

THE CRAFT OF  
GLOBEMAKING

CAN LULA SAVE  
THE AMAZON?

THE LARGEST REFUGEE  
CAMP IN THE WORLD

# GEOGRAPHICAL

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Magazine of The Royal Geographical Society (with IBG)

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## SEARCHING FOR THE YETI

A modern explanation for  
the fabled Himalayan beast



THE OUTER SEYCHELLES



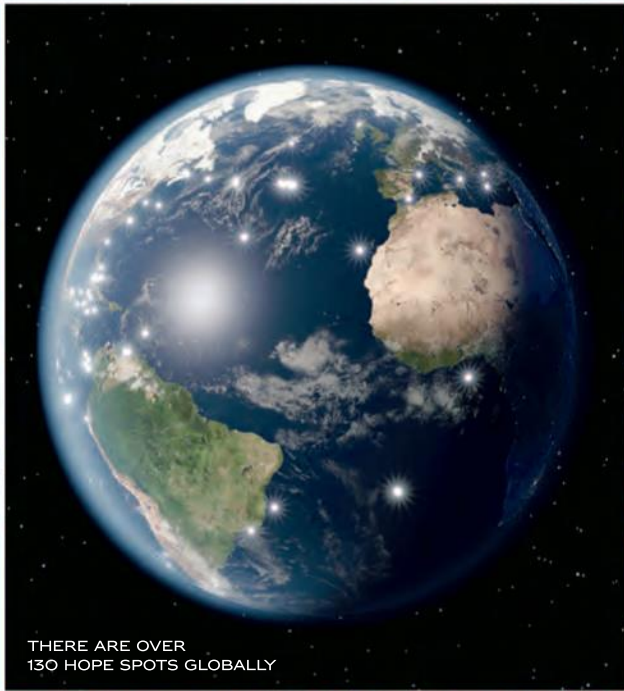
AZORES ARCHIPELAGO, PORTUGAL



FLORIDA GULF COASTLINE, UNITED STATES



SYLVIA EARLE EXPLORES COCOS ISLAND, COSTA RICA



THERE ARE OVER 130 HOPE SPOTS GLOBALLY



SYLVIA EARLE WITH VOLUNTEERS, THE OUTER SEYCHELLES



GREAT BARRIER REEF, AUSTRALIA



MOBULA RAYS, AZORES ARCHIPELAGO, PORTUGAL



SEA LION, GALAPAGOS, ECUADOR



## ON OUR WATCH

**Hope can now be spotted across all our planet's seas and oceans.** Sites are made into aquatic havens by local communities, to safeguard the richness and diversity of the ecosystems they depend on. Sylvia Earle's invaluable experience as an explorer and marine biologist continues to help further their goal, through her organisation, Mission Blue. Together, they have created over 130 Hope Spots and counting. Carrying a message of hope for generations to come.

It is that vision, that dedication to a perpetual planet, which we are proud to stand by.

**For as long as it is needed.**

*#Perpetual*



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IN ITS COMMITMENT TO PROTECTING  
30% OF THE OCEANS BY 2030



**ROLEX**

# WELCOME

## Searching for hope

**F**or most of our lives, the Amazon has played a crucial role in our understanding of how we're looking after our planet. Its sheer size and heft helped it become the symbol of the existential threat we face from the rapacious over-exploitation of resources. The very idea that such a vast natural reservoir could be depleted, as we watch on in impotent horror, summed up our urgent need for global, collective action. If we could lose the Amazon, how far behind is the rest of the planet? Hopes were high as the rate of deforestation started to dip at the turn of the century. But the election of Jair Bolsonaro in Brazil five years ago quickly dashed such optimism. This month, Mark Rowe looks at the challenges Luis Inácio Lula da Silva faces on his return to power to mitigate the destruction of recent years (see **Page 28**). We all watch anxiously to see how the older, hopefully wiser Lula fares. Hope, sadly, is in shorter supply for the Rohingya people trapped in a vast complex of refugee camps in Bangladesh after fleeing genocide in their home across the Naf River in Myanmar. Writer and photographer Gabriele Cecconi first visited the camps in 2018 to document the dramatic and brutal exodus. He returned last year to see how nearly a million people have fared in the interim (see **Page 44**). While there have been some essential improvements in their condition, the grim truth is that the world's largest refugee site is turning into a camp of despair. To compound their plight, in March this year, the United Nations cut the ration allowance it gives the camp inhabitants by US\$2 per person due to a US\$125 million shortfall in its aid budget!

**Graeme Gourlay**, Publisher

## CONTRIBUTORS



'The ongoing environmental crisis in the Cox's Bazar area not only highlights the challenges posed by mass migration,' says **Gabriele Cecconi (Page 44)**, 'but is also an interesting example of the environmental consequences of an imbalance in the relationship that humans have developed with their environment, and that increasingly affects our daily habits.'



'Globemaking is an endangered craft, but one that's starting to make a comeback,' says **Bryony Cottam**. On **Page 38**, she visits the studios of one of the world's last few producers of handcrafted globes, where apprentice makers must complete two challenging years of in-house training to master the skills needed. The company's bespoke globes are shipped to clients around the world.



'I never set out to write a story on yetis,' says **Stuart Butler (Page 18)**. 'But, after many years of hiking around the Himalaya, one thing kept popping up in fireside conversations with locals: yetis. They were always stories full of wonder. Eventually, it made me start to think more deeply about yetis and what might be behind the myth. The answer is more complex than I had thought.'

## GEOGRAPHICAL

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Cover image: Stuart Butler



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BRIAN GRATWICKE



The last known specimen of Rabbs' fringe-limbed treefrog, once found in Panama. The species has been wiped out by the fungal infection Bd

## Invasive fungi on the rise

**Fungal infections are a growing threat to human health, but they pose an even greater risk to wildlife**

**A** deadly fungus that has driven more species to extinction than any other pathogen has spread across Africa unnoticed. Chytrid fungus, *Batrachochytrium dendrobatidis*, or Bd for short, is a highly infectious fungus that affects frogs, toads, salamanders and other amphibians. While other diseases have also damaged animal populations – white-nose syndrome, caused by the European fungus *Pseudogymnoascus destructans*, has killed more than 5.7 million bats across North America – none have had the devastating impact of Bd. It's thought that the fungus has caused the decline of at least 501 amphibian species globally, and has played a role in 90 extinctions. A study by researchers at James Cook University in Australia, described it as 'the most spectacular loss of vertebrate biodiversity due to disease in recorded history'.

Until now, only African species seemed to have been spared, but new research reveals that Bd is now firmly



*Candida auris*, a yeast infection that's highly dangerous to humans

SHAWN LOCKHART/CDC

established throughout the continent. 'We show that Bd has become more prevalent and widespread across the continent of Africa since the year 2000,' says Vance Vredenburg, a biology professor at San Francisco State University. 'This rapid surge may signal that disease-driven declines and extinctions of amphibians

may already be occurring in Africa without anyone knowing about it.'

For their study, Vredenburg and his colleagues searched for signs of the fungus in more than 16,900 amphibians, collecting data from thousands of museum specimens collected from Cameroon, Ethiopia, Kenya, Lesotho, Tanzania and Uganda, as well as skin swabs from live amphibians caught in Burundi, Equatorial Guinea, Cameroon and the Democratic Republic of the Congo. They found that while the fungus was present in less than five per cent of the samples collected since the 1960s, its presence suddenly soared to 17.2 per cent in 2000.

Bd likely existed in some amphibian populations for decades before human activity, most likely human and cargo air travel and the wildlife trade, spread the fungus around the world. It's so deadly because it attacks the outer layers of the amphibians' skin. 'When amphibian skin starts to change thickness, it basically creates a condition where they can't maintain their internal processes and they die,' says Eliseo Parra, who worked on the research. 'If infecting a mammal, it might affect your fingernails or something you wouldn't even notice,

**Geo-graphic**

The widely varying roles of women in medicine

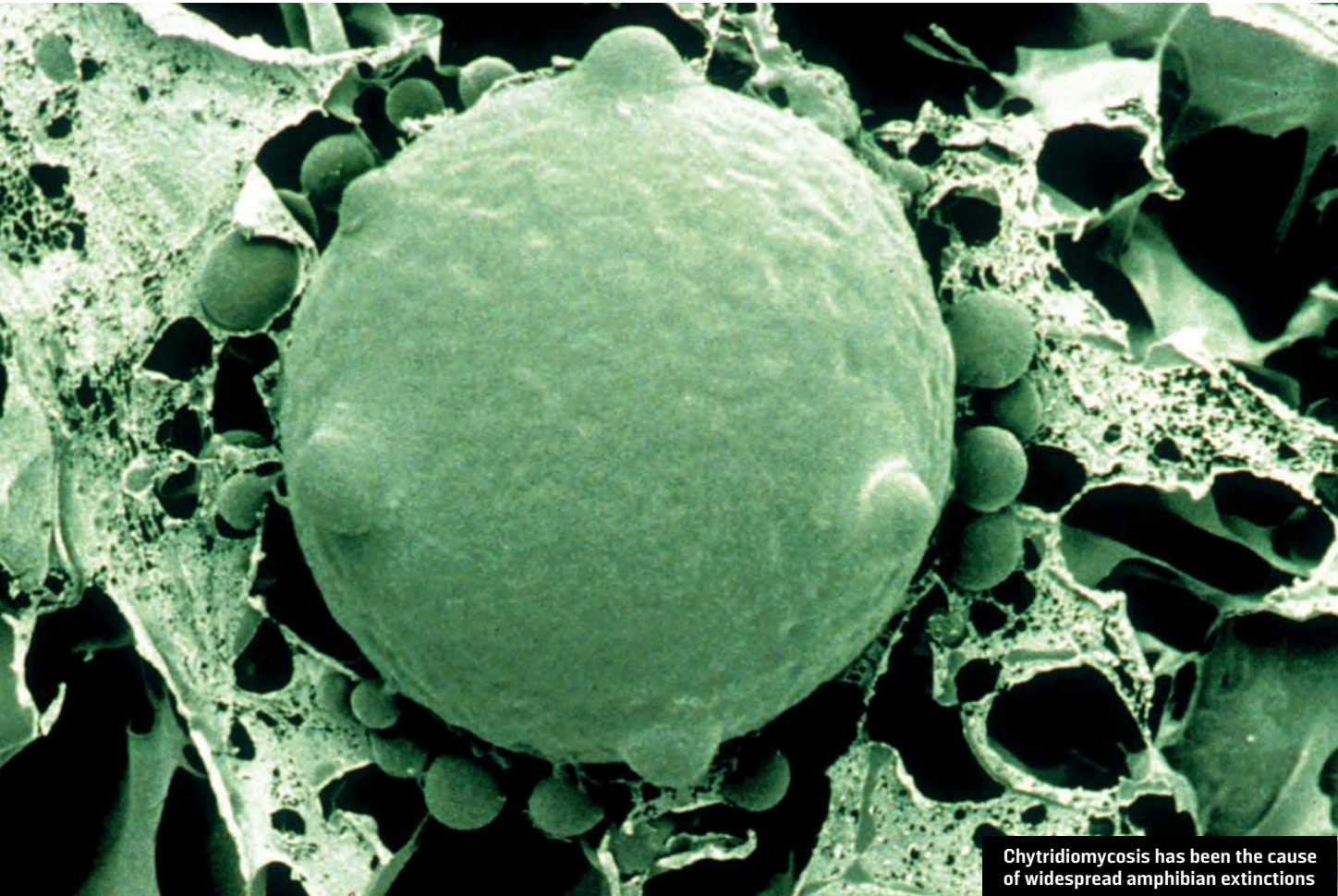
**Climatewatch**

The warnings are becoming more urgent

**Platform**

Why antisemitism lingers on the political Left

ALEX HYATT/CSIRO



Chytridiomycosis has been the cause of widespread amphibian extinctions

but frogs and salamanders use their skin to breathe. It's a very critical part of their body.' The devastation it causes isn't limited to amphibians; it can affect whole ecosystems of species that eat or are eaten by them.

Climate-change-induced stress could also be making amphibians more susceptible to pathogens, suggests Vredenburg, or it could be making the environment more hospitable for fungi, causing them to spread to new areas. Warming temperatures also mean that fungi must adapt. There's some evidence to suggest that this is already happening, and it's not good news for humans. The rapid spread of a deadly drug-resistant fungus called *Candida auris* in US hospitals and nursing homes could, some researchers suggest, be due to its ability to grow at warmer temperatures – which is unusual for fungi.

'Emerging from the shadows of the bacterial antimicrobial resistance pandemic, fungal infections are growing, and are ever more resistant to

treatments, becoming a public health concern worldwide,' said Hanan Balkhy, the World Health Organisation's (WHO) assistant director-general, in October 2022. At the time, the WHO had just published a report highlighting the first-ever list of priority fungal pathogens – the 19 fungi that represent the greatest threat to public health.

The majority of fungal infections in humans typically start through inhalation of spores that are naturally found in the environment – in the soil or on trees; some are even associated with animals. 'It's very, very difficult to use prevention as a cure for fungal infections because they're environmental,' says Rebecca Drummond, a fungal immunologist at the University of Birmingham. 'They're just everywhere. Some of these fungi are actually growing on our skin. They grow in our guts. How do you prevent somebody from being exposed to that?'

For most people, those spores are destroyed in the lungs without them

ever even knowing they've inhaled them. 'It's actually quite rare for a fungal infection to affect what we call an immuno-competent person,' says Drummond. For people whose immune system is unable to fight off infections effectively, however, those spores can start to germinate and proliferate in the lungs and cause an infection. 'I tend to think of fungal infections as diseases of the diseased. Most people who get them are usually quite ill already.'

However, Drummond agrees that the development of vaccines and new antifungal drugs, greater access to drugs, as well as increased education and training for medical students, would put us in a much safer position, particularly as the increase in drug-resistant fungi is putting more and more vulnerable people at risk. Vigilance is crucial. 'In order to treat a fungal infection effectively, you have to diagnose it very quickly,' she says. 'Our diagnostics can be a little bit behind that of other infectious diseases.' ●

Geographers can appear in court as expert witnesses



# LEGAL MATTERS

**Geographers play an essential but often invisible role in shaping and interpreting laws around the environment, social justice and human rights**

**Y**ou don't need to be a legal geographer to be involved in legal work,' says Katherine Brickell, a professor of urban studies at King's College London. Brickell's work focuses on women's experiences of domestic violence and forced eviction in Cambodia. In 2012, she led the first comprehensive appraisal of Cambodia's first-ever domestic violence law, introduced in 2005. So when a highly complex US deportation case concerning a Cambodian citizen and domestic violence survivor reached the immigration courts, Brickell got a call out of the blue. 'They needed someone to produce an expert witness statement that could prove that Cambodia was not a safe place for a domestic violence victim,' says Brickell. 'They contacted me as they could not find a scholar on domestic violence in Cambodia, which is obviously quite a niche subject.'

Brickell was required to produce a testament in written form, based on her research. She was then cross-examined by the US Immigration and Customs Enforcement agency over video, which she describes as a daunting experience. 'I felt a huge weight of responsibility, but had no real training on how to write an expert witness statement, what it means to be in a courtroom, or what would be expected of me as a geographer,' says Brickell.

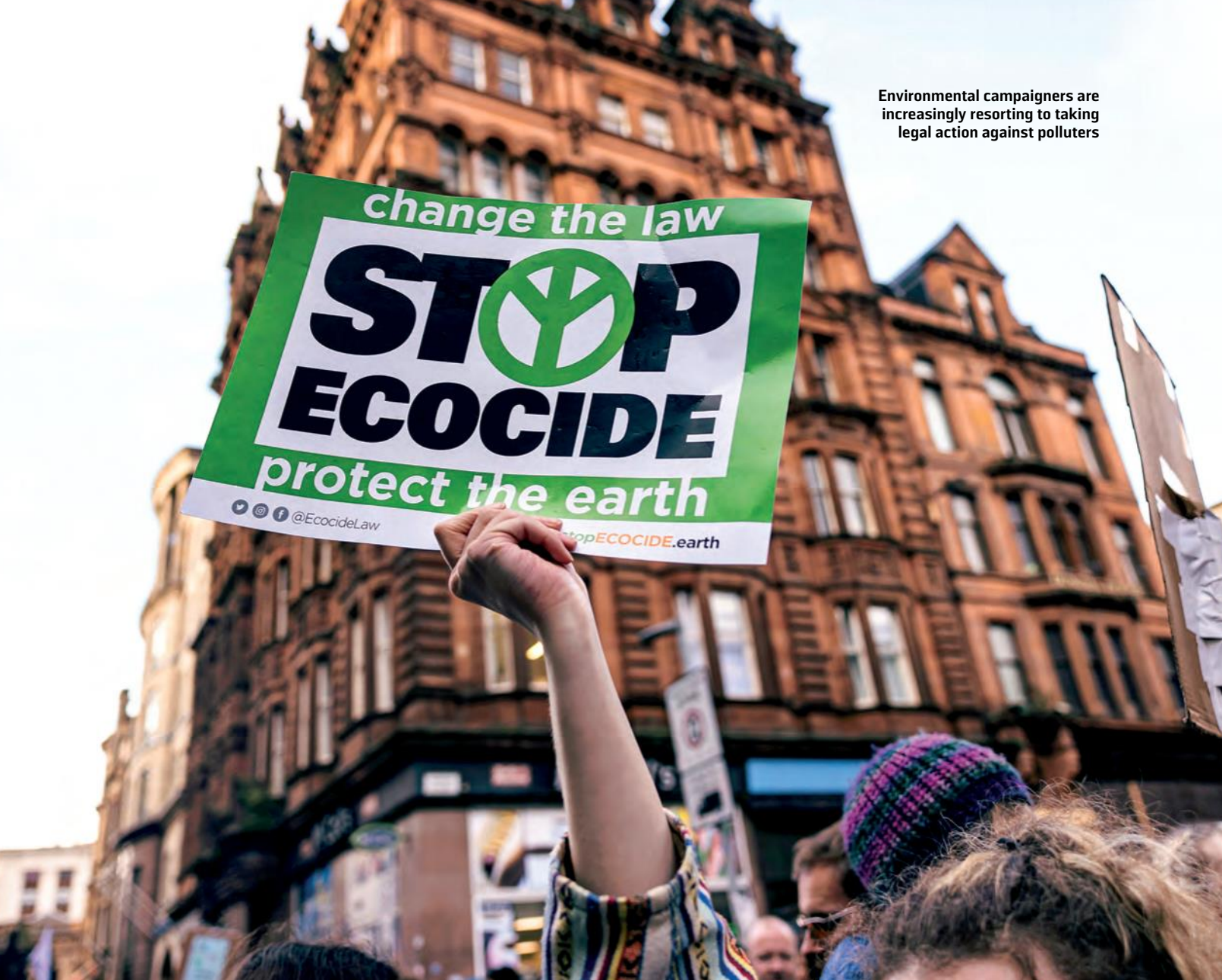
Brickell's experience isn't an anomaly, as she reveals in a new RGS-IBG-funded report written in collaboration with Alex Jeffrey, a human geography professor at the University of Cambridge, and Fiona McConnell, a political geography professor at the University of Oxford. The report draws on interviews with geographers with varied experiences of undertaking legal work, either as expert witnesses providing court testimonies, as legal consultants for research groups, or as advocates working on behalf of marginalised groups. More often than not, their work falls within the fields of environmental, social justice and human rights research.

Brickell and her colleagues found that while a wide range of geographers are engaged in work that has an important legal impact, many interviewees felt that this work is invisible, lacks support and is often physically and emotionally exhausting. '[I had] no support institutionally or from the geography community. I was in tears the evening after a one-and-a-half-day cross-examination by a very aggressive barrister,' reports one of the geographers who was interviewed. 'I think so much of the impact work that people do isn't on colleagues' radars,' says Brickell.

In addition to their already heavy workloads, many found that they were given stringent deadlines to



Environmental campaigners are increasingly resorting to taking legal action against polluters



WIRESTOCK CREATORS / SHUTTERSTOCK

provide evidence for legal use, often leaving no time to ask others for advice – if, indeed, there was anyone to whom they could turn. ‘Some of the people that we spoke to felt that they were quite unprotected; they’re standing as experts in the field, but there could be legal liabilities,’ Brickell says. ‘Sometimes there are other risks involved in taking part in legal work.’

Another problem is that it can be difficult to know whether you’re acting as an individual or on behalf of your university. ‘There’s a lot of murky water at the moment,’ Brickell adds.

One of the more complicated issues Brickell faced was having to justify her presence in the first place. ‘Why would a geographer be working on domestic violence law in Cambodia? I had to explain what human geography was and, to an extent, educate them about what ethnographic research involves,’ she says.

For Brickell, the breadth of geography is one of the wonderful things about it, and it’s precisely this that makes geographers so well placed to connect different areas of expertise. But that can be difficult to explain to laypeople, particularly those in the legal domain.

In many cases, the interviewees spoke of acting as conduits between lawmakers and community organisations. Rupert Stuart-Smith, a research associate in climate science and the law at the Oxford Sustainable

Law Programme and one of the study’s respondents, has worked closely with climate scientists and lawyers to bridge the gap between existing climate science and the evidence that’s needed for climate lawsuits. He has worked on the impact of climate change on glacial retreat in Peru in the context of an ongoing lawsuit, as well as cases that seek compensation for impacts of climate change, including mortality from heatwaves.

Brickell says that the role of geographers in courts and legal proceedings is nothing new. ‘What is new is that we’re trying to bring this work into the public realm, to showcase the breadth of geography and the breadth of different legal areas that geographers are working in. These contributions of geographers need to be celebrated and institutions should do more to support those undertaking legal impact work.’

That support could come in the form of formal training in legal procedures, legal advice and protection, psychological support and peer-to-peer mentoring through a network of geographers – although Brickell again acknowledges the existing challenges of academic workloads.

Greater publicity and recognition of the roles played by geographers, however, will be key. ‘There’s a reason we’ve called this a scoping report,’ she says. ‘There’s a lot more to do, and many more experiences to hear about. ●

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Human microbes have been found surviving in soil samples above 7,900 metres near Mount Everest

## Life in the cryosphere

■ Eight kilometres above sea level, in the windswept space between Mount Everest and its neighbouring peak, Lhotse, scientists have found that microbes left behind by humans are managing to survive the cold. ‘There is a human signature frozen in the microbiome of Everest,’ says Steve Schmidt, a professor at the University of Colorado Boulder. It’s the first time that human-associated microbes have been identified in soil samples collected above 7,900 metres and, while microbes

exist everywhere, it’s surprising to find that microorganisms that have evolved to thrive in the warm, wet environments of our noses and mouths are resilient to such harsh conditions. While the microbes are unlikely to have a significant impact on the broader environment on Everest, the researchers say that their findings could have implications for the search for life beyond Earth. ‘We might find life on other planets and cold moons,’ says Schmidt.

