DARWIN COLLEGE
CAMBRIDGE

WINTER
2023

THE Darwinian

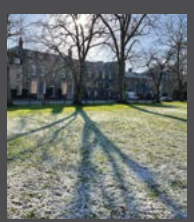
Arctic to Antarctica – From Pole to Pole

Darwinians look at the far reaches of our planet from six different perspectives.

Also inside:

A New Gym

A New Travel Bursery



The Darwin College Strategic Plan

News for the Darwin College Community

A Message from the Master

Dr Mike Rands

Reflections on 2022

2022 has been an exciting and fulfilling time for both me and the College community, and after several years of uncertainty, we are looking forward with hope to the future. Amongst many ongoing projects, my highlights include the purchase of Causewayside to provide more student accommodation, and the development of a Strategic Plan that will take us forward to 2032.

I am very proud of the ten-year *Strategic Plan*, which has been developed through a series of workshops and consultations with Fellows, students, staff and alumni. With a view to deliver and promote research, learning and education *for the benefit of society,* the Plan highlights Darwin's distinctive strengths and sets out our priorities for the coming decade. Page 20 gives an overview of the Plan and the full version is on our website. We welcome your feedback on this and if you would like to discuss it further please contact Sam Venn, our Development Director.

Similarly, as I reported in the last Darwinian, we have been formulating a comprehensive *College Equity, Diversity and Inclusion Development Plan* which has now been adopted for implementation over the coming year.

One of the most exciting and important achievements in 2022 was undoubtedly the purchase of Causewayside – a major expansion of our accommodation comprising 44 flats close to the main College site.

These flats are ideal for family accommodation, but also for groups of students who wish to live together in shared accommodation close to the main college facilities.

The 2022 Darwin College Lecture series broke new ground with the 'Food' series being both live streamed and having a socially distanced audience in Lady Mitchell Hall. The lectures were followed by Formal Halls with brilliantly themed menus around the topic of each talk devised by our creative catering team.

We also saw the publication of three volumes of essays from the lecture series: 'Enigmas' (2020), 'Blood' (2021) and 'Isolation' (2023)! The last of these has yet to be fully delivered of course, but through the efficiency and determination of Professor Sir Harry Bhadeshia and Dr David Gershlick, the organisers of this year's Lecture Series, and the dedication of the authors, this volume is already available to buy on Amazon and will also be on sale before and after each lecture is delivered during Lent Term 2023.

We hope that you can attend some or all of the Lectures this year, either in person or via our YouTube channel. The subjects covered under the 'Isolation' theme range from solitude, asylum, secrets, a continent, light, aliens, a country, and trade, but by intent, not *the* pandemic.

In another exciting new development this year we launched the Darwin College Erasmus Seminar series, to be held termly. Our first speaker, Catherine Barnard *(left)*, Professor of EU Law and Employment Law at the University of Cambridge, presented her innovative research into the challenging working conditions of EU migrants employed in UK food production, in an excellent talk entitled *What happens when enforcement doesn't happen: Brexit, free movement and … Great Yarmouth*. The next lecture will be delivered by our distinguished Fellow Professor Jonathan Heeney on his ground-breaking research to create novel vaccines for influenza and coronaviruses.

This academic year we have been able to grow and strengthen our team of College Officers and staff with five much-needed new appointments:

After many years of distinguished service our College Archivist, Elisabeth Leedham-Green retired, replacing her is Jacky Cox who is Keeper of the University Archives, she is carrying on the sterling work of organising and maintaining our growing archive.

Four crucial new College positions have been established. The post-holders are all enthusiastic, experienced people. We are pleased to welcome them and are grateful for their hard work. Dr Chloe Kattar (currently College Librarian and Research Fellow in History and a former DCSA President) has ably filled the role

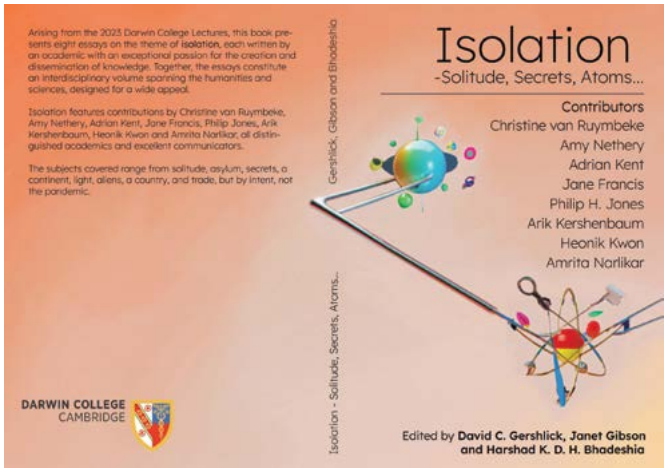
"This year we have been able to grow and strengthen our team of College Officers and staff with five much needed new appointments."

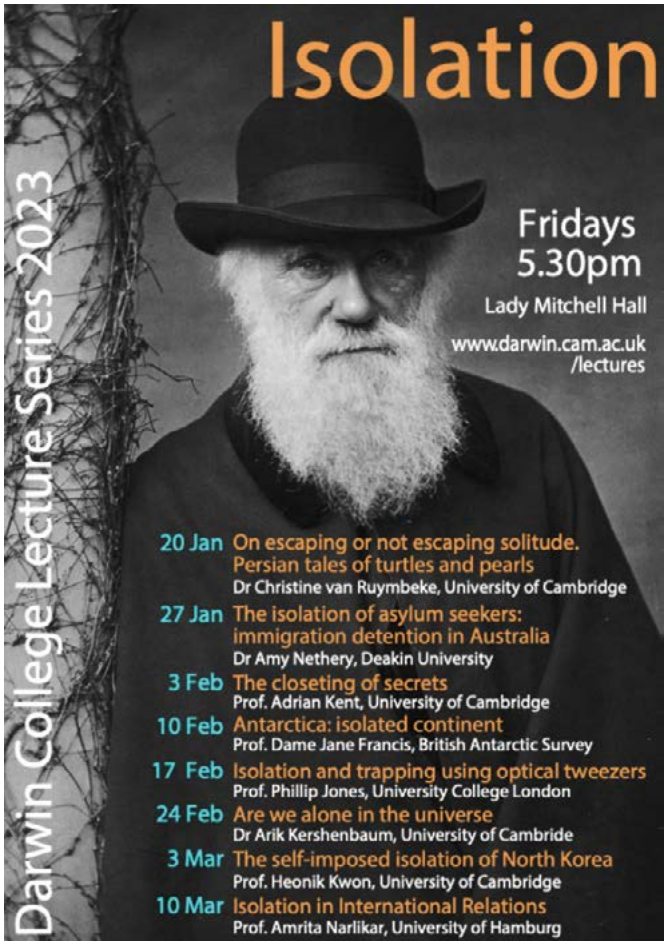
of DCSA Liaison Fellow. She will foster closer ties between students and Fellows. Our first Communications Manager is Laura Kenworthy (the former External Communications Manager at Homerton College), her remit is to raise the profile of the College and to increase the flow of information across the college community; Beau Roberts is Darwin's first Head of Wellbeing, she is a counsellor and mental health advisor who previously worked for the NHS. She offers additional support for students that need it. Lastly Meg Groom has taken on the role of Sustainability Engagement Coordinator. Meg is a current Physics PhD student and former DCSA Green Officer, she is supporting the Darwin community in improving, promoting and developing the College's sustainability.

I am very aware that 2023 will be another challenging year for our community especially given the economic and political uncertainties facing so much of the world. However, we hope that these new roles and the continued dedication of existing College officers and staff will ensure Darwin remains a supportive, welcoming, and enriching home for us all.

Congratulations to the many Fellows, students and alumni who received awards for their contributions to research, society, sustainability and higher education in 2022. You will find some of them listed on page 17, but I was especially pleased that our distinguished Honorary Fellow Dr Olga Kennard (the widow of Sir Arnold Burgen, our third Master) was awarded the Gregori Aminoff Prize by the Royal Swedish Academy of Sciences; and that DCSA President, Chelsea Edmunds, became a 2022 Academic Awardee of the British Federation of Women Graduates.

Finally, I am delighted to say that the Alumni Relations team will be organising many events both in Cambridge and around the world over the next twelve months. I am very much looking forward to attending, and hope to see you at one (or more) of these enjoyable occasions.





Right, top to bottom:
Causewayside flats; Isolation book cover; Darwin College Lecture Series 2023.

The Polar Regions Today – a Snapshot in Time

Professor Dame Jane Francis is a Fellow of Darwin College and Director of the British Antarctic Survey. In this role she is involved in international Antarctic affairs and Antarctic Treaty discussions. She is a geologist and has undertaken many field seasons in the Arctic and Antarctic to study rocks and fossils to understand past climate change in the polar regions.

Above: *Antarctica today with its spectacular icy scenery that attracts so many tourists. Adelaide Island, Antarctic Peninsula.*

Opposite: *Painting of an Antarctic forest 100 million years ago. The reconstruction is based on scientific study of rocks and fossils from 100 million year old rock sequence on Alexander Island, Antarctic Peninsula. © Robert Nicholls, paleo-artist.*

The Arctic and Antarctica sit at the extremes of our planet. In the north, the Arctic is an ocean basin covered with sea ice, surrounded by countries that have their own governments and Arctic inhabitants with long traditions. The Arctic is changing fast due to climate warming, shrinking the summer sea ice and transforming the landscape seen by early explorers.

In the south lies Antarctica, a land of superlatives – the icy landscape is awesome, the continent is almost twice the size of Australia, and it is the highest, driest, coldest and windiest continent on the planet. It is covered by an ice sheet that is over 4km thick in places and during the cold dark winter the surrounding sea freezes to almost double the size of the continent.

But things are changing. Despite its isolation, Antarctica is affected by climate change driven by human activity in lower latitudes. It is the quest of many scientists to understand just how the

continent is being affected today. What happens in Antarctica has an impact on us all across the planet through changes to atmospheric and ocean circulation and sea level rise. The Antarctic ice sheet contains over 70% of the planet's freshwater and is contributing to annual global sea level rise (>3mm p.a.) at an increasing rate as ice melts.

