his description of this as an epistemological paradigm shift. By definition, Kuhnian changes of paradigm defy explanation in certain respects, and explaining why learned scholarship increasingly moved away from the occult enterprises that Dee and others pursued is surely a proper task for historians. I have doubts, moreover, about Szönyi's classification of scholars whose 'magical' thinking complemented (Bruno and Bacon) or was discontinuous with (Kepler and Newton) their 'scientific' thought. As Clucas points out, when not seeking to justify the labelling of conference and volume as interdisciplinary – a slightly misleading description, since all but one of the papers displays outstanding historical scholarship, and the exception, by Jim Reeds, displays both that and the application of modern cryptological techniques to one of Dee's most infamous magical manuscripts – it may be unhelpful to assume the existence of clear distinctions between fields and practices such as magic, natural philosophy (or science) and religion, and then look for the ways in which they overlapped or interacted in the work of individuals. Indeed, once the possibility of a highly idiosyncratic, but culturally conditioned, understanding of the relationship between man, God and the world is fully appreciated, one of the lessons of this and other recent studies in early modern science might be that the traditional notion of the Scientific Revolution – and in particular its characterization as the moment of emergence of *the* 'new philosophy', 'scientific method' or 'empirical science' – is almost wilfully misguided. A few such characterizations slip into this volume. On the whole, however, the collection is marvellously meticulous, engaging and learned. No student of Dee, sixteenth-century mathematics or early modern magic can afford to ignore it.

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Allen G. Debus, **The Chemical Promise: Experiment and Mysticism in the Chemical Philosophy, 1550–1800 (Selected Essays of Allen G. Debus).** Sagamore Beach, MA: Science History Publications/USA, 2006. Pp. xxv + 548. ISBN 0-88135-296-9. $89.95 (hardback).
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The Chemical Promise is a collection of twenty-six articles from Allen G. Debus's immense oeuvre of the past five decades, some previously unpublished and many unearthed from relatively obscure volumes of conference proceedings. Together, these articles explore the chemistry practised from the mid-sixteenth century to the late seventeenth, and the 'mystic' elements which distinguish this practice from the later discipline of chemistry. Potential readers who have encountered an earlier re-release of Debus's articles (Paul H. Theerman and Karen Hunger Parshall (eds.), *Experiencing Nature: Papers in Honor of Allen G. Debus* (Dordrecht, 1997)) will note that *The Chemical Promise* is presented attractively: the adjusted, continuous pagination, pleasing type and a serviceable index make a handsome and useful resource for Debus's audience.

Looking between the covers of *The Chemical Promise*, we find a similarly pleasing, if not always stringent, thematic arrangement of articles, now dubbed 'chapters'. The first part comprises a single piece, a personal history of the history of chemistry that was originally delivered as a distinguished lecture at the 1996 HSS annual meeting and now serves as an introduction to the themes covered in the remainder of the book. The following part introduces the tradition of alchemy concisely and pragmatically – one of the two articles was originally an entry in the *Dictionary for the History of Ideas*.

Thus prepared, the reader can move on to the third section in *The Chemical Promise*, 'The chemical philosophy', or chemical alchemy in the wider sense. Here we find, among other things, astute discussions of the reception of Fludd and van Helmont in the seventeenth century, the links between pharmacy and cosmology in their time and, perhaps as a commentary on the section as a whole, a piece addressing the difficulties of writing the historiography of early modern medical

chemistry in the wake of the earlier positivistic approaches to the history of science. This part launches a learned and well-referenced appraisal of 'Chemical medicine in early modern Europe', which had hitherto only been available in the Italian and French versions of a three-volume publication on *Western Medical Thought from Antiquity to the Middle Ages* (ed. Mirko D. Grmek and Bernadino Fantini).

The penultimate (and by far the longest) section in the book, 'Chemistry and medicine in national settings', revolves mostly around early modern England, its struggles with medical and educational reforms and its position in the intellectual and political worlds of early modern Europe. Two chapters each on French and Spanish alchemy and medicine should not go unnoticed. Nevertheless, the most noteworthy piece in this section is a previously unpublished article on the interaction between the individual and intellectual society, and migration between England and the Continent, entitled 'From John Dee to the Royal Society: scientific and medical influences between England and the Continent'. The final part attends to 'The eighteenth century and the Chemical Revolution', almost as a coda to the volume. It is here that we find another previously unpublished piece, a paper on 'Hermann Boerhaave and the problem of medical chemistry in the early eighteenth century', which presents Boerhaave as a critical and puzzled reader of the chemical writings of previous generations.

Critical readers might lament that *The Chemical Philosophy* is nothing more than a miniature library of Debus-iana, and therefore neither novel, nor ground-breaking, nor coherent. However, in this case an expectation of novelty is not only peculiar, but also extraneous. Firstly, when presented with a smorgasbord, one can hardly bemoan the portion size (for a full meal *à la* Debus, one need only consult one of his monographs). Secondly, the direct access to milestones in the historiography of alchemy, such as Debus's pioneering article on 'Chemistry and the universities in the seventeenth century', is certainly sufficient to commend this book to those building a small library relating to the history of alchemy. Finally, and most pertinently, *The Chemical Philosophy* in itself is a document of history, namely that of the historiography of early modern chemical medicine as written by Debus.

Altogether, *The Chemical Philosophy* is a volume that discovers voices from the past. On the one hand, it presents engaging surveys of the movements, thoughts and discoveries of the many people that populate the early modern scientific world. The cast in the dramas acted out in Debus's prose ranges from Brás Luís de Abreu to Ulrich Zwingli; well-known figures of the Renaissance like Libavius, Fludd, Sennert and Dee; and medical practitioners like Noah Biggs and John Woodall. On the other hand, among these voices from the distant past, the distinctive voice of Allen G. Debus provides the clear and sonorous tenor for the history told here. It is this voice which distinguishes the present book from other collections of articles, and not only justifies but demands a reissue of articles which, for the most part, have appeared elsewhere. Debus's lectures are often introduced by biographical notes, and even his papers never lose the human element. As readers, we can follow a conversation between the pages, between the young scholar Debus and his scholarly mature self. We discover how Debus readdresses, and sometimes even answers, the shrewd questions he formulated about the historiography of alchemy and medicine in his early career. In a sense, Debus has remained a part of his own audience, and this personal selection of work from across his career contains, if not perhaps a *Chemical Promise*, definitely an invitation to scholars to pursue future research along the jagged lines that enclose alchemy, medicine and early modern society.

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