

Book Reviews

economic answer to any of the French or English studies of death from the standpoint of social history. It is a study of infant mortality as an indicator of the patterns that can be perceived if the statistics generated during the late nineteenth century are examined in the light of their social grouping. Now Spree does this very well. He is interested in the individual as an economic entity and can, therefore, take the criteria provided by the Prussian census as reflecting real class (i.e. economic) differences. His conclusions are quite evident. The more money earned, the lower the infant mortality.

What is most valuable about this exercise is that Spree adds a series of new axes to this otherwise terribly dull (and reductive) tale. He examines the shift from popular medicine to official medicine in Germany during the nineteenth century, and sees the economic problem of getting access to the latter in a time when health insurance was only beginning to cover the population. He sees the amount of money that municipalities were able to spend on health improvements such as water purification and drainage as a reflex of the wealth of the community. And most interestingly, he asks if the decline in infant mortality might not be keyed to the improvement (and decline in cost) of means of contraception. Was infant mortality a means of birth control?

Thus what begins as a rather limited study develops into a rather different direction because of the German development of social history and its application to a problem in the history of medicine. Taking his lead from J. Kocka, Spree begins by using economic criteria to define his groups (economic criteria that are slightly suspect since they served the ideological bias of the Prussian census) and departs from these narrow criteria to examine the embeddedness of these groups in the fibre of economic and social history.

What is disappointing about Spree's study is that he never really questions what the census was doing in creating the groups it generated. Also, Spree relies heavily on existing studies for answers to questions such as the professionalization of the medical profession. Some original work could have been done in examining the economic definition of the so-called "free" professions to see how they fitted into this pattern of economic groups. The other disappointment is that the book in no way lives up to its billing. It would have been quite fascinating to have examined other areas of public health (disease prevention, inoculation, venereal disease) to see whether the findings about the improved status of the rich (as opposed to the poor) holds across the board.

In sum, a good, solid study which adds much to the formulation of questions about the integration of the history of medicine into social history. The book is written in a clear style and is completed with twenty-three statistical tables (most taken from other sources) to support his argument.

Sander L. Gilman
Cornell University

L. C. PALM and H. A. M. SNELDERS (editors), *Antoni van Leeuwenhoek (1632–1723)*, Amsterdam, Rodopi, 1982, 8vo, pp. 212, illus., Dfl. 50.00 (paperback).

Some countries make much of their famous scientists. In France, there are statues and street names to honour them; the same is true of the Netherlands. England, on the other hand, chooses largely to ignore scientists. Hooke's quite momentous *Micrographia* of 1665, which would have received a commemoration in any other country, never even rated a postage-stamp. Newton appears on the £1 banknote, but that will be replaced in 1983 by a coin. Wren, I am reliably informed, is on the £50 banknote, but then he is thought of as an architect.

The Dutch have done well by Leeuwenhoek, banknotes and all. They have received distinguished support from an Englishman, Clifford Dobell, whose thorough book, published in 1932, covers most of what needs to be said about Leeuwenhoek until the *Collected letters* achieve full publication. At the time of writing, there is an exhibition in the Museum Boerhaave at Leiden to commemorate the 350th anniversary of Leeuwenhoek's birth. The exhibition will transfer to the Wellcome galleries of the Science Museum later in 1983. The exhibition catalogue has several essays about the man, his microscopy, his times, and his nine extant microscopes, gathered together in one place for the first time in centuries, and here illustrated in

Book Reviews

colour. The volume under review contains ten essays, and is another contribution to Leeuwenhoekiana. Published to mark the anniversary, it is, in effect, a supplement to the exhibition.

In many ways the most important paper is that of J. van Zuylen, 'The microscopes of Antoni van Leeuwenhoek', which is a reprint from the *Journal of Microscopy*, 1981, 121, where the photographs and micrographs are considerably clearer because printed on glazed paper. The optical properties of the last remaining nine microscopes are set out in detail by a technical expert for the first time. It is to be hoped that eventually this study will correct the wild fantasies of some popularizers, as well as writers who should know better. The average microscope had a magnification of $\times 100$, and a measured resolution of 2 micrometres at best, more commonly about 3 micrometres. One microscope has a very high magnification, $\times 266$, with a measured resolution of 1.35 micrometres, and van Zuylen proposes that this lens was unusual in being blown by a singularly novel technique, most probably unique to Leeuwenhoek. All the other lenses have been ground and polished.

The remaining essays deal with aspects of Leeuwenhoek's life and work, from various viewpoints. Some themes recur, and are important in their effect on the portrait of Leeuwenhoek that emerges from the book. One theme is his education, or rather lack of it, in particular his ignorance of any language other than his native Dutch. Allied with this is his failure to publish a book on his microscopical observations, all of which were only put on record in the form of letters to the Royal Society. Then there is the fact that he was a businessman, and neither a medical practitioner nor an academic, which results in at least two of the contributors to the volume describing him as "an amateur".

