

and the effects of air pressure. One of his papers on this won the Royal Society's Copley Medal in 1778.

Wardhaugh draws on sources from local, social, religious and military histories to histories of science and mathematics. Few of Hutton's personal papers have survived, so we have lost much of his voice. That does raise questions about the choice of writing a full biography, especially because Wardhaugh is commendably cautious in his claims for Hutton's significance. This is no 'the man who changed X' romp, but an informed, referenced and contextualized history. It might have made sense to place Hutton in a group biography, or in a broader treatment of Georgian mathematical culture, in the style of Jenny Uglow's 2002 book *Lunar Men*. Although revealing, the life-trajectory approach leaves little space to explore, say, key institutions such as the Spitalfields Mathematical Society or Royal Mathematical School.

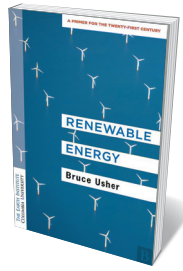
The approach does, however, ensure that the women in Hutton's life are given due attention. As was typical, the family business — mathematics, computation, transcription, editing — was a cottage industry in which wife, son and daughters were involved, if officially obscured. We follow, as far as possible, their lives and the dramas of bereavement, including the loss of Hutton's favourite daughter, Charlotte, marital breakdown (Hutton left his first wife, Isabella, and lived with Margaret Ord for many years before they married) and a surprising number of elopements.

There are tantalizing clues that might have brought the domestic element further to life. A portrait of his daughters Isabella and Camilla is included but not explored; a poem by Margaret, attacking Banks and lauding mathematician Samuel Horsley, Hutton's thundering defender at the Royal Society, is reproduced but not interpreted.

Nevertheless, *Gunpowder and Geometry* is engaging and skilfully handled. Hutton's rise reveals how technical and intellectual ability, with luck and opportunity, could propel a few individuals up the social ladder. In Georgian Britain, mathematics was appreciated, not only for the utility that Hutton championed but also for its rich literary culture. Here, especially because of *The Ladies' Diary*, a hugely successful miscellany that he edited for more than 40 years, Hutton reigned supreme. ■

**Rebekah Higgitt** is senior lecturer in history of science at the University of Kent in Canterbury, UK. She is the co-author (with Richard Dunn) of *Finding Longitude*, editor of *Maskelyne* and author of *Recreating Newton*. e-mail: r.higgitt@kent.ac.uk

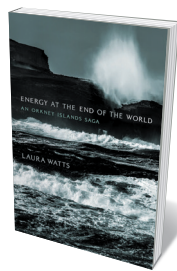
## Books in brief



### Renewable Energy

Bruce Usher COLUMBIA UNIVERSITY PRESS (2019)

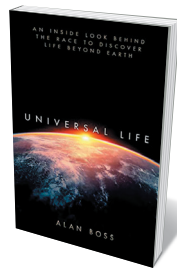
Public understanding of the energy transition from fossil fuels is woefully patchy — an artefact, in part, of political misinformation. So notes business expert Bruce Usher in this superb corrective, which reveals wind and solar to be the fastest-growing new power sources globally. Usher weighs up the science on and economics of sources from geothermal to hydro, and looks at financing, transportation, “grid parity” with fossil fuels and the social, environmental and geopolitical implications of the shift. The technology exists, getting cheaper by the month: a stark contrast, Usher notes, to the cost of delay.



### Energy at the End of the World

Laura Watts MIT PRESS (2019)

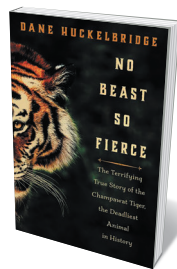
The people of Orkney, an archipelago off Scotland's northern coast, are renewable-energy pioneers. In a study mixing science, ethnography, poetry, history and memoir, interdisciplinary scholar Laura Watts trains a kaleidoscopic lens on Orcadian techno-innovation. She takes us from the 2003 establishment of the European Marine Energy Centre (a testing site for tidal- and wave-energy generators) to networks of micro-wind turbines and electric cars. In these weather-battered islands, energy is literally “in your face, on your tongue”, but there is plenty of potential for replication elsewhere.



### Universal Life

Alan Boss OXFORD UNIVERSITY PRESS (2019)

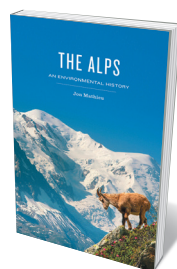
It's astonishing that just a decade on from the launch of NASA's Kepler space telescope — the first mission dedicated to detecting exoplanets — we now know that most stars spangling the night sky have planetary systems, many boasting habitable worlds. Astrophysicist Alan Boss, chair of NASA's Exoplanet Exploration Program Analysis Group, delivers a blow-by-blow history of the emergent findings by Kepler (and other instruments, including Europe's CoRoT satellite) that details the political vagaries and tensions between various agencies, along with the scientific thrills.



### No Beast So Fierce

Dane Huckelbridge WILLIAM MORROW (2019)

From 1900 to 1907, a female Bengal tiger (*Panthera tigris tigris*) killed hundreds of villagers in northern India and Nepal. This compelling account hinges on that grisly story, but digs deep into causation. Among the factors behind the attacks, Dane Huckelbridge shows, environmental mismanagement and habitat destruction by the British Raj were key, and a grim herald of today's global erosion of wilderness and its consequences. No less gripping is the interwoven narrative of British tracker Jim Corbett; enlisted to shoot the animal, he later became a fierce conservationist.



### The Alps: An Environmental History

Jon Mathieu (transl. Rose Hadshar) POLITY (2019)

Arcing 1,200 kilometres across the heart of Europe, the Alps are iconic mountains with a singular history. As Alpine scholar Jon Mathieu posits in this environmental chronicle, their importance as an Enlightenment symbol of nature influenced explorer-scientist Alexander von Humboldt and many Victorian botanists, geologists and zoologists. Mathieu's episodic but informative narrative tacks back and forth, from the arrival of hunter-gatherers millennia ago through milestones such as the first recorded ascent of Mont Blanc, in 1786, and wolves' resurgence in the twentieth century. **Barbara Kiser**