

Science, the next generation

Fallout from the amazing advance in neuroscience dominates this fascinating foray into the future

What's Next? edited by Max Brockman, Vintage, \$15 (in UK, Quercus, £14.99 from October)

Reviewed by Amanda Gefter



EVERY New Year, I look forward to reading the answers to the *Edge*'s annual question, when science's foremost literary agent and impresario, John Brockman, asks science's superstars what they are thinking. For a peek at the inner workings of science today, you can't beat it.

But if you want to know what tomorrow holds, you have to look to the new generation, whose fresh minds are asking the questions that will define the next era of scientific thought. It is fitting, then, that it is one of the next generation of Brockmans, John's son Max, who has brought together science's rising stars.

His captivating collection of essays contains big ideas on topics as diverse as cosmology, climate change, morality and virology. That it is heavy on neuroscience – more than half the essays involve the human brain – is a sign of the times. Advances in imaging technologies such as fMRI and PET are ushering us, we are told, into a golden age of brain science.

Psychologist Matthew Lieberman at the University of California, Los Angeles, suggests that as we come to understand our brains better, we may also understand our basic beliefs. Big ideas – the kind that shape human thought for decades, even centuries – stick because they match something about the structure and function of human

brains, Lieberman says.

Take Cartesian dualism, the idea that mind and body are two different kinds of things: one material, the other something else. Despite having been comprehensively discredited by philosophers and scientists, mind-body dualism is an infuriatingly sticky idea. Lieberman argues that this is because the brain processes information about bodies differently from the way it processes information about minds. Our underlying neurology happens to deal with bodies and minds as two different categories, which may have been the origin of

Dealing with the brain's perception of time is a major challenge

the mistaken philosophical notion that they really are two different categories.

My favourite essay was by David Eagleman, a neuroscientist at Baylor College of Medicine in Houston, Texas, in which he explores what he sees as the extraordinary malleability of the brain's perception of time. This raises the deeper question of how we disentangle neuroscience from physics. Echoing Einstein, who referred to time as "a stubbornly persistent illusion", Eagleman writes: "Our physical theories are mostly built on top of our filters for perceiving the world, and time may be the most stubborn filter of all to budge out of the way."

Throughout Brockman's collection, one idea crops up time

and again: when we examine the human race, the whole is greater than the sum of its parts. We owe our evolutionary success to our unique modes of social behaviour. On this theme, journalist Vanessa Woods and anthropologist Brian Hare of Duke University, North Carolina, suggest that it wasn't

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intelligence that led to social behaviour, but social behaviour that paved the way for intelligence to evolve. And in his essay, Jason Mitchell, a neuroscientist at Harvard University, writes that: "The most dramatic innovation introduced with the rollout of our species is not the prowess of individual minds but the ability to harness that power across many individuals."

To see the power of social behaviour, we need look no further than this book. Alone, each essay is a gem; together, they form a remarkable dialogue about what it is to be human now and what it will be in the future.

My only complaint is that I wanted more. I would have liked to hear about breakthroughs in such fields as nanotechnology, systems biology, genomics and medicine. Some of the most intriguing developments in physics and cosmology, from approaches to quantum gravity to insights from the holographic principle, are also absent. Maybe Brockman is saving these for a sequel.

Could that be what's next? ■

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