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Cholgi: Maḥmūd Shāh Cholgi

Gregg DeYoung

Alternate name

Khaljī: Maḥmūd Shāh Khaljī

Flourished **probably 15th century**

Since the colophon of the Persian *Zīj-i jāmi'* mentions his name, Cholgi has traditionally been taken as the author/compiler of this collection of astronomical tables. He has been identified with the ruler of Malwah, a state in central India, from 1435 to 1469, making him, like **Ulugh Beg**, both prince and mathematician. Ramsey Wright has suggested, however, that the treatise was not written by the prince himself, but rather was dedicated to him by the still-anonymous author. If the prince did indeed compose this treatise, it appears to be the only work he did in astronomy. A Persian manuscript in the Bodleian Library (*Persian Manuscript Catalog*, number 270) apparently chronicles the events of his reign, but no one seems to have yet examined it for any references to astronomical activity.

The introduction informs us that the treatise originally comprised an introduction (*muqaddima*), two chapters (*bāb*), and a conclusion or appendix (*khātima*). The last chapter and appendix were already lost during the author's lifetime. The introduction has 36 sections (*faṣl*). The first of these sections is the best known because it was published, with facing Latin translation, by **John Greaves** in his *Astronomica quaedam* (London, 1652). This initial section contains basic geometrical definitions, an elementary introduction to Islamic *hay'a* (cosmography and cosmology), and some brief explications of concepts used in spherical astronomy. Sections 2-24 deal with topics from arithmetic and calculations useful for spherical astronomy. Sections 25-36 describe the astrolabe and its use. The work seems to present itself (and is usually cataloged) as a commentary on the *Zīj-i Ilkhānī* of **Naṣīr al-Dīn al-Ṭūsī**. This description seems too presumptuous. It might better be said to represent a considerably simplified prolegomena to Ṭūsī's work (or to mathematical astronomy in general) rather than an explication of its contents.

The most interesting part of this introductory section (and of the *Astronomica quaedam*) is the cosmographical/cosmological model building. There is nothing original from the point of view of astronomical theory or practice. It is essentially a simple recapitulation of the model in **Ptolemy's Planetary Hypotheses** and the nested spheres described by **Ibn al-Haytham**. Although he cites the "new" results of Ṭūsī's work, Cholgi has in mind only the correction of the rate of precession to 1°

per 66 years, not Ṭūsī's new, non-Ptolemaic astronomical models.

Selected References

De Young, G. (2004). "John Greaves' *Astronomica quaedam*: Orientalism and Ptolemaic Cosmography in Seventeenth Century England." *Indian Journal of History of Science* 39: 467-510. (An introduction to Greaves and a translation of the *Astronomica quaedam* into English, with explanatory notes.)

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Wright, R. Ramsey (1926-1927). "Über die Schrift 'Astronomica quaedam' von Greaves." *Sitzungsberichte der Physikalisch-medizinischen Sozietät zu Erlangen*. 58-59: 381-385. (Outlines the basic historical context. Followed by a short note from E. Wiedemann concerning brief extracts from (1) Farghānī's Arabic compendium to the *Almagest* and (2) 'Alī al-Qushjī's introduction to the study of *hay'a*.)