

## Book Reviews

KLAUS MAURICE and OTTO MAYR (editors), *The clockwork universe. German clocks and automata 1550–1650*, New York, Neale Watson Academic Publications, 1980, 4to, pp. ix, 322, illus., \$55.00 + \$2.00 postage.

Academics teaching the history of science could do worse than spend more time in museums with their students. That, at least, would be so if all exhibitions were of the standard of the display of these clocks and automata at the Smithsonian Institution in Washington in 1980. There, this assembly of German Renaissance machinery displayed within the space of a short perambulation the distillate of hours of lecturing time. The concepts of the universe as a machine, timekeeping and discipline, regularity and order, and the clock “as mechanical symbol for an authoritarian world” (p. 1) were all unfolded with a grandeur that turned reading into an arid pastime. The notion of God as clockmaker may seem slightly absurd when taught to listeners bearing digital time-pieces, but when confronted by such ingenious craftsmanship, that commonplace becomes a deeply devotional statement. This catalogue is a faithful and worthwhile representation of the Washington exhibition.

For the historian of medicine more narrowly defined, the book might come as a sharp correction. For this collection contains a clockwork menagerie of pre-Cartesian animal machines from Diana riding on a stag, to a dancing bear beating a drum. It is all the more unfortunate then that none of the essays in this volume deals with the relations between automata and the history of physiology. Perhaps it is another one of those interstitial areas, between ideas and things, where the lines of pedagogy, scholarship, and tradition converge into darkness. Head still rules hand, but is not O.K.

The fourteen essays prefacing the catalogue have that heterogeneous quality often found in such books. There is something for everybody but no-one will want all of it. The first two essays, by Otto Mayr and Francis Haber, are both adventurous attempts to see the Renaissance through the clock, so to speak. Mayr, in particular, draws together some useful conjectures on the metaphor of the clock and the government of the absolutist state. His causal arrow, though, runs rather conventionally. He finds the clock metaphor being used to “express” or to “illustrate” (p. 8) the status quo. It would have been interesting if, in his editorial capacity, Mayr had been able to find an author who could have written on the clockwork metaphor being used to shape and change the status quo.

The other essays are all specific, thoroughly researched pieces on aspects of the clock in the Renaissance. They vary from ‘Astrolabe clock faces’ to ‘Jesuit gifts to the Chinese court’. There is also an especially fine essay by Bruce Chandler and Clare Vincent on an example of the patronage of clockmakers in the sixteenth century. This is a superb volume, all the objects are represented by photographs, many in colour. Each is accompanied by a detailed description and references to further literature. The editor has done a job worthy of the objects he has illustrated. It is a great pity that those who did not see the exhibition in Munich or Washington will not get another chance.

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JAMES TURNER, *Reckoning with the beast. Animals, pain, and humanity in the Victorian mind*, Baltimore, Md., and London, Johns Hopkins University Press, 1980, 8vo, pp. xii, 190, illus., £7.50.

In his new book, Professor Turner considers changing perceptions of man’s place in the natural order and assesses the impact of those perceptions on public attitudes toward animals. Specifically, this work is an analysis of the rise and influence of the animal protection movement in England and America during the nineteenth century. The study is a welcome addition to the growing body of literature on the historical roots of antivivisectionist sentiment. While Turner is not directly concerned with the antivivisectionist controversy, he presents the social context in which the debate over animal cruelty emerged. He assesses the changing sensibilities which accompanied the rise of the animal protection movement in England and follows the transference of those sensibilities to the United States.

Turner identifies the concern for humane treatment of animals with the Industrial Revolution

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and with the new social order associated with industrialization and urban life. He understands these attitudes to be derivative of humanitarian sentiments displaced upon animals, the distinction between man and beast having been eroded by physiological and taxonomic studies in the eighteenth century. While his interpretation appears reasonable and persuasive, it is really not adequate to explain the very different responses to vivisection met with in England and in France. Turner's analysis, although provocative, thus remains incomplete; it focuses entirely on Anglo-American perceptions of animal cruelty. It, nonetheless, provides a good account of the social origins, activities, and political impact of the societies for the prevention of cruelty to animals which were active in Britain and the United States during the nineteenth century.

Readers of this journal will be especially interested in Turner's analysis of the changed strategy and rhetoric of the movement in the latter part of the nineteenth century. At this time, medical scientists challenged the claimed moral superiority of animal protectors, defending physiological experiments on animals on the basis of their own concern for human suffering. After passage of the controversial Vivisection Act of 1876, animal protectors gradually redefined their goals and redirected their energies away from scientific abuse of animals towards provision of animal shelters and public education on behalf of household pets.

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KAREL B. ABSOLON, *The surgeon's surgeon. Theodor Billroth 1829–1894*, vol. 1, Lawrence, Kansas, Coronado Press, 1979, 8vo, pp. xiv, 282, illus., \$15.00.

Theodor Billroth (1829–1894) made great contributions to the emergence of modern surgery in the second half of the nineteenth century. Moreover, he was a naturalist, biologist, teacher, writer, and musician of great stamina. Not surprisingly, therefore, a detailed study of his life has hitherto remained a desideratum.

In the first of a planned three-volume biography, Professor Absolon deals with Billroth's youth and his development until, as professor of surgery at Zurich (1859–1867), he was appointed to a chair in Vienna. The author attempts to trace simultaneously the evolution of all facets of Billroth's activities within the framework of German and European culture. He proceeds chronologically, basing his text mostly on the letters of Billroth (previously edited in German only) and on part of his published writings. This format does not always make for easy reading, particularly since main themes do not appear to be sufficiently emphasized. Important medical topics such as Billroth's stances in favour of more historical rather than pathological research (pp. 61, 166), his views on the value of theory and surgical technique when isolated from practice, active experimentation and historical evidence (p. 181), and his ideas on statistics, on teaching, on writing papers and publishing "summaries" (p. 141) are treated on a par with an array of lesser details. (For example, all of Billroth's teachers are listed (p. 72). One of his high-school teachers is even introduced by one of the rare footnotes (p. 11), whereas throughout the book nothing is said of many more pertinent personalities.) Such particulars become the more disturbing when they are not accurately given (see, e.g., the section on Swiss geography and politics, pp. 178, 278).

It may, however, be unfair to dwell on these shortcomings before the final two volumes appear. It is hoped that they will overcome such difficulties of perspective and form. The announced bibliography should make up for the lack of consistent referencing of quotations and statements (which would help further research). The frequent misspelling of foreign names (e.g. Rudolphium, Kantonspital, Viussen, R. v. Krönlein, Dummreicher, Le Gran, Volpeau) might be avoided.

The book's flaws are, however, minor when compared with its merit in drawing the attention of both the surgeon and the historian to a most captivating character of a period of medical and cultural history which is only beginning to be explored.

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