Perseverance and Ingenuity. When you think how NASA was able to deliver these very complex and intelligent robotic systems millions of miles away from Earth, land them safely and allow them to move across very diverse terrains on Mars…they really pushed the boundaries of what was possible for robotic space flight, and made what felt to me like science fiction become real. And I wanted to be a part of that. Today I literally work alongside and learn from the people that planned and engineered those missions. It's such an honour."

Now based at NASA headquarters in Washington DC, Lane is an operations and strategy specialist in the Mars Exploration Programme. His role sits at the intersection of operations, strategy and innovation, focusing on emerging technologies.

"The work that gets me the most excited is the surface and aerial robotic systems that actually move on the surface of Mars to explore and conduct science. Right now with emerging research and commercialisation of embodied AI, there's this fantastic focus on robotics. Part of the reason is because now we can train robotic systems to a much higher degree and make them more intelligent, faster and cheaper. What's happening right now is there are companies that are creating these brilliant systems that are introduced to the world in heavy industry or manufacturing settings, with increasing capability, that could one day have a role in planetary or Martian exploration."

Witnessing and developing rapidly evolving technology to enable further exploration of the universe is clearly everything Lane hoped it would be. But, in keeping with the pleasure he took from being surrounded by the brilliant minds of Darwin, it's the connection with colleagues he values the most.

"Darwin and NASA share many of the same qualities: a deep curiosity, a collaborative spirit, and an environment that encourages people to think boldly and push the boundaries of what's possible in their work."

Professor Didier Queloz

Ahead of his Darwin College Lecture in 2024, Professor Didier Queloz talked to us about the thrill of discovering the first exoplanet, and why it took decades for its significance to be acknowledged.

Professor Didier Queloz, winner of the Nobel Prize for Physics in 2019, attributes his decision to focus on the subject to two seemingly contradictory childhood impulses – an excessive curiosity, and a lack of imagination.

"I was frankly super curious," he recalls. "But I was curious about everything, so physics was one of them. You know, the reason why I went to physics was my lack of imagination – I didn't know what I wanted to do. I realised I was kind of gifted for learning, for mathematics... and then I just fell in love with physics, but I went to physics because I knew that then I didn't have to choose what to do. I thought 'by physics I can do anything I want', because it's so generic."

Didier pushed this idea of the limitless applications of physics to its furthest possible reach, discovering the first planet orbiting a star beyond our solar system in 1995 when he was still a PhD student. Now termed 'the exoplanet revolution', the breakthrough was not immediately acknowledged as such.

"The beauty of science is you never realise what you're doing when you're doing it," he explains. "It's years after that you say 'oh my God!'. So at the beginning, and you know, you have to go back 30 years, we were completely on the margin of the core scientific interest. For a couple of years after we made the announcement, because it was so weird, so challenging, people were very sceptical. They thought 'well it may be something else, it's not really a planet.' And it's only with time, with the increase of other detections, the fact that nobody has demonstrated that there is another way to explain what we found, that it became evident that what we had done was right."

However gradual, that recognition eventually transformed scientific understanding of the universe, and our place in it.

"In science, revolution means when you change, a bit, the paradigm. And that's what we did. I think we had this picture of solar systems, our own solar system, as being the absolute model, the standard model, that would explain any other planetary system you have in the universe. And actually that is wrong, it's completely wrong. It's really kind of refocused what we are and where we are. So in terms of astrophysics it really is a revolution."

Despite having spent several years developing a new form of spectrograph, ELODIE, with the specific ambition of detecting planets external to our solar system, Didier was taken by surprise by the speed of its success.

"However gradual, that recognition eventually transformed scientific understanding of the universe, and our place in it."

"Detecting a planet needs time, and the equipment we built was designed to do that – otherwise we wouldn't spend three years of our time making a machine which is so good. But the plan was for me to just start the programme, and it would take years to detect a planet. So the big surprise was that it didn't take four years, it took me a couple of months. And that was a big shock."

The scale of the discovery, and its implications, took time to process, even for its instigators.

"Most of the time, scientists do things that they know, and that everybody's expecting. It's still thrilling, because you just improved this, you realised this, and it's fun. But when you face a complete dramatic change, then that's completely another game, and I tell you it's not fun at all. I mean, it became fun for me 10, 15 years after. Then I started to enjoy it, because then everybody realised what we'd done!"

