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wet-nursing in England appears to be in the seventeenth century when the urban growth of London in particular presented mothers with similar problems regarding their infants. Evidence for bureaucratic intervention, however, is lacking in England.

The conclusion of the author that economic pressure was the predominant cause in the rise and decline of wet-nursing is convincing. The sheer intensity of the business supports the theory that mothers, often poorly fed, sold their milk and were often ruthlessly exploited by middlemen and some female *meneuses*. It is to be hoped that this excellent book will encourage further research into the field of conflict between maternal instincts and economic necessity.

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G. E. R. LLOYD, *Science, folklore and ideology: studies in the life sciences in Ancient Greece*. Cambridge University Press, 1983, pp. xi, 260, £25.00 (£8.95 paperback).

This work consists of twelve essays on the "life sciences" between the sixth century BC and the second century AD. They are arranged to form three separate studies: on zoological taxonomy, theories and treatment of women from the Hippocratic corpus until after Aristotle, and developments in three specific areas of medicine (pharmacology, anatomy, and gynaecology).

These three areas are in turn linked by a common theme, suggested in the title; that is, how ancient "science" and "folklore", although often self-consciously separated by their proponents, nevertheless shared an "ideology", a set of assumptions about such subjects as the central place of man in the universe, and the nature of woman as an incomplete form. Although "science" sometimes analysed these assumptions and rejected them from its discourse, it was often itself so embedded within the world-view which they supported that they remained unchallenged. This complex picture of reciprocal influence and support replaces that of a few superstitious "survivals" within an otherwise pure "science".

In an excellent introduction, which deserves a wider audience, Lloyd proposes *using*, rather than merely bemoaning, the "loaded" nature of the ancient sources. This recalls the maxim of Adorno, "The splinter in your eye is the best magnifying-glass" (*Minima Moralia*). The section on women illustrates this. All Hippocratic texts were written by men but, rather than wishing women's views survived, we can use the texts to see how the ideology of women as inferiors interacted with the male writers' experience of women as patients. Lloyd also traces those theories of woman's role in reproduction which ran contrary to this dominant ideology.

Throughout the book an impressively wide range of the humanities is drawn upon both to furnish a conceptual framework and to make comparisons. Thus in the third section, on the relationship of Theophrastus, Pliny, Soranus, and Rufus to popular beliefs and to earlier written sources, Lloyd makes effective use of recent work in anthropology and history on the importance of literacy in the transmission of knowledge. There is also a commendable reluctance to apply modern categories to ancient thought, including an acknowledgement that the category of the "life sciences" was itself not familiar to the Greeks.

Lloyd's latest book is therefore a model of eclectic methodology, giving a fascinating picture of ancient views of animals, man, and medicine at the interface of popular belief and philosophy, of folklore and science, of ideology and criticism.

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J. BÜTTNER (editor), *History of clinical chemistry*, Berlin and New York, Walter de Gruyter, 1983, 4to, pp. 91, illus., DM. 98.00.

Writing in 1851, Henry Bence Jones looked back to the experiments of A. L. Lavoisier on pneumatic chemistry some seventy years previously as symbolizing a first *rapprochement* between physiology and chemistry proper. According to Bence Jones, doctors needed to understand the workings of the body in chemical terms. Such knowledge was legitimately the province of medicine – "it ought", he wrote, "to be possessed by those who attempt to understand and regulate an apparatus that only works while oxygen is going into it and carbonic acid coming out of it."

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Medical chemistry must loom large as one of the earliest roots of chemical physiology, or biochemistry. Despite its importance today, chemistry was relegated to the very periphery of medical science until well into the nineteenth century. Analysis of body fluids yielded little of medical value until they could be fitted into a perspective of healthy metabolism. Rather, such information – if seen not only as an attempt to *diagnose* disease but also to *explain* it – could only represent a kind of appendix to pathological anatomy, “put there for the sake of symmetry, a painted window from a false edifice” (Pettenkofer to Liebig, 1849). Ludwig Thudichum, the chemically orientated clinician and founder of the ill-fated *Annals of Chemical Medicine* (1879, 1881), believed that no pathology was possible before a full analysis of all the body tissues in their healthy state had been achieved. His slow, but enormously detailed results, a molecular sieving of the body’s chemistry, were not enthusiastically received. Under attack in 1869, he wrote, “I feel myself in this position, put with an excellent needle-gun to take an armour-clad steam-vessel. Such is the proportion of my means to the problem to be solved.”

In the *History of clinical chemistry*, Professor Büttner has brought together an important collection of eight essays dealing with the subject’s development in the nineteenth and twentieth centuries. All the essays were previously published in the *Journal of Clinical Chemistry and Clinical Biochemistry*. The interplay of clinical chemistry and biochemistry is underlined in an excellent contribution by J. S. Fruton. As well as rewarding pieces on instrumentation and the evolution of clinical enzymology, there are additions to our biographical knowledge in Hans Simmer’s impressive article on Eugen von Gorup-Besanez (1817–1878), and in Büttner’s piece on J. J. von Scherer (1814–1869). Like all stimulating books, this makes one ask new questions, in the light of what one has read. Certainly what is needed now is a comparable account of clinical chemistry in the English and French medical contexts. (The essays confine themselves in the main to the German-speaking countries.) Another question opened up by this volume is the changing inter-relationship between clinical chemistry (chemical pathology) and bacteriology in the crucial decades of the 1880s and 1890s.

The book is a little spoiled by some typographical errors, but a more serious flaw is the lack of a useful index (“pupils of Liebig” under “P” and “contributions to physiological and pathological chemistry” under “C”, are examples of its quaintness).

In his Introduction, Büttner points out the unfortunate consequences for the history of science that flow from picturing “clinical chemistry” as simply a post-war specialization (First International Congress, 1954). I presume that Büttner prefers to see it as a member of what Robert Kohler has called “the timeless, extended family of biochemistries”, which has differentiated itself over time. In any case, Büttner’s aim of stimulating interest in the history of clinical chemistry and related areas will be furthered by this volume.

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KARL HUFBAUER, *The formation of the German chemical community (1720–1795)*, Berkeley, Los Angeles, and London, University of California Press, 1982, 8vo, pp. viii, 312, illus., £34.00 (£12.75 paperback).

Several of the independent states that constituted eighteenth-century Germany had academies or universities where chemistry flourished, particularly in medical faculties. German chemists have received inadequate attention from historians of the period, but Professor Karl Hufbauer now remedies this situation with a remarkable book that is an important contribution to both scientific and social history.

Chemistry received official support because of its utility in medicine and, to a lesser extent, mining and manufacture, and Hufbauer shows that between 1720 and 1780 the number of salaried posts for chemists in medical schools increased from six to twenty-eight. Most professors were doing research and publishing, though their patrons expected them only to teach, and they eventually formed a nationwide community.

In 1778, Lorenz Crell, professor at Helmstedt, realized that he could benefit this community and advance his own career by founding a specialized chemical journal. Under various titles