

and never more so than when they show up the fallibility of human perception.

In 2003–04 paintings from his *Orogenesis* series, for example, Fontcuberta takes algorithms that create 3D landscapes from 2D map coordinates, and forces them to re-interpret the landscape paintings of artists such as J. M. W. Turner and Paul Cézanne. The results are highly naturalistic, but they reminded me of Swiss writer Charles-Ferdinand Ramuz's idea that once the human element is banished from a place, it becomes a non-place.

Likewise Michael Hansmeyer's 2017 *Astana Columns*. These architectural forms, created by an algorithm that applies evolutionary principles to repeatedly subdivide a Doric column, were assembled from laser-cut cardboard and other materials. They provoke awe through their sheer complexity, but in the way that a termite mound does: what's impressive is not that they were imagined, but that they were unimagined.

By the time I reached the future-facing section, where I bumped into ORLAN, I had concluded that, notwithstanding the section's title, the robot had not emancipated itself. Pascal Haudressy's 2009 animation *Brain*, for example, evolves thanks to glitches the artist introduced into the governing algorithm, that force the computer to continuously recalculate the coordinates of each pixel. Ultimately, however, it is less impressive than animations of the actual evolution of the human brain.

Although artificial intelligence has advanced in leaps and bounds since the 1950s, artificial imagination has yet to get off the starting blocks. As curators Laurence Bertrand Dorléac and Jérôme Neutres suggest in an explanatory video, these are artists' robots rather than robot artists. But if *Artists and Robots* doesn't tell you what art is, it does venture into fascinating new territory to tell you what it's not: random copying errors might be necessary, but they are also insufficient.

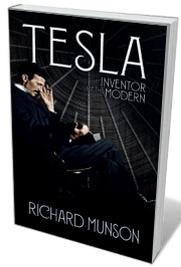
That said, perhaps robot imaginations have already liberated themselves outside the confines of human artists' studios, and their art is radically different from ours; so different that we don't recognize it when we see it, glasses or no glasses. I can't wait for the first exhibition curated by robots — assuming it's advertised to non-robots. ■

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CORRECTION

In the article 'Feynman at 100' (*Nature* 557, 164–165; 2018), a picture caption mistakenly referred to Richard Feynman lecturing at the California Institute of Technology; the picture was actually taken at California State University, Long Beach.

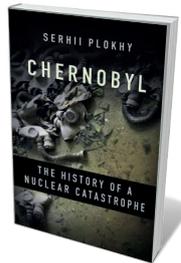
Books in brief



Tesla: Inventor of the Modern

Richard Munson W. W. NORTON (2018)

Around the turn of the twentieth century, Serbian-born visionary Nikola Tesla authored transformative inventions from the alternating-current system to remote control, drones and (arguably) radio. He even foresaw radar, mobile phones and the Internet. Yet, as Richard Munson reveals in this penetrating biography, Tesla's lack of business sense allowed others to prevail. Munson makes vivid the genius's eventful life, from his mother's inspirational labour-saving inventions to his psychological complexity — and his estimable belief that “technology should transcend the marketplace”.



Chernobyl: The History of a Nuclear Catastrophe

Serhii Plokhyy BASIC (2018)

Soon after midnight on 26 April 1986, a turbine test at Ukraine's Chernobyl nuclear power plant went stupendously wrong. The explosion released 14 exabecquerels of radiation; the fallout contaminated 20% of neighbouring Belarus and crossed more than half of Europe. Historian Serhii Plokhyy's deft, richly detailed account draws on newly opened archives and weaves in stories of players such as Chernobyl director Viktor Briukhanov. The disaster's roots, he asserts, were a toxic tangle of shoddy construction, human error, flawed governance and complacency in the Soviet nuclear industry.



The Digital Ape

Nigel Shadbolt and Roger Hampson SCRIBE (2018)

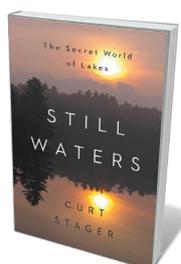
Numbed by dire warnings of technological Armageddon? Computer scientist Nigel Shadbolt and economist Roger Hampson dispel the miasma with this superb survey of the landscape we “digital apes” have wrought. Humanity's tool use, spanning everything from hand-axes to CRISPR, has spawned marvels such as a hyper-networked society, “social machines” like Wikipedia and artificial intelligence. But to avoid succumbing to the inherent dangers, Shadbolt and Hampson urge wise choices: to hold Silicon Valley to account, ensure transparent algorithmic decision-making and own our own data.



How to Change Your Mind

Michael Pollan PENGUIN PRESS (2018)

Journalist Michael Pollan explored psychoactive plants in *The Botany of Desire* (2001). In this bold, intriguing study, he delves further, homing in on psychedelic compounds currently under study, such as psilocybin. He meets a vast cast of researchers, including mycologist Paul Stamets and neuroscientist Robin Carhart-Harris, who works on neural correlates of the psychedelic experience. Pollan even “shakes the snow globe” himself, chemically self-experimenting in the spirit of psychologist William James, who speculated about the wilder shores of consciousness more than a century ago.



Still Waters

Curt Stager W. W. NORTON (2018)

“There is nothing like a lake to reflect and reveal the world.” So declares ecologist Curt Stager, whose lyrical evocation of ‘living waters’ offers geological and biological revelations. He also probes our relationship to lakes as one body of water to another, examining mud cores from Walden Pond in Massachusetts (immortalized by nineteenth-century naturalist Henry David Thoreau), flesh-dissolving alkaline minerals in Tanzania's Lake Natron, and the endemic species crowding crystal-clear Lake Baikal in Siberia. [Barbara Kiser](#)