

### Book Reviews

a programme for action, it may sanction an interest in accounting for the natural order in some particular way. Such a strident claim as that of the Old School to a monopoly in the only method of acquiring all truth should certainly raise suspicions about what they were defending. Bozeman little more than hints at the opulent landed following of this variety of Calvinism. It would also be interesting to know about transatlantic exchanges in this period. The Scottish Church had, after all, rejected the "Moderates" who were the intellectual fathers of the old School. Yet the replacement was a General Assembly much more sympathetic to fundamentalism. The study of the relations of science and religion is becoming a familiar area in English history. Bozeman's work is an important delineation of the context from which scientific naturalism emerged in America.

**RICHARD W. BURKHARDT jr.**, *The spirit of system: Lamarck and evolutionary biology*, Cambridge, Mass., and London, Harvard University Press, 1977, 8vo, pp. [xii], 285, illus., £11.55.

Although Lamarck's is a familiar name, too often he is remembered simply as a forerunner of Darwin, or associated narrowly with a doctrine (the inheritance of acquired characteristics) which he never claimed to have originated. But Lamarck's voluminous writings are concerned with all aspects of nature from cosmology to psychology. It is to Burkhardt's credit that his monograph, while primarily addressing itself to Lamarck's evolutionary biology, never underestimates the breadth of Lamarck's philosophy of nature. Burkhardt patiently examines the development of his subject's thought against the background of eighteenth-century science, identifying those features which became integrated in Lamarck's systematic accounts of transformism, most notably in his *Philosophie zoologie* (1809). As Burkhardt shows, Lamarck was faced in the 1790s with the problematical relationship between fossil and living species of animals. He was unable to conceive a mechanism whereby species became extinct; rather it seemed to him that living species changed over time, as varying conditions and differing needs created in the species new habits and even, on occasion, new organs. Much of Lamarck's work was speculative and it failed to satisfy many of his contemporaries who preferred George Cuvier's rigorous and dogmatic pronouncements on the naturalist's proper methods.

Burkhardt's study is based principally on published writings; indeed, it is a measure of Lamarck's relative isolation, even in his own time, that so little manuscript material survives. Our knowledge of Lamarck's private life and personality is scanty, and his published work generally yields few clues as to what he was reading or discussing with colleagues and friends. But these are limitations of the historical record with which any historian has to contend. Burkhardt's achievement is to construct a full, sympathetic portrait of this most fertile of French naturalists.

**SIR J. WILLIAM DAWSON**, *Modern ideas of evolution*, New York, Science History Publications, 1977, 8vo, pp. xxv, 240 [facsimile], \$4.95 (paperback).

This useful reprint of Sir William Dawson's celebrated anti-Darwinian book (originally published in 1890) is edited by William R. Shea and John F. Cornell, and Shea contributes a critical introduction. Dawson (1820-1899) was an eminent

### Book Reviews

Canadian paleontologist, who conducted extensive researches in Nova Scotia and eventually came to play a leading role in the foundation of McGill University. He was a fundamentalist Presbyterian and opposed the Darwinian vision of a universe based on chance. The striking feature of the work is the evidence it gives for the migration of the organized resistance to materialist evolutionism from Scotland to Canada. In his defence of "sudden outbursts" of new life forms of various geological stages, and his particular interest in *Eozoon Canadense* (a giant foraminifer), Dawson occupies a recognizable position in the wider evolutionary debate. For a ghost stalks these pages, that of Hugh Miller, and no student of evolutionary ideas can fail to respond to the echoes that this reprint brings of a time when science and belief were so deeply intermingled.

ALLEN G. DEBUS, *The chemical philosophy. Paracelsian science and medicine in the sixteenth and seventeenth centuries*, New York, Science History Publications; Edinburgh University Press, 1977, 2 vols., 8vo, pp. xv, 606, illus., \$60.00.

There has, so far, been little attempt by historians to survey the full breadth of chemical philosophy from the death of Paracelsus in 1541 to Boyle's *Sceptical chymist* of 1661. It is Professor Debus's purpose to do just this, and although his discussion of this approach to nature and medicine is incomplete, it goes a very long way to rectify the neglect of an essential component of late sixteenth- and seventeenth-century medicine and biology.

Obviously, Debus has had to be selective in his references to individuals, and whilst admitting an absence in his text of an adequate handling of the external or socio-economic factors influencing any scientific advancement, he is to be applauded for pointing out that a full understanding and analysis of them must be based on the scientific and philosophical background. Would that purveyors of social historical material would approach more frequently their topics in this laudable fashion!

The seven chapters deal with the following: 'Chemistry and nature in the Renaissance'; 'The chemical philosophy'; 'The Paracelsian debates'; 'The synthesis of Robert Fludd'; 'The broken chain: the Helmontian restatement of the chemical philosophy'; 'The chemical philosophy in transition: nature, education, and state'; 'The chemical philosophy in transition: towards a new chemistry and medicine'.

A good deal of material already in print is included here, but it will be of the greatest value to have it collected together. Professor Debus's impeccable scholarship is evident throughout, and the volumes are well illustrated. The only criticism relates to the pallor of the print. It is also perhaps curious that the 'Preface' is dated January 1, 1974 and the book was published on 23 December 1977.

GAMINI SALGADO, *The Elizabethan underworld*, London, Dent, 1977, 8vo, pp. 221, illus., £5.50.

Professor Salgado gives a fascinating account of the discharged soldiers, beggars, thieves, cripples, tricksters, prostitutes, card-sharpers, and others who inhabited the underworld of Elizabethan London, and preyed on respectable citizens and foreigners. Throughout Britain the local fairs, the roads, and provincial cities also had their quota of similar individuals. The author draws on a variety of contemporary