

## Book Reviews

The following notes are not intended to detract from this very useful piece of work. Omissions include the headless statue of Alexander, a (fourth-century?) doctor from Ephesus (*Jahrbuch des österreichischen archäologischen Instituts*, 1959, 44: *Beiblatt*, pp. 352, 363). The mosaics of Cosmas and Damian from Hagios Georgios, Thessalonica (fifth-century), and from SS Cosma e Damiano, Rome (sixth-century); and the (circumcision?) scene on a Roman bowl (Scarborough, *Roman medicine*, pl. 11) may well have been excluded on the grounds that they were dubiously medical. The curious objects on the tomb of Quintus Theoxenus (*Corpus inscriptionum latinarum* X 6469) might also be noted.

Further discussions: on Byzantine representations of ancient doctors, see Danielle Jacquart, *Dossiers histoire et archéologie* Jan. 1988 123: 22–9, and my *From Democedes to Harvey*, ch. 10, n. 1. The miniatures of doctors in the Florence codex of Apollonius of Citium deserved comment, for, although Byzantine in date, they clearly go back to a much earlier model. The sculptures from Velia/Elea are presented at length in M. Fabbri and A. Trotta, *Una scuola-collegio di età augustea* (1989). On artistic representations of Asclepius, see G. Strohmaier, 'Asklepios und das Ei', *Festschrift Fr. Altheim*, 1970, 2: 143–53. For figured votives dedicated by doctors, see also L. Moretti, *Inscriptiones graecae urbis Romae* (1968), n. 102. The inscription in honour of Artorius Asclepiades, p. 250, added in the eighteenth century below a grave stele in the Museo Maffeiano, Verona, is itself a forgery, based on Caelius and Plutarch (cf. H. Dütschke, *Antike Bildwerke*, vol. 4, 1880, p. 238).

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CHRISTOPHER HAMLIN, *A science of impurity: water analysis in nineteenth century Britain*, Bristol, Adam Hilger, 1990, 8vo, pp. xiii, 342, illus., £45.00.

The history of water analysis cannot but sound an unpromising subject. On the one hand, the name conjures up a vision of grave, bearded Victorian scientists peering into test tubes in gas-lit laboratories in the disinterested pursuit of knowledge; on the other it suggests a dreary technical history, of quantities and residues and intricate mathematical calculation.

*A science of impurity* belies both impressions. The scientists stand revealed as interested, quarrelsome, and often unscientific; and the technicalities of the evolution of analytic processes do not loom large. Christopher Hamlin has written a history of the relations between science and society, of the professionalization of the scientists, of the politics of social reform, of the evolution of the expert, and of the real uncertainties that may persist behind the apparent advance of scientific knowledge. The book is meticulously researched and thoughtfully written, and makes a significant contribution not only to our understanding of the nineteenth-century revolution in government, but also to our knowledge of the social relations of nineteenth-century science. *A science of impurity* also illuminates the process of transition between dominant scientific ideologies, and demonstrates that the advent of bacteriology created as many new problems as it did new points of reference. It clarifies the scientific arguments that raged around issues of water purity and extends our perspectives on the nineteenth-century public health movement.

The scheme of the book is essentially chronological. Hamlin begins with the late eighteenth-century spa towns, whose waters first engaged the attention of professional chemists when they were employed to determine the waters' properties for advertising and medical purposes. He stresses both the absence of standard methods in water analysis, a deficiency which continued to haunt analysts throughout the century; and, in parallel, the professional necessity which dictated that chemists should obtain results useful to their clients: a necessity which set a pattern of professional flexibility that perpetually compromised both the scientific and the political pursuit of satisfactory domestic water supplies for more than seventy years.

For most of history man's judgement of water quality has relied on what Hamlin calls the commonsense standard: appearance, smell, and taste. The overthrow of this standard was the Victorian water analysts' greatest achievement: it consolidated the position of the expert analyst even while the various specific analytic procedures continued to be a matter of scientific

controversy. Before the 1880s, water analysis remained the province of the chemists, although their scientific dominance did not go unchallenged and their role as experts underwent a significant shift in the 1860s and 1870s: the straightforward publication of empirical results of very uneven value gave way to a more interpretative approach, and the discreet colouring of information to achieve the desired results. The instigator of this new professional style was Edward Frankland, a government scientist of the stature of the much better-known William Farr and John Simon, and a more successful revolutionary than either. In the last decades of the century Frankland dominated both the science of water analysis and, in his role as Britain's leading authority on water quality (a position he achieved almost by accident), the political debates over the sources and purity of London's water supply. In the later 1880s, however, Frankland's authority was almost undermined, as was the dominance of chemistry, by the advent of bacteriology. Bacteriology replaced chemistry as the basis for judging water quality, although it was no more satisfactory than chemistry as a source of scientific certainty. In substantiating this insight, Hamlin explodes a long-standing assumption of medical and scientific history, that bacteriology created a sure foundation for the forward march of knowledge. Indeed, scientific uncertainty about water quality is still with us, in the debates over fluoride and nitrites in drinking water, in the accident at Camelford, in the problem of *Cryptosporidia* in a major Oxfordshire reservoir.

All history is about continuity and change. In the history of water analysis—of that assessment of the composition of water which developed into the methods of determining whether water is safe for drinking purposes—this truism is very neatly illustrated. The continuity is provided by uncertainty, by the fact that there were no agreed or scientifically recognized standards of water purity either before or after the advent of bacteriology. Against this background, Hamlin reveals a kaleidoscopic array of personalities, perceptions, and politics; of rivalries, orthodoxies, and ideologies. *A science of impurity* is a many-layered, densely-themed book, yet Hamlin's prose is readable and his arguments clearly expounded. The incidental insights of his story are as thought-provoking as the major themes and help to make this a challenging and satisfying book.

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C. HELEN BROCK, *Dr William Hunter's papers and drawings in the Hunterian Collection of Glasgow University Library: a handlist*, Cambridge Wellcome Texts and Documents 1, Cambridge, Wellcome Unit for the History of Medicine (Free School Lane, Cambridge, CB2 3RH), 1990, pp. viii, 84, £3.50 (U.K.), £4.50 (Europe), £9.00 (elsewhere), incl. p&p, (paperback, 0-9516693-0-3).

RICHARD PALMER and JEAN TAYLOR (comps), DAVID W. FINDLAY (ed.), *The Hunterian Society: a catalogue of its records and collections relating to John Hunter and the Hunterian tradition, with a history of the Society*, London, The Hunterian Society, 1990, illus., pp. xxiv, 282, (0-9515710-0-1, inquiries to Prof. Christopher Wastell, The President, The Hunterian Society, Surgical Unit, Page St. Wing, Westminster Hospital, London SW1P 2AP).

Both these volumes will be helpful guides to those interested in the Hunters, Baillie and their immediate successors. It would be inappropriate to criticize a handlist according to standards applicable to a full catalogue. Nevertheless, at around 800 words, Brock's introduction is very brief and actually wanting in some respects. It mentions the Hunter-Baillie Papers in the "possession" of the Hunterian Society of London, but neglects to say they have been deposited in the Wellcome Institute Library since 1971. About a quarter of the introduction is taken up with a discussion of the fate of Hunter's anatomical preparations in Glasgow. Yet the volume lists only papers and drawings, and the latter—a third of all the entries—are scarcely mentioned. Finally, John Thomson's *Life of Cullen* is attributed to William Thomson, which is careless.

The volume produced by the Hunterian Society is a lavish one, with one part consisting solely of photographs of the Society's possessions. It must have cost them an arm and a leg to