



# THE Darwinian



## Darwin and Sustainability

Innovative research and thinking by Darwinians to contribute to a sustainable world



Economic Governance in a post-Covid World



Solar-Driven Recycling of Waste into Fuel



New Lift Access to Dining Hall

# A Message from the Master

Dr Mike Rands

## Exploring Red, Going Greener?



Above:  
Mike Rands, Master

**L**ent term has seen the College hunker down through a third major lockdown as the SARS-CoV-2 virus once again spread rapidly throughout the UK. Fortunately, and thanks to the professionalism of our staff and the restraint and compliance by everyone in the College community, we have had very few cases and no serious illness in College since the start of the year. The resilience, resourcefulness and patience of our students, staff and Fellows has been deeply impressive, but the pandemic has certainly taken its toll on people's wellbeing and ability to both work and participate in what colleges do best, social engagement and intellectual stimulation.

A major Darwin College contribution to feed and foster intellectual curiosity did however take place this year; namely the Annual Darwin College Lecture series. In 2021 the topic was **BLOOD** and, for the first time in the series' 35-year history, it took place entirely online. It was unclear until six weeks before the first lecture was scheduled whether some form of live delivery could take place in Lady Mitchell Hall, but once we knew this was impossible, the team who so brilliantly planned, organised, and supported this year's lectures, rose to a new challenge.

Lectures were recorded over Zoom, with speakers in their attics, kitchens, and spare bedrooms – and one even taking an emergency call from her hospital ward while in mid flow of delivering her lecture! – before being efficiently edited and placed on the College YouTube channel. They then went online at the usual time and remain available at - [youtube.com/c/DarwinCollegeLectureSeries](https://youtube.com/c/DarwinCollegeLectureSeries). I'm happy to say that viewing figures were as high as they would have been for live lectures with the benefit that they could be watched from anywhere in the world. The obvious downside being that the audience could not experience the lecturers in person, and we were unable to host the speakers in College and enjoy their knowledge and company over drinks and dinner.

**BLOOD** turned out to be a profoundly suitable topic for 2021. For hundreds of years, curiosity about the biological and mystical functions of blood has fuelled both innovative discoveries and dangerous misunderstandings that have changed our society. From these eight lectures we learnt that blood can convey, with equal power, the violence of death and the giving of new life; it can be the focus of calm scientific enquiries and of heated passions. It can take us back into our deep ancestral past, or forward into the realm of artistic imagination. And, of course, it plays a vital role in combatting infectious diseases, such as Covid19.

I am deeply grateful to our distinguished speakers, our College Fellows – especially Dr Iosifina Foskolou



and Professor Martin Jones who organised **BLOOD** – our staff who skilfully managed the series and our loyal global audience for maintaining their enthusiasm and tolerating another Zoom experience.

Now our attention turns to the 2022 Darwin College Lectures. At a time when the world is confronting challenges such as climate change, sustaining biodiversity, and the threats of regional and global insecurity, the issue of **FOOD** and its place in our lives now, in the past and in the future, has universal relevance. We look forward to another exciting and multidisciplinary series of talks that will explore food science and ethics, the role that food plays in our lives aesthetically, historically, and politically, and how decisions about the food we eat may destroy or save the planet.

Food and drink are 'hot topics' in College. A few weeks ago, the catering department began offering an exciting range of freshly cooked delicious, sustainable meals out in the gardens and we have warmly welcomed back real crockery, alongside new reusable take-away food boxes, and the reopening of the DarBar (also tempting us with sustainable beverages).

'Darwin College Green Week' is a new exciting annual initiative; this year Catering Manager Ivan Higney and the DCSA (Darwin College Student Association) Green Officer Megan Groom orchestrated an excellent series of events and talks to inform, engage, and encourage us all in how we can live more sustainably. Alongside this, the College Environmental Infrastructure Working Group is actively working out how we can reduce our carbon footprint, including exploring the use of innovative renewable energy sources. Meanwhile the College has fully divested from its direct fossil fuel holdings and continues to monitor and reshape its portfolios to support low-carbon, sustainable, and renewable solutions, alongside good corporate governance, and social responsibility.

As we move into the British summer, we plan to organise a number of workshops/discussion fora on how the College can contribute more to achieving an environmentally sustainable world that is socially equitable and just. Building on the success of recent alumni Zoom talks, I hope you will join us for such discussions since I know an increasing number of Darwin alumni have expertise, ideas and a passion that can help us make Darwin a beacon of sustainability alongside its strong and ever-growing interdisciplinary, international, and intellectual strengths.

**Left, top to bottom:**  
Marc Quinn, giving his Darwin College Lecture Series Talk, 'Blood Sculptures'

Professor Tim Pedley, giving his Darwin College Lecture Series Talk, 'Blood in Motion: The Physics of Blood Flow'

Dr Claire Roddie, giving her Darwin College Lecture Series Talk, 'Battle Blood'

## Darwin and Sustainability



In this issue of the *Darwinian* we have chosen to focus on sustainability. Put simply, sustainability may be defined as meeting our own needs without compromising the ability of future generations to meet their own needs.

To achieve a sustainable world for humanity we need to address it at three interrelated levels: environmental (to sustain our planet), societal (to sustain people) and economic (to sustain the economy). The Covid19 pandemic has shown the fragility of our current economic, social and environmental policies perhaps creating an opportunity for governments, the private sector and individuals to rethink.

**The four articles that follow demonstrate some of the innovative research and thinking generated by Darwinians in their efforts to contribute to a sustainable world. They illustrate the importance of research but also the interconnectedness of social, natural and physical sciences that is required when addressing the global challenges of achieving sustainability.**

## Economic Governance in a Post-Covid World



**Darwin alumnus Augusto Lopez-Claros (1976–77), Chair of the Global Governance Forum is an international economist with over 30 years of experience in international organizations, including most recently at the World Bank where he was the Director of the Global Indicators Group. Previously he was Chief Economist at the World Economic Forum. In 2018 Sweden’s Global Challenges Foundation awarded him the New Shape Prize for his work “Global Governance and the Emergence of Global Institutions for the 21st Century.” Published by Cambridge University Press (2020). Here he talks about Future Economic Governance.**

**T**he COVID-19 crisis is the largest shock to the global economy since the 2008–09 global financial crisis, maybe since the Great Depression of the early 1930s. The impact has been highly destabilising and global in scope and perhaps no statistic captures more eloquently its welfare costs than that for the first time in 3 decades in 2020 we saw a sharp increase in the number of people classified by the World Bank as “extremely poor”, about 120 million people joined the ranks of the very poor, a reversal likely to continue in 2021, the incipient economic recovery notwithstanding. Not surprisingly the crisis has raised multiple questions about our economic system, its resilience to shocks and, more generally, whether it is on a sustainable path. What are some of the lessons that can be drawn from this past year?

### Restoring public spending priorities

COVID-19 has found the majority of countries unprepared to deal effectively with its devastating consequences. Even high-income countries have seen their hospitals and public health systems come under heavy strain. However, in the midst of the pandemic, according to IMF data, we continue to spend the equivalent of 6.3% of global GDP in subsidising petrol, electricity, natural gas, and coal, thus worsening climate change and also economic inequality, as 60% of the benefits of these subsidies end up in the hands of the richest 20% of the population. Faced with high levels of extreme poverty, malnutrition, and illiteracy in the world, this represents a massive waste of resources. There should be a broad debate about the priorities of public spending, against the background of future claims on public resources linked to population aging, climate change mitigation and adaptation, and the challenges associated with budgets already under strain as a result of the consequences of the pandemic.

### Broadening the safety net is a good investment

One characteristic of coronaviruses and similar pathogens is that they pose risks to the entire human species. Smallpox, which until 1967 infected 15 million people annually and was fatal to 2 million of them, was eventually eradicated in 1980. Closing borders does not guarantee the elimination of the risk of contagion, in addition to being an inefficient measure, given the high

degrees of integration of the world’s economies. A more realistic solution—and certainly less harmful to human prosperity than retreating behind national borders—is to expand access to health and basic social protections to a much larger percentage of the world’s population. Not only would this demonstrate solidarity, but also minimise the systemic risk from unprotected populations: vulnerable people must be protected to protect everyone. One important lesson from COVID-19 may be that, in a fully integrated world, solidarity and altruism are not just luxuries for the spiritually minded but, in fact, are indispensable conditions for survival.

### The moral/ethical case for better social protection

There is a moral case for better social protection, even if this means a fundamental rethinking of the structure of the budget. There is no need to appeal here to a universal ethic, as an end in itself. Corruption is immoral, a violation of the public trust; but it is also bad economics, with toxic effects on human prosperity. We live in a world in which a completely accidental event—the nationality of our parents—plays a fundamental role in the prospects we face as human beings. If our parents are Norwegian, we will have enormous opportunities to develop our inherent capabilities. For in Norway, it is highly probable not only that we will safely reach the age of 5, be well fed and educated, and have access to modern medical and health facilities; but a benevolent state will also provide for us in our old age, since in Norway economic policies have incorporated the concept of sustainability in their design, including in management of public finances and the responsibilities of the state to future generations.

If, however, we are born in any of the low-income countries, we may not survive to the age of 5; and if we do, we are more likely to become part of the 820 million people in the world who suffer from malnutrition and the development of whose talents may be stunted not only by the lack of good nutrition during the early stages of the development of our brains, but by the absence of quality education. And, of course, on average, we may live to the age of 59, rather than the 79–80 seen in some of the more successful high-income countries. Even if one characterises this situation as “a fact of life,” it is a sad commentary on the current

state of our world, increasingly under strain from the impact of various forms of inequality. The fact is that this is profoundly unfair; there is no ethical framework in which this state of affairs could be characterized as being consistent with elemental notions of justice.

Strengthening the underpinnings of our systems of social protection—whether through the gradual introduction of something like a universal basic income or by other schemes that are seen to be affordable—would go a long way to helping erase extreme poverty, malnutrition, illiteracy, and gender discrimination in an age of plenty. In the age of COVID-19 and future pandemics, it could actually be the socially optimal path, affording greater protection everywhere, including for those most adversely affected in the more prosperous parts of the world. Bertrand Russell long ago spoke of the need to “expand our mental universe.” He said that our sense of collective well-being would have to extend to the whole of humanity, as it was evident that human society was increasingly behaving as a single, organic entity and that this would become an indispensable condition for survival.

This may well be one of the more enduring lessons from the calamities of COVID-19.

### **Strengthen the role of the WHO**

An independent panel reviewed the global response to Covid-19 and distilled important takeaways into a recently released report. The panel concluded that a strengthened WHO supported by a new framework of institutions such as a Global Health Threats Council of world leaders and an International Pandemic Financing Facility is the best strategy to arm against the next health crisis. The WHO needs a global surveillance system of disease threats and a rehaul of its International Health Regulations to prevent governments from hiding data on outbreaks, as China did early last year. Furthermore, the WHO must be better sheltered from political interference, perhaps by extending the director-general's term to seven years and banning re-election. Finally, the watchdog needs proper funding that is guaranteed, not voluntary. The WHO's current \$5.84 billion biennial budget is minimal considering its massive responsibilities. There is growing evidence that with a pathogen like the coronavirus, the distinction between the national and the global interest is largely artificial, if not actually self-defeating. A strengthened WHO will improve the international sharing of health data and the mobilisation of medical resources and will protect against failures of national governance and coordination.

### **It is necessary to redefine the meaning of national security**

In the minds of the majority, the concept of national security evokes images of well-equipped military establishments ready to defend national interests against possible real or imaginary attacks by potential adversaries, while absorbing a significant share of national budgets. But COVID-19 has shown us that, in the midst of a pandemic, the most sophisticated and destructive weapons



are totally useless. Perhaps national security will now have to be seen from the perspective of human well-being, from the ability of governments to have well-prepared health infrastructures, a clean environment, a social safety-net, and the resources to continue to educate children and young people in preparation for an increasingly complex world.

