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annotations are due to the patient and laborious work of Professor Marco Malato, who has been intimately connected with the project from its beginning. One cannot but admire his dedication to so exacting a task, carried out in spite of many difficulties over the years. It must be the fervent hope of everyone interested in and connected with the history of medicine that the final two volumes will appear in time for the tercentenary of Morgagni's birth. Regrettably, it must be recorded, that like all enterprises which rely on the participation of many collaborators, there are several flaws in the printing and proof-reading, particularly in the fifth volume. One lecture has over fifty misprints and another over thirty. A list of *corrigenda*, therefore, is a necessity, in order that this edition, admirable in all other respects, will prove a worthy monument to a truly great man and a fitting tribute from a distinguished body of scholars.

HEIDE GRAPE-ALBERS, Spätantike Bilder aus der Welt des Arztes. Medizinische Bilderhandschriften der Spätantike und ihre mittelalterliche Überlieferung, Wiesbaden, Guido Pressler Verlag, 1977, pp. 205, illus., DM.420.

Reviewed by Charles H. Talbot, B.D., Ph.D., F.S.A., F.R.Hist.S., Wellcome Institute for the History of Medicine, 183 Euston Road, London NW1 2BP.

The purpose of this lavishly illustrated book is to analyse the series of paintings found in two precious medieval copies of the Pseudo-Apuleius Herbal. These copies, one from Vienna, the other from Florence, have long been recognized as having a late antique exemplar as their source. The debate has been whether their relationship to this exemplar is direct or through the medium of a medieval Byzantine text. A parallel enquiry concerns the relationship of the two manuscripts to each other and the reasons for deciding whether or not they are independent. In the course of her discussion the author examines every scrap of evidence from the landscapes, architecture, house interiors, dresses, portraits, and so on, depicted in the illustrations, to confirm her argument, and in so doing uses comparative material from other art forms. This aspect of her work is impressive, and deserves high praise. But it may be pertinent to ask why the medical content of the manuscripts has been so lightly passed over. They are, after all, primarily medical texts. It is true that these matters have been dealt with elsewhere, but their incorporation in the present book would have made it more interesting and agreeable to a wider audience. Why, for instance, is there no explanation given for the appearance of Homer as "auctor" in the illustration dealing with the herb, peony? Surely a reference should have been given to *Iliad* V, 401, and to Paeon after whom the herb was named. And later, in dealing with the same herb, is not the illustration, showing a patient with his feet in the stocks and his hands chained, a true delineation of the normal treatment of a madman, from which a peony, if hung about the neck, would deliver him? It was a cure recommended by no less a person than Galen. The author has wholly misunderstood this and placed a completely erroneous interpretation on it. A number of other details have been similarly left without explanation. Where, for example, is "Mount Siracte in Gallia"? Is Gallia France? Or is Siracte the hill Soracte outside Rome? Do the herbs assigned to Crete and Sicily actually grow there, or are these

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places merely symbols for far-off regions, like the schoolboy's proverbial Asia Minor? Does not the extraordinarily vivid picture of the dog with rabies attacking a man deserve some comment and perhaps an inference as to its place of origin? These and other queries spring to mind as one turns over the pages. It would, however, be wholly unreasonable to concentrate on such insignificant details, when so much industry and expertise have gone into the making of this book. The final product is a consideralbe achievement for so young a scholar and gives promise of even better things. No small credit is due also to her supervisor, Professor Pächt, and to her publisher.

BRIGITTE HOPPE, Biologie, Wissenschaft von der belebten Materie von der Antike zur Neuzeit (Sudhoffs Archiv, Beiheft 17), Weisbaden, Steiner, 1976, 8vo, pp. ix, 368, DM. 75 (paperback).

Reviewed by Vivian Nutton, M.A., Ph.D., Wellcome Institute for the History of Medicine, 183 Euston Road, London NW1 2BP.

This complex study, a Munich Habilitationschrift, concentrates on two aspects of the history of biology and, especially, botany, the development of appropriate methods of enquiry and, second, theories of the material composition of organisms, from Aristotle to G. B. Treviranus at the beginning of the nineteenth century. Dr. Hoppe describes how the traditional classificatory systems of Aristotle and Theophrastus, which were based on specific differences between plants, came gradually to be replaced, in the works of Jungius and John Ray, by an emphasis on essential similarities. As in recent studies of sixteenth-century medicine, the humanist recovery of Greek technical treatises is seen as a stimulus to scientific discovery, although perhaps more might have been made of the various contributions of the Renaissance editors and commentators of ancient botanical works, such as Manardi, Ruelle, and Matthiolo.

An interest in classification and in proper method, since both depended largely upon logic, could be held to some degree independently of any practical investigations into the workings of living things. To reduce natural phenomena to an ordered system was an attainable task for the biologists of the sixteenth and seventeenth centuries: the investigation of plant metabolism, the subject of much of the book, was far more difficult and always encumbered by a multitude of unprovable, and often erroneous, hypotheses. The classical theory of Theophrastus, who believed in an interchange of three elements, earth, fire, and water, with their attendant qualities, the gradual removal of water within the plant through "cooking by its innate fire", and a series of minute natural substances as the product of metabolism, was highly influential in the Renaissance. The art of distillation to make the "quintessence" of a thing led at first to Costeo's identification in 1578 of the life-principle of a plant with its proper moisture, and later to a systematic analysis of plant-chemistry in the service of botany rather than pharmacology.

From the second half of the seventeenth century interest in plant metabolism focused on the functions of the vessels and cells within the plant, and, although experimenters like Stephen Hales might emphasize air as the life-principle and study