

Sierra Nevada mountains to Los Angeles, instead of the lake. Within two decades, the city's population had more than quadrupled. By then, the lake bed was dry and the city sought supplies elsewhere. Winds cascading off the mountains swept up storms of dust from the barren land. Sulfate salts eroded clay soils, and toxic particulate matter, including arsenic and cadmium, wafted into the atmosphere. Scientific studies concluded that the dry lake bed was causing itchy throats, burning eyes, asthma and other respiratory problems in the surrounding communities.

In 1990, this human-made dust bowl prompted the US Congress to amend the 1963 Clean Air Act to include land use, as well as industries, as sources of pollution. At times, the measure of particulate matter at Owens Lake was the highest in the country, at more than 120 times the Environmental Protection Agency's air-quality limit. The Los Angeles Department of Water and Power decided that the most expedient solution was to refill a large portion of the lake.

Unsurprisingly, the plan failed. The land has been altered irrevocably, and only shallow, temporary pools formed along the basin. However, the dust storms did die down, and the city avoided regulatory fines. So it continued to dampen the dust by flooding the area and adding gravel.

Initially, the authorities paid little attention to restoring local ecology, but the transformation of the dry lake bed into a heterogeneous expanse dotted with saline pools encouraged the return of wildlife. In 2010, nearly 40,000 native and

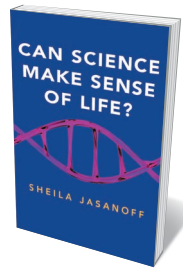
**“Intermittent flooding created microhabitats for an enormous diversity of birds.”**

migrating birds were counted in a single day, including rare western snowy plovers (*Charadrius nivosus nivosus*).

In 2011, the number was closer to 60,000; by 2013, it was up to 115,000. And nearly 5% of the world's population of American avocets (*Recurvirostra americana*) were seen at the lake in 2013.

The same year, the city proposed putting up to \$1 billion into the dust-control project, which now included habitat, cultural resources and economic development among its goals. The new iteration of the project prompted an unprecedented level of data collection. NASA satellites that measure short-wave infrared bands were calibrated with tap tests on the ground to track wetness across the expanse. Geographers used the Global Positioning System to map topographical features. And bird-watchers — professional and amateur — flocked to the site. Intermittent flooding created microhabitats for an enormous ▶

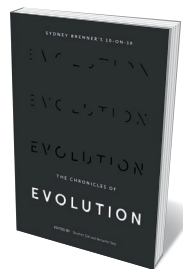
## Books in brief



### Can Science Make Sense of Life?

Sheila Jasanoff POLITY (2018)

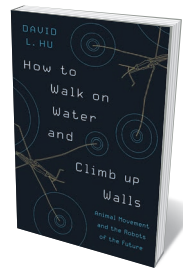
From gene drives to synthetic organoids, every rapid advance in the life sciences opens up a hot-button issue. This incisive study by sociologist of science Sheila Jasanoff examines ethics at that cutting edge. She argues that the view of the human genome as a ‘book of life’, read primarily by biologists, is partial; alongside it belong fields such as ecology, which explore what life is, rather than what it is for. Interweaving cultural touchstones, science history and trenchant insight, Jasanoff calls for a biology that reintegrates humanistic concerns to prevent a reductionist scientific hegemony.



### Sydney Brenner's 10-on-10: The Chronicles of Evolution

Edited by Shuzhen Sim and Benjamin Seet WILDTYPE (2018)

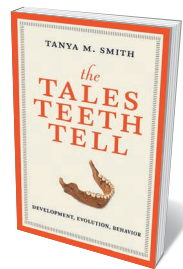
Spanning 14 billion years and 10 timescales, this scientific chronicle (brainchild of Nobel-prizewinning geneticist Sydney Brenner) addresses the monumental question of how humanity has come to dominate Earth. Among the 24 prominent scientists and thinkers who contribute are mathematician John Barrow on the habitable zone, biotechnologists Giulia Rancati and Norman Pavelka on cellular complexity, neuroscientist Atsushi Iriki on the evolution of human higher cognition and social scientist Helga Nowotny on our “radically open future”. A lavishly illustrated, thought-provoking ride.



### How to Walk on Water and Climb Up Walls

David L. Hu PRINCETON UNIVERSITY PRESS (2018)

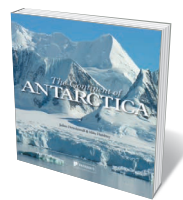
Animals are the ultimate movers and shakers, proves biomechanical engineer David Hu in this engrossing tour of faunal motion. Hu reveals propulsive genius in myriad beasts: a mako shark's 6-metre leap from the sea; a skink that swims in sand; the sinuous ‘flight’ of a *Chrysopelea* gliding snake. Even the *Periplaneta americana* cockroach does more than scuttle at lightning speed: its structural similarity to a stress ball allows it to withstand severe pressures. And the physical principles unveiled, Hu shows, offer as much to fluid dynamics and robotics as they do to evolution and zoology.



### The Tales Teeth Tell

Tanya M. Smith MIT PRESS (2018)

Biological anthropologist Tanya Smith drills into what disinterred teeth, as “sophisticated time machines”, can tell us about individuals, our species and the deep past. Her study — technically chewy yet thoroughly engaging — examines the human story through dental development, evolution and related behaviour, interlacing vivid anecdotes from her scientific career. The result is a mix of fascinating findings at all scales, from scanning electron microscopy displaying the exquisite geometry of enamel prisms, to toothpick use among hominins some 2 million years ago.



### The Continent of Antarctica

Julian Dowdeswell and Michael Hambrey PAPADAKIS (2018)

Part-paeon, part-study, this many-faceted portrait of Antarctica meshes crisp scientific writing with luminous images. Julian Dowdeswell — director of the Scott Polar Research Institute in Cambridge, UK — and glaciologist Michael Hambrey examine the continent through lenses from the geographical to the biological, touching, too, on its role as home to a shifting population of researchers. Drawn from years of fieldwork, this is a book sparking renewed awe over this stupendous landmass, outpost of the climate system and — with the sea bed — Earth's final frontier. [Barbara Kiser](#)