### **Preparing for the next crisis**

Against the chaos and destruction of World War II—the nations of the world came together and adopted the UN Charter, a noble set of principles that was supposed to inaugurate a new era in international cooperation, to bring about peace and security, thereby creating a solid foundation for economic and social development. The world entered a period of rapid economic growth which contributed to a dramatic increase in life expectancy, reduced infant mortality, and less extreme poverty. But the very economic growth which made these achievements possible, and which was accompanied by a remarkable process of integration and growing interdependence, also contributed to the emergence of environmental constraints on the scale of human activity, rising income inequality and persistent poverty and conflict. COVID-19 is a manifestation of one aspect of a whole range of global catastrophic risks which we now confront and which we need to address in a more proactive way, starting with the implications of accelerating climate change. We need to give serious thought to the kinds of global institutional arrangements which we need to have in place to empower us to deal with the looming crises that are ahead of us, and which have the potential to destabilise not only the global economy but our social and political order.

## Sustainability and Public Health



**Carol Brayne CBE is a Fellow of Darwin College, a Professor of Public Health Medicine and Co-Chair of the Cambridge Public Health Interdisciplinary Centre at the University of Cambridge. She is a medically qualified epidemiologist and public health academic. Her main research has been on longitudinal studies of older people following changes over time with a public health perspective and focus on the brain.**

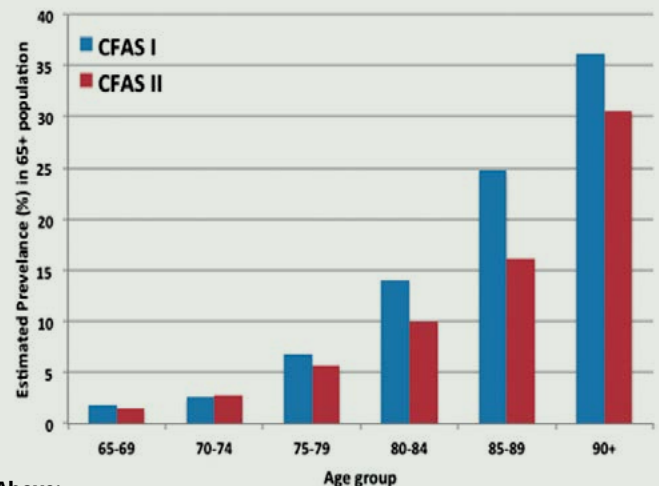
**Jonathan Goodman is a PhD student in anthropology at Darwin interested in evolution, behaviour, and health, and is digital editor at Cambridge Public Health. He is also a science writer and former public health researcher at Imperial College London. Here they discuss Sustainability and Public Health.**

The view that sustainability and public health are inextricably linked is not new. For more than half a century and indeed since time immemorial, people have been aware that living well and keeping our planet healthy are not separate issues. But this has not been the predominant societal concern, and instead we have focused on particular types of economics and production. There appears to be a lack of recognition that aligning sustainable approaches to public health is vital for healthy life-courses and the lives of those coming after us.

To understand the myriad relationships between the health of our planet and the health of our societies, it is necessary to think about how prevention is related to health. In public health, prevention is about more than drains, vaccination, screening, and individual behavioural adjustments. If someone lives in a violent home, on a smoky street, or with inconsistent access to clean water – each of these, as with innumerable other factors, determines the health risks we face across our life-courses, both individually and in groups.

Our second line of prevention deals with the detection of early indicators or risk for later illness: this is 'early detection' or screening (such as for HPV in the prevention of cervical cancer). And tertiary prevention - our last line of defence - is to mitigate against the impact of extant diseases after they are identified and enable appropriate support towards the end of life. All these together, including working at the collective level, are aimed at enabling lives to be as good as they can be.

All three approaches are therefore essential for the functioning of a good health system, both at international, national, and local levels. Unfortunately, of these approaches, primary prevention is perhaps the least understood and the roles each play in overall health of the population even less so.



**Above:**

*Estimated Prevalence of Dementia in 65 Plus Population in 1990 (blue) and 2010 (red)*

The perception can be that public health is all about multiple screening and early detection activities, personalised lifestyle guidance, and a lot of medical intervention, but the best systems are actually those that most effectively reduce our individual exposure to risks.

Health, although it might seem so, is not primarily our own personal decision. Health and wellbeing comprise many things, from how we are constituted, to our life course and even the many types of environment in which we exist; the psychological, the social, the physical, the emotional and the cultural. There are many, many influences on our health throughout our lifetime, and all of these have their own impact and potential for improving - or not improving - the sustainability of our societies and, by consequence, our species.

Take, for example, dementia. In our own work to establish how common dementia is in the population, we studied older

people in varying geographical localities. We first did this around 1990 and again in 2010, using the same methods in the same places. We found significant differences in the proportion of people with a diagnosis of dementia between the two generations. In both studies there was the expected dramatic rise in dementia prevalence with age, doubling every five years after 65. There was also something rather unexpected, a more than 20% decrease age for age in the more recent generation. This suggests that, in the intervening 20 years, there was a drop in dementia prevalence across generations: but, given a lack of improvements in care and screening, why was this case?

A public health perspective, focusing on primary prevention, helps to answer this question. We know that social structure may have a profound influence on neurological events. And while some physical metrics - such as improvements in heart disease and stroke rates - may well be associated with these changes in dementia prevalence, there have also been improvements in maternal and early life health, education, vaccination programmes, nutrition, and social welfare systems. The introduction of the NHS underpinned some of these aspects, but by no means all.

Of course, all these are changes to types of environment and are likely to all contribute to a greater or lesser extent to changes in the prevalence of brain disorders and mental health or wellbeing. What the public health perspective offers is the sense of malleability of our health: we are organisms that live across generations and between groupings within our societies. Everything about those societies, and the subgroups within them, contribute to our own health.

Focusing on the factors linked with dementia elucidates this link further. Among these are poor education, hypertension, diabetes, depression, obesity, infrequent social contact, and air pollution. Each of these is, in turn, linked with systemic problems in our societies – locally and globally, which

contribute, over time, to the physical and social environments that lead to a greater dementia risk in some populations.

We cannot address any of these problems without addressing all of them. Inequality, health risks, and environmental issues are inextricably linked, and to prevent people from developing issues like dementia, we need, as a society, to focus on addressing the sources of these problems. While the improvements we have made, both social and medical, have

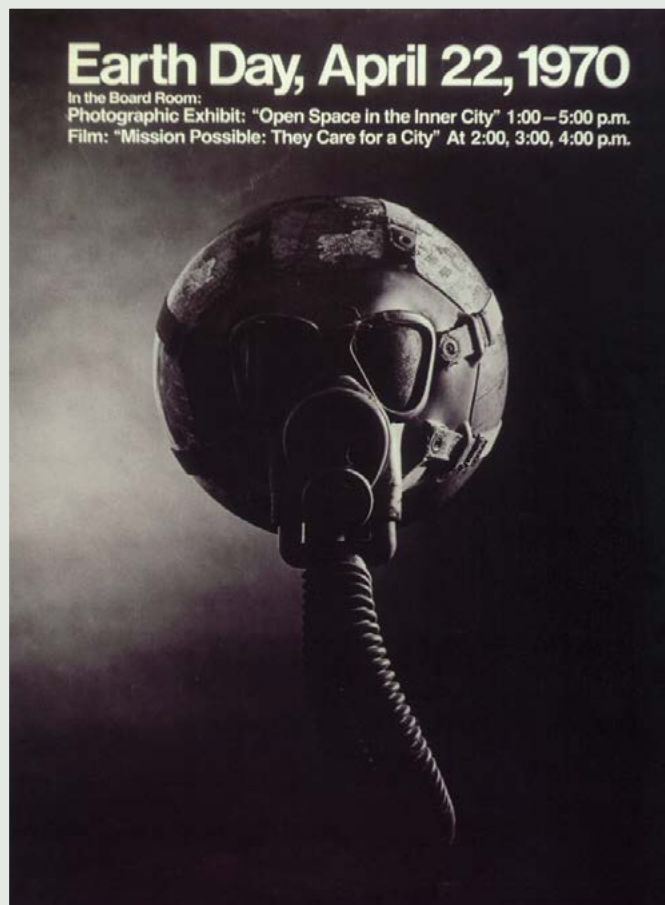
helped to reduce dementia risk among the elderly, they have also allowed inequality to persist and sometimes worsen – contributing to poor air quality and poor lifestyles among those without means. To reduce dementia risk in the future, addressing inequalities and the environment, as well as exemplifying healthy populations and healthy communities, seems likely to yield healthy brain ageing, and healthy ageing more generally.

Some countries with a primary prevention-focused health system demonstrate that good health outcomes are possible without enormous expenditure. So perhaps, instead of focusing only on the novel, expensive screening tools and treatments used in the second and third lines of defence, we should learn to rely more heavily on the first, preventive line, and in

academe shift our emphasis to invest more in these areas of evidence generation to inform the best possible policies. This will improve public health and reduce healthcare spending, and consequently, will help to improve the health of our planet.

We are at a critical moment where we can align the agendas of health and sustainability. Communicating the links between these agendas, both to the healthcare world and the public, is essential for the success of each.

**Above:**  
*Earth Day Poster from 1970*



## Solar-Driven Recycling of Waste into Fuel

**Dr Taylor Uekert (@TaylorUekert), Darwin alumna (matric: 2016) recently completed her PhD in the Reisner Lab as part of the Nanoscience & Nanotechnology Doctoral Training Centre and Darwin College. She will soon begin a postdoctoral position at the National Renewable Energy Laboratory (USA), where she will research circular economy strategies for photovoltaics and other renewable technologies.**

**T**ake a moment to look around yourself and think about what sort of plastic products you might throw away today. Perhaps there is some food packaging, or an old pen, or an empty soda bottle. These items quickly add up, and globally we produce 78 million tonnes of plastic packaging every year, or roughly how much eight thousand Eiffel towers weigh. With the advent of documentaries such as Blue Planet II, the enormous environmental impact of plastic waste has become increasingly apparent: 40% of all plastic packaging is landfilled and another 32% leaks directly into the environment. However, it may nevertheless come as a surprise that although 14% of all plastic packaging worldwide is collected for recycling, only 2% actually ends up being recycled back into the original product.

While much can be done in terms of reducing plastic consumption and developing alternative business models, new methods for recycling plastic waste into useful products are also essential, a topic being studied by Dr Taylor Uekert, a Darwin alumna who recently completed her PhD in the Reisner Lab at the Department of Chemistry. Taylor researches a process called photoreforming, which uses sunlight and a photocatalyst (a material that makes a chemical reaction happen faster) to simultaneously break down plastic waste and generate hydrogen ( $H_2$ ).  $H_2$  is a particularly interesting product given its many applications in the chemical and fertilizer industries, as well as its potential use as a clean fuel and heating source in the near future.

