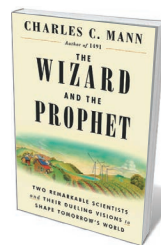


Ecologist William Vogt warned of the dangers of dwindling resources.



The Wizard and the Prophet: Two Remarkable Scientists and Their Dueling Visions to Shape Tomorrow's World
CHARLES C. MANN
Knopf: 2018.

DENVER POST VIA GETTY

SUSTAINABILITY

Duel for the future

Adam Rome assesses a study of two scientists who have polarized attitudes to sustainability since the 1960s.

Our species has had an amazingly successful run. Billions of people now live in environments radically transformed to suit human needs and wants. But humanity's future is far from guaranteed. How will we meet the looming challenges of the twenty-first century? We can work even harder to master the planet with technological ingenuity. Or we might need to accept that our desires can't be unlimited, and see ourselves as citizens of a larger-than-human community, rather than as world conquerors. We can't do both, science writer Charles Mann argues in *The Wizard and the Prophet*, an effort to assess which path holds the more promise.

To dramatize the two options, Mann

contrasts the work of agronomist Norman Borlaug (the Wizard of his title) with that of ecologist William Vogt (the Prophet). In 1970, Borlaug won the Nobel Peace Prize for developing high-yield varieties of wheat that launched the Green Revolution. Along with agricultural chemicals and irrigation systems, Borlaug's seeds led to a sharp rise in productivity in Mexico, India and other developing countries, particularly in the 1960s. Vogt's 1948 best-seller *Road to Survival* warned that rising population and declining resources spelt global catastrophe. Whereas Borlaug hoped to free humanity from the constraints of nature, Vogt called for a new environmental consciousness.

Although few today would self-identify as followers of Borlaug or Vogt, the heart of Mann's book asks how people he considers their intellectual heirs propose to deal with climate change and to provide food, water and energy for a projected global population of 10 billion (or more) by 2050. His Wizard camp ranges from biotech boosters to advocates of geoengineering. His Prophets include the

authors of *The Limits to Growth* (Universe, 1972), along with the small-is-beautiful advocates of organic agriculture and solar power.

The structure of *The Wizard and the Prophet* reminded me of John McPhee's brilliant *Encounters with the Archdruid* (Farrar, Straus and Giroux, 1971). That book explored the implications of the environmental movement by arranging confrontations between David Brower — long-time leader of the conservationist Sierra Club and founder of Friends of the Earth — and three presumed foes. Brower debates a mining engineer, a resort developer and a dam builder (the latter, on a raft trip on a wild stretch of the Colorado River). McPhee respected all four, and was masterful at challenging stereotypes. Readers were free to decide who had won the debates.

Unfortunately, Mann's study doesn't measure up to McPhee's classic. It is flawed in many ways, most notably in its lack of even-handedness. Mann writes that he was a Vogtian when young, later became a Borlaugian and is now torn — but I don't see that ambivalence in the text. Mann indicts Vogt as a failure who wasted precious time by leading people down a dead end. He considers Borlaug a saviour, even though the Green Revolution had unfortunate social and environmental consequences, such as a growing concentration of land ownership and pollution of waterways through overuse of pesticides. Mann also stacks the deck by ignoring problems with the Borlaugian approach and neglecting compelling elements of the Prophetic tradition.

At root, the differences between Borlaug and Vogt were ideological, not scientific. Borlaug accepted the mainstream values of his time and place — the American dream of material progress. Vogt didn't; like all prophets, he was a critic. He called for people to reappraise their place in the world: to think ecologically about everything from what we consume to how we understand history. He questioned whether "that sacred cow Free Enterprise" could be environmentally sustainable. And he advocated population

control, which went against many people's religious views and humanist ideals. Aside from decrying the latter notion, Mann engages with none of these ideas.

Instead, Mann turns the ideological divide into a dispute about technological visions, the hard and soft paths (a dichotomy he appropriates from physicist Amory Lovins). Wizards favour 'hard', sophisticated, capital-intensive, top-down methods of ensuring adequate food, water and energy, Mann argues. Prophets believe in simpler, decentralized, 'soft' solutions. But that definition is Borlaugian. It assumes that the goal is to meet ever-greater demand for natural resources — a premise that most Vogtians reject, because they argue that we need to moderate our desires, not just find less destructive ways to slake them. Even if Mann considers that argument naive, fairness demands giving it a hearing.

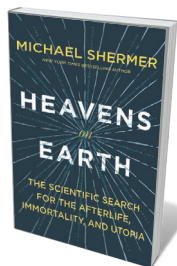
Mann also caricatures proponents of the soft path — particularly Lovins. Lovins is as can-do as any techhead; he's not a counter-cultural guru. Yet he does warn in *Soft Energy Paths* (Friends of the Earth International, 1977) that hard technologies lead to undemocratic concentrations of power, as major oil companies have proved. He is also a leader in making the market greener, as a consultant to corporations and as co-author of *Natural Capitalism* (Little, Brown, 1999). Although Mann dismisses him as a retro activist, Lovins would be a worthy antagonist for any Borlaugian.

