Abū al-ʻUqūl: Abū al-ʻUqūl Muḥammad ibn Aḥmad al-Ṭabarī

David A. King

Flourished Yemen, circa 1300

Abū al-ʻUqūl was the leading astronomer in Taiz, Yemen, circa 1300. His epithet al-Ṭabarī indicates that he or his family came originally from northern Iran. He was a contemporary of the ruler Ashraf and Muhammad ibn Abī Bakr al-Fārisī, the latter also of Iranian stock. No details of Abū al-ʻUqūl’s life are known to us beyond the fact that he was the first teacher of astronomy appointed at the Muʿayyadiyya Madrasa in Taiz by the Sultan al-Muʿayyad, brother and successor of al-Ashraf.

Abū al-ʻUqūl compiled an astronomical handbook (Arabic: zīj) for the Yemen and was not shy about admitting to having taken most of it from other sources; indeed, he called his work al-Zīj al-mukhtār min al-azyāj (The Zīj culled from other Zījes). In fact, the work is based heavily on the Ḥākimī Zīj of the 10th-century Egyptian scholar Ibn Yūnus. What is original are the various tables of spherical astronomical functions for latitudes in the Yemen, and it is clear that spherical astronomy was the author’s forte.

Abū al-ʻUqūl compiled the largest single medieval corpus of tables for astronomical timekeeping for a specific latitude, with over 100,000 entries. This corpus, entitled Mirʿāt al-zamān (Mirror of Time), is computed for latitude 13° 37’, an excellent value for Taiz (accurately 13° 35’!) derived by either Abū al-ʻUqūl or al-Fārisī, and obliquity 23° 35’. In addition to tables of the hour angle and the time since sunrise for each degree of solar altitude and solar longitude, such as are found in the Cairo corpus associated with Ibn Yūnus, there are tables displaying the longitude of the ascendent or horoscope as a function of solar altitude and longitude, and others displaying the altitude of various fixed stars at daybreak as a function of the ascendent. The inspiration for the tables associated with the ascendent seems to come from Iraq or Iran, where such tables are attested, rather than from Egypt. Abū al-ʻUqūl’s extensive tables are known from a unique manuscript copied in Mocca on the Red Sea coast of Yemen in 1795. To what extent they were used over the centuries is unclear.

Abū al-ʻUqūl also prepared an almanac in which astronomical phenomena were associated with aspects of agricultural practice.

Selected References

