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mendable enthusiasm and praiseworthy humility. His object has been to present to his fellow neurologists, especially those entering the speciality, certain topics that he judges to be important, interesting, and handleable. It is, therefore, necessary to realize at once that Dr. Spillane's book is not a history of neurology. It is a survey of selected subjects arranged chronologically, from Galen to the end of the nineteenth century, despite suggestive section headings, such as 'The foundation of neurology', 'An age of transition: philosophy to science', 'The nervous system explored', and 'the flowering of neurology'. Thus, whereas the title is meaningless, the sub-title is an accurate description of the contents of the book.

To construct a historical treatise in this fashion leads to a variety of results. Thus all complicated, obscure, and linguistically difficult areas can be avoided, and the end-result becomes a much more readable presentation, with the author's fascination with his material transmitted to the reader. However, no general syntheses are necessary and no theme has to be pursued relentlessly, as with the portrayal of the origins and evolution of a concept. Moreover, in the presentation of an episode in the history of a technical discipline, the vital external influences moulding an idea need not be dealt with. The relationship between various developing notions, which should provide some impression of overall progress, can likewise be avoided.

The choice of Dr. Spillane's "chapters" has, as he admits, led to an individual approach, naturally enough, but also to imbalance and even distortion. His book is based mainly on men, rather than on concepts. Thus the studies of Galvani are given considerable space, but none of the nineteenth-century electrophysiologists is mentioned, so that his contribution, which is well surveyed, is presented as an unrelated event leading nowhere. In some cases, a person is discussed because of his curious nature, not his historical relevance. Swedenborg is an example of this: a man who may have been a visionary, but who had no influence on the history of neurology. On the whole, German-writing neuro-scientists and neurologists have been grossly neglected, and the French- and English-writers given more consideration than they deserve. Finally, little attempt is made to explore the close links between medical neurology and neuro-surgery and psychiatry.

Nevertheless, taking into account the obvious hazards of Dr. Spillane's method of dealing with the history of clinical neurology, he has produced an excellent book within the confines he has imposed. He has an attractive style, and has documented his text accurately and fully, obviously with a detailed knowledge of the secondary literature. His choice of illustrations is felicitous and, although some are well known, many are not. Dr. Spillane must, therefore, be commended for producing an elegant book which can be recommended to those seeking an understanding of some of the origins of present-day neurological practice, providing they are aware of its limitations.

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RICHARD S. WESTFALL, *Never at rest. A biography of Isaac Newton*, Cambridge University Press, 1980, 8vo, pp. xviii, 908, illus., £25.00.

Perhaps because of the sheer bulk of his manuscript material, the broad scope of his

interests, and his commanding position within the history of science, Isaac Newton has always posed peculiar problems for his biographers. To write such a biography is, above all, to take up a position within the heated debate on the character of science itself. Newtonian natural philosophy was constructed and reproduced in a context where the very role of the natural philosopher was itself in the process of being defined. Thus it has always been difficult for contemporary historians to treat the Newtonian achievement in context, as a coherent or comprehensive whole. This is best symbolized, perhaps, by the fortuitous division of this same manuscript material amongst several separate collections: the mathematics and physics primarily in the Cambridge University Library, the alchemy at King's College Cambridge, the religious texts in the Yahuda Collection in Jerusalem. Professor Westfall has spent twenty years amongst this material, and, for the first time, we have some glimpse of the size of that achievement. However, despite or perhaps because of this thoroughness, Westfall studiously avoids a confrontation with the major issue of Newtonian scholarship: the character of natural philosophy as Newton understood it.

