that these trials are unsuitable. Some of these practitioners' arguments are easily dismissed, for example, the idea that alternative treatments are beyond science. Other criticisms come from respectable commentators and are harder to ignore; for instance, the difficulties of designing trials to investigate complex treatments with multiple variables, or whether these trials use test conditions that differ from a treatment as practised. Randomized controlled trials are powerful tools, but they are imperfect and it would have strengthened the argument of *Trick or Treatment?* had the book discussed these downsides.

Scientific research is intrinsically provisional; it may asymptotically approach a truth, but it is never unequivocal. Singh and Ernst, however, make repeated claims that they provide the truth, and have even included this word in the title of every chapter. The balance of evidence from randomized controlled trials supports their arguments, but the authors are not tendering a disprovable hypothesis. Many science communicators argue that to present science as the only truth does it a disservice. For now, the certainty expressed in *Trick or Treatment?* mirrors that of the proponents of alternative therapies, leaving each position as entrenched as ever. ■

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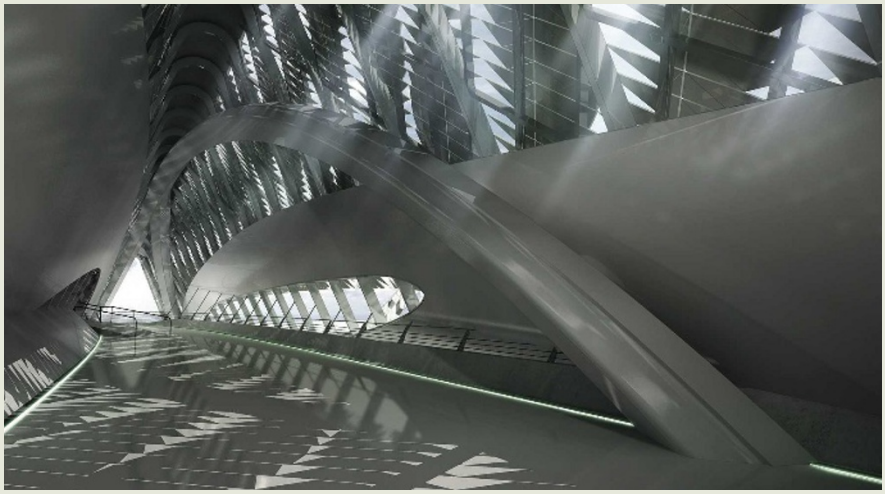

M. GATTO

Saving water

Water and sustainable development is the theme of Expo Zaragoza 2008, a biennial international festival of culture to be held in Saragossa, Spain, from 14 June to 14 September. Inside a meander of the river Ebro, a park has been built displaying ecological materials, renewable energy and sustainable water management. The festival's 140 pavilions — including architect Zaha Hadid's sinuous bridge (pictured), clad in steel scales that mimic shark skin, and a glass tower shaped like a water droplet — will house exhibitions and events.

A platform for technical, scientific and social debate, the Expo will host nine weeks of themed seminars on water conservation, climate change and development. A series of essays has been commissioned by the Expo from global figures, including ex-president of the former Soviet Union Mikhail Gorbachev, EU High Representative Javier Solana and Nobel Peace prize winners Rigoberta Menchú and Wangari Maathai. **J.B.**

www.expozaragoza2008.es

Suppressing science

Doubt Is Their Product: How Industry's Assault on Science Threatens Your Health
by David Michaels
Oxford University Press: 2008. 384 pp. $27.95, £14.99

David Michaels has written a powerful, thorough indictment of the way big business has ignored, suppressed or distorted vital scientific evidence to the detriment of the public's health. *Doubt Is Their Product* catalogues numerous corporate misdemeanours, especially in the United States, from the criminal neglect of the dangerous nature of asbestos and the lies told by the tobacco industry, to the suppression of adverse findings of deaths caused by the anti-inflammatory drug Vioxx and the increased risk of suicide among teenagers taking selective serotonin re-uptake inhibitors for depression. The book concludes with a list of prescriptions for securing better regulation and greater protection for the public, mainly through increased public disclosure of vested interests.

The central question Michaels raises is whether our dependence on corporate funding in Western society can be reconciled with the integrity of scientific research and, if so, how. It can be argued that the importance of the motivation of a company or a scientist tends to be exaggerated. Our present system contains a strong element of self-regulation through self-interest. Companies make profits by manufacturing successful products that are useful to the public, and are damaged if their products are shown to be ineffective or harmful. They may face ruin if they cause disaster, as in the case of thalidomide. From time to time they err, but regulation keeps aberrations to a minimum. Big pharmaceutical companies, for example, have served public interest by producing a stream of drugs that has greatly improved the quality and length of our lives, as Michaels acknowledges.

Individual scientists have reason to avoid dishonesty and incentives to ensure that their research stands up to scrutiny. Their reputations — and careers — depend on doing good science and suffer if findings are discredited. Corporate research is peer reviewed and results are accepted only when shown to be reproducible. Whatever its limitations, peer review is the best guarantee we have of research quality. These incentives and safeguards apply whether scientists work for companies, universities or the government. If the science is good, it survives; if not, it does not, whatever the funding source or the scientist's personal motive.

Yet, as Michaels demonstrates, motivation cannot be ignored. Canadian scientists examined papers on the controversial question of whether calcium-channel blockers used to treat high blood pressure increased the risk of heart attack. They found that, of those who supported the use of such blockers, 96% had a financial connection with the manufacturers. This compared with 60% of those who were neutral and 37% of those who were critical. Many studies of other drugs have found similar correlations between sponsorship and conclusions.