

Entry to the history and philosophy of science and medicine

Donald Cardwell

Dictionary of the History of Science. Edited by W.F. Bynum, E.J. Browne and Roy Porter. Pp.496. ISBN UK 0-333-29316-9; ISBN US 0-691-08287-1. (Macmillan Reference Books, London/Princeton University Press: 1981.) £17.50, \$40.

THE lexicographer is, according to a high authority, a drudge. But this description hardly fits the three editors of the *Dictionary of the History of Science*. All are active scholars in the history of medicine and they have had the assistance of no fewer than ten subject editors. The title of their dictionary, however, requires amplification. What we are given is, in fact, an encyclopaedia of the history and philosophy of science, comprising short articles on general topics of between 50 and 2,000 words, interspersed between about three times as many brief references to specific points in the short articles which, in effect, constitute an index. The form of the work is, then, a cross between an encyclopaedia and a dictionary with the emphasis on the former. Few archaic or obsolete words are included; alembic, athanor, pelican and that legion of pre-scientific chemical terms are absent.

In short, this dictionary is more didactic than narrowly informative and it reflects a very definite view of the history of science. Technology is confined to one article while the philosophy of science and the history of medicine are well represented. This policy must have entailed problems for the editors — barometer, cloud-chamber, galvanometer, thermometer all qualify for inclusion, while ammeter, voltmeter, bridge (electrical) do not. Presumably the latter were considered technological and therefore outside the scope of the *Dictionary*. Clearly, there is a need for a companion volume on the history of technology.

A perusal of the brief references is not without its lighter moments. Anyone who is not a demographer must be intrigued by the reference: "average man. See statistics (vital)". On the other hand, "improper egg. See generation" calls to mind an entry in that incomparable index to Wyndham Lewis and Charles Lee's anthology, *The Stuffed Owl*, "Eggs, mention of, wrapped in elegant obscurity, 62". The reference, "women. See chlorosis; hygiene; male-female differences" will annoy militant feminists as well as invite comparison with another entry in the aforementioned index, "Woman, useful as a protection against lions, 118". As for "museums. See fossils", this suggests a particularly sour opinion of museum curators.

On a more serious note, however, I must take issue with the editors on a number of points. Some of these are minor and amount to little more than expressions of opinion. Surely, for example,

Newtonianism merits more than 13 lines? And should not mention of Gibbs and Heaviside be included in any account, however short, of the history of vectors? The British Association is, very properly, included but not the older *Deutsches Naturforschers Versammlung* (1822). Again, hospitals find a place but there is, unaccountably, no room for laboratories. And for their part, Mancunians must regret that no reference is made to daltonism.

Most serious, in my view, is the failure to mention units and dimensions. The development of the theory of dimensions and the establishment of rational units were, taken together, a most important feature of the growth of physics in the past 200 years. The British Association Committee on electrical units (1861) may have been a response to the needs of telegraph engineers and the results of its labour may have been vital for the establishment of the world's electrical supply industry, but they were hardly less significant in the realm of "pure" science, in the formulation of electromagnetic field theory. After all, Maxwell was a member of the Committee and his seminal paper was published in 1865.

On the other hand, when we consider the articles that are included we are amply compensated. Apart from a few brief passages about contemporary and fashionable theories of science, that may well prove ephemeral, the short essays that form the bulk of the *Dictionary* cover an enormous variety of subjects, ancient and modern. These range from Ptolemaic astronomy and Islamic science to matrix mechanics and causality in quantum physics, from Aristotle's cosmology to the paradox of confirmation, from *Naturphilosophie* to molecular biology and the genetic code. The *Dictionary*, in other words, provides material for a comprehensive course on the history and philosophy of science.

The omissions can easily be attended to in future editions and, all things considered, this is a valuable work. It is well produced and the individual articles, by nearly 100 scholars, are authoritatively, carefully and clearly written. Every library and every scientific establishment should have a copy. □

Donald S.L. Cardwell is Professor in and Head of the Department of History of Science and Technology at UMIST, Manchester.

Plants in print: more of Thornton's *Flora*

S.M. Walters

The Temple of Flora. Introduction by Ronald King. Pp.112. ISBN UK 0-297-77984-2; ISBN US 0-8212-1128-5. (Weidenfeld & Nicolson, London/New York Graphic Society, Boston: 1981.) £18.50, \$35.

THE spate of handsomely produced botanical and horticultural books continues unabated, in spite of the recession, and even professionals find it difficult to pick their way through them. A new edition of Robert Thornton's *Temple of Flora*, containing a complete set of reproductions of the famous colour engravings, is, however, a publishing event overshadowing most of the rest — especially at such a remarkably modest price. In a detailed introductory section, Ronald King, a former Secretary of the Royal Botanic Gardens at Kew, tells the story of this extraordinarily grandiose venture by Thornton, who dissipated a private fortune on his scheme in the first years of the nineteenth century. King's introduction goes further back than the reader might expect, beginning with the birth of Linnaeus, and tracing the rise of Linnaean botany in the second half of the eighteenth century and its relation to botany and horticulture as relaxations and

hobbies enjoyed by Queen and humble citizen alike.

Thornton received an important part of his education in Cambridge, where he obtained his medical degree in 1793, and came under the influence of Thomas Martyn, Professor of Botany, a great supporter of the new Linnaean systematics. His career in medicine seems to have been both unorthodox and relatively unsuccessful. The evidence is that he had conceived something of his grand plan for a magnificent book on Linnaean botany as early as 1791, whilst still at Cambridge in fact, although it was six years before his circumstances enabled him to launch the project. The inglorious failure of the whole scheme in the "Royal Botanic Lottery" of May 1813 is described in detail; it is a quite extraordinary story, from which Thornton emerges as a figure to be pitied or despised according to taste. He was never to know that the third volume of his great work would achieve permanent and international fame — a "lasting heirloom for the British nation", as King says.

The generous layout of this book involves some repetition, particularly between the text accompanying each plate and the relevant page in the Introduction, and the reader should be warned that