Saving species

Eco-nomics

Conservationists are rethinking how to preserve nature on a changing planet—and within a tight budget

THE NORTHERN spotted owl, pictured above, is a handsome creature. Dark brown and, as the name implies, dappled with white flecks, it stands up to half a metre tall when perched on branches in the ancient forests of America's north-west. Its swivel neck lets it scan its sylvan habitat for woodrats, flying squirrels and other prey—or, rather, to scan what is left of that habitat, after decades of heavy logging. This logging has caused the owl's numbers to decline steadily. Fewer than 2,500 pairs remain, mainly in Oregon, northern California and Washington. As a result, the spotted owl is listed under America's Endangered Species Act.

Listing means money. Efforts directed at preserving spotted owls receive $4.4m a year, through various channels, from American taxpayers. This sum is almost double what the United States Fish and Wildlife Service (USFWS), a federal agency, recommends be spent on the species. Nor is the owl the only over-endowed threatened organism in America. In 2016 Leah Gerber of Arizona State University found that 139 of the 1,124 plants and animals with federal recovery plans in place got more than their fair share of public resources, as defined by USFWS recommendations. The surplus totalled $150m a year, more than a quarter of spending in the area. Re-allocated, this could bring nearly 900 currently underfunded plans up to budget.

Mussel beach

Conservation then, as is true of so many other things in life, is not fair. People have favourites, even within the official lists—and those favourites receive special treatment. Spotted owls get money. Scaleshell mussels, pictured overleaf, do not. Yet according to the Nature Conservancy, a big American charity, about 70% of North American mussel species are extinct or imperilled. That compares with 15% of birds.

Some of this favouritism may not matter (though freshwater mussels are important parts of their local ecosystems and were, until recent decades, so abundant that entire industries, such as buttonmaking, depended on them). But with extinction rates estimated as being between 100 and 1,000 times their pre-human level, and man-made climate change reshaping even those parts of Earth's surface that humanity has yet to trample under foot, ship or fishing net, a rational approach to conservation would be welcome.

The instinctive response of many conservationists to the sprawl of *Homo sapiens* across Earth's surface is to fence off sprawl-free areas as rapidly and extensively as possible. That thought certainly dominates discussions of the UN Convention on Biological Diversity, the main relevant international treaty. An eight-year-old addendum to the pact calls for 17% of the world's land surface and 10% of the ocean's water column (that is, the water under 10% of the ocean's surface) to be protected by 2020. Currently, those figures are 15% and 6%. Campaigners want the next set of targets, now under discussion, to aim for 30% by 2030—and even 50% by 2050. This last goal, biogeographers estimate, would preserve 85% of life's richness in the long run.

As rallying cries go, "Nature needs half" has a ring to it, but not one that sounds so tuneful in the poor countries where much of the rhetorically required half will have to be found. Many people in such places already feel "Cornered by Protected Areas", to cite the title of a report last year by the UN special rapporteur on indigenous rights. Some conservation projects wash their ▸▸

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faces as sources of income, by attracting high-spending tourists. Most, though, are seen as impediments to development.

James Watson, chief scientist at the Wildlife Conservation Society (WCS), another American charity, has an additional worry about focusing on the fence-it-off approach. If you care about the presence of species rather than the absence of humans, he warns, "'nature needs half' could be a catastrophe—if you get the wrong half." Many terrestrial protected areas are places that are mountainous or desert or both. Expanding them may not translate into saving more species. Moreover, in 2009 Lucas Joppa and Alexander Pfaff, both then at Duke University in North Carolina, showed that protected areas disproportionately occupy land that could well be fine even had it been left unprotected: agriculture-unfriendly slopes, areas remote from transport links or human settlements, and so on. Cordoning off more such places may have little practical effect.

The reverse of this, as Dr Joppa (who has since moved to Microsoft) and Stuart Pimm, another ecologist at Duke, have shown, is that even 17% of the world's land surface, if chosen carefully, could be arranged to protect as many as 67% of the world's plant species. In the United States it is the underprotected southern Appalachians, in the south-east of the country, that harbour the main biodiversity hotspots. The largest patches of ring-fenced wilderness, however, sit in the spectacular but barren mountain ranges of the west and north-west. In Brazil, the world's most speciose country, the principal hotspots are not, as might naively be assumed, in the vast expanse of the Amazon basin, but rather in the few remaining patches of Atlantic rainforest that hug the south-eastern coast. These are where SavingSpecies, a charity that Dr Pimm has founded, has focused its resources.

Nor is speciosity the only consideration. So is risk-spreading. A team from the University of Queensland, in Australia, led by Ove Hoegh-Guldberg, has used a piece of financial mathematics called modern portfolio theory to select 50 coral reefs around the world as suitable, collectively, for preservation. Just as asset managers pick uncorrelated stocks and bonds in order to spread risk, Dr Hoegh-Guldberg and his colleagues picked reefs that have different exposures to rising water temperatures, wave damage from cyclones and so on. The resulting portfolio, reported last June in *Conservation Letters*, includes reefs in northern Sumatra and the southern Red Sea that have not previously registered on conservationists' radar screens.

Local knowledge

Knowing where biodiversity worth saving is concentrated is useful, says Dr Watson. But knowing how to save it is just as important. The world's big nature conservancies, the WCS included, are therefore busily tracking what works, and at what price.

Conservation International (CI), a wildlife charity headquartered, like the Nature Conservancy, in Virginia, maintains a spreadsheet marking nearly 200 past and present projects on things like deforestation rates and species counts, as well as variables such as grant size and management quality. This latter is certainly important. In 2017 Michael Mascia, CI's chief scientist, published a paper on the matter in *Nature*. He and his colleagues found large disparities in staff numbers and skills between 62 marine sanctuaries in 24 countries. Though fish populations recovered in 70% of these sanctuaries after their establishment, those in the best-managed reserves did so three times faster than those in the worst-managed ones. Creating more reserves without investing adequately in the means of running them, Dr Mascia and his colleagues conclude, "is likely to lead to sub-optimal conservation outcomes".

Another common finding—counter-intuitive to those who take the "fence-it-all-off" approach—is that a mixed economy of conservation and exploitation can work. For example, rates of deforestation in a partly protected region of Peru, the Alto Mayo, declined by 78% between 2011 and 2017, even as coffee production increased from 20 tonnes a year to 500 tonnes.

This chimes with Dr Pfaff's observation of the Chico Mendes reserve in Brazil, which is deep in the Amazon basin but where some rubber-tapping and farming is permitted. Ungazetted parts of this region at similar distances from roads and other sources of human pressure experience considerably higher deforestation rates, but without any concomitant increase in economic productivity. In this area, then, having (and enforcing) the right rules seems to benefit biodiversity without constraining the economy. It is true that fully protected areas see less deforestation than the reserve, but these, as Dr Pfaff shows, are areas where you would not expect much tree-cutting in the first place. They are, in other words, the sorts of places that do not really need regulatory protection. Dr Pfaff and his colleagues have replicated these findings in other countries, including Peru and Cameroon.

Environmental groups can also draw on a growing body of academic research into the effective stewardship of particular species. For too long, says William Sutherland, of Cambridge University, conservationists have relied on gut feelings. Fed up with his fellow practitioners' confident but unsubstantiated claims about their methods, and inspired by the idea of "evidence-based medicine", he launched, in 2004, an online repository of relevant peer-reviewed literature called Conservation Evidence.

Today this repository contains more than 5,400 summaries of documented interventions. These are rated for effectiveness, certainty and harms. Want to conserve bird life threatened by farming, for example? The repository lists 27 interventions, ranging from leaving a mixture of seed for wild birds to peck (highly beneficial, based on 41 studies of various species in different countries) to marking bird nests during harvest (likely to be harmful or ineffective, based on a single study of lapwing in the Netherlands).

Dr Sutherland's dozen full-time staff and 250 collaborators sift through 230 or so ecological journals for updates. To catalogue dead-ends as well as successes, they look at foreign-language journals, where negative results spurned by more prestigious English-language periodicals as uninteresting are likelier to appear. The book version of their compendium, "What Works in Conservation", runs to 662 pages. It has been downloaded 35,000 times.

The next step, says Dr Sutherland, is to factor in costs. This is harder than it sounds. Few studies disclose expendi-

The owls have it

tures. Labour costs vary a lot: besuited consultants are more expensive than sandal-wearing volunteers. Financial-reporting standards in the conservation business are a work in progress. Only in July did *Conservation Biology* publish a proposed set of guidelines, by a group led by Hugh Possingham, of the University of Queensland.

Then there is land. Its price rises with demand, mostly from ranchers, miners, property developers and others eager to exploit rather than preserve it. This could be taken to imply that conservationists should be eyeing expensive plots, not cheap ones where the price signals a lesser threat. In Dr Pfaff's words, "no trade-offs means no impact". But others seek out bargains. Conservationists should "go to places five to 20 years from the bulldozer", Dr Possingham reckons. The Nature Conservancy, where he moonlights as chief scientist, has adopted this approach to its own considerable land purchases.

Pro bono publico

Tompkins Conservation, an outfit set up by the late Douglas Tompkins, founder of the North Face, a maker of outdoor kit, does one better. It has snapped up cheap properties in Chile and Argentina, next to larger areas of disused public land, with the aim of donating them to the state on condition that adjacent private and public plots are united into single national parks. And it is working. A year ago Chile's government created two such hybrids, both in Patagonia, with a total area of 40,000km²—roughly the size of the Netherlands. For Tompkins, which contributed 4,000km², it was thus a tenfold return on investment.

Debates about which places to focus on pale in comparison to arguments over which species to save. Such arguments involve the concept of triage, which has divided ecologists since at least 1976, when Thomas Lovejoy, now at George Mason University, published a paper entitled "We must decide which species will go forever". Triage is a term borrowed from Allied forces' field hospitals in the first world war, which sorted the wounded into three groups: those too injured to be saved, those likely to recover on their own, and those for whom medics could make a difference. "When the numbers of endangered species were small, it did not seem necessary to choose between trying to save the ivory-billed woodpecker or the whopping crane," Dr Lovejoy wrote. "With longer and growing lists of endangered species such choices are being forced."

Businesses, politicians and philanthropists are unlikely to part with as much cash as conservationists deem necessary to save every species. Faced with limited resources, conservation groups have no option but to engage in triage, however unwitting. Nor is it evident that prioritisation crimps budgets. The Save Our Species programme introduced by New South Wales, in Australia, in 2015, has nine "management streams" into which species are allocated, according to the nature and seriousness of threats to them. But this came with an additional sum of A$100m ($70m) over five years. As for the acceptability of extinctions, Dr Possingham adds, sadly, that they are already "very much acceptable". Just witness their accelerating rate.

In the end, economic calculations will not resolve such ethical dilemmas any more than they explain why the American public prefers spotted owls to scaleshell mussels. But nor will economic considerations go away. Estimates of how much the world spends on conservation vary between about $4bn and $10bn a year. Implementing even current UN targets, let alone "nature needs half", would cost more than $70bn. Dyed-in-the-wool greens who bridle at talk of "return on investment" or "cost-benefit analysis" need to grow up. ■

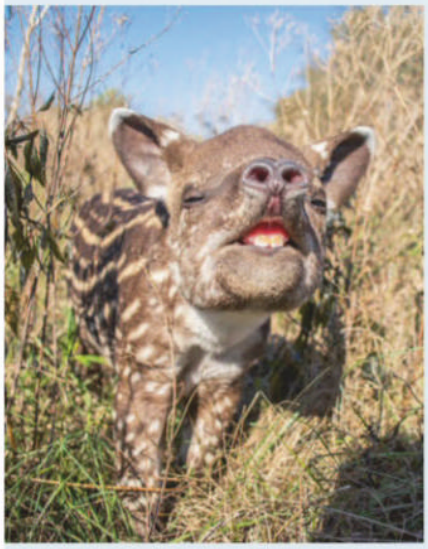
The rewilding movement

Back from the dead

IBERÁ

Efforts to reintroduce species to their native habitats are spreading

TAPIRS ARE South America's largest land mammals. They are one of six species Ignacio Jiménez and his team are trying to re-introduce to the Iberá project, a 7,500km² wetland reserve in north Argentina, run by Tompkins Conservation, an American charity. Like jaguars, pampas deer, giant anteaters, macaws and peccaries (a type of wild pig), tapirs were driven extinct here years ago by ranchers and hunters. For now, to assuage the area's ranchers, Iberá's jaguars are confined to an island deep inside the reserve. The macaws, previously caged, have been taught to recognise danger (by exposing them to a stuffed conspecific being savaged by cats), to find fruit and to fly for distances longer than a few metres. And the tapirs, as the picture shows, are breeding successfully. The renewed presence of all these animals is part of a plan to restore the place to its prelapsarian glory—and thus lure eco-tourists to a poor corner of the country.



Cute? Moi?

Such "rewilding" is gaining currency among eco-entrepreneurs and ecologists. Its commercial appeal is obvious ("We are in show-business," quips Mr Jiménez). Scientifically, it rests on the theory of trophic cascades. This holds that ecosystems are shaped by "apex consumers"—large herbivores and carnivores atop food chains. Remove them, as humans are wont to do, and the mixture of species lower down the food chain mutates, often to the detriment of biodiversity. When wolves were chased out of Yellowstone National Park, in the United States, for instance, unchecked deer outcompeted bison and beavers for food. The wolves' return in 1995 rapidly unwound these changes. That success has spurred dozens of other projects. Iberá is one, though most are in Europe and North America.

Not all rewildings turn out well. Oostvaardersplassen is a 56km² piece of reclaimed land near Amsterdam. It has been populated with red deer, and also semi-feral cattle and ponies intended to fill ecological niches occupied by long-extinct aurochs and tarpans. The idea is to prevent an important bird habitat from overgrowing. But lack of predators and a run of mild winters pushed the number of these ungulates above 5,000. A harsh winter last year then starved two-thirds of them, fuelling a public backlash against perceived cruelty.

As for Iberá, it was one of three projects graded by Aurora Torres of Martin Luther University, in Germany, in the first systematic attempt to measure rewilding's progress, which was reported recently in the *Philosophical Transactions of the Royal Society*. The habitat was judged to have improved since rewilding began late last century, from 3.6 to 4.9 on a rewilding index that runs from zero to ten. The hope, eventually, is to make the area a national park.

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Geopolitics

Together under heaven

Three books examine the emergence and future of the Eurasian world order

The New Silk Roads. By Peter Frankopan. *Knopf; 336 pages; $26.95. Bloomsbury; £14.99*
The Future is Asian. By Parag Khanna. *Simon & Schuster; 448 pages; $29.95. Weidenfeld & Nicolson; £20*
Belt and Road: A Chinese World Order. By Bruno Maçães. *Hurst; 224 pages; $29.95 and £20*

Asked how he came to write "The Lord of the Rings", J.R.R. Tolkien replied: "I wisely started with a map and made the story fit." And so, says Bruno Maçães, when imagining new realities it is natural to begin the same way. These days a revised map of the world might have a radically different focus from previous ones—because a vast, integrated Eurasian supercontinent is proving to be the salient feature of an emerging global order.

Once, when East was East and West was West, the chasm between them was not only geographical, but moral and historical too. "Asia" was a term invented by Europeans to emphasise their own distinctiveness; to Kipling-era imperialists, Asian societies were backward, despotic and unchanging. By contrast, Europe had made the decisive break to pursue a scientific approach to human affairs—which justified its dominion over other continents. Condescension was met with emulation: since Japan's Meiji Restoration in 1868, Asia's modernisation was long a matter of copying the West, either out of admiration for Europeans or to repel them or both. Asia's economic transformations since the second world war were partly shaped by the needs of Western markets.

But now the modernisation that Europe first brought to Asia is racing back the other way. The Eurasian land mass is fizzing with new connections, thanks to fibre-optic cables, pipelines, roads, bridges and manufacturing zones linking East with West. Two years ago a freight train that began its journey in Yiwu in eastern China pulled into a depot in east London. The feat was largely symbolic. But nobody should doubt that Asia and Europe are being brought onto a common plane.

That process is the starting point of three stimulating new books, which make it clear that the map of world politics as it has been drawn for seven decades is no longer fit for purpose. From the old map's centre, as Mr Maçães describes it, the power of the United States radiated to the European and East Asian edges of Eurasia, acting as "a kind of forward deployment against the dangers emanating from its inner core"—that is, the communist challenges from Moscow and Beijing.

Today, the increasingly integrated nature of the Eurasian supercontinent that has emerged from the cold war—all the glitzy cities springing up out of deserts, all those ports being built along Indo-Pacific coasts—should not be a surprise to students of capitalism and development. What many Western prognosticators got wrong, however, was assuming this world would be made in the West's image; that it would embrace not just Western economics but also liberal political values, with their supposedly universal appeal and validity. You only have to look at the two biggest players by land mass, China and Russia, to see the folly of that presumption. Other illiberal powers, notably Turkey and Iran, are using past historical glories to conjure a resurgent future, projecting power along the new silk roads.

Economic integration seems not to be dissolving such differences in values, but heightening them. Nor is it clear that America and Europe can do much about it. Spreading democratic ideals is not a consistent priority for the United States; it increasingly wants to wield power from a distance. Western Europe is turning in on itself in part—and here is the deep irony—as a response to crises sweeping in from Eurasia, among them waves of immigrants and Russia's meddling both in Europe's borderlands and its internal politics. ▸▸

Mr Maçães, a Portuguese political scientist and former foreign minister, sketched some of his arguments in "The Dawn of Eurasia" (published last year). In "Belt and Road" he looks chiefly at China's part in reshaping the world. Until now, its signature foreign-policy project has been known in English as the Belt and Road Initiative. That final word already sounds too diminutive. Encompassing scores of countries and $1trn of real or promised infrastructure spending, the aim, first, is to create a new global economy with China at its heart. For all China's denials, the Belt and Road is also a major piece of geopolitical engineering. It reflects China's desire to shape its external environment rather than simply adapting to it; some worry that it is China's means to replace an American-led international order with its own. As a phrase, "the Belt and Road" may come to be used in the same, shorthand way as "the West" is today.

Debt and diplomacy

Start with the map, and the story follows. Yet there is no plan or plot, says Mr Maçães. President Xi Jinping and his acolytes are no Marxist determinists. Lenin is the better role model as they seize a fleeting chance to change the course of history.

And how. As Peter Frankopan, an Oxford historian, deliciously puts it in "The New Silk Roads", when Mike Pompeo, the secretary of state, last July unveiled America's counter to the Belt and Road, the sum promised—$113m in new programmes—was only somewhat more than the combined earnings of Ivanka Trump and Jared Kushner. Just as "Belt and Road" augments Mr Maçães's earlier work, so "The New Silk Roads" updates Mr Frankopan's magnificent history "The Silk Roads" (2015), which altered many readers' views of where the world's historical centre of gravity lay.

China is now repurposing an old tenet. The ancient concept of *tianxia*, or "all under heaven", put China at the heart of power and civilisation. Moral precepts governed relations among states. There are echoes of that in Mr Xi's notion of a "Community of Shared Future for Mankind", and in the constant emphasis on "win-win" outcomes, mutual dependence and respect. Countries' obligations depend on their place in a China-centred network.

The gratitude and dependency of others are convenient for China as it seeks to recycle its foreign-currency surplus, employ its workers on construction sites abroad, secure raw materials and fob off low-grade production onto others so that it may keep the best high-tech manufacturing and services at home. The Trump administration calls this approach "debt-trap diplomacy". But that misses the appeal for many recipients of Chinese largesse. For a start, no one else is offering so much of it.

What is more, as Parag Khanna says in "The Future is Asian", an upbeat examination of a changing "Greater Asia", others welcome China's infrastructural forays "because they provide cover to pursue their own commercial agendas." Nor does the fact of India, Japan, South Korea and Turkey jumping into an infrastructural arms race imply a zero-sum contest. Rather, says Mr Khanna, a Singapore-based geostrategist, China is thereby "kick-starting the process by which Asians will come out from under its shadow."

Mr Khanna is too blithe about the drawbacks of authoritarianism. He imputes too much technocratic brilliance to the region's elites and glosses over the brutal dimensions of development, including China's high-tech repression against Uighurs. But on an important point, he agrees with Mr Maçães and Mr Frankopan: Eurasia's future is likely to be more ductile than fixed and hegemonic. In this new world order, actions still lead to reactions. The increasing alignment of democratic Japan, Australia and India as a response to Chinese assertiveness is only one case in point.

Ineluctably, Eurasia is cohering, but that does not have to be under the stifling "togetherness" of *tianxia*. In their different ways, these books all serve as an antidote to American fears of a Manichaean contest with China. They give shape to latent forces that are already impossible to ignore. ■

Contemporary art in China

The sands of time

BEIDAIHE

A museum on the Chinese coast aims to merge with its environment

BURIED BENEATH a sand dune, in the beach town of Beidaihe, nestles one of China's newest art galleries. An offshoot of the Ullens Centre for Contemporary Art in Beijing, 300km away, the UCCA Dune is unlike any other cutting-edge art museum in China. Most are high-profile architectural statements, erected in the middle of bustling cities. The Dune is subtle and secluded, its galleries unfolding against the backdrop of the sands.

Interdependence with the landscape and the local community is at the heart of the Dune's purpose. It aims to be sustainable ecologically as well as financially, and to help protect the environment rather than destroying it. "Our work was not just to design a physical structure," says Li Hu of OPEN Architecture, one of the overseers of the project, but to "dream up an entirely new type of institution."

Mr Li wanted to create a gallery that was not "juxtaposed" to its environment but "merged into it". Instead of placing the museum on top of the dunes as was originally planned, he decided to bury the building beneath them to preserve the coastal ecology. The structure is heated by geothermal energy; its walls and windows and the wooden tables in its café were handmade from local materials, a tribute to the craftsmanship of the Hebei region. Because the museum is lit naturally by skylights, visitors' experiences of the artwork will vary with the seasons and time of day.

Rooms with a view

The Dune's interiors are meant to cultivate an intimacy between viewer, work and space. "Going to a museum in China often feels like going to a shopping centre," says Mr Li—an experience of rushed consumerism, typically characterised by large crowds and smartphone selfies. By contrast, the Dune's subterranean galleries invoke the caves in which the most primitive human art was first daubed. The design was inspired by Louis Kahn, a 20th-century American architect who envisaged museums as a "society of rooms", which foster interaction and encourage people to slow down. Given the isolated location, visitors will have to make a deliberate "pilgrimage to the art", as Mr Li puts it, rather than just a hurried urban fly-by.

"After Nature", the inaugural exhibit (curated by Luan Shixuan), focuses on a pertinent subject: the future of humanity's relationship with the natural world. Each of the nine contemporary Chinese artists in the show engages cleverly with the space that their work occupies. Visitors standing in front of Liu Yujia's "Wave", a digital diptych featuring aerial footage of waves rushing against the coast, need only to turn around to find themselves looking out at the Bohai Sea. Beyond a glass door lies Zheng Bo's "Dune Botanical Garden", a

work of bio-art made of transplanted local weeds that also functions as a museum garden. Nearby stands "Destination", an installation by Na Buqi, which comprises an overturned billboard advertising an eerily photoshopped beachside getaway.

Ms Na's contribution is a wry commentary on the museum itself. Its location, Beidaihe, is well-established as both a summer retreat for Beijing's political elite and a popular beach resort for domestic tourists. Cranes crowd behind the dunes, supervising construction work by Aranya, a Chinese developer that also funded and built the museum. Much as the Dune wants to attract visitors, a big influx might threaten its sustainable vision: like that forlorn billboard, a picture-perfect ideal risks being compromised by the double-edged forces of consumption. ■

Segregation in America

Lines of colour

Separate: The Story of Plessy v Ferguson, and America's Journey from Slavery to Segregation. By Steve Luxenberg. *W.W. Norton; 624 pages; $35.00*

THE KEY to success at the Supreme Court, as the late Justice William Brennan liked to say, is the number five. With five votes—a majority of the justices—you can do anything. But as an impassioned group of activists discovered in 1896, falling short sometimes does more than disappoint a losing litigant: it can cement a disastrous status quo for generations.

In "Separate", the context and aftermath of the court's ruling in *Plessy v Ferguson* are woven into a nuanced history of America's struggles in the 19th century as a civil war was fought, slavery ended and a new, complex racial politics haltingly took form. Steve Luxenberg, an editor at the *Washington Post*, dwells on the personal lives of the men who built and decided a case that wound up blessing the regime of Jim Crow segregation in America's South. His narrative culminates in an irony: six of the seven justices who signed onto what became one of the Supreme Court's most reviled rulings were northerners. John Marshall Harlan—a Kentuckian who once "had no quarrel with slavery" and whose family owned many slaves—wrote a dissent articulating the constitutional principle of racial equality that was not upheld by a majority of the court until *Brown v Board of Education*, nearly six decades later.

Like any good history, "Separate" introduces some puzzles while resolving others. A key facet of the story, unknown by many—including, apparently, the justices who heard the case—is that the episode spurring *Plessy* was an elaborate set-up designed to hasten just such a reckoning. When Homer Plessy, a French-speaking Creole with only one black great-grandparent, took his seat in the white carriage of a Louisiana train in 1892, an officer approached him. "Are you a coloured man?" he asked. When the fair-skinned Mr Plessy answered "yes", yet refused to budge, he was arrested for violating the state's Separate Car Act. The scene had been carefully choreographed by the Comité des Citoyens, a civil-rights alliance of blacks, whites and Creoles in New Orleans whose first attempt at a test case (with Daniel Desdunes, a citoyen's son, in Plessy's role) had recently foundered on a technicality.

"Separate" notes that several prominent men of colour, including Frederick Douglass—the escaped slave who became a celebrated abolitionist and orator—never thought much of the legal strategy of challenging segregation on the rails. It stung Louis Martinet, editor of the *New Orleans Crusader*, that Douglass "saw no good in the undertaking". But Martinet experienced moments of doubt, too, wondering if white racism and black "submissiveness" rendered their fight a "hopeless battle".

Albion Tourgée and James Walker, the lawyers arguing Plessy's case at the Supreme Court, knew at the outset that the justices were "somewhat adverse" to their position. So they pulled out all the stops with a nearly 80-page brief. Segregation in railcars violated the Thirteenth Amendment banning slavery, they reasoned, as it "reimpose[d] the caste system". It was barred by each of the four provisions of the Fourteenth Amendment, including the citizenship and equal-protection clauses. Most creatively, the lawyers contended that tossing a light-skinned man with a few drops of coloured blood out of a white carriage violated his due-process rights, as it amounted to a "forcible confiscation" of "the reputation of being white".

Wrapping these claims in a vision of colour-blindness, Tourgée and Walker persuaded only one justice—Harlan—that segregation was a "badge of servitude" at odds with the constitution's promise of equality. Meanwhile Justice Henry Brown, writing for the majority, found separate carriages stigmatising only if "the coloured race chooses to put that construction upon it". Luxenberg attributes Brown's myopic view that "separate did not mean unequal" to his sheltered New England upbringing and "most conventional" outlook. "Separate" shows how seven justices launched a half-century of racial cruelty because, unlike Harlan, they failed to see that "equality and opportunity could not survive if they came in different colours". ■

A memoir of madness

Physician, curb thyself

Let Me Not be Mad. By A.K. Benjamin. *Bodley Head; 213 pages; £16.99. To be published in America by Dutton in June; $27*

THIS IS A golden age for books written by doctors, psychoanalysts, surgeons and the like. In Britain, "This Is Going To Hurt", Adam Kay's memoir about his time as a junior doctor, has featured on bestseller lists for months. Atul Gawande, an American surgeon, has written a series of thoughtful inquiries into the limits of surgical intervention and end-of-life care. Books by Oliver Sacks, a neurosurgeon who popularised the genre with works such as "The Man Who Mistook His Wife for a Hat" before his death in 2015, are still being published.

"Let Me Not Be Mad" seems, at first glance, to fit into this trend. Written by a clinical neurologist under the pseudonym A.K. Benjamin, it begins at an anonymous, presumably British, hospital. A female patient—an amalgam, like all the figures in the book, of several different case studies and encounters, both "real and imagined"—sits down in the doctor's office, having been referred to him because her brain appears to be "rotting". Mr Benjamin zooms out to predict her future: "Forgetfulness first...The onset of 'anomia' following the rule of frequency: losing the name for

A naughty night to swim in

Caerphilly, then Cheddar, then cheese, then children, your children."

So far, so familiar. But soon it becomes clear that the main subject is not the patients, but the doctor himself. As the book progresses, he appears to lose his job—or at least to be prevented from seeing patients. His frame of reference shrinks to a few eccentric acquaintances, pop songs and scraps of reading. Indeed, "Let Me Not Be Mad" relies more on literary and cultural references than on clinical ones; the author explains that before becoming a neurologist, he was, among other things, a screenwriter and a monk.

"King Lear" recurs throughout—from the title to various references to "Poor Tom", the madman as whom a character in the play disguises himself, to passages that echo Lear's own descent into madness. Allusions are made to Kafka, Dostoyevsky, David Foster Wallace and many other writers (nearly all of them men). Occasionally Mr Benjamin himself brings out pin-prick details with a novelist's skill: the "fading impression of goggles like quotation marks" around the eyes of one patient, or an early Autumn morning "set like a daguerreotype by a gossamer of frost".

The argument that loosely emerges is that doctors can be as damaged as their patients. And Mr Benjamin is sceptical of the tendency, perhaps even the mania, for classification, the glib assurance of diagnosis:

> I walked over London Bridge in rush hour, faces thronging around me, and diagnosed each one in an instant: Psychosis...Depression...Lewy Bodies...Panic...Depression...Sociopathy...OCD...Cynophobia...Panic...Guam's. Everybody has something, and now there's a name for it, even if it's fear of having something, of going insane, aka dementophobia.

But these points would be stronger if he relied less on personal anecdote and more on professional expertise. Some moments in the book are moving, such as when the author's daughter seems to have a fit or when a close colleague dies. Other vignettes—in which he describes his rather strange online dating persona, say, or returns to a kind of monastery at the end of the book—fall flat. Moreover Mr Benjamin's slippery method proves problematic.

He is an openly unreliable narrator; even before he admits that some of the case studies "were me, are me", there is a whiff of uncertainty, of fact melding with fiction and becoming distorted, grotesque. But in the end these elisions undermine his theme. The effect of the best medical memoirs, like those of Sacks, is to make idiosyncratic cases seem emblematic of wider maladies. In "Let Me Not Be Mad", the focus is on a single, highly subjective and extreme experience. Rather than plumbing the depths of an "unravelling mind", it seems instead to skim the surface. ■

Mermaids and monsters

The sirens' song

Salt on Your Tongue: Women and the Sea. By Charlotte Runcie. *Canongate; 365 pages; $24.00 and £14.99*

BY LONG TRADITION, men and women experience the sea in different ways. Men set out on it, looking for land, gold, adventure; women stay on shore, waiting and worrying. Men scoop up shoals of fish, or harpoon great whales; women, wrapped in shawls and with hands rubbed raw, gut and fillet, preserve and sell whatever the seafarers bring in. Even young weekenders on England's beaches, faced with a rough sea, react in different ways. The girls jump and scream; the posturing lads throw stones.

This difference both intrigues Charlotte Runcie and bothers her. When she was small, to stand in a rock-pool of clear seawater made her feel "bright and fierce". That feeling seems to dissipate with the knowledge that women were traditionally kept away from the sea, their mere presence on a boat unlucky and the great sea epics almost empty of them. The sea was not their place. In her lyrical and gently digressive book she analyses, and works to recover, the countering power of her first, elemental, female response to the sea.

She begins by considering who is really in charge of it. Her chapter headings are the names of the seven Pleiades, the stars—all girls, most variously abused by gods—whose rising told Greek sailors when to embark. The moon, female in most cultures, controls the tides. The goddess Athena sorted out the waves for Odysseus. Our Lady, star of the sea, smooths it for all who invoke her.

The sea is also inhabited by mysterious, terrifying or bewitching women. Sirens sing men towards doom on their rock; Scylla, her teeth "full of black death", writhes in her whirlpool. Underwater caves hide Sycorax, Caliban's mother, and the awful progenetrix of Grendel in "Beowulf". Mermaids, selkies and naiads, all alluring in their beauty, draw sailors down to the depths. When men sail, what they fear is often females who know the sea better.

On the other hand, as second-mate Stubb cries in "Moby-Dick", "Such a funny, sporty, gamy, jesty, joky, hoky-poky lad, is the Ocean, ho!" A man's thing. All down the ages men engage with the sea closely, aggressively; they grapple with it and fight it. Ms Runcie spends much of her book in the women's place, on the shore of the East Neuk of Fife, where she walks the dog, hunts for shells and sea-glass, exults in the

Creatures of the deep

flight of gannets and sea eagles and visits shrines and caves where saints, all male, communed with God and the waves. Her prose is often lovely, but the sea keeps its distance. Real close grappling with it, she finds, is not to sing the men's sea shanties (though they make her feel temporarily elated again), nor to try lone yachting, nor to swim in it. It is to have a baby.

The connection of the sea and the human body is familiar: the salt of tears, the make-up of the blood. A connection with pregnancy and childbirth seems more tenuous, and is sometimes too far a stretch, but Ms Runcie sets the theme early: the sea is "a gradual process of becoming, of widening and ageing and growing into more". In some ways she becomes the sea herself, a fluid, heavy medium in which the baby grows from something light as sea-silk, or a tiny curled sea-snail, into a seafarer. In other ways she is a sailor on a ship, sick, encumbered, chronically fearful and, in several harrowing passages, racked by the dangers of a difficult birth and overwhelmed by waves of pain. Men have Odysseus clinging to his raft, the smashing of the *Pequod*, the horror-voyages of the Flying Dutchman and the Ancient Mariner; but women, every day and everywhere, have this.

And in the end, as usually in sea stories, the sea has the last word. Ms Runcie carries her tiny new daughter down to the beach at St Monans and introduces her, in a sort of baptism, to salt water. Her encounter with the sea of motherhood has indeed made her grow into someone else. She is steadier and calmer; she is unafraid. But she has not aged, as she supposed. Instead she is that little girl again, bright and fierce. ■