Bolivia's Salar de Uyuni

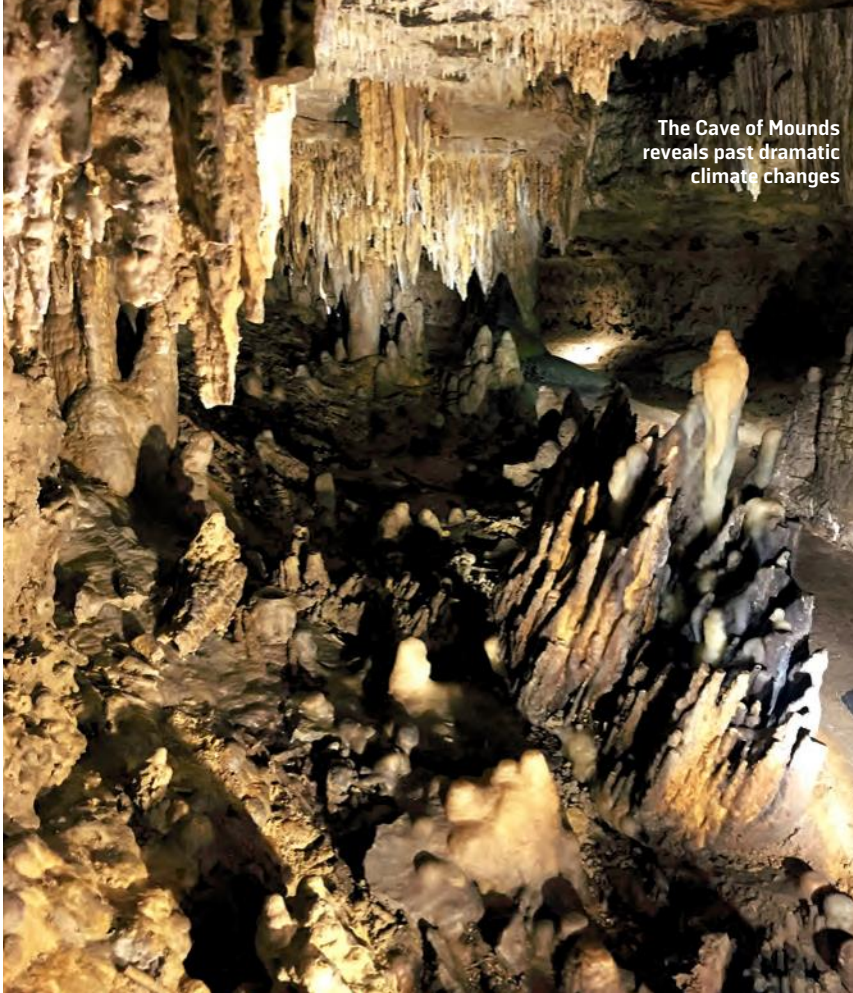
SARA WINTER/SHUTTERSTOCK

### A mystery solved

■ The planet Crait, barren and mineral-encrusted, is the fictitious setting of the final battle in *Star Wars: The Last Jedi*. Its otherworldly landscape, however, is very real. The honeycomb-patterned salt flat is actually Bolivia’s Salar de Uyuni, the world’s largest. The formation of these polygons of salt – each one consistent in size and shape, and found at similar sites elsewhere – has puzzled scientists for years. But new research has revealed how they form. Salt deserts are the remnants of old lakes and saline groundwater can often be found directly below their crust. As water evaporates from the surface, the remaining brine becomes saltier – and heavier – than the brine below, causing the water to circulate and form ridges. ‘This is a great example of curiosity-driven basic research,’ says first author Jana Lasser. ‘Nature presents us with an obvious and fascinating puzzle that stimulates our curiosity and thereby prompts us to solve it – even without any direct further possibility of application.’

## Reversing the past

■ By 2050, as much as ten gigatonnes of carbon will need to be removed from the atmosphere every year to keep global temperature rise below 1.5°C – in addition to reducing global emissions. Researchers at the US Department of Energy’s Pacific Northwest National Laboratory have cautioned that overreliance on any one method could be risky. Instead, in a study published in *Nature Climate Change*, they suggest six different carbon removal techniques, from restoring deforested land to direct air capture and storage. One of these methods, known as ‘enhanced weathering’, which involves spreading finely crushed rock across landscapes, could remove up to four gigatonnes of carbon dioxide annually. ‘If one of these technologies fails to materialise or scale up, we don’t want too many eggs in that basket,’ says lead author Jay Fuhrman.



The Cave of Mounds reveals past dramatic climate changes

SHUTTERSTOCK

## Stalagmite secrets

■ Evidence of the Earth's history can often be found in caves, painted onto walls and hidden inside dramatic rock features. One cave in Wisconsin, a tourist attraction called the Cave of the Mounds, has provided important clues about local climate going back thousands of years. Researchers at the

University of Wisconsin–Madison, who have been studying layers of calcite in one of the cave's stalagmites, have discovered for the first time how a series of dramatic climatic swings (known as Dansgaard-Oeschger events) may have affected environmental conditions across North America.

### The weight of the world

■ All the world's wild land mammals now weigh less than ten per cent of the combined weight of every human alive. A study by researchers at Israel's Weizmann Institute of Science reveals that today's wild mammals have a total mass of 22 million tonnes, compared to humanity's 390 million tonnes. At the same time, domesticated species such as livestock are 30 times the weight of wild terrestrial mammals and 15 times the weight of all marine mammals, coming in at a total of 630 million tonnes. The biomass of pigs alone is nearly double that of all wild land mammals.

## A matter of life and death

■ Almost nowhere on Earth is safe from air pollution, according to a new study in *Lancet Planetary Health*. In a study of fine particulate matter (PM2.5), researchers at Monash University in Australia found that only 0.18 per cent of the global land area and 0.001 per cent of the global population have an annual exposure lower than the guideline limit

set by the World Health Organisation. The inhalable particles come from a number of sources, including wood-burning stoves and vehicle exhaust. While annual concentrations in Europe and North America have decreased over the past two decades, the research revealed that exposure in Asia, Oceania and Latin America has increased.

## GLOBAL WATCH

Stories you may have missed from around the world

### EAST AFRICA

Cyclone Freddy earlier this year has been one of Africa's deadliest storms, killing more than 300 people across Malawi, Madagascar and Mozambique. At its strongest, Freddy was the equivalent of a Category 5 hurricane, with wind speeds exceeding 260 km/h and, lasting more than a month, it could be the longest cyclone on record.

### INDIA

India blocked access to the internet 84 times in 2022. Access was restricted at least 49 times in Kashmir due to political instability. It's the fifth year in a row that the country has implemented more internet shutdowns than any other country in the world.

### UK

The Migration Museum is moving to the City of London, where the charity will host temporary and permanent exhibitions and events that aim to explore how the movement of people to and from the UK has shaped the country and its communities.

### BRAZIL

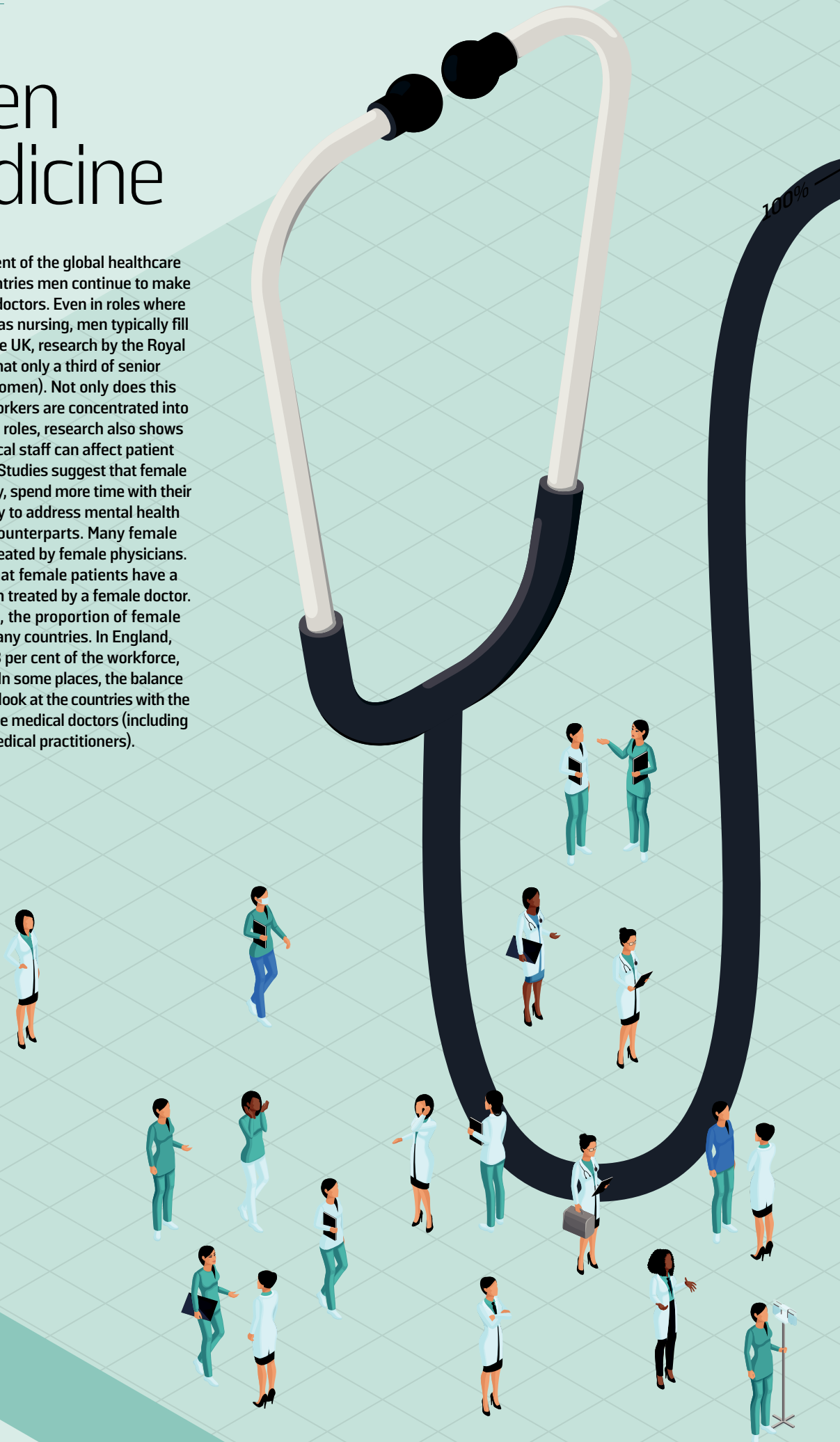
Geologists studying Brazil's volcanic Trindade Island have made a 'new and terrifying' discovery: plastic rocks. A mixture of melted plastic, thought to have originated from discarded fishing nets, sediment and other debris, has formed rocks that are dubbed 'plastiglomerates'.

### COLOMBIA

The Colombian government is considering shipping 60 hippopotamuses – descendants of drug trafficker Pablo Escobar's former pets – to wildlife sanctuaries in India or Mexico. Hippos aren't native to the country and are damaging the local rivers, which are home to capybaras and the Amazonian manatee, a vulnerable species.

# Women in medicine

Women represent 70 per cent of the global healthcare workforce, but in most countries men continue to make up the majority of medical doctors. Even in roles where women predominate, such as nursing, men typically fill more senior positions (in the UK, research by the Royal College of Nursing shows that only a third of senior nursing roles are held by women). Not only does this mean that female health workers are concentrated into lower status and lower paid roles, research also shows that gender balance in clinical staff can affect patient outcomes and satisfaction. Studies suggest that female doctors show more empathy, spend more time with their patients, and are more likely to address mental health concerns than their male counterparts. Many female patients also prefer to be treated by female physicians. One study even revealed that female patients have a lower rate of mortality when treated by a female doctor. Over the past two decades, the proportion of female doctors has increased in many countries. In England, female doctors make up 48 per cent of the workforce, in Scotland it's 53 per cent. In some places, the balance has even reversed. Here, we look at the countries with the highest percentage of female medical doctors (including generalist and specialist medical practitioners).



**BOSNIA & HERZEGOVINA**

**87.7%**



**ZAMBIA**

**81.6%**



**GEORGIA**

**73.9%**



**ESTONIA**

**72.5%**



**RUSSIA**

**70.5%**



**MONGOLIA**

**80.7%**



**BELARUS**

**72.5%**



**ARMENIA**

**69.5%**



**CROATIA**

**67.5%**

## Brain Drain

Overall, the African continent suffers from a shortage of healthcare workers, particularly in sub-Saharan Africa. One key driver of this shortage has been the mass emigration of African health workers to countries such as the UK and the US; an OECD census in 2007 revealed that Africa has the highest percentage of migrating women with a tertiary education. The African region has a smaller proportion of female doctors than the global average – just 28 per cent. However, several countries have achieved gender parity, including Benin, Mozambique, Senegal, South Africa and Tunisia. Others, such as Zambia, where just 18.45 per cent of doctors are men, and Madagascar, where 70.8 per cent of doctors are women, have managed to reverse the trend.



## Reversing the gender gap

In Mongolia, women are the majority in all areas of healthcare. From doctors and nurses to radiologists and lab technicians, they make up 82.3 per cent of the workforce. This 'reverse gender gap' goes beyond the healthcare sector too, as more and more rural families are sending their daughters to schools in the cities. On average, Mongolian women are more educated than men (60 per cent of university graduates are female), they are less likely to be unemployed, and they live longer – by up to a decade.

**PERCENTAGE OF DOCTORS WHO ARE FEMALE**



**INDIA**

**14.2%**

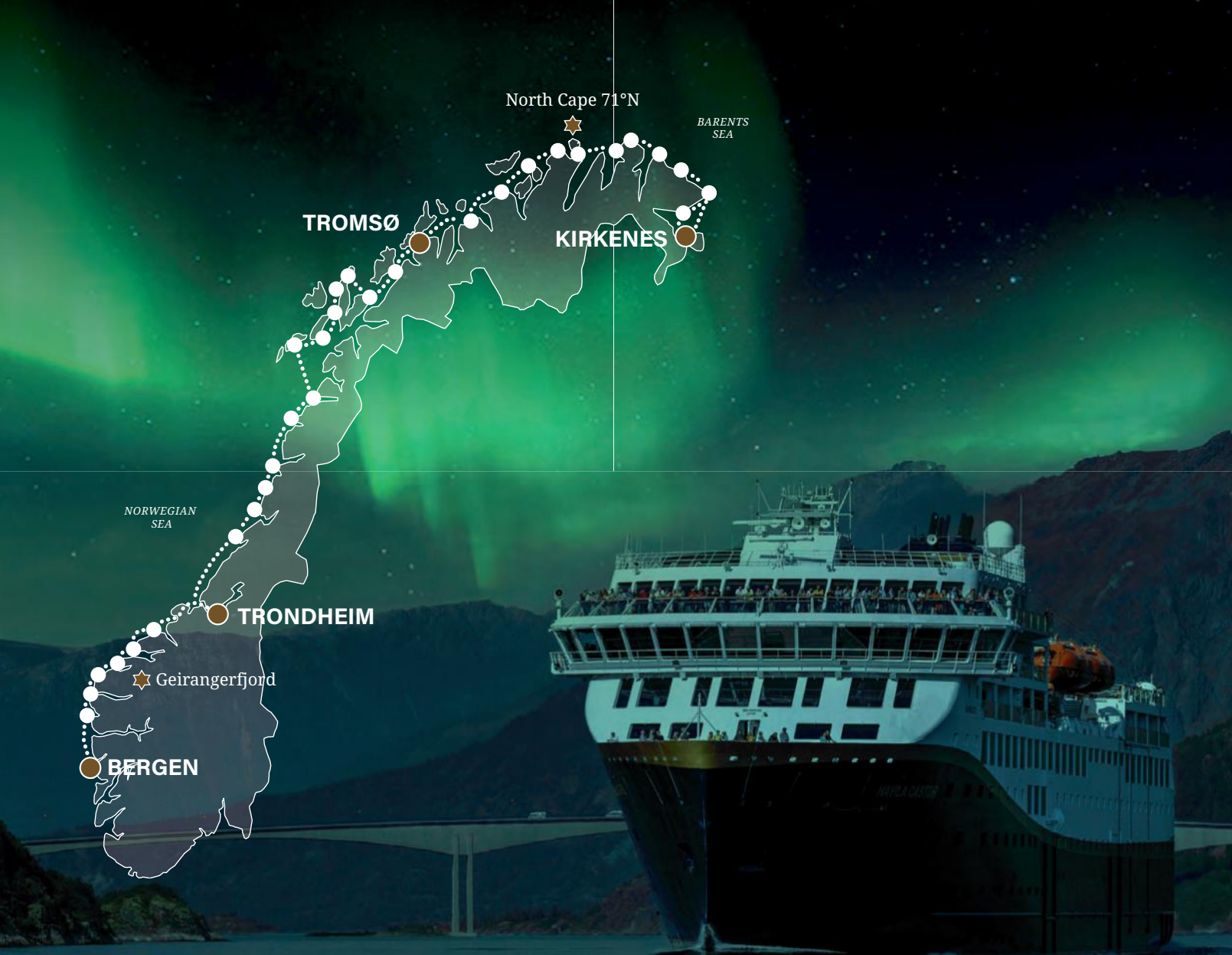
Roughly half of all entrants to Indian medical schools are women, but the challenge of balancing long hours and family responsibilities means many don't enter the profession.



**JAPAN**

**10.2%**

In 2018, Tokyo Medical University admitted to manipulating women applicant's entrance exam scores for years to restrict the number of female doctors



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**VOYAGES**

# Here's a headline to gladden the heart: 'New agenda sets sail with bold action as UN Water Conference closes'. If only it were true

The headline's real enough, but only one of the four things it states stands up to scrutiny. The UN 2023 Water Conference did not have a new agenda, what was agreed hasn't set sail and most of the proposals, bold or otherwise, won't be actioned. The conference did close, though.

This isn't the fault of the delegates. The meeting at UN HQ in New York brought together people passionate about safeguarding this most precious of natural resources. They spend their lives working to combat drought and to help bring safe drinking water to the 2.2 billion people who still lack access to it. Many are experts in their field, anxious to create a global framework for water security akin to the (admittedly flawed) Paris 2015 climate change agreement.

The event was only the second water conference the UN has ever held. The first was 46 years ago. It took place against the backdrop of a drought across parts of East Africa and warnings that climate change will exacerbate water shortages and create interstate tensions across the globe. Several hundred thousand people die each year from diseases related to contaminated water.

It began with lofty promises about a 'milestone' action plan and a declaration by UN Secretary-General Antonio Guterres that 'water needs to be at the centre of the global political agenda'. If so, why was the conference only three days long rather than the two weeks such gatherings often enjoy, and why was it only the first such gathering in almost half a century?

It had been agreed that no political declaration would be made. Instead, there was a non-binding Water Action Plan with no timeline for delivery. It garnered more than 700 commitments from NGOs, local and national governments, UN bodies and several major companies. A massive US\$300 billion was pledged and while some of that may indeed appear, the



**Tim Marshall on the gathering of the world's water experts that failed to make a splash**



probability is that there will need to be a warning: 'Mind the gap.'

Much of the plan amounts to a wishlist, but within the 700-plus commitments are well-costed and -planned projects. Among them is an agreement between the Niger River Basin Authority and the German government. Together, they hope to restore wetlands and implement climate change adaptation measures within the river basin, which is home to about 160 million people across nine countries. The project has a detailed blueprint and a budget of US\$21 million through to 2029.

This is an example of recognising that water is often a cross-boundary issue and its scarcity a driver of conflict. Several Niger River basin

countries are at the heart of the conflicts currently tearing the Sahel region apart. Very few of the other commitments targeted issues that require the buy-in of multiple governments, nor did they identify where funding would come from. Only about a quarter of the promises were made by governments, a fact reflected in the attendance of only a handful of national leaders.

A letter signed by more than 100 water experts from around the world was sent to Guterres and the presidents of the water conference, warning that without binding commitments, their agenda risked irrelevance. The voluntary commitments, it said, lacked scientific rigour and would likely suffer from woefully low levels of accountability. The proposals were disparate and uncoordinated, and could 'further fracture an already fragmented sector'. The experts' call to arms was far more rooted in reality than the speeches of the UN grandees. They wrote: 'Conference must set in train action to establish a new transnational water governance regime to set ground rules, arbitrate fair water use, and to bolster authority, transparency, accountability and participation at regional, national, and local scales.'

It didn't. But nor was it a complete failure. Some real-life improvements will come out of the meeting and there was an exchange of knowledge and ideas, but it was hardly a 'milestone' and far from the 'centre of the global political agenda'.

Forty-six years after the first water conference, Li Junhua, under-secretary-general for economic and social affairs, told delegates: 'This is just the beginning.' And then undermined his statement by saying: 'The outcome of this conference is not a legally binding document, but it still turns the page of history.'

It didn't turn the pages of the media around the world; in fact it was mostly ignored. The headline at the top? It's from a UN website.

# The warnings are clear

Continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5°C in the near term in considered scenarios and modelled pathways. Every increment of global warming will intensify multiple and concurrent hazards. Deep, rapid and sustained reductions in greenhouse gas emissions would lead to a discernible slowdown in global warming within around two decades, and also to discernible changes in atmospheric composition within a few years.' Signed: the world's leading experts on climate.

In its sixth Assessment Report, recently unveiled, the IPCC has once again raised the bar for its concerns. The Intergovernmental Panel on Climate Change, established by the United Nations in 1988 and recipient of a Nobel Peace Prize in 2007, has published one of these assessments every five to seven years, each exhibiting a growing sense of concern. Comprised of hundreds of scientists and dozens of research centres, the IPCC has traditionally been cautious in making prognoses about our planet's fever. As a result, its reports are usually peppered with parentheticals carrying a confidence rating in italics.

