The second problem arises from the lack of an adequate introduction. The diversity of approaches to habituation requires that common threads, if indeed there are any, be explicitly pointed out. For example, both the decrease in number of Protozoa contracting to a repeated vibratory stimulus and the waning of the mobbing response of chaffinches to a stuffed owl are called habituation. It would be of considerable help if the value of grouping such disparate phenomena were made clear.

Granted, this is an extremely difficult problem; but the lack of explicit organization is manifested in other ways. For example, in the very brief preface, the reader is given the definition of habituation cited above. Then, in the first chapter (coauthored by the editors with Wyers), it is said that decreased gill withdrawal in the sea hare, *Aplysia*, to repeated stimulation of the mantle shelf can be called habituation only after demonstration of response restoration following a strong stimulus (dishabituation). Faced with such inconsistencies so early on, the reader might well feel better served if a clear introduction to the basic issues had been included in the preface.

Peeke and Herz, then, have provided a timely collection of papers in a field of intense research activity. My disappointment on reading these volumes can be attributed less to what they are than to what they could have been.

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The Heritage of Galen

Galenism. Rise and Decline of a Medical Philosophy. OWSEI TEMKIN. Cornell University Press, Ithaca, 1973. xx, 249 pp., illus. $15. Cornell Publications in the History of Science.

This small book, based upon the Messenger Lectures given by Temkin at Cornell University in 1970, is the product of a lifetime of study of Galen and more particularly of the Galenic tradition through late antiquity and the middle ages. Distinguished by broad learning, it encloses within its modest number of pages a remarkably comprehensive survey of scholarship about Galen and Galenism from the 2nd to the 17th century.

Temkin has chosen to consider the philosophy of Galen rather than Galen's medical theories, therapeutic practices, or contributions to anatomy and physiology. As a philosophy, Galenism was a historical phenomenon comparable with Platonism or Aristotelianism. But what was Galen's medical philosophy, if it is to be distinguished from his medicine and his science? Temkin suggests that it was the set of attitudes Galen adopted in his study of health and disease—a Platonic vision of truth, an emphasis on accuracy of observation, as in Galen's anatomical studies and physiological experiments, and on the breadth of experience to be gained from travel. Galen upheld the Hippocratic belief that the treatment of disease must be based on a knowledge of nature. Galen's philosophy also contained a strong moral element—respect for the Creator, self-discipline, moderation, and charity. Moreover, he considered himself an exemplar of such virtues. Yet for all Galen wrote, Temkin points out, we know little about the man himself. Temkin shows that in the centuries after Galen's death the writers who systematized his works were most interested in descriptions of medical diagnosis and therapy, namely, those things which would be most immediately useful in the practice of medicine. In the 12th century the translators of Galen's works from the Arabic showed a similar practical bent, so that during the middle ages Galen was known through his short practical treatises, while his longer scientific and philosophical works remained untranslated and almost unknown. The practical nature of medieval interest in Galen creates a difficulty for Temkin's earlier definition of Galenism as Galen's philosophy, because Temkin's discussion of Galenism in the middle ages is largely a discussion of Galenic medical ideas, that is, of Galenic medicine. Similarly when in the 16th century Paracelsus attacked Galen, he was attacking Galenic medicine rather than a system of philosophy.

The role of Galen's anatomy in the 16th century poses a particularly difficult historical problem. Temkin notes that Galen had been "especially insistent on establishing facts" in anatomy, yet his anatomy was criticized by Vesalius because it was based on the dissection of animals, rather than on the human body. Yet at the beginning of his career Vesalius read the new published Latin translations of Galen's *De usu partium* and *De anatomicis administrationibus*. From Galen's works Vesalius learned how to dissect and how to describe anatomical structures. Furthermore, if Galen used animals to illustrate human anatomy, so too did Vesalius. Vesalius may be considered to have applied Galen's methods to the study of human anatomy and therefore perhaps to have been Galen's greatest pupil. If so, modern anatomy might be considered a continuation of the Galenic anatomical tradition. Certainly Galen's anatomical works continued to be read through the 16th century. William Harvey cited Galen's *De usu partium* in the introduction to *De motu cordis*, and from other references it is clear that he had read Galen widely. Temkin points out (p. 153) that Harvey's methods of experimental demonstration were not dissimilar to those used by Galen but that Harvey's discovery of the circulation of the blood had the effect of destroying the whole connected system of ideas embodied in Galen's physiology. Temkin thus raises the question of the historical relationship of old science to new science. It is at once the most fundamental and the most subtle and complex question in the history of science and medicine. Temkin suggests that what was attacked and what was destroyed during the 16th and 17th centuries was Galen's authority. Many of Galen's ideas persisted even into the 19th century.

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The Brain Changers. Scientists and the

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