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The University warmly welcomes its first female vice-chancellor, Professor Louise Richardson, who begins her role on 1 January 2016. Departing Vice-Chancellor Andrew Hamilton, over a coffee with *Oxford Today*, talks about the purpose of a great university in the 21st century. In this issue’s cover story we go diving into the deep ocean with Professor Alex Rogers. The story he tells is frankly astonishing. We know very little about arguably the Earth’s greatest resource, and Rogers’ team is constantly, almost routinely, discovering new species. On the same subject, alumnus Alan Simcock gives us a sneak preview of the first-ever global ocean assessment report. A decade in the making and running to more than a thousand pages, the UN-sponsored ‘state of the oceans’ report offers a sobering view. We offer three other, very different features. One concerns itself with the state of genomics research, which has fallen off the radar of the popular media and become more fascinating but less straightforward. In another essay, alumnus John Tepper Marlin asks the deceptively simple question, ‘Why do we do this?’ We then visit Corpus Christi College to spend an afternoon in the company of John Gray, the philosopher and historian of ideas and author of numerous global bestsellers such as *Black Mass* and *Straw Dogs*. He discusses his debt to Sir Isaiah Berlin, perhaps the greatest historian of ideas of all, whose first-year room we attempt to discover at Corpus. If your brain is aching, rest it on page 52 by taking a stroll around some Oxford gardens with landscape architect Tim Richardson.

**Editor:** Richard Lofthouse
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Your voice

Letters

In response to...

OT 27.2

Stephen Hawking

Even Stephen Hawking recognised the danger of the ‘grey men’. I have just read OT 27.2 but I am moved to comment on the lack of anything that sounded like the cultural and social atmosphere that was ever-present 60 years ago. I am lost in admiration of the deeds of present-day Oxonians, but where are all the eccentrics and oddities from my day? I have personally achieved little of interest that will go into my obituary, but I believe I absorbed at Oxford a huge amount of culture, learned how to enjoy and discuss almost any subject and above all how to have fun. I was educated.

Has Oxford changed a lot? I shared tutorials with Konnie, a young Greek god who used to put Chanel No 5 on his feet. Edward was a gilded bubble for the rich dilettante (and occasional mischief-maker). John had a cousin who worked at Sotheby’s, and somehow managed to furnish his rooms in Meadow Buildings with sumptuous silk tapestries and exquisite old masters from all over the world. Gorgeous Robin was thrown through a closed window by a drunken rugger Blue whom he had invited to dance with him. Lovely Vicky, an accomplished painter and jazz singer, kept a huge pet snake in her bedroom (a place much visited by eager young undergraduates). She fed it with live white mice. Her mother had been married nine times. Bruce was a member of the Bullingdon, ran the Christ Church beagles and was the perfect example of the ‘Peckwater Bloody’. He is now a woman. I could go on, but I hope my point is made. There are probably many like these at Oxford today: if so, your columns could do more to reflect the fact.

Adrian Petch

Christ Church, 1956

Reading Stephen Hawking’s recollections of Oxford in the early 1960s made me wonder what university it was that I attended in the late 1950s. Of course we all knew that there was a gilded bubble for the rich dilettante (and occasional genius), but the prevailing attitude of the rest of us was not anti-work.

Michael Wray

New College, 1957

Finally an article dedicated to the Oxonian side of Stephen Hawking! After so much emphasis in the film The Theory of Everything, it is time for the world to realise that it was Oxford that provided the foundation for Hawking’s innovation and mischief-making.

Reynaldo Nera Obed

University College, 1966

The photograph of ‘what are thought to be members of the University College Boat Club, for whom he coxed in 1961’ was in fact taken in the Radcliffe quad at Univ in June 1962 and I am sitting on the bench. You have quoted Hawking saying, ‘I felt rather lonely during my first year and part of the second. In my third year, in order to make friends, I joined the Boat Club as a coxswain. My coxing career was fairly disastrous, though.’ Oh dear! As I wrote to Hawking on reading this paragraph, it is absolute tosh. The fact is that Hawking and I joined the Univ Boat Club in the first week of our first Term in October 1959. I rowed and he coxed the college’s entry in the Christ Church Regatta for Novice Eights in November when he was still 17. I may add that Stephen has acknowledged that my recollection is in accordance with the facts and his is entirely untrue. I cannot comment with authority on his happiness, except to say that we were good friends for the whole of three years, enjoyed all sorts of experiences on the river, and played many evenings of bridge over a bottle of port with the junior dean, Tony Firth, and sometimes with his friends Francis Hope and Jeremy Lever – who were fellows of All Souls – but always for very small stakes!

Stephen Cockburn

University College, 1959

Oxford in 2065

Slightly tongue-in-cheek: I found the numerous articles guessing at Oxford’s future to be unimaginitive, self-serving, agenda-ridden, anti-car (ironic given Oxfordshire’s history and present – from the Mini to Formula 1 racing cars) and ludicrously ‘PC’; they were all replete with boring buses and ecopeace bamboo bicycles. Although I do rather like the monorail idea (and bamboo bicycles too – still saving up for one!).

So could you please solicit an alternative view from recently ‘available’ J Clarkson of nearby parish?

Charles Toomer

Oriel, 1985

There are alternatives to the vision concerning energy set out by Barbara Hammond in OT 27.2. Her assertion that energy will cost more, made affordable by using less of it, carries with it the implication of falling productivity and economic decline. An alternative vision is of cheap and almost limitless power as represented by the work going on just down the road at Culham.

The Intergovernmental Panel on Climate Change points out in its Working Group III report that it will take all our technologies to decarbonise our energy supply, and that restricting solutions to the renewables taxonomy will lead to less of a solution or a failed solution. It also points out that we need to use the cheapest solutions or else we will damage the fabric of society through careless use of a finite resource – money. Neighbouring France has already decarbonised its electricity, using 76%
uranium-fuelled nuclear and 11% hydro-electric power. In the process it has delivered electricity bills at the lower end for Europe. It makes an Oxford vision of getting there expensively by 2065 look a bit weak.

James Anderson
St Catherine’s, 1963

‘Digging and tunnelling’ is not as straightforward a solution to finding more space as it may first appear. It comes at a significant cost in terms of the destruction of the unique record of the city’s and the University’s buried history.

Furthermore, developers who wish to destroy archaeological remains are now required to fund any necessary recording, publication and archive creation, as a condition of planning permission.

Tom Hassall
Corpus Christi, 1962

The ideal future transport [in Oxford] could be provided by electric trams running in the street, as proposed in a recent paper by Nicholas Falk and Reg Harman. Trams are quiet, clean and fume-free; with modern technology they can run without overhead wires in the historic city centre.

Martin Smith
Hertford, 1952

Turning kart wheels
I was Oxford University Motor Drivers’ Club (OUMDC) Secretary during my second year, 1967/8. One of my predecessors, a year or so before, had pulled off a real coup in getting Graham Hill to visit and give a talk – the humorous and racy (in every sense) nature of it can be only too easily imagined! My own tenure began well, as I was able in my first term to invite Tony Rolt of Ferguson Engineering – four-wheel-drive pioneers from my home city of Coventry.

However, I then aimed higher, and I was able to persuade Jackie Stewart to come and talk; however, disaster struck, for me at least. About a week before the date, I was told he could not come because of duties elsewhere, the details of which had to be kept secret. It was a week or so before it emerged into the public domain that Jackie had been secretly testing, in Spain if my recollection is correct, the new Formula 1 car designed by Ken Tyrrell, the first under his own name. A ‘good cause’, I suppose, but not in my eyes! I have never had the chance to meet Jackie and tell him of my disappointment.

After that, the rest of my tenure, was, in my fellow committee members’ eyes, and indeed mine, very flat.

Peter Deacon
Worcester, 1966

Napoleon
I much enjoyed the feature on Napoleon and St Helena by Christopher Danziger in your Trinity Term 2015 issue (OT 27.2). May I, however, respectfully point out a small error. It is not true that General Bertrand ‘was the only one of the so-called evangelists left on the island’ when Napoleon died. General Charles Jean Tristan de Montholon, who lived in Longwood House with Napoleon (Bertrand and his family lived separately nearby), also remained until the bitter end.

As principal executor of Napoleon’s will, he was probably even closer to him than Bertrand during the final days. He published his own memoirs on return to Europe after Napoleon’s death.

Brian Unwin
New College, 1955
(Sir Brian Unwin KCB, author of Terrible Exile: The Last Days of Napoleon on St Helena)

Sir Peter Stothard
How lovely it was to read the interview with Sir Peter Stothard in the recent issue of Oxford Today.

In my first year (and quite possibly only my first or second term) at Trinity College, Peter Stothard came back to give a talk in college. That talk motivated me to write, review and edit with university publications Isis, The Word and The Oxford Student. I later went on to win third prize in the Young Financial Journalist of the Year Award 1998 and worked in regional newspapers for a number of years before moving into the world of writing short fiction and poetry.

I just wanted to say a belated thanks to him for that inspiration, and more generally to alumni taking the time to come back and encourage new students.

Paul Gittins
Exeter, 1964

Vera Britain
Reading Mark Bostridge’s brief piece about Vera Britain, of whom he is an authorised biographer, I was surprised to see the omission of any mention of Britain’s reputation not only, as rightly noted, as ‘a writer, feminist and pacifist’, but also as a committed socialist.

Philip Grey
Wadham, 1972
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THE TOP 5 MOST POPULAR OT WEB FEATURES

1. Dramatic discovery at the Bodleian
Will Coleman’s discovery of a buried manuscript revealing the unsuspected medieval roots of the circular Shakespearian theatre has been a big hit.
bit.do/bodleydiscovery

2. Summer on the water
Jonathan Kirkpatrick’s photographic images of Oxford are simply exceptional as well as being hugely original.
bit.do/summerwater

3. Peter Jackson comes to Tolkien’s Oxford
The acclaimed director of The Lord of the Rings and Hobbit trilogies speaks to our man in Oxford.
bit.do/jackontolkien

4. DNA map uncovers UK’s secret histories
Oxford scientists unveil a genetic map of the UK, with dramatic historical implications.
bit.do/dnamap

5. Gay marriage
Why Christians shouldn’t do as the Romans did. Adam Blick drums up a vigorous debate.
bit.do/gaymarriage

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Meet the new VC

Louise Richardson becomes the first woman vice-chancellor of the University since the post was created nearly eight hundred years ago

Currently the Principal and Vice-Chancellor of the University of St Andrews, Professor Louise Richardson will succeed Professor Andrew Hamilton on 1 January 2016. Upon her nomination to the role, Richardson said: ‘Oxford is one of the world’s great universities. I feel enormously privileged to be given the opportunity to lead this remarkable institution during an exciting time for higher education.’

Richardson has an international reputation as a scholar of terrorism and security studies. Her works include the groundbreaking study What Terrorists Want: Understanding the Enemy, Containing the Threat.

Born in the Republic of Ireland in 1958, the second of seven siblings, Richardson holds a BA in history from Trinity College, Dublin, an MA in political science from the University of California, Los Angeles, and an MA and PhD in government from Harvard.

Prior to joining St Andrews in 2009, she was Executive Dean of the Radcliffe Institute for Advanced Study at Harvard University, where she received several honours for her teaching.

Oxford’s nominating committee was chaired by the Chancellor, Lord Patten, who noted: ‘Her distinguished record both as an educational leader and as an outstanding scholar provides an excellent basis for her to lead Oxford in the coming years.’

Oxford cleans up on the Tideway

Oxford rowers won all four races against Cambridge in an historic Boat Race weekend. The women’s Blue boat finished 19 seconds ahead of Cambridge in the first-ever women’s Boat Race to be held on the Thames Tideway. OU Women’s Boat Club President Anastasia Chitty noted that she had been working towards the women’s victory for three years. The men’s Blue boat also continued their recent good form, beating Cambridge by six lengths.

Oxford exceeds £2 billion fundraising milestone

The University’s fundraising campaign, Oxford Thinking, passed the £2 billion mark in May. The collegiate University has more to do to reach the overall campaign goal of £3 billion. The campaign began in 2004 in support of the central University and all Oxford colleges, and there has been an acceleration of giving, the second billion being raised almost two years quicker than the first. This reflects the exceptional generosity of Oxford alumni and other donors. 17.88% of all Oxford alumni made gifts in 2013–14, and more than 50,000 gifts have been made since the campaign began.
Landmarks in the making

Three significant buildings chart the ongoing development of the University’s physical character

The Investcorp Building created by Zaha Hadid (pictured above) was unveiled in May. The £11 million building transforms the Middle East Centre that is part of St Antony’s College. Meanwhile, work has begun on the Beecroft Building (below left), which will provide brand new and much-needed laboratories for experimental and theoretical physics. The building is named in honour of CCB member and philanthropist Adrian Beecroft. It is the first significant new building in the Physics Department for 50 years and will take two years to complete. In a third development (below right), the Ruskin School of Art opens a new fine art practice space in October, and also welcomes the first students to its new degree, Master of Fine Art (MFA).

Simon Armitage

‘A self-taught poet who views poetry from a hill above a Yorkshire village’, Simon Armitage has just taken over from Sir Geoffrey Hill as Professor of Poetry, one of Oxford’s most prestigious chairs. The election, which was open to all alumni and which closed on 17 June, gave him a majority of 301 over his nearest rival, Nigerian poet and playwright Wole Soyinka.

The last co-ed

St Benet’s Hall has decided to admit women, the last academic institution in the collegiate University to go co-educational. The trustees of the college voted on the matter earlier this year. St Benet’s Hall has long admitted undergraduates, hosting 47 in 2014–15. St Benet’s is one of Oxford’s six ‘private permanent halls’, and is linked to the Catholic Benedictine religious order. Werner Jeanrond, the Master, is keen to get on with it. He said the delay in making the change had been due to practical matters of finding the necessary accommodation for an expanded student body, not for a reason of principle.
Honours

Queen’s Birthday Honours
A number of Oxford scholars were recognised for their contributions to scholarship, the public understanding of science and higher education.

Frances Ashcroft, FRS, Royal Society GlaxoSmithKline Research Professor in the Department of Physiology, Anatomy and Genetics and Fellow of Trinity College, was made a DBE for services to medical science and the public understanding of science.

Two former heads of house were also recognised.
Frances Cairncross, FRSE, Rector of Exeter College from 2004 until she stepped down last year, was made a DBE for services to higher education and to economics.
Professor Steve Nickell, FBA, Warden of Nuffield College from 2006 to 2012, was knighted for services to economics.

Also honoured was Dr James Adams, FBA, Emeritus Fellow of All Souls College, who was made a CBE for services to Latin scholarship.

Royal Society Fellows
Eight Oxford academics were among the 47 new fellows of the Royal Society announced during the summer.

