book, *The silence of St. Thomas*, contains a popularisation of just this point.) Again, p. 51 shows that 'physical' will not equate with '*reale*', since the latter here explicitly includes God and angels, all presumably non-physical (being meta-physical in one of the alternative senses of the word, often discussed by the medievals). That this makes God and angels unreal (which Poinsot would not want) is confirmed by 'every nonphysical apprehended thing is, however, something mind-dependent' (p. 55). The fact of the matter is that 'mind-dependent being' is on all sorts of counts much wider than '*ens rationis*': it even comprises psychosomatic tumours, one would suppose. I am hence still not convinced that the balance of semiotic advantage, as argued in the afterword, requires the translations adopted. Given a sufficiently imposing theoretical background of interpretation of the sort which is here claimed to be contributed by semiotic, the question becomes almost trivial. Provided that positively misleading decisions of the sort which have been adopted here are laid on one side, then even a quite colourless and neutral translation-convention will do, as long as it is made explicit.

There is, in general, no doubt that sign-theory is an important topic, and that the medievals and Poinsot did a great deal of interesting work on it. After all, their theological key-word '*sacramentum*' incorporates in its meaning the notion of 'sign'. That the study of signs in turn leads to further important questions about relations and their status is indubitable. Although the use of Poinsot as an introductory text on these topics threatens (or promises) a whole heap of highly fascinating distractions along the way, it is in any event gratifying to have his work so readily available in this present form. It cannot but serve as a valuable and extensive mine of material contributing pleasantly and weightily to the history of logic and metaphysics.

John Longeway (ed. and trans.), *William Heytesbury. On maxima and minima. Chapter 5 of rules for solving sophismata, with an anonymous, fourteenth-century discussion*. Dordrecht, Boston and Lancaster: D. Reidel Publishing Company, 1984. x + 201 pp. 85 Dfl/$29.50/£21.75.

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This book is an interesting study of Chapter 5 of William Heytesbury's *Rules for solving sophismata*. Heytesbury was a fellow of Merton College in 1330 and Chancellor of the University from 1371 to 1372, the year of his death. This book, his most influential, is designed to show how to unravel standard sorts of logical puzzles or paradoxes, such as insolubles (paradoxes depending on self-referential statements). Chapter 5 of this work is devoted to paradoxes involving the limits of continua, here cast in terms of the limits of capacities, such as Socrates's capacity for lifting a certain weight. Heytesbury gives rules for deciding whether any limit is to be assigned in a given case and, if it is, what the nature of that limit is. In the process he also develops a mathematical theory to deal with the boundary points of linear continua. His work here belongs not only to the history of logic, then, but also to the history of mathematics.

Longeway's book begins with a very brief introduction, followed by the translation of Heytesbury's Chapter 5. The translation is based largely on a fifteenth-century edition, which will shortly be superseded by a critical edition of the entire *Rules*. But Longeway will be responsible for Chapter 5 in that forthcoming edition; and in the meantime he has also checked the 15th-century edition against some of the manuscripts, so that he is in a position to assure us that 'only a few insignificant changes in the translation should be necessitated by the completed edition' (p. ix).

In translation, the text of Chapter 5 occupies only about 25 pages, but they are philosophically rigorous and subtle and repay the effort of careful reading. Longeways's notes are replete with references to pertinent secondary literature on medieval philosophy as well as relevant portions of other medieval philosophical texts, and they also give suggestions for further reading for those readers unfamiliar with the mathematical analysis related to Heytesbury's work. They are also particularly helpful for their expositions of the logical and mathematical complexities of Heytesbury's arguments. For example, in the note on Heytesbury's discussion of Socrates's capacity to divide a certain medium with 'uniformly difform resistance', Longeway explains Heytesbury's point in terms of the relation of velocity to the ratio of force to resistance, concluding with a differential equation describing the situation at issue in the text.