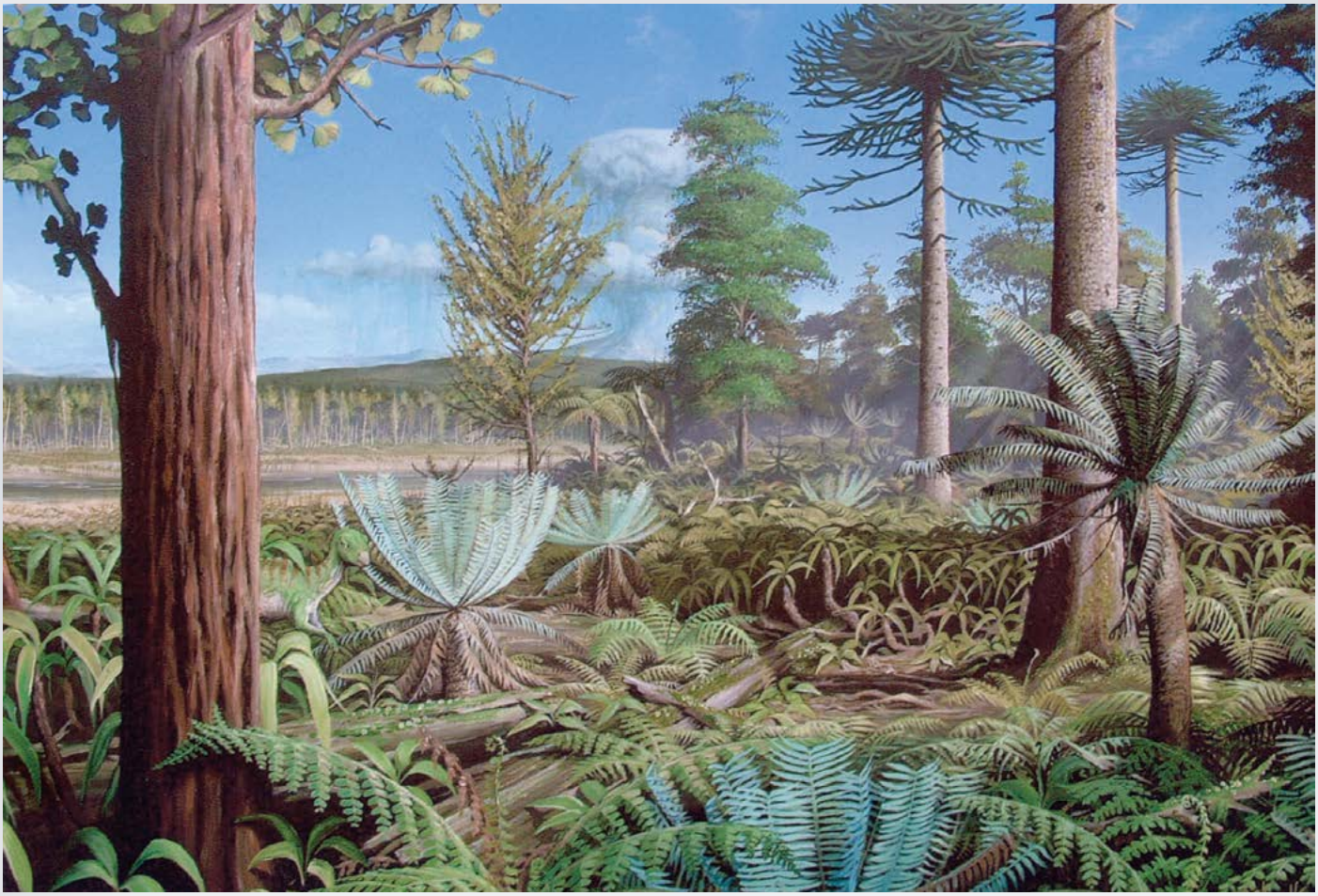
Observations by field scientists (both men and women, unlike earlier days), along with satellite observations, are revealing that ice sheets are threatened not from heat on the surface but by warmer ocean waters that are melting the undersides of ice shelves that fringe the edge of the continent. Scientists are worried that loss of these buttressing ice shelves that protect the ice sheets on land could result in dramatic ice melt and more rapid sea level rise. Cores taken from ice on Antarctica hold a unique record of past climate change and historical ice loss, allowing us to look back in the past to understand our future.

Unlike the Arctic, Antarctica is also unique in that it is the only continent on the planet which has no permanent human inhabitants, just seasonal personnel engaged in science. It is not owned by any one country but is governed by the Antarctic Treaty System via a legally binding set of international

"...what happens in Antarctica has an impact on us all across the planet..."

agreements to keep Antarctica as a continent for peace and science. Currently 55 countries have signed the Antarctic Treaty and meet annually to discuss human impacts and to protect the environment. Major discussion topics at Treaty meetings in the past year include the growing numbers of tourists to Antarctica and concerns about their impact on the environment, as well as the profitable but sensitive krill and fishing industries in the surrounding Southern Ocean.

The Antarctic Treaty is remarkable in that it has, so far, kept Antarctica safe as a result of negotiation, compromise, consensus and diplomacy. Sadly, international political tensions today reach even to the Antarctic. Let's hope that we can keep Antarctica for peace and science and maintain its icy beauty for generations to come.



Antarctica as an Archive of the Past

Eric Wolff is a Fellow of Darwin College and Royal Society Research Professor in the Department of Earth Sciences. Here he talks about what the land ice of Antarctica can tell us about past climate change and looks forward to the future.

From space we can see two types of ice: sea ice and land ice.

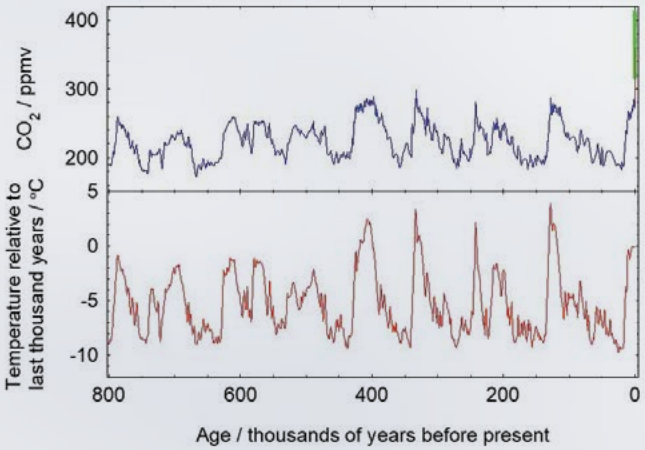
The most obvious distinguishing feature of the polar regions is ice. Sea ice is a thin veneer of frozen seawater sitting on the surface of the ocean, growing and shrinking in area as the seasons change. We are concerned about the retreat of this ice in the face of warming, not least because, as whitish ice disappears, it gives way to blackish water, which absorbs more sunlight and amplifies the warming.

However my work concerns the second type of ice, land ice sitting as great ice sheets on Greenland and Antarctica. This is the ice that threatens the world with sea level rise.

Land ice is a tremendous resource of information about how climate has changed in the past. The Antarctic ice sheet is up to 4 kilometres thick, and contains enough water that, if it all melted it would raise sea levels by nearly 60 metres. It consists of year upon year of snowfall. The ice that is formed at depth as the snow is squashed together is the medium I and my team work with. It contains an unparalleled archive of the past that allows us to understand why the Earth's climate changes and perhaps to assess the fate of the ice sheet itself.

The ice contains information in three different forms:

The isotopic ratios (the number of atoms of one elemental isotope relative to another) of different forms of water contains information about temperature at the time the snow fell. The



particles and soluble impurities that are trapped with the falling snow hold a record of, among other things, volcanic eruptions, transport of dust from the continents and sea salt from the ocean, and of pollution.

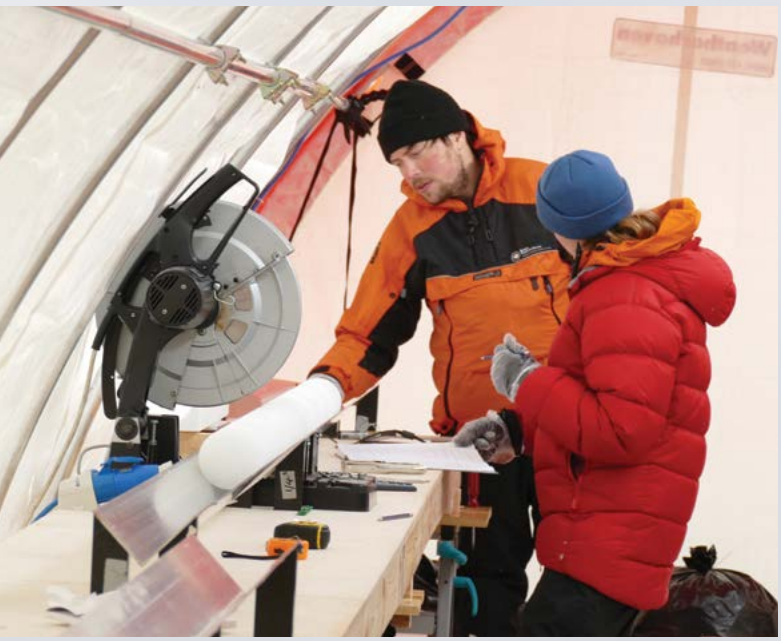
Finally, when the snow turns to ice (typically at 70-100 metres depth) it encloses air bubbles. By cracking those open and analysing the contents we can directly determine atmospheric composition in the past – including how much carbon dioxide (CO_2) and methane there was in the air.

The first requirement is to collect the ice. This is done by drilling cores: cylinders of ice, typically 10 centimetres in diameter. Most drilling systems bring up only 1-3 metres of ice each time they are lowered, but by repeating this over and over we can collect cores that cover the full thickness of the ice sheet at any point. Once we have the ice we have to transport it in a continuous cold chain back to the laboratories in Cambridge or elsewhere. The ice is initially sectioned using bandsaws into different cross-sections for a variety of analyses. Many analyses are then done continuously by melting sticks of ice on a hotplate, and then directing the meltwater from the clean central sections into a range of analytical instruments.

