

## Book Reviews

Social history, especially of bioethics, is bound to be problematic unless it is predicated upon a clear analysis of the substantive ethical issues. At issue in the 1960s was whether research standards should be *subjective* guidelines, enforced by the researcher's conscience, externally enforced *objective* rules, or *intersubjective* standards enforced by review committees (IRBs). In a series of papers published both before and after 1966, Beecher argued that subjective standards were too weak, objective standards too inflexible, and (citing Percival's 1803 code) championed intersubjective external review. By highlighting only Beecher's 1966 article, Rothman transforms a scholarly contribution to an on-going policy debate into an isolated act of "whistle-blowing". He thus transubstantiates Beecher, an archetypical "insider", into an honorary "outsider", in order to substantiate his theory of bioethics as essentially an *outside* critique.

Rothman systematically de-emphasizes substantive ethical debates *within* the medical community, and obscures the role of physicians, of *insiders*, of traditional medical ethics, in reshaping the ethics of contemporary medicine. None the less, he has written a penetrating and ground-breaking history of contemporary medical ethics.

Robert Baker, Union College, Schenectady

JOSEPH S. FRUTON, *A skeptical biochemist*, Cambridge, Mass., and London, Harvard University Press, 1992, pp. xii, 330, £23.95 (0-674-81077-5).

With this richly informative, challenging and beautifully-written book, the American proteolytic enzyme chemist, biochemistry textbook writer and historian, J. S. Fruton (b. 1912), completes what can now be seen as a trilogy of important historical studies. *Molecules and life* (New York, Wiley, 1972) examined the development of research on enzymes, proteins, nucleic acids and biological oxidation from their nineteenth-century origins to the 1940s. In *Contrasts in scientific style* (Philadelphia, American Philosophical Society, 1990) Fruton examined how different styles of leadership affected biochemical research (and, incidentally, provided historians of chemistry and biochemistry with a major work of reference). Echoing Robert Boyle's *Sceptical chymist* (1661) and Joseph Needham's *Sceptical biologist* (1929), Fruton's latest book critically (and sceptically) examines the philosophy and historiography of biochemistry. The linking thread of all three volumes, and the main thrust of *A skeptical biochemist*, is the interplay between biology and chemistry in the life sciences.

Although never as disenchanting with the current scientific world as his colleague, Erwin Chargaff, Fruton has several axes to grind against philosophers and historians of biology who conceive ideas more important than practice, who take an anti-reductionist position or who view institutional factors as inhibiting and directing research. In five chapters, Fruton examines: the "scientific method" of biochemists (dismissing Popper's and Medawar's interpretation and making a plea for inductivism); methodological controversies since 1800 over vitalism and mechanism, organicism and reductionism; the rival interpretations of the discipline's historical development (including a penetrating discussion of the issue of science history versus history of science); and provides a fascinating analysis of the significance of language and the changing meaning of words in biochemistry's development (including a defence of the scientific paper against Medawar's claims of fraudulence). In its wealth of case histories based upon the author's close familiarity with the sources or on personal experience since the early 1930s, Fruton makes a convincing case that historians and philosophers of science must never undervalue the role of "craft" (and particularly the chemical techniques of purification and structure determination) as well as instrumental improvements in their interpretations. In its underscoring of the long and continuing significance of chemistry in the study of biological problems, Fruton's study will be of particular interest to historians of chemistry, as well as to the audience of historians and philosophers of biology and practising scientists that it chiefly addresses. There is also an excellent 44 page bibliography.

W. H. Brock, University of Leicester