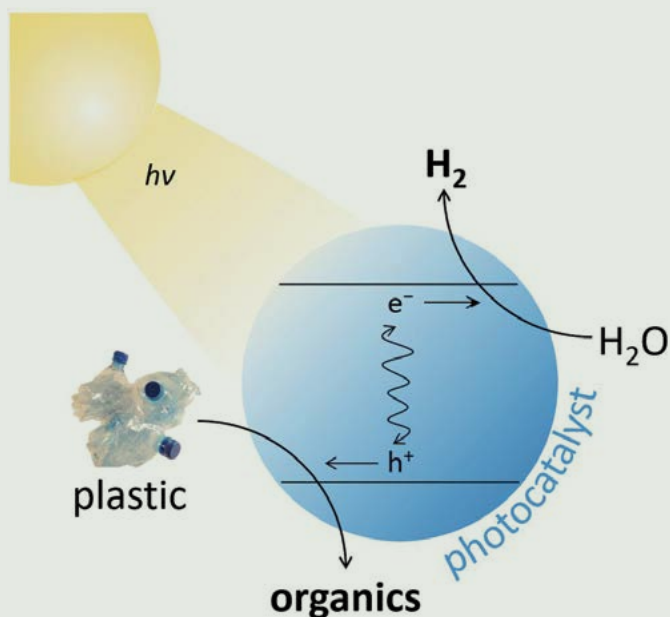
Photoreforming begins when sunlight shines upon a photocatalyst, which in Taylor's case is an environmentally friendly material called carbon nitride coupled with nickel phosphide. That sunlight gives the electrons in the photocatalyst enough energy to break down water into  $H_2$  gas. The holes remaining in the photocatalyst then drive the breakdown of plastic into smaller organic molecules. These two chemical reactions occur simultaneously, thereby enabling not



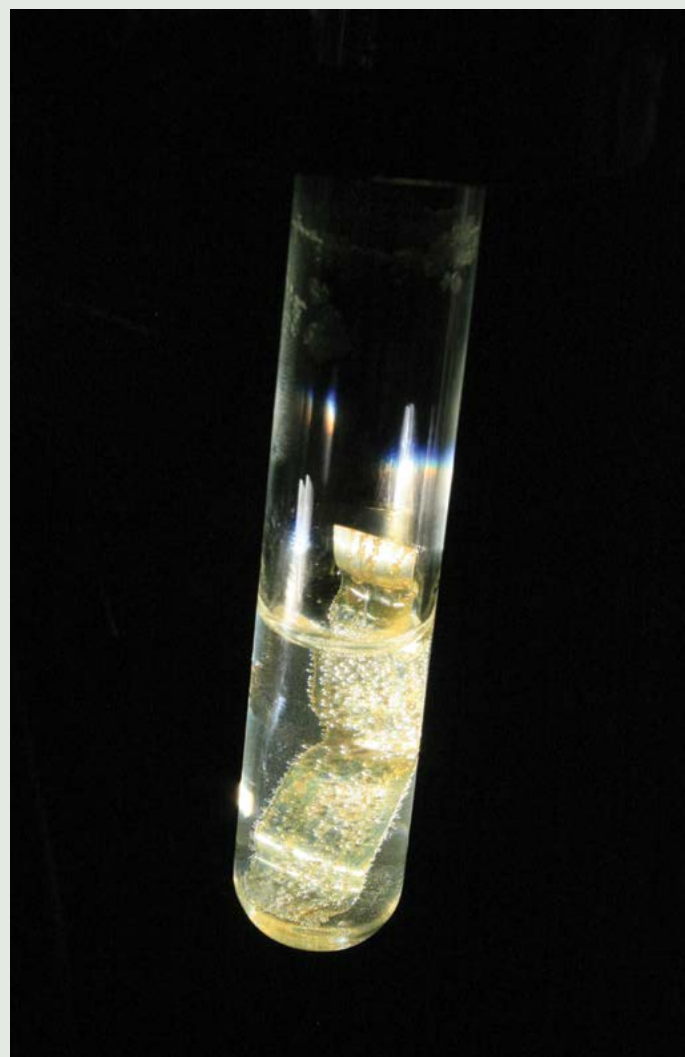
only the generation of a green fuel, but also the mitigation of waste that might be difficult to dispose of otherwise.

Taylor and other researchers at the Reisner Lab have recently shown that photoreforming can produce  $H_2$  from common polar plastics such as polylactic acid (PLA), which is a biodegradable polymer commonly used in Vegware, and polyethylene terephthalate (PET), which is most commonly found in drink bottles and food packaging and accounts for 10% of global plastic waste. After one week of sunlight exposure, approximately 6-7% of these plastics can be converted into  $H_2$  and small, useful organic molecules such as formate and acetate. More importantly, photoreforming operates not just with pure plastics, but also with products that cannot be currently recycled. These include polyester microfibers, which are found in synthetic clothing and are too small to recycle, and oil-contaminated PET, which cannot be recycled due to its food contamination. Taylor has also looked beyond plastic alone and generated  $H_2$  from different types of food and mixed municipal waste, resulting in a process that is significantly more versatile than other recycling techniques.

In addition to demonstrating the wide scope of photoreforming, Taylor has also worked on immobilising the carbon nitride photocatalyst on a glass panel, which is



To learn more, please visit the Reisner Lab's website ([www-reisner.ch.cam.ac.uk](http://www-reisner.ch.cam.ac.uk)) and Twitter (<https://twitter.com/ReisnerLab>), or watch their informational videos ([www.youtube.com/user/reisnerlab](http://www.youtube.com/user/reisnerlab)).



**Left to right:**  
 Taylor Uekert in the lab holding a photoreforming sample  
 Schematic of the Photoreforming Process  
 Close up of H<sub>2</sub> Bubbles forming on a PET Water Bottle as it is Photoreformed

important for up scaling and real-world processes in which immobilisation allows for facile photocatalyst recycling. The photocatalyst panels can produce H<sub>2</sub> from a range of plastics and mixed waste and can be up scaled from a vial 1 cm in diameter to a flow reactor with an area of 25 cm<sup>2</sup>. The panels also enable H<sub>2</sub> generation from dark, real-world waste that would otherwise prevent light from reaching the photocatalyst. For example, photoreforming run in this new flow reactor can still produce up to 50% as much H<sub>2</sub> under “realistic” conditions – 20% of the sunlight typically used in the lab (closer to UK irradiance) and seawater – as under “ideal” conditions (maximal sunlight and highly pure water). This is a crucial step for defining the overall sustainability and economic viability of a future commercial scale photoreforming setup.

While photoreforming benefits from its simplicity and versatility, just how “green” is it? To answer this question, Taylor and her co-workers modelled a hypothetical photoreforming pilot plant capable of handling between 100 and 300 kg of waste per day. They then calculated the carbon footprint, or how many greenhouse gases are emitted throughout the process chain per a certain amount of generated H<sub>2</sub>. With some improvements in efficiency, photoreforming is expected to produce H<sub>2</sub> with a lower environmental impact than existing waste-to-fuel technologies such as gasification or pyrolysis. Photoreforming also emits 40% greenhouse gases than disposing of waste in a landfill. From an economic perspective, there are still many things to improve, particularly photocatalyst efficiency and lifetime. However, all of these topics and more are currently being investigated in the Reisner Lab, with an aim to bring photoreforming to real-world application within the next ten years.

## Health starts at home... Designing healthy housing



**Koen Steemers is an alumnus of Darwin (matric: 1992) and Professor of Sustainable Design at Cambridge. His current research addresses the architectural and urban implications of environmental issues ranging from energy use to human well-being. He is an architect and environmental design specialist and was listed as one of the “top 50 most influential people in UK sustainability” by Building Design. Here he talks about Designing Healthy Housing.**

### The Challenge

We spend 65% of our lives in our homes where typically interior pollution levels are 5 -10 times the levels found outdoors (depending on what you measure). On the one hand we have a large proportion of existing UK homes which are poorly insulated, cold, damp and mouldy. On the other hand, as building energy standards have made our new homes more airtight, we increase the risk of overheating and trapping in domestic pollutants. As we have become increasingly house-bound, we seal ourselves off from outdoor environments which should provide opportunities for physical activities, social engagement and contact with nature – not to mention sunlight and fresh air.

### Defining Health

When the WHO was established in 1948 – the same year as the NHS – it defined health as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”. Not only do we need to consider immediate physical health aspects – such as asthma, hypothermia, heat stress – but also how the design of our homes and neighbourhoods have a long-term bearing on social and mental wellbeing.

The WHO definition is extremely ambitious in aiming for “complete” wellbeing, which is arguably unobtainable. Within any population and over time there will be a distribution, of for example mental wellbeing, ranging from flourishing to languishing or worse. The aim is to shift more of the population towards a higher level of life satisfaction, or into the flourishing category of wellbeing. So, a more useful aim for our health rather than “complete wellbeing” may be to ensure that we can adapt to physical, social, and emotional challenges. This raises the question: what are the characteristics of our homes and neighbourhoods that can help us to adapt and self-manage?

### Measuring Health

To improve health through design we need to be able to identify the metrics of health and their potential links with architecture. Since the turn of the 21<sup>st</sup> century, there have been numerous proposals to define or distil wellbeing to salient characteristics. The Warwick-Edinburgh Mental Wellbeing Scale uses a comprehensive 14-item scale. Seligman’s five elements of PERMA focus on core aspects of



positive psychology (Positive Emotion, Engagement, Relationships, Meaning, Accomplishments). This has been extended (referred to as PERMA+) by including factors related to physical health such as activity, nutrition and sleep. An alternative and helpfully concise 5-point definition of wellbeing, that includes physical, social and mental aspects, is the New Economics Foundation’s ‘Five Ways to Wellbeing’ (Connect, Be Active, Take Notice, Learn, Give). Like the ‘five a day’ recommendation for eating fruit and vegetables, the benefit of this approach is its clarity, reach and effectiveness.

Let us consider the two common elements – physical and social (that in turn support mental health) – and explore their strategic relationship to our homes and neighbourhoods.

### Physical Health

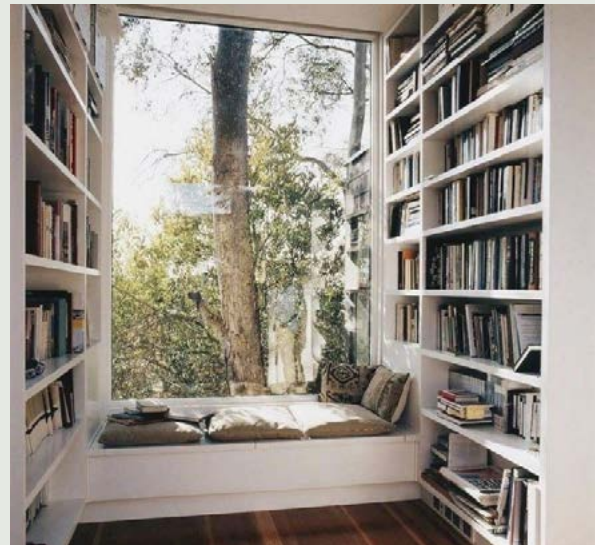
The two aspects necessary for physical health, that have been consistently understood for millennia, are access to fresh air and (sun)light. Pollutants introduced through construction materials and surface finishes can be avoided through design specifications. However, cleaning chemicals and soft furnishings can add Volatile Organic Compounds (VOCs), microbes and dust to the air. Building ventilation is a field of expertise that informs window design and air flow strategies for energy efficient, natural and mechanical ventilation. Window orientation, size and design also influences the amount and timing of ingress of light, affecting our wake-sleep patterns – or circadian cycles. The disruption of circadian regulation is linked with a wide range of impacts from mood and learning deficits to increased risk of cardiovascular disfunction and even cancer. Access to fresh air and natural light are key design determinants of healthy homes.

A third consideration for health, in which housing design can play a role, is related to physical activity. Stairs are an obvious architectural feature: our research has shown that climbing one flight of stairs accounts for 3.3% of extra daily energy expenditure. Ensuring that staircases are pleasant spaces, with good light, views and art or books to look at on the way, will help to make their use less of a chore. Designing a home over three floors, with a study at the top and the kitchen on the ground floor, will nudge people to use them more frequently without thinking (e.g. to make a cup of tea). In such a situation climbing more than 10 flights per day is easily achieved and will account for over 30% of daily energy expenditure. Add to that a neighbourhood design that makes it easy and enjoyable to walk or cycle to a park, shops, schools and work.

### Social Wellbeing

This refers to the social connections with others, within the home or in the wider neighbourhood. This concept includes views of and access to nature – which are known to bring health benefits – as well as to social spaces and neighbourhood parks. This will have implications for the design and orientation of windows and the arrangements of local open space provision. In simple terms, our research has demonstrated that reducing private gardens in favour of providing an increase in and, importantly, a diversity of open spaces (both hard and soft landscaped) brings measurable benefits for social wellbeing.

In the home the opportunity to connect – or, conversely, to avoid antagonising social relationships - can also be supported through design. For example, eating together is known to contribute positively socially and nutritionally, especially when this is combined with preparing (fresh) food together. The design of the kitchen can facilitate this, with a work surface around which people can gather



and 'perform' food preparation, as opposed to worktops facing a blank wall with the cook's back turned to the 'audience'. Making the dining area more easily accessible (adjacent to or in the kitchen) can nudge people towards social eating as opposed to TV dinners. These small changes bring cumulative benefits.

Conversely, it is important to address fundamental issues of overcrowding to avoid stresses but also to ensure that domestic spaces are acoustically separated and can accommodate a range of activities. These might range from studying (or working from home) to playing music or engaging in other creative, and sometimes messy, activities.

