

Book Reviews

much as in the boldness of its interpretative framework, *Gentlemen of Science* sets a standard which historians of other scientific – and medical – institutions will do well to emulate.

MARTIN RUDWICK
Science Studies Unit University of Edinburgh

SHIRLEY A. ROE, *Matter, life, and generation. Eighteenth-century embryology and the Haller-Wolff debate*, Cambridge University Press, 1981, pp. x, 214, illus., £16.00.

Professor Roe has set herself modest aims, but she fulfils them with convincing scholarship and clarity of exposition. Recognizing, as Jacques Roger showed in his magisterial *Les sciences de la vie dans la pensée française du XVIII^e siècle*, that eighteenth-century embryological debate clustered around many diverse issues – e.g., the respective roles of male and female in determining the embryo, animalculism, and ovism – Professor Roe has narrowed her focus to one such debate, preformationism versus epigenesis, and offers a careful exposition of the doctrines of the protagonists, Albrecht von Haller (1708–77) and Caspar Friedrich Wolff (1734–94). She shows how Haller's preformationism derived much of its plausibility from the inability of alternative theories to account for the appearance of organization in the emergent embryo: whether Descartes's mechanical fermentation theory or the attempts of mid-century naturalists such as Buffon and Maupertius to provide explanations of generative growth in terms of attractive forces. Haller's explanation that organization had been there all along (from the Original Creation), merely too minute to be visible, begged plenty of questions, but meshed with his Christian Newtonian mechanical philosophy: matter was passive; Nature had no inherent power of organization or of spontaneous generation (if mere natural forces determined embryos, the world would be full of monsters and there would be no fixity of species). For Haller, God had created all future generations – on ice, as it were – at the Creation. Wolff the epigenesist argued by contrast that the observable stage-by-stage growth of the embryo – he chiefly studied chicks' eggs – represented real coming-into-being, not mere coming-into-visibility. Operating within the framework of the dynamic Rationalism of Leibniz and Christian Wolff, C. F. Wolff did not fear that invoking natural generational powers ("the essential force") was tantamount to atheism. Rather, preformationism explained nothing, and was peculiarly deficient, both as natural philosophy and as theodicy, at explaining limited change in the living world and monsters (had God formed embryo monsters too – at the Creation?).

As Professor Roe rightly perceives, the Haller-Wolff debate was capable of no experimental resolution in its day, and both positions were to be superseded in favour of the more teleological embryology of Blumenbach, Von Baer, and Kiemeyer. "In a very real sense Haller and Wolff were living in different worlds" (p. 149), and this was because – and Professor Roe stresses this as the main explanatory thrust of her book – they held fundamentally different theological and philosophical commitments.

This "history of ideas" approach is, of course, admirable so far as it goes, though it is hardly novel, and there is little in the general interpretative framework of this book that is not familiar already from the writings of Roger, Lovejoy, Guyénot, Hintzsche, Farley, etc., and from Professor Roe's own published articles (though there is much welcome detail, including an appendix of Wolff's letters to Haller). The book's limitation is that it does not even *consider* (if only to reject) the broader contextual approaches pioneered by "structuralists" such as Foucault (not listed in the bibliography) and by social historians of ideas. Once Professor Roe has described the metaphysical and theological differences between Haller and Wolff, there the explanation stops. There is no investigation of how far metaphysical commitments themselves articulated deeper interests amongst the combatants (as surely must have been so in a man of such polymathic concern as Haller). The narrow focus on the overt content of a debate between two naturalists means little attention is given to such worrying contemporary ferments as the speculative materialism of the French Enlightenment. Professor Roe has written an interesting account; a richer one remains to be written, starting from her final page.

Roy Porter
Wellcome Institute