and boiling points compared with anything chemically similar, such as ammonia or hydrogen sulfide. When it freezes, its solid phase is actually less dense than its liquid one. That relatively rare characteristic leads to ice cubes and icebergs floating instead of sinking as any normal solid phase should do. (If there are sentient creatures somewhere in the Universe living next to lakes of superfluid liquid helium, they would probably be confused by water, which flows with weird side effects of friction and drag unknown in the superfluid world.)

"The rest of the Solar System often features extremely high or low temperatures and pressures. It's the surface of Earth that is the outlier."

Liquid distils a great deal of interesting information in accurate, readable form. As a chemist, I find it a relief to read such an overview without being distracted by mischaracterized or oversimplified details. Solid-state physicists and materials scientists will also celebrate Miodownik's excellent efforts at tying the everyday properties of liquids to their molecular structure. He provides many vivid examples: among these are saliva (during the flight's meal service, naturally) and jet fuel, which he notes is not an explosive, but still has more chemical energy per unit volume than nitroglycerine.

One of the things that chemistry and physics teach is that the information given by our senses is only a small part of the story: water is wet, our fingers can tell us that much. What we don't feel are the water molecules themselves, interacting with the protein surfaces of our skin. Their very atoms and electron clouds come within range of each other, attracting and repelling and adding up to the sensations that our vivid (but often crude) senses interpret. That hidden world underlies every object we see and handle. *Liquid* gives readers a sense of this — no small feat.

And that brings up the question of who might read it. As with *Stuff Matters*, Miodownik is inspiring those in search of science in an accessible, entertaining format. Today, materials scientists are preparing exotic fluids packed with nanoparticles that can turn them into magnets or optical sensors, and nanotechnologists and molecular biologists are exploring the behaviour of water and other liquids on very small scales. *Liquid* will come in very useful for people eager to understand these advances. ■

Derek Lowe *has worked in early-stage drug discovery for decades. His* In the Pipeline *is one of the longest-running science blogs.*
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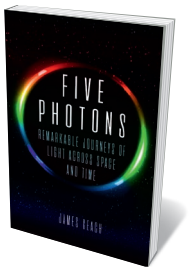
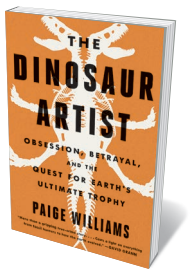
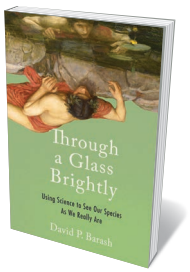
Books in brief



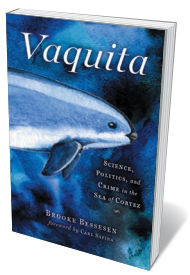
Five Photons
James Geach REAKTION *(2018)*
Light illuminates cosmic origins and decodes quotidian realities. But what is it? This deft primer by astrophysicist James Geach captures the elusive electromagnetic wave in five processes. His meditation on 'old' light takes us back to the singularity: the "cosmic seed" that expanded into the Big Bang. A study of starlight plunges us into the seething stellar surface. We peruse dark energy, radio waves and quasars — beacon-like galaxies in which supermassive black holes feed off interstellar gas and release vast amounts of energy. A masterclass in elucidating hard science with elegance and brevity.



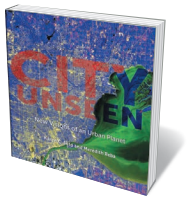
The Dinosaur Artist
Paige Williams HACHETTE *(2018)*
Who owns fossils? That vexed question lies at the heart of this exposé of the global trade in dinosaur remains — a messy meeting-place of commercial fossil collectors, palaeontologists, wealthy enthusiasts and natural-history museums. New Yorker staff writer Paige Williams's packed account centres on former Mongolian president Tsakhiagiin Elbegdorj, US dinosaur hunter and restorer Eric Prokopi and a costly *Tarbosaurus bataar* fossil. An astonishing tangle of financial gain, national identity, scientific fervour and, above all, the obsessional need to possess pieces of the past.



Through a Glass Brightly
David P. Barash OXFORD UNIVERSITY PRESS *(2018)*
As a species, we seem to be unable to shake off the idea of our exceptionalism. Yet science regularly trounces such ideas, argues evolutionary biologist David Barash in this briskly erudite study. Barash punctures human paradigms such as the 'anthropic principle', rationality and even selfhood, marshalling considerable research and considered reasoning as he goes. He concludes, rather splendidly, that the loss of such illusions flings open the door "to do something really extraordinary: to see ourselves as we really are" and use that knowledge to behave with more humanity.



Vaquita: Science, Politics, and Crime in the Sea of Cortez
Brooke Bessesen ISLAND *(2018)*
The world's smallest cetacean, the vaquita (*Phocoena sinus*), is also the most endangered marine mammal on the planet, found solely in northern Mexico's Gulf of California. In this intrepid conservation detective story, marine biologist Brooke Bessesen deconstructs the species' demise, showing how the tiny porpoises drown in gillnets used for poaching a prized black-market fish, *Totoaba macdonaldi*. As she shows, the effort to conserve remaining vaquitas is a torturously uncertain challenge — but ever driven by the idea, articulated by field biologist George Schaller, that "we cannot recover a lost world".



City Unseen: New Visions of an Urban Planet
Karen Seto and Meredith Reba YALE UNIVERSITY PRESS *(2018)*
Cities are a tug-of-war between nature and humanity — their configuration shaped by topography even as they mould the environment in and around them. This stunning study by Karen Seto and Meredith Reba explores this uneasy symbiosis through surreally hued satellite images of 100 cities. Snaps of Phoenix, Arizona, taken 31 years apart reveal serious urban sprawl, and a shot of grain fields around Semikarakorsk, Russia, is a controlled riot of colour and line with the verve of early modernist art. **Barbara Kiser**