

Ibn al-A‘lam: ‘Alī ibn al-Ḥusayn Abū al-Qāsim al-‘Alawī al-Sharīf al-Ḥusaynī

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Died possibly Baghdad, (Iraq), 985

Ibn al-A‘lam composed a *zīj* (astronomical handbook with tables) that later influenced astronomy in Iraq and Iran, especially **Naṣīr al-Dīn al-Ṭūsī**'s *īlkhānī Zīj* (13th century), and in Byzantium. He was also reported to have practiced astrology under the patronage of the Būyid ruler of Baghdad ‘Aḍud al-Dawla (978-983) and to have cultivated musical theory. Very little is known about Ibn al-A‘lam's life and work. His *zīj*, unfortunately lost, is only known by later references in other astronomical works. One of the names given to this work, *al-Zīj al-‘Aḍudī*, derives from the name of his patron. It was also known as *al-Zīj al-Sharīf*, from the name of the author, and *al-Zīj al-Baghdādī*, which either refers to his place of residence or may indicate that the original tables were based on the prime meridian of Baghdad.

Ibn al-A‘lam's work attracted significant interest, mainly because of the observations attributed to him; the values from his *zīj* are reported in several sources in Arabic, Persian, and Greek. Recent analyses of the quoted planetary parameters for epoch positions, mean motions, and equations indicate that Ibn al-A‘lam's planetary tables were formed on the basis of a review and consolidation of earlier observations rather than by his own observations. There is, though, no information available on other materials typically found in this kind of work, such as tables for calendars, geographical coordinates, fixed stars, or trigonometric and spherical functions.

Regarding the influence of the work, Greek sources mention Ibn al-A‘lam under the name of Alim; there is evidence for the existence of a Byzantine version of his tables, adapted to the Byzantine calendar and, probably, to the meridian of Constantinople, made by the year 1032 and used one century later for casting a pair of horoscopes for the years 1153 and 1162. A number of Persian and Arabic sources reveal that Ibn al-A‘lam's tables were being used from his own time until the 14th century. In *al-Zīj al-Ḥākīmī*, the Egyptian astronomer **Ibn Yūnus** (*circa* 990) stated that Ibn al-A‘lam made observations with instruments constructed by him, and he took the motion of the mean Sun and the rate of precession from Ibn al-A‘lam's tables. The Persian astronomer **Shams al-Munajjim Muḥammad ibn ‘Alī al-Wābkanawī** reported in his *zīj* (*circa* 1320) that in the *Zīj-i īlkhānī*, the group of astronomers working at the Marāgha Observatory under Ṭūsī did not apply their own observations, but used the mean motions of Ibn al-A‘lam. Indeed, an analysis of the *Zīj-i īlkhānī* shows that the underlying parameters used for the solar, lunar, and planetary tables were all taken from Ibn al-A‘lam and Ibn Yūnus. Finally, the Persian *Zīj-i Ashrafī*, written *circa* 1310 by Sayf-i Munajjim Muḥammad ibn Abī ‘Abd Allāh Sanjar al-Kāmīlī, preserves the values of Ibn al-A‘lam for the radices, the equations, and the apogees.

Selected References

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