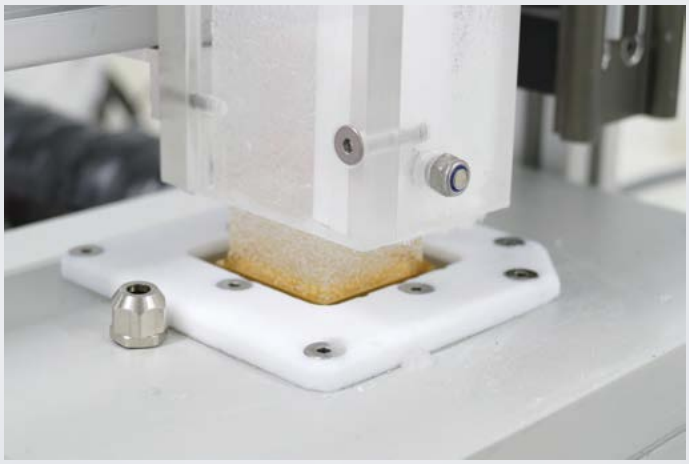
There are a few key facts about climate that are routinely repeated but are only known because of ice cores. Routine measurements of greenhouse gases in the atmosphere started in the late 1950s, so it is solely from ice core measurements that we know exactly what the concentration of these gases were before the industrial period, and that CO2 has increased by nearly 50% since 1800.

By going to sites with very little snowfall each year we can go back much further in time. I was one of the leaders of the European Project for Ice Coring in Antarctica (EPICA) that drilled the oldest ice core so far at a site called Dome C, extending back 800,000 years. In this core we see Antarctica cooling by about ten degrees during each glacial period (when there was also ice over northern Europe and most of Canada), with about 11 warmings and coolings in the core. These were no doubt paced by changes in Earth's orbit around the Sun, but the ice core clearly shows the close coupling of CO_2 and temperature, with the CO_2 acting as an amplifier as Earth passed in and out of ice ages.

My most recent project saw me make my seventh trip to Antarctica with a team of scientists and engineers from Cambridge University and the British Antarctic Survey. The '**WA**rm **C**limate **S**tability of **W**est **A**ntarctic ice sheet in the last **IN**terglacial' (WACSWAIN) project was funded by the European Research Council. It aims to understand what happened to the vulnerable West Antarctic Ice Sheet (WAIS) at a time approximately 120,000 years ago when Antarctica was a little warmer than today, and sea level records suggest part of the ice sheet may have collapsed.



After reaching the UK base at Rothera in late 2018, our team of 6-8 people flew a further 1400 kilometres in a Twin Otter aircraft to a remote location, Skytrain Ice Rise, which lies at nearly 80° south. Here, over a period of about 10 weeks we set up a camp, drilled 651 m of ice, and sent it frozen to the UK. Over the last 3 years, we have cut and analysed the ice. So far, we know that our core does contain ice from 120,000 years ago, and we are assessing what it tells us about the fate of the WAIS under a warmer climate, like the one we are heading into. I am afraid we are still writing this up so this is just a teaser, and I cannot tell you the answer!



Ice cores are exciting because of the unique information they hold. However their full power is revealed when they can be tied to other records from marine and terrestrial archives. *The next big project aims to go "Beyond EPICA," and drill a core reaching well beyond a million years.* We need the logistic and scientific power of a European consortium to achieve this, and if all goes well, the million year ice will reach Europe in 2025. The data will complement marine data that show a change in the style of climate change that occurred somewhere around a million years ago. At that time, glacial cycles of 40,000 years long yielded to longer cycles such as the last one that was 120,000 years long. The ice core will help us understand why this happened and in particular what role CO_2 may have played in that critical change.

I have been very lucky to visit Antarctica many times and enjoy its fantastic views and the sense of splendid isolation it still evokes. But the continent contains risks for everyone on Earth, with a sea level potential we do not want to unleash. We are fortunate, however, that it also contains such wonderful archives that help us to understand how the Earth works.

Left to right:
Boxes of ice cores waiting to be loaded into the Twin Otter aircraft at Skytrain Ice Rise, Antarctica. (Photo by Eric Wolff)

Antarctic temperature and CO_2 concentration deduced from ice cores for the last 800,000 years. In the CO_2 plot, blue is from the EPICA project, red is from other ice cores, and green is atmospheric data from the last 65 years. The data shows CO_2 and temperature rising from low values in glacial periods to high values in interglacials such as the present, with unprecedented CO2 concentrations in the past two centuries.

Former Darwin Research Associate Christoph Nehrbass-Ahles and his colleague Mackenzie Grieman cutting an ice core at Skytrain Ice Rise, Antarctica. (Photo by Eric Wolff)

Melting a stick of ice on the melter for laboratory analysis. (Photo by Eric Wolff)

What is Arctic history? Archival bias, scientific research, and the case of Tookoolito and Ipiirvik

Dr Nanna Kaalund is a Post Doctoral Research Associate at Aarhus University, Denmark. She previously worked at the University of Cambridge where she was a Post Doctoral Associate at Darwin College, and at the University of Leeds. She is the author of the book *Explorations in the Icy North*, which was published in 2021. Her research examines the intersection of Arctic exploration, race, print culture, science, religion, and medicine in the modern period with a focus on the British, North-American, and Danish imperial worlds.

When you think about Arctic history, what comes to mind? Typically, the word 'Arctic' evokes stories of exploration and scientific discovery. Sometimes it conjures images of nineteenth-century naval men bravely searching for a Northwest Passage. Other times it can present pictures of modern scientists dressed in high visibility orange snowsuits.

The Arctic, especially the high Arctic, has long held a special place in the imaginations of more southern based people. Often portrayed as a *'terra nullius'*, a frozen no-man's land, early European cartographers wondered what was up there. What marvels might be revealed? This fascination with the Arctic, and the view of the Arctic as a space waiting to be uncovered and claimed, intensified in the nineteenth century.

Numerous large and small-scale expeditions tried to find a route to the Pacific or to reach the North Pole. They looked for minerals and other natural resources, and made elaborate scientific experiments. Following their ventures, many of these travellers published narratives that recounted their experiences and achievements. In doing so, the authors situated themselves within the long history of past explorers who had visited the Arctic. It was a construction of history which centered the trials and tribulations, as well as the triumphs, of European and Euro-American explorers.

When writing about Arctic history, especially the history of Arctic exploration, historians face a key problem: the emphasis on the accounts and experiences of the European and Euro-American explorers who visited the Arctic has resulted in a bias in the sources.

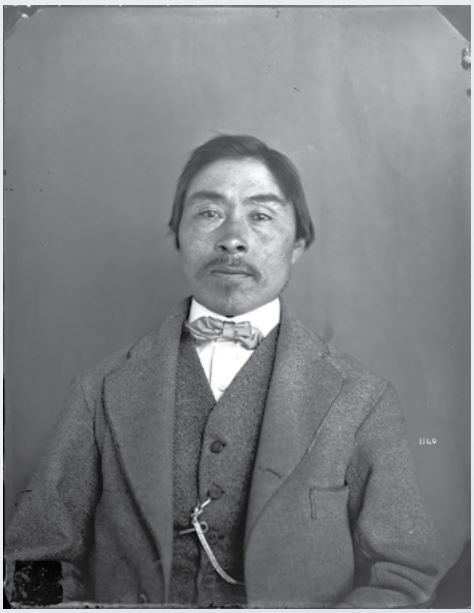
We know a lot about commanders and officers, and less about the other personnel participating in the expeditions, or about the whalers, missionaries, and traders working in the Arctic regions. The lives and experiences of Arctic Indigenous peoples, including Inuit and Métis, take up an even smaller portion of the annals of Arctic history.

In my recent article, *"Erasure as a Tool of Nineteenth-Century European Exploration, and the Arctic Travels of Tookoolito and Ipiirvik"* published in the *Historical Journal*, I show how the bias in Arctic history towards specific voices was a deliberate strategy used by explorers and expedition organisers to shape perceptions of their projects 'at home'. By controlling who was seen as an Arctic explorer, and as an expert on Arctic matters, you could also direct master-narratives about Arctic exploration. This has had an enduring influence on both the historical presentation of the Arctic, and on modern Arctic geo-politics.

Tookoolito and Ipiirvik were a married couple from present-day Canada. As teenagers, they travelled with whalers to the United Kingdom. They were displayed in foreign living people shows and ethnological lectures, and even met the Queen. After they returned to the Arctic, Tookoolito and Ipiirvik worked with the whalers around Cumberland Sound. This was where they met the publisher-turned-explorer Charles Francis Hall. Though he had no experience with Arctic travel, Hall firmly believed that he could solve the mystery of John Franklin's lost expedition by immersing himself in Inuit culture. As he wrote:

"Neither M'Clintock nor any other civilised person has yet been able to ascertain the facts. But, though no civilised persons knew the truth, it was clear to me that the Esquimaux (Eskimo) *were aware of it, only it required peculiar tact and much time to induce them to make it known."*

This quotation shows how Hall made two important distinctions which are key for understanding the prevailing bias in Arctic history. Firstly, Hall contrasted 'civilised persons' with



Male figure:
Portrait of Ipiirvik. Held at Smithsonian Institution Archives, Acc. 11-006, Box 001, Image No. MAH-1140. https://siarchives.si.edu/collections/siris_arc_383290

Female figure:
Portrait of Tookoolito. Held at Smithsonian Institution Archives, Acc. 11-006, Box 005, Image No. MAH-2816. https://siarchives.si.edu/collections/siris_arc_387351

Inuit. Secondly, Hall differentiated between what Inuit knew and what 'civilised persons' could infer from it. In doing so, Hall both drew on and upheld structures of racialised othering of extra-Europeans, which allowed him to present himself as an Artic expert while erasing the expertise of Tookoolito and Ipiirvik.

