

Book Reviews

lectures which later became his *Principles of medical statistics*. It is widely recognized that in the forty-five years between textbook and journal, statistics became both a universal tool of medical research and a final court of appeal for new procedures and therapies. It should not be surprising, therefore, that the relationship between statistics and medicine has become a focus of interest for historians of twentieth-century medicine in recent years, and that a flourishing school of students of the clinical trial is now at work. At its broadest, this interest in quantification spills over into consideration of the cultural meanings of objectivity in western societies, as in Theodore Porter's *Trust in numbers* (1995); in the narrower medical context, Rosser Matthews' *Quest* seeks to give the clinical trial a "proper" contextual history, by tracing debates about the use of comparative statistics in therapeutics back into the nineteenth century.

Matthews has selected three "crucial" debates for study: that surrounding the numerical method of Pierre Louis in early nineteenth-century France; that provoked by Louis among German physiologists in the 1850s; and that between bacteriologists and biometricians over the opsonic index in early twentieth-century Britain. A central theme of this last case-study, which Matthews rightly highlights, is the part played by Major Greenwood, later Professor of Epidemiology and Vital Statistics at the London School of Hygiene and Tropical Medicine, in softening up the receptivity of his medical colleagues to statistical methods—a preparation which was essential to the eventual impact of Bradford Hill's more concerted attempt to reconcile the profession to the use of statistics. The unifying theme of Matthews' work is, indeed, the profound antipathy which medical men of all kinds nourished towards the adoption of statistical methods. It was an antipathy which Bradford Hill later emphasized in his unpublished 'Memoirs': he did not discuss randomization in the first edition of the *Principles* because "you have to teach the clinicians to walk before they can run". Drawing on the work of Christopher Lawrence,

Matthews attributes medical reluctance to deal in statistics to the dominance of "incommunicable knowledge", the traditional blind of the doctors' art, his expert judgement. In Matthews' view, it took the highly publicized crisis over thalidomide in the early 1960s to force acceptance of quantitative methods on the profession: thalidomide for the first time made a public issue of the doctor's professional judgement. It is a conclusion that fits well with Theodore Porter's general argument that quantification "becomes most important where elites are weak, where private negotiation is suspect, and where trust is in short supply", but one that does not really acknowledge the fundamental reluctance of the non-mathematically minded to become entangled with numbers. This is a thoughtful, clearly-expressed, and carefully contextualized contribution to the history of the clinical trial; there is, however, also the most delicate whiff of Whiggery in Matthews' several references to "the triumph of the clinical trial", and the final section drawing comparisons between past and present debates might well have noted in passing modern critiques of the clinical trial—expensive, cumbersome, time-consuming and not, in the final event, always a trustworthy indicator of the practical value and long-term therapeutic implications of the treatments assessed.

Anne Hardy, Wellcome Institute

Kurt Goldstein, *The organism: a holistic approach to biology derived from pathological data in man*, New York, Zone Books, 1995, pp. 422, £22.95 (0-942299-96-5). Distributed by The MIT Press.

This is a quality reprint of the 1963 American edition; the book was originally published in German in 1934. The neurologist Kurt Goldstein established his reputation with detailed studies of the symptoms and recovery of brain-damaged patients during World War I. In the 1920s, he was known as a leading critic of particulate theories of the localization of

Book Reviews

nervous functions and of the reduction of human performance to instincts, drives, reflexes or other part processes. Forced out of his work, while he waited in Amsterdam in 1934 for a visa for the United States, he took the opportunity—by his own account, five weeks that exhausted both his typist and himself—to clarify the theoretical basis of his medical work. This book is the result, the “classic” text of holistic biology. Anyone tired of vapid references to holism will be revived by a study of extraordinary range and depth.

Goldstein’s project was nothing less than a systematic biology grounded on the single principle of the unity of its subject, the organism. He believed that this principle made possible a simpler and more coherent science than that currently dominant, in which knowledge of the simplest parts is assembled into knowledge of the whole. He worked out the argument in greatest detail as a critique, simultaneously conceptual and empirical and hence powerful and unusual, of the reflex as a basis for the understanding of action. A high level of specialist knowledge is needed to assess the value of these arguments. Goldstein viewed the reflex as an artifice of isolated observation. He was particularly opposed to models of the organism as a balance of forces, of excitation and inhibition. In a scientific world in which such ways of thought had come to seem “natural”, his work was a profound act of intellectual imagination to show that alternative forms of knowledge may be possible.

The book is a rigorous work of science, though it comments in the last chapters on a formidable range of mainly German-language work in biology, physiology, psychology and medicine. It gives few clues to the social context in which it was conceived and written. Only with comments on heredity, racial biology and some versions of life philosophy then current in Germany, does the play of values start to be more apparent. Even so, his critique is expressed at the level of a critique in science. There is a startling one-paragraph marginalization of evolutionary biology. Here, most clearly, Goldstein reveals his

philosophical presuppositions, for which Goethe is cited as authority, about the “essential characteristics” of the organism at the level of the individual, at the level of the species and, it sometimes seems, at the level of life. Behind this was a Kantian programme to describe the categories in terms of which it is possible for us to have knowledge of the organism. He conceived of formal biology as nothing less than the discovery of the constants of the organism’s essential nature, of medicine as a response to the conditions in which the self-actualization of that nature is threatened by catastrophe. In his discussion of the human organism, whose essential nature he concludes on biological grounds expresses freedom, his medicine merged with a philosophical anthropology concerned with “Man”. In this connection, it is interesting to note that Goldstein was a colleague of Abraham Maslow at Brandeis University in the 1950s. It is possible to see in Goldstein’s book the attempted theoretical foundation of what Maslow was to shape institutionally into humanistic psychology. In the medical sphere, Goldstein’s way of thought about damage, and recovery or compensation for damage, provokes a response to illness as an alteration to an organism’s *telos*. Symptoms, for Goldstein, are not signs of local damage but signs of the organism’s search for new order, a sustainable actualization of its nature.

Roger Smith, Lancaster University

Lynn K Nyhart, *Biology takes form: animal morphology and the German universities, 1800–1900*, University of Chicago Press, 1995, pp. xiii, 414, illus., £59.95, \$75.00 (hardback 0-226-61086-1), £21.95, \$27.50 (paperback 0-226-61088-8).

This is the first big-canvas history of animal morphology since E S Russell’s classic *Form and function* of 1916. Lynn Nyhart tells us about many of the same characters as Russell did, but hers is a very different project. Russell used history to argue that organisms were