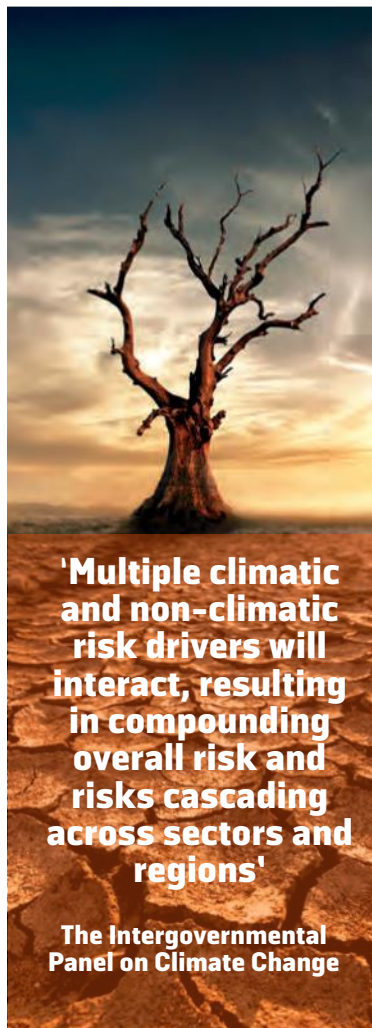
The opening quote above is marked 'high confidence.' This is another way to say that it will be nearly impossible to keep the historical temperature increase below the famous 1.5°C threshold in the Paris Agreement. Every 0.1°C above that, a worsening of extreme-weather events is to be expected. However, with 'deep, rapid, and sustained' emission cuts, the warming would slow down within 20 years.

## Other short-term predictions include the following:

- Increases in climate hazards (medium to high confidence, depending on region and hazard).
- Flooding in coastal and other low-lying cities and regions (high confidence).



**Marco Magrini is mystified: why are they being ignored?**



- A decrease in food production in some regions (high confidence).
- An increase in frequency and intensity of heavy precipitation (high confidence) that will magnify rain-generated local flooding (medium confidence).

It's over the long term that the IPCC's prudent evaluations get dire. First, with further warming, 'climate change risks will become increasingly complex and more difficult to manage'. Second, the chance of triggering nasty feedbacks will grow: 'Multiple climatic and non-climatic risk drivers will interact, resulting in compounding overall risk and risks cascading across sectors and regions,' the Summary for Policymakers reads. For example, climate-driven food insecurity and supply instability are projected to increase with mounting warming.

There is a surreal side to these assessments. The Intergovernmental Panel on Climate Change is, well, intergovernmental. This means that the all of the 195 participating governments have the right to put their fingers in the works. In particular, the Summary for Policymakers – the introduction to every Assessment Report – is regularly discussed, battled over and often redacted by representatives of those 195 governments. In the past, I have covered four presentations of IPCC reports, and every time there was some 11th-hour bargaining over nouns and adjectives. It happened again in late March in Switzerland. In the end, however, a final text was agreed upon.

It's the same with the text quoted above. Signed by science and countersigned by the world's governments, it declares that anthropogenic climate change is a harsh reality that will endanger life on Earth and that time is running out to prevent runaway consequences and yet a series of immediate actions will alleviate the risks with time.

It's most likely (high confidence) that the prospect of witnessing the results of today's investments will come two decades later. That may not be appealing to most governments; depending on the country, that timeframe equates to three to five electoral cycles. That being said, why should they quarrel about the wording of warnings they don't listen to? It remains a mystery!



# How geography matters in understanding the politics of lingering antisemitism

Why does the struggle against racism too often ignore today's antisemitism? And why is there a hurtful thread of anti-Jewish racism on the Left of politics? On both of these questions, geography matters.

Central to anti-Jewish racism is the idea of 'the hidden hand'. Here the Jews are represented as secretly and harmfully manipulating the course of humanity on a global scale. Invisible Jewish power is imagined to be everywhere and anywhere. While past anti-Jewish racism, prior to the formation of the nation-state of Israel in 1948, regarded the Jews as the enemy within the nation-state, after Israel's occupation of the West Bank and Gaza Strip from 1967, Israel has come to be seen as the enemy nation-state that represents the ills of nationalism.

A dominant tendency of anti-racist analysis understands racism exclusively as the product of colonialism, specifically, as the colonial and postcolonial dominance of the global West over the global East (or, of the global North over the global South). This colonial model of racism effectively does two things to antisemitism: one, it banishes the history of anti-Jewish racism that intersected with the development of nationalism in Europe and culminated in the Holocaust; and two, it views Zionism (that is, Jewish nationalism) as the latecomer and outlier of colonial racism in a decolonising world. All too often on the Left, this notion of Zionism as racism slides into the antisemitic idea that the Jewish collective, represented by Israel, is the crucible of globalising harm and ills, which is inventing and exporting methods of oppression worldwide.

So, through an anti-racist colonial model of racism and the racist idea that the Jews are harmful to humanity, antisemitism as a form



**Camila Bassi challenges the assumptions still being used that perpetuate anti-Jewish racism**

of racism disappears and Zionism becomes an exceptionally deplorable vanguard of racism. Anti-Jewish racism on the Left manifests in the demand put on Jewish people that they publicly denounce their cultural affiliation to Israel and call for Israel's complete dismantlement. Jewish people who refuse to do so, including those who are critical of the Israeli state's repression of the Palestinians, are damned as racist Zionists and made outcasts of the Left. And Jewish people who raise a complaint of antisemitism on the Left are dismissed as fabricating their complaint to mask the real racism of Israel.

How do we move beyond this impasse? Through a wider geographical and historical perspective that reflects a genuine universalism.

In 1948, Israeli Jews took up their basic democratic right to national self-determination – a right of all self-defined groups of people to form a nation-state. The critical mass of Jewish people who made Israel a reality in 1948 were fleeing from murderous antisemitism in Europe and were denied emigration elsewhere in the West. It was also the moment when Palestinian Arabs were denied their basic democratic right to national self-determination

on the same territory. The territory that Israeli Jews declared as their national homeland was the home of the Palestinian Arabs. This is the tragedy and the wrong that was done. Acknowledging this wrong is important. Alas, in the history of the formation of nation-states, promises and betrayals, winners and losers, bloodshed, exile and exclusion are universal wrongdoings, not unique crimes of Israel alone.

In 1967, as an outcome of the June Six-day War between Israel and neighbouring Arab states, the Israeli state commenced its occupation of the West Bank and Gaza Strip. For much of the Left, the rallying cry, 'Free Palestine!', means the destruction of Israel on its 1948 borders, not the end of the post-1967 occupation. The wrong of 1948, however, cannot be corrected today by demanding another wrong that would be calamitous. Palestinian Arabs are nonetheless fully justified in their longstanding claim for an independent nation-state and meaningful compensation for the refugees from 1948. The realisation of a Palestinian nation-state alongside Israel, on the territory that Israel has occupied since 1967, would be a huge step towards peace and reconciliation.

Challenging all forms of social oppression and injustice necessitates a universal emancipatory politics that rules out no-one as unworthy of solidarity and belonging. Justice for the Palestinians doesn't mean singling out Jewish people as an exceptional harm to humanity (unless they can prove themselves otherwise), it requires a belief that the global human collective has more in common than what presently divides us.

**Dr Camila Bassi is a senior lecturer in human geography at Sheffield Hallam University and the author of *Outcast: How Jews Were Banished from the Anti-Racist Imagination* (to be published on 15 June 2023)**





# TRACKING DOWN THE YETI

For generations, stories of giant ape-like creatures roaming the wilds of the Himalaya have persisted. Recent discoveries suggest there's a very plausible explanation...

Words and photographs Stuart Butler

A Nepalese monastery painting of a yeti bringing food to a meditating monk

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obody in my family has spoken about this for a long time. The last time we talked about it to strangers, bad things happened. My mother got very sick and my sister died of an illness. Perhaps it was a curse. But, since then, nobody in my family has spoken about the yeti again.' A keen gardener, Dawa Yanji Sherpa was sat on a wooden bench in her home in the Nepalese mountain village of Khunde surrounded by the shocking pink and purple flowers of dozens of delicate potted plants. 'It all happened a long time ago. Back when I was very small, so I don't remember it myself, but my mother has told me what happened.' She paused, as if she wasn't sure whether to continue. 'My mother had taken the yaks further up the valley to a place called Machhermo. Today there is a village there, but back then, it was just a summer pasture for the animals and she was there on her own. The yeti came from behind, grabbed her by the hair and threw her maybe five or ten metres across the ground. She hit her head on a rock when she landed and fell unconscious for a few minutes. When she woke up, she saw that the yeti had killed two of the yaks by splitting their heads open, and as she watched, she saw it lick the blood out of the skull of one of the dead yaks. My mother stayed very still until the yeti left and then she ran back down the mountain to the village.'

The yeti, the abominable snowman, a creature, a myth, a spirit, a human-like ape or a figment of the imagination. Whatever the yeti is – or is not – it has become Himalayan and Hollywood folklore. To many, the mere thought of a giant, undiscovered ape-like creature roaming the Himalaya is intriguing – perhaps exciting and strangely desirable – but in the end, laughable. However, for many people living in the Himalaya, Tibet and parts of highland Central Asia – all places where yetis are supposed to live – the yeti is a very rare, but real flesh-and-bones creature



A masked dancer in Bhutan represents Mahakala, who frightens away bad spirits, demons and creatures such as the yeti



Dawa Yanji Sherpa tells the story of her mother's encounter with a yeti



A Buddhist shrine. The remote upper reaches of the Himalaya are said to be home to yetis



Shrine near Kanjin Gumpa. Upper part of the valley is home to a number of yetis

(although often with supernatural powers that allow it to move undetected and disappear at will) that should be accorded all the protection of any other rare species. Indeed, in the tiny Himalayan Kingdom of Bhutan, a huge swathe of the densely forested and mountainous east of the country has been set aside as a national park with the specific aim of providing the yetis, who are said to be abundant in the region, with a safe area.

So, what actually was it that attacked Dawa Yanji Sherpa's mother all those years ago? Well, the answer seems to depend upon whom you ask. Stories of large, hairy ape-like creatures that walk upright like a human inhabiting remote parts of the Himalaya have been around for a long time. A creature or spirit that roughly matches up with our modern idea of the yeti was a part of the pre-Buddhist mythology of several Himalayan peoples. Once Buddhism became the dominant religion

A large Buddhist temple complex near Tagong in eastern Tibet



The stuffed paw of a rare blue bear in a monastery in eastern Tibet



in so much of the Himalaya and Tibet, the idea of the yeti was carried over into Buddhist mythology, and there are a number of tales of yetis helping important religious figures. In the part of Nepal where Dawa Yanji Sherpa lives, a story is commonly told about the accomplished Buddhist Master Lama Sange Dorje, who lived around 600 years ago and spent much of his time meditating in remote caves. It's said that to aid him in his meditation, he had an assistant who brought him food and water from a nearby river. That assistant was a yeti. One day, as the yeti crossed over a fold in the upper valley carrying water for Sange Dorje, it was killed by a rockfall. When Lama Sange Dorje finished meditating, he returned down the valley, bringing the hand and scalp of the yeti with him. Those yeti relics can still be seen today in a Buddhist monastery in the village of Pangboche, where the sharply domed, reddish scalp is held in pride of place in a glass display case just inside the entrance to the monastery.

A friendly yeti who helps spiritually pure humans? That doesn't fit with the description of the creature that attacked Dawa Yanji Sherpa's mother. But, according to those who live in yeti country, there are three different kinds of yeti and not all are inherently dangerous. The Rang Shim Bombo is the yeti you have to fear the least if met on a dark Himalayan night. Living in the dense forests that predominate at about 3,000–3,500 metres, it's only about a metre to a metre and a half tall, has a coat of rust-red fur and isn't generally considered a threat to people. Perhaps this was the kind that helped our meditating lama? The next kind of yeti, the Chuti is more formidable, with a big male said to stand over two metres tall. The third is the scariest of all. The dark-haired Nylamo can be more than two and a half metres tall and has a decidedly aggressive manner. These live above the tree line out in the wilds of the high mountains and are said to enjoy snacking on yaks. Perhaps this is the beast that attacked Dawa Yanji Sherpa's mother.

The three different yeti 'species' described above all

In 1935, a German-Dutch palaeontologist was rummaging around a Chinese apothecary shop when he came across the oversized molar of an ape...

sound suspiciously like a type of ape. So, have any large apes ever existed that might have led to the myth of the yeti? The answer is yes and no. In 1935, a German-Dutch palaeontologist was rummaging about in a Chinese apothecary shop when he came across the oversized molar of an ape that was unknown to science. Later named *Gigantopithecus blacki*, this creature, which died out some 350,000 years ago, was a huge, bulky ape with rusty-red hair that stood over three metres high. A wave of media excitement spread. Could a relict population still exist in the Himalaya? Unfortunately, that turned out to be unlikely because while many *G. blacki* bones have been discovered in southeastern China, none have ever been found in the vicinity of the Himalaya. But, while *G. blacki* never lived in the Himalaya, there is an ape that definitely did live in the forests of the eastern Himalaya – and much more recently. Today, orangutans, a name that, intriguingly, means 'person of the forest' in Malay, live only in parts of Borneo and Sumatra. But, 10,000 years ago, they ranged much more extensively across Asia, including right up into the Himalayan

The 600-year-old remains of  
Lama Sange Dorje's 'assistant'  
in the monastery in the village  
of Pangboche in Nepal

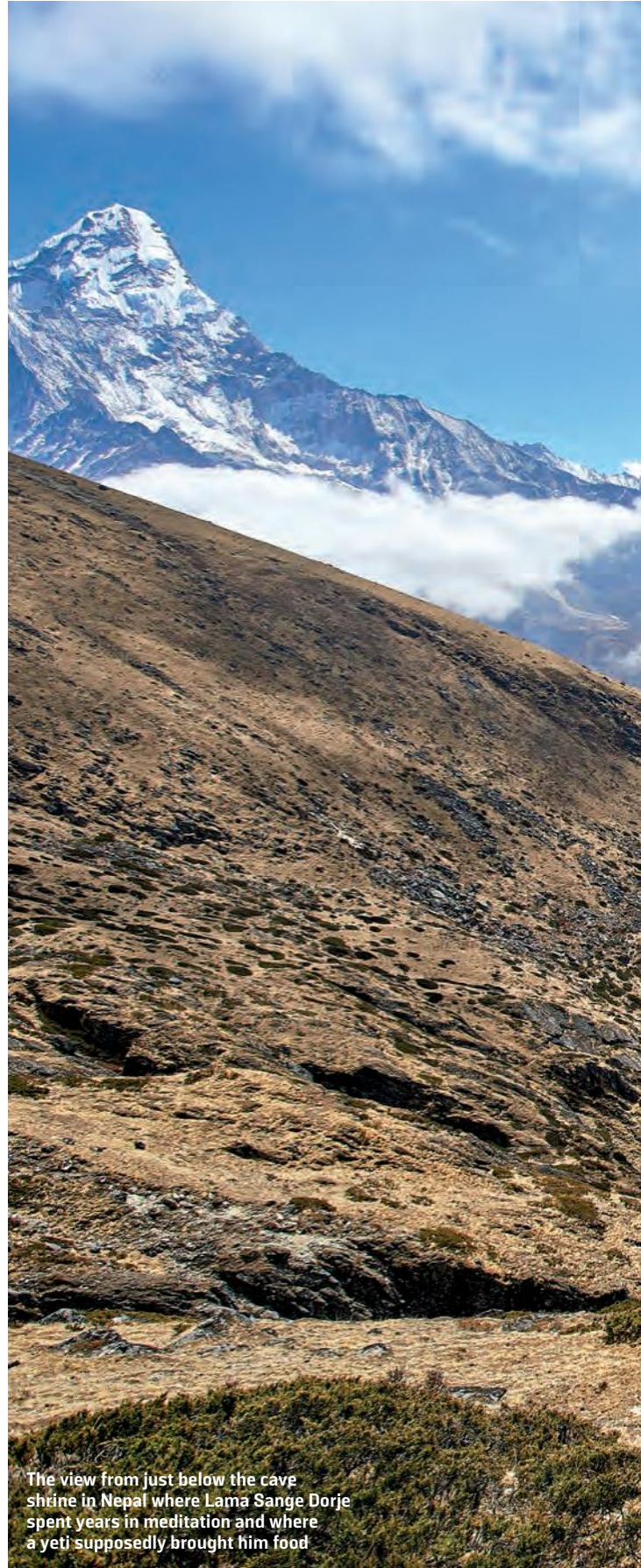


Yaks are said to be the favourite food of the Nylamo, the largest of the three types of yeti believed to roam the Himalaya



foothills. Humans were definitely present in the Himalaya at this time, so could the legend of the yeti stem from an ingrained memory of these animals? It's even possible that the legend of the yeti is based on handed-down tales from when the earliest *Homo sapiens* in the Himalaya shared the mountains with other hominids.

These theories don't account for the creature that attacked Dawa Yanji Sherpa's mother. However, there's another type of creature that's very much alive, lives in the Himalaya and is known to attack people and yaks. Over the years, many different hair samples and relics from 'yetis' (including those in the monastery in Pangboche) have been discovered. But, after scientific analysis, almost all have turned out to come not from a yeti, nor even from a giant ape. Instead, they've invariably come from a bear. Several different kinds of bear live in the Himalaya and Tibet. Most are one of a multitude of brown bear subspecies and sometimes – such as with the fabled Tibetan blue bear – they are very rare indeed. In fact, up until 2019, the Tibetan blue bear, about which we know almost nothing, was considered, at best, critically endangered and, at worst, extinct in the wild. But, in that year there were a couple of confirmed sightings in different parts of Tibet and the Himalaya. Indeed, while visiting a monastery that year in a densely



The view from just below the cave shrine in Nepal where Lama Sange Dorje spent years in meditation and where a yeti supposedly brought him food







The monastery complex in eastern Tibet where a monk showed the author video footage of Tibetan blue bears – the animal that could be the source of the yeti legend



A Tibetan family in their home in a very remote region of eastern Tibet. The thick forests in this region are known to be home to bears



A mural on a monastery wall in Bhutan of a yeti being chased by a snow lion and a tiger

forested valley in a remote corner of eastern Tibet, a monk I met gave me video footage of a female blue bear and her cubs that had been filmed just two weeks earlier. The monk explained how these bears hadn't been seen for many years, but they had recently made a sudden reappearance and had become bold and aggressive enough to have started killing yaks and entering nomad tents. Classic yeti behaviour! Then, Madhu Chetai, a wildlife researcher from Nepal, captured camera-trap footage of bears in a Nepalese mountain valley. Although bears were suspected to live in the Nepalese Himalaya, they actually hadn't been officially recorded until that moment. But what makes this sighting so interesting is that local people had talked of the presence of yetis in the valley for years. They even provided Chetai with 'yeti' hair samples and showed him footprints. And in all cases, the samples turned out to be from bears.

So, is the yeti nothing more than a rare species of bear living in the remotest folds of the Himalaya? Quite possibly. After all, bears do occasionally stand on their hind legs, and they will attack people. So, imagine, just for an instant, that you were a shepherd out alone in

Local people talked about the presence of yetis in the valley for years. They even provided Chetai with 'yeti' hair samples and showed him footprints

a remote valley, just like Dawa Yanji Sherpa's mother was. Or that you were a mountaineer on a cold, stormy evening, feeling a little delirious from the high altitude. And suddenly, emerging out of the haze of a snowstorm comes a large, aggressive shaggy creature walking on its hind legs. Reality says it's a bear, but your mind tells you that what you have just seen is nothing less than the yeti of legend. In our minds, in our dreams, in our desire for the unknown, the yeti lives. And scientists call it a bear. ●

*\* The author would like to thank Baburam Kc and Yubraj Basnet for translation skills and the very professional Third Rock Adventures ([thirdrockadventures.com](http://thirdrockadventures.com)), for logistical support throughout Nepal and the Himalaya*



# IS THERE A WAY BACK FOR THE AMAZON?

Jair Bolsonaro may have left the stage, but the battle to safeguard the Amazon is as urgent as ever. Hopes are high that rampant deforestation has come to an end, and new Brazilian president Luiz Inácio Lula da Silva has a vision to both conserve and harvest the Amazon's resources. But can he keep everybody onside?

Mark Rowe reports

Smoke rises from burning forest in Jamanxim National Park in Pará, northern Brazil



MARCO ISENSE/SHUTTERSTOCK

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razil is back' proclaimed Luiz Inácio Lula da Silva after his victory in last year's general election. Lula ousted the incumbent, Jair Bolsonaro, who had all but taken his personal chainsaw to the Amazon Basin's rainforest during four years in office. As Lula declared an aim to achieve zero deforestation in the Amazon by 2030, his supporters, NGOs and, perhaps above all, the forest peoples of the Amazon, breathed a collective sigh of relief.

Yet you would be mistaken if you thought that the Amazon will now return to a pre-Lapsarian world where logging is halted and the infinitely complex, if battered, chains that hold the ecosystem together are left to naturally regenerate. In the real world, Lula must address fiercely competing and vested interests and, although it's a long way out, have an eye on the next election.

#### THE DAMAGE DONE

The 'Trump of the Tropics' lived up to his moniker, causing meaningful harm to the rainforest, its inhabitants and institutional protective structures.

'Bolsonaro objectively did a lot of damage,' says Rhett A Butler, founder and CEO of Mongabay, the online conservation and science platform. The annual rate of deforestation in the Amazon surged nearly 60 per cent during his administration (according to InfoAmazonia, Lula cut deforestation by 70 per cent in his first term of office from 2003 to 2010). 'More significantly, there was a major rollback of environmental law enforcement, tacit endorsement of forest conversion through both rhetoric and forgiving past illegal deforestation, and a hollowing out of institutions that previously played a critical role in protecting the Amazon.'

Bolsonaro also dismembered the environment ministry, diluting laws that required Amazonian landowners to conserve up to 80 per cent of their land as forest. 'Through speeches, acts and measures, Bolsonaro demonstrated his contempt for environmental protection agencies, Indigenous peoples, environmental activists and democracy,' says Luiza Lima, public policy campaigner for Greenpeace Brazil. In a blunt condemnation of the former president's actions, she adds: 'It had inconceivable and drastic consequences – notably the explosion of deforestation, illegality, impunity and violence.'

Prosecutions fell off a cliff; just 40 cubic metres of illegal timber, equal to ten large trees, were confiscated in the first four months of 2019 (25,000 cubic metres were seized in 2018). The Chico Mendes Institute, Brazil's leading environmental enforcement agency, had to announce in advance the time and location of its raids on illegal loggers. When National Institute for Space Research satellite data showed increased deforestation, Bolsonaro accused the institute of lying and fired its director.

