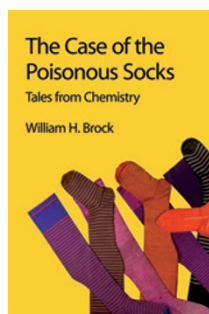


# Chemical history in bite-sized pieces



## The Case of the Poisonous Socks: Tales from Chemistry

by William H. Brock

ROYAL SOCIETY OF CHEMISTRY, 2011. 348 PP. £19.99

William Brock has seen the history of chemistry change from being a fringe interest, owing as much to enthusiastic amateurs (often professional chemists) as to historians, to being a serious and even burgeoning academic discipline. During that time, the focus has broadened. Studies of the lives of pioneering early chemists and their part in the establishment and professionalization of their subject, such as Brock's doctoral thesis on William Prout in the 1960s and his early work on nineteenth-century atomism, now sit alongside a strong emphasis on alchemy (thanks to proponents such as Allen Debus) and attention on the interactions of chemistry with wider culture — industry, pharmacy, consumerism, warfare.

Brock can himself claim some credit for giving the history of chemistry a perspective that reaches beyond its immediate subject. While at the University of Leicester in the 1960s he developed an interdisciplinary programme in Victorian studies, and he served as chairman of the Society for the History of Alchemy and Chemistry, which has presided over the blossoming of the field, between 1993 and 2006. Brock's magisterial *Fontana History of Chemistry* (1992) is still the definitive general history, while his acclaimed biography *William Crookes (1832-1919) and the Commercialization of Science* (2008) is as much about what it meant to be a public intellectual in the Victorian age as it is about the chemical achievements of that mercurial figure. Among Brock's key interests have been the evolution of chemical publishing (not least the role played by Crookes' *Chemical News*) and the education of chemistry.

All this means that reading *The Case of the Poisonous Socks* puts you in the reassuring company of an author who is almost without peer in his ability to embed his tales in an encyclopaedic context. The many curious facts on display here are never simply that, but become in Brock's hands

indicative of or counter-examples to wider trends and developments.

On the other hand, it must be said that the book itself is somewhat at odds with its apparently commercial and pedagogical aspirations. Brock says in the introduction that "my aim is to beget a better public understanding of science, *qua* chemistry, *via* an historical viewpoint. It is in tune with the feelings of most responsible historians of science that our subject has a role to play in public and scientific education." That laudable objective is evident in the book's jaunty title (referring to a piece on Crookes' investigations of skin sores caused by artificial dyes in socks), but it doesn't match the content. To feel at home with this book you will have both to know much more about chemistry itself and to have a deeper interest in its less-trodden historical byways than is likely to be typical of lay readers.

But I'm reluctant to make that a criticism. Regardless of whether it will reach beyond professional boundaries, this is the perfect bedside book for any chemist and hopefully for any other scientist with a historical inclination. The essays, all self-contained and mostly very short, are ideal for dipping into. Some are rather specialized — 'The Fate of Eponymous Chemical Journals' bristles for four pages with italicized German journal titles, whereas 'The B-Club' (the story of a short-lived nineteenth-century chemical drinking club) consists mostly of a list of its members and examples of their rather contrived doggerel. But many are delightful vignettes, often of unjustly forgotten individuals from chemical history — a reflection not only of Brock's evident conviction that this history needs to be told through the work and personalities of the people who created it, but also of his apparent sympathy for outsiders and mavericks, of whom Crookes is one of the best-known examples.

Whereas that approach often tends to play up the bold thinkers who challenged convention or blazed new trails, Brock has an appealing patience also for those left behind by the progress of their field. One such is Benjamin Collins Brodie (1817–1880), who rejected molecular structure and atomism in favour of pure empiricism. Brodie's algebraic representation of chemical reactions and composition now looks bizarre and impenetrable, and led to the seemingly peculiar notion that chlorine (which he wrote as  $\alpha\chi^2$ ) was a compound containing hydrogen.

But Brock extracts some positive value from this emphasis on the manipulation of symbols to represent chemical transformation.

Or take Henry Armstrong, one of the most entertaining figures in early twentieth-century chemistry. His frequent tirades against new-fangled ideas, appearing in *Chemistry & Industry*, *Nature*, *Chemical News* and the *Times*, are as pleurably acerbic as they are almost inevitably wrong. On the use of Robert Robinson's and Christopher Ingold's arrows to represent the rearrangements of electrons in reaction mechanisms, Armstrong wrote that "bent arrows never hit their marks". As nuclear and quantum chemistry gathered pace, Armstrong looked increasingly like a comically querulous Victorian has-been. And yet Brock argues that we can't merely dismiss him as such, not least because of his tireless insistence on the value of a good chemical education and the promotion of its social benefits (such as Armstrong's speciality, the brightly coloured waistcoat).

Occasionally Brock produces rather more than a pithy story. His longer pieces on Liebig, Wöhler and Kekulé (an authority on nineteenth-century German organic chemistry, Brock produced the definitive biography of Liebig in 1998) touch on the real triumph of the chemistry of this age, so often eclipsed by admiration for Mendeleev's periodic table: the understanding of how to classify the vast range of chemical compounds, and in consequence, the notion of molecular structure. Less momentously, I had no idea of Liebig's innovations in the preparation of meat extract, which led to the formation of an eponymous company that invented both Fray Bentos Corned Beef and Oxo stock cubes. The chemist's original extract became synonymous with its inventor, leading one late-nineteenth-century cookery writer to recommend to her readers 'Liebig on toast'.

And therein lies the book in microcosm. For, to appreciate the incongruity of that punch line, you would really need already to have some context for Liebig, even if it were only the (erroneous) notion that he invented the water-cooled condenser. But if you do — as readers of this journal almost certainly will — you're sure to find this book full of delights. □

## REVIEWED BY PHILIP BALL

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