This work is the culmination, in many senses, of a "Newton Industry" which Professor Westfall himself ably reviewed some five years ago. All the most important results of that industry are summarized here. The publication of the *Correspondence*, the *Mathematical Papers*, the variorum edition of the *Principia*, and the collections of papers on alchemy, natural philosophy, and religion are all used effectively. Most of the major revisions of our picture of Newton's work are confirmed in this book. The alleged "delay" in the publication of Newton's discoveries on the force law which governed planetary motion is dismissed, and, instead, we are told that Newton was not able to develop the understanding of universal gravitation until after his break with Cartesian physics and philosophy from 1679 to 1685. Newton's own testimony on his experiments on the prism and the spectrum is examined from the manuscripts, and some hasty generalizations about the place and character of these experiments are corrected. For perhaps the first time in print, Newton's commitment to an anti-Trinitarian theology, and his full programme of work on religious history and chronology, his struggle against the Anti-Christ, is given a sympathetic understanding. Finally, Westfall amply bears out the work he himself, Figala, Dobbs, and others have conducted on alchemy, and this interest is placed in the context of his renewal of a dynamist natural philosophy and his break with the pure mechanism of the corpuscularian theories of matter and motion.

All these findings are thoroughly documented and well-placed in chronological context. However, the very character of Westfall's style and his attitude to seventeenth-century natural philosophy vitiates the more general impact of the biography. Westfall confesses that "the more I have studied him, the more Newton receded from me". This is scarcely surprising: Westfall carries with him a preconception of the strong boundaries between science and other practices which seems to act as an obstacle to a genuinely historical picture of Newton's work. An introductory chapter, based on Westfall's earlier text, *The construction of modern science*, places Newtonian science in the context of seventeenth-century research – but this science is limited to mechanics, mathematics, matter theory, and astronomy. Beyond that, Newton is depicted as evincing other, non-scientific interests, in chronology, theology,

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the society of his time. Very little attempt is made to place Newton within any context he would have recognized, or to understand the motives at work within the various practices on which he was engaged. The detail of evidence Westfall presents here does, ironically, provide a historian with almost enough ground to begin such analysis. Newton's notion of God's relation with nature and the work he conducted on the construction of a full cosmological account of that relation must be understood in terms of the legitimate practices which could reveal God's action in nature to each subject, and the ways in which these practices could then find a place in society. Hence the fact that the role of the natural philosopher was in the process of being defined takes its place as a crucial condition of the emergence of Newtonian natural philosophy. To exactly the extent that the historian of science *assumes* a particular characterization of the work of the scientist, an understanding of the construction of that work and that role will elude his or her analysis. Thus for Newton, his discovery that the cosmology of the apostate church was "a superstition of ye same kind wth ye Charmes & spells of ye old Heathen, & . . . may be truly called enchantment & sorcery" did play a central role in his work to establish a true philosophy of nature. Westfall often acknowledges that Newton "understood how radical his philosophy of nature was", and that he "took care to eliminate any hint of the radical theology that in his view had accompanied the philosophical tradition as one of the twin vehicles of truth". Yet he does not go further than this to penetrate the public face of this "heroic scientist". This biography, therefore, remains a brilliant, thorough, but ultimately unsatisfactory catalogue of Newton's activities, and not yet the historical analysis we need.

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SAUL JARCHO, *The concept of heart failure from Avicenna to Albertini*, Cambridge, Mass., and London, Harvard University Press, 1980, 4to, pp. xiii, 407, £27.00.

As its title makes clear, this book provides an unusual clinical excursion into the history of ideas. As such it injects the historical dimension into a concept which many practising physicians take for granted as obvious. The insight it gives into the difficulties encountered in evolving the syndrome of heart failure is stimulating and educative, not only for those practising medicine, but for those purporting to write on its history.

This scholarly account of the slow composition and integration of the syndrome of heart failure approaches the problem by symptomatic analysis. For example, it begins with Avicenna's account of suffocation and angina. The symptom of "suffocation" can be interpreted as "dyspnoea" today. "Angina" describes swelling of the throat – in this sense it is still used in such terms as Ludwig's or Vincent's angina. Only in 1772 did Heberden transfer the "sense of strangling and anxiety" to the chest in the term "angina pectoris". In his book, *Diseases of the heart*, Avicenna well illustrates what Jarcho calls, "the poverty of medieval doctrine", for his application of Galenic humoral theory includes few, if any, signs of heart failure as now recognized.

From this symptomatically inauspicious beginning the reader is led through a series of seventeen writers describing different aspects of the syndrome of heart failure.