#### ELECTIONS AND LOGGING TRENDS

- A cynic might be forgiven for suspecting that a logging company might speed up activity if it suspected that a forthcoming election might result in a stricter regime. Activity might also increase if a candidate thinks that supporting logging will secure key votes.

And indeed, emerging evidence suggests that elections can play an important role in shaping deforestation rates. In a 2022 paper, 'The role of elections as drivers of tropical deforestation', published in *Biological Conservation*, researchers from the Universities of Amsterdam and Nairobi, and others noted how the rate of deforestation increased when a forthcoming election was expected to be close-run; and that uncompetitive elections were associated with lower deforestation rates than non-election years. They compiled a pantropical analysis – an annual database from 2001 to 2018 – on political elections and forest loss for 55 tropical nations and modelled the effect of elections on deforestation. In total, 1.5 million square kilometres of forest were lost during this time period, especially in the Amazon, the Congo Basin and Southeast Asia. Deforestation was significantly lower in years with uncompetitive lower

chamber elections compared to competitive elections. A study in the Brazilian Amazon found that municipal-level deforestation was 8–10 per cent higher in years when there was a municipal election. Moreover, a similar increase in deforestation was also found during the national elections in Brazil's Atlantic forest biome.

'Election theory suggests that politicians should utilise all avenues possible to win support and favour in the lead up to an election, which includes giving away or promising forested land for development, or turning a blind eye to forest exploitation,' the authors write. Equally, a process of 'make hay while the sun shines' (or 'cut trees while you can') may apply when a pro-logging incumbent is under pressure.

This phenomenon isn't limited to Brazil. During gubernatorial elections in the USA, governors are more likely to advance or retract environmental policy based on the preferences of their voters.

The authors urge electoral-management bodies and conservation groups to be vigilant during competitive elections, 'because forests and other natural resources could be traded for votes.'

Jair Bolsonaro all but took his own personal chainsaw to the Amazon rainforest during his four years in office



**An illegal gold mine in the heart of the Amazon. Such mines devastate the surrounding area, with forest destroyed and the river polluted with mercury**

Widespread intimidation was effectively condoned. 'Violence in the countryside was the main factor for NGOs reducing their work,' says Greenpeace's Lima. 'Many NGOs and social movements had to change their ways of working in order to guarantee the physical security of their members.' In 2020, 20 people were murdered in relation to defending environmental and human rights in the Brazilian Amazon.

'The harsh rhetoric against civil society and climate of impunity during Bolsonaro's presidency probably contributed to the increase in violence and threats,' says Butler. 'Bolsonaro's decision to jettison the Amazon Fund [a mechanism for foreign governments to help pay for preservation efforts] directly impacted the availability of financial resources for groups working to protect the Amazon.'

### THE LOW POINT

This supertanker will take time to turn – barely a month after Lula took office, Brazilian Amazon deforestation reached its worst-ever February level, when surveillance satellites detected 209 square kilometres of forest destroyed, an area equivalent to about 30,000 football fields. At least 600 infrastructure projects are operating along rivers in the Amazon, with 20 road projects being planned and more than 400 dams operating or in the planning stage. Meanwhile, gold mining operations continue to clear forest and dump harmful chemicals such as mercury into the water, according to WWF. At least 25,000 miners flocked into the forest-dwelling Yanomami's tribal territory to mine for gold during Bolsonaro's rule. Hundreds of Yanomami are thought to have died from pollution and illness during Bolsonaro's term in office.

'The Amazon rainforest can recover under the right conditions provided it is given time and the chance to do so,' adds Butler. 'However, the dismantling of environmental regulations and norms will be challenging to overcome, given the degree of the

CRAZY OWL PRODUCTIONS/SHUTTERSTOCK



damage wrought to institutions and the current toxicity of political discourse.'

### A NEW DAWN?

The mood, however, is tentatively upbeat. 'Lula's election has created a ripple of hope and excitement,' says Ani Dasgupta, president of the World Resources Institute (WRI). On Lula's first day back in office,



PARALAXIS/SHUTTERSTOCK





SHUTTERSTOCK

## IN NUMBERS...

According to Greenpeace Brazil, **45,586 sq km** of Amazon forest was destroyed over the past four years.

**372,519 ha** of public forests and **28,248 ha** of Indigenous lands were deforested between July 2021 and August 2022 alone.

Forest fires increased by **218%**, and in 2021, a record **900 sq km** of fire hotspots were seen in the Amazon in October, according to Brazil's Space Research Institute. In 2022, at least **9,300 sq km** were burned.

Greenhouse gas emissions from land-use change and forest loss increased by **18.5%** in Brazil in 2021, according to Climate Observatory, a network of civil society organisations.

The Amazon biome still holds **123 billion tonnes** of carbon, more than three times annual human emissions. According to WWF, the Brazilian part (three-fifths of the total) is on the verge of becoming a net emitter rather than a carbon sink.

**13%** of the Amazon has been destroyed and **17%** highly degraded – approaching a tipping point beyond which the forest will lose its capacity for self-regeneration and could transition to dry savannah.

he rebooted the frozen Amazon Fund, which holds £385 million; re-appointed Marina Silva, his old environment minister; and appointed Sônia Guajajara to lead Brazil's first-ever Ministry of Indigenous Peoples. In February, Lula made it clear he intended to improve the health of the rainforest and those who lived there, targeting the tens of thousands of illegal miners in the Yanomami territory, with special forces

environmental operatives destroying aircraft and seizing weapons.

Lima describes Lula's first steps as 'positive, good beginnings'. The real challenge, she acknowledges is just how quickly he can move. 'It's important to turn decisions into action and rebuilding so that they bring results at the impact and speed that the climate crisis, social and environmental issues require for our entire society.'



Trees being burnt to make way for cattle pasture

**COMPETING INTERESTS REMAIN**

Yet the future seems as hazy as the smoke over an illegally cleared tract of rainforest. Illegal logging didn't start with Bolsonaro and won't end now that he has gone – he simply spent four years making an awful situation far, far worse. For years, there had been widespread impunity for all types of crime, including deforestation, illegal mining, land-grabbing, biopiracy and animal trafficking, while individuals and companies had long been accustomed to cultivating permissive relationships with authorities. The agricultural sector has become key to the country's foreign trade portfolio in recent decades, something that must somehow be aligned with the need to rein in the deforestation that has cleared thousands of hectares of jungle to create new pastures for cattle.

'The challenges Lula faces today are greater than in his first terms, and he knows it,' says Lima. 'Unfortunately, driven by Bolsonaro, environmental crime in the Amazon today is in very large proportions, with large gangs that spent four years legitimised by the then-president acting in an organised, violent and dangerous way.'

Many, including Lima, are mindful of what she calls the 'extreme right in the country, which mobilises its followers through fake news and distortions of reality'. Additionally, the pro-deforestation faction in Brazil's Congress is still strong, despite Bolsonaro's defeat. As Dasgupta points out, Lula won the election but didn't win a majority in every part of the government. 'He will have to work with a range of interests to achieve much,' he says. 'We actually need a different approach for protecting forests that takes the whole economy of the Amazon and other forests into account and find a solution that's not just better for trees, but better for people who live there, so the standing forest is more valuable to them than destroyed forests and grazing land.' No wonder Lula has called for faith as much as laws to achieve meaningful change for the betterment of Brazil's environment.

**PECCARY HERDS VITAL TO THE FOREST BIOME**

- The damage wreaked on the Amazon on Bolsonaro's watch was profound and its impacts went beyond even the logging of trees or violence towards Indigenous tribes and mining-related pollution of their land.

The impact on one of the forest-floor-dwelling species, the white-lipped peccary (*Tayassu pecari*), shows how intricate are the interdependent chains that come together to make the Amazon biome. White-lipped peccaries are pig-like animals that roam in herds that can exceed 100 individuals. They are an important source of protein for Indigenous populations and their ecological role is equally vital. But they are now extant in only around 21 per cent of the species' historical range, according to the IUCN Red List.

Defined as 'ecosystem engineers', the peccaries regulate

An illegal forest mining camp discovered in the northern Brazilian state of Pará in February during a crackdown launched by the new government



PDF NEWSPAPERS and MAGAZINES: WWW.XSAVA.XYZ

**JOINED-UP THINKING**

So far, Lula's actions represent a quantum leap from his predecessor's, but his comments imply a shift in ideology from his previous term in office – an approach more nuanced than simply proclaiming 'save the Amazon'. Lula clearly wants to promote economic alternatives to destructive exploitation. Mindful of the attention devoted to the Amazon at the expense of other areas of biodiversity, Lula wants joined-up thinking across Brazil's environment, from the Amazon rainforest to the

the growth of certain plant species and create breeding grounds, foraging habitat and drinking water for multiple species of amphibian and other animals when they create muddy wallows.

But peccaries require large tracts of land in which to roam and forage. With habitat loss, expanding farmland and hunting, comes the possibility for disease to spread between domestic animals and wildlife, according to Maria Fernanda Menajovsky, a researcher at the Barcelona Autonomous University and lead author of a related paper in *Biological Conservation*, as reported on Mongabay.com. Parcelling out habitat into smaller areas can cut populations off from one another, while diseases can spread quickly among these highly social herd animals, which regularly rub their snouts on one another.



LUCAS LEIZINGER/SHUTTERSTOCK



Cerrado savannah, Atlantic forest, semi-arid Caatinga, Pampas grasslands and the Pantanal wetlands.

‘There’s huge potential to increase the productivity of existing low-yielding pasture,’ says Butler. ‘Examples include better pasture management, embracing permaculture and agroecological approaches to farming, and using other crops.’

Lula and Silva say they will encourage the revitalisation of degraded pastures. ‘We can already triple our production without having to cut down another tree,’ said

Lula. The government plans to offer 20-, 30- and 40-year concessions for the recovery of degraded lands with native species, paid for by carbon credits.

Such moves are supported by WRI Brazil. ‘Intensive cattle ranching reduces the pressure for new pasture areas, with increased productivity and profitability,’ says Fabiola Zerbini, WRI’s director for forests, land use and agriculture. ‘It also frees up areas for other agricultural production, especially grains.’

The future of the Amazon depends, in effect, upon viewing the issues and potential for the rainforest in three dimensions, she suggests. ‘The bioeconomy in a tropical forest such as the Amazon must be an economic system whose foundation is the concrete existence of the biome – as a living, diverse and deforestation-free system,’ says Zerbini. ‘Public policies and financial mechanisms need to be created and strengthened to encourage small and medium-sized producers to adopt best practices and to enforce large slaughterhouses to comply with their deforestation-reduction commitments.’

#### SUSTAINABLE EXPLOITATION

Prior to his election, Lula said that he would promote the development of research in pharmaceuticals and cosmetics that use Amazonian products. ‘The biodiversity of the Amazon, associated with traditional knowledge, is of inestimable value,’ says Lima. But she warns of pitfalls in developing these resources. ‘It is very important that the development of socio-biodiversity chains takes place in a truly participatory process,’ she says, ‘with compliance with socio-environmental safeguards and ensuring that rights are not violated in the name of economic logic.’

Applying the Nagoya Protocol – 2014 legislation that addresses biopiracy and who gets to use genetic and natural resources – will bring meaningful benefits to indigenous peoples, argues Zerbini. ‘The prospecting, discovery and validation of pharmaceutical and other non-timber products, with benefit sharing, is a strategic economic activity for the bioeconomy in the Amazon,’ she says. WRI believes sustainable ecotourism also has strong potential.

This approach is broadly in line with that suggested by independent analysis of the Amazon biome. According to a paper, ‘Rethinking the Brazilian Amazon,’ led by Ana Yang, the executive director for the Chatham House Sustainability Accelerator, a combination of forest management, agriculture, cattle ranching and legal mining may be sustainable. The 2021 paper foresees a region that could support a bioeconomy of unrivalled richness; however, this could only work when land-use planning reflects the priorities and aspirations of the Amazon’s diverse populations and, above all, breaks the ‘slash, burn and abandon’ cycle of land occupation. For example, making cattle rearing sustainable would require more intensive production on better pastures, in turn freeing up land less suitable for farming for natural regeneration and forest restoration, possibly with help



White-lipped peccaries help sustain a healthy environment

MARCUS MENDES/SHUTTERSTOCK



Luiz Inácio Lula da Silva

'The challenges Lula faces today are greater than in his first terms, and he knows it'

in the form of payments for environmental services or carbon credits. All this would require zero deforestation and full traceability of the meat supply chain, from calf producers to final suppliers at meatpacking units. Yang described the process as potentially 'long and difficult'.

#### AGRIBUSINESS – THE GOOD, THE BAD...

Greenpeace's Lima says that Brazil's agribusinesses can be divided into three groups. 'We have an export-oriented agribusiness sector that is more concerned with its institutional image and does not want to be associated with deforestation and violence,' she says. 'For this sector, there is no need to cut down even one more tree to increase agricultural productivity. They may not like it, but they are pragmatic and know their business will go better if they do not explicitly oppose the government.'

Her concern focuses on a second part of the sector, which enjoyed growth based on the exploitation of natural resources, land grabbing, violence and, says Lima, benefited from working practices analogous to slavery. Greenpeace also believes these groups were associated with financing the coup acts of January 2023.

A third agribusiness group mainly comprises historical supporters of Lula – the family farmers and peasant movements that were sidelined during the Bolsonaro years. Lula has indicated that he will reinstate and develop policies aimed at land distribution reform, including agricultural credits to promote family farming and agroecology.

#### BEYOND BRAZIL'S BORDERS

Others clearly need to step up. Despite unease with Bolsonaro, the EU, the USA and the UK remain the main destinations for illegal Amazonian timber, which is often shipped with false origin documents. That practice

On Lula's first day back in office he reappointed Marina Silva, his old environment minister



Marina Silva

ETTORE CHIAREGUINI/SHUTTERSTOCK

continues as you read this article. Before taking power, Lula said the EU needs to help develop the economic potential of the Amazon's biodiversity.

'The West absolutely has responsibility for what happens to the Amazon,' says Butler. 'The West can provide financial incentives and technical expertise to advance forest conservation in the Amazon. Consumers in the West can push companies and governments to rein in unsustainable sourcing.'

'The challenge is collective,' says Lima. 'It must involve not only changing individual consumption habits, but include financial support from richer countries that have historically been responsible for the highest global emissions. We need to remember that those most impacted by the climate crisis are those who have the least historical responsibility for it.'

#### REASONS FOR OPTIMISM

As he surveys the carnage of the Bolsonaro years, Butler is optimistic. 'Lula can do a lot,' he says. 'Between raising money internationally, lowering the rhetorical heat against civil society, restoring the institutions that Bolsonaro eviscerated, collaborating with other rainforest nations, and recognising the importance of science in policy making, there are lots of opportunities to make progress in areas beyond the direct influence of pro-deforestation factions in Congress.'

Lula is not only a man in a hurry but a leader who will have no choice but to compromise, admits Lima. 'Lula will have to govern considering this heterogeneity of interests and pressures,' she says. 'Pragmatism seems to be crucial. We know how big are the challenges facing us. But after four years of a complete dismantling and denial of reality, we can say that this is already a reason for hope – but we'll all need to keep our eyes open to make sure this hope turns into reality.' ●

# GEOGRAPHICAL

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Bellerby & Co Globemakers' studio is crammed with globes that will never be sold as they aren't up to the company's exacting standards

# The world in their hands

BRYONY COTTAM VISITS A FIRM MAKING HANDCRAFTED GLOBES

# G

lobes cover every available surface of the Bellerby & Co Globemakers studio in Stoke Newington, northeast London. Clustered on the windowsills and cabinet tops that surround each area of the warehouse's upper floors, in which a team of globemakers are methodically working away, they range from football-sized (22 centimetres diameter) to giant spheres in various shades of blue, grey or aged-looking browns. 'They're all defective,' says Peter Bellerby, gesturing to the many painstakingly crafted globes on display against the walls. 'They're not for sale.' When asked why, he pauses, then says, 'They're just not up to our standards.'

Bellerby & Co Globemakers is one of the last few producers of handcrafted globes. Only a handful of others can be found across Europe (including Greaves & Thomas and Lander & May, both on the Isle of Wight) and in the USA. But centuries after they first became popular, handmade globes are making a comeback.

Like most of the people producing globes today, Bellerby doesn't come from a long line of globemakers (the 58-year-old previously worked in TV licensing, travelling all over the world selling British documentaries to foreign markets). He set the company up in 2008 after being unable to find a suitably 'beautiful' globe as a present for his 80-year-old father, a naval architect.

As the globemaking profession declined, many of the skills needed to craft a globe were lost along the way. They've since been revived and, in some cases, revised, a challenging process that has caused no end of problems for would-be crafters. 'There is no manual and nowhere to learn to make globes,' says Bellerby, who spent two years trying, through trial and error, to make his first, almost bankrupting himself in the process.

'Globemakers were not particularly forthcoming about their methods of construction,' Sylvia Sumira writes in *The Art and History of Globes*. Sumira is a globe conservator, one of few who specialise in printed globes, which first began to appear during the mid-1500s. 'Sylvia knows everything there is to know about how globes are made and how they have changed over time,' says Joshua Nall, curator of the globe exhibition at the Whipple Museum of the History of Science in Cambridge. In her book, which Nall describes as the go-to source for a history of globemaking, Sumira reveals some of the secrets of the craftsmen who produced the globes still preserved in museums and private collections.

A small number of written accounts, which have been verified during restoration work, show that old globes typically started life as two papier-mâché hemispheres, formed using strips of paper (rather than pulped paper) that were applied to a wooden or copper mould. All sorts of paper was used, including pages torn from books, even

manuscripts and maps. Once the two halves of the globe were joined together with more paper and paste, the whole thing would be covered in a level layer of plaster, similar to the way a baker would ice a cake. If the coverage was uneven, as was often the case, then the globe would be imbalanced and would always fall back to the same position. To demonstrate, Bellerby gently spins a 1930s Philips globe – one of a few antique globes he keeps in his office. It soon starts to swing like a pendulum. The cloth filled with lead shot, commonly glued to the inside of a globe to re-balance it, has slipped, he explains.

Bellerby doesn't make his globes from paper and plaster. 'We used to, but – have you worked with plaster of Paris? It was a mess, the dust gets everywhere.' Meanwhile, he found that larger plaster-made globes (50 centimetres and above) simply fell apart under their own weight. These days, Bellerby & Co Globemakers outsources all of its spheres, which are made from GRP – glass-reinforced plastic, also known as fibreglass – or resin. 'No-one else knows exactly where our spheres are made,' says Bellerby, keeping his cards close to his chest. After some



Preparing gores – strips of mapping that make up a globe

GUIDO BOLLINO

The company's globes are made in much the same way as a 17th-century one, requiring a team of five 'makers', eight painters and an illustrator

questioning, he lets slip that they all come from a small warehouse, somewhere on the southeast coast. 'The man who makes them for us must be in his 70s now,' he muses, 'but he's our only supplier.'

While its core material has changed, the company's globes are made in much the same way as a 17th-century one, requiring a team of five 'makers', eight painters and an illustrator. It takes a lot of hard work and dedication to become a globemaker. A recent advert for an apprenticeship in January this year stated that applicants should show patience, perseverance and be receptive to constructive criticism. A perfectionist with excellent fine-motor skills, ideally with a background in miniature



Final details being hand painted onto a nearly finished globe



model-making, sculpture or watercolours, might suit the role. 'It takes at least a year of training to be able to make just the smallest globe,' says Bellerby, 'and it's full-on, every day. There's no tea making here.' Each apprentice hired is a two-year, £150,000 investment. Even so, there have been times when it hasn't worked out. 'We've had new apprentices that do really well on their trial day, but then struggle with the work later on down the line.'

There's no room for errors when making a globe. In other forms of art, Bellerby explains, mistakes can be corrected and it doesn't make the finished piece any less valuable. But globemakers work with gores, which pose a unique set of challenges. These long, thin, oval-shaped pieces of pre-printed paper must be carefully cut by hand and painted with a translucent wash of watercolour that lets the coastlines and place names show through. It's a process that can take five to ten days, says Isis Linguanotto, head painter and a globemaker for ten years, who sits at a wooden workbench cluttered with jam jars of ink-coloured water, brushes and well-used paint palettes. A row of half-painted gores has been laid out flat to dry. Linguanotto will build up the thin layers of paint to shade and define borders and landforms – details as important for readability as aesthetics.

Once the painters have finished the first stage of their work, each gore is dipped in water, making it pliable (and very fragile) so that it can be stretched and carefully pasted to the fibreglass sphere. Most globes use 12 gores – larger ones may need 18 – and each must align perfectly with its neighbour, without overlapping, to ensure that every map line meets in the right spot. Overwork the paper and it will deteriorate and tear.

Over time, with the development of colour lithography and modern printers, globemaking has become cheaper, and its methods have been simplified. A 1930s British Pathé film shows a production line of hand-gored globes as they are swiftly pasted and sealed. 'But then you lose half the detail,' says Bellerby, who is fastidious about quality. He confides that finding the right candidates to be apprentices has proved challenging. New globemakers are asked for a minimum five-year commitment and join an ever-expanding team (including six warehouse workers, who build each base, and an engraver) that currently produces between 40 and 45 globes a month.

From the studio, Bellerby's globes go all over the world. Orders are regularly sent out to Europe, Asia, Australia, Brazil and Canada. Jade Fenster, who manages much of the day-to-day running of the company, estimates that there's a Bellerby globe in every US state. 'We've sent a few to Africa and beyond, too. We had one globe go to Papeete, in French Polynesia, and another to Greenland.' They're sold almost exclusively online (Harrods stocks a handful of the smallest 'desk' globes), where prices range from roughly £1,500 to £79,000 – that's before any customisation. 'All of our globes are bespoke,' says Fenster, 'Customers always work with us one-on-one to design the globe exactly as they would like it, from the size to the colouring, base material, base finish, base design and engraving, as well as the map design. The pricing is to book in and the extra work is quoted on top,' she adds.

