

and filled with illustrative anecdotes and case studies. It's one you should read if you care about what drives academic research, scientific racism or genetic futurism.

Sociogenomics follows many patterns familiar from previous moments of heightened genetic determinism, such as sociobiology, behavioural psychology or the debate ignited by *The Bell Curve*. But Bliss argues that, this time, it's different. She suggests that genetic methods have never promised so much, while delivering so little. As a historian, I see more consistency in the promises of human genetics over time; nevertheless, Bliss's findings are striking.

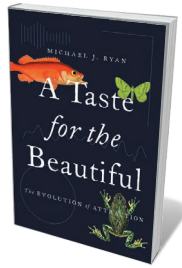
She notes, for example, a special issue of the journal *Biodemography and Social Biology* from 2014 (see go.nature.com/2qnovjh) concerning risk scores. (These are estimates of how much a one-letter change in the DNA code, or SNP, contributes to a particular disease.) In the

“Sociogenomics has great biomedical potential, but the path towards that reward runs along a knife edge.”

issue, risk scores of between 0% and 3% were taken as encouraging signs for future research. Bliss found that when risk scores failed to meet standards of statistical significance, some researchers — rather than investigate environmental influences — doggedly bumped up the genetic significance using statistical tricks such as pooling techniques and meta-analyses. And yet the polygenic risk scores so generated still accounted for a mere 0.2% of all variation in a trait. “In other words,” Bliss writes, “a polygenic risk score of nearly 0 percent is justification for further analysis of the genetic determinism of the traits”. If all you have is a sequencer, everything looks like an SNP.

What the historian Andrew Hogan has called the “genomic gaze” isn't the fault of individual bad-guy researchers: it's structural. Bliss is careful to acknowledge the good, even noble intentions of many of the scientists she spoke to (as a sociologist, she keeps the names of her ‘informants’ confidential). But she finds that the funding and publicity mechanisms integral to biology drive it towards genes-first explanations. The stakes are high: finding an SNP associated with a risk increase from 0.01% to 0.03% (a threefold rise) for a disease such as breast cancer could make a career. “While researchers do not intend to lift the focus off of the environment,” Bliss writes, “they are forced to recast social phenomena as ‘evolutionary phenotypes’ so that they can make scientific claims” that sound relevant to biomedical funders. ▶

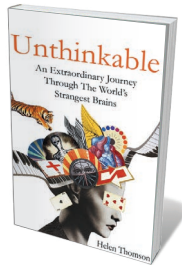
Books in brief



A Taste for the Beautiful: The Evolution of Attraction

Michael J. Ryan PRINCETON UNIVERSITY PRESS (2018)

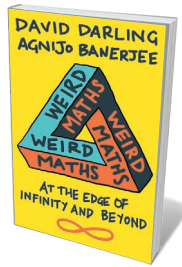
In terms of sexual selection, the iridescent bling of a peacock's tail is just another lure in an array of animal arias, odours and ornaments. And as Michael Ryan argues in this lucid study, such beauties reside “in the brain of the beholder”. Kicking off with his research on the tiny Central American túngara frog (*Engystomops pustulosus*), the males of which emit a complex call, Ryan examines sexual beauty in all its sensory forms, as well as fickleness, hidden preferences and experiments with quail that could shed light on the predilection for pornography.



Unthinkable

Helen Thomson JOHN MURRAY (2018)

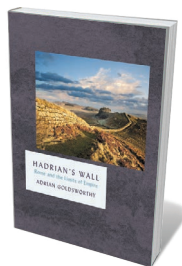
Botched surgery, accidents, mutations and disease: as Helen Thomson reminds us in this exploration of rare neurological conditions, trauma has told us much about the brain. She neatly integrates sensitive interviews with patients into current research on their conditions and historical case studies. We meet, for instance, Sharon, who cannot generate mental maps and feels permanently ‘lost’; and Graham, who believed he was dead (Cotard's syndrome) for three years. The result is a stirring scientific journey, a celebration of human diversity and a call to rethink the ‘unthinkable’.



Weird Maths

David Darling and Agnijo Banerjee ONEWORLD (2018)

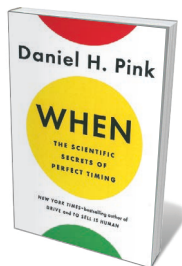
This frolic on the wilder shores of mathematics, by astronomer David Darling and maths prodigy Agnijo Banerjee, aims to bolt the way-out to the day-to-day. It succeeds. After playing with the question of whether the cosmos is innately mathematical, or just looks that way, Darling and Banerjee plunge into the deep. Here, they surf the big waves: invigorating concepts such as how to see in four dimensions, the inner structure of the Mandelbrot set of fractals, the musical scales of alien cultures, Georg Cantor's work on hierarchies of infinity and the uncomputably huge Rayo's number.



Hadrian's Wall

Adrian Goldsworthy HEAD OF ZEUS (2018)

Stretching just over 100 kilometres coast to coast across the north of England, Hadrian's wall is a pipsqueak compared to the Great Wall of China. Yet the barrier, begun in AD 122, is a stunning testament to Roman engineering in a far-flung corner of the empire. As historian Adrian Goldsworthy explains in this succinct study, its real purpose (protection from Picts, or display of power?) remains enigmatic, but much else is known. He follows the emperors who put their stamp on ‘Britannia’, and explores the wall and its garrisons up to the fifth century, when Germanic tribes fatally disrupted Roman rule.



When

Daniel H. Pink RIVERHEAD (2018)

When is the best time to start a relationship, change career or eat dinner? Daniel Pink analysed 700 studies in anthropology, endocrinology, social psychology and beyond to probe the science of timing. He unpicks compelling patterns: why medical malpractice and harsher judicial rulings cluster in the afternoon; how we pay too much attention to endings; which circumstances favour synchronization in teams. And he includes handy ‘time-hacking’ advice on how to put the insights divulged into practice. **Barbara Kiser**