New in paperback

Made to Measure: New Materials for the 21st Century
by Philip Ball
Princeton University Press, $17.95, £11.50
"Many books on new materials have more hyperbole than substance; this is not one of them. Ball writes of his materials with enthusiasm, but tempered realism. He recognizes that most (but far from all) new materials will be passing wonders." A. Lindsay Greer, *Nature* **392,** 561–562 (1998)

The Age of Spiritual Machines: When Computers Exceed Human Intelligence
by Ray Kurzweil
Penguin, $14.95
"Kurzweil's account focuses mostly on the intelligence of machines and the way humans will interface with them via direct neural connections to our brains. The writing is always lively and the arguments are well presented and amplified by numerous boxed cut-outs, tables and graphs showing the ever-accelerating pace of computing technology ...[Recommended] to any reader who wants a mind-expanding account of the rise of the age of intelligent machines." John L. Casti, *Nature* **397,** 663–664 (1999)

Mapping the Mind
by Rita Carter
Seven Dials, £14.99
"Information there is aplenty, nugget after nugget of it to stimulate and tease the most jaded palate." Jeffrey Gray, *Nature* **399,** 652 (1999)

Instead, Bliss succumbs to the Osler magic, and offers us an immaculately researched and finely written account of this most famous of all modern doctors. It goes beyond Cushing's 'life and letters' approach, but Bliss reinforces rather than displaces the received image of Saint William. He sticks close to the rich manuscript sources and avoids psychologizing. We follow Osler through his career, from his childhood as the son of an Anglican parson in backwoods Ontario to education in Toronto and Montreal, where he graduated in medicine from McGill. Bliss remarks, almost in passing, that Osler was never comfortable with any language but English, despite his education in predominantly francophone Montreal, and his active participation in numerous international medical congresses at a time when French and German were more common languages of scientific currency.

A rich brother helped Osler spend a couple of postgraduate years in Europe, which was the making of him. From then on, it seemed almost effortless: chairs at McGill, the University of Pennsylvania, Johns Hopkins and Oxford, with offers of serious nibbles elsewhere, including Harvard, Toronto and Edinburgh. Everyone wanted Osler, even before his *Principles and Practice of Medicine* (1892) made him the public embodiment of humane, scientific medicine. Not a particularly effective public speaker, he was nevertheless much in demand, and occasionally moved his audience to tears. He was at his best at the bedside, however, both as a teacher and as a doctor. He inspired confidence in his patients and simply inspired his students.

There is nonetheless the nagging question of why Osler's reputation did not simply quietly fade away, as his students and colleagues followed him to their graves. Bliss's last chapter describes, even if it does not entirely explain, the posthumous Osler. It may be something as vague as 'character', or it may be related to his very ordinariness, or his irrepressible sense of fun. Maybe it is because, like him, we all really enjoy the company of children more than that of their stuffy parents. Whatever it is, the Osler phenomenon is still alive and well, even if Sir William is not the only saint to be have attracted acolytes for less than saintly motives. ■

W. F. Bynum is at the Wellcome Institute for the History of Medicine, 183 Euston Road, London NW1 2BE, UK.

Seeing the world in a mote of dust

Dust: A History of the Small and the Invisible
by Joseph A. Amato
University of California Press: 2000. 288 pp. $22.50, £13.95

Ralph Lewin

According to some religions, the human race was created from a handful of dust. According to others, perhaps more plausible, that's how we'll all end up. So the subject of dust should be of some interest to all of us, even if we are not cleaners, librarians, vacuum-cleaner sellers or members of Alfred Doolittle's fraternity of dustmen in the film *My Fair Lady*.

I was glad to have this book sent to me to review, since dust has accompanied me throughout my life. As a child in London I used to watch golden motes of cotton dust spinning slowly as they fell through all-too-infrequent sunbeams. I survived many dusty weeks in San José, Costa Rica, when Volcan Irazu erupted. Every time the wind blew in the wrong direction, it shed so much ash over the city that lawns became grey, and dust-covered coffee plants died for lack of adequate photosynthesis.

I expected to find plenty of scientific information on abundances, sizes, velocities and compositions of interstellar particles, including even little diamonds; of the rates of fall of aerosol particles and their scattering of light in the atmosphere; of redder sunsets on smoggy days; of the aeolian transport of ferruginous dust from the Sahara across the Atlantic Ocean to the Caribbean; of lead dust along roadsides and how it affects traffic policemen and children in areas where automobile fuels are (or were) leaded; of pollen and mites' eggs and allergies; of asbestosis leading to lung cancer; of domestic dust, and how static charges cause it to settle sideways on walls over radiators. Alas, I found almost nothing along these lines.

Amato writes well; he is a littérateur, an elegant stylist and, presumably, a good historian. I learnt about the craze for gold dust, and of rural tragedies in the American dust bowl during the 1930s. Sprinkled unobtrusively through the text are hundreds of little numbers, so small that they don't interrupt one's flow of reading; they refer to original sources quoted in 40 pages near the end of the book, as is perhaps proper for historical theses. (Maybe we scientists could copy this system.)

Clearly, though, Amato is no scientist. What little science we find here is not of the highest order. "A grain of musk perfumes a room for years, and a single grain of indigo colors a ton of water," he writes. "Antbread is a barely visible part of a tiny seed that ants drag to their nests and which, if uneaten, springs up into plants. ... In grain elevators … a single spark from any source (even the tiny amount of electricity given off by the human body) can trigger an immense explosion." And so on. Amato has spread his net widely. His concept of dust seems to embrace not only the fluff that I surreptitiously sweep under rugs but also sawdust, powdered herbs, flour, gunpowder, dirt, mud, germs of all sorts, worms, lice, and even halitosis! His topics include a scattershot on cancer, Dolly the ewe, Nazism, plumbing, poverty, transistors, Vincent van Gogh … but wait! Underneath all these dusty matters there is, in fact, yet another interesting and informative history of art, culture — yes, even science — in Western Europe during the past millennium.

I am reminded of a game we played in our school debating society. We put into a hat many bits of paper bearing different words as topics, such as God, Macbeth, underpants, UFOs, dust, and so on. Then one of us drew out a couple at random, was allowed two minutes to consider them, and then three minutes to give a short talk somehow integrating the two selected topics. Amato, if he ever played it, would have excelled.

I'm sure many lay readers will find this book entertaining. The University of California Press must have thought so, too. ■

Ralph Lewin is at the Scripps Institution of Oceanography, University of California, San Diego, 9500 Gilman Drive, La Jolla, California 92093-0202, USA.