

unlike gestures, seem barely under voluntary control. He contends that they emerge like nervous tics, more closely connected to expression of emotion than to a deliberate exchange of information. Vervet monkeys (*Chlorocebus pygerythrus*) famously have three different alarm calls, corresponding to predatory eagles, leopards and snakes. But an alarm call does not involve the give and take of a language, gestural or otherwise.

One suspects that many — such as the primatologist and ethologist Frans de Waal, author of *Chimpanzee Politics* (Johns Hopkins Univ. Press, 1983) — will find Corballis' assessment of primate vocalizations harsh. But primatologists such as Jane Goodall and David Premack share his views. Whatever the truth, Corballis writes with an academic's attention to detail in witty, self-deprecating prose. The combination of style and argument make *The Truth about Language* the best work yet on the gestural theory of language.

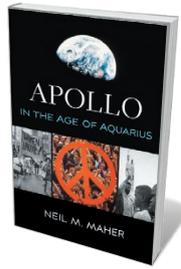
But what does it mean to say that language — the exchange of information between senders and receivers — arose from gestures? Gesturing may indicate a theory of mind, the ability to understand what others might know or be thinking; and surely that is a requisite for language. Humans take this understanding for granted, but it has proved difficult to show conclusively in other animals. Some dogs respond to pointing, but they have been selected to do so (and don't point things out to other dogs). Chimpanzees can point, but do it rarely: not what would be expected in routine social communication. Chimpanzees and other primates can follow others' gazes, but gazing is not an intentional act of communication. Indeed, following another's gaze is potentially an act of theft.

There the putative gestural trail goes cold in the long line of fossil hominins along the 6-million- to 7-million-year evolutionary path separating us from our common ancestor with chimpanzees. And yet this gap is where everything happened. Humans use language to promote learning, cooperation and the exchange of goods and services — a leap from occasional pointing. Our brand of sociality distinguishes our species as much as language does, and it is hard to imagine our social systems working without language.

One might equally argue that human language arose to exploit the psychological capabilities that make our advanced sociality possible. Corballis' position then has to be that gesturing provides the most likely evolutionary route to those capabilities. But this is a topic on which he says comparatively little. What we do know is that without those capabilities, we might still be pointing and grunting like the Trolls. ■

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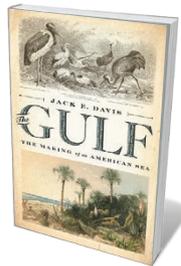
## Books in brief



### Apollo in the Age of Aquarius

Neil M. Maher HARVARD UNIVERSITY PRESS (2017)

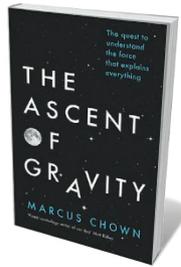
On 20 July 1969, men landed on the Moon; back on Earth, the United States was gripped by sociopolitical convulsions. NASA and Woodstock may now seem polarized, but in this illuminating, original chronicle, historian Neil Maher traces multiple crosscurrents between them. The impact of the 'Blue Marble' image of Earth on environmental policy is famous (see [go.nature.com/2ne4zai](http://go.nature.com/2ne4zai)). Less so is how the costs of the Apollo programme enraged inner-city activists — and how NASA duly deployed a crack team of aeronautics experts to solve practical housing issues for poor African Americans.



### The Gulf: The Making of An American Sea

Jack E. Davis LIVERIGHT (2017)

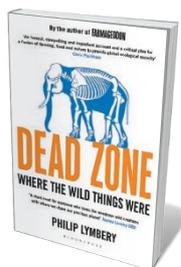
In this assured ecological and human history, Jack Davis aims to rescue the Gulf of Mexico from its "hijacking" by the 2010 Deepwater Horizon oil spill. He argues that this 'sea' — with five US and six Mexican states lining its perimeter — has been more shaper than shaped, its unique biodiversity and geology inspiring currents of human development. It emerges as a beguiling entity, birthplace of the Gulf Stream, crucible of indigenous cultures, fishing mecca. Now, Davis avers, despite harbouring a mammoth hypoxic zone and ongoing petroleum extraction, the Gulf is in partial recovery.



### The Ascent of Gravity

Marcus Chown WIEDENFELD & NICOLSON (2017)

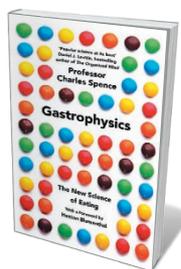
"Everyone thinks it sucks but in most of the Universe it blows." That aphoristic introduction hints at the genial wit and scientific flair that await in Marcus Chown's primer on gravity, which traces the historic arc of our understanding of the force. He shows how Isaac Newton's 1687 *Principia* — which distilled fundamental laws from the complexity of the cosmos — helps to explain phenomena such as tides. He analyses Albert Einstein's reformulation of gravity as warped space-time. And he gazes into the weird realm of quantum theory — and the "undiscovered country" of the next big questions.



### Dead Zone: Where the Wild Things Were

Philip Lymbery BLOOMSBURY (2017)

Half the planet's usable land is given over to agriculture, from crops to the 70 billion farm animals reared each year; meanwhile, an estimated half of all food is wasted. The impact on wildlife can be severe. In this measured analysis, Philip Lymbery — chief executive of the UK-based charity Compassion in World Farming — visits the front lines of industrial farming to gauge degrees of damage. Travelling from Sumatra's oil-palm monoculture, currently eating into elephant territory, to the encroachment of Brazilian soya fields on jaguar habitat, he argues that a transition to sustainable farming is overdue.



### Gastrophysics: The New Science of Eating

Charles Spence VIKING (2017)

Cognitive psychologist Charles Spence opens his study on the science of gustation with an anecdote about being spoon-fed lime *gelée* at an acclaimed UK restaurant. As an illustration of how taste resides in the brain, it's faintly outré; but overall, there's much to savour in this detailed research round-up. Looking at sight, sound, touch and eating 'experience', Spence dishes up gems such as 'digital' chocolates, the link between tomato juice and aircraft noise, and the hyper-noisy packaging of Frito-Lay SunChips. [Barbara Kiser](#)