It is difficult to over emphasise just how unqualified Hall was for Arctic travel when he first set foot on Buddington's whaling ship. Both the whalers and Hall were aware that he needed help. Together with their extended families, Tookoolito and Ipiirvik had worked with the whalers before and after their voyage to the United Kingdom. They were known to be excellent guides and hunters, and they spoke English well. After being introduced to Hall by the whalers, they quickly became Hall's most important allies for his Arctic projects. It was their knowledge and help that allowed Hall to transform himself into an Arctic expert.

Following his return from the Arctic, Hall was invited to speak at several scientific societies, and he embarked on a very popular lecture tour. In these public performances, Hall presented himself as uniquely knowledgeable about the Arctic, because he had adopted Inuit methods for travelling and living there, thereby enabling him to undertake research that had not been previously documented. Tookoolito and Ipiirvik were also part of the lectures, but they were not there to speak about their knowledge of the Arctic or their search efforts to find Franklin and his crew. *By contrast, they were there to visually represent type-specimens of Inuit, and to provide entertainment for the audience and to bolster Hall's credentials. Having Tookoolito, Ipiirvik, and their baby Tarralikitaq during his tour enabled Hall to further his claim and position himself as a gate-keeper of Inuit knowledge.*

Hall was by no means the only person to establish his expertise by erasing the contributions and knowledge of others. It was a popular strategy throughout the nineteenth and early twentieth centuries, in the Arctic and elsewhere. For the modern historian, this epistemic violence causes a very fundamental, practical problem: there are few archival sources that document the lives and experiences of the Indigenous peoples who worked as part of Arctic expeditions. Tookoolito and Ipiirvik are in many ways unique examples. They lived in the United States for many years, and there is archive that documents their lives.

However, their experience was not altogether that unique. Many European and Euro-American expeditions to the Arctic included Indigenous peoples, who, as was the case with Tookoolito and Ipiirvik, often performed labour that was essential to the success of the expeditions. Yet, their contributions were typically downplayed in the official accounts of their time in the Arctic. What is more, they were frequently described in the othering language of ethnographic observations, rather than as collaborators and co-travellers.

Just as Hall bolstered his credentials by presenting Tookoolito and Ipiirvik as ethnographic specimens rather than as co-travellers, so did other explorers also deliberately describe their knowledge-production in way that erased or minimised the contributions of Arctic Indigenous peoples. There is, therefore, a bias in historical sources that replicates itself to this day; it is difficult to recover information that was never meant to exist. Yet, it is not impossible. As the case of Tookoolito, Ipiirvik, and Hall shows, unpacking how the processes of nineteenth-century scientific knowledge making were entrenched in imperialistic structures of epistemic and physical exploitation, allows us to unravel how these structures have continued to be reproduced in Arctic studies today. It also highlights the role of the colonial archives and museums in upholding such narratives, and the potential for change in the future.

Who gets "hidden" in the history of Antarctic exploration?

Amelia Urry is a PhD student at Darwin and a Gates Cambridge scholar. Her doctoral research is conducted at the Department of History and Philosophy of Science and the Scott Polar Research Institute. This year, she established the research network 'Remote Sensing: Ice, Instruments, Imagination' at the Centre for Research in the Arts, Social Sciences, and Humanities at Cambridge. She is also a writer and a poet.

Once upon a time, a group of women sailed to Antarctica. They overwintered in a base tunnelled out of the Great Ice Barrier and then sledged to the Pole, crossing mountains and glaciers that they named playfully after other women to arrive at this symbolic point months before the first man would claim the achievement as his own.

So goes Ursula K. Leguin's short story *"Sur"* (1982), which recasts exploration as fundamentally women's work. Unlike the familiar heroes of Antarctic history, Leguin's fictional explorers leave no mark on the continent, *"no footprints, even."* Instead of claiming fame, they agree to remain silent about their accomplishment throughout their subsequent lives as wives, mothers, caretakers, and members of their communities.

This silence hints at the possibility of other, similar tales lurking just out of sight. By slipping her imagined expedition in between the grand narratives of great men, Leguin gestures toward the ubiquity of the women working with patient, unacknowledged fortitude outside the conventional arenas where history is staged.

In the history of Antarctica, the first nonfictional women documented visiting the continent were the wives and girlfriends of men whose names now dot the maps and history books of Antarctica. For much of the 20th century, as the continent was gradually explored, its military and scientific bases remained exclusively male spaces, as historians like Lisa Bloom and Elena Glasberg have shown; in the case of British bases, this

exclusionary policy was enforced into the 1980s. Of course, Antarctica did not exist in a vacuum, despite its remoteness. These bases were maintained by networks of state, scientific, and financial agencies, whose infrastructures were necessary to the successful operation of these remote and labour-intensive sites, as well as the production of new geographic knowledge that they enabled. And this, it turns out, is where the stories of Antarctic women were unfolding, hidden in plain sight.

In 1951, one recent Cambridge graduate spotted an advertisement in *The Times* for a job at the Falkland Islands Dependencies Scientific Bureau. Evelyn Todd, with a recent degree in geography from Girton College and a yen for skiing and mountain climbing, applied to be the assistant to polar explorer Vivian Fuchs, who was then in charge of the scientific affairs of the Falkland Islands Dependencies Survey (FIDS). She soon made herself useful organising and overseeing the Survey's base and field reports, producing annual reports, and maintaining archives of photos, maps and films. Fuchs relied on Todd to answer his correspondence and keep scientific documents in order. When FIDS turned into the British Antarctic Survey in 1962, with Fuchs as its first director, Todd was already serving as scientific officer, where she remained until her retirement in 1987.

Around the same time, another geography graduate, Petra Leay, was working in the Inland Revenue service when she spotted a different advertisement in *The Times*, this one for a job in the map library of the Directorate of Colonial Surveys (soon to be the Directorate of Overseas Surveys, or DOS). Leay was hired in 1953 as a technical assistant to the Deputy Director of DOS, where she was tasked with ordering the many streams of information returning

from field surveyors. While much of DOS effort was focused on valuable colonial territories and former colonies in Africa, some of its attention was directed toward developing interests in the Antarctic regions, including the Falklands and the Antarctic Peninsula. Leay became involved with the survey of South Georgia island, which gradually opened the Antarctic to her as she became responsible for assisting DOS's surveying efforts in the region, proofing final maps, liaising with FIDS and the UK Antarctic Place-Names Committee.

Todd and Leay were two members of the administrative Antarctic, restricted from accessing the continent in person but deeply involved in the behind-the-scenes work of its exploration and mapping.

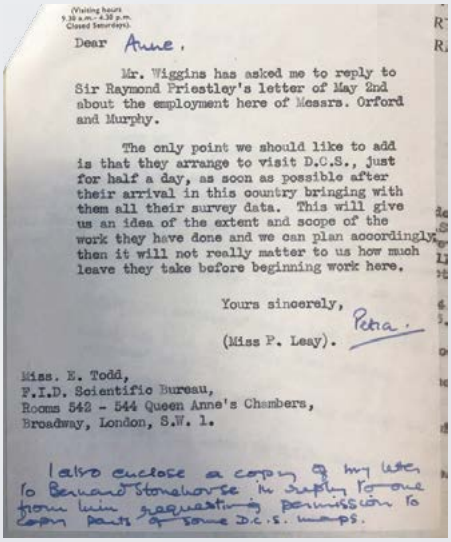
In this, they follow a pattern of "hidden figures" in histories of science and empire, often found filling secretarial or technical roles while other, higher profile actors are credited with the "real" work of discovery. During the Second World War, many young women with geography and geology degrees were enrolled into British state agencies as "map girls," as documented by the historian April Maddrell. In these roles, they conducted and compiled surveys, wrote instructional manuals, and carried out teaching and training responsibilities. After the war, women continued to fill these background bureaucratic roles in scientific agencies, even as others began to fight to earn more central positions.

At BAS, the contrast was particularly stark since the divide between office and field was so explicitly defined by gender. Surveyors and scientists who visited the continent were the ones who could claim to truly "know" it, while those who facilitated, organised, and managed were seen as merely enabling the flow of knowledge. But a closer look at the histories of these women defies such a tidy separation. Another DOS map administrator, Barbara McHugo, became notorious for her technical exactitude, often bemoaning the quality of the "sketch maps" produced by field scientists. Her correspondence demonstrates an extensive knowledge of the process

of mapmaking, from initial surveys to the technical particularities of printing and paper quality, as well as the places depicted in these maps. By the end of her long career, she was said to know the Antarctic better than anybody who had never been there.

Marriage and relationships often served to bring women into the polar world, but these ties could sometimes have the effect of obscuring the women's roles and interests outside their relationships. Janet Thomson, the first British woman to visit the continent as a scientist, made a landmark career as a field geologist; she was also married to a fellow Antarctic scientist, Mike Thomson, providing both opportunities and hindrances not available to other women aspiring to the Ice. Sometimes women's names changed, as with Todd, who Vivian Fuchs had nicknamed "Anne" after the movie star Ann Todd, a moniker that gradually eclipsed her given name until she came to sign her own letters as Anne; other women's names morphed through their marriages, thus making their archival traces more slippery. Petra Leay, for instance, married her DOS coworker, the map-librarian-turned-Antarctic-surveyor Derek Searle. She left her job to raise a family, but later returned to BAS as Petra Searle, where she worked as the map librarian.

Most women who left to start a family, however, never returned to their work. One BAS map officer, Elizabeth Fleming, worked with Searle and McHugo to



(Visiting hours 9.30 a.m.- 4.30 p.m. Closed Saturdays)

Dear Anne.

Mr. Wiggins has asked me to reply to Sir Raymond Priestley's letter of May 2nd about the employment here of Messrs. Orford and Murphy.

The only point we should like to add is that they arrange to visit D.C.S., just for half a day, as soon as possible after their arrival in this country bringing with them all their survey data. This will give us an idea of the extent and scope of the work they have done and we can plan accordingly; then it will not really matter to us how much leave they take before beginning work here.

Yours sincerely,

Petra.

(Miss P. Leay).

Miss. E. Todd,
F.I.D. Scientific Bureau,
Rooms 542 - 544 Queen Anne's Chambers,
Broadway, London, S.W. 1.

