

of Earth science as well as the much larger number of researchers who need to understand the terminology of this rapidly expanding field. I marvel at how the editors have compressed so much so clearly into a manageable, well-printed and inexpensive volume, a feat which occurs only once in a blue moon — and even that is defined! □

John H. McD. Whitaker was formerly Editor-in-Chief of *Geology Today*, 11 Guilford Road, Leicester LE2 2RD, UK.

A social science

Christopher C. Booth

The Politics of Evolution: Morphology, Medicine, and Reform in Radical London. By Adrian Desmond. *University of Chicago Press: 1990. Pp. 503, £27.95, \$40.25.*

CHARLES Darwin never claimed to have originated either the concept of evolution or even that of natural selection. In the historical account that he gave on the progress of opinion on the origin of species before the first publication of his great work in 1859, he referred to “thirty-four authors who believe in the modification of species, or at least disbelieve in separate acts of creation”. He paid generous tribute to the views of the Parisians, Lamarck and Geoffroy Saint-Hilaire, who by the early nineteenth century had concluded that all forms of life tend to progress and that what we call species are various degenerations of the same type.

In 1826, in Edinburgh, Robert Grant, later to become the first professor of comparative anatomy in the newly founded University of London, declared his belief that “species are derived from other species”. Darwin, Grant’s pupil in Edinburgh, went on to draw attention to the views of W. C. Wells, who by 1818 had clearly recognized the principle of natural selection, though only in the races of man, and to the previously unnoticed work of the radical social reformer, Patrick Matthew, *Naval Timber and Arboculture* (1831) in which precisely the same view of the origin of species was propounded as was set out in the papers published in the *Linnaean Journal* by A. R. Wallace and himself. Subsequent to those presentations, the distinguished professor Richard Owen seemed to claim that he too had promulgated the theory of natural selection before Darwin, who summarily dismissed Owen’s controversial writings as immaterial since both Wells and Matthew had preceded them.

The literature of evolution before Darwin has been too little studied by historians, nor has it been fashionable to set evolution in its social and political context. In a remarkable work, *The Politics of*

■ Also recently published, *Collins Reference Dictionary of Environmental Science* by G. Jones, A. Robertson, J. Forbes and G. Hollier, contains over 1,800 entries of terms in use in the environmental sciences, a multidisciplinary field which has evolved over the past two decades. Published by Collins, price £5.95.

■ Published today is the *New Penguin Dictionary of Geography* by A. N. Clark, a revised and updated edition of the original 1985 publication. Line drawings, graphics and maps are well used to explain and clarify terms. Published by Penguin, price £4.99, \$9.95.

Evolution, Adrian Desmond succeeds in drawing together the strands of scientific thought and radical political philosophy, as well as the personalities and ambitions of those in science and medicine whose activities preceded Darwin’s publication.

The original philosophical anatomy of Geoffroy and Lamarck, with its anticlerical implications, was imported into Britain by students returning to Edinburgh who sat at the feet of the radical atheist Robert Knox, soon to be destroyed by the Burke and Hare scandal. Moving to the London of the 1820s, they found a city seething with radicals demanding reform. Reform was in no way restricted to political matters. In 1823, stimulated by William Cobbett, the tempestuous Thomas Wakley had founded *The Lancet*, its carefully chosen name implying its function of incising the abscess on the medical body politic. Polite elitist organizations such as the Geological and Zoological Societies were facing radical reform, and even the Royal Society was in ferment. Birkbeck had founded his Mechanics Institutes and his fellow student from Edinburgh, the future Lord Brougham, was engaged in setting up the University of London, whose anticlerical stance was in striking contrast to the deep-rooted religious conservatism of the ancient Anglican universities.

Robert Grant, closely supported by the radical Thomas Wakley, was the first to use the term ‘evolution’ in its modern sense. He, like the campaigning Wakley, was a fervent opponent of the medical corporations such as the powerful College of Surgeons, riddled as it was with nepotism. Such institutions resisted reform as much as they objected to the new evolutionary concepts associated with Grant and the rough medical *sans-culottes* who attended the private anatomy schools that the college sought to close down. Stirred to action, the college appointed a young hopeful, Richard Owen, to catalogue their collections and he became the traditional scientific standard bearer for the establishment cause. Knighted in later life, Owen crossed swords both with Darwin and the ambitious Thomas Henry Huxley, but Huxley wrote a generous tribute to him as a comparative anatomist and palaeontologist after his death.

Adrian Desmond concludes his account

with a speculation as to why Darwin took so long to publish his conclusions. It was, he suggests, because Darwin — a Whig conservative — had no desire to see his work used by a crowd of unruly radicals to support their disreputable causes. By the 1850s, the crusading zeal of the radicals had largely died down and Darwin’s relationship with Grant had cooled. Darwin’s caution, however, could equally have been due to his reluctance to offend the Oxbridge establishment to which he belonged. He was in no way surprised that his old Cambridge teacher, the Trinity geologist and divine Adam Sedgwick, received his copy of the *Origin of Species* “with more pain than pleasure”. Nevertheless, Adrian Desmond makes an entirely convincing case. □

This work is excitingly written, meticulously researched and unique in its politico-scientific analysis. The illustrations are excellent; grave victorian faces jostle with the most scurrilous of contemporary lampoons. This fascinating account will be of great interest not only to social historians and scholars of evolution but to all who seek to understand the stormy symbiosis that has always existed between science and society. There are lessons here for those involved in that relationship today. □

Sir Christopher Booth is Harveian Librarian of the Royal College of Physicians, 11 St Andrews Place, London NW1 4LE, UK.

Hot to handle

John Knill

Britain’s Nuclear Waste: Safety and Siting. By Stan Openshaw, Steve Carver and John Fernie. *Belhaven: 1989. Pp.207. Hbk £20, \$35; pbk £8.95, \$15.95.*

RADIOACTIVE waste disposal has been for many years possibly the most important environmental concern in the minds of many people. For this reason, at a time when environmental matters are centre stage, it may be thought surprising that this concern has receded, if only temporarily, from the front pages.

Several factors have contributed to this situation in Britain, at least. The decision to investigate Dounreay and Sellafield as possible sites for disposal defines whose back yard, at least for the present, is involved. Matters are unlikely to come to a head again until Nirex, the nuclear-waste disposal body, makes a choice between these two sites, or rejects both and looks elsewhere. The controversy about the role of nuclear power after the privatization of the electricity industry, which ended last year with the retention of nuclear power within the public sector,