Sir Rory Collins, Professor of Medicine and Epidemiology.
Benjamin Davis, Professor of Chemistry.
Alison Etheridge, Professor of Probability.
Jane Langdale, Professor of Plant Development.
Philip Maini, Professor of Mathematical Biology.
Gero Miesenböck, Waynflete Professor of Physiology and Director of the Centre for Neural Circuits and Behaviour.
Dr Jonathan Pila, Reader in Mathematical Logic.
Henry Snaith, Professor of Physics.

British Academy Fellows
Eight academics from Oxford were among 42 new fellows of the Royal Society elected for their research in the humanities and social sciences.

Dawn Chatty, Professor of Anthropology and Forced Migration.
Dr Felicity Heal, Emeritus Fellow, Jesus College.
Rana Mitter, Professor of the History and Politics of Modern China and Deutsche Bank Director of the University China Centre.
Andy Orchard, Rawlinson and Bosworth Professor of Anglo-Saxon.
Sally Shuttleworth, Professor of English Literature.
Annette Volfing, Professor of Medieval German Literature.
Dame Lynne Brindley, FRSA, Master of Pembroke College, was made an honorary fellow.

Encaenia

Doctor of Letters:
Sir Richard Evans, Regius Professor of History Emeritus and President of Wolfson College, Cambridge; Dame Hilary Mantel, novelist; and Ruth Simmons, President of Brown University 2001–12 and currently Professor of Comparative Literature and Africana Studies at Brown.

Doctor of Science:
Wallace Broecker, Newbury Professor of Geology at Columbia University; Dame Ann Dowling, Professor of Mechanical Engineering and head of the Department of Engineering at the University of Cambridge, and also President of the Royal Academy of Engineering; Sir Magdi Yacoub, Professor of Cardiothoracic Surgery at Imperial College London and Founder and Director of Research at the Harefield Heart Science Centre.

2015 Distinguished Friends of Oxford
Recipients were honoured on 20 June at a ceremony at Harris Manchester College

The Award recognises those who have given their time, contacts and influence in support of an initiative beyond what can be recognised through traditional channels. Their impact has been profound and the results would have been unachievable with available resources. Separate from any financial contributions, their legacy will have a lasting impact on the collegiate University; above all they are perceived as role models to other volunteer contributors.

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OT You start a new role at New York University on 1 January 2016?

AH I step down from Oxford as Big Ben strikes midnight on 31 December; I begin as President of NYU as the ball drops in Times Square five hours later. So I will be unemployed for exactly five hours!

OT Will you be partying for those five hours?

AH No, I will be sleeping! It will mark the end of six and a half years at Oxford – the sleep will do me good!

OT How has Oxford changed during your tenure?

AH If you mean my legacy, that’s for others to comment on. But I’ve been very pleased indeed with how the University has come together to tackle budget cuts. The core mission has prevailed over internal squabbles: providing the very finest undergraduate and graduate education, and research, in the world.

OT Some critics accuse the University of inefficiency, including right here in Wellington Square, where we sit today. What do you say to them?

AH Oxford has achieved a great growth in its income in recent years, of 6–7% per annum. As research income specifically, the increase is greater, more like 8–9% per year. This points to success within an extremely competitive situation. Oxford secured £470 million in research income last year, from companies, from charities and from government. Our nearest rival in the UK is in the low three hundreds.

OT Earlier this year, the University’s fundraising reached the £2 billion milestone, with £3 billion the next milestone. Does that mean the University can underpin departments that are otherwise vulnerable?

AH I would add… that money was raised at a time of significant economic distress in the wider economy – an amazing testimony to our donors. We don’t ‘underpin’, to use your word, but facilitate. We have taken the policy of ring-fencing University reserves as matching funds, often at a ratio of 40:60. So for every £6 raised, the University puts in four. We have done this in three main areas:

1. A Teaching Fund to endow tutorial fellowships in colleges. The total pot is already up to £120 million.
2. Graduate Student Scholarships. The total pot is already up to £100 million.
3. Undergraduate Support. Through the particular, exceptional contribution of [Sir] Michael Moritz and Harriet Heyman, we have implemented targeted support.

OT There was a very feisty debate earlier this year about the University’s endowment policy respecting fossil fuels. What did you learn from this?

AH It was a very good test of the processes we have in place, by which the University ensures that the decisions it makes are the appropriate ones. It allowed us to make a statement that we would not invest in the areas of coal and oil sands. We welcomed the chance to consider these very important issues, prompted by the Oxford University Student Union (OUSU).
OT The University got a bashing over the student accommodation at Castle Mill, overlooking Port Meadow. How do you view that now?
AH We’ve just been talking about our ability to recruit the best graduate students. It is absolutely imperative that we can address their accommodation needs. That’s what we did with Castle Mill in a process we stand by and have stood by; and we are glad that Congregation stood by the position that the University had taken.

OT You were previously Provost at Yale, and you are now going to the largest private university in the US. What is Oxford these days – public or private or both?
AH The big transformation of recent years has, of course, been from a more public to a more private model because of the increase in student tuition fees. But even before, we were not public in the way that US state universities are public. Our salaries come from an autonomous private educational charity that is the legal status of the University. We face regulatory restraints because we participate in public funding, of course. Continued investment in education from both public and private sources is a top priority.

OT Ethnic and gender diversity at Oxford – you have taken a personal lead on this, yet we remain behind as a nation on this, and as a University?
AH You have to put everything in a national context. The UK is not the United States. Its racial make-up is not the same; its history and cultural contexts are not the same. That doesn’t diminish the importance of ensuring that Oxford is a properly inclusive and diverse community.

OT Should we take down statues of Cecil Rhodes?
AH I was in South Africa when this issue arose. Max Price [Vice-Chancellor of the University of Cape Town] is an Oxford alum and Rhodes Scholar. Ultimately it’s a decision! Statues such as the one at Oriel are the very embodiment of symbolism. This is about much more than a statue. It’s about issues of representation and openness, of inclusiveness. Are we where we should be? We can always improve... The statue in Oxford is at Oriel so that’s for Oriel to decide.

OT Here’s a segue. What about Cecil the lion, the radio-tagged African lion killed by a Minnesotan dentist this year? What do we learn from that?
AH Universities are a bastion of commitment to tackling important problems that the world faces and working across national boundaries in multinational partnerships. WildCRU [the Wildlife Conservation Research Unit, which had been studying this particular lion] is one of Oxford’s diamonds. It’s been one of the most satisfying aspects of my six and a half years here, to see the international presence that Oxford has all around the world.

OT Final reflections?
AH We have to respond to a rapidly changing regulatory environment. The next five years will be as challenging as the last. There will be further changes to the funding model. I hope that we’ll keep moving forward. There’s always a temptation, as we ensconce ourselves in a quad on a late spring evening, to think that we need change nothing. We are a thrusting, forward-looking, vital university that must change itself to reflect its place in the 21st century. We should not find solace in older structures and a time when the University was a different, perhaps more undergraduate-centred place. The undergraduates are absolutely a core part of what we do, but we are also so much more than that now; we are a 21st-century, dynamic research powerhouse as well.

*Professor Andrew Hamilton is succeeded as Vice-Chancellor by Professor Louise Richardson, on 1 January 2016 (See News, p10)*
The big picture
A killer cell strikes

The body’s hidden drama plays out in this image, captured with state-of-the-art technology by an Oxford-trained scientist.

Nele Dieckmann (Queen’s, 2007) has been fascinated by immunology since her first degree at Oxford, in biochemistry. Today, working with colleagues at the Cambridge laboratory of Professor Gillian Griffiths, she uses super-resolution imaging to research killer cells: white blood cells which keep us healthy by identifying and destroying tumours and virally infected cells.

Together with colleague Dr Nicola Lawrence, Dieckmann was a winner in the 2015 Wellcome Trust Image Awards for catching this moment when a natural killer (NK) cell (to the left) inspects a second cell (the less bright, rounder cell to the right) for signs of disease. The NK cell is pre-armed and ready to kill by releasing toxic proteins (in red) into the cell it has latched onto.

The image, not technically a photograph, was taken with the latest super-resolution microscopy techniques, which reveal details of cellular life never visible before. Each cell here measures just 0.02mm in diameter.

Leading Oxford scientists are also using super-resolution imaging to research immunology, including Professors Vincenzo Cerundolo, Christian Eggeling and Simon Davis at the MRC Human Immunology Unit; Mike Dustin at the Kennedy Institute; Ilan Davis at the Department of Biochemistry; and Jordan Raff at the Sir William Dunn School of Pathology.
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The scandal of gender imbalance
A new report finds that despite decades of rhetoric about gender equality, the world remains out of balance for women.

While better educated than ever before in history, women remain undervalued and underprivileged in society around the world. Globally, women do almost two and a half times more unpaid care than men and in almost all countries work longer hours — paid and unpaid. Yet they earn 24% less.

A recent flagship report from UN Women, which draws heavily on the work of Professor Sandra Fredman from the University of Oxford’s Faculty of Law, seeks to understand how the world can ‘make the economy work for women’. Progress of the World’s Women argues that this requires more than just formal equality before the law: it entails a vision of substantive equality which can turn formal rights into a reality.

Professor Fredman has devised a multi-dimensional framework for this, simultaneously requiring the redress of disadvantage; combating stigma, prejudice and violence; facilitating participation; and instituting structural change.

The UN report says substantive equality requires tackling the root causes of gender inequality in key ways: redressing socio-economic disadvantage, addressing stereotyping, and strengthening women’s agency and voice.

In another paper for UN Women, Professor Fredman and Associate Professor Beth Goldblatt show how far international human rights law reflects this vision of substantive equality. But while many countries have signed formal human rights agreements, few seem to have put women on an equal footing. Fredman calls for coordinated public action across the three dimensions in the UN report, to transform the institutions and structures constraining women’s rights.

There is still much to be done. Fredman’s work is a reminder that we must do it, and soon.

Read the UN report: bit.do/WorkingWomen

Ancient Anadin
A trove of 500,000 papyrus scraps found in Oxyrhynchus, Egypt, in 1915 sits in Oxford’s Sackler Library. Though more than 1,900 years old, the scraps are still poignant. In the most recent transcription, a cure for a ‘drunken headache’ is described. The text explains that the sufferer should string together leaves of a shrub called Alexandrian chamaedaphne (pictured) to ease headaches, and wear the result around their neck.

It’s not clear how effective the cure was.

Help translate more papyri: bit.do/Oxyrhynchus
Shaping the world  Research

Medal with science

Sir Isaac Newton’s role in creating coronation medals for Queen Anne uncovered

Isaac Newton is best known for his contribution to physics and mathematics. But a new discovery by a graduate research student reveals that the famous scientist was also responsible for designing a ‘highly political’ medal issued to mark Queen Anne’s coronation in 1702.

When Anne was crowned, a number of small metallic tokens, known as coronation medals and depicting the new queen, was distributed for free to attendees and crowds at the ceremonies. In the past, scholars had believed that the medals were designed by the court painter Sir Godfrey Kneller. But DPhil student Joseph Hone, who’s based at Jesus College and works on a joint venture between Exeter University and Oxford University called the Stuart Successions Project, has discovered evidence in the National Archives at Kew that suggests Newton was in fact responsible. A lesser-known part of Newton’s career saw him assume the role of Master of the Mint from 1699 until 1727. During that period, it seems he made sketches and notes that were ultimately turned into Anne’s coronation medal.

The notes made by the scientist also reveal new details about what appears on the medal. ‘The medal’s design shows Anne as the goddess Athena striking down a double-headed monster,’ explains Hone. ‘Earlier scholars assumed this represented domestic faction. But Newton explains in his notes that he was referring to the double Catholic threat posed by Louis XIV of France and James Francis Edward Stuart, the Old Pretender with a rival claim to the throne.’

While Newton’s contributions at the Mint were never in doubt (he used his scientific expertise to establish a gold standard currency while he was its Master) Hone’s discovery shows they were more wide-ranging than previously thought. ‘Designing medals was usually the job of lesser Mint employees. Thanks to these documents we now know that Newton designed medals himself, using his extensive knowledge of mythology and symbolism,’ he says.

‘Although Newton scholars have long been aware of these manuscripts, they have mostly ignored them because they show the great genius dabbling in contemporary politics.’

Read the paper:

bit.do/OTWater

Old drug, new tricks

Researchers from the Department of Physiology, Anatomy and Genetics have found a new means of treating heart disease in a 1950 drug. Hydroxychloroquine (HCQ), developed as an antimalarial, later found use in treating lupus and rheumatoid arthritis. ‘A chance clinical observation has shown that low doses of HCQ can cause a slowing in heart rate,’ says Dr Rebecca Burton, who led the work. A series of pre-clinical studies have shown that HCQ directly affects the pacemaker tissue of the heart. ‘This treatment has the potential to improve the quality of life for patients who are not responding well to standard heart treatments,’ says Dr Rebecca Capel, also involved with the work.

Read the paper:

bit.do/HCQ

H2-woes

Water insecurity costs the global economy almost $500 billion a year, according to research by Oxford professors David Grey and Jim Hall. They reveal that South Asia has the most water-related risks; East and Southeast Asia face increasing flood risk; and only Sub-Saharan Africa has a rising risk of inadequate water supply and sanitation. ‘Effective ways of achieving water security involve combinations of investments in information, institutions and infrastructure,’ says Hall. ‘Investment must be designed to be robust to uncertainties and to support adaptive management.’

Read the report:

bit.do/OTWater

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Read the paper:

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H2-woes

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ONLINE

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bit.do/SocialMobility
Henry and his hens

March 2016 will see the 50th anniversary of the first cell fusion by an Oxford pioneer

Sir Henry Harris, who died in 2014, was head of the Sir William Dunn School of Pathology. In 1966, he published the results of a groundbreaking experiment there, in which he fused a human cancer cell with cells from other species, such as hens.

The image below shows a modern version of cell fusion: in this case, a white blood cell fused with an embryonic stem cell. The blobs in the cell are nuclei and the fluorescent spots show where DNA is copying.

Harris’ research was considered shocking at the time – he had created new living matter by fusing cells containing DNA from different animals, and some people talked about creating monsters. But his discovery paved the way for scientific advances we’re seeing now. The experiment was an important milestone in our understanding of cell genetics, still the focus of strong research at Oxford. Tumour suppressor genes, which are currently high up on the scientific agenda, came out of Harris’ work – he discovered that fusing cancer cells with normal cells meant that the cancer cells stopped dividing for a time.

Today’s researchers still find the cell fusion technique useful in understanding how we might ‘reprogramme’ the body’s cells more efficiently. This could, one day, change the lives of transplant patients who have no matching donor – using cell fusion, for example, a liver transplant patient’s cells could potentially be reprogrammed in a lab to form healthy liver cells which could then be re-implanted.