I also enclose a copy of my letter to Bernard Stonehouse in reply to one from him requesting permission to copy parts of some D.C.S. maps.

coordinate the production of some of the first satellite maps of Antarctica, until she left the Survey to get married in 1981. Though her career was short and not notable according to traditional criteria, it is not exactly "hidden" either. Like many women administrators of Antarctica, Fleming's name is not preserved in the standard annals of achievement—there is no glacier or nunatak named after her, she has no scientific citations—but in fact her presence is threaded through the archive: as she coordinated between international glaciologists and eminent directors, her name, in her own hand, is signed at the bottom of every letter sent.

Indeed, once you start looking, you find these figures everywhere. Petra, Barbara, Anne and Liz, and many others like them are threaded throughout this history. Their stories are only considered "hidden" or "untold" because the stories we have been telling emphasise certain kinds of narratives over others: the field over the office, the romance of the unknown over the bureaucracy of paperwork created from these explorations. If the Antarctic continues to be celebrated only as a space of heroic male striving, a theatre of individual survival, then the true extent of the story will be overlooked, and the important work that falls outside the artificial scope of its interest misunderstood.

Left to right:
Evelyn (Anne) Todd; Antarctic equipment; Anne Todd abseiling down the Wilterhorn in 1954; Letter from Petra Leay to Evelyn (Anne) Todd

Krill: The Carbon Highway of the Southern Ocean

Dr Anna Belcher is a Darwin College Research Fellow and an Ecological Biogeochemist at the British Antarctic Survey. She studied her PhD at the University of Southampton and the National Oceanography Centre, also spending a year at the University of Washington, Seattle. Her main research interests are marine biogeochemistry and the importance of biological processes for carbon cycling. Here she discusses her research into the role Antarctic Krill play in our global climate.

When we think of whale food, we think of krill, and vice versa. Yet these small swimming oceanic crustaceans also play a key role in global climate and ocean health.

Antarctic krill live in the Southern Ocean and gather in huge swarms that can extend over areas of about 100 km^2 – about the same size as Jersey. This offers them protection from predators such as whales, penguins and seals, and can enable them to be more effective at finding prey.

Interestingly, about 90% of all Antarctic krill are found in a relatively small number of swarms (~5%). This patchy occurrence of krill, and their circumpolar distribution, makes it challenging to determine krill biomass in the Southern Ocean. We typically use nets as well as hydroacoustics, but each have their uncertainties and it isn't currently feasible to carry out a synoptic survey of the entire 19 million km^2 that is the Southern Ocean.

Combined efforts over many decades suggest that krill biomass could be as large as 379 million tonnes (which is about the same as estimates of global human biomass), with lower estimates of 215 million tonnes.

It is not surprising therefore that krill are a key food resource for Antarctic ecosystems. However, this is also one of the characteristics that makes them an important agent for the transfer of carbon to the deep ocean where it can be locked away for 1000 years or more.

Krill are strong swimmers, in fact, they never stop swimming their whole lives. This requires a lot of energy, necessitating krill to eat up to 10% of their body weight daily. The primary food of krill are *diatoms,* a type of marine phytoplankton which are found in the Southern Ocean and are rich in energy. These marine plants photosynthetically capture carbon dioxide from the atmosphere, locking the carbon up in their cells which is transferred higher up the food chain as they are fed on by marine animals. This is a key removal process of carbon dioxide from the atmosphere. However, much of this carbon is returned to the atmosphere when marine animals respire, or through bacterial degradation.

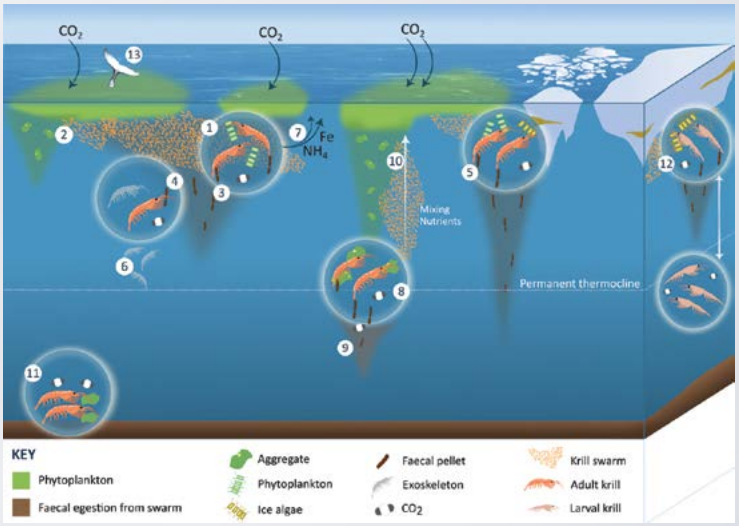
To remove carbon from the atmosphere for climatically relevant periods of time, we need to get that carbon deeper in the ocean, and hence increase the length of time that carbon spends out of contact with the atmosphere. This is where krill swarms come in!

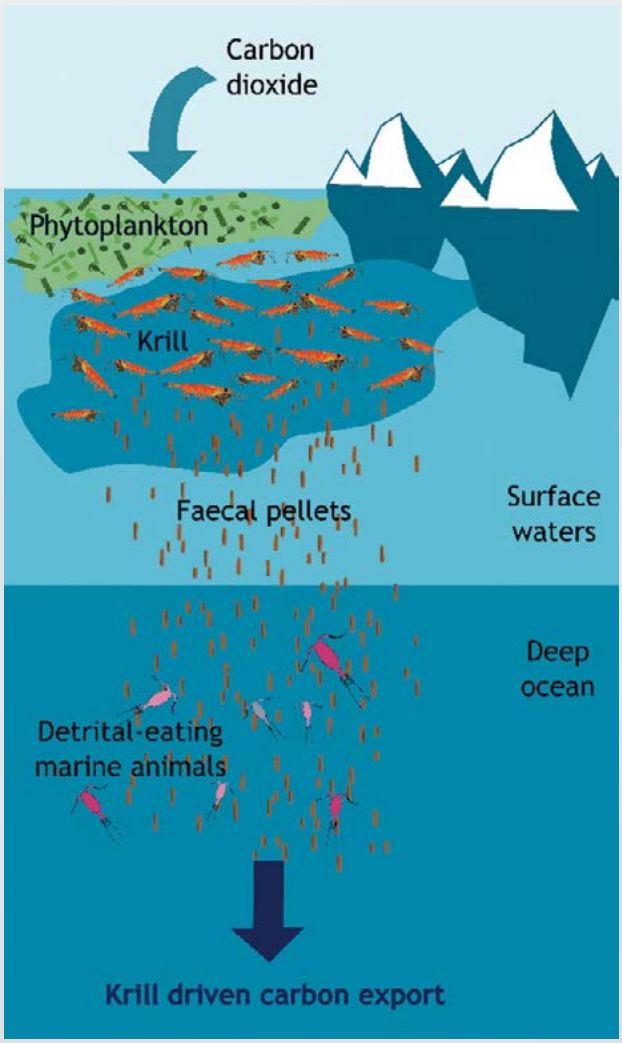
Krill produce relatively large, fast sinking faecal pellets, which can descend quickly into the deep ocean. As large swarms of krill feed, this creates vast numbers of faecal pellets which rain down below the swarm. Although there are many detritivores living in the ocean that feed on sinking detritus – acting to respire the carbon back to carbon dioxide, we think that the sheer number and concentration of the faecal pellets means that they can overwhelm the grazing capacity of the detrital feeders. These intense feeding and bulk egestion events can therefore be particularly efficient at exporting carbon out of the surface ocean, acting as a carbon highway to the deep ocean.

With uncertain estimates of krill biomass, and the episodic nature of these intense export events, it is challenging to be able to directly measure just how much carbon krill can transport to the deep ocean. *Focussing on the marginal ice zone, where sea-ice starts to open up into open waters, our current best estimates suggest that krill faecal pellets transfer 39 million tonnes of carbon out of the surface ocean – that is about the same as the total UK transport emissions in 2019!* This is a minimum estimate since many krill live beyond the marginal ice zone.

Although delicious for whales, krill are also climate engineers, helping to lock carbon deeper in the ocean where it cannot return to the atmosphere so quickly.

It is therefore even more important that we ensure we protect the delicate polar environments that krill need to survive. Successful krill recruitment is supported by long lived winter sea ice cover and large diatom blooms in the spring and summer. Krill are therefore particularly vulnerable to warming ocean temperatures and reductions in sea ice. The long-term decline in sea ice and changes in the phytoplankton community composition could lead to reductions in krill populations.





Clockwise from top-left: *Antarctic Krill Photo Credit: British Antarctic Survey; The krill carbon highway Photo Credit: Anna Belcher; Krill's role in biogeochemistry Reproduced from Cavan et al., (2019) under creative commons license.*

There is evidence that changes in wintertime sea ice cover are related to declining krill populations and/or a shift in their distribution southward in the Atlantic sector of the Southern Ocean. These regions are particularly important nursery and spawning grounds, and thus changes in the sea ice has huge consequences for krill populations more widely in the Southern Ocean.

Krill are also commercially fished, used to produce aquaculture feed, as well as for pharmaceuticals. They are the most fished animal in the Southern Ocean. The fishery is closely managed by CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) who take an ecosystem-based management approach, trying to ensure that limits are set so that Antarctic marine food-webs are not impacted. This involves regulating not just how much krill can be taken, but also restricting where and when this can take place to protect key times and locations for krill recruitment, as well as foraging areas. Currently <1% of the krill population is fished each year. However, as human populations increase and global food security pressures rise, we need to be mindful that the protection of krill populations is important, not only to safeguard these fragile Antarctic ecosystems, but also to protect the role that krill play in our global climate.

Our daily lives and carbon footprint have far reaching consequences, impacting habitats and ecosystems on the other side of the globe. These impacts in turn feedback on our own lives by disrupting the role that nature plays in the stability of our climate. It has never been more pressing to consider the sustainability of our own actions and take action to support sustainable practices more widely.