### Population Wellbeing

In a recent survey, over 100 subjects were shown a design of a window seat – with natural light, views of nature and contact with the neighbourhood – and asked to imagine they had such a space in their homes. The impact of this imagined instance alone improved their life satisfaction score by 5%. One of the opportunities presented by architecture is that through the design of form, space and materiality it can order our relationships with each other and our environment by creating interactive settings for life. Good architecture and design provide opportunities to improve our sense of wellbeing, enrich our lives and make them healthier and more pleasurable – for example, the shaft of sunlight in a window seat that creates a moment of warmth and calm, combined with a glimpse of nature, soft and acoustically absorbent seat materials, and the tactile delight of the smooth handle that adjusts a wooden shutter. Our wellbeing is intimately linked with such moments of delight, and successful design carefully orchestrates an accumulation of such opportunities to adapt to our physical and mental needs.

#### Left to right:

*An Active Staircase*

*A Cosy Window Seat Niche*

## New Lift Access to Dining Hall



**Left:**  
*Phillip Waterson inspects the building works.  
New Corridor Leading to the Lift*

### John Dix, Darwin Bursar explains:

The official opening of the Rayne Building and Dining Hall was in March 1969 when the College was five years old. At that time, perhaps because of the spritely youth of the College and its membership, but more likely for financial reasons, no passenger lift was installed. Presumably it was also then acceptable that, if necessary, the goods lift at the back of the kitchen might be used for those for whom the stairs were a challenge or impossible. Half a century on the College and an element of its membership have acquired a degree of venerability, as has the goods lift, and expected standards of accessibility are happily much higher. It therefore was a priority, as part of the College core areas master planning, that a site for a passenger lift be determined and that its installation be expedited.

Working with Architects Caruso St John, the College has developed outline plans with a range of options for the future conservation, refurbishment and improvement of the Hermitage, including the kitchens, and its two adjoining buildings. These are for further consideration in due course, but all the options put forward involve a lift being sited as near as possible to the main entrance. Over the last eighteen months plans were drawn up, planning permission sought and granted, and the work has been carried out.

The lift is immediately to the right of the College's main entrance in the corner of the Hermitage that previously was used for staff changing facilities on the ground floor, and a kitchen cool-room above. The lift has two sets of doors to enable it to be accessed at the main entrance street pavement level, and then again at the Hermitage ground floor level via a new lobby off the central

corridor and stairwell. On the first floor a similar new lobby connects with the corridor through to the servery and dining hall. On both floors a unisex disabled toilet has been installed in the lift lobby. As both lobbies have windows to the street, this arrangement has brought the unanticipated bonus of more natural light into the Hermitage corridors on both levels. The works have significantly improved the accessibility of some of the main facilities and rooms in College.

Our thanks are due to the team who delivered the project smoothly and efficiently despite the pandemic, and to our own ever-vigilant Clerk of Works, Phil Waterson, by whom no architect's whim passes if it won't survive the rigours of student life or if it can't be cost-effectively maintained for the next forty years. The College expresses its deepest gratitude to the donors who have supported this project, notably the late Chris Johnson, Arnold Burgen and Nicholas Branson. Their donations enable us through this small starting step, not only to make the College more welcoming to members and visitors, but also to begin to envisage something of what the future refurbishment of the Hermitage might bring.

### Hermitage Lift Project Team

Architects	<i>Caruso St John</i>
Structural Engineers	<i>Alan Baxter Associates</i>
Quantity Surveyor	<i>Robert Lombardelli Partnership</i>
Services Engineers	<i>Collaborate + Create</i>
H&S/PD	<i>MLM Group</i>
Building Contractor	<i>Regent Construction Ltd</i>

# Award for the Old Granary and Counting House

When the College embarked on upgrading the student rooms in the Old Granary it was with trepidation. The Old Granary and Counting House are listed buildings with the added challenge that they adjoin the River Cam. The project therefore involved shoring up the building, ensuring that the river didn't compromise the structural integrity of the construction and conserving the building to the highest standards.

We are proud to say that not only were the student rooms refurbished to the highest standards but also that the architect and construction team have won the 'Cambridge Design and Construction Awards' award for conservation and alteration.

The internal remodeling was particularly challenging for the contractors and designers because, among other things, they had to deal with beams passing through the rooms below head height and needing to upgrade the poor general condition of the building fabric.

Now, from the exterior a visitor would not know the buildings had been extensively refurbished and upgraded to meet high standards of environmental performance and conservation.

The judges praised the project for "the sensitive resolution of these difficulties whilst maintaining and improving the internal character to make it a delightful place to live and work".

## The Companies involved were:

Client	<i>Darwin College</i>
Main Contractor	<i>Messenger</i>
Conservation Architect	<i>Allies and Morrison</i>
Structural Engineer	<i>CAR</i>
Services Engineer	<i>Max Fordham</i>
Landscape Architect	<i>Bradley Hole Schoeniach</i>
Cost Consultants	<i>DR Nolan and Co.</i>



**Right, top to bottom:**  
*Old Granary Design Award*  
*The Plaque In-Situ on the Old Granary*  
*Photo Credits: Andzrej Bugaski*

# From the Development Director

Samuel Venn reports:



**A**s we contemplate moving back to in-person events, it's an interesting time to reflect on the last year.

One thing that is clear is that the use of videoconferencing technology will undoubtedly be crucial in our future interactions with the worldwide Darwin community. The ability to run an event for close to 100 Darwinians at a time across

multiple continents simultaneously, is too good an opportunity not to continue. That said, we are keen to welcome alumni back into College; but in future, a mixture of in-person and online events will enable us to keep our community engaged and in touch with the College like never before.

In the last few months, we were very sad to hear of the untimely death of former Research Fellow Dr Iain Morley. We also mourn Celia Milstein, the widow of the late Cesar Milstein, who was also very much part of the College 'family'. In the last issue of the *Darwinian*, we published an obituary of Prof Hugh Mellor; in this issue I record the College's profound thanks to Professor Mellor for his most generous legacy to Darwin, which is enabling us to endow D H Mellor Philosophy Studentships in perpetuity.

As you can imagine, fundraising for students has been, and will of course continue to be a major part of our work. The pandemic has resulted in many students encountering unforeseeable financial circumstances and has meant that the College has needed to award increased funds in student hardship grants, with over £80,000 awarded in the last year. We are immensely grateful to the many donors who have contributed at different levels to support our students at this time. The College also needs to continue to attract the best students, and to that end we continue to fundraise for studentships, and with thanks to the generosity of a number of donors we have increased the variety of studentships available to both prospective doctoral and masters-level students.

Over the year we have also received a number of generous donations which have helped us to install a lift in the Hermitage section of the College, enabling step-free access to the first-floor level (see page 12). Installing a lift is very much the first phase of a more general review of the communal areas of the College, which are much-loved, and which do much to promote the intimate atmosphere of Darwin. At times, these spaces quickly become full given the increase in students over the last few decades. A case in point is the gym, which you may remember is far too small for purpose. The good news is that the College has purchased a building adjacent to Gwen Raverat House which will become a new, larger, purpose-built gym. We will soon be seeking support to



equip it. As our plans for other communal areas develop, we will of course keep you fully updated!

In June 2021 we said farewell to Eleanor Collingwood, Alumni Officer at Darwin since 2018. Ellie has made a huge contribution to Darwin and we are very grateful for her hard work and dedication! Ellie moves on to a new role working in the heritage sector, and we wish her well for her future.

To close, I would like to thank everyone who has contributed to Darwin over the last year. Your donations – at whatever level – are greatly appreciated and do much to ensure that the College can provide for its students over what has been, in anyone's book, a challenging period in the College's timeline.

**Above:**

*Darwin Gardens – a Sign of the Times.*  
Photo Credit: Sir Cam

# Darwin, COVID and Alumni Events

One of the most rewarding aspects of working in Alumni Relations is hosting events for alumni. It is always a pleasure to hold reunion dinners in College and hear about student life in years gone by; to show alumni how the College has both changed, and fundamentally stayed the same.

For alumni who can't make it into College, we have held events all around the world – which gives us the enjoyment of bringing a little bit of Darwin to you!

It has therefore been disappointing that since the start of the pandemic we have lost the joy of meeting in person and with it the opportunity to reminisce about times gone by and to look forward to the future.

To fill this void, and with thanks to our wonderful alumni speakers, the Alumni Relations Team have held a number of virtual talks as part of our popular *Alumni Zoom Series*. We have enjoyed talks on a variety of topical and fascinating issues, ranging from American politics to Antarctic Tourism. A heartfelt thank you to all our wonderful speakers!

The Series has been such a success that we will continue it even after we are able to hold in-person events again. Indeed, virtual events are increasingly vital to maintain contact with our large cohort of international alumni whom we can't visit as often as we would like.

We very much hope to hold events in College again from Michaelmas term. Depending on the COVID rules in place then, we may host a Garden Party on Sunday 26th September at 2pm. We will keep you posted via social media and send out invitations as early as possible.

On the reverse of this newsletter there is a list of events which we will hopefully host in College during the next academic year. Please note that, although we very much hope to run these events, they are subject to change. It is also hoped that in 2022 the Development Director and the Master will be able to travel to visit alumni around the world – events will be organised when we are advised it is safe to do so.

However we meet again, we very much look forward to welcoming you back.



**Above, clockwise from top-left:**

Jennifer Piscopo, Anne Andermann, Scott Shackelford, Ann Ager, Ned Farquhar, Arthur Graham, David Macdonald, Lawrence Sherman

# Darwin Community Appointments and Awards

### Darwin College Appointments:

**Professor Amrita Narlikar** has been appointed an **Honorary Fellow of Darwin College**, and holds the honour of being our youngest Honorary Fellow to date. Amrita is the President of the German Institute for Global and Area Studies (GIGA), Hamburg. She is a Professor at the University of Hamburg, and non-resident Senior Fellow at the Observer Research Foundation, Delhi. Before moving to Hamburg, she was Reader in International Political Economy at Cambridge and a Fellow of Darwin College from 2008-2015. Her research specialism lies in International Political Economy and International Relations, with a focus on international trade, multilateral negotiations, economic statecraft, and the global south.

**Professor Euan Nisbet** has been appointed as an **Honorary Fellow of Darwin College**. Euan is Professor of Earth Sciences at Royal Holloway, University of London. Among other interests his research looks at modern and glacial atmospheres focusing on methane in the modern air, including the role of methane in Arctic climate change, methane hydrates and their role in global warming, and the task of assessing present day atmospheric methane burden.

**Dr Sara Baker** has joined Professor Fiona Karet as **Darwin College co-Vice-Master**. Sara researches and teaches in the Faculty of Education and has experience as one of Darwin's Deputy Deans.

**Professor Mary Fowler**, Master of Darwin from 2012 until 2020, has been appointed as an **Emeritus Fellow of Darwin College**.

### Appointments and Awards throughout our Community:

**Professor Dame Jane Francis** has been elected as a **Fellow of the Royal Society**. Jane is Director of the British Antarctic Survey and has been a Fellow of Darwin College since 2013. Her research covers palaeoclimatology and palaeobotany, specialising in the study of fossil plants, especially woods, and their use as tools for climate interpretation and information about past biodiversity. Jane became Chancellor of the University of Leeds in 2018. **Jane joins five other Fellows of Darwin College, six Emeritus Fellows of Darwin College, and twelve Honorary Fellows of Darwin College who hold the accolade of Fellowship of the Royal Society.**

**Dr Shaun Fitzgerald** is a Darwin alumnus (PhD) and has been awarded an OBE for services to the COVID-19 response. Shuan advised the SAGE Environmental Modelling Group on ventilation in indoor spaces, as well as serving in the inter-departmental Events Research Programme, and on Public Health England's Aerosol Generating Procedures panel.

**Dame Jane Goodall** has won the 2021 Templeton prize for her life's work on animal intelligence and humanity. Jane, who is an Honorary Fellow of the College was praised for her work which exemplified "humility, spiritual curiosity and discovery.... Her discoveries have profoundly altered the world's view of animal intelligence and enriched our understanding of humanity in a way that is both humbling and exalting."