The second part of this book consists in an edition and translation of an anonymous treatise which depends on Heytesbury's Chapter 5. Longeway's edition is based on the only two remaining manuscripts of the treatise. (The translation and notes are presented first, followed by the edition and apparatus; it would have been handier to have the Latin and English on facing pages.) This anonymous treatise, written sometime between 1335 and 1399, addresses the same issues as Heytesbury's Chapter 5 and is clearly dependent on Heytesbury's work for many of its distinctions and arguments. Longeway does not give this treatise quite the same detailed analysis as Heytesbury's; there are far fewer notes to this treatise than to Heytesbury's.

The third part of the book is a philosophical study of the two texts translated. Longeway explains briefly the tradition behind Heytesbury's theory of capacities and their limits, from its origins in some remarks of Aristotle's to its treatment by Averroes and Aquinas. He then sets forth Heytesbury's own account in some detail. Heytesbury assumed that all basic capacities can be measured on a continuum, admitting of increase or decrease. According to the traditional theory, if a capacity can act on a certain resistance (or passive capacity), it can also act on any smaller resistance of the same sort, and if a resistance can be acted on by a certain capacity, it can be acted on by any greater capacity of the same sort. Heytesbury and the anonymous author argue to show that, although a capacity must be greater than a resistance if it is to act on that resistance, it does not need to be greater by any specifiable degree. The limits of such a capacity will be the upper and lower bounds of the range of resistances on which the capacity can act, and each of these limits can be either an intrinsic or an extrinsic limit. Heytesbury lays out certain conditions for the existence of such limits in any given case, and Longeway argues that these conditions resemble the notion of a Dedekind cut. The other major issue Heytesbury addresses is whether to assign an extrinsic or an intrinsic limit to a particular capacity. In general, Heytesbury's position is that the upper limit of a capacity and the lower limit of a resistance are always extrinsic. Heytesbury also considers certain troublesome cases in which the upper limit of a capacity seems to be intrinsic. Longeway argues that Heytesbury's approach to such cases is unsatisfactory and proposes an alternate resolution of his own. This part of Longeway's book is helpful for coming to grips with the scholastic theories at issue; it is clearly written and cogently argued.

What is somewhat lacking in this last part of the book, as well as in the notes and introduction, is attention to the historical context of Heytesbury's work and the anonymous treatise and the historical relationship between the author of the treatise and Heytesbury. Longeway does explain where Heytesbury and the anonymous author differ, but it would be helpful also to have some insight into the historical motivations for that difference. How and why did Heytesbury come to differ with the scholastic tradition on limits of capacities, and what happened in scholastic philosophy to account for the changes in the tradition after Heytesbury? But perhaps we have not progressed far enough in our understanding of this part of scholastic philosophy to be able to answer such questions. At any rate, Longeway's excellent presentation and philosophical study of these texts give us an important part of the puzzle as we continue to piece together the history of philosophy in this period.

ROBERT SANDERSON, *Logicae artis compendium*. Edited by E. J. Ashworth. Bologna: Cooperative Libraria Universitaria Editrice Bologna, 1985. lv + 382 pp. No price stated.

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This is a reprint of the 1618 edition of Sanderson, introduced by E. J. Ashworth. Sanderson's book is in three parts with two appendices. Part One deals with the nature of logic, with the predicables and the categories, and with related subjects, such as definition and division. Part Two deals with supposition, ampliation and restriction, as well as with propositions (including modal, exponible and compound propositions), their opposition, equipollence and conversion. Part Three covers syllogistic theory (including the demonstrative syllogism), the topics, fallacies and method. Appendix One discusses the application of logic to the handling of a simple theme and to disputation, as well as reverting to questions of method. Appendix Two, a miscellany, includes a short history of logic.

Ashworth's introduction provides copious biographical information on Sanderson, along with a detailed account of the historical background (European as well as English) to his logic. It is admirably clear and full. Specially interesting is the account it gives of the Oxford curriculum in Sanderson's day: the success of his text book sprang more from the neatness with which it tied in to that curriculum, than from its logical excellence. In addition, there are indices of pre-twentieth century authors and works, twentieth-century authors, names used in examples, and Latin terms.

As Ashworth acknowledges, much of the book is routine and derivative. What she does not say, is that it contains serious errors. I give two examples.