Alongside the many globes deemed to be substandard, the studio is currently home to several completed globes and various works-in-progress. Half a dozen people are working on their part of a project; in one corner, painters are painting, in another, makers are going. The workshop below, filled with wood and tools and half-built bases, is currently unoccupied and the studio is hushed and peaceful. Gores hang drying like washing on a line. Bellerby walks to the end of the warehouse, where, looming between the busy workstations and backlit by a flood of natural light coming from the floor-to-ceiling windows, a gigantic sphere is concealed by a purple cloth. He unveils it, magician-like. At 127 centimetres (it's even taller atop its base) the 'Churchill' is the largest globe produced by Bellerby & Co. Globemakers. This one is destined for China; three more in the warehouse will be shipped to the USA, another to Dubai.

Despite their impressive size, they're not the most unusual globes made in the studio. The company offers fully bespoke globes and receives many requests for custom personalisations. Some are beautifully illustrated, intimate narratives of family histories and migrations or holiday memories. Others have been made for touring bands, films and organisations, or plot historic travel routes. One globe, produced for a collector who supplied an entire spreadsheet of data, maps the major straits, shipping routes, undersea cables and various city demographics.



Fitting a brass meridian to the horizontal band of a globe's frame

EUAN MYLES

Globes are meticulously mapped, often down to minute details. It's a full-time job for two cartographers; a third works part-time



It takes a year of training to make even the simplest globe

JOHNATHAN SWANN

Historically, globes would have been extremely valuable, rare items. Many have often survived only through the collections of extremely wealthy and influential people. Before printed globes, all globes were manuscript globes – hand drawn, painted or engraved directly onto a sphere – and made in small numbers. Very few of the earliest globes have survived at all. The oldest is the Farnese Atlas, a second-century marble globe held on the shoulders of a Greek god (now in the National Archaeological Museum of Naples). Islamic celestial globes made as early as the 11th century can still be found in museums and private collections, while the oldest surviving terrestrial globe is the Erdapfel (German for ‘earth apple’), dating to 1490. It was only in the 19th century – a period of incredible growth in the consumer market for what Nall calls ‘science at home’ – that makers began to produce them at a price affordable by the middle classes. They remain a prestigious item to own, but globes have always represented much more than this. Nall points to the Whipple Museum’s globes, which take ‘many, many different forms, some of them quite weird and unexpected. Our collection is indicative of the fact that, particularly in the past, globes served lots of other purposes beyond merely being a representation of the political division of countries on Earth.’

According to Sumira, as globemaking evolved, ‘map-makers became concerned with new ways of representing the constantly changing view of the Earth and heavens’. Among its many geological globes, the Whipple Museum counts a Russian-made example that presents a rival theory to plate tectonics (‘the Soviets didn’t really want to accept plate tectonics because it was a Western scientific theory’) and a succession of Mars globes, each an attempt by a particular astronomer to establish his or her own representation of the planet. ‘These started being produced

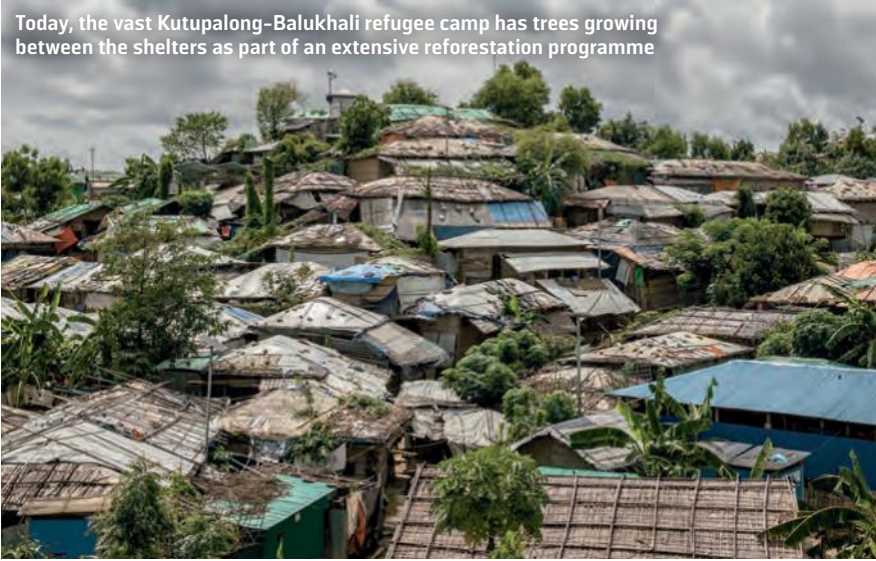
from the middle of the 19th century, at a time when telescopes were just becoming powerful enough to draw a plausible map of the planet,’ says Nall. ‘Almost immediately, the main players got globes made from their maps.’

One of these globes, hand-painted by Danish artist Ingeborg Brun, depicts Percival Lowell’s theory that the long channels seen on Mars (now known to be an optical illusion) were built by Martians as irrigation systems. Brun’s globes have made their way into the Vatican, the National Maritime Museum at Greenwich, the Lowell Observatory in Arizona and, of course, the Whipple Museum. ‘She sent them all over the place as a means of promoting Lowell’s ideas.’ For anyone who had an idea, argument or theory, a globe was a particularly powerful way of embodying it. Sumira writes that globes encapsulate ‘the need to find our place in the cosmos.’ It could explain their enduring popularity.

No matter how unusual the design, all of Bellerby & Co Globemakers’ globes are meticulously mapped, often down to minute details. It’s a full-time job for two cartographers; a third works part-time. The world and its features are constantly morphing as rivers change course, ice shelves calve and eruptions create new volcanic islands. It’s surprising how many cities have emerged, borders have shifted, capitals have moved and new countries have formed in just the last ten years. One of the company’s cartographers spent a whole year fully updating every one of the maps used. ‘There’s no one database with all this information available,’ says Bellerby. We simply have to stay on top of the news.

For now, globemaking remains an endangered craft – it features on the Heritage Craft Association’s ‘Red List’. However, these days its future looks a little more certain. It’s slowly attracting new, skilled artists and interest in products from both the London studio and beyond. ●

Today, the vast Kutupalong-Balukhali refugee camp has trees growing between the shelters as part of an extensive reforestation programme



# CAMPS OF DESPAIR

There seems to be no future for the dispossessed Rohingya refugees living in vast, sprawling, underfunded camps in Bangladesh

Words and photographs by Gabriele Cecconi



Abdul Salam, 62, photographed in 2018 inside a hole that he had excavated to build a latrine in Kutupalong-Balukhali refugee camp



In August 2017, as many as 700,000 Rohingya fled Myanmar to Bangladesh to escape what the UN has defined as genocide. Today, the vast majority are still there, most living in the world's largest refugee camp. While conditions in what has become a cluster of camps have, in some ways, significantly improved in the past five years, they're still dire. Many of the refugees are malnourished; violent gangs rob and loot their few meagre possessions; fires sweep through the flimsy buildings; and the political chaos across the Naf River in Myanmar offers little prospect for them to return home.

In March, the UN World Food Programme (WFP) announced that it was cutting the financial assistance paid to those sheltering in the sprawling complex of camps near Cox's Bazar because of a lack of funding. The monthly ration that families can spend in the 40 WFP food outlets in the camps was cut from US\$12 to US\$10.

'These rations cuts are a stain on the conscience of the international community,' said Tom Andrews, UN Special Rapporteur on Myanmar, who reports to the Human Rights Council in the Hague. 'I have spoken with desperate families in the camps who have already had to cut back on essential food items due to a price spike. Reversing these food aid cuts is a matter of life and death for Rohingya families.'

More than 25 refugee camps housing more than 900,000 people are now packed into the region, including Kutupalong, the largest in the world with a population of more than 600,000. When I first visited the camp in March 2018, about seven months after the great exodus, I walked along a main road hastily built by the Bangladeshi army that, after a few hundred metres, rose over a ridge of sandy hills to reveal thousands of shelters that had been built on top of each other, piled in makeshift positions surrounded by a landscape that was quickly turning into a desert. The forest had been completely cleared and the soil was exposed to the harsh, burning light of the Bengali sun.

The Bangladesh authorities and the world's aid agencies were desperate to provide shelter for the vast influx of refugees. Thousands had died in vicious pogroms, with the Myanmar army burning villages and indiscriminately killing the Muslim population of the state of Rakhine. The Rohingya have suffered generations of persecution by the military governments that have run Myanmar for the past 60 years. Many had fled across the Naf River before, only to be encouraged to return to Myanmar by the Bangladeshi authorities with false assurances that the violence had ended.

In Bangladeshi terms, the area around Cox's Bazar was sparsely populated, and it was a lush landscape of rich farmland with a backdrop of densely vegetated, sandy



In 2018, Marjon, 35, and her son Muhammed, 2, were suffering from acute respiratory infections due to inhaled wood smoke. When the camps first opened, the surrounding forest was the only source of fuel



Rohingya children shelter from the wind and the sand in a makeshift tent in Balhukali camp in 2018. During the first months of the influx, extensive deforestation exposed the land to the elements, causing severe erosion, which increased the risk of landslides



hills. Usually, when people talk about environmental migration, they refer to the movement of people as a consequence of climate change. However, in this case, the situation was reversed, and the question was, what would the impact of mass migration be on the environment? During a mass migration, as was the case with the Rohingya in southern Bangladesh, thousands of people concentrate in a more or less restricted area with basic needs to be met and, especially during the emergency phase of the crisis, these needs collide with already fragile ecosystems. The pressure on the environment and local resources becomes unsustainable, and in a few months, irreversible changes threaten and destroy biodiversity, and the existence of the resources themselves.

Of course, this has severe consequences for the living conditions of the refugees. In the sub-districts of Ukhiya and Teknaf more than 3,200 hectares of nature reserve were lost in the first year alone, due to the construction of refugee camps and the Rohingya's need to collect

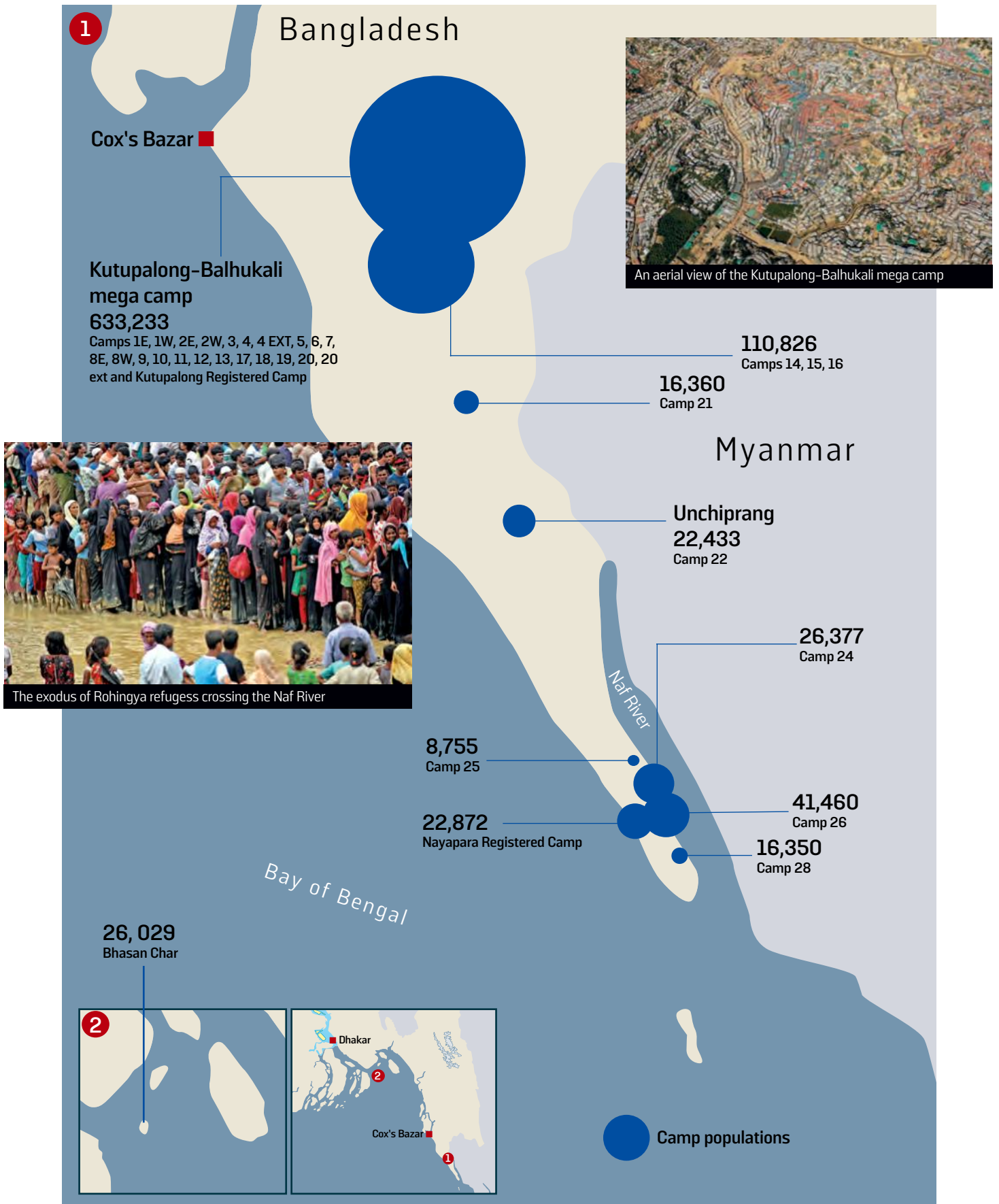
wood to use as fuel for cooking the little food available, inside often overcrowded shelters.

The immediate consequences were the felling of ancient forests, which in turn led to soil erosion and an increase in the likelihood of land- and mudslides. Water resources were degraded and there was a significant loss of biodiversity. There were also indirect repercussions on the health of the refugees. While exploring the camp, I came across a funeral. The deceased had died due to complications arising from a respiratory infection contracted through exposure to smoke produced by burning wood during food preparation. The man, who couldn't walk, was forced to stay inside the shelter while food was being cooked and had become ill. The infirm, the elderly, infants and the women who did the cooking were the most exposed to the wood smoke.

According to a World Health Organisation (WHO) study, between August and December 2017, there were 273 deaths related to respiratory tract infections, the leading cause of death among the population.



# Rohingya refugee camps



SOURCE: UNHCR UN REFUGEE AGENCY SURVEY APRIL 2022

A WHO report said that about 80 per cent of water samples from the camps were contaminated with *E. coli*

Two young Rohingya women collect flowers in front of the fences of the Camp 20 Extension, showing the extent of the reforestation efforts





The terracing of hillsides in Camp 20, part of the Kutupalong mega-camp, helps stop landslides and forms part of the reforestation programme

It was awe-inspiring at dawn, not only to see the camp covered in a blanket of smoke coming out of thousands of shelters but also to witness the thousands of men, women and children heading out to what was once a lush forest to collect wood from as far as 20 kilometres away. During the early months of the migration, the population depended on the Teknaf Nature Reserve for survival. A UN study estimated that more than 7,000 tonnes of wood were being collected daily. In addition, water resources were rapidly degrading. Despite dozens of wells being dug daily, the water was insufficient to meet needs and soon became contaminated due to the absence of a sewage system. A WHO report in December 2017 said that about 80 per cent of the water samples taken from the camps were contaminated with *E. coli*.

In addition to these problems, there was, and still is, the issue of waste disposal, as the camps produce about 120 tonnes of rubbish daily. The soil erosion, which exposed the sandy and hilly terrain to possible landslides,

put thousands of refugees at risk, especially during the monsoon seasons. As if that weren't enough, dozens of people were killed or injured by Asian elephants, which were accustomed to using the reserve as part of their migration route but now found themselves surrounded by refugees and, when frightened, attacked the people.

Environmental issues, inextricably linked to the refugees' survival, only exacerbated the already traumatic condition of the migrants: the camp was a huge, open-air, dangerous, unsanitary construction site.

While the situation has improved in recent years, a strong sense of estrangement enveloped me when, last year, I found myself walking the same streets, visiting the same camps. The Kutupalong-Balukhali mega-camp is virtually unrecognisable from what it was in 2018. Some landmarks were familiar, but the landscape had completely changed. The work of international aid agencies assisted by local NGOs has been impressive, especially in reforesting the area and building

## Five years later, the inhabitants are seriously concerned about their own futures and even more so for their children's

infrastructure such as bridges, roads and an efficient water-distribution system. While the first seed and small plant distribution programmes were beginning to be implemented among the local population during my previous visit, today, the once-barren hillsides are covered with dense vegetation thanks to the planting of fast-growing native trees. Tens of kilometres of roads connecting each area of the camp to the main artery have also been built, as well as stairs and solid bridges that enable the movement of people between the hills and wider canals.

What was a construction site four years ago is now a fully fledged city with a water-distribution system and an illegal but tolerated internal economy. The Rohingya lack a legally recognised status from the Bangladeshi government, and in the absence of documents, they can't fit into the local economic and social fabric. Any form of activity or subsistence conducted by them within the camps that doesn't relate to the work programmes implemented by the various NGOs is considered illegal, although it's partially tolerated. One significant achievement has been the shift to LPG (Liquid Petroleum Gas) for energy needs. Refugees no longer have to venture into the forest to collect wood, which has helped preserve what's left of the reserve.

However, the overall conditions remain critical for the refugees, who depend on humanitarian aid. Four in ten Rohingya children in Bangladesh suffer from stunted growth. Anaemia affects more than half of the youngsters in the camps and more than four in ten pregnant and breastfeeding Rohingya women. The US\$125 million shortfall in funding the food programme can only make matters worse.

Some of the environmental issues remain unresolved. The problem of waste management is still significant, and hygiene in some parts of the camp remains poor. In the six months leading up to August 2022, thousands of people contracted dengue fever. Although a rudimentary sewage system has been built, it covers only a small part of the camp. All of the canals remain open, encouraging the spread of disease, especially in the most congested areas. Moreover, while the condition of the main camp, in which the majority of refugees live, has improved, the same can't be said for all of the refugee camps in the sub-districts of Ukhiya and Teknaf. Some of the smaller and more densely populated camps, such as Unchiprang, for example, located about 30 kilometres south of the Kutupalong-Balukhali camp, seem to have remained in the same condition as four years ago. Although some services have been improved, sanitation remains terrible. Small and overcrowded, the camp is still unfit for a decent human life.

Conditions have become so desperate that the number attempting dangerous sea crossings to Malaysia or Indonesia increased fivefold last year to more than 3,500 – it's reported that more than ten per cent died during the attempts.

Fires are becoming an increasing problem inside the camps. In March this year, a blaze swept through Camp 11. There were no casualties, but the blaze ripped through homes and destroyed key infrastructure –



**A Rohingya man stacks LPG canisters at a distribution point in the main camp. The switch to cooking with gas stopped the destruction of the local forest and improved the health of the residents**

schools, medical clinics and service points. It left 15,000 Rohingya refugees without a roof and gutted some 2,800 shelters. Between January 2021 and December 2022, there were 222 fire incidents in the Rohingya camps including 60 cases of arson, according to a Bangladesh defence ministry report released last month. In March 2021, at least 15 people were killed and some 50,000 displaced after a huge fire tore through a camp in the settlement. The fires have been blamed on the armed gangs that menace, rob and murder the inhabitants in the camps. Rohingya complain that Bangladeshi police have failed to root out the violence, and instead themselves harass and extort the refugees.

The Bangladeshi government has come up with a plan to move some of the Rohingya to Bhasan Char, a small island in the Bay of Bengal that's highly vulnerable to cyclones. Officials claim this could be a fresh start for the refugees. More than 25,000 Rohingya have been transported to the island. However, there have been complaints that the island is more like a prison and conditions no better than in the camps.

If, during the emergency phase of the crisis, the families' priority had been to flee the persecution they had suffered in Myanmar and then, upon arriving in Bangladesh, to think about their own survival within a difficult and battered ecosystem, five years later, the inhabitants are seriously concerned about their own



The open drain that now runs through the crowded centre of Kutupalong camp



Rubena, 18, suffering from dengue fever last year. Overpopulation helped the disease to spread

future and even more so for their children's futures. A young man from the local community, one of the very few Rohingya who has been fortunate enough to be able to gain a college education, expressed this clearly: 'If in Myanmar the Rohingya community suffered a real genocide, now five years later, without the prospect of a repatriation agreement between the two governments, what we are witnessing is another kind of genocide, the cultural genocide.'

The man was referring to the tens of thousands of children who have grown up in the camps, in conditions denying human dignity, with no real education and no prospects for the future. Another man, Mohammed Yonus, a father of three children, one of whom was a victim of a huge fire that devastated hundreds of shelters in February 2022, told me: 'I don't care what will happen to me personally, I keep going for my remaining children. Even if I see no prospects of a decent life in front of them, that is my only concern.' ●

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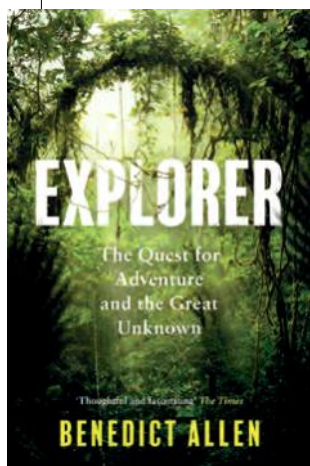
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# REVIEWS



## BOOK OF THE MONTH

**EXPLORER**  
**The Quest for Adventure and the Great Unknown**  
By Benedict Allen  
Canongate

■ Benedict Allen's *Explorer*, originally published last year but recently released in paperback, is an ode to exploration in the sense of 'allowing a place to make a mark on you'. It's a modern take on what can seem a

rather quaint and outmoded term – explorer – offering a fascinating perspective on a highly eccentric career choice.

Passions and obsessions laid down in childhood are rarely laid to rest. For many, they creep into adulthood as hobbies. Allen's own childhood was spent devouring expedition narratives, reading about explorers, navigators and trailblazers. Unlike many youngsters who dream of embarking on journeys both dangerous and life-affirming, Allen followed through.

A more conventional pathway would see a young enthusiast join somebody else's expedition. Not so Allen, whose disdain for the notion of 'traveller as intruder' and whose desire for knowledge of remote communities saw him not only reject the relative safety and comforts of a support crew and communications, but also eschew sponsorship and brand alliances. His method of approaching in a state of weakness and 'unknowing' may not have been entirely intentional in those early days.

'Well, it's all out of your system now...' Allen's mother offers rather optimistically when her 23-year-old son returns from a 437-kilometre journey through the jungles of South America. She had sent him on his way with bacon and egg sandwiches. What parent doesn't celebrate tenacity of purpose in their offspring? But the terrible condition of her son on his return must have been sobering.