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Antarctic Tourism – its impacts and benefits

David Macdonald is an alumnus of Darwin (mat. 1977) and is an Emeritus Professor of Geology at the University of Aberdeen. He worked at the British Antarctic Survey from 1975 to 1993 and for the Antarctic tourist industry since 2017. Here he discusses the benefits of tourism in Antarctica.

In April 1977 I arrived at Darwin, fresh from my second Antarctic field season and ready to matriculate as a PhD student. I duly signed the matriculation book in the Dean's office and waited while Reg Goodwin called the Board of Graduate Studies (BoGS) to discuss a technical point. From my one-sided view, it was clear that the conversation was not going well – BoGS was concerned about my out-of-sequence matriculation. The conversation ended with the normally affable Dean's parting shot, "He's been in the Antarctic you know – it's not just past bloody Royston." This left me with two legacies: first, an inability to pass through Royston without hearing Reg's voice and, second, the growing realisation that most people did not know much about Antarctica.

When I first worked in the Antarctic, it was the preserve of national Antarctic programs, run by the Antarctic Treaty system, and a successful example of international collaboration. The continent had no permanent residents and the scattered research stations' total population was about 4,000 in summer and 1,500 in winter, barely enough people to make a small English village, scattered across a continent the size of the US and Canada combined. It was 'A Continent for Science' and those of us lucky enough to work there were a tiny minority of our national populations. Tourism was all but unknown, with one ship, *Linblad Explorer*, bringing a few hundred visitors to the Antarctic every year.

Almost all Antarctic scientists, including me, thought that tourism was a bad idea; since then, I have completely changed my mind.

Since the 1970s, visitor numbers have climbed exponentially, passing 5,000 in 1992-93, overtaking research personnel for the first time. By 2007-2008, there were more than 30,000 visitors but the financial crisis reined the numbers back for almost 10 years. In 2019-20 the total number of visitors was almost 74,000 and the rise seemed unstoppable, until the pandemic hit. In the last full field season (2020-21) there were 23,023 visitors who went ashore in the Antarctic, back to levels last seen in 2004-05. These figures make two points: firstly, visitor numbers are strongly correlated to world economic activity, and secondly, all other things being equal, there is a significant upward pressure on numbers. This is facilitated by a vastly increased passenger capacity – there are now 65 vessels registered to take tourists to the Antarctic – and a much more affordable cost thanks to inflation (about USD 10,000 in 1975, and USD 10,000 today). There has also been significant expansion into new markets, with a huge increase in tourism from China.

At first sight, these numbers are horrifying and a quick Google search supports this view: headlines such as *"Antarctic Tourism - Human Impact Threats to the Environment"* abound. However, I now have a more positive view on the threats and benefits of Antarctic tourism, partly because people I admire worked in Antarctic tourism, and partly because I realised that my previous views were hopelessly elitist and would doom the Antarctic to be a truly unknown land to most of the population.

Mainly, my conversion was down to working in the industry as an onboard lecturer and expedition guide and actually meeting people who truly wanted to visit Antarctica, and were excited and knowledgeable about a continent that has excited me for more than 40 years. There are threats caused by these large numbers of visitors, but they are manageable, as I hope to show.

Mostly, this is a story about exposed rock – a rare commodity in the Antarctic, comprising about 3% of the land area of the continent. Exposed rock is concentrated around the coasts, particularly in the Antarctic Peninsula area. Almost all Antarctic research stations are built on rock, by the sea to make resupply easier. These areas are also prime nesting sites for penguins, who also like to be beside the seaside, to make their own resupply easier. The concentration of penguins to a relatively few coastal sites concentrates the areas where cruise ships want to land guests, because everyone wants to see penguins. This concentration of the "visual resource" could lead to an unsightly free-for-all, but the tourism sector is now managed.

The International Association of Antarctic Tour Operators (IAATO) has strict regulations for visits and maintains a ship scheduler which minimises sightings of other expedition cruise ships and ensures only one ship per half day at any site.

The IAATO rules are governed by the Antarctic Treaty and its conventions, so only ships with 200 or fewer guests can land at any site and they can only have 100 people ashore at a time; ships with 200-500 guests can only land people at a very few sites and are

Clockwise from above
The port of Ushuaia with two Antarctic expedition vessels on one side of the quay: Ocean Atlantic (Albatros Expeditions) and Ocean Diamond (Quark Expeditions) both carry fewer than 200 passengers and are dwarfed by Celebrity Eclipse (2,850 passengers), a traditional cruise ship which does not go to Antarctica.
Guests from Ocean Atlantic ashore at Damoy Point with Mount Francais (the highest mountain in the northern part of the Antarctic Peninsula) in the background
A Zodiac with 10 guests cruising in Paradise Harbour, emphasising the scale of the Antarctic landscape.

still restricted to 100 guests ashore at once; the few ships that carry more than 500 passengers are not allowed to land anywhere.

There are huge restrictions on activities south of the 60th parallel: no ships that burn heavy fuel oil; no waste discharges; drone flying is restricted; nothing can be removed from any landing site – no pebble, no bone, no feather; and every landing must be fully documented – including details of anything that went wrong**. In particular, distances from wildlife are strictly maintained: 5m from penguins, 25m from giant petrels, and 100m from whales.**

It is my belief that the cruise industry's adherence to these strict guidelines has had a beneficial effect on the national operators, particularly in the field of waste management. In 1991, the year of IAATO's foundation, the US McMurdo Station was an environmental disgrace; its beach was a gigantic rubbish dump and most other research stations were no better, albeit on a smaller scale. The advent of visitors in large numbers has prompted a clean-up of most of these stations.

The tourist industry has also had a beneficial effect on the employment of women. Antarctic research was a male-only enterprise in the 1970s, with a few women edging in during the 1980s, but the tour industry was an equal-opportunity employer from the start. The sight of large numbers of extremely capable women driving boats, paddling kayaks, and lecturing probably accelerated the employment of women by national operators.

There are threats posed by tourism, particularly by late summer visits, when the snow has gone and paths have been created at some of the most popular landing sites. We always have to be vigilant about litter, but most of the beach debris comes from fishing vessels rather than cruise ships. Most of the other threats to Antarctica area originate externally to the continent: the ongoing ozone hole (a problem created in the northern hemisphere); microplastic pollution; overfishing (a political problem generated by two countries); and, above all, human-induced climate change. The tourist industry has taken hundreds of thousands of people to Antarctica who have witnessed these problems and can act as Antarctic Ambassadors on a scale unimagined 40 years ago. On balance, it is a good thing.

Acknowledgements
I am indebted to Albatros Expeditions for the opportunity to work in the Antarctic again, and to all my fellow guides for education, entertainment and fellowship. I am particularly grateful to my friends Hannah Lawson, Susan Adie and Emily Kay McGriff for sharing their incredible experiences.

In Memory of Abe Yoffe – a new Travel Bursary

Abraham Yoffe, or 'Abe' as he was always known, was one of the twelve Founding Fellows of Darwin College. He passed away in March 2022 at the age of 102. He enjoyed his 58 years as a Darwin Fellow (latterly, as an Emeritus Fellow) and was often in College enjoying stimulating conversation with Fellows and students alike. He also helped in attracting many talented postgraduates, Research Fellows and scientists from around the globe who chose Darwin as their post-graduate College of choice.

It is fitting that a fund has been set up in Abe's memory by his many friends and colleagues. The bursary will be available to Darwin students, who could otherwise not afford to do so, to travel to academic conferences and symposiums around the world.

The college is most grateful to those donors who have supported the fund already; if you are interested in donating to the Abe Yoffe Travel Bursary, please contact the Development Office on **development@darwin.cam.ac.uk**

Darwin Telethon 2022 – Thank you for your support

Once again, the support and generosity of the Darwin community shone through during our recent College Telethon. Over two weeks a team of five dedicated Darwin students were employed by the College to speak with Darwinians around the world. They were able to reminisce and share stories about College life, ask for insight on life and opportunities after Darwin, and raise money towards projects focused on student support.

Involvement from our alumni community helps make Darwin the place it is today. Whilst we celebrate our success we are also looking to the future and are committed to ensuring that the most talented students can study here regardless of their financial circumstances. While fundraising during the current financial climate remains a challenging task, we continue to be overwhelmed by the support given by all members of the Darwin community, and enjoyed hearing the stories and warm memories of College that alumni shared with the call team. Our students particularly enjoyed the *'camaraderie'* and *'talking to some lovely Old Darwinians.'*

Donations to this year's Telethon funded two Studentships and boosted the Student Hardship Fund.

It is our responsibility to ensure that as many students as possible can study at Darwin, irrespective of their ability to pay. The good news is that a small number of students have already received studentships from the College and with your help we can fund many more. At a time of financial uncertainty for many, the ability to support students who are struggling to continue their studies successfully is of even greater importance.

If you would like to find out more about the College's fundraising initiatives, please visit our website **www.darwin.cam.ac.uk/supporting-college**, or contact the Development Team **development@darwin.cam.ac.uk**.

The Alumni and Development Office - Old and New Faces

You may have already spoken to Hannah Milne *(left)* our new Alumni Relations Officer. She has been with Darwin College for a few months, and is a perfect fit for the position. With her she brings enthusiasm and joy to the college community. Hannah will contact you about upcoming events and alumni news and is always happy to help with your questions. She is a wonderful edition to the team.

Our Senior Development Officer, Emily Rigby *(right)* has now moved on from Darwin College. She oversaw the most recent telephone Campaign and our first giving day with great enthusiasm. She is much missed and we wish her well in her new endeavours.

Darwin Community Appointments and Awards

Darwin College Appointments

Congratulations to:

Dr Rajesh Bhagat, Darwin Research Fellow for his appointment as a Research Fellow of The Royal Academy of Engineering. The Royal Academy of Engineering Research Fellowships programme supports outstanding early-career researchers to become future research leaders in engineering. The fellowships are designed to advance excellence in engineering by providing funding for five years to allow awardees the freedom to concentrate on basic research in any field of engineering.