Come one, not all

New analysis by the Oxford Migration Observatory reveals that the UK’s immigration cap, which allows 20,700 skilled migrants to be granted visas every year, was pushed to its limits between April 2014 and March 2015. Then, in June 2015, the Government’s monthly quota was actually met.

The research, based on Freedom of Information requests made to the Home Office, reveals that applications have risen sharply as the UK economy has recovered. ‘If the cap is kept at 20,700 and demand keeps rising, then employers will find that fewer and fewer positions can be filled with non-EU skilled workers,’ says Madeleine Sumption, the Observatory’s director. ‘This will affect some jobs more than others: young people and applicants in lower-paid skilled occupations, like nursing, are most likely to become ineligible for visas.’

Music of the heart

You may find some classical music relaxing, but University of Oxford cardiologists have found that it can actually help reduce blood pressure. Experiments led by Professor Peter Sleight saw participants listen to a variety of musical pieces – from classical to rap and rock – while their blood pressure and heart rate were monitored. They found that pieces of music rich in ten-second cycles reduce blood pressure, something the team suggests is because it matches with the natural bodily rhythms controlling blood pressure. The researchers note that Beethoven’s Ninth Symphony, the arias in Giacomo Puccini’s opera Turandot and much of Verdi’s corpus all feature the ten-second cycles found to reduce blood pressure.
Snake charmer
Dan Eatherley
Hertford, 1992

Dan studied zoology at Oxford and is a naturalist, writer and wildlife filmmaker. He has recently researched Raymond Ditmars (1876–1942), the first curator of reptiles at New York’s Bronx Zoo and an obsessive pursuer of a gargantuan species of viper, the bushmaster.

In Bushmaster: Raymond Ditmars and the Hunt for the World’s Largest Viper, Dan follows in the footsteps of Ditmars and attempts to achieve what Ditmars himself failed to do: find a bushmaster in the wild. Eighty years on, does Dan have any more luck?

Ditmars comes across as a fascinating character. He was alive at the dawn of the motion picture industry, and his 1914 masterpiece The Book of Nature wowed Broadway audiences for a record-breaking 37 weeks.

Today Ditmars is remembered chiefly by a generation of herpetologists who grew up reading his books, but during the 1920s and 1930s the balding, pipe-smoking curator was a household name, famed for imaginative scientific experiments, elaborate publicity stunts and, eventually, his exhaustive but unsuccessful search for a bushmaster.
Accidental politician

Chrystia Freeland
St Antony’s, 1993

Freeland never planned it this way. ‘An opportunity presented itself,’ she says, when Justin Trudeau, the leader of the Liberal Party of Canada, attended the Toronto launch in 2012 of her book Plutocrats: The Rise of the New Global Super-Rich and the Fall of Everyone Else. They got talking about the dwindling prospects of the middle class and the policies needed to reverse the trend, and over the next few months there was, she says, ‘a meeting of minds’. In November 2013 she became a member of the Canadian parliament for Toronto Centre in a by-election and was appointed the party’s trade critic. ‘This is not a life path I chose or planned for; it was something Justin invited me to do to support him,’ Freeland says. ‘I felt it would be hypocritical not to try to have a direct impact.’

What’s the worst and best aspect of being a politician? The worst part of the job, she says, is the commute to and from Ottawa, 255 miles from Toronto, where her three young children live. ‘So it can be a real struggle with one’s children, particularly the youngest, who is five,’ Freeland says. ‘The best part is how great it feels to talk to constituents who understand you have the privilege of representing them in the national legislature and your job is to listen to them.’

Energy entrepreneur

Juliet Davenport
Merton, 1986

The founder and CEO of renewable energy company Good Energy generated a very different kind of energy at Oxford, competing in sports from rowing to rugby, and becoming a lacrosse Blue. ‘It wasn’t until my final year that I started to enjoy the academic side of life as much, mainly because I’d chosen atmospheric physics as one of my specialist subjects,’ she says.

Inspired and concerned by what she discovered about the fragility of our climate system, Davenport says she set up Good Energy, in part, to create the kind of company she wanted to work for, and one that didn’t exist in the UK. ‘To go 100% renewable in the UK, compared to something like travelling to the moon, is actually easy. It’s as much a mindset as anything else,’ she says. In 2004, it launched the first UK scheme paying homeowners and landowners for producing renewable energy. Previously these microgenerators had been cut off by the Big Six energy suppliers as too small, but the award-winning and hugely popular HomeGen scheme secured the firm’s position as an innovator in the sector.

www.goodenergy.co.uk

Yoga financier

Caroline Shaw
(Barraclough)
St John’s, 2001

While reading geography and specialising in environmental change and biodiversity, Caroline Shaw was JCR environment and ethics officer, helping set up the University’s Fair Trade Coalition. Later, at a burgeoning specialist environmental investment management company, she turned to yoga to help with the demands of corporate culture. In 2014, she reinvented herself as a self-employed yoga teacher. ‘I had plenty of experience to go it alone as a freelance marketing and communications consultant, specialising in the environmental, sustainable and social business sectors, while also drawing on my business experience,’ she says.

‘I’ve been steadily growing both sides of my career since then.’

carolineshawyoga.com

Digital publisher

John Mitchinson
Merton, 1983

‘The potential of digital publishing is exciting, but it’s not the end of printed books,’ says Unbound publisher and Q researcher and writer John Mitchinson. ‘The idea of having something that beautiful that endures is still appealing. Who wants the collected poems of Seamus Heaney as an eBook?’ But very good authors struggle to get their work published. Unbound, founded by John with authors Dan Kieran and Justin Pollard, reverses the usual publishing model. Authors pitch book ideas on the site, potential readers pledge their financial support, and when a target is reached, the author writes the book. It combines crowdfunding with the 18th-century subscription concept used by Samuel Johnson and Voltaire.

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Alumni diary

Resources and events

Explore the universe

Giant telescopes in Chile are at the centre of astronomical research and also destinations on a new alumni tour, writes Guy Collender

Professor Roger Davies is passionate about combing the night sky with large telescopes for galaxies far, far away. He has visited Chile for nearly 30 years to take part in international research initiatives at some of the world’s leading observatories. The astrophysicist is now preparing to share his expertise and explain his involvement in giant telescope construction on a guided tour for alumni.

Davies, the Philip Wetton Professor and Director of the Centre for Astrophysical Surveys at the University’s Department of Physics, began researching galaxy dynamics in Cambridge in the 1970s. He moved to Oxford in 1988 to lead the UK’s participation in the construction of the pioneering Gemini telescopes in Chile and Hawaii. At more than eight metres in diameter, these telescopes are sophisticated and monumental, weighing 300 tonnes apiece.

‘Chile is the premier site for astronomical observations in the southern hemisphere,’ says Davies. ‘The combination of cloud-free nights and the dryness of the Atacama desert are perfect, especially when detecting infrared radiation from the universe.’

With his team of Oxford astrophysicists, Davies is also currently involved in research at the Very Large Telescope (VLT), the European Southern Observatory at Cerro Paranal, Chile. The observatory (above), which featured in the James Bond film Quantum of Solace, is made up of four eight-metre telescopes. They are fitted with advanced instruments, including a revolutionary new machine, the K-band Multiple Object Spectrograph. Built by a consortium of institutions including Oxford, KMOS is able to study the properties of very distant galaxies. This infrared spectrometer is capable of studying up to 24 galaxies simultaneously, exploring their structure and composition. Davies’ team is using it to study the swarms of galaxies known as clusters, as they were eight billion years ago.

Davies says: ‘The telescopes are amazing facilities. They really are our cathedrals. The VLT is the most astonishing technical achievement, the most capable observatory in the world.’

As well as visits to both Gemini and the VLT on the 11-day tour of Northern Chile, alumni will also get a chance to see planets, star clusters, and galaxies at a tourist observatory. Davies adds: ‘Seeing the universe in this way makes an enormous impression and is truly inspiring. The southern sky is also dramatic as a naked-eye phenomenon.’

The tour, suitable for avid stargazers as well as non-specialists, takes place from 28 March to 7 April 2016, when the planets are well placed to be seen.
Continue your education

Gail Anderson considers Oxford’s adult education offering

In September 1878, the Reverend Arthur Johnson (right) took the train from Oxford to Birmingham to deliver the first of several lectures on ‘The History of England in the Seventeenth Century’. His appearance marked the launch of ‘Oxford Extension’ – a new University initiative to promote adult education in towns and cities across the country. The scheme was the brainchild of reform-minded dons who believed that widening access to higher education was a moral and social imperative.

Johnson was an excellent choice for Oxford’s first Extension lecturer. He was thoroughly Oxford (alumnus of Exeter, fellow and chaplain of All Souls, lecturer in modern history) – but was known and loved for his jovial, unassuming delivery, and for ‘telling his pupils that nature had destined him for a groom or a gameskeeper, for anything but a scholar’.

Johnson’s audience included working men, clerks, artisans and (importantly) women. From the very start, two thirds of Extension students were women – and this at a time of severely limited opportunity for them in higher education.

It was the rail network that made the Extension programme possible in Johnson’s day. Dons, carrying their hallmark book boxes, leapt onto trains to deliver lectures from Penzance to Carlisle and just about everywhere in between. By 1893 the prodigiously-named ‘University of Oxford Delegacy for the Extension of Teaching Beyond the Limits of the University’ was delivering lectures in over 150 towns and cities in England and Wales.

Today the thirst for part-time study is unabated: the University’s Department for Continuing Education (Extension’s direct descendant) has upwards of 13,500 students in over 130 countries. (These part-timers outnumber the University’s full-time undergraduate community.) Whether attending a day school, taking an online course (the internet having replaced the rail network), undertaking professional development or working toward a full Oxford Master’s or DPhil, these students see Oxford as their nineteenth-century predecessors did: as a springboard to intellectual enrichment and educational attainment.

The Department for Continuing Education offers more than 1,000 part-time courses and programmes per year
Alumni discounts are available on many courses conted.ox.ac.uk

Top: Balliol College, 1889.
More than 1,000 extension students came to Oxford that summer, many of them pictured here

Professional networking events

Industry insights will be shared at a series of evening events in London. Join fellow alumni to network and hear about the latest developments in these particular areas:

As well as a chance to meet fellow Oxonians, this event will feature a discussion about the future of mobile technology. It will include advice from our panel about how to take your app from concept to reality.

Flexible Working, 2 December, Oxford and Cambridge Club, London
From part-time and freelance schedules to returning to work following an extended leave of absence, our speakers will discuss the nature and viability of non-traditional working patterns. The panellists, who have all forged successful careers while working flexibly, will also discuss what it takes to establish a portfolio career.

Sport

The Varsity Matches, 10 December, Twickenham
For the first time, Twickenham will host the Women’s Varsity Match. Both men’s and women’s contests will take place on the same day and at the same venue. The 29th Women’s Varsity Match will kick off at 11.30am. The 134th Varsity Match will kick off at 2.30pm with Oxford needing one more win to make it six in a row to create a new record for the fixture.

Please visit bit.do/oxevents for the most up-to-date information about all alumni events. For details of other offers and resources available to Oxford’s alumni, please visit the University’s alumni website: alumni.ox.ac.uk
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‘There may be a mechanism by which the environment can “push” evolution in a certain direction, by creating additional genetic variants on which natural selection can act.’

Photographer David Liittschwager made this composite portrait of all the species that passed through one cubic foot of water on the Moorea reef in a single day.
The second millennium dawned with one of the most dramatic scientific announcements since the discovery of the double helix of DNA in 1953. The sequence of the human genome had been deciphered and, in the words of President Bill Clinton, it was ‘the most important, most wondrous map ever produced by humankind’. He went on to say: ‘It will revolutionise the diagnosis, prevention and treatment of most, if not all, human diseases... It is now conceivable that our children’s children will know the term Cancer only as a constellation of stars.’

DNA (deoxyribonucleic acid) is the stuff of which genes are made. Every cell in our bodies contains in its nucleus very long, very thin, double strands of this molecule, made up of four different nucleotide bases – adenosine (A), cytosine (C), guanine (G) and thymine (T). The total sequence of three billion DNA ‘letters’ constitutes the genome, and the order of the letters makes us who we are.

It represents a code that tells the cell what proteins to make, from the structural molecules that make up our skin and bones, to the biological catalysts that drive our metabolism and the antibodies that protect us from disease. The human genome unites us as a species, but variant spellings in the code make us unique as individuals.

Genetic analysis is beginning to play a role in the diagnosis and treatment of some relatively rare diseases, including some cancers, where it has been possible to identify a clear target for drug treatment. But predictions that ‘the book of life’ would hold all the answers to disease have not been fulfilled. Some disillusioned scientists have even decried the project as mere ‘stamp-collecting’, and questioned...
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†except Day 1 & lunch on Day 15
whether its massive $3 billion price tag was justified. John Parrington, University Lecturer in Molecular and Cellular Pharmacology at Oxford, is less pessimistic. His fascination with the mysteries of the genome and how it makes us human — and his dissatisfaction with popular oversimplifications proposing ‘the gene for’ everything from height to helpfulness — led him to write a book, The Deeper Genome, revealing the unsuspected levels of complexity that have emerged.

One assumption of the Human Genome Project was that common ‘misspellings’, where a single letter of DNA code differed from the reference sequence, would be associated with a greater or lesser susceptibility to diseases, and shed light on their biological underpinnings. Numerous ‘genome-wide association studies’ have been conducted, involving hundreds of thousands of patients, but the return has been disappointing. Rarely has a variant in a single gene proved to be strongly linked to a common disease: more often there are multiple weak links, leaving a complex and incomplete picture. Now the focus has switched to rare variants, often more rewarding in the information they yield, but technically harder to find.

The early optimism, suggests Parrington, was mainly due to ‘a naivety about the complexity of life’. Biologists were misled by the breathtaking simplicity and elegance of the linear code. By the mid-1960s scientists had worked out that three-letter ‘words’ in the DNA sequence each encode one of the 20 amino acids that are strung together to make proteins: a gene is the ‘sentence’ of these DNA words that encodes a whole protein. There are well over 100,000 human proteins, so scientists originally estimated that there must be a similar number of genes. To their surprise, the number has turned out to be fewer than 25,000. More shocking still, these make up only about 1.5% of the total human genome. The other 98.5% was dubbed ‘non-coding DNA’, or less politely, ‘junk DNA’. Vast tracts of the genome look at first sight like the product of a monkey with a typewriter — strings of letters with no meaning. Why are they there? What are they doing? The knee-jerk answer was that non-coding DNA was evolutionary detritus, which may once have had a function but was now just excess baggage.

