

## Book Reviews

vagrants exercised much influence on American gropings toward an alternative to the public sanctions that had suited the tightly-knit communities of early colonial times but were now perceived as failing in the more populous, mobile and anonymous society of the late eighteenth century. Drawing upon recent work of Joanna Innes and other on the continuing importance of workhouses in eighteenth-century England, Hirsch suggests a growing tendency in eighteenth-century America to apply the notion of workhouses to criminal offenders. This suggestion is an intriguing one, although, since he deals primarily with tracts and other rhetorical sources, it remains unclear just how far actual treatment of offenders altered in line with changing public discourse. He also examines the varying penal philosophies of penitentiary advocates, but here adds little new.

On the second question—the relation of the prison and slavery—the author is chiefly concerned with inquiring how advocates of the penitentiary, who were frequently also supporters of abolition, dealt with criticisms, ironically from both slaveholders and radical opponents of incarceration, that penal incarceration and slavery were two faces of the same coin. Analyzing contemporary rhetoric, he finds that penitentiary advocates felt little if any tension between their two goals, seeing both based in “a broader social theory for the improvement . . . of all deprived citizens” (p. 109).

The book has an unusually thorough section of notes, as well as an essay on sources, which together form a helpful guide to further research.

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FREDERIC LAWRENCE HOLMES, *Between biology and medicine: the formation of intermediary metabolism*, Berkeley, Office for History of Science and Technology, University of California at Berkeley, 1992, pp. iii, 114, \$18.00 (0-918102-18-9)

In 1990 F. L. Holmes gave four provocative lectures at the International Summer School in the History of Science at Uppsala. This slim volume now makes the text of those addresses available to a wider audience, a fifth discussion period being omitted. Holmes reflects on the development of the research field of intermediary metabolism. Intermediary, or intermediate, metabolism comprises a class of chemical reactions that occur in living cells; the term also designates a distinct research specialty within modern biochemical research. Investigating these complementary definitions, he addresses big questions about the nature of scientific research, its management and manipulation. The book thus provides a reassessment of the theses advanced by Thomas Kuhn in *Structure of scientific revolutions*, as to the criteria by which the progress of scientific research is recognized, and acknowledged. Throughout, he advocates investigation of the scientific process at every available level of organization, although as befits the author of masterly studies of Lavoisier, Bernard, and Krebs, the importance of the lab, the bench, and the individual scientist as components of that process is a consistent theme.

Despite, or perhaps as a result of, his own preoccupations, and his sensitivity to the interconnectivity of these constituent parts, Holmes's first lecture defines and discusses the “research field” as a unit of analysis for historians to examine research activities. A research field is characterized as “an ongoing investigative stream composed of the intersecting investigative pathways” and the lecture explores the shifting boundaries and limitations that can be used to distinguish research fields. By examining approaches to chemical phenomenon in the middle of the nineteenth century, and some of the contrasting attitudes and mechanisms of investigation, Holmes considers how an embryonic research field emerges. Within this analytical framework he fully acknowledges the problems in concentrating on more productive prominent members, and the danger of ignoring the more diffuse but collectively substantial contributions of apparently lesser members of a field.

A further lecture extends the analysis into the twentieth century and into inter-disciplinary considerations, as developments in one research field enrich another, and may create a powerful pivot from which a third arises. Holmes argues that biochemistry, by definition a hybrid subject, drew not only on late-nineteenth-century organic and physiological chemistry, but also on the synergistic demands of the new scientific medicine. By focusing particularly on Franz Knoop's *in vivo* work on fatty acid oxidation in whole animal studies, and on Gustav Emden's use of isolated

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perfused organs to examine sugar catabolism and metabolism, Holmes underscores the relationship between the laboratory elucidation of a significant intermediate compound like acetone and the clinical knowledge of ketone body production in diabetes. But, he concludes, the early-twentieth-century integrative optimism evaporated, to be re-formulated in the 1930s with the announcement of the “Embden-Meyerhof” pathway and the “Krebs” cycle—the eponymous titles themselves pointing up the inherent difficulties in separating contributions to the field as a whole. However, by the middle of the twentieth century the “ongoing investigative stream” is much broader, and it moves more swiftly. Whilst the definition of a research field may remain as an analytical goal, its achievement becomes more difficult, and in assessing this period Holmes’ “research field” contracts, two notable exclusions being A. V. Hill and Walter Morley Fletcher. But in a short book, such shortcomings can be excused. As he acknowledges finally, Holmes raises many questions, but provides few answers. This is no crime, as those questions are thoughtful, and thought-provoking. The book may suffer from its apparently narrow title, which hides a broad, sweeping account that can be widely recommended.

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FRANK HUISMAN, *Stadsbelang en standsbesef: Gezondheidszorg en medisch beroep in Groningen 1500–1730* [City interest and sense of class: health care and the medical profession in Groningen 1500–1730], Pantaleon reeks No. 8, Rotterdam, Erasmus Publishing, 1992, pp. 477, illus., Dfl. 79.50 (90–5235–037–X).

This volume is a landmark in Dutch medical history. It gives a meticulous account of the evolution of health care and medical practice in early modern Groningen, a market and service town situated in the north of the Netherlands. Its significance lies not just in the wealth of information it contains, based on painstaking archive study—a not untypical attribute of a doctoral thesis—but in the presentation of this material in a convincing analytical framework. Dr Huisman makes judicious use of secondary works emanating from England, France, and Germany, without falling into the trap of using this literature indiscriminately to offer models for the Dutch situation.

*Stadsbelang en standsbesef* explores what are now well-established themes, including the medical marketplace, the vague boundaries between orthodox and unorthodox practice, and the patient’s view (with the mandatory apology for the absence of sources). The volume is divided into three chronological sections: the sixteenth century; the period 1594–c. 1650, which saw the establishment of a surgeon’s guild and university in Groningen; and c. 1650–1730, when the various medical groupings became arranged hierarchically, with the physicians on top, culminating in the formation of a *collegium medicum* in 1728. Within each section various themes are treated: disease and measures taken to combat it, medical poor relief, licensed medical practitioners and changes in their regulation and education, and unlicensed practice.

The municipal government is located at the centre as negotiator between patients and medical practitioners, and between different groups of practitioners, a negotiator which demanded in different periods different qualities and tasks from local doctors, particularly those engaged in the town service. Towns were powerful units in the Netherlands during these two centuries, and Groningen sought means of promoting the well-being of its population and the economic interests of its doctors, while at the same time attempting to control the movements and activities of all its citizens. The town surgeons moved, for example, from being informers reporting wounds inflicted during fights to the town authorities in the sixteenth century, to members of a powerful guild after 1594, vital agents of poor relief, and finally to play second fiddle to the physicians in the second half of the seventeenth century. While stressing the critical role of town government in influencing shifts in power between practitioners, Dr Huisman avoids monocausal explanations, and other factors shaping the town’s medical services, not least the role of the university and the Calvinist church, are also sought out.

Some groups of practitioners fare better than others in this account. The trio of physicians, surgeons, and itinerants forms the main focus, while pharmaceutical practitioners are more sketchily treated, and women healers and carers, including the important group of midwives, also fare less