**Ms. Amelia Urry** is a Darwin College alumna (MPhil) and has been awarded the Society for the History of Natural History (SHNH) Stearn Essay Prize 2020 for her essay 'Hearsay, Gossip, Misapprehension: Alfred Newton's Secondhand Histories of Extinction'. As a writer, she explores the themes of extinction and apocalypse, moving across histories of science and literature.

*Congratulations to them all.*



**Dr Iain Morley**  
(1973–2021)

The College is saddened to announce the death of Dr Iain Morley, who died of cancer in February at the age of 46. He was a Research Fellow at Darwin from 2005–2008, during which period he co-organised the 2008 Darwin Lecture Series "Serendipity". Dr Morley specialised in Palaeolithic archaeology and evolutionary origins of music, ritual, and religious behaviour in humans. He was the author of *The Prehistory of Music*, and regularly spoke on the radio and contributed to television programmes. During his career, Iain excavated in Britain, Croatia, the Czech Republic, Libya, Italy, and Greece. After his time at Darwin he moved to Oxford, where he held positions at Keble College, St Hugh's College, and at the School of Anthropology and Museum Ethnography.



**Professor Celia Milstein**  
(1928–2020)

Celia Milstein was a great friend of the College and wife of the late César Milstein a Fellow of Darwin. Celia was born in 1928 in Argentina. She and César came to Britain in the late 1950s and worked together on early aspects of antibody diversity. Celia actively supported LMB students and scientists who received a Milstein Fund Studentship or Fellowship, named in honour of her husband, which enabled young scientists from South America to undertake research at the LMB.

Celia was a Principal Scientific Officer at ARC Institute of Animal Physiology, Babraham and had been an active member of the Cambridge academic and social scenes for many decades. Her life is described in 'Ahead of the Curve', a book about women at the LMB.



**Dr Ronald Nedderman**  
(1935–2021)

Ron Nedderman was a founding Fellow of Darwin College, appointed on 1<sup>st</sup> September 1964 along with eleven other distinguished academics. Ron read for his undergraduate degree in Mechanical Science at Trinity College, Cambridge from 1953-56, going on to a long career at the Department of Chemical Engineering at the University, retiring in 2000. Ron resigned as a Darwin Fellow in 1980 and in 1981 took up a Fellowship at Trinity College, which he held until his death. The Cambridge community will sadly miss him.

# Darwin College Register 2021

## **VISITOR**

The Right Honourable Lord BURNETT of MALDON (Ian Duncan), Lord Chief Justice of England and Wales

## **MASTER**

Michael Russell Wheldon RANDS BSC DPHIL; (2020)

## **VICE MASTERS**

Fiona Eve KARET PhD FMedSci; (2014); Professor of Nephrology, Cambridge Institute for Medical Research  
Sara BAKER PhD; (2012); Reader in Psychology and Education, Faculty of Education

## **DEAN**

Duncan James NEEDHAM PhD; (2013); Associate Lecturer, Faculty of History

## **DEPUTY DEANS**

Matthew Russell JONES PhD; (1992); Reader in Information Systems, Judge Business School  
Jennifer SCHOOLING PhD FICE OBE; (2018); Director of the Centre for Smart Infrastructure, Department of Engineering

## **BURSAR**

John Tannatt DIX LLB MA; (2014)

## **COLLEGE SECRETARY**

Julian Graham EVANS MA; (2014); Secretary, School of the Humanities and Social Sciences

## **COLLEGE PRAELECTOR**

Christine VAN RUYMBEKE PhD; (2015); Ali Reza and Mohamed Soudavar Reader in Persian Literature and Culture

## **DEVELOPMENT DIRECTOR**

Samuel Oliver VENN BA MA; (2017)

## **OFFICIAL FELLOWS**

Simon John SCHAFFER MA PhD; (1984); Professor of History of Science, Department of History and Philosophy of Science  
Sir Harshad Kumar Dharamshi Hansraj BHADESHIA PhD FREng FRS; (1985); Tata Steel Professor of Metallurgy, Department of Materials Science and Metallurgy  
Andrew Mawdesley PITTS PhD; (1990); Professor of Theoretical Computer Science, Computer Laboratory

Carol Elspeth Goodeve BRAYNE MSc MD FRCP FFPH; (1995); Professor of Public Health Medicine, Cambridge Institute of Public Health

Anne Carla FERGUSON-SMITH PhD FRS FMedSci; (1997); Arthur Balfour Professor of Genetics, Department of Genetics

Christopher Michael BISHOP PhD FRS FRSE; (1998); Director, Microsoft Research Cambridge

Torsten KRUDE PhD; (2000); University Senior Lecturer, Department of Zoology

Alan Frank BLACKWELL PhD; (2001); Professor of Interdisciplinary Design, Computer Laboratory  
John Harold NILSSON-WRIGHT PhD; (2001); University Senior Lecturer, Faculty of Asian and Middle Eastern Studies

Emily Fleur SHUCKBURGH PhD OBE; (2001); Director, Cambridge Zero, Reader in Environmental Data Science, Department of Computer Science & Technology

Mark Edmondus Jan DE ROND DPhil; (2006); Professor of Organisational Ethnography, Judge Business School

Dénes SZÜCS MA PhD; (2007); University Senior Lecturer, Department of Psychology  
Carl Edward RASMUSSEN PhD; (2008); Professor of Machine Learning, Department of Engineering

Russell COWBURN PhD FRS ScD; (2011); Director of Research, Cavendish Laboratory

Jeffrey MILEY PhD; (2011); Lecturer in Political Sociology, Department of Sociology

Christopher SANDBROOK PhD; (2011); Senior Lecturer in Conservation Leadership, UNEP-WCMC

Jonathan Luke HEENEY ScD; (2012); Professor of Comparative Pathology, Department of Veterinary Medicine

Jan Dietrich Karsen LÖWE PhD FRS; (2012); Research Leader, MRC Laboratory of Molecular Biology

Paul Stuart ANDERSON PhD; (2013); University Lecturer in Middle Eastern Studies, Faculty of Asian and Middle Eastern Studies

Dame Jane Elisabeth FRANCIS PhD; (2013); Director, British Antarctic Survey

Paul Joseph LEHNER PhD FRCP FMedSci; (2013); Professor of Immunology and Medicine, Cambridge Institute for Medical Research

Eric WOLFF PhD FRS; (2013); Royal Society Research Professor, Department of Earth Sciences

Julia DAVIES MA PhD; (2016); Head of Transport Group, Department of Plant Sciences

Timothy Nicholas MILNER MA; (2016); Senior Pro Proctor, Ceremonial Officer, University of Cambridge  
Aylwyn Olav SCALLY PhD; (2016); Group Leader, Department of Genetics

Simone Nicole WEYAND PhD; (2016); Group Leader, Department of Biochemistry  
Angela WOOD MA, PhD; (2016); University Lecturer in Biostatistics, Department of Public Health and Primary Care

Maha ABDELRAHMAN MA PhD; (2017); Reader in Development Studies and Middle East Politics  
Alexandra BRINTRUP PhD; (2017); University Lecturer in Digital Manufacturing, Institute of Manufacturing

Paolo CAMPANA PhD; (2017); University lecturer in Criminology and Complex Networks, Institute of Criminology

Daniel Haskell WEISS PhD; (2017); Polonsky-Coexist Lecturer in Jewish Studies, Faculty of Divinity

James Benedict ROWE PhD; (2018); Patrick Sissons Fellow, Director of Cambridge Centre for Frontotemporal Dementia and Related Disorders, Department of Clinical Neurosciences

Alberto Jesus COCA PhD; (2019); Lecturer in Statistics, DPMMS (Statistical Laboratory) & CCIMI  
Frédéric-Guillaume SCHNEIDER PhD; (2019); Senior Research Associate (Economics & Policy)

Thorsten BOROVIK PhD; (2019); Principal Investigator, Laboratory for Primate Embryogenesis, Centre for Trophoblast Research

Ann Sofie CLOOTS LLM PhD; (2019); Slaughter & May Lecturer in Corporate Law

James H BARRETT PhD; (2020); Reader in Medieval Archaeology  
Ioannis KONTOTIANNIS PhD; (2020); Professor of Information and Communications

Angelos MICHAELIDES PhD; (2021); 1968 Professor of Chemistry

## **VISITING FELLOWS**

Laure MIOLO PhD; (2020); Munby Visiting Fellow in Bibliography  
Edwin ROSE PhD; (2020); Munby Visiting Fellow in Bibliography, Department of History and Philosophy of Science

## **RESEARCH FELLOWS**

Jenny ZHAO PhD; (2016); Lloyd David Research Fellow, Needham Research Institute

David Alan FRIEDMAN PhD; (2017); Flavius Josephus and Ancient Historiography, Junior Research Fellow, Faculty of Classics

Samuel George OTTEWILL-SOULSBY PhD; (2017); Research Associate, Impact of the Ancient City Project, Faculty of Classics

Simone Francesco RUGGERI PhD; (2017); Single molecule scanning probe methods, Department of Chemistry

Charu SINGH PhD; (2017); History of science, knowledge and empire; South Asian history, Faculty of History

Emily Joan WARD PhD; (2017); Moses and Mary Finley Research Fellow (Child kingship in the Middle Ages; boyhood and male adolescence; comparative European history), Faculty of History

Miguel ANAYA PhD; (2018); Schlumberger Research Fellow (Optoelectronic properties of emerging semiconductors), Cavendish Laboratory

Leah ASTBURY PhD; (2018); Wellcome Trust Postdoctoral Fellow at the Department of History and Philosophy of Science

Iosifina Petrina FOSKOLOU PhD; (2018); Patrick Sissons Evelyn Trust Research Fellow (The role of hypoxia-inducible metabolites in cancer immunology), Department of Physiology, Development and Neuroscience

Hong GE PhD; (2018); Machine Learning, Probabilistic Programming, Bayesian Nonparametrics, Machine Learning Group

Alexandra Kerstin SCHNELL PhD; (2018); Behavioural ecology - animal communication, animal psychology, marine biology and evolutionary biology, Department of Psychology

Anna BELCHER PhD; (2019); Marine ecosystems and biogeochemistry, British Antarctic Survey

Katharine Elizabeth CRISWELL PhD; (2019); Charles & Katharine Darwin Research Fellow, (The evolution and development of the vertebrate body plan), Department of Zoology

Thomas GRUNER PhD; (2019); Schlumberger Research Fellow (Design, Synthesis and Physics of Quantum Materials), Cavendish Laboratory

Gediminas LESUTIS PhD; (2019); The politics of large-scale infrastructural developments in contemporary Kenya, Department of Geography

Raphael Bezerra de Silva Raphael UCHÔA PhD; (2019); History of science, history of anthropology and ethnohistory, Faculty of History

Denise WILKINS PhD; (2019); Microsoft Research Fellow (Social psychologist examining how machine learning can support enterprise knowledge)

Jan BEHREND'S PhD; (2020); Topological phases of matter, especially in transport and quantum anomalies in topological semimetals, Department of Physics  
 Tatiana BUR PhD; (2020); Ancient Greek cultural history, Faculty of Classics  
 Samuel James COBB PhD; (2020); Chemical aspects of energy and sustainability, Yusuf Hamied Department of Chemistry  
 David FURMAN PhD; (2020); Theoretical Chemistry, Yusuf Hamied Department of Chemistry  
 Phoebe STIRLING PhD; (2020); Housing Markets, Cambridge Centre for Housing & Planning Research  
 Jasmin TAUBSENSCHMID-STOWERS PhD; (2020); Life Sciences, Babraham Institute  
 Zoe WYATT PhD; (2020); General relativity, differential geometry and hyperbolic PDEs, Department of Pure Mathematics and Mathematical Statistics

