

logical obsolescence does not automatically doom a story to failure. In *Ruth Belville* (2008), David Rooney's gripping read about the long lonely life of 'The Greenwich Time Lady', his anti-heroine outlasts automation by carrying a watch around London so that her customers can check they have the right time.

Taking care in what we say about the past is crucial because it helps us to understand the present and also – hopefully – to improve the future. When James Watson's *The Double Helix* appeared in 1968, 15 years after the structure of DNA was first announced, many scientists were furious because he depicted science as a competitive race with only one goal – to reach the answer first. Determined to become a modern-day hero, Watson glorified himself by concealing the myriad contributions of other researchers and by rejecting the patient, methodical approach on which science prides itself. Anyone who believes that technological innovation necessarily represents progress should reflect on the atomic bomb and global warming. Instead of casting our scientists as heroic adventurers, we should give them more realistic roles and recognise that scientific change is not simply one exciting success story after another.

PATRICIA FARA

Exhibition: Skin Until September 26th

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The brain, the heart, the liver – the history of the human body has lately concentrated on its organs, whereas the history of medicine assumed that the history of the body is more than the sum of its parts, an assumption fascinatingly explored in the Wellcome Trust's latest exhibition 'Skin'.

The largest and, of course, most visible of our organs, skin was regarded simply as a covering which had to be slit open and peeled off to reveal the organs beneath. Treatises concerning diseases of the skin were not published until the 18th century, and dermatology, in the modern sense, was not a professional discipline until the 19th century. It was then explored primarily in connection with venereal diseases.

Yet, as the co-curator of the Wellcome exhibition, Javier Moscoso, writes: 'It is difficult to find any place where the bonds between science and society, nature and culture, and even mind and body, have been more visible than the skin.' Skin is what we present to the world – its wrinkles, orifices, hirsute areas, birth marks, rashes, blemishes and scars map the life of the body from smooth and delicious infancy to creviced and parched old age. Seen culturally now less as a covering and more as a canvas to be tattooed, creamed, sloughed off and as a marker of age and of race, this is another staging post in the Wellcome Trust's fascinating exposition of the human condition.

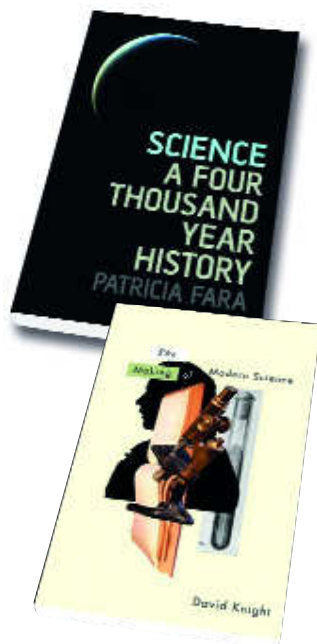
JULIET GARDINER



A male *écorché* exposing the anatomy of the thorax and breastbone, from a 1557 woodcut.



Left, a tattoo on a piece of human skin from the late 19th century.



The Making of Modern Science

Science, Technology, Medicine and Modernity: 1789-1914

David Knight

Polity 272pp £55

ISBN 978 0745636757

Science

A Four Thousand Year History

Patricia Fara

Oxford University Press 408pp £20
ISBN 9789 199226

The story of science is Whig history. We are forever cherry-picking the routes by which we came to our present understanding of the world – and the implication is always the same: our current grasp is final, perfect, and unimpeachable. It's a bad way to do history, but it's a good

way of doing science. That is the problem.

Most worthwhile scientific ideas are so complicated, they must be approached in easy stages, and most of all, through stories. These stock accounts of discovery and ever-improving knowledge are not ends in themselves; they are navigable routes into territories that eventually become so complex, they cannot be contained by narratives, and may in the end only be expressible in mathematics. A concrete example may be instructive here. The stock story of how we came to understand human colour perception is selective and triumphalist: it jettisons a lot of fascinating material, misrepresents personalities and periods and is, to date, the only way to

explain its subject. Every account you will ever read is the same, and God help you if you try to approach colour perception from a fresh historical angle. (I know this from bitter personal experience, but don't take my word for it: read neuroscience professor John Mollon's 2003 paper 'The Origins of Modern Colour Science'.)

Imagine, then, trying to write a historically accurate story of science itself! You'd have to throw out all the whiggery, and in throwing out the whiggery you'd throw out all the knowledge. What you'd end up with is the story of an entirely absurd and incomprehensible activity.

This is what Gustav Flaubert, with his relish of cliché, might have called a knotty problem.