In the summer of 2012 Parrington was working on a summer fellowship programme as a science journalist on The Times when he had the chance to report on a massive international study, 10 years in the making, that offered a very different interpretation. ‘By scanning through the whole genome rather than just the genes, and using multiple, cutting-edge approaches to measure biological activity, ENCODE [The Encyclopedia of DNA Elements] had come to the startling conclusion that, far from being junk, as much as 80% of these disregarded parts of the genome had an important function,’ he writes in The Deeper Genome. Not everyone accepts the 80% figure, but there is now fairly general agreement that non-coding DNA plays some role in controlling whether genes are switched on or off. Every cell in your body contains a complete genome, but follows the instructions of only a subset of genes. The network of known chemical signals that dictate whether a particular gene is active grows every year, and is bewildering in its complexity.

Another misleading aspect of the Human Genome Project was that the output of the automated machines that read the DNA was a one-dimensional sequence of letters. Real, biological DNA is coiled into three dimensions within the nucleus, wrapped around specialised proteins that influence how tightly the DNA is coiled, and therefore how accessible it is to signalling molecules that control gene activity.

Then there is DNA’s sister molecule, ribonucleic acid or RNA. Again, RNA is not a new discovery. By the end of the 1960s scientists had identified roles for RNA in transcribing the DNA message, and using the transcript to assemble amino acids into a protein. But in recent years scientists have discovered that small, non-coding RNA sequences are busily modifying the translation of messenger RNA into protein in ways that we are only beginning to understand.

To cap it all there is ‘epigenetics’: the study of environmental factors that influence gene activity and even inheritance. Francis Crick, co-discoverer of the double helix and a key figure in the cracking of the genetic code, propounded the unidirectional ‘central dogma’ of biology: DNA makes RNA makes protein. What that meant in everyday terms was that an animal’s lifetime experiences would not change the genetic legacy it passed to its offspring. Now it seems that so-called ‘epigenetic marks’ — temporary chemical labels that regulate gene activity — can not only be altered by environmental conditions such as diet or stress, but can be passed on from one generation to another.

This implies that the much-ridiculed Jean-Baptiste Lamarck, whose theory of evolution predated Charles Darwin’s and was based on the inheritance of acquired characteristics, may have been onto something. The jury is still out on whether epigenetic change by itself plays any long-term role in evolution. However, Parrington reports some evidence that regions of the genome that have epigenetic modifications may also be more susceptible to mutation — permanent changes in the DNA. If that is the case, he says, then there may be a mechanism by which the environment can ‘push’ evolution in a certain direction, by creating additional genetic variants on which natural selection can act.

This has potentially massive implications for our understanding of ourselves. We share up to 98% of our genes with our closest living primate relatives, the chimpanzees. But it is extremely puzzling how that 2% difference can account for the language, technology and culture that have allowed us to compose operas and send rockets to the moon. Could it be epigenetics, Parrington speculates, that allowed us to evolve so rapidly? Human culture, he points out, has not developed at a steady pace since
Homo sapiens first appeared in Africa 200,000 years ago. ‘There were long periods of stasis where stone tools didn’t change much,’ he says, ‘followed by rapid change. It’s possible that we are not actually the same as people who lived even 50,000 years ago. Maybe there’s more of a role for biology than we thought.’

This collection of recent findings doesn’t mean that the Human Genome Project was a waste of time – most of them would not have been made without it. But, says Parrington, ‘Until we accept that the picture is much more complex, we’re not going to get very far.’

With that proviso, the possibility of reading the complete genome of any living creature – something that now can be accomplished for around $1,000 in a matter of days, so fast has the technology advanced – gives an entry point for understanding not only the human body but the ecology of the Earth in all its glorious diversity.

That ambitious aim is what engages Professor Dawn Field, until recently a researcher at the Centre for Ecology and Hydrology at Wallingford and research fellow at the Oxford e-Research Institute, and Dr Neil Davies (Pembroke, 1987), director of the Gump South Pacific Research Station on the island of Moorea in French Polynesia, run by the University of California at Berkeley.

‘We as humans are not closed systems. We have inner microbial ecosystems that are part of larger ecosystems, all the way up to the planet’

Field and Davies are the co-authors of Biocode: The New Age of Genomics, and met through an initiative of Field’s, the Genomic Standards Consortium (gsc.org). She had been working at the Western Channel Observatory in the English Channel, collecting samples of ocean-dwelling microbes and using genetic data to track their distribution over the seasons.

She noticed that diversity would peak around the winter solstice, and dip in the summer. ‘I thought it was important that people who were collecting genomic data to monitor biodiversity should include contextual information, such as the date, place and time of day that the samples were collected,’ she says. She was able to persuade some of the existing big collectors of genomic data across the world to sign up to a set of standards, so that data would be comparable.

Davies, meanwhile, had established the Moorea Biocode Project (mooreabiocode.org), with the aim of collecting a specimen of every visible species on the island and in its surrounding waters, describing it and sequencing its DNA. The collecting phase is now complete; the task of description has been passed on to laboratories and museums elsewhere. ‘Many of these specimens are being described for the first time,’ he says. ‘In many cases we know their DNA sequences and the context where they were sampled, but not their Linnaean name. Assigning a name is something that comes at the end of the process, not at the beginning – which presents a challenge for the bioinformatics, as in many cases we have data that we cannot link to a name.’

Field and Davies went on to found the Genomic Observatories Network (genomicobservatories.org), a worldwide group of partners committed to sampling their sites continuously and according to agreed standards.

On the summer solstice in 2014, Field launched the first Ocean Sampling Day, in which professional scientists and ‘citizen scientist’ volunteers collected seawater at 180 sites around the world and sent the filtered samples to a lab in Germany for DNA analysis. A second Ocean Sampling Day took place at the same time earlier this year.

DNA from seawater? Isn’t that like Swift’s sunbeams from cucumbers? Not at all, says Field. A single drop of seawater contains up to a million bacteria and up to a thousand other small microorganisms. These microbes are the primary producers of the marine food chain, produce much of the atmospheric oxygen we breathe, and are essential to the functioning of the global ecosystem. Modern bioinformatics – powerful computers and even more powerful software – means that you can sequence all the DNA in an ocean sample at once and let the software sort it into species afterwards. Microbes, of course, are not only important things in the ocean: we each have an internal ‘microbiome’ containing more organisms than there are cells in our own bodies.

This massive effort of collecting and naming reminds me of the nineteenth-century naturalists who sailed forth with their butterfly nets and collecting boxes and brought back the pinned insects, stuffed birds and mounted skeletons that fill our museums. Davies acknowledges the similarity, but in an age of global warming it is absolutely essential to keep a close eye on changing patterns of biodiversity. ‘The next phase is the observatory phase,’ he says of the Moorea Biocode Project.

‘We have a very comprehensive reference database, but the really interesting part is to use high-throughput sequencing to understand how the organisms are interacting. For example, we can sequence the contents of an animal’s gut to find out who is eating whom. We can look at food webs, pollination and so on to see how those change over time in the context of the environment, including the impact of humans. That’s our key goal, to understand how complex ecosystems function and how they change under changing environmental circumstances.’

‘What’s hit me most while writing this book,’ Davies goes on, ‘is that we as humans are not closed systems. We have inner microbial ecosystems that are part of larger ecosystems, all the way up to the planet.’

Georgina Ferry (Lady Margaret Hall, 1973) is a science writer based in Oxford and former editor of Oxford Today. The Deeper Genome and Biocode: The New Age of Genomics are both published by Oxford University Press.
John Gray (Exeter, 1968) has scarcely shaken my hand in the lodge of Corpus Christi College when we are approached by two young men, one wearing an academic gown. They offer effusive handshakes and manage to confirm that one of us is a philosopher. A strange conversation ensues. I reason that they must have recognised John, who by any measure is famous; he, meanwhile, is wondering why I have organised a greeting party like this. They are drunk, and it is barely lunchtime.

Gray copes with it all admirably and I wish the young men a good day. We are then rescued by Corpus’s genial Domestic Bursar, Andrew Rolfe, who shows us to the late nineteenth-century Thomas Jackson building on the corner of Magpie Lane and Merton Street. Our objective is to identify the first-year room of Sir Isaiah Berlin, who went up to Corpus in the autumn of 1928.

Berlin, of course, has a claim to be one of Oxford’s greatest thinkers. In a discussion about freedom held at the British Library earlier this year to mark the 800th anniversary of Magna Carta, when asked about who had influenced him most, Gray, who also has a claim to be one of Oxford’s greatest thinkers, said of Berlin: ‘I revere and even love him.’ It is a strong hint of the partly Oxford soil from which Gray’s own philosophy has grown, not discounting his grammar school education and upbringing in a working-class setting in South Shields.

To find Berlin’s freshman room we have to put on Day-Glo vests and hard hats, because the building is being renovated. Gray, in his sixties and slightly stiff-bodied, makes light of the scaffolding and dust and missing floorboards, and we narrow it down to two rooms on the first floor, overlooking Merton Street, both with mullioned windows and fireplaces.

Against my own expectation, it is a powerful moment of ‘imagined history’. Fleeing the Bolsheviks in Petrograd (St Petersburg) in 1920, Berlin’s wealthy Jewish family initially took him to Riga. Encountering further difficulties and anti-Semitism, they came to London the following spring. Berlin was 11. Just seven years later he sat in one of these two rooms, his head full of Greats, warmed by a Corpus fire stocked with glowing coals, overlooking Merton chapel and Grove Walk, the delightful passage that takes you down to Christ Church Meadows.

From that innocent moment in time, which with the passing of events seems ever more poignant, Berlin would go on to outscore the future philosopher A J Ayer at finals; take a second first in PPE with less than a year’s study; win a Prize Fellowship to All Souls at the tender age of 23; and many years later, after the war, become the first President of Wolfson College and the President of the British Academy. More important than this conventional score card (one might argue) was his work for the Foreign Office in the Second World War, his translation of novelist Ivan Turgenev from Russian into English, and directly in the shadows of the horrific passage of events that defined world history in the twentieth century, his immensely original impact on the history of ideas.

Over a very modest plate of cold bean salad in the secluded calm of Corpus’s Founder’s Room, Gray tells me that his undergraduate and graduate years at Exeter, where he studied PPE before completing a DPhil, were good ones, and that his long stint as a tutorial fellow, later Professor, in politics at Jesus College between 1976 and 1997 was ‘highly congenial’.

The reason he left Oxford for the London School of Economics was, he notes, simply because the chair of European Thought, which was created for him, offered more time for research and writing. He then retired from this post in 2008 to pursue full-time writing. Now 67, he works at full tilt from a study in Bath — where he lives with his wife ‘because I can walk everywhere, because it’s beautiful and because I can still get to London and back in a day.’

This all makes sense given Gray’s prodigious success as a writer. He writes beautifully, and he has published work across an unusually wide field of subjects. A whole decade before the world economy blew up in 2008 he published False Dawn: The Delusions of Global
Capitlism, which argued that free-market globalisation is inherently unstable and subject to complete disintegration. Four years later, he published the single book that shot him to stardom – unexpectedly, he notes, as is so often the case with these things – Straw Dogs: Thoughts on Humans and Other Animals (2002). This is a monumental broadside against liberal humanism, which in another book, Heresies (2004), he refers to as ‘the unthinking creed of thinking people’.

With more than 30 books and hundreds of reviews and essays, many in the Guardian and New Statesman, Gray’s record is dizzying and his status almost without equal – the novelist Will Self proclaiming him the greatest living philosopher.

His many enemies have instead noted his almost unequalled appearance of pessimism, and with it a lack of apparent energy to change the world. Others have accused him of shifting position too often and taking on too much, in one breath pronouncing on massive subjects such as the human condition and evolution, and in the next criticising politicians and foreign policy.

With the beans all but gone and the clock ticking relentlessly, I venture that there is something almost horrific about most of Gray’s chosen topics.

Take the early reaches of his 2013 book The Silence of Animals: On Progress and Other Modern Myths. It begins with a citation by that gnarly old declarer of communism, Arthur Koestler, imagining highly civilised apes living in harmony with the treetops, while the Neanderthals trampled the forest, and ‘transgressed every law and tradition of the jungle’. ‘From the point of view of the highly civilised apes’, says Koestler, the humans were ‘a barbaric relapse of history’.

Within the next few pages the reader is taken from suicides in Comradian equatorial settings to cannibalism and corpses in Second World War Naples, causing an officer of the British Intelligence Corps, Norman Lewis, to undergo a conversion to pessimism. We then switch to Curzio Malaparte, a writer and soldier who overlapped with Lewis in wartime Naples and became an Italian liaison officer with the American High Command. Malaparte noted that the fight for survival during the war exhibited dignity, but the fight for life that came after the liberation – that is, the resumption of the normal competitive human activity of getting on and getting up – was undignified and squalid. Gray draws from Malaparte’s little-known book The Skin (1949, which was placed on the Vatican’s index of prohibited books): ‘There are not two kinds of human being, savage and civilised. There is only the human animal, forever at war with itself.’

It is easy to see how from such a platform Gray is scathing about regime change, to mention just one widely cited instance of his political commentary. It was monstrously naïve to assume that getting rid of Hussein or Gaddafi, both admittedly heads of noxious regimes, would automatically result in greater freedom and democracy. The opposite ensued. Gray adds that when he predicted that Al-Qaeda would be followed by something worse, he was laughed out of court. But now we have ISIL. A third example concerns the return of torture in America, justified by the war on terror. His broader point is that there is no steady accretion of advances towards greater civilisation or even human decency over a long period of time. It can all be taken away terrifyingly quickly.

There are numerous other positions Gray takes, including one that is highly critical of free-market capitalism, but the bedrock of his essential position is already visible in outline – the view that humans should be returned to their status, as Darwin regretfully came to see it, as animals among other animals, not the exalted species apart that Christianity or its liberal humanist descendants would have us be.

By now we are on to fruit and cheese, but it is as if we have barely started. Gray talks almost as rapidly and brilliantly as Berlin, who was once dubbed ‘the world’s greatest talker’. Talking to Gray is like stepping under a dense waterfall. For every question, a torrent of brilliance, but coming up for air is tricky. I trivialise the exchange for a moment, by asking if the frequent mention of ‘animals’ in his book titles followed the tabloid adage that animals and babies sell. ‘No,’ he says. The point of animals is that whereas the Victorians balked at the idea of being among the apes, it is in fact humans who have turned out to be the most destructive species – precisely Koestler’s point and a neat reversal of how things looked in about 1870. Gray swaps Homo sapiens for Homo rapiens.

On an evolutionary timeline, as opposed to a political one (Gray’s writings can disconcertedly swap between them), he shares James Lovelock’s position of arguing that Earth may have no choice but to evict us.

With coffee pending, I venture even more crassly onto the terrain of hobbies and pets. Does he own animals? I can reveal that he and his wife, who is Japanese, have a great love of cats. They were once ruled by four, two Burmese and two Birman; one of the latter ‘survives and thrives at the age of 18’.

