

and one in a high-speed, rotating cutting tool. As the probe traced the surface of the original bust, the tool duplicated its motion and cut a plaster block. Today, about 400 of Watt's sculptures are in storage at the Science Museum, including casts, busts, depictions of contemporaries including the chemist Joseph Black, and copies of Boulton's 1809 death mask. After his own death in 1819, Watt became the first engineer to be commemorated in Westminster Abbey. For the Victorians, Russell shows, Watt was "a new kind of industrial hero" whose stature was comparable to Isaac Newton's as a physicist.

As Russell admits, there is no shortage of recently published studies of Watt, such as

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Richard Hills's three-volume biography *James Watt* (Landmark, 2002–06) and *James Watt, Chemist* by David Miller (Pickering & Chatto, 2009). But where Russell focuses on Watt as a man able "not just to think but to do: to use tools, techniques and materials, to create tangible things across a range of activities", most studies tend to emphasize his capacity as a thinker. Perhaps that tendency is inevitable. Scientists and science historians generally revere original theories with unforeseeable consequences more than practical inventions with immediate applications — Newton and Albert Einstein more than Christopher Wren, Watt and Thomas Edison. For all the wonderful creativity on display in his workshop, Watt was essentially earthbound. Yet his life and work are decidedly relevant to the debate about how scientific discoveries are best turned into marketable inventions. Watt's way of working — with a business partner and a patentable purpose, whether an efficient coal-driven means of pumping flood water out of mineshafts or the mass production of pottery — could hold lessons for any university or government keen to promote technology transfer.

Watt was born in Scotland, trained as an instrument maker in England, made his breakthrough with the steam engine in Scotland, and began manufacturing it in England, where he settled. Next month, there will be a referendum on Scottish independence from the United Kingdom. Whatever the outcome, Watt's remarkable life is a definite benefit arising from the close economic, intellectual and cultural union of Scotland and England. ■

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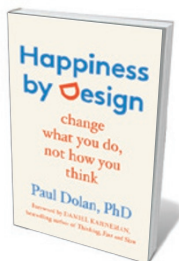
Books in brief



The Social Roots of Risk: Producing Disasters, Promoting Resilience

Kathleen Tierney STANFORD UNIVERSITY PRESS (2014)

The origins of disaster lie in "the ordinary everyday workings of society", avers sociologist Kathleen Tierney in this brilliant treatise. Drawing on a trove of timely case studies, Tierney analyses how factors such as speculative finance and rampant development allow natural and economic blips to tip more easily into catastrophe. Resilience, she argues, is rooted in sustainable ecological and social development. It is transformative risk reduction, not bailouts, that will help humanity to weather coming upheavals.



Happiness by Design: Change What You Do, Not How You Think

Paul Dolan HUDSON STREET (2014)

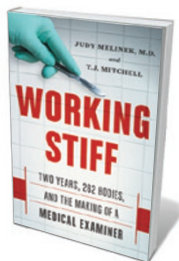
The science of happiness has been with us since at least the 1940s, when Abraham Maslow's ideas opened up a psychology based on feeding the potential for positivity rather than simply treating symptoms. To this now-crowded table, behavioural scientist Paul Dolan brings a feast of US and European research, and some significant insights. Dolan argues that happiness depends on where we focus our attention, and on how well we balance purpose and pleasure. His action-oriented outline for achieving that equilibrium draws in part on work with eminent psychologist Daniel Kahneman.



Great Minds: Reflections of 111 Top Scientists

Balazs Hargittai, Magdolna Hargittai and Istvan Hargittai OXFORD UNIVERSITY PRESS (2014)

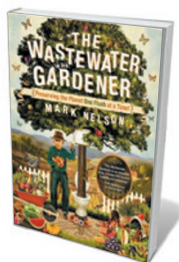
Over two decades, chemists Balazs, Magdolna and Istvan Hargittai interviewed hundreds of prominent scientists, including 68 Nobel laureates. This distillation features excerpts from 111 of these frank conversations. Featured are mathematician John Conway on how his discovery of surreal numbers was like finding a palace after drifting around a strange city; physicist Gerard 't Hooft on the improbability of intelligent extraterrestrials; and physicist Mildred Dresselhaus, biologist Francis Crick, and more on the fascination of the life scientific.



Working Stiff: Two Years, 262 Bodies, and the Making of a Medical Examiner

Judy Melinek and T. J. Mitchell SCRIBNER (2014)

"A hard hat was still there, lying on its side in a pool of blood and brains, coffee and doughnuts." Judy Melinek's inside story on forensic-pathology training, written with her husband, writer T. J. Mitchell, is inevitably big on gore. But Melinek, a "sunny optimist", offers more than cheap thrills. The flamboyant disclosures — how to handle rotting flesh or use pruning shears to snap ribs — are balanced by her soul-baring account of identifying human remains in the wake of the terrorist attacks in New York on 11 September 2001.



The Wastewater Gardener: Preserving the Planet One Flush at a Time

Mark Nelson SYNERGETIC (2014)

It takes 1,000 tonnes of water to move 1 tonne of human faeces, notes engineer Mark Nelson. His alternative to costly, unsustainable sanitation is constructed wetland — subsurface-flow gravel beds in which plant roots and microbial action purify wastewater for a full range of uses. Nelson, a veteran of the 1990s US survivability experiment Biosphere 2, has built "wastewater gardens" from Algeria to Australia, Mexico and beyond. **Barbara Kiser**