

ILLUSTRATION BY QUINTON WINTER

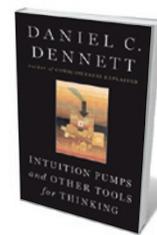
his previous books, he performed a service that is one of philosophy's main contributions: clarification of discourse.

For me, this is not quite achieved in *Intuition Pumps*. The book reads like a collection of short essays — nearly 80 chapters in 440 pages — grouped in sections loosely connected by theme.

One section is a fairly conventional precis of basic ideas in computing; others explain evolution, consciousness and free will. The intuition pumps are, as the title says, tools for thinking: they are thought experiments focused on problem-solving. And although Dennett wants to help us to think with them, he dislikes many and treats them as straw men. For example, skyhooks — thinking-tools that hang an explanation on nothing — are bad. These include intelligent design, for explaining too-intricate bits of biological machinery, and divine inspiration, for too-brilliant works of art. But cranes — concepts built on a solid factual foundation — are good. Take symbiosis or sexual reproduction, which speed up the work of random, blind-designer evolution; these are concepts that give evolution a legitimate boost.

Well, yes. But are skyhooks and cranes comparable kinds of ideas? Symbiosis and sex are evolved processes like respiration or photosynthesis; each began with random mutation and, by gradual natural selection, produced a 'design' that changed the history of life. But what do skyhooks and cranes add to the basic principles of how we think about evolution? The next time I comfort a student struggling between faith and Darwin, it will not help me to say, "What you learned in Sunday school about evolution needing a 'big boost'? That's just a skyhook." Rather, I will do what I do now: help the student to zero in on variation, inheritance, selection and, crucially, how very many generations there have been since evolution began. As Dennett states elsewhere in this book, the word for this is not 'crane' but 'algorithm' — both more and better than a metaphor.

A two-page chapter defines 'deepities', a coinage borrowed from a child, as meaningless statements that seem deep. His main example: "Love is just a word", which Dennett follows with, "Oh wow! Mind-blowing, right? Wrong." The idea of deepities is offered as a thinking tool to protect us from such shallow statements in



Intuition Pumps and Other Tools for Thinking

DANIEL C. DENNETT
W. W. Norton: 2013.
512 pp. \$28.95

PHILOSOPHY

Deepities, cranes and skyhooks

Melvin Konner sorts through a philosopher's box of tools for the musing mind.

Full disclosure: I am no sort of philosopher — I am not even a 'sorta' philosopher, to use one of Daniel Dennett's favourite coinages. But I aspire to being a sorta intelligent general reader, which would make me a fair example of the target audience of Dennett's *Intuition Pumps and Other Tools for Thinking*. I am also more

than a sorta Dennett fan: I reviewed *Freedom Evolves* (Penguin, 2004) favourably in these pages, and I liked *Consciousness Explained* (Penguin, 1993) and *Darwin's Dangerous Idea* (Penguin, 1996). Dennett, a noted philosopher, is one of those who take science seriously, believing that reasoning without facts can be a fool's errand. And in

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For Melvin Konner on Dennett's *Freedom Evolves*, see: go.nature.com/k24byv

disguise. But are we to find his reply to this deepity deep?

I share many of Dennett's views: a 'designed' nature without a designer; the mechanistic, emergent character of consciousness; the rejection of the homunculus argument, or the idea that an entity (often characterized in discussion as a little person) watches a theatre consisting of the rest of the brain; and the compatibility of free will with determinism. But I do not see the need to repeat arguments made less flip-pantly in earlier books. An artfully selected Dennett anthology would overlap considerably with this one, and might be easier to follow.

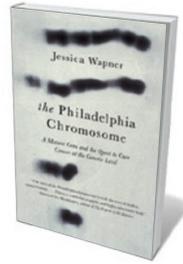
There is quite a bit of score settling. Dennett takes issue with thinkers ranging from Robert Beverley MacKenzie, who in 1868 called Darwin foolish for believing in designs with no designer, to evolutionist Stephen Jay Gould, who died in 2002, and the philosopher John Searle, both of whom Dennett has often censured.

Gould, for instance, found nature full of biological traits that he did not consider were in themselves adaptations, and hated what he called 'Panglossian adaptationism', or what he saw as the overly optimistic explanatory efforts of much recent Darwinian thinking. He used the evidence for punctuated equilibrium — long stretches of stasis in fossil records interrupted by change — to suggest a need for revising Darwin. Yet the 'punctuations' were easily long enough for natural selection. Even so, I fail to see what is gained by Dennett's coining a verb, goulding, to denote certain logical errors. Gould's research is valued; he was also a fine science communicator and a spirited defender of evolution.

