

**MR2128341 (2006d:01009) 01A30**

**Chalhoub, Sami [Shalhūb, Sāmī] (SY-ALE-HS)**

★**Die Algebra. (German) [Algebra]**

The *Kitab al-Gabr wal-muqabala* of Abu Kamil Soga ibn Aslam.

With the original Arabic text.

Sources and Studies in the History of Arabic Mathematics/Quellen und Studien Über die Geschichte der Arabischen Mathematik, 7.

*University of Aleppo, Institute for the History of Arabic Science, Aleppo, 2004. 200+336 (Arabic) pp.*

Abū Kāmil's *Book on algebra* ranks together with al-Khwārizmī's compendium as the most influential medieval Arabic treatments of the topic (later works by al-Karājī, al-Khayyāmī and others going further but perhaps too far to have had a broad impact).

Abū Kāmil's treatise is now easily accessible in a number of versions: 1. Mordechai Finzi's Hebrew translation in Martin Levey's edition and English translation (1966; neither Finzi's nor Levey's work is flawless [M. Levey, *The Algebra of abū Kāmil (Kitā fī al-jābr wa'lmuqābala) in a commentary by Mordecai Finzi*, Hebrew text by M. Finzi. English translation and commentary, The University of Wisconsin Press, Madison, WI, 1966; [MR0205787 \(34 #5613\)](#)). 2. The facsimile edition of the Arabic MS 379, Kara Mustafa Paşa Collection, Beyazit Library, Istanbul [Publications of the Institute for the History of Arabic-Islamic Science, C 24, Frankfurt am Main, 1986; per revr.]. 3. Jacques Sesiano's edition (1993) of the medieval Latin translation [in *Vestigia mathematica*, 315–452, Rodopi, Amsterdam, 1993; [MR1258834 \(95d:01006\)](#)]. 4. The present edition of the Arabic text with German translation. This list concerns what we may call the "algebra proper", part 1 of the complete treatise. A second part applies algebra to the calculation of the sides of the regular pentagon and decagon. It was part of the Latin translation and was published separately by Richard Lorch [in *Vestigia mathematica*, 215–252, Rodopi, Amsterdam, 1993; [MR1258829 \(96b:01013\)](#)]. It is absent from Levey's above-mentioned edition but was translated separately by Finzi and translated into English from the Arabic by Yadegari and Levey. It is not included in the edition under review (neither Arabic nor German). A third and final part is also from the present edition as well as Finzi/Levey; the Latin translator tried his hand on its first pages but without success (the result is in Sesiano's edition). It was analyzed by Jacques Sesiano [*Centaurus* **21** (1977), no. 2, 89–105; [MR0471444 \(80k:01014\)](#)].

Beyond the published Arabic manuscript, Chalhoub mentions the existence of another one in the Astan-Kuiduz library in Iran. However, even though it is not stated in the German introduction, his text is identical with the text of the Istanbul manuscript, and contains page references corresponding to the facsimile edition. Probably (the reviewer does not read Arabic) the much longer Arabic introduction gives the information. The 275 notes to the Arabic text also look as if they could contain variant readings.

According to comparisons with the very faithful Latin text the German translation is precise, albeit with the proviso that the translator has aimed at rendering "the mathematics" of the text. He

thus leaves out the initial appeal to the “name of the merciful God” and shortens the corresponding final passage. He also translates Arabic “māl” as “Quadrat” when it functions as the second power of an unknown “thing” or “root” but as “Größe” when it stands for an unknown quantity, without pointing out that the Arabic term is the same. The commentary to the German translation is exclusively a translation into symbolic algebra.

Comparison of the present text with the Latin and the Hebrew translations shows that both the Istanbul manuscripts and the one Finzi had at his disposal have left out passages that must have been in Abū Kāmil’s original. Levey claimed that Finzi’s text was to be preferred to the Arabic manuscript, but in part because Finzi’s additional explanations make it easier to understand, and in part because Levey was unaware of the wide range of functions of the term “māl” and ascribed its varying use to the ignorance of the scribe. Readers who, like the reviewer, use their Arabic dictionary with difficulty may profitably combine the present translation with the Latin text (which is also provided with an exhaustive Latin-Arabic term index).

In the reviewer’s copy, one sheet (pp. 185–200) was turned around. Libraries should discover whether the same holds for their copies, and fix possible problems before rebinding.

Reviewed by *Jens Høyrup*

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