Gray has no truck with animal rights extremists, who he argues have merely traded human rights for animal rights, thus betraying their own Enlightenment delusion, only inverted. Yet he remains intensely interested in the degree to which humans overlay their difference from other species, thereby setting up the basis for the pursuit of delusory, abstract goals that more often than not are used to justify oppression.

This is where Berlin comes back into the frame, via his huge respect for Russian nineteenth-century thinker Alexander Herzen, and Herzen’s friend, Turgenev.

The French socialist Louis Blanc tells Herzen one day that life is a great social duty, and that individuals must always sacrifice themselves to society. Herzen replies, ‘Why?’

‘How do you mean, “Why?”’ asks Blanc. ‘But surely the whole purpose and mission of man is the well-being of society.’

Herzen responds, ‘But it will never be attained if everyone makes sacrifices and nobody enjoys himself.’

Berlin then comments: ‘In this gay and apparently casual passage, Herzen embodies his central principle – that the goal of life is life itself, that to sacrifice the present to some vague and unpredictable future is a form of delusion which leads to the destruction of all that alone is valuable in men and societies – to the gratuitous sacrifice of the flesh and blood of live human beings upon the altar of abstractions…’
The purpose of the singer is the song, and the purpose of life is to be lived.’

The whole sequence is reproduced by Gray in his 1996 book, *Isaiah Berlin: An Interpretation of His Thought*. It is arguably the best single volume by which to begin to understand the thought of John Gray.

As Gray notes immediately, via Turgenev, ‘liberalism is not so much a political doctrine as a mode of resistance against doctrines.’ The result is not pessimism but realism, and a space for human happiness that is congruous with what is possible.


‘Hegelianism, positivism, Marxism, constructed in the shadow of Christianity with a view to its replacement, purported to give an account of the development of mankind as a whole, an account of the destiny of the species: this included an alienation or fall, followed by a political or social redemption, leading to a final salvation of humanity. From the standpoint of a naturalistic philosophy, looking at the so far known facts of human history, the gross implausibility of these accounts comes from the false speciation and the false humanism.’

What Gray then did was brilliantly to push this boat right across the lake, noting for instance that Margaret Thatcher’s deregulatory zeal had partly to do with the decayed energies of Methodism. What Gray shared with Thatcher, with whom he briefly sympathised, was an ethical minimalism premised on a negative concept of liberty. Gray puts it thus: ‘Negative freedom is “true” freedom because it best captures what makes freedom valuable, which is the opportunity it secures to live as you choose.’

We might hope for a more positive concept of liberty, extending to the pursuit of democracy in Iraq, for example, but we are deluded if we then stray into any form of political eschatology in which we are all supposed to be moving towards some end point in human history, often (and historically) demanding dreadful atrocities in the here and now.

If you want an up-to-date example, consider Greece and the European Union, Gray says. The straitjacket of a currency union presaging political unity is an Enlightenment delusion. If history is any guide, it will not endure. Greece is not Germany and Germany is not Greece.

Forget all the delusions, says Gray, and you will be much happier.

To the critics who chorus that were we to follow Gray we would have no reason to get out of bed in the morning, his response is equally blunt: ‘So don’t.’ He fully accepts the desirability of a version of progress, where the poor are helped out of poverty, suffering is reduced and opportunity widened; and some technologies are of obvious benefit (he mentions anaesthesia and birth control). But he is absolutely unyielding about our apparent successes as a species, insisting that advances in science and technology do not run in parallel with improvement in civilisation, and the growth in human knowledge does not go with any increase in reasonableness, while the expansion of human power over the natural world is ethically ambiguous. We suffer from a monstrous myopia in confusing our own time on Earth with greatness just because we own a touchscreen.

He cites Montaigne as fine reading for troubled times (‘Not “how to live” but “how do I live?”’), and cites Keats’ notion of negative capability as another guiding star, namely the readiness to live in mystery and ignorance without requiring absolute certainty in knowledge, which cannot be acquired. But he exempts law, medicine and some branches of science which have expanded and enhanced the lot of mankind. He does not do social media, and the impression he gives is of unfailing decency and minimal ego, insisting that he wants no disciples, no legacy, no ‘school’ of Gray, no ‘Grayisms’.

As we take photos of him underneath the portrait of Berlin that hangs in Corpus’ part-modernist Lower SCR, more coffee is served and he continues to discuss, with undiminished energy and precision and speed, numerous figures he likes, ranging from Schopenhauer to US economist Nouriel Roubini, the poet Wallace Stevens, British historian Norman Cohn, Italian poet Giacomo Leopardi. His only admission of a hobby turns out to be the pursuit of an esoteric literary inquiry concerning novelist John Cowper Powys. It’s an invigorating conversation that touches on his next book, which will concern different types of atheism. Although considering himself one, he rejects Richard Dawkins for his ‘evangelical’ denial of God. As Gray says more than once, his own mission is to provoke discussion and debate, to make people think.

With the last click of the shutter, photographer Joly Sessions is done and we return to the front quad where Gray is greeted by his German publisher for the next conversation.
Oxford’s leading marine biologist, Alex Rogers, considers how little we know about the world’s oceans – and how thrilling it is to be at the forefront of deep-ocean research

**The last frontier is blue**

In Oxford in 2065, there will no doubt still be wisteria, good beer in pubs and college silver. Visitors will still recognise ‘that sweet city with her dreaming spires’, as described by Matthew Arnold in his 1865 poem *Thyrsis*. And yet...

When I tell people I work on the deep ocean, they ask: ‘Have you found a new species?’ This question always brings a smile to my face. The deep sea is the largest ecosystem on Earth and a recent estimate suggests that scientists have only explored 0.0001% of it. Every single expedition we embark on turns up a multitude of animals never before seen by humans, let alone described in a scientific paper. It is simply incredible to think that this vast inner space remains more poorly studied than outer space. We have better maps of the moon and Mars than the bottom of the ocean. This is very simply because we cannot observe the seabed easily – it is covered by water which has an average depth of around 4km (a league, to deploy the metric measurement behind the famous title of Jules Verne’s novel of 1870, *Twenty Thousand Leagues Under the Sea*), and reaches nearly 11km in the Challenger Deep of the Marianas Trench in the western Pacific Ocean.

Yet we are on the verge of a new wave of industrialisation of the deep sea, with oil and gas production reaching ever greater depths, fishing taking place down to 2km in parts of the ocean and new activities such as deep-sea mining imminent. ‘Blue Growth’, the economic development of the ocean, is on the agenda, and for this reason there is an urgent need to understand how life is distributed in the deep sea, how it varies both spatially and through time, and what goods and services it might provide to humankind.

In recent years Oxford’s deep-sea work – I refer to the Department of Zoology’s Ocean Research and Conservation Group, which I lead – has focused on deep-sea hydrothermal vents, which are volcanic springs on the seabed and seamounts (literally submerged mountains).

Around hydrothermal vents, seawater penetrates the oceanic crust and comes into contact with very hot rock associated with a magma chamber. Complex chemical exchanges occur and the water is heated to hundreds of degrees centigrade, becoming buoyant and rushing upwards to exit the seabed as a hot spring. The fluid contains high concentrations of metal sulphides, and on contact with the cold deep-sea water these chemicals precipitate, forming billowing black clouds of particles. The fluids also contain various reduced chemicals such as hydrogen sulphide and methane, which bacteria can use as an energy source to fix carbon (chemosynthesis). This fixing of carbon within food webs around hydrothermal vents is independent from sunlight.

Terrestrial and the majority of marine food webs fix carbon by harvesting energy from sunlight, more familiarly known as photosynthesis. Chemosynthetic environments such as deep-sea hydrothermal vents are unusual. When first discovered in 1977, these deep-sea vents caused great excitement in the scientific world as it was realised that life could occur elsewhere in the solar system, and beyond, where there was no sunlight – and furthermore that organisms, referred to since as hyperthermophiles, could tolerate higher temperatures than previously realised.

A rare type of deep-sea vent first found at a site...
called Lost City, on the flanks of the mid-Atlantic Ridge, is thought to resemble conditions in ancient oceans that are likely to have given rise to life. The Cassini Mission recently gathered evidence that similar vents may exist in an ocean lying under the ice of Enceladus, a moon of Saturn and now a focus for the search for extraterrestrial life. The metal-rich fluids around vents also give rise to mineral deposits rich in copper, nickel, gold, silver and other metals (seabed massive sulphide deposits, or SMS). It is likely that the first deep-sea mining operation will begin excavating such deposits from a hydrothermal vent in the next few years at a depth of 1,600m off the coast of Papua New Guinea.

Our interest in deep-sea hydrothermal vents lies in their unique biodiversity. Because of their extremely harsh environmental conditions, coupled with abundant supplies of chemical energy, vents host a unique fauna. More than 70% of the animals found living around vents are found nowhere else. Furthermore, because the vents are quite small (typically a few tens or hundreds of metres across), the animal communities exist in island-like distributions and are able to tell us about processes of dispersal and evolution in the deep sea. One of the puzzles about the distribution of the vent fauna was how communities evolved over time and why some groups of animals existed in different oceans (for example, the Indian Ocean vents seemed to comprise a mix of Atlantic and Pacific vent fauna). An obvious answer to this was that they were spreading via the Southern Ocean. In 2009 we set out to find deep-sea vents on the East Scotia Ridge, south of South Georgia and to the west of the South Sandwich Islands, a very remote part of the world. We searched for the billowing plumes of sulphide emanating from vents on this ridge, a process akin to finding a needle in a haystack but using a 100m-long research vessel.

We found two sites with vent plumes, one on the northern and one on the southern end of the ridge, and returned there in 2010 with a remotely operated vehicle (ROV) or tethered robot, called Isis (the name has no link to Oxford), capable of diving to 6,500m depth. This was the most amazing voyage of discovery I have ever been on.

On the East Scotia Ridge, as the vehicle dived down to one of the vents at a depth of more than 2km, what appeared to be millions of tiny skulls loomed out of the darkness. As the extraordinary image resolved, we saw that the skulls were in fact millions of pale yeti crabs, so called because they are furry. Some of these crabs even crawled up onto the vent chimneys, sometimes within centimetres of temperatures up to 383°C, occasionally getting burned in the process. Over the weeks we discovered several dozen animals, all new to science, and several new genera and even families (higher taxonomic divisions). We also located shallower vents in an uncharted submerged volcano off the South Sandwich Islands, and a decayed whale skeleton inhabited by animals called zombie snotworms which survive off the fat in the bones.

Our expedition suggested that the frigid waters of the Southern Ocean acted as a selective filter to the long-distance dispersal of vent animals over evolutionary timescales. Our work on vents in the Southern and Indian Oceans is helping to inform discussions about how best to manage the mining of the deep-ocean seabed.

On seamounts we are trying to understand the resilience of the rich deep-sea communities found there to human impacts, especially deep-sea fisheries. These employ bottom trawls to catch long-lived deep-sea species of fish, such as the orange roughy, which has a longevity of more than 150 years and...
only reaches maturity at the age of 40. Unfortunately, not only have these fisheries often proved unsustainable, but they also destroy diversity-rich ecosystems living on the seamounts, such as cold-water coral reefs. Our recent expeditions to the seamounts in the south-west Indian Ocean documented remarkable deep-sea coral reefs and coral garden habitats, including a lot of new species of corals and other animals such as sea cucumbers, squat lobsters and shrimps. We also documented severe environmental damage from fishing, including ghost nets – fishing nets which are lost on the seabed but continue to trap marine life. One seamount, more than one thousand nautical miles from land, was strewn with lobster pots, a legacy of debris left behind by a completely unmanaged fishery. When we returned from this expedition one of the postdoctoral researchers found microplastic fibres in sediment and coral samples. This led to the discovery that a large portion of the ocean’s ‘missing’ plastic is sinking. It ends up in the deep ocean.

Direct human impacts in the deep ocean are of great concern, but one of the most threatened ecosystems on Earth now is the tropical coral reef. Such reefs have been found to be highly sensitive to ocean warming and a process called acidification – both results of human CO₂ emissions. Warming causes the corals to eject tiny symbiotic photosynthesising microorganisms from their tissues that they rely on for all their energy. This phenomenon, called mass bleaching, kills the corals.

A single event in 1998 killed about 16% of the world’s reefs. Acidification is a result of seawater absorbing CO₂ which forms carbonic acid, lowering seawater pH and reducing the concentration of calcium carbonate in seawater from which corals (and other animals) make their skeletons. Other human impacts such as overfishing and pollution make coral reefs less healthy, adding to their vulnerability in the face of mass bleaching and acidification.

In Honduras we are investigating the resilience of twilight-zone coral reefs – those reef portions lying between 30m and 150m deep. These twilight-zone reefs may act as refugia from human impacts which are most extreme in shallow water, acting as a source of larvae to help reef recovery. One of our first discoveries has been of the occurrence of large populations of invasive lionfish at depths of 100m or more. Indo-Pacific lionfish were accidentally introduced into the Caribbean and eat many of the native species of fish. This suggests that the local policy of divers shooting lionfish has been less effective than first thought.

This work has involved the Oxford group employing new technologies, including the use of mixed-gas re-breathers for diving, three-dimensional digital reconstruction of reefs from video and the use of deep-water baited camera traps. It is challenging and exciting work and the students involved are completely enthusiastic and dedicated to their science.

Oxford may seem a strange base for the study the ocean, but our work is truly global and applied to some of the most pressing environmental issues of our time. With a human population forecast to grow to 12 billion by the end of the century, the demand for the ocean’s resources and other pressures on it are growing. An important part of our work is informing the public and policy makers of where current practices are unsustainable and what is required to move the ocean from a state of degradation to recovery. This has included our work advising the Global Ocean Commission, based in Oxford at Somerville College, on the scientific aspects of policy reform in managing the oceans.

I have also recently contributed to the United Nations’ World Ocean Assessment and led a report for the European Marine Board, Delving Deeper: Critical Challenges for 21st-Century Deep-Sea Research. Most recently, we have been funded by the Oxford Martin School to undertake research on sustainable management of ocean fisheries and mining and on the enforcement of marine protected areas using satellite technology. This leads to a packed work life, but it is very satisfying and the challenge is met with great enthusiasm by our research team and undergraduate biology students.

Coming from a family of fisherfolk that lived on the west coast of Ireland, I feel a strong connection with the ocean. It is my hope that we can contribute in some small way towards the sustainable management of this last great wilderness.
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The United Nations is publishing its first integrated global ocean assessment report, covering environmental, social and economic aspects. Alan Simcock, the British member of the team responsible for it, reflects on the report.

The last frontier is blue

Seventy per cent of our planet is ocean, and yet we know too little about it. The UN pledged in 2002 to produce regular assessments of this ‘last frontier’ of our planet. The result, in 2015, running at about 1,400 pages, is World Ocean Assessment I.

