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BRIAN VICKERS, ed. Occult and Scientific Mentalities in the Renaissance. Cambridge: Cambridge University Press, 1984. Pp. xiv+408. ISBN 0-521-25879. £27.50, $39.50.

In his contribution to this volume, Edward Rosen draws attention to the irony of a society which often labels Kepler a ‘mystic’ producing at the same time buildings lacking a thirteenth floor. Perhaps, then, the historiographical sophistication of the present collection is indicated by the uncompromising inclusion of precisely thirteen contributors. Certainly, the quality of the essays is high, and it can be said at the outset that this book is an important addition to the literature on early modern
science, as well as a welcome indication of the fresh perspectives being brought to bear on the whole question of ‘magic’ and ‘science’ in this period.

Professor Rosen’s identification of a cultural schizophrenia finds an echo in several of the contributions, and provides the strongest linking theme between what are necessarily rather diverse approaches. Brian Vickers, in his substantial introduction to the volume, declares his opposition to the attempts of historians like Pagel and Rattansi to break down what they see as an anachronistically imposed split between occult and non-occult thought in the Renaissance. Vickers’ attempts to characterize two opposed mentalities, one ‘occult’, the other ‘scientific’, made both in the introduction and in his own essay, centre on the differing uses of analogy and metaphor in what he calls the two ‘systems’, as well as on more structural characteristics. But the general perspective, that of separating rather than unifying the two camps of astrology, numerology, alchemy, natural magic and so forth on the one hand, and what Vickers rather vaguely labels ‘the new sciences’ on the other, informs several of the contributions. Nicholas Clulee, in his discussion of John Dee’s Archemastrie, not only undermines the views of Frances Yates and Peter French concerning both the specifically hermetic content of Dee’s magical ideas and the contribution of those ideas to the development of modern scientific thought, but also underlines the public separation between Dee’s advocacy of the mathematical sciences and his pursuit of the occult. William Hine’s piece on Mersenne, besides distinguishing Mersenne’s attacks on naturalism from those on magic, serves to emphasise his opposition to both unorthodoxies, whilst the chapters on Kepler by Robert Westman and Judith Field serve to create a similar dichotomy in their considerations of the debate between Kepler and Fludd. Rosen discusses Kepler’s own ambivalence towards astrology.

Vickers’ programmatic approach to this question attempts to set out criteria for distinguishing between occult and scientific ‘mentalities’ so as to enable the development of a more precise characterisation of the historical relationship between the two. This attempt is pressed with many difficulties. One of them emerges from the success with which a number of the contributors break down the apparent divide between what Vickers describes as two incompatible systems of thought. Most notably, Stuart Clark’s interesting investigation of ‘The scientific status of demonology’ shows how, even at the formal epistemological level, demonism and witchcraft were in no way antithetical to the interests of seventeenth-century experimental philosophers. Richard Westfall’s typically lucid discussion of Newton’s alchemy may be twinned with one of Clulee’s points taken in its reverse signification, to conclude that although both Newton and Dee separated their ‘occult’ interests from their property mathematical pursuits, those interests did nonetheless play a significant role in the development of their ‘scientific’ thought. In addition, the more sociological essays in this volume, Robin Briggs’s on witchcraft trials in Lorraine and Mordechai Reingold’s on occultism in the seventeenth-century English universities, show how broadly ‘occult’ ideas were entertained, and thus indicate at the least a frequent lack of contemporary perception of some fundamental conceptual dichotomy; none of which Vickers, in his defence of such a dichotomy, denies; persuasively maintaining that thought processes rather than specific content characterize the occult sciences, he nonetheless maintains that ‘Renaissance scientist were able to operate for a while, at least, in two finally incompatible traditons’ (p. 13). Indeed, it would appear from Vickers’ subsequent use of anthropological studies to draw parallels between primitive and occult mentalities that he sees these traditions as incommensurable. It is difficult to see how traditions incompatible at the most fundamental level could interact in a single mind, let alone form the poles of a ‘spectrum’ of attitudes (p. 30). If ‘spectrum’ is an appropriate metaphor, which it may well be, then the sharp dichotomy that Vickers wishes to establish between two competing thought-systems loses its analytical value—unless one
wanted to see a movement over time across this spectrum, from magic to science, which Vickers does not want to do (e.g. p. 6).

The implications of the term 'mentaliies' in the title of this book are not, therefore, entirely in harmony with much of the material and argumentation presented in it. Ian Maclean's chapter on Cardano and Scaliger underlines further that in fact apparently 'occult' and apparently 'scientific' attitudes were frequently inextricably bound together in a single text, and indeed his remarks on the role of literary genre in scholarly debate suggests an altogether different line of approach. Graham Rees, in an examination of a newly-discovered manuscript by Bacon on physiology and aging, raises the possibility that Bacon's 'method' had originally been devised as a weapon for opposing speculative philosophies other than his own. And Lotte Mulligans's discussion of commonalities of language between differing sides in arguments over 'reason' in mid-seventeenth century England reinforces the possibility that problems in analysing the interaction of science and magic might to be more fruitfully addressed on the basis of formulations centring on the actual deployment of arguments and use of intellectual tools rather than in terms of 'mentaliies' or world-views.

One final word on Vickers' attempts at an anthropological characterization of the occult mentality: 'science' is, by contrast, taken as a fairly unproblematic category, defined by the use of terms such as 'progressive', or 'objective', and so forth. In view of recent work in the sociology of science, itself frequently borrowing anthropological approaches, one suspects that a fully anthropological treatment of both science and the occult might serve once again to blur the attempted distinction.

JOHN G. BURKE, ed. The Uses of Science in the Age of Newton. Berkeley and London: University of California Press, 1984. Pp. xxii + 204. ISBN 0-520-04970-5. £17.30.

Both the jacket blurb and the introduction to this useful collection describe it as a 'challenge to the contextualist approach'. However, only one contribution, that of Richard Olson, takes on the 'contextualism' of Steven Shapin and the Jacobs discussed in John G. Burke's introduction: contra Margaret Jacob's special form of 'Whig history', Olson argues the absence of anti-Newtonianism among eighteenth century Tory polemicists. For the rest, the historiographical context might more accurately be characterized in terms of the older 'internalist/externalist' framework. Five of the seven essays deal with scientific instruments and the relationship between science and technology in the early modern period, two of these discussing specifically the questions of whether science directly informed, or was directed by, technological development. This last issue relates more to the Marxist approach (the name of Boris Hessen makes its appearance) than to the contextualist, with the latter's concentration on ideology rather than material utility.

The value of a collection of essays lies more in its individual contributions, however, than in any attempted strong thematic linkage, and in fact the volume's title is a fair, because quite loose, characterization of its contents. All of the chapters concentrate on England, with the exception of Albert Van Helden's discussion of 'The birth of the modern scientific instrument 1500—1700', and all except Olson's may be described, as I have suggested, as examining the 'external' side of a generally presupposed 'internal/external' dichotomy. Perhaps the outstanding contributions are those by Van Helden, A. Rupert Hall (on ballistics and the early Royal Society), and Richard Westfall (on Hooke). While Van Helden describes the integration of scientific instruments into the main body of scientific practice during the course of the seventeenth century, he also supports the