

# Biographical Encyclopedia of Astronomers

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Nasawi: Abū al-Hasan Ali ibn Ahmad al-Nasawi

Born Rayy, (Iran), 1002/1003

Nasawi was an astronomer and mathematician whose name indicates that his family was originally from Nasa, a town in ancient Khurasan that is in present-day Turkmenistan. He spent most of his life in his birthplace. In the introduction to his book, *Bāz-nāma* (On Caring for Falcons), Nasawi states that he served in the army, had been in the service of the kings, and trained birds of prey for 60 years, since the age of eight. Bayhaqi remarks that Nasawi lived until the age of 100. However, the date of his death is unclear.

Nasawi's disciple Shahmardān Rāzī, as well as Naṣir al-Din al-Tūsī, refer to Nasawi as *al-ustādh al-mukhtass* (distinguished teacher), probably due to his expertise in mathematics and astronomy. The famous Iranian poet Nāṣir-i Khusraw (1003-1088) writes in his *Safar-nāma* that he met Nasawi in Simnān (Iran) in 1046, where the latter was teaching Euclid's *Elements*, medicine, and arithmetic. Nasawi also quoted from discussions he had with Ibn Sīnā, which led Nāṣir-i Khusraw to conclude that Nasawi had been a disciple of Ibn Sīnā. It has been claimed that Nasawi was also a disciple of Kūshyār ibn Labbān, but Nasawi would have been too young when Kūshyār died.

Nasawi wrote several astronomical works, only one of which is extant. *Kitāb al-lāmi fi amthilat al-Zij al-jāmi* (Illustrative examples of [the 85 chapters] of [Kūshyār's] *Zij-i jāmi*) is also called *Risāla fi ma'rifat al-taqwim wa-'l-asturlab* (A treatise on the almanac and the astrolabe).

Only a few of the tables from *al-Zij al-Fakhir* (The glorious astronomical tables) have survived following the Leiden manuscript of Kūshyār's *Zij-i jāmi*. These tables indicate that the values used for the planetary mean motions are extracted from Battānī's *zij*, confirming remarks in *al-Zij al-mumtahan al-'arabi*, a recension of Muhammad ibn Abi Bakr al-Farisi's *Zij* preserved in Cambridge.

*Ikhtishār ṣuwar al-kawākib* (Summary of the constellations) is dedicated to al-Murtadā, the Shi'ite leader from Rayy. This nonextant work was a summary of 'Abd al-Rahman al-Ṣūfi's book on the constellations.

Nasawi was also a noted mathematician and wrote works on arithmetic, geometry, and spherics. Among his works are his *al-Muqni fi al-hisab al-Hindi*, a treatise on Indian arithmetic whose purpose was, among other things, to be useful for both businessmen and astronomers. Chapter 4 of *al-Muqni* deals specifically with sexagesimal reckoning used in Islamic astronomy. *Al-Tajrīd fi uṣūl al-handasa* (An Abstract of Euclid's *Elements*) was composed for those who wanted to learn geometry in order to understand Ptolemy's *Almagest*.

Nasawi also wrote works on philosophy, pharmacology, and medicine.

Hamid-Reza Giahhi Yazdi

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