Twenty-two of us, drawn from 22 countries, were designated the Group of Experts and have been the core drivers of the project. We, and approximately 400 other experts, have all worked voluntarily. Because of the financial crisis of 2008, funds were extremely difficult to come by. Nine meetings of the Group were funded, plus some workshops, but even the UN’s own Secretariat Division of Ocean Affairs and Law of the Sea was given no extra resource despite being named secretariat for the report. Not surprisingly, this parsimony made many question how far the UN member states were really interested in tackling the problems of the ocean.

As projects go, this one has been both immense and novel. Initially, we had to agree terms of reference, a working method, and a framework for reporting. Lengthy subsidiary meetings of the UN General Assembly achieved all three. The 55-chapter assessment covers everything from climate change to seaweeds, and from the abyssal plain to tourism.

We received nearly 5,000 comments on our draft from member states, but none challenged our main findings. However, our task was to set out the facts, not to make recommendations. This is what we have now done.

The report summary has three underlying messages. First, the world is running out of time to achieve sustainable management of its oceans. The result is that we risk losing many of the vital goods and services that the ocean provides. Secondly, the ocean is a very complex system, and sustainable management requires us to keep our eye on many aspects simultaneously. Thirdly, solutions exist for many problems, and have already been implemented in some parts of the world.

We have also noted that climate change will have major effects on the ocean. Ocean temperatures will increase, and carbon dioxide will make the ocean more acid. These changes will move tropical storms nearer to the poles, harm plankton growth on which nearly all ocean life relies, alter the distribution of fish populations, and threaten low-lying coasts, internet communications and much more.

Fisheries have long imposed unsustainably high mortality on many fish stocks and on other wildlife, although in some jurisdictions these historic trends have been reversed. Such overfishing, coupled with pollution, will reduce the available stocks and harm biodiversity. However, better management could increase by up to 20% the current 80 million tonnes a year of fish products on which much of the world’s population relies for its animal protein.

Higher levels of industry and population are increasing impacts of harmful substances on marine life, harming life expectancy and reproductive success. Excessive inputs of nitrates from sewage and agricultural run-off are creating dead zones. Even if discharges and emissions can be kept to the lowest practicable levels, increased production will lead to increased inputs. The quantities of plastics slowly degrading in the sea are also harming marine life, with special threats from plastic nanoparticles.

Simultaneously, human demand for ocean space, especially near coasts, is increasing. Places with high levels of biodiversity are also magnets for human uses of the ocean. Conflicts are likely not only with established uses, but also with the breeding and nursery areas vital for maintaining biodiversity. Cumulative impacts of human activities are often worse than the sum of individual impacts, because they undermine resilience. Activities that once seemed sustainable may no longer be so if the underlying biodiversity is harmed. Distribution of ocean benefits is still very uneven. Developing countries often lack capacity to take advantage of what the ocean offers, and to remedy factors degrading it.

This first global integrated assessment of the ocean was established to give national and intergovernmental authorities a comprehensive overview to inform their decisions in their various fields. The assessment shows the ocean at a critical point. States can show their commitment to safeguarding the ocean by their response to it and their decisions on future assessment cycles.
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What’s your blazon?

Few pay much attention to the meaning of their college coat of arms, but there is interest and value in looking at the stories behind them, argues John Tepper Marlin.

The University’s own coat of arms was adopted around 1400, by which time the book was regarded as a prime symbol of knowledge. The origin of the three crowns is a matter of dispute. The motto or legend derives from Psalm 27 and means ‘The Lord is my light’.

O

inginating as a cloak worn over the iron shell of a medieval knight, the coat of arms says who the person is sitting on that warhorse. The coat of arms is designed to intimidate. If we were to create a college from scratch, it’s not obvious why, in 2015, it would need a coat of arms, and yet all the colleges created in Oxford in recent decades have opted for one. Is this naff branding, me-too faux medievalism or a legitimate expression of character?

A college is more than a residence for students and dons, more than a walled enclave with a gate, more than quadrangles, a dining hall, a bar and common rooms. Alumni I know think of their college as their University identity. As all alumni realise, no two colleges are the same. These differences are a major theme of the student-authored *Alternative Prospectus to the collegiate University*, even as the central University reassures prospective students that Oxford’s essence is the education and degree, thereby playing down the differences between the colleges. But what’s not obvious is why even the youngest colleges have chosen coats of arms to express their identity.

How has branding in the new colleges changed?

To take a step back, what is a new college? Cambridge defines its ‘old’ colleges as those founded in its first four centuries, that is before 1600. Oxford and Cambridge each has 16 of these old colleges, which survived the Reformation.

So the colleges created in the next four centuries are new. Oxford added twice as many as Cambridge, mostly in the twentieth century, so that, as of 2000, the total count was Oxford 39 and Cambridge 30. In the twenty-first century, Oxford shrank by one college in 2008 (Green and Templeton merged), while Cambridge added one (Homerton) in 2010. So the current tally is Oxford 38 and Cambridge 31. Oxford and Cambridge also have the same number of undergraduates, nearly 12,000, but Oxford has 70% more graduate (postgraduate) students.

Besides the 38 colleges, Oxford has six Permanent Private Halls (PPHs). The Oxford admissions office includes them in its online list of ‘colleges’, but the PPHs lack full college status so long as they are controlled by religious denominations. There used to be seven PPHs, but Greyfriars closed in 2008.

Newness is not always detectable by looking at a college’s buildings. Yes, St Catherine’s (St Catz) is distinctly modern in its architecture. Harris Manchester is of similarly recent vintage as a full college, but it occupies venerable Victorian buildings.

Missions of Oxford’s latter-day colleges

Of the 38 Oxford colleges that survive today, 13 – more than a third – were created in the last century, almost all after the Second World War, in order to:

- Support new professions, such as business studies, and new kinds of medical practices that Oxford actively intervened to serve – the mission of Green Templeton, for instance;
- Meet new demands for professional skills for practice or research, creating a demand for more graduate study in medicine, law, social sciences, natural sciences and area studies (six of the new post-war colleges, Green Templeton, Linacre, Kellogg, St Antony’s, St Cross and Wolfson, are open only to graduate students);
- Respond to student and faculty interest in college status. Low-cost forms of college residence were expanded to assist a growing number of qualified but impecunious students. But as time went on, students clamoured for collegiate status (St Catz, St Cross, St Peter’s). Harris Manchester became a special place for mature (21 and over) students and Kellogg did the same for continuing-education students.
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Ten post-war colleges and their branding challenge

Of the 13 new twentieth-century Oxford colleges, two had coats of arms long before they attained college status: St Edmund Hall and Mansfield. Also, Nuffield was established before the Second World War.

The remaining ten, post-war colleges had new branding potential: Green Templeton, Harris Manchester, Kellogg, Linacre, St Anne’s, St Antony’s, St Catherine’s, St Cross, St Peter’s and Wolfson.

Newer colleges have had the opportunity to show their college’s mission in the choice of charges on their coats of arms. Four of the new colleges have taken advantage of this opportunity.

Creating new coats of arms for the new colleges is a bridge between centuries. Properly executed, the coat of arms is granted on behalf of the Crown by the Kings of Arms, the three senior Officers at the College of Arms (a King of Arms or one of the authorised Heralds).

Arms of the founder only

Colleges usually choose the coats of arms of their founders. For example, Trinity College uses the arms of Sir Thomas Pope – three griffins’ heads around a chevron incorporating four fleurs-de-lys.

Wolfson College, 1981
Blazon: ‘Per pale gules and or on a chevron between three roses two pears all countercharged the roses barbed and seeded proper.’

The arms echo those of Sir Isaac Wolfson, the founder. The red roses represent Lancaster, where he was from. Pears represent the fruits of labour. *Humani nil alien* suggests a global outlook: ‘Nothing human is alien to me.’ Wolfson is noted for informality; ‘Oxford’s most un-Oxford college.’

Arms of revered figures

The other primary focus of coats of arms of the old colleges is that of a saint or other revered person, sometimes including a reference to the founder. This focus encompasses all five of the post-1945 ‘Saint’ colleges at Oxford.

St Anne’s College, 1952
Blazon: ‘Gules, on a chevron between in chief two lions heads erased argent, and in base a sword of the second pommel and hilt or and enfiled with a wreath of laurel proper three raven sable.’

St Anne’s was originally called the Society for Home Students. The fourth Principal of the Society, Eleanor Plumer, obtained a large gift from Amy Hartland, and in 1942 renamed it the Society for St Anne (the Virgin Mary’s mother by Christian and Islamic tradition). Hartland left her entire large estate to the college in 1945. Its coat of arms, however, is solely that of the Principal’s father, Field Marshal Herbert Viscount Plumer, credited with a major victory at Ypres and one of the few military leaders whose reputation after the First World War was enhanced.

St Antony’s College, 1963
Blazon: ‘Or on a chevron between three tau crosses gules as many pierced mullets of the field.’

The arms were granted in 1952. The coat of arms combines symbols relating to the founder and to a revered person. The founder is Sir Antonin Besse, a French-born trader based in Aden. The mullets are said to be from a Besse company trademark; they are in the coat of arms of the Besse family in Switzerland. The colours reference the Red Sea and the desert. College officials decided in 1961 to associate the name with St Anthony of Egypt, founder of Christian monasticism.

But the tau cross is associated with followers of Francis of Assisi, who picked up on a suggestion by Pope Innocent III that the Greek tau is a simplified cross. St Francis made it the cross of his order. St Antony of Padua – who named himself after St Anthony of Egypt – was the second Franciscan to be sainted and is likely to be the person to whom the three tau crosses refer; his statue is in the Hilda Besse building. People who mistakenly spell the college name ‘St Anthony’s’ should not be ridiculed!

St Catherine’s College, 1962
Blazon: ‘Sable a saltire ermine between four Catherine wheels or.’ Motto. *Nova et Vera* – ‘The New and the Old.’

By legend, St Catherine of Alexandria was condemned to be broken on the wheel, but it shattered at her touch and she was instead beheaded. Cambridge also has a college named after St Catherine but they spell it incorrectly. The ungranted Catz coat of arms is similar to St Hugh’s coat of arms, with four Catherine wheels in place of fleurs-de-lys: a good simple tie-in between the name of the college and the coat of arms. The college developed out of the St Catherine’s Society.
**Our shields**

From left, the coats of arms adopted by St Cross, St Peter’s, Kellogg and Harris Manchester

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**St Cross College, 1965**

**Blazon:** ‘Argent a cross potent purpure a quarter counterchanged.’ Motto: *Ad Quattuor Cardines Mundi* – ‘To the four corners of the world.’

The revered person is solely Jesus, represented by the cross. Like Kellogg, St (‘Holy’) Cross does not have a royal charter and is administered directly by the University. Before it became a full college, religious students had found it intolerable not to be able to participate in collegiate sports.

**St Peter’s College, 1961**

**Blazon:** ‘Per pale vert and argent, to the dexter two keys in saltire or surmounted by a triple towered castle argent masoned sable [representing Oxford bailey] and on the sinister a cross gules surmounted by a mitre or between four martlets sable [for Chavasse], the whole within a bordure or.’

The coat of arms impales the arms of the Church of St Peter-le-Bailey, now the college chapel, with the arms of the founder, Bishop Francis James Chavasse, who created St Peter’s for students of moderate means. Francis Chavasse died in 1928 before the college opened, but one of his twin sons, Bishop Christopher Chavasse, became the first Master. The other twin, Noel Chavasse, has been called Oxford’s greatest military hero of the twentieth century – the only person in the First World War to earn the Victoria Cross twice (the second time posthumously).

Four were daring: arms featuring the College mission

The remaining features of college brands are symbols of the educational mission, such as a torch or book. Oxford University’s own brand is a convincing simultaneous tribute to God and learning in the form of a book with *Dominus Illuminatio Mea* (Psalm 27) inscribed across its open pages. This category is where one would look for innovative charges, and we are not disappointed.

**Kellogg College, 1994**

**Blazon:** ‘Per pale indented argent and azure in the argent a chevron enhanced gules in base an open book proper bound azure in the azure a blade of wheat or all within a bordure gules.’

The book represents learning and the wheat sheaf is a symbol of the cereal manufacturer whose foundation funded the creation of the college. In March 2015 Chancellor Lord Patten described Kellogg as one of the ‘jewels in the crown’ of the University because of the access it provides to part-time, older, or international students.

**Harris Manchester, 1996**

**Blazon:** ‘Gules two torches inflamed in saltire proper, on a chief argent, between two roses of a field barbed and seeded an open book also proper.’

Harris Manchester College was originally founded in Manchester by English Presbyterians in 1786. It became a hall at Oxford in 1990 and a college in 1996, with a grant from Lord Harris. It is the only Oxford college restricting its students to 21 years or over (‘mature’ students). The coat of arms appears to be unofficial, since the torches are variously interpreted. It features two red roses representing Lancashire, two torches representing learning and a book representing truth. This is a good use of the opportunity to create a coat of arms that signifies the mission of the college.

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**Heraldry**

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<tr>
<td>Argent</td>
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<td>Chevron</td>
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<td>College of Arms</td>
<td>Since 1484, the members of the Royal Household concerned with heraldry</td>
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<td>Estoile</td>
<td>Star with wavy rays</td>
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<td>Certified coat of arms</td>
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<td>Gules</td>
<td>Red</td>
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<td>Herald</td>
<td>Senior official at the College of Arms</td>
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<td>Impaled</td>
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<td>Kings of Arms</td>
<td>The three senior Officers at the College of Arms</td>
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<td>Mullet</td>
<td>Star (knight’s spur-revel)</td>
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<td>Mullet (Pierced)</td>
<td>Star (with hole in centre for spur-dowel)</td>
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<td>Or</td>
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<td>Pale (Paly)</td>
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Linacre College, 1962

Blazon: ‘Sable an open book proper edged or bound gules the dexter page charged with the Greek letter alpha the sinister page charged with the Greek letter omega both sable the whole between three escallops argent.’

Linacre admits only graduate students. It was the first fully co-educational college at Oxford – now all colleges are coed (one PPH is men only). The coat of arms minus the book is that of the Linacre family, as in the Linacre School coat of arms. The college is named after Oxonian Thomas Linacre, doctor to both Henry VIII and Cardinal Wolsey and founder of the Royal College of Physicians. The open book is a symbol of education, and the alpha and omega signify God or Christ in the Book of Revelation.

Green Templeton College, 2008

Blazon: ‘Or between two flaunches vert on each a nautilus shell the aperture outwards or a rod of Aesculapius sable the serpent azure.’

Its coat of arms has three grants from the College of Arms behind it. Green College was founded in the year of Margaret Thatcher’s election, 1979. It had a strong focus on medicine and life sciences, so its coat of arms included the rod of Asclepius, the god of medicine, a fine example of an ancient symbol conveying a modern mission. This coat of arms was granted in 1983 by the Richmond Herald (Michael Maclagan, then Fellow of Trinity College, Oxford). Templeton College was based on the arms of its founder, Sir John Templeton, including three golden nautilus shells on a blue background.