And it's to the Borlaugians that Mann is most generous. He considers the evidence for the safety of genetically engineered crops as compelling as the scientific consensus on climate change. He holds out hope for nuclear power. And he barely acknowledges that history provides countless reasons for anxiety about unintended consequences of technology. From plastics to chemical pesticides, many twentieth-century miracles have done harm as well as good. Even some technology boosters admit that surprises are inevitable, although they remain undaunted. As the automotive pioneer Charles Kettering liked to say: "The price of progress is trouble, and I don't think the price is too high."

Mann asserts that those who lean towards Vogt's world view can't prove that we'll hit planetary limits. But the heirs of Borlaug can't prove that they'll avoid making a mistake that undermines the ecological or planetary foundations of civilization. Where does that leave us? The Wizards have had most of the momentum since the Enlightenment. The Prophets keep the Wizards from overreaching, and challenge us to probe what we really value. We need to listen carefully to both. ■

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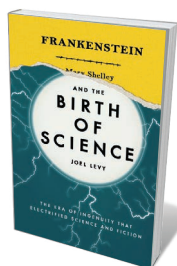
Books in brief



Heavens on Earth

Michael Shermer HENRY HOLT (2018)

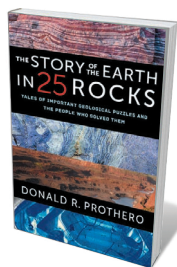
An astonishing 75% of US citizens — including some avowed atheists — believe in an afterlife. So potent is the idea of immortality, reminds *Skeptic* magazine publisher Michael Shermer in this intriguing study, that it pervades human culture. After exploring the notion's place in religious belief, Shermer examines its scientific manifestations, from transhumanism and longevity research to cryonics. He looks, too, at utopianism as the desire to create an earthly paradise. He concludes that balanced rationality — along with an honest, positive acceptance of mortality — constitutes the real "soul" of life.



Frankenstein and the Birth of Science

Joel Levy ANDRE DEUTSCH (2018)

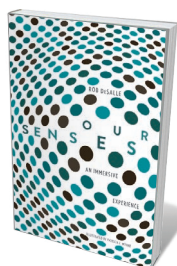
The bicentennial of Mary Shelley's masterwork *Frankenstein* is upon us. And one of the first homages of the year is this episodic, entertaining analysis by science writer Joel Levy. He presents the novel as a portrayal of high-Romantic "gonzo science", as well as science fiction. Levy contextualizes Shelley's narrative with contemporary research into areas such as galvanic revivification, psychoactive substances and polar discovery (as Victor Frankenstein and his monster travel to the North Pole). A celebration of an enduring classic's "extraordinarily rich confluence of sources".



The Story of the Earth in 25 Rocks

Donald R. Prothero COLUMBIA UNIVERSITY PRESS (2018)

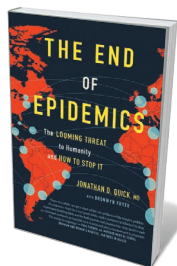
Geologist Donald Prothero has crafted a rock-solid premise for this delightful book: a tour of 25 geological discoveries that changed our understanding of Earth and the cosmos. He begins explosively, with Pliny the Younger's eyewitness account of the eruption of Vesuvius in southern Italy in AD 79 — the first scientifically accurate description of such an event. He then reveals how deep time, the Moon's origins and other 'stories in stones' were cracked by luminaries from Enlightenment geologist James Hutton to Marie Tharp, who mapped the Atlantic Ocean's floor in the 1950s.



Our Senses

Rob DeSalle YALE UNIVERSITY PRESS (2018)

Sight, hearing, touch, smell, taste: the senses are our portal to the world. But this erudite, zesty study by Rob DeSalle, curator at the American Museum of Natural History in New York City, ranges far beyond these "big five" into arenas such as balance, pain, heat and cold. DeSalle examines sense in an array of fauna, including comb jellies, lampreys and bats. He digs deepest, however, into how perception is formed in the human brain, how phenomena such as synaesthesia arise, how people with brain damage experience the world, and how our sensory armoury feeds creativity.



The End of Epidemics

Jonathan D. Quick and Bronwyn Fryer ST MARTIN'S PRESS (2018)

Physician Jonathan Quick's long experience at the front lines of global public health gives his call to action on pandemics a searing urgency. With writer Bronwyn Fryer, Quick examines how fear and complacency impede responses to emergencies such as the 2014 Ebola epidemic in West Africa. He then sets out a seven-part solution centred on actions such as establishing resilient health systems and mobilizing on-the-ground activism. Pragmatic, insightful and research-rich, this is a key volume for the policymaker's shelf. **Barbara Kiser**