Dennett says that although philosophers would rather be clearly right than clearly wrong, many would most like to be confusing, because confusing things endure in reprints and homework. He admits to abetting that process by engaging with the work of those he criticizes. But I fail to see the point of keeping bad ideas famous with reiterated arguments; perhaps that is why I am not a philosopher. I look forward to Dennett's next book, which I hope will be something ambitious: *Evolution and History* perhaps, or *How the Brain Decides*, or maybe *Philosophy as a Science*. But it is not for me to put a title in his laptop. I just hope that it reminds me more of his earlier, grander books, so that I can turn to it on my night table, once again a delighted Dennett fan. ■

Melvin Konner is professor of anthropology and behavioural biology at Emory University in Atlanta, Georgia. His latest book is *The Evolution of Childhood: Relationships, Emotion, Mind*. e-mail: antmk@mindspring.com

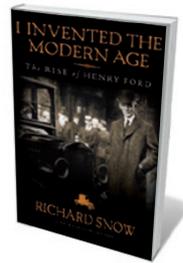
Books in brief



The Philadelphia Chromosome: A Mutant Gene and the Quest to Cure Cancer at the Genetic Level

Jessica Wapner THE EXPERIMENT 320 pp. \$25.95 (2013)

A crucial link between genetics and cancer emerged in a US lab in 1959, as researcher David Hungerford peered down a microscope at an abnormally small chromosome. In 1990, this 'Philadelphia chromosome' was found to cause the swiftly fatal chronic myeloid leukaemia. As science writer Jessica Wapner reveals in this taut, elegant study, a cascade of breakthroughs then led to success with targeted drug Gleevec, a tyrosine kinase inhibitor — and hopes for the cancer-busting potential of rational drug design in general.



I Invented the Modern Age: The Rise of Henry Ford

Richard Snow SCRIBNER 384 pp. \$30 (2013)

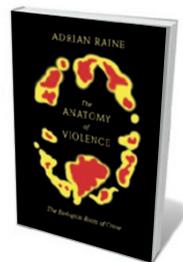
He was as obsessed by the inner workings of a watch as by a locomotive's wheels. His name was synonymous with mass production and the automobile's century-plus reign. Henry Ford's samurai-sword vision simply cut through hurdles, moral or physical. Eventually, as this biography-cum-technical history amply shows, Ford the mechanical genius and innovator was eclipsed by Ford the vindictive anti-Semite. Richard Snow skilfully evokes everything from patenting battles to internal-combustion dramas — and his bullheaded subject, who set out to remake America, and succeeded.



Moving Innovation: A History of Computer Animation

Tom Sito MIT PRESS 336 pp. \$29.95 (2013)

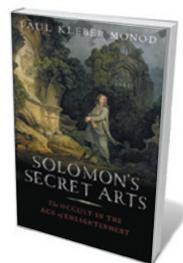
From Buzz Lightyear all the way to Gollum in the film *Lord of the Rings*, computer graphics is techno-art of mind-boggling sophistication. Tom Sito, who helped to set up the Dreamworks Animation Unit in 1995, traces its roots to the modernist era, when James Whitney's abstract films and Ivan Sutherland's Sketchpad program were making waves; he then untangles its evolution in corporations, academia and film. Sito unveils the hard graft, thrills and frustrations behind the digital wizardry, taking us through watersheds such as *Jurassic Park* and beyond.



The Anatomy of Violence: The Biological Roots of Crime

Adrian Raine PANTHEON 496 pp. \$35 (2013)

Are 'criminal tendencies' hard-wired or acquired? In this perturbing study, psychologist Adrian Raine argues the biological case, marshalling swathes of findings and case studies of murderers and rapists. We learn, for instance, of Jeffrey Landrigan, who was adopted into a privileged family as an infant, yet mirrored his biological father's and grandfather's criminal careers; of links between aggression and prefrontal-cortex impairment; and of potentially sticky legal implications. But, although provocative and bristling with data, the book's complexities fail to boil down to a simple answer.



Solomon's Secret Arts: The Occult in the Age of Enlightenment

Paul Kleber Monod YALE UNIVERSITY PRESS 412 pp. £27.50 (2013)

The British Enlightenment, historian Paul Monod avers, was shot through with the esoteric: an undercurrent of occultism persisted as the current of rationality came into full flow. Revelations may not be rife, but Monod conjures up an array of figures who swam in both streams, from secret alchemist Isaac Newton to openly "fervent alchemical adept" Elias Ashmole. Ultimately, Monod argues, occult thinking may even have freed intellectual development by liberating the imagination at this key scientific tipping point. **Barbara Kiser**