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Ibn al-Kammād: Abū Ja‘far Aḥmad ibn Yūsuf ibn al-Kammād

Mercè Comes

Flourished **al-Andalus (Spain), beginning of the 12th century**

Ibn al-Kammād was a well-known astronomer from al-Andalus who influenced a number of later astronomers' writing in the Arabic, Hebrew, and Latin astronomical traditions. There is, however, little information about his life. He was probably born in Seville although he spent his working life in Cordova. Ibn al-Kammād was a direct or indirect disciple of [Zarqālī](#) (11th century). Later astronomers from al-Andalus, North Africa, and the Iberian Peninsula refer to him, and references to him occur in Arabic, Latin, and Hebrew sources. He seems to have also been known in eastern Islamic countries. The reference to a horoscope cast by Ibn al-Kammād in Cordova in 1116-1117 that appears in the extant version of [Ibn Ishāq al-Tūnisī](#)'s *zīj* suggests that he flourished at the beginning of the 12th century. Some modern sources, from the 19th century onward, suggest that he died in 1195; however, in light of the aforementioned horoscope, this date should be reconsidered.

Ibn al-Kammād wrote three *zīj*es (astronomical handbooks with tables): *al-Kawr ‘alā al-dawr*, *al-Amad ‘alā al-abad*, and *al-Muqtabas*, which is a compilation of the two previous *zīj*es. None survives in a complete version of the original Arabic. What has survived is the Latin translation of *al-Muqtabas* made by John of Dumpno in 1260 in Palermo (Biblioteca Nacional de Madrid, MS 10023). The same manuscript contains several chapters that do not belong to *al-Muqtabas*; some of them are probably related to *al-Kawr*. They too were translated by John of Dumpno in 1262 in Palermo. Furthermore, there are also some tables that do not belong to *al-Muqtabas* in the last folios of the manuscript, two of which are related to the city of Sale (Morocco). Some fragments of *al-Kawr* and Chapter 28 of *al-Muqtabas* are preserved in Arabic (Escorial MS 939 and Alger MS 1454).

A Castilian translation of a chapter on trepidation by Ibn al-Kammād is preserved in the Cathedral of Segovia Library (MS 115). This may belong to one of his *zīj*es, though there are no instructions on the use of the tables as would be expected in the canons of a *zīj*. The manuscript also contains some Alfonsine texts. In the chapter entitled *Libro sobre çircunferencia de moto sacado por tiempo seculo*, which seems to be a translation of *al-Kawr ‘alā al-dawr* (The periodic rotations) and/or *al-Amad ‘alā al-abad* (For the span of eternity), Ibn al-Kammād makes an error with respect to Zarqālī's trepidation model. He assumes that the motion of the pole of the ecliptic around its polar epicycle is equal to the motion of the Head of Aries around its equatorial epicycle. An explanation showing the same error and attributed to "some astronomers" is found in [Naṣīr al-Dīn al-Ṭūsī](#)'s *Tadhkira*. Another Arabic text by Ibn al-Kammād is preserved in the Iraq Museum of Baghdad (MS 296 [782]), though it has not been studied to date.

Ibn al-Kammād also wrote an astrological treatise, the *Kitāb Mafātīḥ al-asrār*, of which only Chapters 10–15 are extant. These chapters (*kalām fī al-naymūdār li-taṣḥīḥ ṭawāli ‘al-mawālid*), on astrological obstetrics, explain how to use astronomical measurements to determine the duration of a pregnancy. They are related to *al-Kawr* and to some of the tables accompanying, but not belonging to, *al-Muqtabas*.

Ibn al-Kammād was strongly criticized by [Ibn al-Hā'im al-Ishbīlī](#) in the latter's *al-Zīj al-kāmil* (circa 1205); Ibn al-Hā'im notes as many as 25 errors in Ibn al-Kammād's work, especially in *al-Kawr ‘alā al-dawr* and *al-Amad ‘alā al-abad*. These have mainly to do with solar and lunar motions, trepidation models, trigonometry, timekeeping, and astrology. However, Ibn al-Kammād's influence is to be seen in a number of later astronomers writing in Arabic, Hebrew, and Latin, such as [Abū al-Hasan al-Marrākushī](#) (in the 13th century), Juan Gil, al-Ḥadīb, Joseph ibn Waqār, and, in particular, Jacob Corsuno, the author of the *Tables of Barcelona* dedicated to King Peter the Ceremonious in the 14th century.

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