Ms Chelsea Edmonds (above), Darwin Student and DCSA President who has been awarded the Mary Bradburn Award by the British Federation of Women Graduates. The BFWG was founded to build a better life for women in and through education. For over a century it has offered financial support to women pursuing advanced studies. Chelsea researches into the formalisation of mathematics, developing machine-based verification and deeper insights into mathematical proofs, taking advantage of developments in technology, such as automation and search.

Dame Professor Jane Francis (above), Darwin Fellow and Director of the British Antarctic Survey, was given the Award for Planetary Health from the Prince Albert II of Monaco Foundation. The award was created to show support to exceptional men and women who are committed to saving our planet in each of three priority areas: limiting the effects of climate change, preserving biodiversity and managing water resources.

Dr Olga Kennard (Lady Burgen), **Honorary Fellow** who has been awarded the Gregori Aminoff Prize by the Royal Swedish Academy of Sciences. The Prize is given each year in recognition of a documented individual contribution to the field of crystallography, the study of atomic structures in solid materials.

Professor Arokia Nathan, Darwin Bye-Fellow, elected as a Fellow of the Royal Academy of Engineering. The Academy elected 72 leading figures in engineering and technology to its Fellowship, each of whom has made exceptional contributions to their own sector. Professor Nathan's approach to engineering research and development has included fundamental device science, process development and manufacturing, and device and circuit inventions to achieve new systems. His research and development on modelling and electronic design has been applied to large-area and flexible electronics.

Professor Lawrence Sherman, Emeritus Fellow, and alumnus, who has been appointed as the first Chief Scientific Officer (CSO) to the Metropolitan Police and advisor to their Management Board. Professor Sherman will provide independent and expert advice on science, technology and research methods to inform decision making across the Met.

Appointments and Awards throughout our Community

Congratulations to:

Professor Bronwyn Naylor, Darwin Alumna (Criminology MPhil 1986, Criminology PhD 1992) who was recently awarded the 'Medal of the Order of Australia' (OAM) for 'services to tertiary education and the law'. In the Australian honours system appointments to the Order of Australia confer the highest recognition for outstanding achievement and service. The award was announced on Australia Day 26, and the Investiture took place in April 2022.

Professor Simon Thompson, Darwin Alumnus (Criminology MPhil 2018) who has been awarded an MBE in the King's New Year Honours List for services to Clinical Psychology Education and to Healthcare Improvements.

A New State of the Art Gym replaces the Room of (Erg) Doom

Darwin is delighted to announce that a new spacious student College gym was opened in October 2022.

The building that houses the new gym was originally built as a milking shed – and most recently housed a dental surgery. Fortunately, the College has extensively renovated the property in Newnham Road and any reminders of the previous tenants have thankfully gone!

The gym itself is equipped with an array of high-quality exercise equipment and has showers and changing rooms. It is also broadly energy efficient with solar panels and an air source heat pump providing hot water and heating, as well as powering the exercise machines. What is more, the gym is open 24 hours a day – being held up in the lab is no longer an excuse not to exercise!

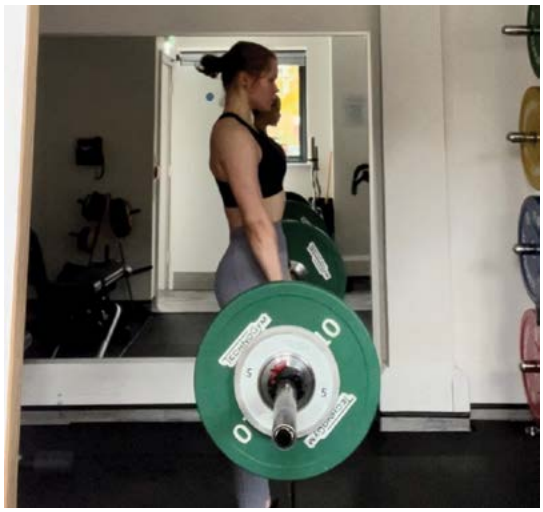
Kamilė Stankevičiūtė, an enthusiastic gym goer and runner is studying for a PhD in Machine Learning. She is one of the DCSA Sports Officers, and it is her role to be responsible for the maintaining and the effective running of the gym. She and her Fellow Sports Officer Henry Daramola-Martin also oversee Darwin's sports and societies and organise the annual Darwin-Wolfson Sports Day.

Kamilė is passionate when talking about the benefits the new gym has over the previous one (now transformed into a valuable space for music practice). Although the old gym was well used, the equipment was shoe-horned into a room not really adequate for purpose, with space for just four rowing machines and some weights. The ventilation was poor and there were no shower facilities. In fact, during the pandemic only four students could use the gym at once because of the rules in place at the time.

So, there was great excitement when the Newnham Road facility opened, especially as it is four times larger and houses over two floors with not only weights and eight ergs, but also cardio equipment, treadmills, exercise bikes and cross trainers.

Jose Franco Alvarez is the Men's Captain of the Darwin College Boat Club and is studying for a PhD in Medical Sciences. He is overjoyed with the number of ergs that can be accommodated on the second floor of the gym. There is enough space to lay out eight rowing machines and still not interrupt those using the nearby cross-trainers or running machines. The fact that eight DCBC members can train at the same time is important – it builds team morale and means that the club is not so reliant on the beneficence of using other colleges' facilities. The Club can now train with either four, six or eight ergs most days.

The college had been looking for a good location to house a state-of-the-art gym for many years. This site is just right – it is within a few minutes walk of the College and is close to student accommodation. The gym is of great benefit to Darwin members, for both their physical and mental health, and will be a valuable college resource for years to come.



Dr Reg Goodwin celebrates being one hundred years old.

Dr Reg Goodwin has been part of Darwin College since shortly after its inception in 1964. He was a Fellow from 1966 to 1990, Dean from 1969 to 1983 and Vice-Master from 1987 to 1990. He remains proud to be an Emeritus Fellow to this day.

Reg Goodwin was born on 1 December 1922 in Lambeth, London. During the Great Depression, times were hard. In order to earn money, for four years he delivered newspapers before school, from 4am to 8am, until he obtained a scholarship.

The Government financed his degree training as an engineer, on condition that he served in one of the Armed Forces. He chose the Royal Navy but requested that the Admiralty abandon the training so that he could be commissioned early. Reg specialised in an early modification of the radio navigation system for ships and - aged 20 in 1943 - was put in charge of all sea-borne radar at Dover. He undertook a number of critical missions as an extra navigator in small boats prior to the D-Day landings.

Reg met his future wife, Joan, in Greenock when she was serving as a 'Wren.' Reflecting on the future, he decided to study veterinary medicine. He studied for his first examinations whilst at Dover and as soon as the war concluded, joined the Royal Veterinary College in London where he won many prizes, including the final year prize.

"Reg specialised in an early modification of the radio navigation system for ships and – aged 20 in 1943 – was put in charge of all sea-borne radar at Dover."

He came up to Trinity Hall, Cambridge in 1950, with an Agricultural Research Council Scholarship. His PhD was on carbohydrate metabolism in new-born mammals. The family lived at Vicar's Farm, Madingley Road, whilst nearby the Veterinary School was under construction.

Reg became a lecturer in Veterinary Medicine which he taught until the age of 72. He was also a prolific researcher, particularly on pig diseases, and published over a hundred papers. His expertise was much in demand at home and abroad and he also became the Veterinary Correspondent for *The Times*.

In 1965, the family moved to The Grange, in Madingley where they were keen entertainers. Many College students came to the Grange for dinner, big evening parties and sometimes dances. One of the first students, Vikramabahu Karunaratne from Sri Lanka, was a regular visitor and has stayed in close touch as have many others including the Tanaka family from Japan. Joan, with the Master's wife, also helped female students from abroad adjust to the English culture and climate.

Joan sadly died in October 2019. Reg continues to live at his home in Madingley having just celebrated his 100th birthday. Although his mobility is not as good as it was, he has lost nothing of the acuity of his mind or memory.

Nurturing outstanding people and ideas.

Promoting education, research and learning for the benefit of society

The Master Dr Mike Rands Announces the Darwin College Strategic Plan for 2022–32

As Master, I am pleased to announce our Vision for the advancement and development of Darwin College over the next ten years. Both I and the Fellowship are dedicated to the roll-out of this strategic plan to benefit Darwin College, its members and society as a whole.

Some Background:
The University of Cambridge was established over 800 years ago by a group of scholars leaving the University of Oxford due to political conflicts. However, it was not until 1896 that Cambridge admitted its first postgraduate students and only just over 100 years ago, in 1920, that it offered its first PhD degrees. Yet another 44 years passed before the first postgraduate-only College – Darwin College – was created. In another pioneering move, Darwin was the first College to admit both women and men.

The College took its name from the Darwin family who had lived in Newnham Grange and the Old Granary for almost 80 years, and who kindly agreed to this special 'legacy'.

A Review of Darwin College:
Darwin is fortunate enough to be home to one of the most intellectually vibrant, multidisciplinary, international and diverse communities in Cambridge. As we approach our 60th anniversary, the College has around 800 students, 70 Fellows, 50 post-doctoral research associates, 40 staff and over 9000 alumni spread across more than 120 countries. We also have a growing body of Honorary and Emeritus Fellows, Distinguished Associates and other members who contribute to college life.

Our purpose remains as it was in 1964: to advance education, learning and research. However, there has never been a greater need to deliver and promote research, learning and education for the benefit of society. It was within this context that we embarked on developing a College Strategic Plan.

We reviewed our strengths, weaknesses, opportunities and threats in a series of consultations with Fellows, students, staff and alumni. From these the distinctive characteristics of Darwin College were distilled (see the Report Summary below).

Building on this, we identified a series of priorities for the College to sustain and strengthen the contribution Darwin makes to both Collegiate Cambridge and society more widely.

I hope that you will identify with our core values, which are:

- *Darwin members will strive for excellence and intellectual rigour in research, education and learning. Diversity and collaboration across academic disciplines, cultural perspectives and personal experiences is valued.*
- *We seek to welcome, inspire and empower all members of our community and those around us. We are supportive, inclusive, respectful and open in our policies, practices and behaviours.*
- *We are committed to a sustainable future and to contributing to solving global challenges. The Darwin College community should act as a catalyst for change, add value beyond academic scholarship, embrace global engagement and seek to make the world a better place.*

The main points of the plan are outlined below. I hope, that like me, you will endorse our visionary plan for the next ten years and I very much look forward to working with our global alumni community to help us implement this ambitious Strategic Plan.

