

all of its own, and it is probably necessary to set out these facts before some more critical account of Walcott's role can subsequently be written. Walcott achieved so much because he was so — to use the horrid jargon — compartmentalized. His life followed a productive routine. Every year he did his summer fieldwork in the Canadian Rockies, and it has to be said that one year's fieldwork reads a tad like any other, just as his days had a certain sameness. If genius be truly 99% hard work, then this man was undoubtedly a genius.

According to Yochelson, Walcott had one real brush with controversy (he won virtually all his scientific affrays) and it was nothing to do with the Cambrian. He offended the surviving Wright brother by claiming that his predecessor at the Smithsonian, Samuel Langley, was the true pioneer of manned flight. So offended was Orville Wright that he presented the original flying machine to the Science Museum in London rather than keep it in his native land (many years later, it was returned). It is odd that Walcott's diaries treat this business with such sangfroid — it seems that, compared with getting on with his fieldwork, even a scandal was of little importance.

Yochelson tends to settle all accounts in Walcott's favour, and the reader gets the impression that his admiration for this prototype Washington mandarin borders on idolization. As an embodiment of the American dream, Charles D. Walcott can scarcely be beaten, and Yochelson evidently despises the current obsession among biographers for finding feet of clay. But a more critical eye might have revealed greater insight into the man behind the endless memoranda and monumental monographs. ■

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Elementary tales

Nature's Building Blocks: An A-Z of the Elements

by John Emsley
Oxford University Press: 2001. 552 pp. £20

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Together with the atom, the elements form the other fundamental paradigm of chemistry. Although the term itself originated with the Greeks, the modern meaning of the word 'element' has gelled only over the past two centuries through the often mind-numbing struggles of pioneering chemists. For the past half-century the picture has been fairly static, apart from the few stragglers at the bottom of the periodic table

ELEMENTS			
Hydrogen	1	Strontian	86
Azote	5	Barytes	68
Carbon	4	Iron	50
Oxygen	7	Zinc	56
Phosphorus	9	Copper	56
Sulphur	13	Lead	90
Magnesia	20	Silver	100
Lime	24	Gold	190
Soda	28	Platina	190
Potash	42	Mercury	167

Foundations of chemistry: John Dalton's table of the elements, produced in 1805.

(pace Glenn Seaborg, discoverer of ten of them) that Tom Lehrer referred to as "those that haven't been discavard". Although new elements don't turn up that often these days, the hundred or so known elements are so varied in their behaviour, history and applications that it was only a matter of time before someone got stuck in to tell their tales.

Nature's Building Blocks, a layman's field guide to the periodic table, is a direct outgrowth of and companion volume to John Emsley's popular (among chemists, anyway) compendium of numerical data, *The Elements* (Oxford University Press, 1998). Emsley adopts the discursive approach that was so successful in his *Molecules at an Exhibition* (Oxford University Press, 1999), and gleefully describes the inhabitants of this world.

What for many might be a dry and dusty collection of facts has been turned into an amusing and finely crafted set of mini-biographies. Each element is introduced by a brief history of its discovery, together with a listing of its names in a number of languages (but why are they mostly European, especially when the Italian, Spanish and Portuguese are often identical? Would not Russian, Japanese or Chinese have been more widely useful?). For certain 'old' elements such as sulphur, useful Sanskrit, Hungarian and even Maori names are provided as well. The key physical properties of the element are seldom the first to be listed. Instead, they jockey for pole position with other issues more relevant to real life. Sixteen elements, for example, are singled out as "elements of war".

For the true magpie, however, the most amusing sections of the book are the text boxes and the little parting shots at the end

of each chapter, the "Elements of surprise". These sections gather together a wild variety of otherwise unclassifiable stories associated with each element. Thus, we learn that indium shrieks when bent, and that magnesium will not ignite on welding. The entry for neon discusses the suggestion that J. Norman Collie, the chemist and mountaineer who succeeded William Ramsay as professor of chemistry at University College London in 1913, might have been a model on whom Arthur Conan Doyle based the character of Sherlock Holmes. For thallium, a favourite of crime writers, the conviction of Graham Young — through forensic analysis of the cremated remains of one of his victims — provides a cautionary tale. Those whose interests lie in the more lubricious corners of history might have a look at "Mercury in famous men", which exonerates several individuals unjustly accused of having contracted syphilis. Thus, the elements come alive through stories and anecdotes. Emsley has cast his net wide and drawn on a huge range of material — this is a book for browsing almost at random.

Teachers of chemistry will find the book a marvellous source of titbits that can be used to leaven potentially dry lecture material. But the more general reader will find plenty to be intrigued and amused by. It is odd, however, that the book is almost entirely devoid of illustrations, apart from examples of different layouts of the periodic table (at the very end), and the elegant but repetitive picture of an atom which forms the heading to each chapter. It might have been more helpful to use a small schematic of the periodic table to make it easier to see the connections and relationships between elements. There is also no index, making it tricky to find half-forgotten items.

If one were being uncharitable, one might also point out a few small errors (the lanthanides were discovered in Vaxholm, Sweden, not Vauxholm, which sounds suspiciously like a railway station in south London). And there is the odd howler (is sunlight really yellow because of emission from sodium atoms? Has Emsley forgotten about black-body emission?). Also, some omissions have, no doubt, resulted from an attempt to keep the book to a sensible length.

But these are little more than quibbles. This is a fine, amusing and quirky book that will sit as comfortably on an academic's bookshelf as beside the loo, to be browsed and savoured in idle moments. Can it be long before we see a series on television called "Meetings with remarkable elements"? ■

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