#### **HONORARY FELLOWS**

Sir Arnold Stanley Vincent BURGEN MA MD FRCP FRS; (1982)  
 Sir Geoffrey Ernest Richard LLOYD PhD FBA; (1985)  
 Jeffrey William EDINGTON BSc PhD DSc; (1998)  
 Amartya Kumar SEN MA PhD FBA CH LITTD FRSE; (1998)  
 Michael Charles SHEPPARD MA DPhil; (2000)  
 Sir Charles Antony Richard HOARE DSc FRS; (2001)  
 Ekhard Karl Hermann SALJE PhD FRS; (2002)  
 Rt Hon Robert RAYNE; (2004)  
 Lord (Martin John) REES PhD ScD OM FRS; (2004)  
 Bernard Michael de Lerisson CAZENOVE; (2005)  
 Dame Jean Olwen THOMAS MA ScD DBE FRS FMedSci; (2007)  
 Robert Hughes JONES PhD; (2008)  
 Simon Hastings BITTLESTON PhD; (2013)  
 Sir Alan Roy FERSHT PhD FRS FMedSci; (2014)  
 Nicola Margaret PADFIELD MA DIPCRIM DES; (2014)  
 Sir Gregory Paul WINTER PhD CBE FRS FMedSci; (2014)  
 Robin Wayne CARRELL PhD FRS FMedSci; (2015)  
 Lady Olga KENNARD ScD OBE FRS; (2016)  
 Janet ROSSANT PhD ScD FRS FRSC; (2017)  
 Elizabeth BLACKBURN AC FRS FAA FRSN ScD; (2018)  
 Eric MASKIN PhD ScD; (2018)  
 Dame Jane GOODALL PhD (Hon) ScD DBE; (2019)  
 Simon KEYNES PhD FBA; (2019)

Dame Sally DAVIES GCB DBE FRS FMedSci; (2020)  
 Heather HANCOCK LVO DL; (2020)  
 Amrita NARLIKAR DPhil PhD; (2020)  
 Euan NISBET PhD; (2020)  
 Pippa ROGERSON MA PhD; (2020)

#### **EMERITUS FELLOWS**

Abraham David YOFFE ScD; (1964)  
 Reginald Frederick William GOODWIN MA PhD MRCVS; (1966)  
 Bruce Anthony NEWTON ScD FRCPATH; (1968)  
 Chester WHITE MA PhD BM TD MBE; (1969)  
 George Thomas GÖMÖRI MA BLITT; (1969)  
 Roger George WHITEHEAD MA PhD CBE FIBIOL; (1973)  
 Elisabeth Somerville LEEDHAM-GREEN MA PhD; (1973)  
 Peter Furneaux FRIEND MA PhD; (1974)  
 Nicholas JARDINE MA PhD; (1975)  
 Dean Ullathorne HAWKES MA PhD RIBA; (1976)  
 Richard HENDERSON PhD FRS CH; (1981)  
 Ronald Alfred LASKEY PhD CBE FRS; (1982)  
 Nicholas James Bertram Alwyn BRANSON MA PhD; (1983)  
 Janine Delysia BOURRIAU MA FSA; (1983)  
 Andrew Christopher FABIAN MA PhD OBE FRS; (1983)  
 Leopold Eftimios Anagnostis HOWE MA PhD; (1986)  
 Adrian Thomas GROUNDS DM FRCPsych; (1987)  
 Mohammad Munawar CHAUDHRI PhD; (1990)  
 Kathleen Michelle WHEELER PhD; (1990)  
 Karalyn Eve PATTERSON FRS FMedSci FBA; (1991)  
 Margaret CONE PhD; (1992)  
 John Robert COOPER PhD; (1993)  
 Francois Andre PENZ PhD; (1995)  
 Richard Anthony COX ScD; (1999)  
 Peta Margaret STEVENS MA; (2001)  
 Peter John BRINDLE MA MPhil FCMF FINSTD; (2001)  
 Martin Kenneth JONES PhD; (2001)  
 Felicia Adina HUPPERT PhD; (2002)  
 Ian MCCONNELL MA PhD MRCVS FRCPATH FRSE; (2003)  
 Christopher CULLEN MA PhD; (2005)  
 Michael Edwin AKAM DPhil FRS; (2006)  
 Philip DAWID MA ScD FRS; (2007)  
 Lawrence SHERMAN PhD; (2008)  
 Christine Mary Rutherford FOWLER MA PhD FRAS FGS FRCGS; (2012)

#### **BYE-FELLOWS**

Catherine Morag Elisabeth HOWIE; (2018)  
 Arokia NATHAN PhD; (2019)  
 Azman MOKHTAR; (2019)  
 Jacqueline COX; (2020)  
 Alec BUCHANAN; (2021)

#### **DISTINGUISHED ASSOCIATES**

Dame Diana BRITTAN, DBE  
 Mr Edward CHAPLIN, CMG OBE  
 Dr Hermann HAUSER, KBE FRS FREng FInstP CPhys  
 Prof Sheila LEATHERMAN, CBE  
 Dr Bill JANEWAY, CBE  
 Dr Weslie JANEWAY  
 The Right Honourable Lord JUDGE (Igor), Commissary of the University

#### **SENIOR MEMBERS**

Ms Pat ASKE; Librarian  
 Ms Saumya BALSARI; Author  
 Dr Davide CHIARUGI; Wellcome-MRC Institute of Metabolic Science  
 Dr Giorgio DIVITINI; Electron Microscopy Group  
 Prof John GABBAY; Cambridge Institute of Public Health  
 Prof David GANZ; Darwin College  
 Dr David GERSHLICK; Cambridge Institute for Medical Research  
 Dr Angela GONCALVES; Wellcome Trust Sanger Institute  
 Dr Stefan GRÄF; Department of Medicine  
 Dr Guillaume GUILBAUD; MRC Laboratory of Molecular Biology  
 Dr Inanna HAMATI-ATAYA; Centre for Research in the Arts, Social Sciences and Humanities  
 Dr Anthony HOTSON; Centre for Financial History  
 Prof Nick HUMPHREY; Darwin College  
 Dr Harriet HUNT; Department of Archaeology  
 Dr Daniel JONES; British Antarctic Survey  
 Prof Adrian KENT; Department of Applied Mathematics and Theoretical Physics; Director of Studies in Mathematics  
 Prof Andreas KONTOLEON; Department of Land Economy  
 Dr Richard LANGFORD; Cavendish Laboratory  
 Ms Noelle L'HOMMEDIEU; Darwin College  
 Dr Ruodan LU; Loughborough University  
 Dr Eyal MAORI; Cambridge Infectious Diseases  
 Dr Derek MATRAVERS; Open University  
 Dr Seán Ó HÉIGEARTAIGH; Centre for Research in the Arts, Social Sciences and Humanities  
 Dr David PEARSON; Darwin College  
 Dr Anna PETRUNKINA; Department of Medicine  
 Dr Gloria PUNGETTI; Chair Darwin College Alumni Society  
 Dr Nebojša RADIĆ; University of Cambridge Language Centre  
 Dr Daniel WUNDERLICH; School of Arts, Humanities and Social Sciences

#### **POSTDOCTORAL ASSOCIATES**

Dr Pablo ALCON; MRC Laboratory of Molecular Biology  
 Dr Godwin ALEKU; Department of Biochemistry  
 Dr Randolph ALTMAYER; Department of Applied Mathematics and Theoretical Physics  
 Dr Diana ARSENI; MRC Laboratory of Molecular Biology  
 Dr Adam ATTAHERI; Cambridge Neuroscience  
 Dr Maryam AZIMI; Department of Computer Science and Technology  
 Dr Domagoj BARETIĆ; MRC Laboratory of Molecular Biology  
 Dr Joshua BATTS; Faculty of Asian and Middle Eastern Studies  
 Dr Daniele BIASCI; Department of Medicine  
 Dr Elise BIERSSMA; British Antarctic Survey  
 Dr Sumit BIRWA; Cavendish Laboratory  
 Dr Jotas BORONAS; Department of Earth Sciences  
 Dr Luke BRIDGESTOCK; Department of Earth Sciences  
 Dr Angie BURNETT; Cambridge Zero  
 Dr Eleanor CAMPBELL; Department of Biochemistry  
 Dr Dora CANO RAMIREZ ; Department of Plant Sciences  
 Dr Jude CASTELINO; British Antarctic Survey  
 Dr Jérôme CATTIN; MRC Laboratory of Molecular Biology  
 Dr Chrispin CHAGUZA; Wellcome Sanger Institute  
 Dr Hao-Chung CHENG; Department of Applied Mathematics and Theoretical Physics  
 Dr Stephanie DIEPEVEEN; Department of Politics and International Studies  
 Dr Eleanor DRAGE; Centre for Gender Studies  
 Dr Jochen DREYER; Department of Chemical and Biotechnology  
 Dr Shovan DUTTA; Cavendish Laboratory  
 Dr Michael EDWARDS; Centre of South Asian Studies  
 Dr Maud FORMANEK; Sainsbury Laboratory  
 Dr Heye FREYMUTH; Department of Earth Sciences  
 Dr Avishai GILKIS; Institute of Astronomy  
 Dr Natalia GÓMEZ NAVARRO; MRC Laboratory of Molecular Biology  
 Dr Or GRAUR; Department of Astronomy  
 Dr Georgios HADJIDEMETRIOU; Department of Engineering  
 Dr Nancy HIGHCOCK; Department of Archaeology  
 Dr Tobias JACKSON; Department of Plant Sciences  
 Dr Katy JORDAN; Faculty of Education  
 Dr Nanna KAALUND; Department of Geography

# Darwin College Register 2021

Dr Sanne KAALUND; Department of Clinical Neurosciences  
Dr Leon KAPETAS; Department of Engineering  
Dr Luke KEMP; Cambridge Zero  
Dr Tim KIETZMANN; MRC Cognition and Brain Science Unit  
Dr George LANSBURY; Institute of Astronomy  
Dr Emma LAWLOR; MRC Epidemiology Unit  
Dr Michela LEONARDI; Department of Zoology  
Dr Xuan LIANG; Department of Physiology, Development and Neuroscience  
Dr Lucy MACGREGOR; MRC Cognition and Brain Sciences Unit  
Dr Dmitry MAZUNIN; MRC Laboratory of Molecular Biology  
Dr Charles MORGAN; MRC Laboratory of Molecular Biology  
Dr Francesco MUIA; Cavendish Laboratory  
Dr Christoph NEHRBASS-AHLES; Department of Earth Sciences  
Dr Min-Yen ONG; Faculty of Music  
Dr Sonia PASCOAL; Department of Zoology  
Dr Matishalin PATEL; Department of Zoology  
Dr Laura PELLEGRINI; MRC Laboratory of Molecular Biology  
Dr Lara PÉREZ; British Antarctic Survey  
Dr Ioannis POLITIS; Department of Engineering  
Dr Monica RAMSEY; Department of Archaeology  
Dr Anna Maria RANZONI; Wellcome Sanger Institute  
Dr Sabin ROMAN; Centre for the Study of Existential Risk  
Dr Souvik ROY; Department of Chemistry  
Dr Manu SASIDHARAN; Department of Engineering  
Dr James SMITH; Cambridge Zero  
Dr Julia SNYDER; Faculty of Divinity  
Dr Enric STERN-TAULATS; Department of Materials Science and Metallurgy  
Dr Nozomi TAKAHASHI; Department of Genetics  
Dr Stefanie ULLMANN; Centre for Research in Arts, Social Sciences and Humanities  
Dr Irena VANĀKOVÁ; British Antarctic Survey  
Dr Kaveesha WJESINGHE; Department of Pathology  
Dr Hantin YANG; MRC Laboratory of Molecular Biology  
Dr Tun Jan YOUNG; Scott Polar Research Institute  
Dr Joseph ZHANG; Department of Chemistry

## **NEW MEMBERS OF THE FELLOWSHIP 2020 ACADEMIC YEAR**

This year we are pleased to have inducted the following people to the Fellowship. Welcome to them all, their input into the College is very much appreciated.

## **NEW FELLOWS**

Michael RANDS  
Mike is a conservation biologist and became the Master of Darwin College in October 2020. (He was previously the Founding Director of the Cambridge Conservation Initiative (CCI), a collaboration between the University of Cambridge and the internationally focussed cluster of conservation organisations based around Cambridge).

James BARRETT  
*Department:* Reader in Medieval Archaeology; Deputy Director, McDonald Institute for Archaeological Research.  
*Research Interests:* Human Palaeoecology, Zooarchaeology, Biomolecular Archaeology, Artefact Analysis & Technology, Environmental Archaeology, Geoarchaeology, and Landscape studies.