David Knight of Durham University and Patricia Fara of Cambridge have both mapped this particular Gordian Knot in their teaching and in print. Knight is more of a historian by training, Fara more of a physicist, but that's not important. Both understand *The Knot* and both have attempted to *Cut It* – affording us, in both cases, a worthwhile spectacle and quite a lot of blood.

For David Knight, science began not many years before the word 'scientist' was coined, in 1833. It is a sensible argument (why is it used so rarely?) and anyway, a manageable timescale gives Knight the chance to tuck into all those chewy ancillary regions that traditional histories of science never explore. We learn about laboratories, journals, schools, institutions, publishing houses, shifting patterns of income and influence, and much else. This surely, is the story of science as it really happened! And it's virtually unreadable. What saves it is its own ambition. Whenever he feels the need to introduce, or regroup, or conclude,

Knight surfaces from his ocean of detail and presents us with a vision of what a good history of science would be like, if only such a thing were possible. Then he vanishes again, under the detail. Without a whip narrative to drive it, it's hard for the reader to see what all this frenetic scientific activity was for.

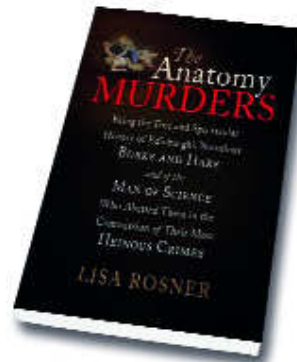
On the other hand, Patricia Fara's recently published *Science: A Four Thousand Year History* takes such a long and generous view of the enterprise that science, popularly conceived, is in danger of vanishing entirely under a welter of Neat Stuff (technology, astrology, alchemy, medicine ...) This perspective commits her to some strong claims. Science is not special! Science is not quintessentially European! Science is not progressive, or even true! This is like saying gravity isn't really a force, or that solids aren't really solid. You can build big statements out of small truths, but what happens when the tortoise falls on your head?

Fara sometimes writes as though she is the first to give the

alchemists their due, or admire Babylonian astronomy. She clearly wants us to know there are other ways to live and think, yet her book is exactly what it has to be to come in at around 400 readable pages. It is almost entirely about Europe, much of it after 1637 and Descartes' *Discourse on Method*.

Making history of science is a formal problem. The disciplines are fundamentally at odds with each other. Serving the one means jettisoning the other. The reason we have two cultures – as C.P. Snow knew perfectly well, and the rest of us forget at our peril – is that we need two cultures. We need bridges too, of course. But beware the bridge marked history. The truer the design, the less it will hold.

SIMON INGS



The Anatomy Murders

Being the True and Spectacular History of Edinburgh's Notorious Burke and Hare and of the Man of Science Who Abetted Them in the Commission of Their Most Heinous Crimes

Lisa Rosner

Pennsylvania University Press 336pp
£19.50 ISBN 978 0812241914

The title says it all. Professor Rosner has ostentatiously steeped herself in primary research, radiating atmosphere and actuality shaken from commission evidence, juridical archives, medical controversies, pamphlet wars, trial reports and spin-offs, with a zeal ruthlessly reminiscent of American tourists of yesteryear displaying slides to a hopelessly captive audience. It is a task joyfully completed with heavy-handed judgements, portentous if ludicrous emphases, noisy salesmanship, awe-inspiring complacency,

and a packaging that if anything conceals the considerable value of the work. The neophyte to Burke and Hare will find a genial guide serving pleasantly digestible horrors. The specialist will be left alternately wanting to shake the author's hand or to wring her neck.

Burke and Hare have been done before, and for the most part done worse, and whatever the merit of her predecessors, Rosner should shake the most complacent of us with some highly proficient questioning of the evidence about several of the corpses murdered in order to maintain the supremacy of the Edinburgh medical establishment. Her answers may be less convincing than her questions, but that is what history means.

Here is where the reader is tempted to turn Burke and Hare on the author. She has plumbed sources never worked in such depth, if at all, while regurgitating ancient findings in the same infallible tone. She has brilliantly doubted whether the murdered Mary Paterson was (as she is always termed) a prostitute, whether she had sexual relations with the anatomy student who later dissected her and whether our gullibility has been exploited by Victorian narrators in quest of morality.

Yet she casually commits precisely the sin with which she has so ably charged the rest of us, that of following sheep-like in the muddy tracks of conventional wisdom when it comes to Burke's common-law wife Helen McDougal, found not proven by the jury and never yet convicted of murder by any historian, including Rosner. Yet the legend of McDougal as a murderer is once more trotted out, beginning on the first page of the text.

Overall the book is at its best when it breaks free of Burke and Hare to discuss the history of anatomy studies in their time and similar related matters. The author is happiest in chasing hares; she is only intermittently successful in burking [no such verb?] issues. It is not the definitive work, but it shows conclusively that neither is any other book.

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