Had he recorded his journey properly, we're told, it may have constituted 'the last geographically significant crossing of the Amazon'. Alas, inexperience, 'the thorns, the vines, their ants', and the young man's own survival got in the way. Two strains of malaria wouldn't have helped either. But it didn't cure him of his obsession.

Later, Allen would travel to Papua New Guinea and take part in what seems to Western eyes a particularly brutal initiation ritual, where severe beatings over six weeks culminate in painful tattooing that leaves the young men with the rough markings of crocodiles. Unsurprisingly, his experiences with the tribe made a mark on Allen both physically and emotionally.

At the book's heart is his return to the Niowra tribe 30 years later with a documentary film crew, ostensibly to offer wheelchair-bound BBC commentator Frank Gardner a chance to fulfil his childhood dream of glimpsing the elusive bird of paradise. For Allen, there's far more at stake.

Unprepared emotionally, he's 'trailed by ghosts'. His best friend is now dead, as are people who had become

what amounted to family. Many others seem hellbent on extracting as much as they can from him – money, laptops and watches. The uncomfortable nature of homecoming is palpable.

'Don't forget you are part of their cultural heritage,' says the director of the film crew, who admits to receiving special instructions from BBC bosses to 'break Benedict' and to 'break Frank' in the interests of a more riveting programme.

It hardly seems necessary. There's more than enough drama with Gardner's fragile health and Allen himself experiencing a profound sense of displacement after the years he's spent focusing on being a dad in suburban Twickenham.

Attempting to reconcile his two 'incompatible selves', Allen admits to 'floating along exactly like one of the Niowra dead spirits in their unhappy state, not sure which people or existence I am committed to.'

Of course, blending in was never an outcome he could achieve. 'Everyone knows who you are. You're the white man who was happy to eat the same shit that we ate.'



Benedict Allen and a Niowra man during his second visit to the tribe

BENEDICT ALLEN

It's an entertaining read, replete with interesting characters, plenty of genuinely delightful episodes and images that aren't always palatable. There's the 'leathery handshake' – it was as if they were wearing gardening gloves; the face with 'skin layers coming away as do certain types of potatoes when overboiled'; and the quaint image of the 23-year-old idealist being passed like an unravelling parcel from person to person in the Amazon.

At times it can sound a bit Indiana Jones. There are occasional mawkish passages, but the pace never falters and Allen's reflections are genuine and intriguing.

'What we need is for you to express a final compelling sentiment... Try to wrap everything up with an ending,' the Director says. Easier said than done. Allen needs every one of these 270 pages to elucidate what may be the profoundest experiences of his life.

Society needs individuals like Benedict Allen – risk takers, those prepared to embrace extreme discomfort, who find 'tramping through the quagmire more compelling than spells of relative ease'. And we need such individuals to write books, so those of us who prefer hardship on the page to 'in the field' can share in the experience while eating our bacon and egg sandwiches.

JOANNA GROCHOWICZ



**HOME WATERS**  
**Discovering the Submerged**  
**Science of Britain's Coast**  
 By David Bowers  
 Adlard Coles

■ I live in the middle of Devon between two seas – the English Channel and the Atlantic

Ocean – and grew up on the coast. I feel a sense of home when I smell sea air. This draw of the sea drew me to the book *Home Waters* by David Bowers, professor emeritus of oceanography at Bangor University in Wales. I wanted to understand more about the waters that define my, and our, home.

The focus of the book is the continental shelves or 'shelf seas' – the shallower seas around continents, and specifically the shelf seas around the British Isles. Being an island nation has defined Britain – its land, history and engagement with the world – for thousands of years. We experience some of the highest tides on the planet and get battered by Atlantic waves. The seas that surround us have been saviour (they stopped the Nazi advance during the Second World War) and disaster (catastrophic flooding led to the development of the Thames tidal barrier).

Bowers looks beyond the beach to what lies beneath the surface of the sea and how it works. He focuses on the physics of oceanography – tidal ranges and bores, currents, water colour – but draws on biology, chemistry, geology and maritime history too. This is a book written for the general reader, however – scientific explanations, often accompanied by diagrams and illustrations, are clear and insightful, and I imagine especially relevant to those who venture out on or into the water.

The intertwining of oceanography and history that Bowers explores is fascinating. 'In the 1940s, there was



The shallower, pale-green waters of the continental shelf fringe the UK and Ireland

ANTON BALAZH/SHUTTERSTOCK

a renaissance in interest in the way that ocean waves behave... troops and equipment were being landed on beaches and the success of the operation could well depend on the sea conditions at the time,' Bowers writes. Scientists were tasked with wave forecasting for the D-Day landings and new tools and methods were built from scratch that detected waves arriving from storms as far away as the tip of South America. 'As with so many things, the demands of war had provoked great advances in knowledge.'

The sea will always hold its secrets, but *Home Waters* makes them a bit more accessible.

**ELIZABETH WAINWRIGHT**



**TIME ON ROCK**  
**A Climber's Route into the Mountains**  
 By Anna Fleming  
 Canongate

■ 'On the rock, time behaves differently,' suggests Anna Fleming in her engaging memoir, which chronicles her development as a lead

climber and offers readers a privileged induction into the 'outdoor ballet' that is traditional climbing.

'Trust friction,' Fleming tells us. Skin is all important. Touch is what unites body and mind, connecting the climber with the surface, but also with the wider landscape and, by extension, a region's history and its people – industrious Romans, Scottish herders, or Welsh quarrymen roped up in fustian jackets and bowler hats.

With a book that lends itself to introspection, it's pleasing that reflections never veer into self-indulgence. While highly evocative, Fleming's writing is concise and informed by the concrete. What lies both before the eyes and at the fingertips is beautifully rendered.

Fleming shares fully of the challenges and failures that accompany any mastering of craft; the satisfaction of weaning out 'victory from the meanest of circumstances.' Indeed, rock can be unaccommodating. And while

trad climbing may feel like an artistic practice, it's also potentially fatal.

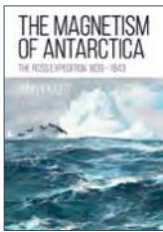
Managing stress, headspace and focus is, of course, critical, yet Fleming reminds us constantly that climbing is multidimensional. Her own thoughts range over topics as diverse as the Highland clearances, the long extinct reptile genus *Gordonia* and the passion of Kate Bush's *Wuthering Heights*.

Climbing vocabulary is a delight. There are the 'sequences' and 'problems', the 'crux of a climb'; there's 'choss' and 'soloing', 'topping out' and the descriptive verb to 'mantle'; there are the 'dirty routes' with cracks full of crud, and the 'archaic routes' worn smooth by many hands. The trad grading system itself warrants special mention with its 'Mild Severes' and the 'Hard Very Severes'.

There's talk of 'choreography' and of 'climbing flows' that arise when mind and body mould to the forms. There's also the complex grammar, the alien language and the architecture of the surface, the 'three-dimensional unfolding' that absorbs the climber, and indeed the lucky reader who, thanks to Fleming, requires neither confidence, commitment nor extreme skill to venture into such realms.

**JOANNA GROCHOWICZ**





**THE MAGNETISM OF ANTARCTICA**  
**The Ross Expedition 1839–1843**  
By John Knight  
Whittles Publishing

■ The exploits of the likes of Roald Amundsen, Ernest Shackleton and Robert Falcon Scott during the ‘heroic age’ of Antarctic exploration in the late 19th and early 20th centuries captured the popular imagination at the time and have never quite let go. By contrast, James Clark Ross’s similarly momentous expedition – made on a pair of wooden sailing ships, the *Erebus* and the *Terror*, the latter commanded by Francis Crozier – a few decades earlier has been largely overlooked, despite a series of landmark achievements. They include making the first circumnavigation of Antarctica in almost 70 years, breaking the ‘furthest south’ record, and several ground-breaking discoveries, including the perilous Ross Sea and the vast Ross Ice Shelf, the largest of its kind on the continent.

John Knight’s meticulously researched *The Magnetism of Antarctica* aims to ensure that this wind-powered, chart-free voyage into the unknown receives the credit it deserves. Split into three main sections, the book opens with a detailed account of the expedition and the important research on the Earth’s magnetic field carried out en route. Vivid descriptions help to bring the journey to life: a 28-hour storm that lashed the ships as they were stuck in pack ice; a fish being washed aboard and immediately freezing solid to the deck; a near-fatal collision involving a massive iceberg; the first sight of a pair of Antarctic volcanoes that would subsequently be named Erebus and Terror in honour of the expedition’s vessels.

The latter two sections of the book provide pen portraits of the sailors, as well as the other ships on

which they served. Commendably, Knight – author of *The Crossing*, which focuses on the 1958 Trans-Antarctic Expedition – doesn’t merely focus on the captains, commanders and officers, but also provides interesting snapshots of the lives of the gunroom stewards, sailmakers and various able seamen.

Overall, *The Magnetism of Antarctica* makes a compelling case that the ‘almost forgotten and extremely hazardous’ Ross Expedition should be given far greater recognition in the annals of polar exploration.

**SHAFIK MEGHJI**

*Erebus and Terror in New Zealand, August 1841, by John Wilson Carmichael*



ROYAL MUSEUMS GREENWICH / WIKIMEDIA COMMONS



**GREAT KINGDOMS OF AFRICA**  
Edited by John Parker  
Thames & Hudson

■ It was never enough for Europeans to exploit the peoples of Africa; we also decided that Africans had little history of their own worth studying. *Great Kingdoms of Africa* goes a long way to addressing this marginalisation, looking far back to a time before the brief interlude of European colonisation came and went.

The central theme is that of ‘kingship’ – how hundreds of kingdoms have risen and declined over 5,000 years of recorded African history. Geography turns out to be an important denominator, with kingdoms emerging from savannah, forest, the Sahel and the Maghrib. Nine kingdoms are documented by a variety of authors, ranging from Ancient Egypt and Nubia to Buganda, which covers much of the Great Lakes area from Burundi to Uganda and South Sudan, and the West African Sudanic empires, which spanned 1,000 years.

For the European reader, this – after a meandering foreword and introduction – is an enlightening non-colonial history that addresses a question that comes to mind: other empire builders from Alexander to Darius

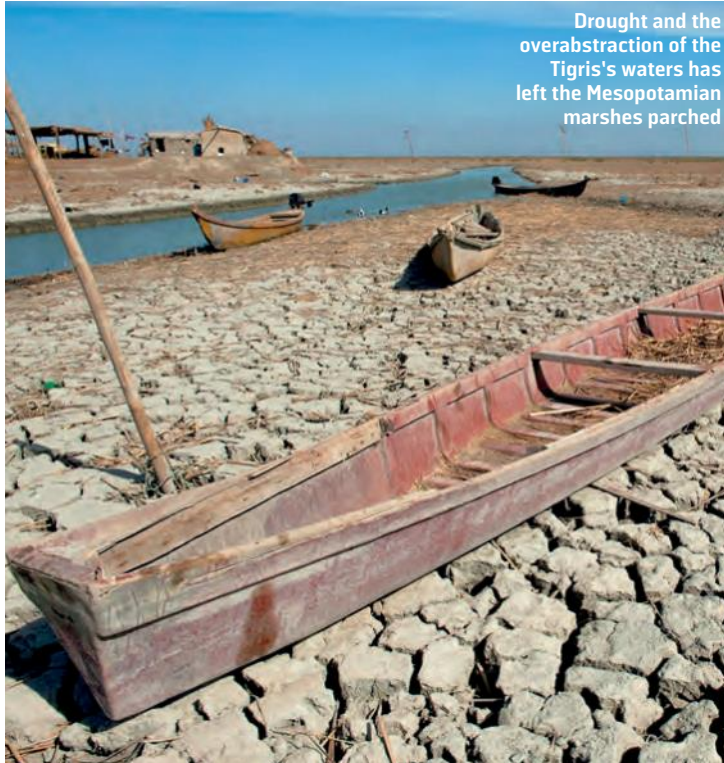
enjoyed the moniker ‘The Great’, so why, for so long, were African kings (and queens) simply described as ‘savage’ or ‘barbaric’?

One would hope that the ‘noble savage’ trope was debunked decades ago, but were any more nails required for that particular coffin, then this book provides them. In Parker’s own chapter on the Akan Forest Kingdom of Asante – incorporating modern-day Ghana – the author notes how 19th-century British diplomatic missions would wait while the king presided over his ‘fetish week’. A traditional account might stop there, securing an amusing anecdote about ‘funny’ customs of people far away. Instead, Parker elaborates and places such traditions in their context and emphasises the oral traditions that offer deeper insights into the Akan peoples. Elsewhere, we learn just how historically unusual it was for women to command meaningful power, for example, in the world of Kushite politics; and of the 15th-century trade routes in copper and raffia that buoyed the kingdom of Kongo.

For much of the book, academic rather than fluent writing prevails but, illustrated with fascinating images of artefacts and landscapes, this is a series of separate histories of a continent with a past as rich, varied and flawed as Europe’s.

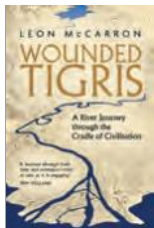
**MARK ROWE**

## REVIEWS



Drought and the overabstraction of the Tigris's waters has left the Mesopotamian marshes parched

JOHN WREFORD/SHUTTERSTOCK



**WOUNDED TIGRIS**  
A River Journey through the  
Cradle of Civilisation  
By Leon McCarron  
Corsair

■ The River Tigris has formed the lifeblood of ancient Mesopotamia and modern Iraq, but geopolitics and climate change have left the birthplace of civilisation at risk of becoming uninhabitable. The river is of greater volume than the Euphrates, to which it is connected by ancient canals, and it furnishes much of the water used for irrigation in the land between the two rivers.

Three millennia ago, the Syrians decided that the source of the Tigris was deep in the great peaks and lakes beneath a mountain range called Korha. This area, now popularly known as the Cradle of Civilisation, is where Leon McCarron and his companions began their remarkable journey of more than 1,600 kilometres through the Turkish mountains, across northeast Syria and into the heart of Iraq.

McCarron reveals what humanity stands to lose with the threatened death of a great river and what can be done to try to save it. His journey along the Tigris was the first attempt at a full descent since Ottoman times. Occasionally harassed by militias, often helped by soldiers, the author rode his luck in areas still infested by ISIS and relied on the generosity of a network of strangers on his remarkable adventure, which eventually took him to the Persian Gulf.

Basra was the end of the line and a sobering sight for the team. As the author explains, everything that finds its way into the Tigris upstream – the industrial, agricultural, human and animal waste – eventually ends up in Basra. This is where he witnessed the true impact of the environmental damage inflicted on a human settlement in desperate need of salvation from what is, in no uncertain terms, poisoned water.

JULES STEWART



## WRITER'S READS

**Anna Fleming** is a writer, climber and qualified mountain leader who has also worked for the Cairngorms National Park Authority. Her debut book, *Time on Rock: A Climber's Route into the Mountains*, is out now

■ **The Living Mountain (1977)**

by Nan Shepherd

Nature writing at its finest. A stunning lyrical meditation on Scotland's Cairngorm mountains.

■ **A Short Walk in the Hindu Kush (1958)**

by Eric Newby

A fashion executive leaves London on a journey of mishaps and misadventure into the remote Himalaya.

■ **Braiding Sweetgrass (2013)**

by Robin Wall Kimmerer

Indigenous American worldviews are lovingly interwoven with scientific knowledge of plants.

■ **Space Below My Feet (1961)**

by Gwen Moffat

Having deserted her army post, Gwen charts her journey from freewheeling climber to becoming Britain's first female mountain guide.

■ **The Snow Leopard (1978)**

by Peter Matthiessen

Zen-Buddhist inflections guide this spiritual and ecological quest to find the elusive snow leopard in Tibet.

■ **On Time and Water (2019)**

by Andri Snær Magnason

An Icelandic writer pays tribute to his home nation's vanishing glaciers while celebrating the webs that connect all beings, which are fundamental to our survival.

■ **Ice Rivers (2021)**

by Jemma Wadham

A professor of glaciology shares thrilling scientific discoveries and encounters with polar bears in this love letter to frozen landscapes.

■ **Wanderlust (2000)**

by Rebecca Solnit

A masterpiece of political and cultural history that explores what it means to walk in the many landscapes that we all inhabit.

# Sweet Home Alabama

From the foothills of the Appalachian Mountains to the Gulf Coast, Alabama has a park for everyone.



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# TAKING FLIGHT



Alabama's Black Belt region is one of the poorest parts of one of the USA's poorest states; however, it's blessed with some of the nation's highest bird diversity. **Geordie Torr** reports on a new initiative designed to use the Black Belt's birds to both support conservation and help bring about the region's economic revival



The acrobatic, insect-hunting swallow-tailed kite

**N** imagine giving a house sparrow to a kindergartener with a bucket of paint.' Scot Duncan, executive director of Alabama Audubon, is describing the painted bunting, one of the more outlandish birds found in the Black Belt region of Alabama. 'We've also got scissor-tailed flycatchers. These guys have long tail streamers that come out almost twice the length of their body. Those are a couple of the flagship species that we have here and we want them to stick around.'

Located in the southeastern USA, Alabama is remarkable for its collection of natural habitats – it's said to host some 64 different terrestrial ecosystems, ranging from forest to prairie to swampland. And these habitats support a spectacular array of plants and animals. As Duncan tells it, 'Alabama is a rock star when it comes to biodiversity. It has more native species than any state east of the Mississippi River and if you look at the total rankings across the entire US, we're ranked number four; the only states that beat us are large western states – California, Texas and Arizona in that order.'

Unfortunately, however, Alabama hasn't done a very good job of protecting that biodiversity. 'We're ranked number two in the US for total number of extinct species,' Duncan explains. 'Hawaii's number one, and islands are really difficult places to maintain native biodiversity. So on the continent, we're the number one state for extinctions and we're ranked third for endangered species. So this isn't just about past transgressions – these are problems that we're still facing today.'

In order to try to help reverse this trend, Alabama Audubon has set up the Black Belt Birding Initiative, a programme designed to protect and enhance the bird fauna of one of the state's most biodiverse but economically depressed areas. The crescent-shaped Black Belt region is a biologically and geologically distinct area that extends from southwestern Tennessee through east-central Mississippi and across central Alabama. It hosts the easternmost portion of the tallgrass prairie ecosystem – a biological community more commonly associated with the US Midwest. 'There are unique bird communities in the Black Belt that you can't find easily elsewhere in the Southeast,' Duncan says. 'They're not endemic species, but there are a lot of grassland and prairie species that we typically find in the Midwest. And grassland bird species, as a whole, have really taken a hard hit here in North America because of the expansion of industrial agriculture.'

However, the Black Belt Birding Initiative isn't just about birds. 'The idea is to use ecotourism as a way to incentivise locals to be conservationists, and also to bring in revenue to a region that badly needs it. The Black Belt has been an underserved community for far



A scissor-tailed flycatcher, one of Alabama's flagship bird species

'Alabama is a rock star when it comes to biodiversity. It has more native species than any state east of the Mississippi'

too long,' Duncan says. 'It's one of the poorest regions in the US. A lot of this goes back to its history.'

Back in the early to mid-1800s, when Alabama first became a state, the settlers eventually realised that the soil was perfect for growing cotton. 'That led to the explosion of turning the Black Belt's tallgrass prairie into fields of cotton,' Duncan says. 'And of course, all of that was made economically viable by the enslavement of Africans and their descendants. So the whole economy was based on the soils and enslaved peoples. This went on until the Civil War and a bit beyond, but eventually it all came crashing down.'

Poor farming methods combined with Alabama's high rainfall to wash the thick, dark, fertile soil away and cotton productivity declined. This, in turn, combined with the emancipation of the slaves. 'Together, soil





A wood stork - a giant wading bird



MISTY NELSON/AUDUBON PHOTOGRAPHY AWARDS

The outlandish painted bunting



MATTHEW ORSELLI/SHUTTERSTOCK

RICHARD G SMITH/SHUTTERSTOCK

Christopher Joe guides a group of birders around his farm



ALABAMA AUDUBON

## TRAIL BLAZING

● Alabama is justly proud of its bird fauna (to the point where 2023 has been declared the Year of Alabama Birding). According to the Alabama Ornithological Society's official state list, 420 species can be found within its borders.

In order to capitalise on this diversity, and to help people appreciate it, the Alabama Tourism Department has overseen the development of a series of birding trails across the state. 'It started in the late 1990s,' explains Joe Watts, a past president of Alabama Audubon, who was instrumental in developing many of the trails. 'The folks along the coast, which is renowned for great birding, decided that they wanted to find a way to increase the economic impact of having birders coming in, to get them to stay a little bit longer by making it easier for people to find good birding locations. So they built the coastal birding trail, which features 50 locations around the Alabama coast. Then the North Alabama folks said, "Hey, this is working really well for the coast. Let's do it in North Alabama," which is where we get a lot of sandhill cranes. And sometimes about 15 of the less than 700 total world whooping crane population spend the winter in North Alabama.'

The tourism department then decided to expand the programme to cover the whole state, which led to the creation of six more trails, including one across the Black Belt. 'We got together small groups of people in each region to talk about which locations were good for birds and to work with the local chambers of commerce so that they understood what birding could bring to their community,' Watts explains. 'Then we got some local volunteers from the Birmingham Audubon Society to go out and scout the locations, which turned into about 180 locations around the state, excluding north and coastal Alabama. We hired a naturalist to go out and do write ups of what species and what kind of habitats there were at each location. It was a pretty in-depth, several-year process of making sure that we were picking places that were good for birds, but also places that were geographically diverse.'

The resulting website is remarkably comprehensive. Each entry has maps and information on logistics, how to get to the sites, what to expect while you're there, the best times a year to visit and of course, what birds you might see.

One of the sites on the Black Belt trail is Perry Lakes Park in Perry County, home to several oxbow lakes and cypress swamps. 'It's a favourite place for birds of the region to go visit, but they had to shut it down because it needed some repair and maintenance. A couple of years ago, our staff helped to raise the funds needed for the restoration,' says Duncan. The park features a newly rebuilt 30-metre-tall birding tower. 'Birders can get up above the canopy or stay in the canopy and look for warblers and other birds.'

