part of Spanish Florida) more systematically than before, visiting each region in every season. Native American guides helped to carry his paints, mostly fast-drying watercolours and gouache, as well as boxes of specimens, drawings and field notes; they also saved him from venomous snakes and alligator-filled swamps, and shot game for food.

At the end of 1725, Catesby spent time in the Bahamas painting fishes, then returned to London. Unable to afford to hire a copperplate engraver, he mastered the technique himself, with the help of French artist Joseph Goupy. He planned 100 etchings, mainly of birds, for Volume I; another 100 would comprise a second volume, showing fishes, crustaceans, reptiles, amphibians, insects, a few mammals and a handful of plants.

Catesby found birds the most beautiful of fauna. He was among the first to show associations between plants and animals, for example in his painting of the Greater Antillean bullfinch (*Loxigilla violacea*) with the poisonwood tree *Metopium toxiferum*. He contributed significantly to the understanding of avian migration, a topic of heated debate at a time when many believed that birds vanished in winter to hibernate in some form of suspended animation. Catesby argued in his paper 'Of Birds of Passage' (M. Catesby *Phil. Trans.* **44,** 435–444; 1746) that birds fly to warmer climates in winter, spurred by seasonal changes and availability of food.

SYLVIA BACON/CATESBY COMMEMORATIVE TRUST

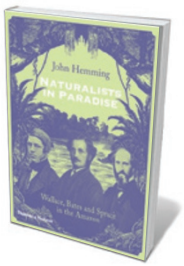
'The Bull Frog' — *Lithobates catesbeianus*.

An estimated 200 copies of Catesby's two volumes were printed, with hand-coloured engraved plates. These and two later editions were avidly sought by natural scientists and plant collectors. In 1768, King George III bought Catesby's original 263 watercolour field studies; they are now part of the British Royal Collection. Sadly, Catesby's achievements were diminished by the souring of ▶

Books in brief

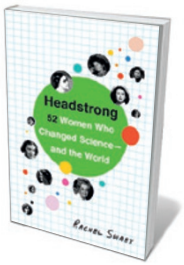
The Great Transition: Shifting from Fossil Fuels to Solar and Wind Energy
Lester R. Brown with Janet Larsen, J. Matthew Roney and Emily E. Adams W. W. Norton *(2015)*
This lucid overview of world energy is surprisingly devoid of gloom. With colleagues at the Earth Policy Institute in Washington DC, environmental analyst Lester Brown suggests that the hold of fossil fuels is finally weakening. Wind and solar power are poised to fill the gap, driven by falling prices and increased environmental awareness. This treatise depicts future energy supply and generation systems that are radically different from today's, and far superior.

Rain: A Natural and Cultural History
Cynthia Barnett Crown *(2015)*
In this romp through rain from pre-history to now, journalist Cynthia Barnett shows how entwined all Earth (and most human) systems are with this life-giving and life-taking precipitation. From droughts that devastated ancient civilizations and floods that drown settlements today, to the rain that inspired cultural offerings such as music from Bo Diddley and Frédéric Chopin, Barnett shows that rain is to be respected and celebrated. She looks at the science of deluge, both whimsical — a rain of frogs in Britain in 1954 — and disastrous, including acid rain and catastrophic flooding.



Naturalists in Paradise: Wallace, Bates and Spruce in the Amazon
John Hemming Thames and Hudson *(2015)*
Nineteenth-century biology often seems to have involved as much adventuring as academia. Geographer John Hemming finds a wonderful tale in the Amazonian sojourn of co-discoverer of evolution Alfred Russel Wallace and his fellow nature-watchers, entomologist Henry Walter Bates and botanist Richard Spruce. Hemming shows how the challenges and triumphs of their time in this haven of biodiversity shaped these naturalists, and how they in turn shaped science through specimen collection and papers. An excellent addition to the slew of biographies of eminent Victorians.

The Invaders: How Humans and Their Dogs Drove Neanderthals to Extinction
Pat Shipman Belknap Press *(2015)*
Are humans the ultimate invasive species? So contends anthropologist Pat Shipman — and Neanderthals, she opines, were among our first victims. The relationship between *Homo sapiens* and *Homo neanderthalensis* is laid out cleanly, along with genetic and other evidence. Shipman posits provocatively that the deciding factor in the triumph of our ancestors was the domestication of wolves. Perhaps more troubling is the concept of early humans as invaders, rather than just another species finding its way.



Headstrong: 52 Women Who Changed Science — and the World
Rachel Swaby Broadway *(2015)*
A cursory glance at gender balance across science will show that women have still not gained equality. Journalist Rachel Swaby aims to present a comprehensive set of role models for the next generation, who should claim this parity. She ranges from seventeenth-century naturalist Maria Sibylla Merian to astronaut Sally Ride. But cramming 52 awe-inspiring researchers into just over 200 pages reduces them to career bullet points, shorn of context. These women, and those who will follow them, deserve more. **Daniel Cressey**