

To sum up: this is a most useful catalogue containing a wealth of information on the extant Tunisian sundials, as well as on lost instruments of which photographs (at least) have been preserved. It is sure to be a first-class guide for people wishing to undertake a detailed survey of some of these instruments.

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SALLY P. RAGEP, *Jaghmīnī's Mulakhkhaṣ. An Islamic introduction to Ptolemaic astronomy. Sources and studies in the history of mathematics and physical sciences.* Springer, Heidelberg, 2016. XII + 348 pp. + 6 plates.
rev. Julio Samsó

The present book contains an edition, English translation, and commentary of one of the most popular introductions to Ptolemaic astronomy. As Sally Ragep says on p. 1, «thousands of manuscripts» containing the *al-Mulakhkhaṣ fī l-hay'a* are extant, to which one should add commentaries, supercommentaries and glosses, as well as translations of the Arabic text into Persian, Turkish and Hebrew. On pp. 284-291, the editor has assembled a list of 61 works derived from al-Jaghmīnī's book.

Mahmūd ibn Muḥammad ibn 'Umar al-Jaghmīnī al-Khwarizmī was a disseminator of science who flourished at the end of the twelfth and beginning of the thirteenth centuries. A list of his works dealing with astronomy, astrology, mathematics and medicine has been assembled by Sally Ragep in pp. 281-283. He lived in Khwārizm (Central Asia) during the reign of the Khwārizm Shāh 'Alā' al-Dīn Muḥammad (596/1200-617/1220), just before the Mongol invasion. The *Mulakhkhaṣ* was composed in 602-3/1205-6 and dedicated to the Imām Badr al-Dīn Muḥammad ibn Bahrām al-Qalānisī, who was also the dedicatee of al-Jaghmīnī's short work on planetary distances and sizes. This Badr al-Dīn was the author of a well-known pharmaceutical *Aqrābādihīn* (ca. 590/1194). We also know the name of a second patron of al-Jaghmīnī: Shihāb al-Dīn Abū Sa'd ibn 'Imrān al-Khwārizmī al-Khīwaqī, to whom our author dedicated a short astrological treatise on the strengths and weaknesses of planets, probably written in 1204-5 C.E., and an epitome of Euclid's *Elements*. Both Badr al-Dīn and Shihāb al-Dīn were respected *shāfi'ī* scholars who had connections in government, and they seem to have used their positions to promote scholarly activities.

The present book contains an introduction dealing mainly with the problem of establishing the chronology of al-Jaghmīnī's life and works (pp. 1-26), a section on the meaning of '*ilm al-hay'a*' (pp. 26-32), another section which reviews briefly the history of this kind of astronomical works since Ptolemy's predecessors until al-Jaghmīnī's time (pp. 32-65) and a presentation of al-Jaghmīnī's *Mulakhkhaṣ* (pp. 65-67). This is followed by a chapter on editorial procedures (pp. 69-81) in which Ragep explains how she has solved the difficult problem of choosing the