

a fundamental shift in values.

The Limits to Growth was an international sensation, selling over 12 million copies in more than 30 languages. Meadows, Meadows and Randers updated the analysis in 1993 and again in 2004, and the question of limits still prompts vigorous debate. Johan Rockström and Mattias Klum's *Big World, Small Planet* (Yale University Press, 2015) and Donald Worster's *Shrinking the Earth* (Oxford University Press, 2016) are just two of the many books now probing the problem of growth.

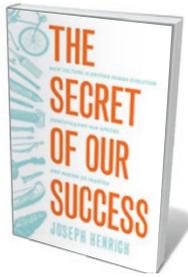
Ward and Dubos's *Only One Earth*, written to accompany the 1972 United Nations Conference on the Human Environment, added an international perspective to the sustainability discussion. Ward had travelled the globe as an expert on economic development. A preliminary draft of the book was circulated for comment to scientific, business and intellectual leaders from 58 countries, and the result is worth reading just for the summary of their responses, which made clear that people around the world held very different views about environmental issues. A European respondent argued for a retreat from industrialization, for example, whereas an Asian statesman wrote that developing nations could not afford "dreams of landscapes innocent of chimney stacks".

For Ward and Dubos, any effort to ensure the survival of humanity had to bridge the tremendous gap between developed and developing nations. Although they didn't use the phrase 'sustainable development', they offered a path-breaking analysis of the challenge of raising living standards for the poor without degrading the environment. At the same time, they called for the affluent to take off their blinkers. Well-to-do nations needed to acknowledge the damage that they were doing to the biosphere — and to accept that their fate was inseparable from the prospects of the rest of the world. Because many environmental threats were global, Ward and Dubos concluded, "planetary interdependence" had to become a moral and political reality, not just "a hard and inescapable scientific fact". The UN Paris Climate Change Conference starting this month will be a test of how close we are to meeting that aim.

Read together, the books of this charged decade demonstrate that building a sustainable civilization is multidimensional. It sweeps everything in: science and technology, politics, economics, social relationships, ethics. We cannot advance in a straight line. We need to approach the goal from many directions, with flexibility and tenacity. ■

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Books in brief



The Secret of Our Success: How Culture Is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter

Joseph Henrich PRINCETON UNIVERSITY PRESS (2015)

The force propelling *Homo sapiens* down its unique evolutionary pathway is "culture-gene coevolution", avers anthropologist (and aerospace engineer) Joseph Henrich. Over time, he posits, the need to acquire "adaptive cultural information" expanded the human brain, and societies' "collective brains" in turn shaped human culture. Integrating insights from cognitive psychology, experimental economics, history and ethnography, this limber and lucid study concludes that we face a major transition into a new type of animal.



The Last of the Light: About Twilight

Peter Davidson REAKTION (2015)

Cultural historian Peter Davidson enters the twilight zone, tracing the crepuscular in science, psychology, history and the arts. Considering the 60th parallel north, around which "long evenings and protracted sunsets stretch", Davidson probes aspects of this transitional state, including visual perception during the stages of twilight (civil, nautical and astronomical); dusk as a metaphor for crisis in Charles Dickens's *Bleak House*; the proliferation of guilt and mirrors in the murky pre-electric era; and the poet Gerard Manley Hopkins' observations of anti-crepuscular rays, published in *Nature*.



London Fog: The Biography

Christine L. Corton BELKNAP (2015)

London's 'pea-soupers' — opaque, yellowish smogs — were an environmental catastrophe, a cloak for nefarious activities and an artistic inspiration. An odiferous wig of soot from coal fires, sulfur dioxide and mist settled regularly over the city from the 1840s to the 1960s. In this richly nuanced history, scholar Christine Corton takes us from polymath Robert Hooke spotting a pall of smoke over London in 1676 through the killer fogs that felled zoo animals, spurred crime and caused traffic accidents, and that ultimately galvanized scientists and the government to craft the 1956 Clean Air Act.



The Secrets of Sand: A Journey into the Amazing Microscopic World of Sand

Gary Greenberg, Carol Kiely and Kate Clover VOYAGEUR (2015)

Beachcombers take heed: the real treasure is stuck to your soles. Sand — as cell biologist Gary Greenberg, microscopist Carol Kiely and science curator Kate Clover show in this delightful coffee-table book — is dazzling, from star-shaped forams to egg-like ooids. To photograph these minuscule jewels rock-polished by wind and surf, Greenberg used 3D microscopes and smart lighting. A stunning extra are images of the lunar dust particles that Kiely studies, including glassy spherules from extinct fire-fountain volcanoes.



The Best American Infographics 2015

Gareth Cook and Maria Popova MARINER (2015)

Another year, another superb volume in this infographics series edited by journalist Gareth Cook; cultural curator Maria Popova (of blog 'Brain Pickings') guest-introduces. 'What Do Americans Speak?' (*Slate*, 13 May 2014) offers an eye-popping map showing the third most commonly spoken language in each US state — in Michigan, that is Arabic — and *Nature*'s own 'Born Here, Died There' (*Nature* <http://doi.org/8xg>; 2014) explores dynamic patterns in cultural history through an elegant animation. [Barbara Kiser](#)