Since that initial discovery, Didier has participated in the detection of hundreds of planets, working to understand their formation and the potential for life. In 2013 he joined Cambridge as Professor of Astrophysics at the Cavendish Laboratory, and is now Director of the University's newly created Leverhulme Centre for Life in the Universe. It has been a turbulent decade for British science, thanks to uncertainty around European collaboration and funding as a result of Brexit. But Didier has a firmly optimistic perspective on what he sees as the country's unique approach.

"When I decided to move to the UK, I lost my very generous Swiss income, I lost my mountain, and I lost a lot of sunny weather. So why do you think I did so? It just demonstrates that in the end there is way more that this country has to offer than just being obsessed by a few details. I think there is a culture of science, a culture of collegiality to operate science, and at the same time a high competitiveness, which is to me very interesting because…you don't have both in many countries. I don't really know what it is, frankly, but it works. So I really fell in love with this country because this is, I think, the perfect way to do science."

The childhood curiosity which compelled Didier to study physics led him to seek answers in the stars for reasons he presents as wryly casual:

"I went to astrophysics because I thought it would be cool for me to do things outside. And astrophysics is about telescopes and mountains – you go out and you travel a lot. We're an aristocratic club, the astronomers. We don't have any money, but we get invited everywhere in the world."

It's a mindset, and a determination to find answers, which has enabled him to transform not only his subject, but human understanding of the most fundamental questions. Didier credits his career with the retention of this childish fascination.

"I think the fascination and the curiosity is in every mind. Of course, kids need it because that's just the way you learn. For some reason that I just can't explain, when you become an adult you kind of lose curiosity, and the only ones who don't lose it are people like me. I am exactly the same as I was as a teenager – I could get bored very rapidly when things weren't exciting – so I think some people keep it for some reason I don't understand. And these people are scientists."

This interview first appeared on the Darwin College website in February 2024. Didier Queloz's lecture, The Exoplanet Revolution*, can be viewed on our YouTube channel.*

Campaign update: Scholarship for Solutions

Thank you for your generosity

Your gifts to College have made a huge difference: supporting students, creating an environment for rich intellectual engagement, and contributing progress on a wide range of Global Challenges. Nearly 400 alumni and friends made a gift in the last year – almost 6% of contactable alumni. Donors giving regular gifts (eg £10 a month) have had a tremendous impact, collectively contributing nearly £400,000 over the last four years.

Supporting collaboration and connections

Current student Mika Hyman is researching the history of chocolate and how crop diseases in plantation environments impacted trade and agriculture in the 20th century. Her research relies on archives, special collections and community collaborations with farmers, chocolate makers and policy makers.

Mika says:

"With government funding for humanities drying up, without the PhD funding offered by Darwin, I would not be able to pursue my research in this focused and sustained way. It is particularly important to me that I am able to study at Darwin. When I started here a year ago, I had no idea how important my daily meals and coffees would be. Conversations in the corridor have sparked workshop collaborations and paper ideas. Events such as Chalk Talks, and the Lunchtime Seminars have allowed me to connect further with the community and learn about my peers' research. As I continue my PhD and look towards a future career that hopefully continues to involve interdisciplinary and impactful research, I know I will be grateful for this time at Darwin."

Reporting how you have helped

In November, a new Annual Donor Report was sent to donors who have given support to the College in the past couple of years. This included a Roll of Donors, and more stories about how your gifts have made a difference to students and their research. If you would like a copy, please email development@darwin.cam.ac.uk.

Leaving a gift in your Will

Over the years, many generous alumni, Fellows, and friends of the College have chosen to include Darwin in their Will so that their gift will have an impact for years to come. Promises of future gifts are very important for the College, providing confidence and security for long term planning. A gift in your Will is personal and unique to your own circumstances, but could be:

- A specific amount of money
- A residual percentage of your estate
- Items such as art, books, furniture, relevant artifacts
- Property

If you already have a Will, it is possible to add Darwin College as a beneficiary in a Codicil, without having to prepare a new document. There may be tax benefits for your estate if you leave some of your taxable estate to charity, depending on your circumstances.