The full achievement of arms includes a demi-horse holding the caduceus, the magic staff of Hermes with two snakes intertwined. York Herald designed the coat of arms for the college in 1989.

Green Templeton College, with stunning elegance, combines the three colours (‘tinctures’) of the two merging arms and balances charges from both coats of arms. The new arms retains the Templeton chambered nautilus shell and the rod of Asclepius.

In February 2015, I spoke with the Windsor Herald, William George Hunt, at the College of Arms in London, and he confirmed that he devised and granted the arms to Green Templeton.

Past and future

Of the ten new colleges we have examined, four opted to represent their educational mission on their coats of arms, three with the symbol of an open book, one also with torches (Harris Manchester), or with the rod of the god of healing (Green Templeton). They embraced the opportunity to symbolise their future.

The other six colleges opted to follow ancient practice and use either the arms only of their founder (Wolfson) or the arms or symbol of a revered person (the five new ‘Saint’ colleges).

John Tepper Marlin (Trinity, 1962) is a member of the New York Genealogical and Biographical Society and attends its Heraldry Committee meetings. He has served as an economist for three US government agencies and for the Joint Economic Committee of Congress. For 13 years he was Chief Economist for the New York City Comptroller. He blogs and tweets as CityEconomist.
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Who takes the laurels?

On the back of an expansive new book, **Tim Richardson** considers which college in Oxford has the best garden.

A garden has, from the beginning, been an important element of an Oxford college. One foreign visitor described in 1598 how, ‘after each meal, every one is at liberty, either to retire to his own chambers, or to walk in the college garden, there being none that has not a delightful one.’ Of course each college is utterly unique and determinedly idiosyncratic, which is the open secret of Oxford’s charm. The traditional college plan of quadrangles and gardens creates wonderful surprises for the visitor, who might progress from a cosy and well-ordered front quad through a dark passageway and out into... what?

It could be a much larger second quadrangle bedecked with windowboxes and a towering Victorian Gothic chapel, or a lake, a cricket pitch, a cathedral, a tall-windowed Georgian library, a starkly modernist recent addition, or a broad-lawned fellows’ garden. The surprises – and therefore the delight – multiply in any tour of Oxford college gardens.

Typically, the front quad of a college was never conceived of as a ‘garden’ and was generally unadorned – either left as mud, or partially covered in gravel or hoggin, and at a later date in nearly all cases grassed over in one piece or as quadrants or halves bisected by paths. At most colleges, the front quad is perceived as a ‘walking quad’, where the grass is off limits, while the second (and in some cases a third) quad is in many cases more of a ‘sitting quad’. The idea that the quadrangles were once highly decorated spaces replete with features such as knot gardens is erroneous; only Brasenose ever had anything like that level of decorative horticulture in its front quad, and only a handful of others attempted serious gardening in a second quad. ‘Proper gardening’ is usually to be found beyond the quads.

In the very earliest days of the first colleges, it appears the garden was considered a productive space – something inherited from the traditions of the academical halls which predated the colleges. (The ‘Aularian’ or hall statutes of the late fifteenth century suggested a fine of 2d for any student who did not help maintain the hall and its garden on the days specified by its Principal.) But quite rapidly the emphasis switched to the pleasure and quietude a garden could provide. Several colleges built little pavilions for the students which functioned as outdoor common rooms, while the flowers and fruit of the garden would provide succour and respite from the smells and degradation of the city beyond the walls – the college garden as a nosegay of sorts.

Corpus Christi begins with a tight front quad, still paved over (most quads were grassed only in the nineteenth or early twentieth centuries), and then progresses through yet tighter spaces before opening out dramatically into the wide Fellows’ Garden, overlooked by an elegant Fellows’ Building (1706-16) which is one of the most underrated buildings in Oxford. Trinity, on the other hand, opens expansively, its grassed front quad viewed through the blue railings facing Broad Street, taking on the character of a small arboretum flanking a drive that leads past a lodge and up to a country house. After a couple of fine formal quadrangles, it ends expansively, too – with the great lawns which shoot off eastwards towards the Parks Road and the celebrated clairvoyee gateway.
In some places the demarcation between gardens extended even to the undergraduates: at Pembroke, for example, eighteenth-century illustrations show that what is now Chapel Quad was originally divided into three different rectangular enclosures, reserved for master, fellows and undergraduates. Something of this flavour lingers at Wadham, where the excellent Fellows’ Garden (open to the public) represents just a third of the main garden area, with the rest taken up by the Private Fellows’ Garden (glimpsed through a locked door) and Warden’s Garden. The colleges at the edge of the old city generally had more scope for expansion, and several created not just gardens but groves and walks, which became favoured resorts of the University and town on Sunday evenings in summer. St John’s has contrasting Inner and Outer Groves, while Magdalen’s grove became its deer park in the eighteenth century (in tune with the landscape style). The nineteenth-century former women’s colleges, situated further out, all created large gardens over time which were a particular source of pleasure for students in their early years, when chaperoning was deemed necessary in town.

There has long been an emphasis on sport in Oxford, since historically the authorities were keen to discourage the young men of the university from expending their energy by brawling in the streets. From the fifteenth century – well before the advent of rowing, football and rugby – many colleges boasted ball courts, or sphaeristeria, within the college walls, where versions of tennis, fives or handball would be played. Several colleges still retain these, but the sites of old courts can still be divined at several colleges including Oriel (a raised terrace in Back Quad) and at Merton, where the old ball court was situated by the chapel walls (three ancient tennis balls were discovered wedged in crannies during restoration work).

So what is the best garden in Oxford? That is the question people tend to ask. I am not going to hedge around but say that in horticultural terms, Worcester College has the finest gardens currently, thanks to an ambitious head gardener with an excellent team, properly resourced. The lawns at Worcester are perhaps the finest in either Oxford or Cambridge, while the borders are full of interest for much of the year. But there is good gardening across the University – in the borders at Magdalen and Merton, in the quads of Jesus and around the flowing lawns of St Hugh’s and Lady Margaret Hall. Corpus and Pembroke Colleges have head gardeners who like to work alone and have added immense charm and individuality to their respective institutions.

The college gardens today are each run along highly individualistic lines. In most cases a college fellow is deputed as ‘garden master’ or some similar appellation (at St John’s this post is Keeper of the Groves). At one college, I came across a curiously planted herbaceous bed where the front was all pink flowers and the back was all blue. I was told it was because one garden master liked pink while their successor liked blue.

There are two excellent gardens easily overlooked. Rhodes House offers a satisfying Arts and Crafts confection with exceptional herbaceous borders, and Wolfson College has an unsung modernist masterpiece with lawns flowing down to the river – not quite as ambitious or original as St Catherine’s College, that other modern gem, but perhaps rather easier to enjoy. ☺

Tim Richardson (Pembroke, 1986) is a landscape historian and garden writer, a columnist in the Daily Telegraph, the author of several books, and an adviser to the National Trust on historic gardens. His latest book is Oxford College Gardens (Frances Lincoln, September 2015).
In his *Moral Combat: A History of World War Two* (2010), Michael Burleigh blamed Oxford for Lord Halifax's calamitous diplomacy. 'His memoirs describe with pious, self-deprecating smugness his smooth ascent… padded with the usual tedious Oxbridge legends of deaf college porters and solecisms about handling the port which make Englishmen seem like retarded bores.'

Every book on Oxford risks this kind of indictment. Rita Ricketts' eclectic and amusing account of the Blackwell publishing empire takes wise precautions. There are no porters or port-drinkers, but neither a preface by Bodley Librarian Richard Ovenden nor an excellent prologue by Merton/Corpus Archivist Julian Reid can halt the battalion of Oxford clichés that mar this commercial and family history.

Several elderly literary nags get a workout. Cricket Flannels (p17) pulls ahead of Dreaming Spires (p8) fairly early on, only to be run hard for a spell by Jude the Obscure (p87), Summer Eights (p35) and Chancellor Macmillan (p30). In the end, this book’s winning ticket is Autodidact, as represented by holy fools like ex-railwayman Alf Williams, who taught himself enough Sanskrit to merit publication by Blackwell, or gentle Quaker ‘Rex’ King, who anchored the Broad Street office for decades as a Bartleby-like diarist and factotum.

If Alf and Rex’s portraits lack the roar and dazzle of E P Thompson and Raymond Williams, they do tenderly remind us once again that our personal pasts are history rather than destiny, and that with the right cultural resources, all may aspire and achieve.

How appropriate, then, to find a picture of Abraham Lincoln among the elegant and diverting coloured plates. Basil Blackwell liked to insert pictures of Lincoln into the ad sections of his improving literature over the motto: ‘Good Books Build Character.’ Alf and Rex’s studies were not as fruitful as young Abe’s, but Ricketts shows that the latter’s words framed their lives (‘in due time the weights should be lifted from the shoulders of all men, and that all should have an equal chance’). That said, the Blackwell commitment to egalitarianism was not without its archer dimensions. Benjamin Harris Blackwell brought learning to the Victorian poor, but they could only access his books if they joined his Temperance Society. Something of this severity seems to have been replicated in his son, Benjamin Henry, the man who opened Blackwell's shop in 1879.

Basil was more outwardly genial than his father or grandfather, and ended up supporting Roy Jenkins' SDP via membership of the Garsington set. But Basil also believed 'women generally are not kindly disposed to books'. He took an equally serious view of pornographers like Joyce, Lawrence and Nabokov, and of the men in the dirty trenchcoats who held up the demand side of that ‘gutter-born’ market.

Some of this anxiety was partly genetic, but some was probably class-based. These familial foibles remind us of the reactionary thread in the Oxonian weave. For every noble Jowett our fair city has evolved, it has incubated a menacing Froude.

All things considered, though, the Blackwells were children of light. They gave shelter and succour to the likes of Wilfred Owen and Vera Brittain – not to mention Rex and Alf – when others refused platforms and royalties. And at the end, they showed that Sir Thomas Bodley’s quartet of qualifications for the pursuit of knowledge, ‘leisure, learning, friends and means’, was one stricture too long. There was no entrance fee for Blackwell’s.

Although it will appeal mostly to specialists, this book is a fine monument to the family who not only established the famous rare book shop and publishing house, but who also rescued the Shakespeare Head Press from extinction, and went on to establish a thriving trade in children’s books from the 1920s. Basil’s commercial success, especially in the American market, would have pleased his grandfather.

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**Scholars, Poets and Radicals**

*Discovering Forgotten Lives in the Blackwell Collections*  
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(Below right) The Victorian poor could only access Benjamin Harris Blackwell’s books if they joined his Temperance Society.

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The good sport

Perfect pitch at last

Women’s rugby gains parity with men’s this December when both will play their Varsity matches at Twickenham, writes Helen Massy-Beresford

We’re looking to really put on a performance,’ says Carly Bliss, Oxford University Women’s Rugby Captain, at the prospect of the team playing the Varsity Match at Twickenham for the first time.

Twenty-seven years after the women’s rugby union teams first played a Varsity Match – in 1998, at Iffley Road, Oxford, in jerseys borrowed from the men’s team – the Oxford women’s team will square up to their Cambridge counterparts at Twickenham, which this year is also home to the Rugby World Cup final.

The fixture, on 10 December, will conclude a momentous year for women’s sport in general, with an impressive performance by the England team in the FIFA Women’s Football World Cup and victory for the Oxford women in the Boat Race, which they rowed on the same course as the men for the first time in April.

Women’s rugby is also on a roll, it should be noted, with the England team currently world champions.

‘The move towards Twickenham has been the result of the hard work of a lot of people over a number of years,’ says Bliss (Hertford, 2006). ‘The club is self-run by students and it’s been decades of committees getting in good-quality coaching, a good structure and the right number of players.’ Helen Lamb, Oxford University Women’s Rugby President, says the England Women’s Rugby World Cup victory last year helped. ‘That raised the profile hugely and made it really important that we weren’t separate from the men, that we were playing on the same day, in the same stadium, with the same crowd watching. We have the opportunity to have two full blue Varsity Matches on the same day and will use the high profile of Oxford to raise the profile of women’s rugby more generally.’

The team is also boosting the popularity of the match itself, says Varsity Matches marketing manager Philip Lay. ‘Having the women’s team playing at Twickenham is having a marked effect on ticket sales already.’ The high-profile match could have wider effects. Both Bliss and Lamb started playing rugby on arrival in Oxford, but would have done earlier if there had been women’s teams.

They both hope Twickenham will inspire more women to take up the sport. ‘The announcement about the Varsity Match went out in March, which is normally when the season ends, but this year we immediately started recruiting and found recruitment was really high,’ Bliss says. ‘Lots of girls were inspired to give rugby a go. In May we held a recruitment day and recruited 40 girls who’d never played rugby before. We retained over 60% of them.’

‘I don’t think this is the top for women’s sport,’ Lamb says, ‘but this is the year people have finally started to take notice of it.’ Bliss agrees. ‘There’s been a lot of chat about why women’s sport does not have the same level-pegging as men’s, but we are getting towards the end goal this year.’ A top-notch coaching team helps, led by former England Women’s Rugby coach Gary Street. ‘We have a coaching team that has always exclusively coached women’s teams, which is rare,’ adds Bliss.

The team members who will be picked for December will commit significant time to training, matches and gym sessions. As Lamb says, ‘It’s pretty much a full-time commitment along with your studies – you can’t fit much else in.’ But it’s worth it, says Bliss.

‘The culture it creates with your teammates – everyone working so hard and training so hard – can’t really be replicated in other parts of university life. We’re studying at a high level and playing rugby at a high level. Your teammates are always there for you whether it’s on the pitch or if you have an exam. It’s great to have that sense of community.’

www.thevarsitymatch.com

Helen Massy-Beresford (Hertford College, 1998) is a regular contributor to Oxford Today.
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In the doldrums

The Bordelais have become greedy and complacent, severely damaging the sale of en primeur wines, says Exeter wine steward Hanneke Wilson

Bordeaux en primeur is in the doldrums. En primeur is a form of futures trading designed to benefit the producer and the consumer: by buying early, the customer gets a discount, and the producer a guaranteed price. After a succession of mediocre vintages offered at inflated prices, however, the market is flat and Oxford colleges are fed up.

Yet the Burgundian version of the system works well. Burgundy’s complex geology and fragmented ownership mean that sought-after wines are made in small quantities. En primeur is a chance to buy at a discount, or, in some cases, to buy at all.

Even the smaller Bordeaux vineyards are big by Burgundy standards, so the wines aren’t rare. Bordeaux has a long supply chain: the château pays commission to a courtier, who sells the wine to various négociants, most of whom have warehouses on the Quai des Chartrons in Bordeaux itself; the négociant then sells to the wine merchant.

