

critical discussion of English Renaissance culture. Not only Shakespeareans but also historians of human physiology can benefit from this book, because it offers a glimpse of how people of various backgrounds in early modern London enabled a cultural sphere where these two seemingly separate factors functioned interdependently through the use of senses.

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Manfred Horstmanshoff, Helen King and Claus Zittel (eds), *Blood, Sweat and Tears: The Changing Concepts of Physiology from Antiquity into Early Modern Europe*, Intersections, vol. 25 (Leiden and Boston: Brill, 2012) pp. xxvi + 772, €217.00, hardback, ISBN: 978-9-004-22918-1.

'To the great despair of historians, men fail to change their vocabulary every time they change their customs'. This remark of Marc Bloch will always be read with approval by those studying the history of physiology.¹ Indeed the discipline underwent a radical transformation in the first half of the nineteenth century. As Andrew Cunningham has shown, physiology before 1800 was a purely theoretical science, taking its empirical information entirely from anatomy. It is only after the emergence of experimental physiology around the 1830s that the discipline took on the status of an empirical science.²

Adopting this observation of Cunningham, the book under review gathers twenty-eight articles for a close inspection of physiology before 1800. Its feature lies in its wide-ranging coverage both in respect of time and subject. While Cunningham began his discussion in the middle of the sixteenth century, the present work devotes several essays to antiquity and the middle ages. Its subject extends beyond the field of medicine; considerable attention is paid to how physiology interacted with other spheres of human activities such as religion, literature, fine arts and political thought. This holistic approach deprives the volume of coherence. Instead of offering a clear-cut vision, it presents multifarious aspects of the old physiology, thereby pointing to a number of promising directions for future research.

It is no surprise that the humoral theory forms a central topic in a volume dealing with premodern medicine. Among the traditional four humours, blood is most thoroughly examined. Hans L. Haak and Barbara Orland explore how the clotting of blood and the production of milk from that liquid were subject to much theorising from antiquity to the early modern period. Several contributors try to capture the complex interaction

¹ Marc Bloch, *The Historian's Craft*, Peter Putman (trans.) (Manchester: Manchester University Press, 1954), 28.

² Andrew Cunningham, 'The Pen and the Sword: Recovering the Disciplinary Identity of Physiology and Anatomy before 1800 I: Old Physiology – The Pen', *Studies in History and Philosophy of Biological and Biomedical Sciences*, 33 (2002), 631–65, *idem*, 'The Pen and the Sword: Recovering the Disciplinary Identity of Physiology and Anatomy before 1800 II: Old Anatomy – The Sword', *Studies in History and Philosophy of Biological and Biomedical Sciences*, 34 (2003), 51–76.

of the conception of blood with gender, religion and fine arts. For instance, Barbara Baert, Liesbet Kusters and Emma Sidgwick trace the representation of the woman with haemorrhage (*Mark* 5:24b–34) within the tradition of magic and pictorial imagery. Also taken up are other bodily fluids such as sweat, tears and urine. As Michael Stolberg shows, sweat had both a positive and negative image; it was, on the one hand, dirty as excrement; but, on the other hand, it was beneficial as an eliminator of waste matter. This understanding was shared not only by physicians, but also by lay people. Along with humours, spirit played a key role in the old physiology. Julius Rocca inquires into the process of the formulation of the threefold spirits theory, while Sergius Koderá looks at how this theory underwent transformations with the emergence of the technique of distillation in the middle ages.

Fresh insights are provided into Greek and Roman classics. Valeria Gavrylenko argues that the Homeric epics presented body as an entity always subject to intrusion from the outside, complementing Bruno Snell's *Discovery of the Mind*.³ Fabio Tutrone points out that Lucretius's *On the Nature of Things* exhibited a strong interest in life phenomena, probably on the basis of Aristotle's zoological works. This theoretical orientation in the poem, Tutrone claims, helped to establish the Aristotelian atomism in the early modern period, an insight that should be integrated into the historical perspectives provided by Antonio Clericuzio and William Newman in their recent works on early modern corpuscularianism.

Several essays explore the domain of natural philosophy as it touches on physiological issues. Diana Stanciu examines Ralph Cudworth's concept of the plastic natures, asking why he conceived of them as 'irrational'. Regrettably, the author did not consult Hiro Hirai's article focusing on this irrationality.⁴ Marlen Bidwell-Steiner analyses how Oliva Sabuco, a sixteenth-century female philosopher, modified Bernardino Telesio's matter theory in accordance with her women-centred worldview.

Physiological thought went through certain changes with the flourishing of anatomical research and the invention of the microscope. Katrien Vanagt scrutinises this process of transformation by taking up the theory of vision of Vespiscus Fortunatus Plempius, a seventeenth-century Dutch physician. Plempius identified the structure of the organ of vision with that of *camera obscura*, an identification that enabled him to dispense with spirit in his mechanical explanation of vision. Despite the rise of new types of understanding, however, the fundamentally theoretical nature of physiology endured, as exemplified by Rina Knoeff's article on Herman Boerhaave.

To explain unfathomable bodily phenomena, those engaged in physiological speculation frequently resorted to analogical reasoning. As Daniel Schäfer shows, aging was explained as an analogy with fermentation, putrefaction and a lamp running out of oil. Conversely, natural phenomena were often explicated through analogy with bodily functions, as demonstrated by Liba Taub's paper on Aristotle, Epicurus and Lucretius. Tamás Demeter argues that David Hume's theory of mind was framed not by the mechanical understanding

³ Bruno Snell, *The Discovery of Mind: The Greek Origins of European Thought*, T.G. Rosenmeyer (trans.), (Cambridge, MA: Harvard University Press, 1953).

⁴ The article is now included in: Hiro Hirai, *Medical Humanism and Natural Philosophy: Renaissance Debates on Matter, Life and the Soul* (Leiden: Brill, 2011).

of nature (as has been sometimes assumed), but by the vitalist chemistry and physiology flourishing in Scotland at the time.

A collection of various essays (not all of which could be mentioned in this review) loosely grouped under the name of physiology, *Blood, Sweat and Tears* is by no means a work that provides any 'Big Picture'. Its merit lies rather in its confirmation of the bewildering profusion of themes relevant to premodern physiology. It thereby invites further cooperative projects, probably each with a narrower focus, by scholars with multiple disciplinary backgrounds. It should finally be pointed out that the editors and their collaborators have rendered a great service to readers. As a book with a number of references to Greek and Roman works, the volume is equipped with an *index locorum*. A short bibliography at the end of each article provides a good overview of relevant literature. Every article has its summary that facilitates selective reading. Many black and white illustrations make the volume a delight to turn over. These editorial cares can serve as a model for any scholars who are going to edit a large number of essays into a single volume.

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