The volume opens with the late W. H. van Seters (1891–1976) on 'Can Antoni van Leeuwenhoek have attended school at Warmond?'. As there are no records to show that he did, the author has had to dwell on the educational practice of the times, and pads up with a great deal of conjecture. Two authors, B. C. Damsteegt and K. van Berkel, both quote from Leeuwenhoek's first extant letter, though they date it differently. Here the microscopist excuses himself for not having written up what he had seen "through my recently invented microscopes . . . first because I have no style or pen to express my thoughts properly, secondly because I have not been brought up in languages or arts, but in trade". This echoes the earlier assessment of Constantijn Huygens to the Royal Society, in 1672, describing Leeuwenhoek as "a person unlearned both in science and language, but of his own nature exceedingly curious and industrious". It is true that Leeuwenhoek did not receive an academic education, but this would not have constituted anything like the handicap suggested, in particular, by Professor Snelders. Leeuwenhoek's own statement should be seen as a humility formula, customarily used in book prefaces, from William Caxton onwards. Snelders repeats four times in his first three pages that Leeuwenhoek knew only Dutch and was not trained in science. Yet he also says that "his observations were typically Baconian" (p. 59), and later, that "he was clearly influenced by Descartes' theory of matter" – statements in clear contradiction of the assertion that "the contemporary scientific literature was a closed book to him". In fact, Descartes had been translated into Dutch, and many Dutch scientists were publishing in their own language, as is clearly shown in the footnotes to Snelders' paper. Other essays confirm that Leeuwenhoek was well acquainted with contemporary scientific developments – yet the tradition of the unlettered Leeuwenhoek is allowed to persist. It is worth recalling that he had passed examinations to qualify as a land surveyor, and knew book-keeping and some law. He held the post of wine-gauger to the city of Delft, and he appears in the painting, 'The anatomical lesson' by Cornelis de Man, standing next to the lecturer, his contemporary and neighbour, Cornelis's Gravesande. Throughout his long life, Leeuwenhoek counted scientists among his friends, and was obviously in the intellectual swim of Holland.

Damsteegt asks the question, "Would Leeuwenhoek's influence on the ideas of his time have been any greater . . . if he had learnt enough Latin to have been able to address his letters in that language . . . or would his discoveries have survived any longer in that case?" (pp. 26–27). The writer's answer is no, because the Royal Society regularly published all his letters, large numbers were translated into Latin during his lifetime, and foreign scholars (and Peter the

Book Reviews

Great) visited him in Delft.

Leeuwenhoek is also set apart, we are told, by his status as “an amateur” among intellectuals. Van Bronwijk writes, “Antoni, the amateur, probably had better microscopes” (p. 123) than Swammerdam, the medical man. Again, “Leeuwenhoek comes forward as one of the best among amateurs” (p. 125), and is referred to on the last page of the book (p. 209) as “a self-taught man and an amateur”. The use of the word amateur here makes a distinction that is valueless in terms of scientific achievement. It is, indeed, easily contradicted in the essays devoted to Leeuwenhoek’s discoveries: Baas on wood anatomy, Lindeboom on sexual reproduction, Palm on biological studies, and Smit on spontaneous generation. Presumably, John Dalton, Humphry Davy, Michael Faraday, and James Joule can equally usefully be described as self-educated amateurs. It is significant to note that Leeuwenhoek refused to accept the theory of spontaneous generation, when the majority of his university-trained and medically-qualified contemporaries supported it.

This recurring failure in historical perception mars a volume which otherwise contains much useful and some novel material. Leeuwenhoek was the world’s first microscopist, not to be equalled until the nineteenth century. The range and quality of his work is awe-inspiring. He was at the very beginning of a new technique that could be applied in many fields. He had to feel his way, and describe the undescribed. Very few could follow him, mainly because of the technical state of the instrument and sheer lack of understanding in others, because microscopy takes the human consciousness into an entirely new world, as with a newborn child.

G. L’E. Turner
Museum of the History of Science, Oxford

GEORGES DIDI-HUBERMAN, *Invention de l’hystérie. Charcot et l’iconographie photographique de la Salpêtrière*, Paris, Editions Macula, 1982, 8vo, pp. 303, illus., Fr. 110.00 (paperback).

At last, the extraordinary history of hysteria at the Salpêtrière – Charcot’s history – has found an author prepared to take up the challenge. Charcot’s hysteria was a spectacle – not only for the fashionable flocking to his *Leçons*, but through his making the spectacle a part of therapeutics, nosology, and epidemiology. The essence of Charcot’s hysteria was simulation, the patient as actor (actress), the doctor as producer, producer of images whose fascination was disciplined by the scepticism of the scientist blind to the implications of his own desire to see.

Charcot’s disciples produced several volumes entitled the *Iconographie photographique de la Salpêtrière*, between 1875 and 1880, and again from 1888 to 1918. The hysteric was the centre-piece, almost the centre-fold. These texts, along with the *Oeuvres complètes* of Charcot, form the primary object of Didi-Huberman’s historical meditation. Their photographic form prompts him to survey the history of the image of insanity, from the 1600s on, and the concatenation of aims and assumptions that facilitated the encounter of the hysteric with her photograph. Charcot viewed photography as a laboratory tool, a museum of diseases (an archive) and a method of teaching. But the “pencil of Nature” (Talbot) had a logic of its own – a social history and philosophy of its own – which Didi-Huberman unravels, with the essays of Barthes, Baudelaire, Benjamin, and Sontag as his guides. He tells how photography provoked a “fantasy of memory” (immediate, exact, and sincere), how, in the combination of police and medical work, it provoked the notion of an identity, so that criminals, patients, tubercular characters, etc., were each forced to recognize themselves in the accusing image (p. 59). But the police-image of identity (“resemblance guaranteed”) should be contrasted with the image of spectacle offered by hysteria, in which the doctor’s function became more and more the reproduction, repetition, and instigation of what can clearly be observed, while the resistance of the hysteric – her cry, her unpredictability – only incited the doctor’s desire to an even greater intrusive fascination. Doctors experienced an anxiety proper to medicine when confronted with the Protean *dissimulation* of hysteria (“How can medicine be honest if the body itself starts to lie?” (p. 77)). Their response was to simulate it as often, as exactly as possible – with hypnotism and with the photographic image. An attempt at mastery, to be sure, but one which required a connivance, a complicity on the part of the hysterical subject, although she was forever ready to undo the doctor’s achievement – with a new fit, a fit that did not quite obey the rules, through a