

Book Reviews

JACK MORRELL and ARNOLD THACKRAY, *Gentlemen of Science. Early years of the British Association for the Advancement of Science*, Oxford, Clarendon Press (Oxford University Press), 1981, 8vo, pp. xxiii, 592, illus., £30.00.

The “British Ass” – or “BAAS”, as it is termed throughout this volume – played a central role in nineteenth-century British science. Particularly in its early and formative years, it established a new definition of science in British public life, and propagated a new sense of its importance and value. That much is indisputable. What precisely its founders and early leaders were trying to “advance”, however, and how they planned to achieve their goals, are questions that have been hotly debated among historians. Not all of them will agree with the interpretations proposed in this volume, but none will be able to ignore the massive weight of evidence that Morrell and Thackray present. Founded in a period when the manuscript letter was the standard medium of informal communication among men of science, the BAAS in its early years can only be understood by reference to the voluminous – and now widely scattered – correspondence of its leading members. Their letters have been used here so effectively that the authors’ comments on their quotations seem at times almost redundant. Despite a certain repetitiveness, as key episodes are analysed from different angles in successive chapters, this reader at least found himself carried along by the vivid sense of immediacy evoked by the words of the actors themselves.

The bare outlines of the story are well known. Meeting for the first time in 1831, in the provincial setting of York and in a highly *ad hoc* manner, the BAAS rapidly established a successful pattern of annual meetings that took it first to Oxford and Cambridge, next to the academic and capital cities of Edinburgh and Dublin, and then to a succession of commercial and industrial centres in the provinces. There it brought a broad social spread of people – including, cautiously, the female sex, but not the skilled artisan class – into contact with the science practised by its leaders; it made science a public spectacle and gave it political leverage with government. Morrell and Thackray enlarge and enrich previous accounts of these early years with a mass of significant detail, skilfully deployed. Their account sometimes takes the form of a “diary” or narrative of key episodes, more often that of a commentary that draws on evidence from many successive meetings. They reconstruct the origins of the BAAS and analyse the social forms it developed; they describe the pattern of events at selected meetings and analyse the “ideologies of science” held by the leaders of the organization. They analyse the internal and external politics involved in its grant-giving and its lobbying of government; and they display its social uses by individuals and groups, locally and internationally. Finally, they describe and analyse some examples of the scientific debates that made up the work of its specialist sections.

This is institutional history in the grand manner, though hardly in the sense in which that accolade might be given to more traditional histories. Morrell and Thackray have written an outstanding example in a newer mould; they are not concerned to celebrate the BAAS, or even science, but to understand its cultural meaning. Their lengthy account is sustained by an explicit interpretation and an implicit commitment. Explicitly, they present the early years of the BAAS as the story of a successful cultural takeover bid. Conceived as a genuinely provincial body, and regarded initially with apathy or suspicion by most of the national élite of science, the BAAS was rapidly taken over and transformed by the “Gentlemen of Science” who give the book its title. These were men of science based in London, Oxford, and (especially) Cambridge – Murchison, Buckland, and Whewell are representative examples – who shared a broadly similar outlook. Mostly liberal Anglicans in religion, Whigs or Peelites – in any case, moderate reformers – in politics, and anti-inductivists in their view of science, they became what Morrell and Thackray frequently term the “managers” of the BAAS. They subtly transformed its constitutional forms, and concentrated into their own hands the power to direct the *kinds* of

Book Reviews

“science” that the BAAS would support, approve, and promote. In their hands, the annual meetings became occasions for consolidating provincial support for their view of science; they allowed provincials a subservient role in the collection of “facts”, but no control over the kinds of theory those data were to illustrate. And in this period of social unrest, they presented science as a pursuit in which members of diverse social, political, and religious groups could find common cause and co-operate in amicable and even festive unity.

Much of this is highly persuasive in the light of the evidence that the authors bring forward, though one may doubt whether the Gentlemen’s takeover was quite as calculated, planned, or deliberate as this account sometimes suggests. In any case, however, it is an important interpretation that deserves careful appraisal; and it is only a pity that it has to be culled piecemeal from the text and is not summarized succinctly in a concluding chapter. Of particular interest to readers of this journal will be the authors’ interpretation of the marginal role of the medical sciences in the BAAS. Although medical men were prominent among its early supporters, a proposal for a Medical Section was followed up only grudgingly. And the managers’ consistent attempt to exclude practical or “craft” aspects – their treatment of technology was similar – prevented the Medical Section from achieving either the popularity of the Geological Section or the prestige of that for the mathematical and physical sciences; in 1844, its name was changed, significantly, to Physiology, and in 1848, it was absorbed into the Biological Section. By that time, the BAAS no longer needed the support of medical men, and they for their part had found it an unsuitable vehicle for their own professional ambitions. Above all, if medicine in its fuller and more practical sense had been admitted to the BAAS, it would have breached the implicit boundaries of what the Gentlemen regarded as real “science”. And this was none other than the hierarchy of “pure” natural knowledge that still constitutes the core meaning of the word in the English-speaking world.

This point leads on, however, to one of the book’s most disappointing features: its neglect of all that was happening beyond the British Isles. The BAAS’s initial debt to the earlier *Gesellschaft Deutscher Naturforscher und Ärzte* – in which medical men were prominent – is dismissed as negligible, on quite inadequate evidence; and the BAAS’s possible later influence on the German body is not explored. The visits of Continental notables to BAAS meetings are mentioned briefly, but the international “uses” of the BAAS are described only in terms of visiting Americans. Above all, the authors have missed the opportunity of exploring – in international perspective – the crucial role of the BAAS in establishing the “Anglo-Saxon heresy” by which “science” has come to mean only the natural sciences, excluding not only the *Geisteswissenschaften* and the social sciences but even the medical sciences as well. For it is surely no coincidence that it was Whewell, whom the authors regard as the leading ideologue of the early BAAS, who also coined the neologism “scientist” in its all-powerful Anglophone sense.

Finally, it must be said that the authors’ own implicit commitment to a certain view of science and scientists should have been made more explicit. Their analysis of the wheeler-dealing by which the Gentlemen of Science used the BAAS to build careers, consolidate patronage, and satisfy ambitions is persuasive and convincing. But if one protests that this should not be made the whole story, it must not be taken to imply any over-idealized view of science and scientists. It is symptomatic of the interpretative slant of this book that the authors’ discussion of the detailed scientific knowledge that was consolidated at BAAS meetings is relegated to the last chapter; and even there it is not related adequately to what was going on elsewhere in other forums at the time. In a revealing but not untypical sentence, the authors refer to the way the BAAS served its active members’ “own needs with respect to career development, research programmes, intellectual property, personal power, and individual ambition” (p. 449). Ambition, power, property-rights, and careers in science are all illuminated in ways for which historians of the period should be grateful; but the genesis and development of personal and collaborative programmes for research remain for the authors a scarcely opened black box.

Nonetheless, despite such criticisms, this is a masterly analysis of a crucially important institution in its most creative period. In its meticulously thorough use of manuscript sources as

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.

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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 Kiehmeyer. "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.

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