Zbl 0863.01026

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A thirteenth-century adaptation of Robert of Chester's version of Euclid's Elements. 2 vols. (English, Latin)

Algorismus. 17. München: Institut f. Geschichte der Naturwissenschaften. 559 p. (1996).

With this double volume, H. L. L. Busard has given us the sixth version of the medieval Elements, edited with his usual care. The first part of the introduction recapitulates, as nobody without the author's unequalled knowledge of the manuscript sources could do it, the essentials of the history of the medieval Elements, with particular focus on the so-called Adelard tradition; the parts of the story that concern the Gerard version and the translation made directly from the Greek are largely left out, as relatively irrelevant with regard to the version that follows. The best known pre-Campanus members of the "Adelard family" were baptized Adelard I, Adelard II and Adelard III by Marshall Clagett. Adelard I, published by *H. L. L. Busard* (ed.) in 1983 [The first Latin translation of Euclid's Elements commonly ascribed to Adelard of Bath. Books I–VIII and Books X. 36–XV. 2. (1983; Zbl 0597.01020)] seems really to be Adelard's work. Version II, published by *H. L. L. Busard* (ed.) and *I. M. Folkerts* (ed.) in 1992 [Robert of Chester's (?) redaction of Euclid's Elements, the so-called Adelard II version (1992; Zbl 0834.01002)], was by far the most widely spread. The introduction summarizes the arguments that its enunciations were made first and the proofs (in books I–VI, proof sketches) later, but that everything is likely to come from the same hand, which with high plausibility is identified as that of Robert of Chester. Two 12th-century versions exist that were derived from or interacted with version II but also used the Boethius tradition. One was published by *M. Folkerts* (ed.) in 1970 ["Boethius" Geometrie II. Ein mathematisches Lehrbuch des Mittelalters. (1970; Zbl 0223.01007)]. The other, identified during the work on Version II, is described in the present introduction.

The introduction further describes the characteristics of the late 12th-century "Adelard III" version (rebaptized Adelard IIIA) as well as the version Adelard IIIB, no older than Jordanus's Liber philotegni, and shows that IIIB does not descend from IIIA. Both instead are reworkings of Version II, provided with full and formal proofs. IIIB has certain features in common with the version "Bonn et al." (from Bonn, Universitätsbibliothek 573, the oldest representative of the manuscript family). This is the version published in the volumes under review. This version is shown to have been fairly well-known in the 13th century, and to have served together with the Anaritius commentary as fundament for the so-called Albertus commentary (the ascription of which to Albertus Magnus, as it is argued, seems doubtful). "Bonn et al." derives its definitions and enunciations from Version II, sometimes with additional commentary or minor changes. The proofs are new and full, in the early books very detailed. When several cases are possible, all are proved; at times, an aliter introduces an alternative proof. There are thus affinities with Version IIIA, as also the Campanus version, the former probably to be explained from a common setting and shared didactical/metatheoretical aims, the second from shared sources. Three propositions on the relation between cords and arcs are inserted between books IX and X in some of the manuscripts. The second has affinities both with the pseudo-Jordanian De triangulis (the proof) and Jordanus's Liber philotegni (the enunciation). If the reviewer is right in considering De triangulis a student reportatio from lectures held over a preliminary version of Liber philotegni (thus probably by Jordanus himself), this might mean that the author of the insertion made use of a similar preliminary version – and thus, probably but not certainly, that he was in contact with the "Jordanian circle". The character of "Bonn et al." can be illustrated by the beginning of the proof of prop. I. 1, the construction of the equilateral triangle with a given side [trans. JH]: For this proposition, the third postulate is needed, and the first and the last [this proof sketch is fully unrelated to that of Version II; a similar sketch is found in I.2, but not further on/JH]. The third is that over any point a circle may be drawn occupying any amount of space. In agreement with this postulate, over one of the end points of the given line you draw a circle according to the quantity of the line. In the same way you draw a circle over the other end of the same line according to the quantity of that line. But the point over which a circle is drawn is called its centre. When this is done you will see the circles cutting each other. Then in agreement with the first postulate, which is: from any point to any to draw a line, is drawn a line from the centre of each circle to the contact point of the circumferences. Thus the first line will be equal to each of the others in agreement with the last postulate [actually, with the definition of the circle/JH], which is: all lines going from the centre to the circumference are equal [etc.]. Volume II (=pp. 397-559) contains the critical apparatus. No commentary is given, apart from what is found in the introduction. The edition is thus a most welcome gift to the community of historians of medieval mathematics, and at the same time an invitation to further work.

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