*To learn more, visit [alabamabirdingtrails.com](http://alabamabirdingtrails.com)*

erosion and emancipation pretty much brought about the end of cotton farming in the Black Belt,' says Duncan. The local economy shifted first towards growing soybeans and then peanuts before settling on raising beef cattle and catfish, farming systems that are typically based on large areas of land being managed by a few people. 'So we wound up having the situation where there's a lot of African American people who have lived in the Black Belt for generations – that's their home, that's their community – but there's never been enough economic activity to help lift up the economy. So there's a lot of poverty in the Black Belt and that's all the more reason to look for ways to help lift up this region.'

The Black Belt does already have a relatively well-established tourism economy, focused largely on the history of the civil rights movement. The region hosted the famous Montgomery bus boycott of 1955–56, which made Rosa Parks a national hero, and is home to the church in which Martin Luther King Jr began his career as a preacher and the infamous Edmund Pettus Bridge, where policemen and white vigilante groups brutally attacked peaceful marchers with tear gas and nightsticks in an event now known as Bloody Sunday. To a certain extent, the Black Belt Birding Initiative hopes to piggyback on this existing popularity.

One of the initiative's most visible activities thus far is the Black Belt Birding Festival, which Alabama Audubon puts on each August. 'August is brutally hot. It's humid, too, so it's a really tough time to do the festival,' Duncan says. 'The reason we do it then is because of a bird phenomenon that can happen in the Black Belt at that time of year – and pretty much only that time of year.'

The phenomenon in question involves a striking black-and-white bird called the swallow-tailed kite. 'At that time of year, the kites have already bred – the chicks have fledged – so you have adult birds and fledglings that will eventually head down to Central and South America for the winter,' Duncan says. 'But it's too early and they need to fatten up for that trek. They wander out into different areas where they can find lots of food and one of them is the Black Belt.'

In August, the farmers harvest the hay, which kicks up a lot of grasshoppers and other insects. 'Within a fairly short period, you can have dozens of kites swirling around catching the insects,' Duncan explains. 'Most people have never seen these kites before, or they've seen them at a distance, and here they're swooping by, sometimes at head level. It's absolutely stunning.'

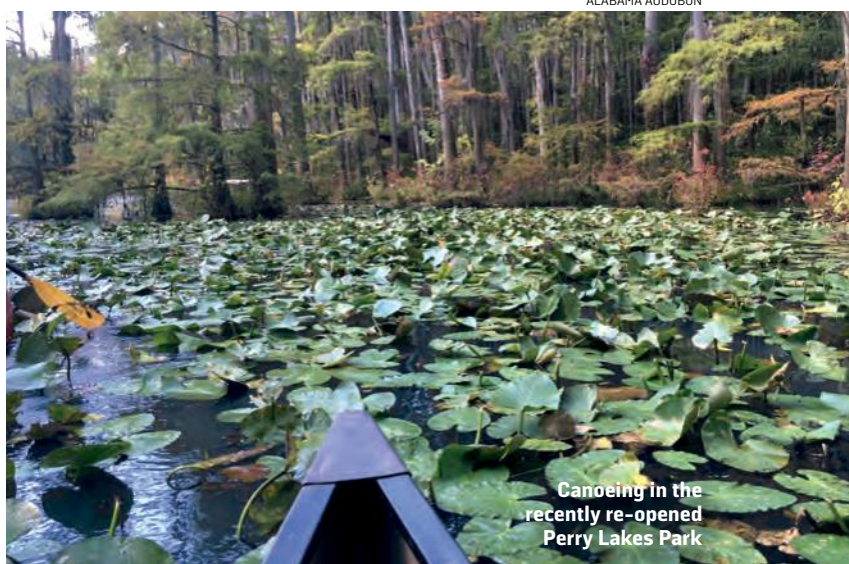
Interestingly, it was the spectacle of the kites swarming around the hay fields that acted as one of the progenitors of the initiative and sparked its most significant success story to date. What was then the Birmingham Audubon Society had been organising field trips to the region for some time, but the visiting groups rarely spent much money there. With that in mind, the then executive director, Ansel Payne, had been hoping to find local African-American landowners with whom the society might partner to bring ecotourism and conservation to the Black Belt. During a field trip in the summer of 2018, birders had watched from afar as kites swirled around Cornelius Joe and his son Christopher as they mowed the hay fields on their 80-hectare multi-generational, family-owned black Angus cattle farm. 'I remember seeing some cars off the highway in the distance,' Chris

later told [birdcollective.com](http://birdcollective.com). 'I had no idea what they were doing, but it turns out they were watching the kites.'

Chris had been looking for ways to bring people to the farm as a way of diversifying its income, and having come across photos on Instagram of the Birmingham Audubon Society outing, he reached out to the organisation. The end result is a close partnership between the farm and the society – and the formulation of the Black Belt Birding Initiative.

Today, the farm hosts the birding festival, ferrying people around in a custom-made six-metre trailer with a spring-loaded rear ramp and harvesting the hay on the day. The family's nascent birding business, Connecting with Birds and Nature Tours, hosts tours and other events on the farm throughout the rest of the year. 'Chris has become something of a celebrity, in terms

ALABAMA AUDUBON



Canoeing in the recently re-opened Perry Lakes Park

## Unsurprisingly, the runaway success of the bird tours on the Joe farm has sparked interest from a number of other local landowners

of bringing attention to the Black Belt,' Duncan says. 'He's getting lots of media attention.' The family actively promotes hotels and restaurants around the region in the hope that visits to the farm will have a larger impact.

Unsurprisingly, the runaway success of the bird tours on the Joe farm has sparked interest from a number of other local landowners, who have begun to express a desire to explore the possibility of moving into ecotourism. 'We advise them on things like, what is it that birdwatchers want to see, which birds people want to see, what time of year they're going to be present, how to manage your landscapes so that these birds will be present and abundant,' Duncan says. 'And we also help with getting that information out to the world so that people know that there are these places they can come to the Black Belt to stay and enjoy the bird life.' ●

For more information, visit [alaudubon.org](http://alaudubon.org)



*U.S. Space & Rocket Center*



*Gulf Shores - Orange Beach*



# Sweet Home Alabama

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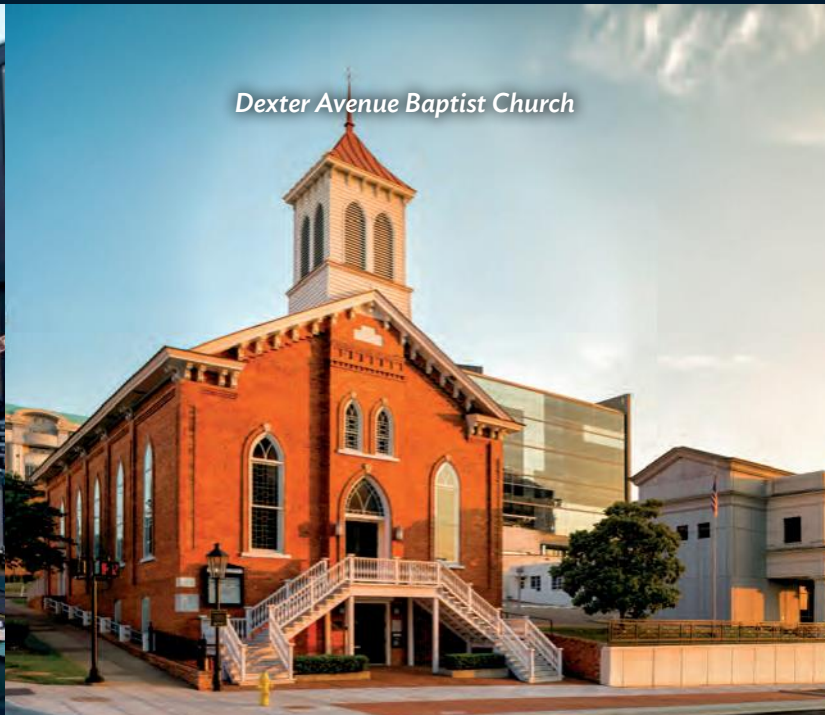
Scan the QR code  
to go directly to the  
website.



*W.C. Handy Music Festival*



*Dexter Avenue Baptist Church*



# GALLERY

## Best of British nature

Founded in 2009 by Maggie Gowan, who at that time was the manager and adviser of photography at Highgrove Garden, the home of HRH Prince Charles, the annual British Wildlife Photography Awards are aimed at highlighting the great wealth and diversity of Britain's natural history. More than 13,000 images were submitted to this year's competition, a selection of the winners from which are showcased here.

*Further details about entering the competition can be found at [www.bwpawards.org](http://www.bwpawards.org)*



© PHILIP SELBY/BRITISH WILDLIFE PHOTOGRAPHY AWARDS



■ *Sleeping with Dandelions*, Lewis Newman; Animal Portraits, winner. 'After spending a lot of time with this particular vixen, she began to learn I wasn't a threat. As the dandelions began to open, there were a couple of days when she would wake up covered in them.'

■ *Mystical Forest*, Philip Selby; Wild Woods, winner. 'On the remains of an Iron Age hill fort on Badbury Hill in Oxfordshire, Badbury Clump is an area of wonderful beech woodland, carpeted in bluebells each spring.'



© JAMES RODDIE / BRITISH WILDLIFE PHOTOGRAPHY AWARDS



■ **Hitching a Lift**, James Roddie; Animal Behaviour, winner. 'The common toad's migration to its spawning grounds can be a spectacular event to watch. As the large females make their way to the water, the smaller males approach them to try to "hitch a lift". It can result in some amusing behaviour, as multiple males will often try to mount the same female.'

# GALLERY

© HENLEY SPIERS/BRITISH WILDLIFE PHOTOGRAPHY AWARDS



■ *Welcome to the Zoo(plankton)*, Henley Spiers; *Coast & Marine*, winner. 'One night in Shetland, I came face to face with plankton on a scale unlike anything I had experienced before, snorkelling amid a plankton bloom so thick that, at times, I was unable to see through it. To the naked eye, it looks like a million peach-coloured spheres, as if the contents of a bean bag had spilt over the sea, but my macro lens reveals a mass of tiny organisms.'



■ *Great Mell Fell*, Matthew Turner. *Black & White*, winner. 'I spent a good few hours on this foggy morning exploring the wooded eastern contours of Great Mell Fell in the Lake District. I clambered through the jumble of fallen trees and eventually stumbled upon this decaying specimen, which looked to me like a claw reaching out from the pile of decomposing tree carcasses beneath.'

© MATTHEW TURNER/BRITISH WILDLIFE PHOTOGRAPHY AWARDS



■ **Honey Bee Flight Trail**, John Waters; *Hidden Britain*, winner. 'This shot was taken in a small wildlife-friendly garden in Bristol. I used a slow shutter speed and second-curtain flash to "freeze" the bees.'

© JOHN WATERS / BRITISH WILDLIFE PHOTOGRAPHY AWARDS

© MATT DOOGUE / BRITISH WILDLIFE PHOTOGRAPHY AWARDS

■ **A Poet's Lunch**, Matt Doogue; *Botanical Britain*, winner. 'A 4.30am alarm to get to Devilla Forest for some early morning butterflies resulted in me finding my first ever sundew.'





■ *Stag by the Loch Side*, Neil McIntyre; Habitat, winner.

'This stunning location [in the western Highlands, Scotland] is one I visit frequently with the hope that I might get opportunities just like this. I moved into position and waited until the stag made his way along the ridge; sure enough, he walked right through the light patch.'

© GRAHAM NIVEN / BRITISH WILDLIFE PHOTOGRAPHY AWARDS



■ *Forest Dawn*, Graham Niven; Wild Woods, runner-up. 'The Abernethy Forest in Cairngorm National Park is a very special place that I am fortunate to call home. It's a wonderful place for photography and I am always trying to capture its splendour and translate some of the magic and value it holds.'



© ROBERT CUSS / BRITISH WILDLIFE PHOTOGRAPHY AWARDS

© MATTHEW CATELL / BRITISH WILDLIFE PHOTOGRAPHY AWARDS

■ **Pike Courtship**, Robert Cuss; Animal Behaviour, runner-up. 'This photo was taken on a dive aimed at finding breeding pike in a quarry. During courtship, the males are oblivious of divers, so it was possible to get close to them and take a series of pictures, even with a fisheye lens.'



■ **Helter Skelter**, Matthew Cattell; Urban Wildlife, runner-up. 'Every night during winter, Brighton plays host to a spectacular murmuration of starlings. As they arrived to roost, they swept across the sea, producing graceful, elegant curves across my viewfinder.'

# A head for heights

**P**eople sometimes ask me, “Why do you have this curiosity for different places,” says Romanian-born photographer Ana-Maria Pavalache. ‘I come from an ex-Soviet country that was very closed and closed-minded, but somehow I had that open door. My father worked in the Gulf countries, and although we never travelled with him, we used to go to the airport and wait for him. I would have images of those places in my mind and in a country where you see very little, you learn very little, that was kind of like my open door.’

That childhood curiosity has since taken Pavalache far and wide – trekking in Ladakh, sailing in the Pacific Northwest, exploring glaciers in the Karakoram range and working with wildlife in Tajikistan. Her most recent expedition was in the Middle East. ‘I was involved with Mark Evans – we did a traverse of Saudi Arabia following the route taken by [Harry St John Bridger] Philby 106 years ago,’ she says.

After studying economics and geopolitics, Pavalache worked for a few years in the banking industry. ‘I found myself in a career that didn’t fit me, but then I was lucky to get involved with different projects in Central Asia,’ she says. Working on those projects, she often found herself with a camera in her hand and slowly but surely, photography became an essential part of her life. ‘The camera was like my passport to interact with people,’ she says. ‘It was the perfect excuse to go, and to connect with the elements and the environment and the people. I become so immersed in what I’m doing that it’s as though there is nothing around me.’

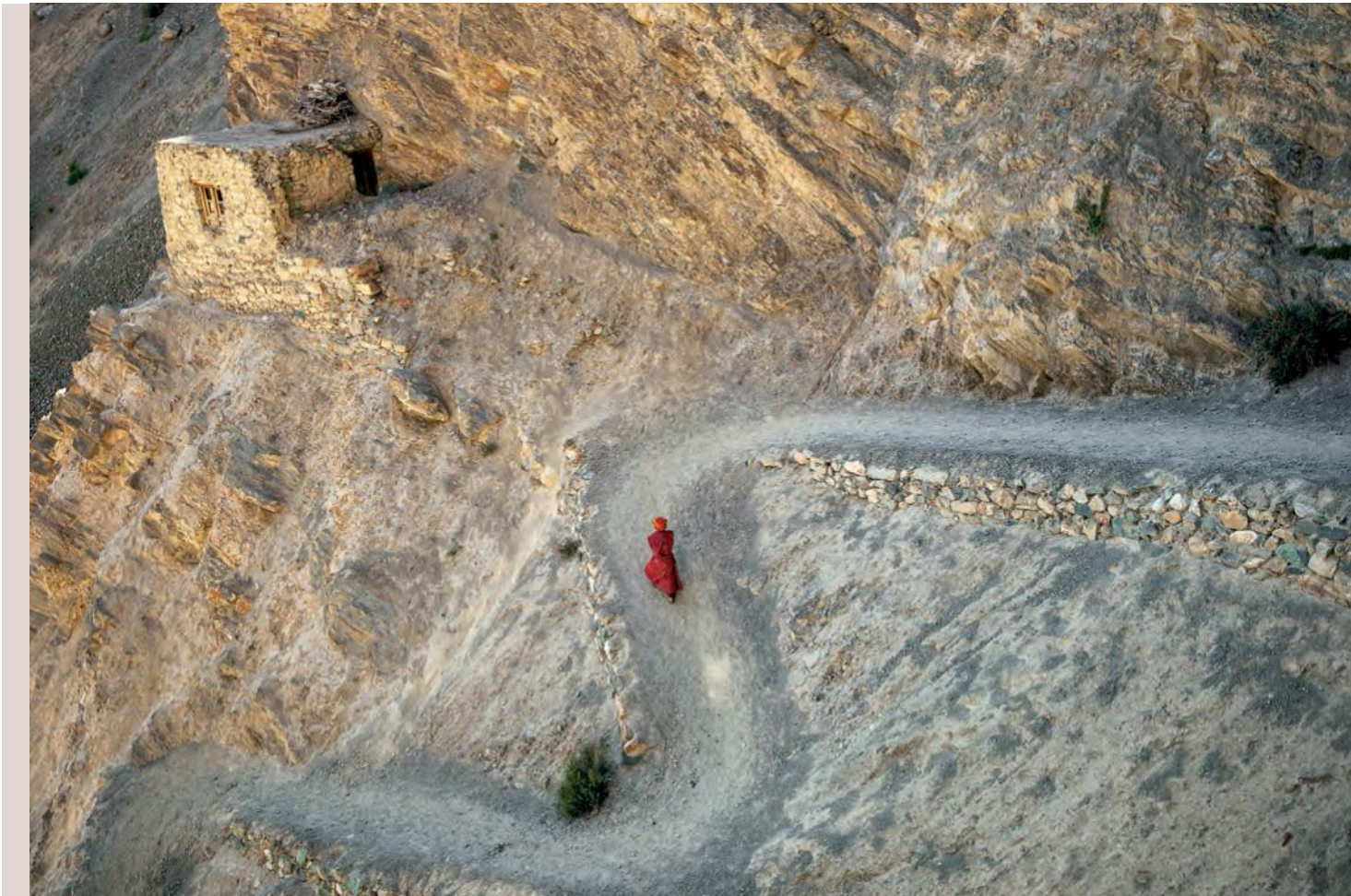
Currently based in Vevey, Switzerland, on the shores of Lake Geneva, Pavalache works part time as a social educator, but is always on the lookout for ways to return to the isolated communities that she has grown to love, particularly in Asia’s highest regions. ‘For me, it’s the place where I can finally breathe.’ ●

[www.anamariapavalache.com](http://www.anamariapavalache.com)



Portrait of a young woman from the village of Kupwara in northern Kashmir, India. 'Her beautiful eyes reflect the natural beauty of the region'





Phuktal Monastery, Zaskar, Ladakh, northern India. 'Deep in the isolated Lungnak Valley in Ladakh lies Phuktal Monastery, a place of peace, where the dazzling red and flowing robes of the young monks distract from the harsh physical existence'



Basho Valley, Gilgit-Baltistan, Pakistan. 'High among the clouds of the western Himalaya hangs the valley of Basho. Sultanabad is the uppermost village in the valley, culminating in the gateway to the villages' common grazing areas and one of Baltistan's largest natural forests, where locals collect firewood, both for food preparation and heating during the long, cold winter'

**GEO-PHOTOGRAPHER**  
**Ana-Maria Pavalache**



A traditional *shikara* crafted from deodar wood on Dal Lake, Srinagar, Jammu and Kashmir, India



Ladakh, northern India. 'Is there anything wilder than horses running free across the Tibetan plateau?'



Baltoro Glacier, Gilgit-Baltistan, northern Pakistan, with the Great Trango Tower in the background



Lake TsoMoriri, Ladakh, India. 'A nomad's traditional robe is framed by the lake's crystalline waters, which light up the surrounding mountains'

**PURPOSE**

■ To immerse people in some of the world's less-known places, and to bring them an understanding of our place in the world using visual storytelling. And hopefully show people that what we do here can have an impact in those beautiful environments out there.

**INSPIRATION**

■ I studied economics and I have always been interested in the impact of the Old World economies on human beings, so Sebastião Salgado has always been an inspiration. His work is very touching. And Henri Cartier-Bresson and the 'decisive moment'.

**ADVICE**

■ Have an open mind. Try to keep learning all of the time, but at the same time, be prepared to fail. Take creative risks. Look at different types of art and take inspiration from them. Surround yourself with inspiring people. And just to go out and explore.

The fallen Hardy Tree



# Ash to ashes

RORY WALSH

### Rory Walsh revisits a famous London tree

Once upon a time, there was a tree beside an old church... When the Midland Railway Company began building its new station during the 1860s, the line ran through St Pancras churchyard. Numerous graves had to be dug up and moved. The story goes that an assistant architect by the name of Thomas Hardy stacked rows of headstones around the trunk of an ash tree. Hardy went on to become a world-famous writer and the 'Hardy Tree' a unique literary landmark. Hardy died in 1928. His wish was to be buried at Stinsford in Dorset, in the same grave as his late first wife, Emma. Instead, only Hardy's heart got there, along with a surgeon's hungry cat, which died after nibbling at it. The rest of Hardy was cremated then placed in Poets' Corner in Westminster Abbey. Almost a century later, the Hardy Tree departed St Pancras. In the early hours of 27 December 2022, it collapsed.

When standing, the tree was one of the strangest sights in any British churchyard. As the ash's roots spread



The Hardy Tree in its prime

among the stones, its backstory drew generations of visitors, including me for the July 2021 *Geographical*. The tree then offered 'a powerful reminder of the bonds between nature and nurture, progress and history, the future and the past.' Revisiting two years later was a poignant experience.

On a breezy March morning, the tree lay splayed upon the ground and penned behind a metal fence. The trunk had fallen parallel to the railway line. Broken branches recalled

fractured limbs. Bone-like twigs were scattered in the grass. Embedded in the stump was a chipped shard of a gravestone, disturbed for a second time. Birds called, surrounding trees rustled – a chorus of mourners.

Besides its physical decline, the tree has befallen the fate of other famed figures. Loved in life, it has been debunked in death. Photos of St Pancras churchyard from 1926 show the piled gravestones without the tree. The ash, it seems, had sprouted from a seed that had landed among the stones half a century after Thomas Hardy worked there. The story of the 'Hardy Tree' is a romantic myth.

A myth but not a lie. The tree remains a symbol of life and death, and a reminder that places change. It also reflects how often landscapes are subject to our interpretations of them. At the time of writing, discussions were ongoing over what to do with the tree. Will the fall of a legend be the end of the story or a new chapter? ■



#### VIEW

Urban · Greater London  
[www.discoveringbritain.org](http://www.discoveringbritain.org)

# Sketch map of Mount Everest

1924

This map of the region around Mount Everest, which was published in the December 1924 edition of the *Geographical Journal*, was based primarily on surveys carried out by Major Edward Oliver Wheeler during the 1921 British Mount Everest reconnaissance expedition, which had been tasked with reconnoitring possible routes for ascending the mountain. At that time, Nepal was closed to foreigners, so the expedition party was forced to approach the mountain from the north, through Tibet. Wheeler, together with Guy Bullock and George Mallory, identified the East Rongbuk Glacier as a key approach to the valley that became known as the North Col and made the first ascent to the col before being forced back by high winds.

