

From: Thomas Hockey et al. (eds.). *The Biographical Encyclopedia of Astronomers*, Springer Reference. New York: Springer, 2007, pp. 1047-1048

Courtesy of  Springer
science+business media

http://dx.doi.org/10.1007/978-0-387-30400-7_1264

Shams al-Dīn al-Bukhārī

Raymond Mercier

Flourished **Middle to late 13th century**

Shams al-Dīn al-Bukhārī is cited in various Greek versions of Arabic and Persian astronomical handbooks (*zīj*es), versions that were made in the last decade of the 13th century in Marāgha and Tabrīz. These *zīj*es include *al-Zīj al-Sanjārī*, composed in Arabic in the mid-12th century by ‘**Abd al-Rahmān al-Khāzinī** and dedicated to the Saljūq Sultan Sanjar (reigned: 1118-1157); *al-Zīj al-‘Alā’ī*, composed in Arabic by ‘Abd al-Karīm al-Shirwānī al-Fahhād (mid-12th century), but no longer extant in Arabic; and, *al-Zīj-i Īlkhānī*, composed *circa* 1270 in Persian by **Naṣīr al-Dīn al-Ṭūsī**. The Persian text survives in many copies, and there is also an Arabic version. The Greek versions of all three are found in the following manuscripts: Florence Laur. gr. 28/17, Vat. gr. 211, and Vat. gr. 1058. The Greek version of the *Īlkhānī zīj* is much more widespread, being found in manuscripts in many collections. The Arabic version of the *Sanjārī* is found in manuscripts Vat. ar. 761, Br. Lib. Or. 6669, and Istanbul Hamidiye MS 859; one is in private possession.

A tract on the astrolabe is also attributed to Shams al-Dīn al-Bukhārī as well as a “Short syntaxis”; both are in Greek. There is nothing known of him in Persian or Arabic sources, nor is there any known reference to him outside the Greek work just mentioned. According to these sources, his *floruit* may be firmly placed at the end of the 13th century, and D. Pingree (1985) has argued for his date of birth as 11 June 1254.

These translations were made, no doubt, within the community centered at the famous observatory of Marāgha, which was under the direction of Ṭūsī and under the patronage of the Īlkhānid rulers. It is clear that Shams al-Dīn al-Bukhārī was instrumental in enabling the Byzantine scholar **Gregory Chioniades** both to obtain these translations of the tables and to learn how to use them. Shams al-Dīn's oral instruction (ἀπὸ φωνῆς τοῖνυν τοῦ Σάμου Πουχαρῆς ἀνδρὸς τὸ γένος Πέρσου) is acknowledged in the prefaces to the “Persian syntaxis” of Chioniades, *circa* 1295, and in the later “Persian syntaxis” of George Chrysococces, *circa* 1347, where we are told that the Persians were reluctant to allow a written translation of the Persian canons of the tables to be passed into Greek hands. One notes that the term “Persian syntaxis” is used somewhat loosely in the Greek texts, so that, for Chioniades, it refers to the *Zīj al-‘Alā’ī*, while for Chrysococces it means the *Zīj-i Īlkhānī*.

Apart from Chioniades's canons for *Zīj al-‘Alā’ī*, one finds a further work of his in 22 chapters, in which all three *zīj*es are mentioned. In one of these, Chioniades relates how Shams al-Dīn al-Bukhārī calculated a lunar eclipse according to some tables he had devised on the basis of the *Zīj-i Īlkhānī*, using as an example the total lunar eclipse of 30 May 1295. These eclipse tables were presumably part of the “Short syntaxis” elsewhere attributed to him.

The last mention of Shams al-Dīn al-Bukhārī in the Byzantine sources is in the *Tribiblos*, a very prolix treatise written *circa* 1350 by Theodore Meliteniotes, covering both Ptolemaic and Persian material. This includes in its Book III a long recapitulation of the Persian material, including the Greek version of the *Zīj-i Īlkhānī*, as already given by Chrysococces. In the preface to the text, Meliteniotes mentions Σάμψ Μπουχαρή along with other Islamic authors (Vat. gr. MS 792, fol. 246).

Selected References

Doyen, Anne-Marie (1979). *Le traité sur l'astrolabe le Siamps le Persan*. Mémoire, Faculté de Philosophie et Lettres de Université Catholique de Louvain. (Unpublished transcription of the text on the astrolabe, with a translation.)

Kennedy, E. S. (1956). "A Survey of Islamic Astronomical Tables." *Transactions of the American Philosophical Society*, n.s., 46, pt. 2: 121-177. (Reprint, Philadelphia: American Philosophical Society, 1989.)

Mercier, Raymond (1984). "The Greek 'Persian Syntaxis' and the *Zīj-i Īlkhānī*." *Archives internationales d'histoire des sciences* 34: 35-60. (The identification of the *Īlkhānī zīj* as the source of the tables of Chrysococces.)

Neugebauer, O. (1960). "Studies in Byzantine Astronomical Terminology." *Transactions of the American Philosophical Society*, n.s., 50, pt. 2: 3-45. (A seminal study of Vat. Gr. 1058, a manuscript that includes the Greek versions of all three *zīj*es, and much besides.)

Pingree, David (1985). *The Astronomical Works of Gregory Chioniades*. Vol. 1, *The Zīj al-'Alā'ī*. *Corpus des Astronomes Byzantins*, 2. Amsterdam: J. C. Gieben. (Part 1 is an edition and translation of the Greek text of the *'Alā'ī zīj* and related material, with an important note on Shams.)

Suter, Heinrich (1900). "Die Mathematiker und Astronomen der Araber und ihre Werke." *Abhandlungen zur Geschichte der mathematischen Wissenschaften* 10: 161, 219-220. (The older literature contains references to Shams that serve to illustrate the confusion surrounding his identity and role.)

Tihon, Anne. "Les tables astronomiques persane à Constantinople dans la première moitié du XIVe siècle." *Byzantion* 57 (1987). (Reprinted in Tihon, *Études d'astronomie Byzantine*. Aldershot: Variorum, 1994.) (Important overview of the manuscript sources.)

Usener, Hermann (1912-1914). *Kleine Schriften*. 4 Vols. Leipzig: B. G. Teubner, Vol. 3, pp. 288-377.