Sabine Rommevaux. *Clavius: une clé pour Euclide au XVIe siècle.* (Mathesis.) 313 pp., figs., apps., bibl., indexes. Paris: Librairie Philosophique J. Vrin, 2005. Euro 30 (paper).

From the later sixteenth century onward, Jesuits were for generations the mathematics teachers of much of the elite of Catholic Europe; the teacher of these teachers was Christoph Clavius (1538–1612), first as Professor of mathematics at the Collegio Romano, afterwards through his writings. Arguably the most important of these is his edition of the *Elements* with ample commentary and extensions. This work has now been admirably analyzed by Sabine Rommevaux.

The analysis constitutes the first part of the volume (pp. 13–113). A second part (pp. 115–276) contains a very precise yet very smooth French translation of the Definitions of book V, including the several extensive independent treatises (on arithmetical, geometrical and harmonic proportions) which Clavius includes along with his commentary proper. Four appendixes list the different edition of Clavius' *Elements*, confront the (Latin) formulations of the definitions of book V as made by Campanus, Zamberti, Commandino and Clavius, translate Clavius's version of the postulates and axioms of books I, V and VII, and translate Clavius's treatment of the similarity of circular segments from book III (serving together with the definitions of book V as substantiation of the analysis). Unusual for a French publication, the book contains not only a name but also a subject index.

Rommevaux shows, first of all, that Clavius's version is wrongly (though often) characterized as "a redaction": in contrast to Campanus, Clavius does not change the Euclidean text much, as a rule his commentaries and addenda are kept apart as scholia. These, on the other hand, sometimes go well beyond Euclid. In Rommevaux's words (p. 58), Clavius produces "a manual containing everything which is useful for a mathematician – concerning the geometry of plane and solid figures, the theory of proportions and the theory of numbers – for understanding the treatises of ancient and modern mathematicians, but also texts on natural philosophy". In other words, Clavius created a set of *elements* of mathematics as mathematics had come to look *for him.*

The pedagogical aim of Clavius's endeavour stands out clearly. When treating of the various proportionalities, Clavius takes care not only to produce examples that avoid the intricacies of fractions and surds when these are superfluous, but also to show how such examples can be constructed; clearly, his book is meant for future teachers. In her conclusion, Rommevaux airs a suspicion that it may on the other hand have been too extensive and rich to have been fit directly as a teaching manual, at least for the first years. Clavius's detailed discussion of all possible cases together with "the overweight demonstrations and length of the commentaries often make the reading fastidious", but this is counterbalanced by his "care for transparency, coherence, systematicity and well-structured discourse" (p. 112).

Rommevaux repeatedly confronts Campanus's approach with that of his medieval predecessors, to whom he owes much but whom he also criticizes. Going beyond the task Rommevaux has set herself but using her material one may notice that Clavius was in general harmony with his times. Campanus made a genuine redaction, and

Rommevaux points out that he had good reasons for doing so, namely that the widespread version of his times ("Adelard II"/Robert of Chester) was often rather a suggestions of Euclid than Euclid himself; but since Campanus appears to have used also the very precise Greco-Latin translation, this reason was not coercive – Campanus made a redaction because that was what his times needed. The widespread Euclid when Clavius wrote was the combination Zamberti-Campanus (Paris 1516, Basel 1537, 1546, 1558). Zamberti had humanistic legitimacy, Campanus was useful. Clavius, when keeping his own interventions in scholia, produced a text which was both philologically legitimate and useful for students of mathematics. Further, Clavius's rejection of Oresme's notion of addition and multiplication of ratios (V, commentary to definition 10) because of its counterintuitive implications sounds much like Juan Vives' refutation of the sophisticated logic of the fourteenth century as not dealing with the logic of ordinary discourse.