Those who make a legacy pledge to Darwin will become a member of the 1964 Society and will receive invitations to special events. The 1964 Society offers a warm sense of connection and belonging, bringing members together to reflect on shared memories and enjoy thoughtful tokens of appreciation that honour their lasting commitment.

If you have already listed Darwin as a beneficiary in your Will and would like to become a member of the 1964 Society, or if you'd like to learn more about how your legacy gift can benefit the entire College community, please contact development@darwin.cam.ac.uk.

It's been an exciting six months for Darwin College Boat Club, with representation on the local and international stage.

Darwin College Boat Club continues to go from strength to strength, with plenty to report on from the last six months. Fresh from the Boat Club's success in the May Bumps, W2 rowers were able to enter Town Bumps under the banner of the Saint Radegund Boat Club, to whom we are extremely grateful for their support. The crew ended up going up five places over the course of four days of racing!

As mentioned in the summer edition of the *Darwinian*, DCBC once again attended the Ulsan International Regatta in South Korea. Seven days of rowing in sweltering heat was rewarded with an overall ranking of fourth place, beating crews from Oxford, Harvard, and MIT. The club hopes to return in 2026, this time to stand on the podium in the awards ceremony!

A big welcome to the new committee under Overall Captain Paula Perez Gonzalez. Their commitment to training the new novices this Michaelmas Term has certainly paid off, with a provisional seven crews now organised for the coming Lent Term.

"It has been an exciting Michaelmas Term, with about 50 new novice rowers joining the club," said Paula.

"The progress they have made over just a couple of months has been remarkable! I'm looking forward to everything we can achieve this year as a club."

With three crews on the Women's side, and four on the Men's, the Boat Club is the largest it has been in some time. Congratulations to all of our novices for taking part in this term's racing, and thank you to all of our coaches and captains for their dedication. We look forward to your efforts in Lent Bumps!

As the club grows in size, our resources are spread more and more thinly. Despite being kindly donated an as-yet-unnamed boat by Jesus College Boat Club earlier this year, we had to send Pascal off to the Big Boathouse in the Sky. If you would like to donate towards the growth of DCBC, please get in touch via the Development Office.

2026 marks the 50th anniversary of Women's rowing at Darwin College, a milestone which we hope to celebrate with an alumni event in April. Keep your eyes peeled for further announcements! We would like to start organising alumni crews for some of the regattas on the Cam in 2026. If you would like to stay more up to date with the Boat Club, please provide your details here:

Obituaries

Dr Jane Goodall
1934–2025

Dame Jane Goodall, Honorary Fellow and world-renowned conservationist, died on Wednesday 1st October at the age of 91, in California where she was on a speaking tour.

Born in London in 1934, Dr Goodall began her research into the behaviour of chimpanzees in Tanzania in 1960. Her observations reframed scientific understanding of the intelligence of primates, setting a new course for evolutionary science. Through the Jane Goodall Institute, founded in 1977, she dedicated herself to conservation, campaigning for the protection of chimpanzees and the environment.

Dr Goodall completed her PhD at Newnham College in the early 1960s, having been invited to do so on the strength of her existing research, despite not having a prior degree. She retained strong links to Cambridge, accepting an Honorary Doctorate in 2019, when she became an Honorary Fellow at both Darwin and Newnham.

The Master, Dr Mike Rands, said:

"Jane was elected as an Honorary Fellow of Darwin in 2019 in recognition of her outstanding contribution to ethology and nature conservation. She was an extraordinary field scientist, naturalist and passionate advocate for the protection of the natural world.

I met her at a dinner in Darwin hosted by Mary Fowler before I became Master, after Jane had delivered the Rede Lecture on "Reasons for Hope" at Cambridge in June 2019, when she also received an Honorary Degree from the University. I had previously got to know her when she visited the Cambridge Conservation Initiative to deliver a key note speech at our Earth Optimism event in 2017.

She was a deeply inspiring individual, and had a remarkable ability to combine a deep commitment to science with a real passion for nature. Her legacy lives on in the Jane Goodall Institute, but she will be deeply missed by everyone committed to understanding and protecting all life on Earth. The world has lost an uncompromising, passionate voice for nature. Our thoughts are with her family and worldwide network of friends and young conservationists she did so much to inspire and support."