Ioannis KONTOYIANNIS  
*Department:* Professor of Information & Communications, Division of Information Engineering, Department of Engineering.  
*Research Interests:* Information theory, data compression, applied probability, Bayesian statistics, simulation, machine learning applications, communications, mathematical and computational biology.

Angelos MICHAELIDES  
*Department:* 1968 Professor of Chemistry, The ICE Group, Yusuf Hamied Department of Chemistry.  
*Research Interests:* Theoretical Chemistry

## **NEW RESEARCH FELLOWS**

Jan BEHRENDIS  
*Department:* Theory of Condensed Matter Group, Cavendish Laboratory.  
*Research Interests:* Topological phases of matter, especially in transport and quantum anomalies in topological semimetals.

Tatiana BUR  
(Moses and Mary Finley Research Fellow)  
*Department:* Faculty of Classics  
*Research Interests:* Ancient Greek cultural history, Ancient Greek religion, especially anthropological

approaches and constructions of the sacred, Ancient science and technology, especially mechanics, Hero of Alexandria, Texts and objects in Graeco-Roman culture, Material culture and theories of object agency and materiality.

Samuel COBB  
*Department:* Reisner Laboratory, Yusuf Hamied Department of Chemistry.  
*Research Interests:* Development of novel electrochemical and spectroelectrochemical techniques for the understanding of the enzyme-electrode interface in porous electrodes.

David FURMAN  
*Department:* The Wales Group, Yusuf Hamied Department of Chemistry.  
*Research Interests:* The development and application of reactive energy landscape methods.

Phoebe STIRLING  
*Department:* Cambridge Centre for Planning and Housing Control, Department of Land Economy  
*Research Interests:* Housing markets.  
Jasmine TAUBSENSCHMID-STOWERS  
*Department:* Life Sciences, Babraham Institute.  
*Research Interests:* Life sciences research for life-long health

Zoe WYATT  
*Department:* Department of Pure Mathematics and Mathematical Statistics  
*Research Interests:* General relativity, differential geometry and hyperbolic PDEs. PDEs derived from theories of higher dimensional gravity, string theory, particle physics and cosmology.

## **NEW HONORARY FELLOWS**

Sally DAVIES GCB DBE FRS FMedSci  
*Biography:* Master of Trinity College, Cambridge. Dame Sally is a Fellow of the Royal Society and a Fellow of the Academy of Medical Sciences. She was made Dame Commander for services to Medicine in 2009. She worked in the NHS as a consultant haematologist for 30 years before joining the Civil Service in 2004. She became Director General of Research and Development for the NHS and created the National Institute for Health Research. She was the first woman to be appointed the Chief Medical Officer, in 2010.

Heather HANCOCK LVO DL  
*Biography:* Master of St John's College, Cambridge. She was Chair of the Food Standards Agency, a non-ministerial Government department that regulates the food and feed industry. Prior to this, Heather spent

11 years at Deloitte where she was a Managing Partner for the UK and Swiss firms and led the firm's global services to the London 2012 Olympic and Paralympic Games.

Amrita NARLIKAR DPhil PhD  
*Biography:* Amrita is the President of the German Institute for Global and Area Studies (GIGA), Hamburg. She is a Professor at the University of Hamburg, and non-resident Senior Fellow at the Observer Research Foundation, Delhi. Before moving to Hamburg, she was Reader in International Political Economy at Cambridge and a Fellow of Darwin College from 2008-2015. Her research specialism lies in International Political Economy and International Relations, with a focus on international trade, multilateral negotiations, economic statecraft, and the global south.

Euan NISBET PhD  
*Biography:* Euan is Professor of Earth Sciences at Royal Holloway, University of London. Among other interests his research looks at modern and glacial atmospheres focusing on methane in the modern air, including the role of methane in Arctic climate change, methane hydrates and their role in global warming, and the task of assessing present day atmospheric methane burden.

Pippa ROGERSON MA PhD  
*Biography:* Master of Gonville and Caius College, Cambridge. She is a solicitor and senior lecturer in law. Her research covers the conflict of laws and company law. She is also a member of the university's council. Rogerson studied economics and law at Newnham College, receiving her BA in 1983, and went on to be admitted as a solicitor in 1986, working for Clifford Chance. She became a fellow of Caius in 1989 and was awarded her PhD in 1990. Graduates presented October 2019 – May 2021

## **GRADUANDS PRESENTED OCTOBER 2019–MAY 2021**

### **PHD:**

#### **Astronomy:**

Andrew WINTER  
The influence of stellar birth environment on protoplanetary disc dispersal.

#### **Biochemistry:**

Alkisti ALEVOPOULOU-MALLI  
Understanding the myddosome complex: a bioinformatic exploration of how homotypic death domain interfaces contribute to overall structure.

Jan FREI  
Characterisation of the conformational landscape of the  $\beta$ 1-adrenergic receptor and development of a strategy towards NMR studies of the Protease-activated receptor 1.

Mark GREENWOOD  
Coordination of the Arabidopsis thaliana circadian clock.

Emma HUNTER  
The roles of the collagen binding integrins in the regulation of endothelial cell function.

Ravendran VASUDEVIN  
Characterisation of low molecular weight C-type cytochromes in cyanobacteria and plants.

Ziyue ZENG  
Isolation and characterisation of novel environmental bacteriophages which target the escherichia coli LamB outer membrane protein.

#### **Biological Anthropology:**

William GRIFFITH  
Late Quaternary palaeoenvironments and Middle-Late Stone Age habitat preferences in the Nakuru-Naivasha Basin, Kenya: phytolith-based evidence from the site of Prospect Farm.

Robin MORRISON  
Western gorilla social structure and inter-group dynamics.

#### **Biological Science:**

Carlos BASTOS  
Advancing copper-based antimicrobials for managing topical infections.

Handan DONERTAS  
Computational studies on ageing and age-related diseases.

Francis GRANT  
Mechanisms of CD4+ regulatory T cell heterogeneity in health and disease.

Janna HASTINGS  
Metabolic influences on ageing in C.elegans: a time series metabolomics and metabolic modelling study.

Samuel LACEY  
Structural studies of dynein's interaction with microtubules and herpesvirus.

Emma-Jayne MINIHANE  
Exploiting tumour cell dependency on pro-survival BCL2 proteins by BH3 mimetics.

#### **Chemistry:**

Elaine FOWLER  
Proteolysis targeting chimeras for the directed ubiquitination of the androgen receptor.

Georgi GENOV  
Iridium catalysed borylation as a platform for exploring the use of non-covalent interactions to control regio- and enantioselectivity.

Kathryn GIBLIN  
Predictive modelling of the primary and secondary pharmacology of compounds in drug discovery.

Karine HAKOBYAN  
s-triazine-based self-assembling information molecules.

Sophie MITCHELL  
Using data to characterise the relationship between nanobody sequence, structure and function.

Ines SMIT  
Associating adverse drug effects with protein targets by integrating adverse event, in vitro bioactivity, and pharmacokinetic data.

Shuang SUN  
Peptide/protein stapling and unstapling: introduction and photorelease of isobutylene graft.

Taylor UEKERT  
Plastic and mixed waste as feedstocks for solar-driven H<sub>2</sub> production.

#### **Clinical Medicine:**

Lauma RAMONA  
Integrating -Omics for studying functional role of ulcerative colitis risk associated loci.

#### **Clinical Neurosciences:**

David HOWETT  
The function and structure of the entorhinal cortex in mild cognitive impairment.

Jessica WALSH  
Blood-brain barrier permeability and inflammation in cerebral small vessel disease.

#### **Criminology:**

Catalina DROPPPELMANN-ROEPKE  
Transitions out of crime: intentions, changes and obstacles on the road towards desistance.

Jason WARR  
Forensic psychologists: vulnerable adjuncts of penal power.

#### **Development Studies:**

Chokan LAUMULIN  
Science and social policy: underpinning of Soviet Industrial Paradigms.

#### **Earth Sciences:**

Patrick BALL  
Global relationships between intraplate magmatism and dynamic topography.

Luke GRINHAM  
The ecomorphology of facultative bipedality in Lepidosauria: implications for the evolution of reptilian bipedality.

Conor O'MALLEY  
Quantitative analysis of river profiles and fluvial landscapes.

#### **Economics:**

Myungun KIM  
Essays into firms, innovation and productivity.

#### **Education:**

Karolina SZYNALSKA  
Establishing the characteristics of learning-sensitive architectural design using a bespoke digital participatory tool: a study informed by an evolutionary perspective.

Lisa WALKER  
Inclusion in practice: an explanatory study of how patterns of classroom discourse shape processes of educational inclusion in Tanzanian secondary school classroom.

#### **Engineering:**

Evangelia AGAPAKI  
Automated object segmentation in existing industrial facilities.

Shahab AKHAVAN  
Hybrid devices based on graphene and related materials for wearable (Opto)electronics.

Adam BOYCE  
The mechanics of layered foams.

Gerard CASEY  
Investigating the performance of transport infrastructure using real-time data and a scalable multi-modal agent based model.

Jonas EHRNSPERGER  
Open intellectual property strategies for emerging technologies - an exploratory, mixed-method investigation of patent pledges.

Marc FELSKE  
Six degrees of early-stage ventures.

William HAWKINS  
Thin-shell concrete floors for sustainable buildings.

Ian HOSKING  
Understanding and evaluating user interface visibility.

Xuanzuo LIU  
Space-constrained autonomous reversing of articulated vehicles.

Christopher MARIEN  
Design intent compared with performance in practice: residential heat networks with combined heat and power.

Nathaniel READ  
Nuclear electric propulsion with low enriched uranium.

#### **French:**

Jezebel MANSELL  
Reckonings with loss in the works of Camille Laurens, Agnes Varda and Sophie Calle.

#### **Genetics:**

Isabela CUNHA NAVARRO

Genetic requirements and molecular functions of 5-methylcytosine in Caenorhabditis elegans RNA

Jennifer WESTOBY  
Alternative splicing and single-cell RNA-sequencing: a feasibility assessment.

#### **Geography:**

Oliver TAHERZADEH  
Tracing pathways of resource use in the world economy: an analysis of national and sectoral influence across the global water-energy-land system.

Sibylla WARRINGTON-BROWN  
Assembling economic citizenship: indigenous women's work in post-neoliberal Bolivia.

#### **Haematology:**

Serena BELLUSCHI  
Characterisation of human haematopoietic stem cell differentiation and exit from quiescence at single cell resolution.

Timothy SENDALL  
Investigating the molecular mechanism of serpin polymerisation.

#### **History:**

Victoria BARTELS  
Masculinity, arms and armour, and the culture of warfare in sixteenth-century Florence.

Thomas DAHMS  
Prussian Bureaucrats and the Jews in West, South, and New East Prussia, 1772-1807.

#### **History and Philosophy of Science:**

John THORNTON  
Cyberhealth and informational wellbeing.

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## **Land Economy:**

Michel HADDAD  
Harnessing the power of intersection for data disaggregation: a novel similarity measure and unsupervised data driven classification method applied to financial contagion.

Benedict PROBST

The economics of the clean energy transition - an empirical analysis of novel policies for the development and deployment of climate change mitigation technologies.

## **Law:**

Darren HARVEY

The constitutional court of a more mature legal order: constitutional review by the court of justice of the European Union.

## **Materials Science:**

Peter GRIFFIN

Porosity in nitride semiconductors.

Cesar MIRANDA REYES

Thermoelectric properties of carbon nanotube films.

Ady SUWARDI

Vertically-aligned oxide nanocomposite films for improved ferroelectrics and ferromagnetics.

Andrej TURK

Effect of microstructural constituents on hydrogen diffusion in multiphase alloys.

Tiesheng WANG

Host-guest systems and their derivatives based on metal-organic frameworks.

## **Medical Genetics:**

Philip SMITH

Molecular genetic investigations of renal cell carcinoma predisposition.

## **Medical Science:**

Oliver BURREN

Integrative statistical methods for the genomic analysis of immune-mediated disease.

Chloe CLIFFORD ASTBURY

A social epidemiology of foodwork and home-prepared food.