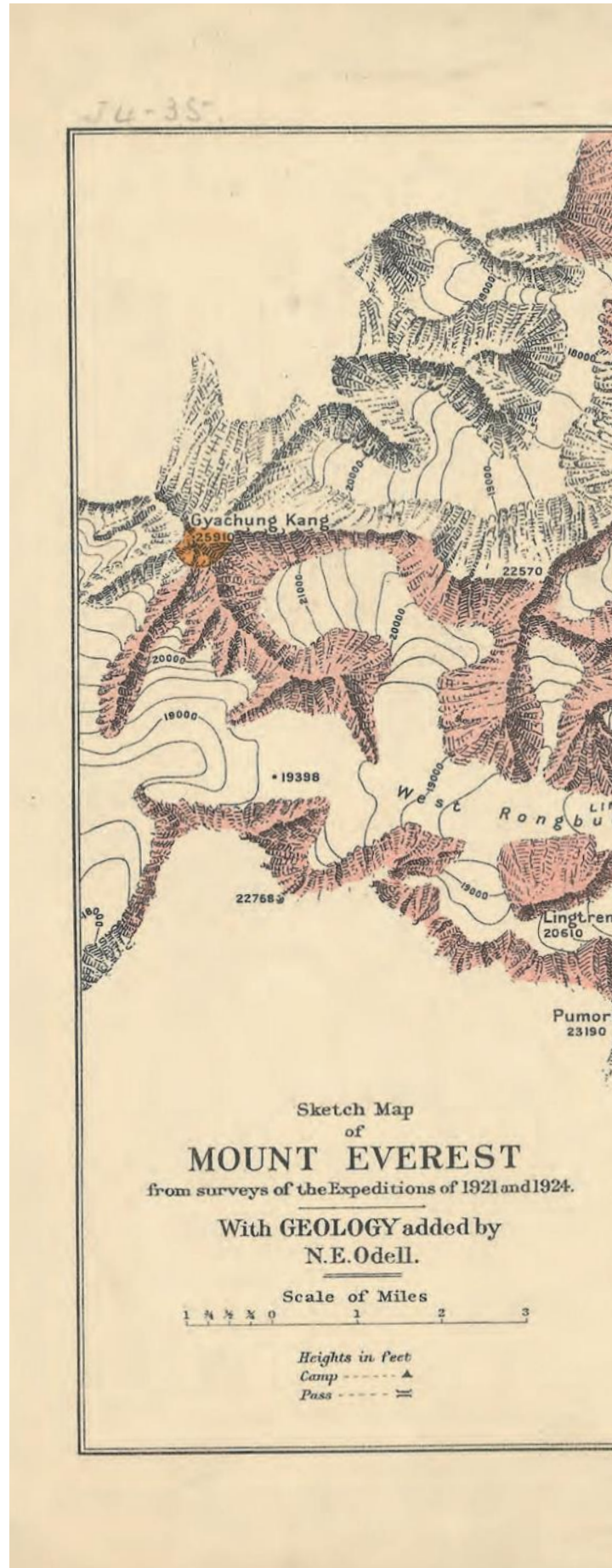
In his report to the Royal Geographical Society, the leader of the survey team, Lieutenant-Colonel Charles Howard-Bury, wrote that 'the expedition accomplished what it set out to do. All the approaches to Mount Everest from the north, north-west and east were carefully reconnoitred, and a possible route to the top was found via the north-east ridge... Some 13,000 square miles [33,670 square kilometres] of new country was surveyed and mapped.' The maps produced by the expedition were so accurate that they are still in use today.

The map shown here also contains updates based on information gathered by the subsequent 1924 British Mount Everest expedition, now famous due to the disappearance of George Mallory and Andrew Irvine as they were approaching (or perhaps descending from) the mountain's summit. Details of the region's geology were added to the map by Noel Ewart Odell, who was the last person to see Mallory and Irvine alive.

Following the 1924 expedition, British climbers were banned from making further attempts until 1933, when a fourth expedition was made. Subsequent attempts took place in 1935, 1936, 1938, 1951 and 1952 (Swiss), before Edmund Hillary and Tenzing Norgay became the first to reach the summit in 1953. ■

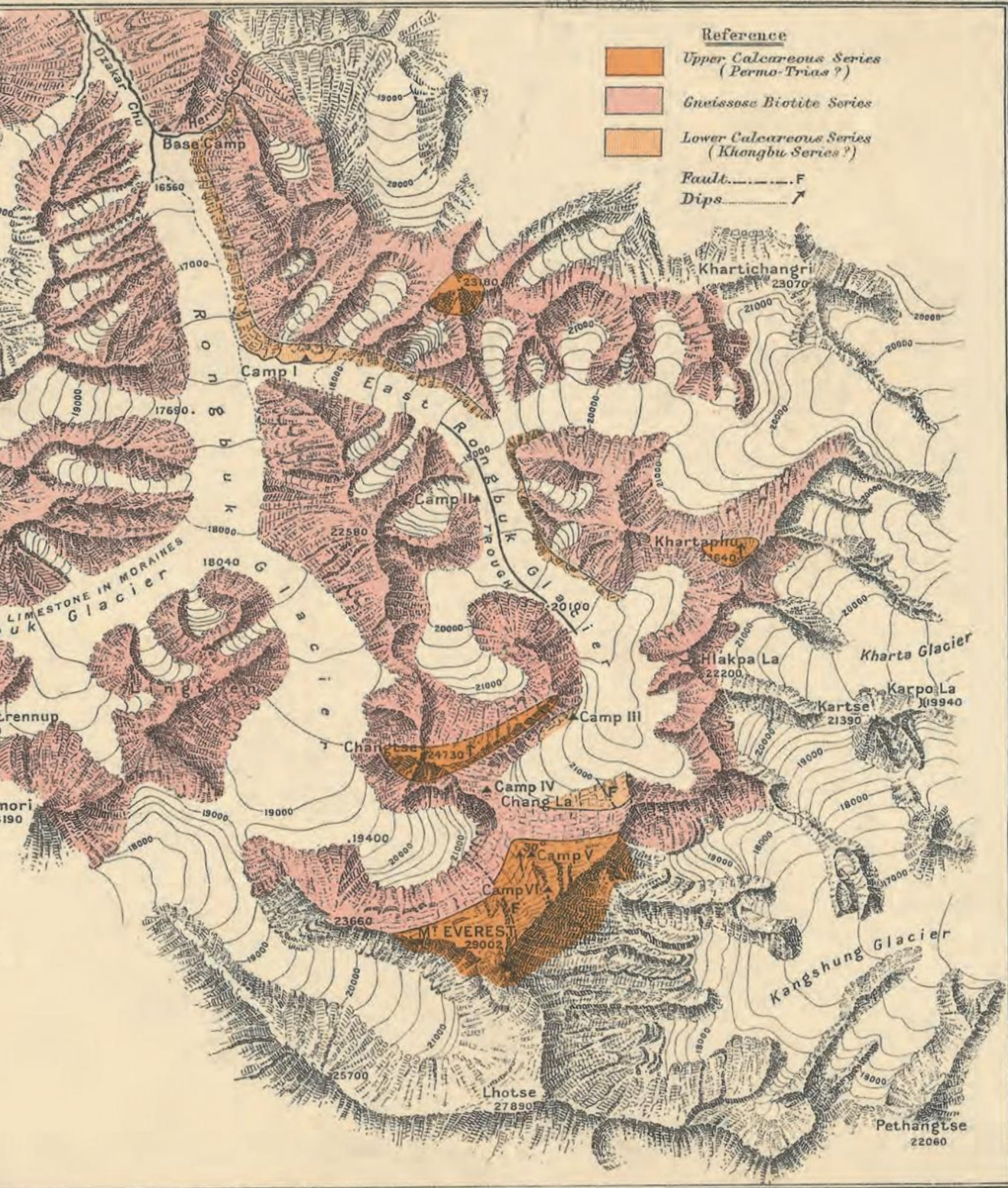
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Advancing geography and geographical awareness

The Royal Geographical Society Picture Library is an unrivalled resource, containing more than half a million images of peoples and landscapes from all over the world. The collection holds photographs and works of art from the 1830s onwards and includes images of exploration, indigenous peoples and remote locations. For further information on image licensing and limited-edition prints, or to search our online collection of more than 7,000 images, visit [www.rgs.org/images](http://www.rgs.org/images). Rolex kindly supports public access to the Society's collection of photographs, books, documents and maps.



1 OCT 1925

THE GEOGRAPHICAL JOURNAL, OCT. 1925



Reference

- Upper Calcareous Series (Permo-Trias?)
- Gneissose Biotite Series
- Lower Calcareous Series (Khongbu-Series?)
- Fault.....F
- Dips.....↗

Published by the Royal Geographical Society

EVEREST - GEOLOGY  
Odell

ROYAL GEOGRAPHICAL SOCIETY (WITH 189)

# Society support for professional geographers



If you're a professional working within geography or a related area, Society membership is an excellent way to enhance your career and broaden your networks, with tailored benefits to support you as you progress in your field.

As the learned society and professional body for geography, we aim to provide access to the best possible resources to support geographers' professional development. If you regularly use your geographical skills and/or knowledge in the workplace, the Society can support you to reach your goals, regardless of career stage.

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## ROYAL GEOGRAPHICAL SOCIETY (WITH IBG) SELECTION OF EVENTS FOR MAY

### 13 May, 10am–12pm Guided walk (In-person, Nottingham) Nottingham city walk

Join the Midlands committee for a two-mile walk around Nottingham, taking in the Forest Recreation Ground, Boer War Memorial, Nottingham Castle and the oldest inn in England.

■ Venue: NET Tram Park and Ride, Clifton South, Nottingham, NG11 8BF  
Tickets: Free, open to all  
[geog.gr/Nottingham](http://geog.gr/Nottingham)

### 22 May, 2.30pm–3.45pm Talk (Online and in-person, London) Atlas of geographical curiosities – Vitali Vitaliev

Vitali introduces some interesting, unexpected and downright bizarre geographical curiosities, many of which still exist under the radar.

■ Venue: Royal Geographical Society (with IBG), 1 Kensington Gore, London, SW7 2AR  
Tickets: £5, free for RGS-IBG members  
[geog.gr/Anomalies](http://geog.gr/Anomalies)

### 17 May, 7pm–8.30pm Panel discussion (Online and in-person, London) Travel writing evening

Join our panel of travel writers as they share hints and tips on how to capture and record your journeys in writing, as well as their experiences on assignment.

■ Venue: Royal Geographical Society (with IBG), 1 Kensington Gore, London, SW7 2AR and online  
Tickets: £12 (in-person) or £6 (online); £10 (in-person) or £5 (online) for RGS-IBG members  
[geog.gr/TravelWriting](http://geog.gr/TravelWriting)

### 24 May, 7pm–8.30pm Talk (In-person, Poole) Recreation of a Phoenician voyage 2,000 years before Columbus – Philip Beale

This illustrated lecture will challenge everything you thought you knew about Columbus and the discovery of the New World.

■ Venue: Cobham Lecture Theatre, Bournemouth University, Talbot Campus, Fern Barrow, Poole, BH12 5BB  
Tickets: Free, open to all  
[geog.gr/Phoenicia](http://geog.gr/Phoenicia)

### 19 May, 7pm–8.30pm Music (In-person, Ambleside) Music and environmental activism – Sarah Smout

An evening of mesmerising music and conversation with cellist, singer and activist Sarah Smout, discussing the role of music and art in encouraging positive environmental change.

■ Venue: Percival Lecture Theatre, University of Cumbria, Ambleside Campus, Rydal Road, Ambleside, LA22 9BB  
Tickets: £10, free for University of Cumbria students  
[geog.gr/SarahSmout](http://geog.gr/SarahSmout)

### 25 May, 6.30pm–9.30pm Geographical late (In-person, London) Base camp RGS

Meet those who've climbed the highest peaks and individuals at the cutting edge of policy and research into our high-altitude environments.

■ Venue: Royal Geographical Society (with IBG), 1 Kensington Gore, London, SW7 2AR  
Tickets: £20, £18 for RGS-IBG members  
[geog.gr/BaseCampRGS](http://geog.gr/BaseCampRGS)

■ The Royal Geographical Society (with IBG) is the home of geography. Founded in 1830, we are the UK's learned society for geography and professional body for geographers. Our core purpose is to advance geographical science. We achieve this in many ways, through our charitable work in education, research and fieldwork, and more widely as a membership organisation.

The Society welcomes anyone fascinated by the world's people, places and environments. Membership is open to all and tailored to you. Whether you're a Fellow, Associate Fellow, Student Member or Member, we make your adventures in geography richer and more meaningful.

*Geographical* is the Society's magazine, and available with all types of membership – but there are so many other benefits. Our Fellows and Members gain access to topical events and activities, where you can meet others who share a passion for geography.

So whether you're a geography professional or student, or simply have a thirst for geographical knowledge, membership of the Society will satisfy your curiosity.

■ For more on what membership has to offer you, visit our website at: [www.rgs.org/join-us](http://www.rgs.org/join-us)

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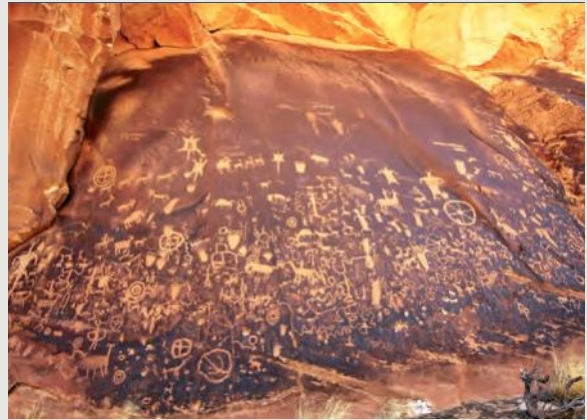
### RGS-IBG CORPORATE SUPPORTERS



# Where in the world?



Clue: On the left in the image; on the left of the continent



Clue: Latter-day news media



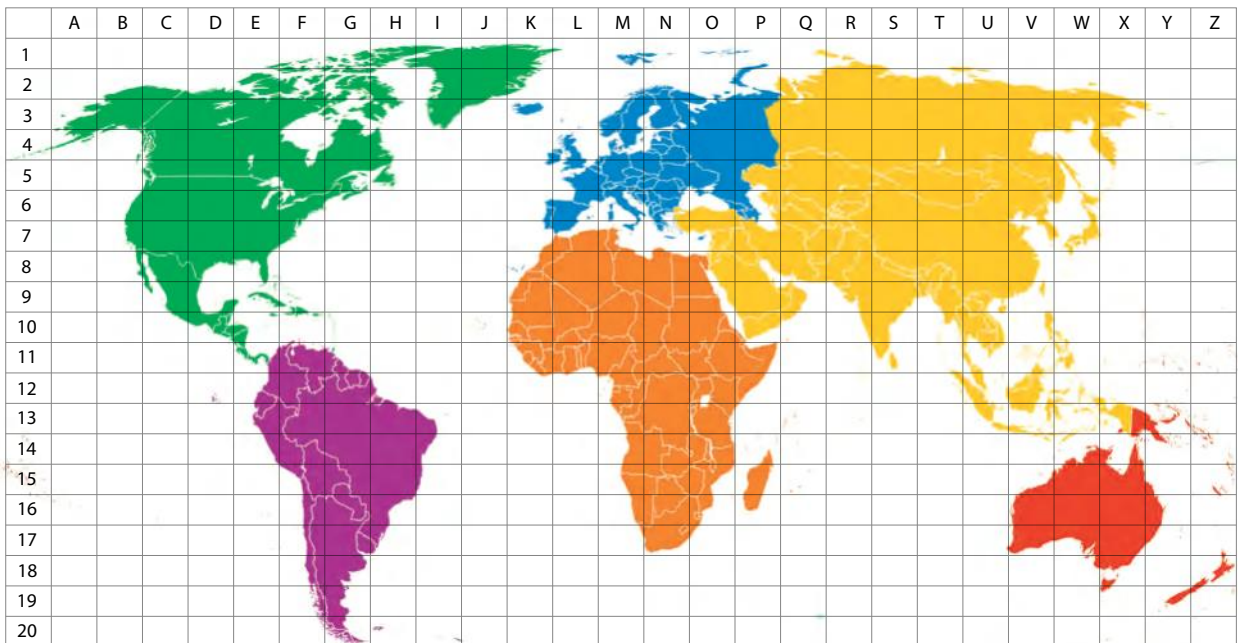
Clue: In a remote part of a remote continent



Clue: 'The Sistine Chapel of Prehistory'

IMAGES SHUTTERSTOCK

Where are these examples of rock art located and can you plot their locations on the map below?  
Find the correct coordinates at the bottom of page 82



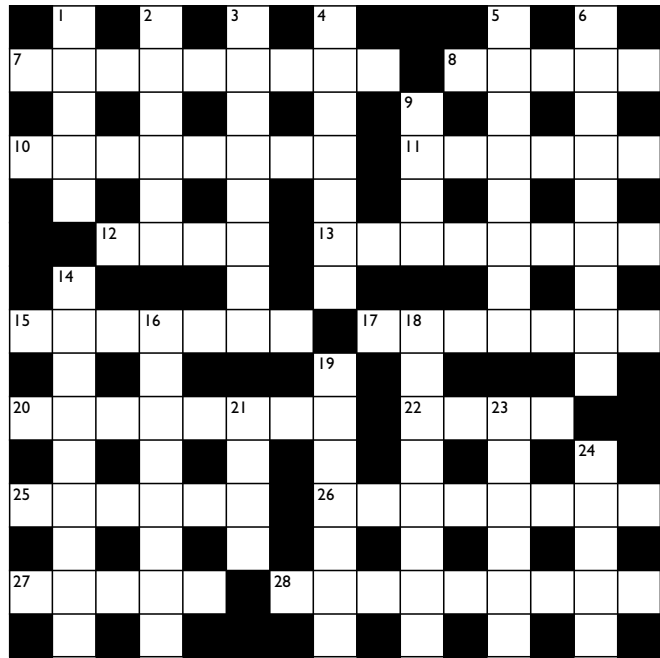


**ACROSS**

- 7** Upsetting tapes show where labour is exploited (9)
- 8** A bit of French I learned here in South America (5)
- 10** Possibly get Marie to settle abroad (8)
- 11 and 22 across** Did new soup spill when inverted? (6,4)
- 12** Rebuff return of cakes (4)
- 13** Russian 'openness' – it is lacking from hopeless nostalgist (8)
- 15** Leave with an old version of canal boat? (7)
- 17** I told wave energy leaders roughly when most of the shoreline is exposed (3,4)
- 20** Carry on once unit has been reformed (8)
- 22** See 11 across
- 25** Five to nine, maybe, and a European capital (6)
- 26** Attempt to include a piece of underwear, but it's an absurdity! (8)
- 27** Australian city with cheeky hotel! (5)
- 28** Uranium fuel a bit unstable, but very attractive (9)

**DOWN**

- 1** Marshy area was redeveloped by politician (5)
- 2** From Pisa I go next to old Vietnamese city... (6)
- 3** ...newly built as northern Turkish city (8)
- 4** Being from overseas makes no grief (7)
- 5** Wood used to make huts, etc, around November (8)
- 6** Old shipbuilding area controversially decides to include leafy outskirts (9)
- 9** Where initially Castro underestimated belligerent America? (4)
- 14** Italian mountains with modest oil production (9)
- 16** Initiate explosion in English public school during 5th November, for example (8)
- 18** Wiltshire Iron Age hill fort with small modular design (3,5)
- 19** Hear about the moorland plant (7)
- 21** A piece of fishing equipment outside, in good order (4)
- 23** You and I have wicked little beetle (6)
- 24** Tourists unusually sit out on English river (5)



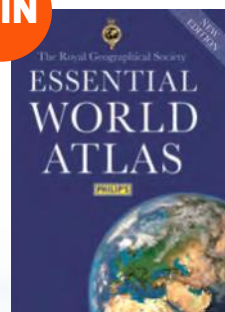
**APRIL CROSSWORD SOLUTION**

**ACROSS**

- 1 President 8 Easter 9 Island 12 Noah 13 Putin 14 Keep
- 17 Aussies 18 Skipton 19 Tallinn 22 Samaria 24 Loam
- 25 Danes 26 Fund 29 Ankara 30 Violet 31 Celandine

**DOWN**

- 2 Rite 3 Straus 4 Deities 5 Nile 6 Calais 7 Unrest 10 Unearthly
- 11 Spaniards 15 Civil 16 Miami 20 Learnt 21 Niagara
- 22 Swerved 23 Routes 27 Cape 28 Horn



Download your entry at: [geog.gr/cross\\_word](http://geog.gr/cross_word) or simply fill in and cut out the grid above. Send your entry to the editorial address on page four, marked 'May crossword'. Entries close 21 May. The first correctly completed crossword selected at random wins a copy of Philip's Essential World Atlas, a comprehensive hardback atlas worth £25. For details, visit [www.octopusbooks.co.uk](http://www.octopusbooks.co.uk)





Wooden pontoons are equipped with pumps to dredge the sea for up to ten hours a day

GUILLAUME COLLANGES

## THE JAVA SEA TIN RUSH

The most striking thing about the coastline at Batu Belubang, a village on the eastern coast of Bangka, a large island off Sumatra in Indonesia, is the colour of the Java Sea. The water isn't the tropical blue you would expect but cloudy and brown, polluted by sand and silt.

Indonesia is one of the world's largest exporters of tin and resource-rich Bangka produces nearly 80,000 tonnes of the metal each year. Sixty per cent of the island's economy is based on ore mining. However, heavy demand for tin has driven exploitation of Bangka's land deposits, and reserves are now running dry. Instead, miners have turned to the sea, where even richer deposits can be found.

Tin mining has already had devastating ecological consequences for the island, leaving behind a lunar

landscape of barren earth and acidic lakes. As the mining has moved offshore, where miners on wooden pontoons dredge the seabed in search of the lucrative ore, its environmental impact now risks the livelihoods of tens of thousands of local fishers. The mining boats leave thick slicks of mud up to 100 metres wide in their wake – sand, silt and rock that has been sieved and dumped back into the sea.

The mud covers everything, including Bangka's dying coral reefs, as Arnaud Guiguitant and Guillaume Collanges reveal in their report from the island. Ten years ago, Guiguitant reported for *Geographical* on the destruction mining had wreaked on Bangka's interior. He returned to see the impact of the move offshore. Read his full report, with stunning images by Collanges, in our June issue, an oceans special focusing on the threats faced by our blue planet.

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