Bordeaux is sold en primeur in the late spring following the vintage. The samples offered to the trade and to journalists in April are not finished wines and may not even reflect the final blend. Nevertheless ‘wine critics’ publish marks, as if these infant wines were schoolchildren.

Oxford has its own version of the campaign in May. For weeks on end we have our inboxes clogged up with emails as the prices come dripping out. Instead of using their professional acumen to present the customer with a selection of the best wines at the best prices, many merchants act as brokers, and the result is multiple offers of the same wines several times a day.

One colleague tells me he has a special mailbox marked ‘wine junk’.

So who benefits? The UK trade’s margins for en-primeur claret are wafer-thin (10% is typical). The customer, who is invited to pay now for wine that won’t be delivered for another two years, isn’t guaranteed a good price. Anyone who bought the top 2009s and 2010s overpaid by a third. The Chinese cancelled their orders once they realised, and the bubble burst. The vintages 2011, 2012 and 2013 were expensive and mediocre. Consumer confidence has plummeted.

2014 was a good vintage, not for long-keeping but with fresh ripe fruit and bright acidity. Here was an opportunity to win back friends. Alas, most of the grand châteaux released their wines at the same high price in euros as the 2013s. A few wines, such as the lovely Château Sénéjac, whose production costs equal those of the now unaffordable crus classés, were offered at what is likely to prove a discount and sold well, but these were the exceptions.

Various petits châteaux were decently priced, but there is no point in paying now and tying up capital for two years: barring currency movements, they are likely to be available at the same price once bottled, and will drink straight away. If the grander producers had been less greedy, this could have been a vintage to buy en primeur at advantageous prices to make up for the previous three lean years.

For now, Oxford’s wine stewards are looking elsewhere, and claret is no longer the mainstay of our cellars.

Dr Hanneke Wilson (Merton, 1981) is the wine steward of Exeter.
Patrice Moor chuckles as she recounts hearing a grave conversation in Somerville SCR, over coffee, about whether or not Adam and Eve had stood in the shade of the tree of knowledge. It’s an illustration of how in Oxford it can seem de rigueur to nail down every last thing with words. Yet Moor remains certain that even in a place like this, the bulk of communication is actually non-verbal.

The first results of her artistic residency at Somerville, which began in May and lasts one year, are already visible. On an easel in her London studio sits a part-worked study of a pair of hands. They belong to the college gardener and will eventually be part of a series of hands belonging to different college members. Underlying the engagement is Somerville’s non-denominational ethos of equality, says Moor.

Already in those canvases one sees immense precision communicated by the building up of multiple thin layers of paint, and a force of vision exuding great humanity.

Earlier this year Moor held an exhibition entitled Nature Morte at Oxford’s Botanic Garden, where she held an artist residency before her current one at Somerville. The results were powerful meditations on life, decay and death, the defining traits of an artistic career spanning 25 years.

The centrepiece of Nature Morte was a sunflower rendered with the utmost precision, yet flaunting an immense contrast between a halo of vibrantly green leaves and the head in which densely packed seeds are either pale and pink or red, deepening to crimson and in the centre shaded with black. It projects a raw intensity that refuses to flinch in the face of the meaning of these seeds, which represent both death and new life.

Moor has always painted in oils, and in a realist idiom, she notes, reflecting her Dutch ancestry, a childhood infused with frequent visits to the Mauritshuis in The Hague, and thus a deep love of particular paintings – such as The Goldfinch by Carel Fabritius (1654), works by Vermeer, and of course, above all others, Rembrandt.

While the theme of the memento mori – the medieval Latin theory and practice of reflection on mortality – is as old as western art, it exerts a special force over Moor, whose childhood was marred by an unusually high number of family deaths, all the sudden result of an unusual genetic condition. Her mother died when Moor was just 22 months old.

‘I did not have a carefree childhood. Rather, it was this knowledge that today I am here, tomorrow I may not be here,’ she remembers. ‘I have always been a fan of reality. Reality is extraordinary. The closer you study reality, the more it yields to something completely other, almost a type of alchemy. You can’t control this. You can’t say when it will come to you.

‘Painting for me is a process of self-acceptance – you have to be true to yourself,’ she continues. ‘If you emulate anyone else, you have nothing. Accepting yourself is the great challenge. It’s very difficult to accept yourself.’ The study of life and death finds...
great expression through gardens, and perhaps especially physic gardens, whose role was originally to furnish remedies for illness and disease. The University Botanic Garden is notable in this regard, because it was founded in 1621 as a physic garden and still plays that role today.

After a long period of successful exhibiting and selling in London, Moor withdrew in 2010 into her studio and set about painting a skull (‘the best Christmas present I ever received’) every day for a year, limiting the exercise to three hours at a time, using linen canvases no larger than 12cm by 15cm, and employing no more than six colours.

She says, ‘It was like being a monk going into a cell. It was the best time of my life. I felt very centred and grounded. It was a type of meditation.’ The resulting canvases comprised Tête de Mort (2010–11), an installation of 252 paintings of the same skull subsequently exhibited in the Old Big School Gallery at Tonbridge School.

Oxford has a deeper tug on Moor’s affections. She moved here from the Netherlands as a teenager in 1978, to learn English for two years at St Clare’s, the independent school founded by Anne Dreydel and Pamela Morris, which grew out of a scheme to establish links between British and European students after the Second World War. Half Dutch and half-Luxembourger, with French as her mother tongue, Moor remembers, ‘For me Oxford was England. I smelt freedom in Oxford – it was incredible.’

She maintains to this day that Britain is free in ways that bourgeois, continental mainland Europe is not, particularly if you can live in London. Her own career is testimony to that freedom. After a degree in history and French literature at King’s College, London, she attained a law degree and even apprenticed as a stockbroker, before working at Robert Fraser’s gallery in Cork Street.

Married today to a husband who works as a glass art consultant, with three children, all grown up, a long-haired dachshund and a beautiful grey whippet called Merlin, she recalls a gradual process by which she began to realise that above all else she wanted to paint. ‘As a child,’ she says, ‘my family never really discussed art, yet it was simply everywhere. My uncle owned many paintings.’

She admires many artists including, in no particular order, Dürer, Holbein, Lucian Freud, Mat Collishaw, Polly Morgan and Oxford-based Jenny Saville. But the force of the Dutch Golden Age is never far from her, especially Rembrandt. ‘A most amazing man,’ she notes. ‘His humanity, his humanity…’

In no way does she see her preoccupation with mortality as a concession to morbidity; rather the opposite: ‘Death is the great universal truth and by focusing on it, life too finds its basis.’

Moor says that Somerville has been very welcoming, very friendly and very open. ‘Normally I would be all but invisible,’ she adds, ‘but on this occasion I spend every Tuesday at the college and it has been very pleasant, very stimulating. I am meeting people right across the college.’

Patrice Moor will hold an exhibition of her work at Somerville in 2016. The fruits of her time at the University Botanic Garden can be found at her website, patricemoor.co.uk
In the mid 1990s the distinguished Royal Academician Professor Ken Howard O.B.E. R.A. R.W.S., undertook a series of commissions to paint views of selected Oxford colleges from which 350 limited edition prints were later issued, signed and numbered by the artist.

Ken Howard’s Oxford

The vivid paintings of Ken Howard have made him one of Britain’s most sought after living artists. His annual one man shows at the Green Gallery in London are regularly sold out. Five books on his work have been published since 1998 including “Inspired by Light”. His work is featured along with other R.W.S. members in “Visions of Oxford and Cambridge” published in 2015.

The size of the prints is approximately 19” x 14” and they are presented in beveled hand cut mounts, the overall size being 23” x 17”. The price of the prints is £99 each or 20% discount for two or more including p & p, UK only. For overseas orders please add £15 for p & p. “Visions of Oxford and Cambridge” is £19.95 plus p & p (£3.75 for UK and £7.85 for overseas). You can buy prints or books securely online through our website, by telephone or post.

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Dan Topolski
Rowing coach and commentator

Dan (Dan) Topolski, rowing coach and commentator, died on 21 February 2015, aged 69. Born in London on 4 June 1945, the son of the expressionist painter Feliks Topolski and his first wife, the actress Marian Everall, he was educated at the Lycée Français in London, at Westminster School (where he captained the rowing eight), and at New College, Oxford, where he read Geography, graduating in 1967, and going on to take a Diploma in Social Anthropology in 1968. Despite being relatively lightly built he rowed in the 1967 Boat Race (which Oxford won) and that of 1968 (which Oxford lost), and in successive world championships between 1969 and 1978, winning a silver medal in the coxless fours at Nottingham in 1975 and a gold medal as part of the Great Britain lightweight eight at Amsterdam in 1977. He also appeared in the Henley Royal Regatta on 74 occasions, winning the Henley Medal four times.

After graduating, Topolski worked as a journalist, BBC researcher, and travel writer; among his books were Muzungu: One Man’s Africa (1976) and Travels with my Father: A South American Journey (1983). But his true passion was rowing. Despite only being paid expenses, he coached Oxford’s Boat Race crew from 1973 to 1987, in which time they scored 12 victories, including ten successive ones between 1976 and 1985 (Oxford’s longest consecutive run of victories).

In 1986 Oxford lost to Cambridge by seven lengths, prompting Chris Clark, an American international in the losing crew, to persuade four of his fellow American internationals (three oarsmen and a cox) to come to Oxford, where they enrolled as graduate students in order to be eligible to join the Oxford squad. In 1987, however, just weeks before race day, Topolski faced a ‘mutiny’ by the American rowers, who disagreed both with his training methods and especially with his decision to drop one of the English rowers from the crew in favour of the President of the Boat Club, Donald Macdonald, in whom they had lost confidence. Sensationally, the Oxford crew went on to win the race by four lengths without them, helped by Topolski’s intimate knowledge of the river in inclement weather, and his decision to replace the lighter plastic oars by heavier wooden ones.

The bruising confrontation, played out against a background of intense media interest, had divided the Oxford rowing fraternity, and the following year the college captains elected as President of the Boat Club one of the ‘mutineers’, Chris Penny, prompting Topolski to resign as coach, though he later agreed to return as an adviser. In 1989, with Patrick Robinson, he published his account of the ‘mutiny’, True Blue, which was made into a film in 1996 (with Topolski taking a cameo role as an umpire). His version of events was, however, disputed by others, and led Alison Gill, president of the Oxford Women’s Boat Club in 1987, to publish an alternative account, The Yanks at Oxford (1991).

After retiring from coaching, Topolski worked in broadcasting, as the BBC’s commentator on the Oxford–Cambridge boat races and on the rowing events at the Olympic Games and world championships, and as presenter of Topolski’s Travels, which won the 1993 Travellex Radio Award; he also covered rowing for the Observer from 1991 to 2012, and was a freelance writer, motivational speaker, photojournalist and exhibition curator. He was made an honorary fellow of New College in 2013.

He is survived by his wife, the actress Susan Gilmore, née Gilbert (who played Avril Rolfe in Howards’ Way) and their three children, Emma, Tamsin and Luke.
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Bongani Mayosi

The Professor of Cardiology and Head of the Medical School at the University of Cape Town tells Olivia Gordon what Oxford did for him.

What first made you think about studying at Oxford?
I grew up in a rural area of the Eastern Cape. My father was a private general practitioner; my mother was a teacher, then a nurse. We were middle-class, although it was an era of exclusion and one felt the collateral damage. As a family we went on holiday to Europe, visiting Oxford in 1977 – from then I knew I would have to go out of South Africa to get a full education.

How did you get your place at Oxford?
I was a physician in Cape Town and had started training as a cardiologist when I decided to do research into the genetics of the heart. I applied to do a DPhil in genetics through the Nuffield Oxford Medical Fellowship, a longstanding way of funding South Africans in senior roles to come to Oxford. I was interviewed by the South African panel. I had to demonstrate my commitment to South Africa; they were looking for someone who would go back and contribute after training at Oxford. Fortunately they backed me; and my wife Nonhlanhla, our two daughters and I came to Oxford in 1998.

What were your first impressions?
The weather was a shock. We arrived in January; you smile and your teeth freeze. But we had a wonderful time. We chose Wolfson College because it looks after families, it’s completely postgraduate, it’s probably one of the most international colleges and it’s got a strong medical bias. We lived there the whole three years and made friends with people from all over the world.

How was your academic experience?
Transformative. I was at the John Radcliffe’s Department of Cardiovascular Medicine. It was a huge eye-opener. I’d cycle from Headington downtown to join the medical students’ classes on genetics. When I emerged on the other side, I was a scientist.

What else did you do at Oxford?
Our children started school and adapted well. Nonhlanhla, also a doctor, came with no post, and volunteered to work in the Dermatology Department at the Churchill. Today she’s one of the leading hair specialists in the world. I was the one who came to do the PhD, but she was the one who wrote a publication first! We joined Wolfson’s dance group to do ballroom dancing. During our time, Wolfson’s dance team won the University Cuppers’ Cup for the first time. I also tried rowing, but I don’t think I was much good.

What did you bring back to South Africa?
South Africa is the place that needed us, where the opportunities are. My Oxford training has allowed me to establish a global research programme on several heart conditions of poverty which are common in Sub-Saharan Africa although conquered elsewhere. Heart disease is often associated with heart attack, a disease of people who are not poor, with a diet high in cholesterol, but I always explain that poverty breaks your heart. You don’t get a heart attack; it breaks it in other ways like a tubercular infection.

How do you see the future of South Africa?
Although there’s been huge improvement, we still have wastage of talent and limited opportunities for poor people. Once you’re in university you’re a survivor and there are opportunities to get going; the problem is getting people to that level. I’m optimistic that South Africa is going to confound all the critics and emerge, with the whole African continent, as one of the major players in the world over the next few decades – provided that we grow the right sort of high-quality leadership, and that’s the reason my greatest joy has been in training the next generation.

Would you like to see more students from South Africa go to Oxford?
My experience has inspired me to find more funding opportunities for people to come to Oxford. The most ambitious, which I’m working on with the Minister of Health, is the 1,000 PhDs programme. We’re supporting up to 1,000 people to have the same experience I had – in Oxford or anywhere in the world. I want a new generation of leaders to solve some of the intractable problems we have in South Africa.
If you left a gift in your will, what brighter future would you create?

The Francis Napier Fund is a legacy that helps students with disabilities advance their education. Sophie Wedlake is a talented fifth year medical student with partial hearing difficulties.

Sophie found it challenging to take in the teaching in the noisy hospital environment. With the extra support of the fund, Sophie bought new hearing aids and a new stethoscope, which uses Bluetooth to transmit sound.

“I am now able to participate confidently in bedside teaching at the hospital and I am on an equal footing with other students.

This has had an enormous impact on my studies.”

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