If you would like to read the complete strategy you will find it on our website.

"Darwin is fortunate enough to be home to one of the most intellectually vibrant, multidisciplinary, international and diverse communities in Cambridge."

A Summary of the Darwin College Strategic Plan 2022–32

Distinctive characteristics of the College:

Our community:
We are international, interdisciplinary and diverse, and are home to the largest number of PhD students of any Cambridge College. The Fellowship has up to 70 Official Fellows from all disciplines; around 50 post-doctoral research associates; over 40 staff; around 800 students and 9000+ alumni living in 127 countries.

Our scholarship:
Darwin College is intellectually rigorous and vigorous. We are research-intensive; we pride ourselves on running the acclaimed annual Darwin College Lecture Series; our Fellowship includes academic scholars across many disciplines and leaders from globally renowned research institutes based in Cambridge, including the British Antarctic Survey, Microsoft Research and the Medical Research Council's Laboratory of Molecular Biology.

Our culture:
We are egalitarian, inclusive, informal and welcoming - a multi-generational extended family. There is no 'high table' segregating Fellows from students. We welcome families, and value the ongoing involvement of our alumni and Emeritus Fellows.

"The world is facing a growing number of social, economic, political and environmental challenges, which research and academic communities have a responsibility to help address."

Our Darwin College Student Association (DCSA): The vibrant DCSA organises a diverse range of social and welfare events, represents the student voice in college decision making, runs over 30 clubs and societies, and provides excellent peer support to fellow students including various underrepresented groups.

Our governance:
Our Fellows, students and Officers all play a role in College Governance and decision making. The College has a Governing Body (the ultimate authority in the College) comprising Official and Research Fellows, and a Board of Trustees (College Council). Council is formed of Senior College Officers, elected Fellows and Student Representatives. Various committees, on which there is normally student representation, report to Council.

Our home and gardens:
The College is based in a cluster of former family houses with beautiful informal gardens, alongside the river Cam at the heart of the University and adjacent to the City Centre. We provide outstanding catering, a diverse range of accommodation and communal spaces for students and claim the best College Bar in Cambridge. We are open for students and Fellows all year round, and for many of them, the College *is* their home.

Our commitment to addressing global challenges:
The world is facing a growing number of social, economic, political and environmental challenges, which research and academic communities have a responsibility to help address. The College community addresses major challenges such as inequity, sustainability and health through College-wide activities, research, education and actions.

Our name:
The College was established in the buildings of a family home which had for decades played a significant role in the intellectual life of Cambridge. We are proud of our ongoing association with the extended Darwin family through the naming of the College.

Darwin College New Strategic Plan

Our aims and priorities 2022–32

The aims and priorities are aspirational areas for growth to enhance the College for current and future generations. They are broken down into five pillars, all of which overlap and are, to some extent, interdependent. For each Pillar, we have agreed a series of actions the College community will take.

Below are outlined the five pillars and some illustrative examples of the actions to be taken.

PILLAR 1:
Strengthen and champion the College's contribution to academic excellence and research impact

We are deeply committed to supporting research and scholarship for the benefit of wider society. To enrich our contribution, we will for example:

a. Foster interdisciplinary and novel collaboration across the College's research community of students, postdocs, Fellows and alumni by establishing a Collaborative Research Fund.
b. Expand research funding to provide additional, rapidly awarded, PhD stipends and Post-Doctoral Research Fellowships; and partner with institutions (including companies) to establish part- and full-time sponsored postgraduate studentships and postdoctoral Fellowships.
c. Facilitate worldwide research networks around selected global challenges to facilitate interdisciplinary research using the College as a hub and partnering with like-minded institutions, especially through the Darwin alumni network.

"We are deeply committed to supporting research and scholarship for the benefit of wider society."

PILLAR 2:
Foster a diverse and inclusive College community that nurtures and supports our students

Enhancing our culture by the provision of excellent pastoral care, and promoting physical and mental health and wellbeing, are essential to achieving academic success and preparing our students for life beyond their postgraduate education. To strengthen the support for our community, we are developing a sector-leading equity, diversity and inclusion plan for the College that will:

a. Ensure the size and composition of the College community is balanced to foster a strong community feel and sense of shared identity.
b. Continue to attract and support a wide range of College members from diverse backgrounds (including ethnic, gender, socioeconomic, academic), across all the various College functions and levels of responsibility, to enrich the College community.
c. Foster a healthy work/life balance for students, staff and Fellows.

PILLAR 3:
Enhance our College estate, facilities and services

Darwin prides itself on being based in a series of former family homes, allowing as much access as possible to all areas and facilities for everyone, and being centrally located alongside the river with attractive informal gardens. While the location is exceptional, it is also constraining, with few opportunities to expand within our existing footprint because several of our buildings are historic and therefore listed.

Enhancing the quality of our estate and facilities is essential not only for student and staff well-being, but also to attract the best students and Fellows and to maintain a steady revenue stream from our accommodation.

To improve our buildings, spaces and services, we will:

a. Develop and deliver an estate-wide Masterplan to ensure that the College estate: (i) provides the quantity and diversity of accommodation needed for students, Fellows and staff (including those with families); (ii) has adequate shared spaces for the College community; and (iii) is environmentally sustainable.
b. Implement a refurbishment and redesign of the Dining Hall and parts of the Hermitage to create appropriate social/working spaces including a new garden room with a café to enhance the College catering, DarBar and other communal facilities.

PILLAR 4:
Expand and diversify College revenue without compromising our primary purpose of supporting students and fellows

Darwin remains self-sustaining financially. Revenue from student fees, rental and catering income, together with unrestricted income from the existing endowment, cover the operating costs of the College. We are fortunate not to rely either on additional conference or hospitality revenue, or on income from activity unrelated to education, learning or research. This is a strength, but it does mean that we need to secure additional funds to be able to advance our contribution to research, better support our students and enhance the facilities and services we provide to the whole College community.

Our aspiration is to contribute more to addressing global challenges which further increases our need for additional financial resources.

To provide such additional resources we will for example:

a. Diversify our supporter base by building on the strong academic heritage and international standing of the College to include donors (beyond our alumni) who are interested in supporting the global impact the College can have through the implementation of this Strategic Plan.
b. Grow the College's financial reserves and establish a Collaborative Research Fund and a College Sustainability Fund.
c. Continue to ensure that College funds are responsibly invested.

PILLAR 5:
Act on and promote solutions to global challenges including sustainability

Darwin College has a track record of contributing ideas, knowledge and innovation to tackle environmental and societal challenges, via its distinguished past and present Fellows, students, alumni and events.

To play a significant role in championing solutions to these challenges and act as a catalyst for change, we will:

a. Initiate an ambitious College-wide Sustainability Plan that enables the College's estate to become at least carbon zero by 2032, and which fosters behaviours and actions that reduce individual and collective environmental impacts more widely. This will include ensuring that all energy sources used in College are supplied from renewable sources, including providing heating and hot water using new technologies such as heat pumps.
b. Establish a rolling programme of College activities (research collaborations, education and outreach initiatives, interdisciplinary seminars, practical actions within College) to contribute to selected global challenges, especially those identified by the Global South. We will focus on 3-5 'priority projects' for 2-3 years at a time in collaboration with specific partner institutions.
c. Collaborate with our highly qualified and globally distributed alumni network to share knowledge and inform/engage key decision makers.
d. Promote Darwin internationally as a destination of choice for students and fellows committed to addressing global challenges.

"Darwin College has a track record of contributing ideas, knowledge and innovation to tackle environmental and societal challenges."

CONCLUSION

Since its foundation, Darwin has established a unique place in the life of the collegiate University. As the College prepares to enter its seventh decade, we have a secure financial base; an engaged and active community of students, Fellows and staff; and a strong commitment to making a difference in the world. This strategic plan outlines how we aim to build confidently on these firm foundations to deliver our vision for the next ten years.

Please do not hesitate to contact Sam Venn, our Development Director, if you would like to discuss anything in the Strategic Plan further.

Alumni Events 2023–24

All alumni are welcome back to College at any time. You can book Formal Hall for you and two guests. Or, if you are in Cambridge, just pop in for lunch. The Punt Club also has punts that you can hire. Please email the Alumni and Development Office giving us as much notice as possible, and we will be happy to book you a punt or reserve spaces for Formal Hall.

DARWIN COLLEGE LECTURE SERIES 2023: ISOLATION

20th January
Christine van Ruymbeke, University of Cambridge
On escaping or not escaping solitude

27th January
Amy Nethery, Deakin University
The isolation of asylum seekers

3rd February
Adrian Kent, University of Cambridge
The closeting of secrets

10th February
Jane Francis, British Antarctic Survey
Antartica: isolated continent

17th February
Philip Jones, University College London
Isolation and trapping using optical tweezers

24th February
Arik Kershenbaum, University of Cambridge
Are we alone in the universe?

3rd March
Heonik Kwon, University of Cambridge
The self-imposed isolation of North Korea

10th March
Amrita Narlikar, German Institute for Global Area Studies
Isolation in international relations

ALUMNI EVENTS:

Friday 17th March
Alumni and Fellowship Reunion Dinner

Friday 12th May
Reunion Dinner (1975–1987 & 1997–2007)

Friday 19th May
Combined Former Fellows Dinner & Guest Night

Friday 16th June
Alumni and Fellowship Reunion Dinner

Sunday 9th July
Alumni Garden Party

Editors: Sophia Smith, Samuel Venn, Emily Rigby, Hannah Milne

The editors especially welcome short articles, pictures and news from all alumni.

Correspondence to: **darwinian@darwin.cam.ac.uk**

Front cover: *Darwin College in the Snow 2022.* **Back cover:** *Darwin College Alumni Garden Party 2022. Photo Credit: Sophia Smith*