

## SPRING BOOKS



ILLUSTRATIONS BY MAXWELL HOLYOKE-HIRSCH

## Two views of our planet's future

**David Orr** explains how two environmentalists' manifestos bracket the debate on climate change — one favouring technological solutions, the other local interventions.

Environmentalists Stewart Brand and Bill McKibben mostly agree that the vital signs of our planet are worrying, but differ markedly in what they think should be done about it. Both accept that Earth has warmed by 0.8°C since 1880, carbon dioxide in the atmosphere is rising, oceans are becoming more acidic, species are being driven into extinction and a larger global population and growing economies are destabilizing Earth systems and the biotic world. Brand favours technological fixes to stabilize the climate and maintain economic growth; McKibben proposes a more decentralized and

### Whole Earth Discipline: An Ecopragmatist Manifesto

by Stewart Brand  
Viking/Atlantic: 2009/2010.  
336 pp/325 pp. \$25.95/£19.99

### Eaarth: Making a Life on a Tough New Planet

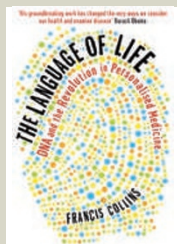
by Bill McKibben  
Times Books: 2010. \$24

resilient course. Taken together, their accounts raise questions about our collective failure to respond adequately to the global emergency

and why it has been so difficult for those who presume to lead to do so.

Stewart Brand, founder of the *Co-Evolution Quarterly* and the *Whole Earth Catalog* and a self-described 'ecopragmatist', recognizes the dangers implicit in the trends. If we do too little, he warns, we will "face a carrying-capacity crisis leading to a war of all against all". He concludes that the planet is quickly and unavoidably urbanizing, that nuclear power is both inevitable and beneficial, that genetic engineering will be essential to providing agricultural systems productive enough to

## NEW IN PAPERBACK



### The Language of Life: DNA and the Revolution in Personalized Medicine

by Francis S. Collins (Profile Books, £15)  
Formerly head of the Human Genome Project, Francis Collins now directs the US National Institutes of Health. "The Language of Life is timely, current and full of moving stories... Collins argues convincingly that your DNA can become "your personal textbook" that "could literally save your life" (Abdallah Daar, *Nature* **463**, 298-299; 2010.)



### The Greatest Show on Earth: The Evidence for Evolution

by Richard Dawkins (Black Swan, £8.99)  
Richard Dawkins concentrates on the proof rather than the logic for evolution, showing it has passed every test. "Some will criticize him for being uncompromising, but I applaud him for taking such a categorical — and entertaining — stance." (Lawrence Hurst, *Nature* **461**, 596; 2009.)

feed the burgeoning world population, and that geoengineering the atmosphere will be necessary to cool Earth. His message is: “Cities are green. Nuclear energy is green. Genetic engineering is green.”

Once thought of as an environmentalist far to the left of the mainstream, Brand has had a road-to-Damascus conversion. Having come in from the cold, he now dismisses many of his former green colleagues as ranters with inexplicable “deep aversions” to sensible things. He dismisses in particular those who believe that nuclear power is an expensive way to boil water and that it cannot compete in a fair market with the more agile, faster and cheaper opportunities of improved energy efficiency, solar and wind power. Brand thinks that “nuclear power will grow no matter what we do” and opposition will only make it grow “badly — slowly, expensively, unsystemically”.

Brand argues similarly that the environmental movement’s opposition to genetic engineering has contributed to world hunger, hindered science and hurt the natural environment. Yet he is quiet on ongoing research in natural-systems agriculture and organic farming. He dismisses advocates of the ‘precautionary principle’ as fear-mongering and ignorant of science. Instead, Brand is thrilled by the possibilities of synthetic biology, looking forward to a day in which amateur bio-hackers will increase biodiversity. Buried in the euphoria are a few caveats about the dangers, but they are only whispered.

The environmental movement, Brand argues, should “become fearless about following science”. However, science is not one but many different things that share a common faith in data, logic, evidence and peer review. With equal rigour the scientific method can be directed to agribusiness, nuclear energy and geoengineering, as Brand proposes, or to ecologically grounded agriculture, efficiency and dispersed small-scale technologies. The difference of priorities is rooted in alternative



visions about the future and the capabilities of humanity. Brooking little difference of opinion, Brand’s agenda is to champion the pursuit of economic growth through heroic technology, control of natural systems and expansion of human agency justified by a planetary emergency. But as physicist Alvin Weinberg proposed, such things will require a priesthood to run them all: a possibility that Brand does not discuss.

The starting point of McKibben’s book is similar, if more sharply etched and with higher voltage, but he arrives at opposite conclusions to Brand. His title *Eaarth* is meant to signify that we have already changed the familiar Earth into a planet that will be hotter, more threadbare and more capricious. The changes to our lives will unavoidably be “ongoing and

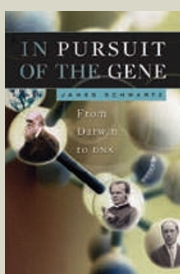
large”. The only serious question for McKibben is what can be done to adapt to that emerging reality and to curb the worst of what is otherwise likely to occur.

The end of economic growth is the strangest and most terrifying change we face, he writes. Sharing none of Brand’s breezy optimism about our ingenuity, McKibben thinks that we are unlikely to grow, build or innovate our way out of the situation, both because of the sheer scale of the human enterprise and because we will be contending with bigger storms, rising seas, declining biodiversity, longer and more severe droughts and the resultant political and economic turmoil. As he puts it: “There’s more friction than we’re used to. You have to work harder to get where you’re going.”

He proposes that we choose to “manage our descent”. We should grow up, face reality, jettison excess consumption and work out how to live decently with a lot less stuff and a lot more neighbourliness and local self-reliance. In place of growth, our national projects will be about “keeping what we’ve got” and “holding on against the storm”. On a less forgiving ‘Eaarth’, McKibben writes, we will need local decision-making rather than centralization.

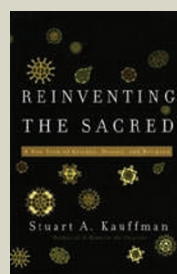
Brand’s and McKibben’s books bracket the rational debate about the human future in light of the perils of global destabilization. One admits the severity of climate change, but blinks in the face of it; the other is rather more fearless. One sees problems that are solvable; the other sees dilemmas that we cannot avoid but might learn to manage. Differences aside, the issues raised are long familiar. The questions are what can be done to avoid crossing the threshold of irreversible and adverse changes, and how we can bridge the chasm that separates science and the public discourse. ■

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**In Pursuit of the Gene: From Darwin to DNA**

by James Schwartz (Harvard Univ. Press, \$17.95)  
The history of classical genetics is recounted by James Schwartz, from Charles Darwin’s misguided theory of pangenesis to the discovery of DNA and the Human Genome Project. Jerry Coyne wrote: “What distinguishes Schwartz’s account is his impeccable scholarship, based on many primary sources... interweaving discoveries with the strong and eccentric personalities who made them.” (*Nature* 453, 1181–1182; 2008.)



**Reinventing the Sacred: A New View of Science, Reason, and Religion**

by Stuart A. Kauffman (Basic Books, £9.99)  
Complexity theorist Stuart Kauffman takes a new approach to bridging the gap between science and religion. Rather than arguing for either side, he suggests that the concepts of divinity can be reinterpreted and that “sacred qualities” such as creativity and purposeful action should be acknowledged as properties of the Universe.