Dr Peter Friend
1934–2025

Dr Peter Friend, who had been part of the Darwin community for over 50 years, died on Wednesday 9th October at the age of 91, in the Arthur Rank Hospice surrounded by his family.

A geologist and Senior Lecturer in the Department of Earth Sciences, Peter was elected as a Fellow at Darwin in 1974, and retained a strong connection with the College as an Emeritus Fellow following his retirement in 2001.

"Many Darwinians will have met Peter Friend, a regular at lunch and coffee," said former Master of Darwin Professor Mary Fowler.

"Peter was one of the world's most respected sedimentologists, expert on the Old Red Sandstone and the ways in which rivers denude mountains. He was a much-loved undergraduate lecturer and leader of exciting field trips, while through his work in the Appalachians, Greenland, Spitsbergen, Spain and South Asia, Peter supervised generations of graduate students, had many collaborators and avoided polar bears. In 2015 he was awarded the Polar Medal (awarded by the sovereign for outstanding achievement and service to the UK in the field of polar research).

For decades he was a quiet friend of Darwin students, a thoughtful giver of advice, a kind and generous man filled with humour, a person of integrity who will be much missed."

We were also saddened to learn of the deaths of the following alumni and members of the Darwin community.

Dr Calum Baker, 1967–2024
Alumnus, PhD Earth Sciences, 1989

Dr Stein Bie 1943–2025
Alumnus, Postgraduate Diploma in Biology, 1970

Dr Keith Crosbie, 1942–2025
Alumnus, PhD Chemistry, 1968

Mrs June Johnson, 1932–2025
Widow of Dr Chris Johnson, Honorary Fellow of Darwin College

Dr Nancy Lane Perham OBE, 1936–2025
Cell biologist in the Department of Zoology, a Life Fellow of Girton College, and the widow of Professor Richard Perham, Honorary Fellow of Darwin College and former Master of St John's College

Dr Richard Saunders, 1953–2025
Alumnus, PhD Physics, 1978

Professor Patrick Sherry 1938–2025
Alumnus, PhD Divinity 1967

Dr Joyce Wheeler 1931–2025
Astronomer, computing pioneer, and the widow of Professor David Wheeler, Fellow of Darwin College.

2026 Darwin College Lecture Series

Lady Mitchell Hall, Fridays at 5:30 pm

Song

23 January	**Hans Slabbekoorn** **Notes and Noises in Nature: Not a Swan Song**
30 January	**Carole Pegg** **Throat-Singing: Body, Spirit, Pathways, Place**
06 February	**Ibrahim Baltagi** **Songs We Grow By**
13 February	**Matthew Gordley** **Song in the Ancient World: Echoes of Religion and Resistance**
20 February	**Carola Darwin** **Hearing Her Voice: Women musicians in Vienna 1900**
27 February	**Conny Aerts** **Songs of the Stars: Unravelling Stellar Music with Asteroseismology**
06 March	**Issa Boulos** **Palestinian Song in Transition: The Interplay of Tradition and Innovation, 1936-1948**
13 March	**Richard Morrison** **How Song Shapes Society, and Society Shapes Song**

darwin.cam.ac.uk/lecture-series

Alumni Events in 2026

Thursday 12 February:
Alumni Gathering in Bangkok, Thailand

Tuesday 17 February:
Alumni & Students Cheese and Wine Evening

Wednesday 18 March:
Alumni Drinks Reception with the Master, Washington DC, USA

Thursday 19 March:
Online Careers Network Event

Friday 20 March:
In-Person Careers Network Event

Saturday 21 March:
Alumni Drinks Reception with the Master, Toronto, Canada

Friday 20 March:
Alumni and Fellows Formal Hall

Monday 23 March:
Alumni Drinks Reception with the Master, San Francisco, USA

Friday 19 June:
Alumni and Fellows Formal Hall

Sunday 12 July:
Alumni Family Garden Party

We look forward to welcoming you back to Darwin. For full details of events and reunions, please see **darwin.cam.ac.uk/alumni-and-supporters/alumni-events**

Editor: Laura Kenworthy.
We welcome short articles, pictures and news from all alumni.
Correspondence to: **communications@darwin.cam.ac.uk**

Front cover image: Laura Kenworthy
Back cover image: Hannah Milne

Events and reunions:

Correspondence: