

► have created the high-productivity environments. But he wisely suggests that trying to collect that share would do more social harm than economic good.

Collier contends that the populations of small poor countries would experience major losses from the emigration of skilled workers if immigration elsewhere went uncontrolled. This is further grist to his mill — he believes that rich countries should impose controls partly for the sake of poor countries, and should also pay compensation to those who move. The brain drain is vigorously debated among specialists: almost all recognize the possibility of such losses, but many argue that poor countries make such an ineffective use of skills that the losses are small. For example, most qualified physicians in such countries serve the urban elite and have almost no impact on the health of the poor.

On policy, Collier recognizes that temporary migration programmes have widespread economic benefits. However, citing the example of Turkish people

“The brain drain is vigorously debated among specialists.”

in Germany, he argues that open liberal democracies cannot enforce departure when temporary migrants’ contracts end. He accuses advocates of such temporary mobility (specifically including me) of ignoring non-economic aspects of migration and of having a “tin-eared detachment from a workable ethics”.

His recommendations include requiring the return of asylum seekers when their countries stabilize, and granting “the initial status of guest worker” to all entrants (other than to those who join a lottery for permanent immigrant status). Such guest workers would join a queue to become permanent immigrants, but until they gained that status, they would pay taxes, receive no social benefits and have only limited access to public services. If they declined to register for permanent immigration, they could be deported without appeal. This is not a formal guest-worker scheme, which requires people to leave when their work contracts expire, but is it more ethical?

Collier’s book offers a feast of ideas. For this I commend it, but the dominance of rhetorical spice over evidence-based nutrition makes the meal rather indigestible. ■

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A distant HMS *Beagle* off Tierra del Fuego in South America in the 1830s, painted by Conrad Martens.

NATURAL HISTORY

Hell in the Pacific

A turbulent history of early naturalists and the maritime explorers who hosted them fascinates **Andrew Robinson**.

A keen tension runs through Glyn Williams’s *Naturalists at Sea*, his chronicle of 14 Pacific Ocean expeditions spanning the seventeenth to nineteenth centuries. The source of this tension is the often-fraught dynamic between the expeditions’ on-board naturalists and the seamen who made their research possible. Fieldwork, onerous enough in the primitive naval conditions of the era, was often scuppered by the demands of maritime exploration and surveying, and by international political rivalries.

So Williams’s odyssey — beginning with English buccaneer William Dampier’s foray to New Holland (modern Australia) in the 1680s, and sailing on through other celebrated English, French, Russian and Spanish voyages — is almost as much a history of psychology as of scientific derring-do and discovery. Even Captain James Cook, who on his first great voyage had harmoniously hosted naturalist Joseph Banks, was not immune to discord. On his second expedition, in 1772–75, Cook fell out with naturalist Johann Reinhold Forster, and before setting off on his third, with the ship’s surgeon now doubling as a naturalist, is said to have exclaimed: “Curse scientists, and all science into the bargain.”

During the 1831–36 circumnavigation of HMS *Beagle*, the conservative Captain Robert FitzRoy famously clashed with the young Charles Darwin over slavery in Brazil; Darwin even considered leaving the ship. Dampier’s expedition avoided such tension, because Dampier was both a seaman and a naturalist. Among his many beguiling descriptions is that

of the hummingbird, which “haunts about Flowers and Fruit, like a Bee gathering Honey, making many near addresses to its delightful Objects”.

The main cause of all this on-board strain, argues Williams, was identified by biologist Thomas Henry Huxley. In the 1840s, Huxley served as an assistant surgeon in the Royal Navy before becoming a celebrated scientist. The hard physical work of the sailor, “in his constant battle with the elements, is as far apart from the speculative acuteness and abstraction necessary to the man of science as ever”, he wrote in an 1854 essay.

His friend Darwin had a more personal explanation. After four years away from home, he wrote from Tasmania: “I hate every wave of the ocean... I believe there are very few contented Sailors. — They are caught young & broken in before they have reached years of discretion. Those who are employed, sigh after the delights of the shore, & those on shore, complain they are forgotten & overlooked.”

As Williams explains, whatever their psychology, naval captains of these times were concerned first and foremost with the safety of their ships. Their second priority was to explore and survey coastlines, while claiming lands for their home countries and searching for the fabled Northwest Passage or *Terra Australis Incognita* — the unknown southern continent of Antarctica. Finally, they had to consider the vagaries of European politics and wars, which could see the imprisonment of an expedition’s members. This happened, for instance, when Joseph-Antoine Bruny d’Entrecasteaux’s expedition, dispatched from France in 1791, docked its two vessels in

NATIONAL MARITIME MUSEUM, GREENWICH, LONDON

Naturalists at Sea: Scientific Travellers from Dampier to Darwin
GLYN WILLIAMS
Yale University Press:
2013.

Dutch, most of them were incarcerated and the two ships were seized.

Naturalists, by contrast, cared most about having enough time to go ashore and discover new flora and fauna. After collecting specimens, often with great difficulty, they depended on the captain's goodwill to enable them to draw and record their trophies in cramped and inclement conditions and, if possible, to keep them alive for the journey home. Darwin was fortunate to be able to spend 60% of his voyage time on land and to dispatch specimens regularly from South America to Britain. Some 70% of Cook's second voyage, however, was spent at sea — to the despair of Forster, who wrote that “after having circumnavigated very near half the globe we saw nothing, but water, Ice & Sky”.

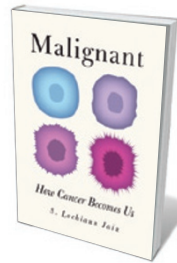
Conflict was inevitable, Williams concludes from studying such records. On Vitus Bering's 1741 Russian expedition to the strait between Russia and North America that now bears his name, naturalist Georg Wilhelm Steller had less than a day in newly discovered Alaska. He managed to walk several miles along a beach collecting plants, but when he asked Bering for a small boat and several men, was told to return within an hour or be left behind. In his journal, Steller complained that “the preparation for this ultimate purpose lasted ten years; twenty hours were devoted to the matter itself”. On George Vancouver's British expedition to the Pacific in 1791–95, an on-board greenhouse full of specimen plants, erected on the instruction of Banks (then president of the Royal Society), became a bone of contention. The burden for the crew of keeping the plants alive eventually led Vancouver to arrest the ship's naturalist, Archibald Menzies, for insubordination.

Williams has been researching the history of European incursions into the Pacific and Arctic oceans since the late 1950s, and has published many books on the subject. An erudite and beautifully illustrated work, *Naturalists at Sea* wears its learning lightly, and conveys to non-specialists an array of fascinating details about explorers and naturalists, familiar and not-so-familiar, quoting judiciously from their journals and post-voyage publications. Although it sometimes struggles to bring its dizzying cast of characters to life, every page testifies to the indomitable vitality of both explorers and naturalists. ■

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the Dutch East Indies in late 1793. After the crew learned with shock that Louis XVI had been executed and that the French Republic was at war with the

Books in brief



Malignant: How Cancer Became Us

S. Lochlann Jain UNIVERSITY OF CALIFORNIA PRESS (2013)

Patients with cancer generate so much revenue for the US health-care industry that a cure would be an economic risk. Thus argues anthropologist S. Lochlann Jain, who deems cancer “a constitutive aspect of American social life, economics, and science” — so bizarrely entwined that chemical companies churn out both cancer drugs and carcinogenic herbicides. In this trenchant mix of science history, memoir and cultural analysis, Jain is thoughtful and often darkly humorous on everything from cancer statistics to treatments, trials and issues around sexuality. Brilliant and disturbing.



Five Billion Years of Solitude: The Search for Life Among the Stars *Lee Billings* CURRENT (2013)

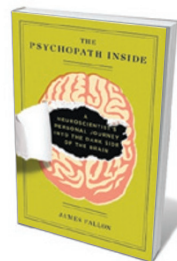
Unsurprisingly for an infant science, the quest for other Earths is sometimes fractious. Science writer Lee Billings deftly captures both behind-the-scenes ructions and landmark discoveries in his tour of this multidisciplinary field, its history and its players. The seamlessly interwoven narrative is strong on big personalities, from astronomer Frank Drake, a pioneer of the search for extraterrestrial intelligence (SETI) whose work is now overshadowed by glamorous finds in exoplanetary science, to astrophysicist Sara Seager, a scintillating star in that very field.



High Moon Over the Amazon: My Quest to Understand the Monkeys of the Night

Patricia Chapple Wright LANTERN (2013)

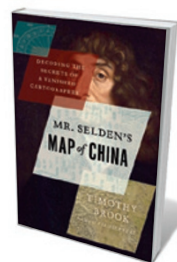
One-time “hippie housewife” Patricia Chapple Wright became a trailblazing primatologist by dint of determination and sheer curiosity. As related in this engaging memoir, her scientific odyssey began in a New York pet shop in the 1960s. After purchasing an owl monkey (*Aotus lemurinus griseimembra*), she travelled to Peru to locate a mate for it — and recognized her métier. Decades on, now a world authority on lemurs, she has set up the Ranomafama National Park and an adjacent research site, Centre ValBio, in Madagascar.



The Psychopath Inside: A Neuroscientist's Personal Journey into the Dark Side of the Brain

James Fallon CURRENT (2013)

In 2005, neuroscientist James Fallon was checking the brain scans of psychopathic murderers and ‘normal’ controls, including himself. Noting that his scan closely resembled those of the murderers, the happy, successful Fallon had to know why. He shares his journey, mining genetics, epigenetics and neuroscience, and perusing his childhood (including a brief spell of obsessive-compulsive disorder), family tree and behavioural eccentricities. His surprising final diagnosis could broaden the way we see normality.



Mr. Selden's Map of China: Decoding the Secrets of a Vanished Cartographer

Timothy Brook BLOOMSBURY (2013)

The Selden map of China and its environs, an anonymous cartographic puzzle unearthed in the Bodleian Library in 2009, is the pivot for this cultural history. Timothy Brook illuminates the map's odd features and backstory. Along with the lives of those tangled in its history (such as Michael Shen, the Chinese Jesuit who translated the map's script in the late 1600s), Brook reveals how the amazingly accurate chart hints at the first stirrings of globalization. **Barbara Kiser**