Daniel JONES

Expression, purification and molecular characterisation of sideroflexin proteins.

Rupert KUPP

Molecular mechanisms of C11orf95 translocations in cancer.

Matsiopane MASERUMULE

Understanding host factors controlling intracellular killing of Mycobacterium tuberculosis.

Marzia MUNAFO

Mechanisms of piRNA biogenesis and co-transcriptional silencing of transposable elements in Drosophila.

Luis NOBRE

The HCMV interactome: a quantitative analysis of human cytomegalovirus-host protein interactions.

## **Music:**

Benjamin GRAVES

Tackling British nostalgia: a composition portfolio.

## **Pharmacology:**

Rohan EAPEN

Development of peptide inhibitors as molecular therapeutics against tandem-repeat proteins.

## **Philosophy:**

Annika BOEDELING

Moral realism - time to relax?

## **Physics:**

Nicolo' FORCELLINI

Floquet theory of electronic stopping processes of projectiles in solids.

Cheng-Tai LEE

Mechanics and kinetics of microtubules in their environment.

Binbin WEI

Novel applications of Terahertz quantum cascade lasers: gas spectroscopy, active control and nearfield imaging.

## **Physiology, Development and Neuroscience:**

Jack CURTIS

High order conditioning of the eyeblink reflex.

Stephanie NORWOOD

Investigating the morphology and behaviour of quiescent neural stem cells in drosophila melanogaster.

Jack SUPPLE

Descending premotor target tracking systems in flying insects.

## **Plant Sciences:**

Victoria CULLEN

The evolution and development of nectar spurs.

Benjamin WATKINSON-POWELL

Modelling spatial strategies for the durable deployment of crop disease resistance.

## **Polar Studies:**

Aleksandr MONTELLI

The Quaternary evolution of the mid-Norwegian continental margin.

## **Politics and International Studies:**

Sophie ROSENBERG

Deploying accountability: the strategic use of the anti-impunity norm in internal conflicts in Côte d'Ivoire and Mali.

## **Psychiatry:**

Margaret WESTWATER-WOZNIAK

Neurobiological and metabolic mechanisms of binge-eating in anorexia and bulimia nervosa.

## **Public Health and Primary Care:**

Shabina HAYAT

The epidemiology of cognitive function in a community-based population: the EPIC-Norfolk study.

Robert LUBEN

The epidemiology of hospital admissions in a general population: record linkage of hospital episode statistics to the European Prospective Investigation of Cancer (EPICNorfolk) cohort.

Erik NYBERG

A comprehensive genetic risk model for the prediction of future prostate cancer.

## **Pure Mathematics and Mathematical Statistics:**

Eric FABER

Homogeneous models and their toposes of supported sets.

Matthias LÖFFLER

Statistical inference in high-dimensional matrix models.

Zhiyou WU

The plectic weight filtration on cohomology of Shimura varieties and partial Frobenius.

## **Radiology:**

Andrew WEBB

Development and application of editing techniques in nuclear magnetic resonance imaging.

## **Social Anthropology:**

Peter LOCKWOOD

The greedy eaters: a moral politics of continuity and consumption in urbanising central Kenya.

## **Surgery:**

Muhammad QURESHI

Germinal centre autoantibody responses following heart transplantation.

## **Zoology:**

Can AZTEKIN

Cellular principles of Xenopus appendage regeneration.

Liisa HAMALAINEN

Predators vs. prey: the information ecology of warning signals.

Amelia HOOD

The effect of habitat management on biodiversity and ecosystem functions in oil palm plantations in Sumatra, Indonesia.

## **LLM:**

## **Law:**

Arindrajit BASU

Paulo CAVALCANTE KOURY

Daniel CHAHUD COSIO

Savannah POST

Quentin SCHÄFER

Chanon SRIPHIPHATTANAKUN

## **MACC:**

Kan CUI

Chongshi YANG

## **MAST:**

## **Applied Mathematics:**

Cai DIEBALL

James DIAZ

Chunhao LI

Robert POWER

## **Pure Mathematics:**

Luca GEROLLA

Muhammad KHALID

Simen MOE

Evgenii PAVLOV

Executive MBA:

Su hi CHOI

Royden DA SOUZA

Mark FRIGERIO

Mandeep SAINI

## **MBA Business Administration:**

Kelsea ALDERMAN

Jian GAO

Hemant KUMAR

Takao OKUMURA

Mark PORTER

MEd Education:

Clare COPPER

Laura STRONGE

## **MFin Finance:**

Oyu BAYARSAIKHAN

Yingyue Bi

Xi CHEN

Cai Li

## **MSt Social Innovation:**

Mark ANGELINO

Ramana RAJALINGAM

Alexander ZAPESOCHNY

## **MPHIL:**

## **Advanced Computer Science:**

Radostin STOYANOV

David STROHMAIER

Ziheng ZHANG

## **African Studies:**

Edward HARDY

## **Anglo Saxon, Norse and Celtic:**

Ashley CASTELINO

Madeleine LLOYD

**Applied Biological Anthropology:**

Rachel PALKOVITZ

**Archaeology:**

Wendy JORDAN  
Estelle PRAET

**Architecture and Urban Design:**

Benjamin THOMAS

**Asian and Middle Eastern Studies:**

Ralph VLAEMINCK

**Assyriology:**

Abaan ZAIDI

**Basic and Transnational Neuroscience:**

Samantha SALLIE

**Biological Anthropology:**

Cecilia PADILLA IGLESIAS

**Biological Science:**

Jessica CHADWICK  
Omar GARCIA SALINAS  
Alexander SUMMERS

**Bioscience Enterprise:**

Idin JAFARI

**Biotechnology:**

Zihan MEI  
Sophia RAMANI

**Chemical Engineering and Biotechnology:**

Jongmin LEE

**Chemistry:**

Yangteng OU

**Classics:**

Zoë AUDRA

**Conservation Leadership:**

Salisha CHANDRA  
Paola ESPINOSA  
Nour NOUR  
Hitesh PANT

**Criminological Research:**

Jordyn ARMSTRONG

**Criminology:**

Elizabeth WAINSTEIN

**Development Studies:**

Pavel BILEK  
Cristina GLAVE BARRANTES

**Developmental Biology:**

Buffy ELDRIDGE-THOMAS

**Early Modern History:**

Dominic JAMES

**Economic Research:**

Diogo SALGADO BAPTISTA  
Giedrius STALENIS  
Xiaoxiao ZHANG

**Economics:**

Scott BURRELL  
Chenyuan LEE  
Xiaomeng LI  
Adrian SJAHID  
Houqian TONG  
Martin WICKENS  
Yuan YANG

**Economics and Social History:**

Zhongqi DIAO

**Education:**

Zoé ALLIER-GAGNEUR  
Grace BENTHAM  
Yara ELKORETY  
Michael HIRSCHFELD  
Nura JAHANPOUR  
Lillianne LEIGHT  
Roshni MODHVADIA  
Charlie SANTOS  
Javiera SLATER GUZMÁN  
Jacob STRAUSS  
Yinou SU  
Ling WU

**Engineering:**

Caroline GIUGLARIS  
Thomas WHITNEY  
Eugene WONG

**Engineering for Sustainable Development:**

Alexandra KUNDE  
Thomas WHITE

**English Studies:**

Darryl PEERS

**Environment, Society and Development:**

Paola BRUSEGHINI

**Environmental Policy:**

Azat KALYBAY  
Madison VORVA

**Epidemiology:**

Charlotte MILBANK  
Fanchao SHI

**Film and Screen Studies:**

Cari MILOWICKI

**Finance and Economics:**

Ryan GUMBRELL  
Luka MIJUSKOVIC

**Genomic Medicine:**

Aaron OLIVER

**Heritage Studies:**

Alison TYLER

**History and Philosophy of Science:**

Hani MOHSENI  
Miguel OHNESORGE

**Human Evolutionary Studies:**

Kirsten SUTHERLAND

**Industrial Systems, Manufacturing and Management:**

Pranav BHARADWAJ  
Eric BUBIK  
Anastasia ILINA  
Kolbrun JONSDOTTIR  
Gatis MISUS  
Charles NEWTON  
Robert STOCKER  
Riccardo TREVISANI

**International Relations and Politics:**

Harel BERGER  
James BERINGER  
Martina CERA  
Louis HELSBY  
Luca MESSERSCHMIDT  
Antoine SANDER

**Machine Learning, Speech and Language Technology:**

Javier ANTORAN  
Wenlong CHEN

**Management Science and Operations:**

Romain COULOMBEZ  
Xi HE

**Medical Science:**

Suzannah LESTER  
Luka SMALINSKAITE

**Multi-Disciplinary Gender Studies:**

Arthur DAVIS  
Anita SLATER

**Music:**

Juan LUI  
Danielle ROMAN

**Nuclear Energy:**

Zeyu SHI

**Planning, Growth and Regeneration:**

Xinnou CHEN

**Polar Studies:**

Nicholas HOMER  
Eva PRENDERGAST

**Primary Care Research:**

Hannah HARRISON

**Public Policy:**

Marina RENTON

**Real Estate Finance:**

Jordan BRAGANZA  
Lorenzo DIOTALLEVI  
Haozheng HUANG  
Ilke KIZILASLAN

**Scientific Computing:**

Kemal ATALAR  
Alwin BUCHER

**Social Anthropology:**

Nicholas McAPLIN  
Kieran WAY

**Sociology:**

Connor HAYES  
Zaizhou LI  
Alexander NEWHALL

**Theoretical and Applied Linguistics:**

Jodie WEBBER

**Therapeutic Sciences:**

Jodi STONE

**Translational Biomedical Research:**

Daniel KOTTMANN

**World History:**

Joshua NEWELL  
Chandini STENSEL

**MRES:****Biological Science:**

Stephanie NORWOOD

**Future Infrastructure and the Built Environment:**

Robert ROUSE  
Raphaël WEGMANN

**Future Propulsion and Power:**

William BECKWITH

**Gas Turbine Aerodynamics:**

Jakub CICHECKI

**Graphene Technology:**

Hugh RAMSDEN

**Integrated Photonic and Electronic Systems:**

Peter GRIFFIN

**Management Studies:**

Tom PAPE

**Medical Science:**

Sarah MIRZA

**Physical Sciences:**

George LEWIS  
Tobias NAEGELE  
Omer NIVRON  
Anna VAUGHAN

**Physics:**

Stephen MEAD

**Sensor Technologies and Applications:**

Théophile BAÏSSAS

**Social Anthropology:**

Peter LOCKWOOD

**Ultra-Precision Engineering:**

Elkin LOPEZ-FONTAL



## Alumni Events 2021–2022

The College very much hope to host events in College during the next academic year. Please note, however, that the events listed (right) are subject to change depending on the COVID limitations in place at the time.

It is also hoped that in 2022 the Master and Development Director will be able to travel to visit alumni around the world – events will be organised when we are advised it is safe to do so.

Our popular Zoom Events Series will continue to run alongside in-person events and will continue to be advertised on our website, social media and via email.

**Editors:** Sophia Smith, John Dix, Samuel Venn, Eleanor Collingwood

The editors especially welcome short articles, pictures and news from all our alumni but particularly those overseas.

Correspondence to: [darwinian@darwin.cam.ac.uk](mailto:darwinian@darwin.cam.ac.uk)

## Proposed Events:

### 2021

**Thursday 9<sup>th</sup> September:**

Alumni Zoom Event 'Global Methane, Project MOYA, and the UK's Net Zero target'. The speaker is Darwin alumnus and Honorary Fellow Euan Nisbet.

**Sunday 26<sup>th</sup> September (tbc):**

Alumni Garden Party

**Friday 5<sup>th</sup> November:**

Alumni and Fellows Guest Night

### 2022

**Friday 18<sup>th</sup> March:**

Alumni and Fellowship Reunion Dinner

**Friday 13<sup>th</sup> May:**

Alumni Reunion Dinner for years 1975-1987 and 1997-2007

**Friday 20<sup>th</sup> May:**

Former Fellows Dinner

**Friday 17<sup>th</sup> June:**

Alumni and Fellowship Reunion Dinner