A HISPANO-ARABIC ASTROLABE WITH HEBREW STAR NAMES

BERNARD R. GOLDSTEIN
University of Pittsburgh

GEORGE SALIBA
Columbia University - New York

In the Smithsonian Institution's collection of astronomical instruments is an unusual astrolabe made in Valencia, Spain, by Muhammad Ibn al-Sahli and dated 483 A.H. (1090 A.D.). A complete description, with illustrations, is presented that includes a discussion of the star-names on the rete and the place-names on the plates.

Introduction

From a stylistic point of view the class of Hispano-Arabic astrolabes, i.e. those mainly produced in medieval Muslim Spain\(^1\), is easily distinguishable by general features that set it apart from eastern Islamic astrolabes. Hispano-Arabic astrolabes are usually engraved with the so-called Kufic script, have straight pointers for star markers, do not normally have any Qur'anic verses on the throne, and tend to have calendric information on the back instead of the qibla curves, the trigonometric grid, and the astrological tables prevalent on the eastern astrolabes\(^2\).

\(^1\) These astrolabes are called Moorish; for example, in Gunther, 1932, vol. 1, pp. 249-302.

\(^2\) Cf., for example, the backs of the astrolabes made by Muhammad Ibn al-Ṣālī in 420 A.H. (1029 A.D.), in Toledo (Mayer, 1956, p. 75 and plate II. We read the name of this astrolabist with Woepcke as Ṣālī and not Ṣaffār as in Mayer), and that of Ahmad Ibn Muḥammad al-Naqqāsh made in 472 A.H. (1079/80 A.D.) in Saragossa (Mayer, 1956, p. 37 and plate III).
The Smithsonian Institution’s collection of astrolabes includes one such Hispano-Arabic astrolabe (№ 318178) made in Valencia, Spain, and dated 483 A.H. (1090 A.D.) by Muḥammad Ibn al-Sahlī who is otherwise unknown. With the exception of the rete (cf. infra) the general features of this astrolabe are the same as those of the astrolabes made in Spain at this period, the eleventh century, and hence there is no doubt about its authenticity. It consists of a mater, 10.7 cm in diameter, with a perforated throne attached to it containing no incriptions. It also has a handle, a ring, five plates, a rete, and a pin. One of the plates (see faces 7 and 9) is heavier than the others; it is somewhat unusual in composition and contains prayer lines unlike the other plates. Another plate contains the projections for the horizon of the equator and that of latitude of 66°, corresponding to the limit of the inhabited world. The pin is a short bolt with a flat head, and a thin wire serves as a wedge. The alidade, the original pin and wedge are not preserved.

Rete: Plate I

The distinguishing feature of this rete is that the star names are written in Hebrew characters, while the rest of the astrolabe engravings are in Arabic script; bilingual astrolabes are unusual, but certainly not unheard of. Astrolabes inscribed in Hebrew characters are themselves few in number but, in addition, there are some astrolabe designs in medieval Hebrew manuscripts.

Add to that the examples of Hispano-Arabic astrolabes studied in García, 1945; Millás, 1931; and Gunther, 1932. The nisbaḥ, Sahlī, is applied only once, as far as we know, to a man from Sahlī, “a region near Seville” (Yaqūt, 1688, vol. 3, pp. 204-205). But although we have no attestations to other names with this nisbaḥ we like to think that the place to which the astrolabists known by this name are connected with is the short lived Taifah kingdom of the early eleventh century known as “La Sahla” (Albarracín), located north-west of Valencia (cf. Shantarīnī, 1978, part I, vol. 2, p. 943, and Ibn Sāʾīd, 1955, vol. 10, pp. 427-428). Mayer (1956, p. 51) suggests that our astrolabist is the son of Ibrāhīm Ibn Sāʾīd al-Wazzān al-Sahlī, who is also mentioned by Sāʾīd (1912, p. 75).

Cf. for example, the Moorish astrolabe in Gunther (1932, vol. I, p. 251: № 116) made by Muḥammad Ibn al-Sālī 420 A.H. (1029 A.D.) originally transcribed and published by Woepcke, 1858. In this astrolabe of al-Sālī (cf. n. 2 supra), the zodiacal signs, both on the rete and the back, are superscribed in Hebrew characters with the names of the zodiacal signs in Hebrew without obliterating the original Arabic names; the month names on the back are also superscribed in Hebrew characters. The star names on the rest of the rete are, however, left in the original Arabic without any additions. One plate, that of Cordova (Woepcke, 1858, fig. 6) is further identified as that of Qortovab written in Hebrew characters.

Only five authentic ones are known exist; Cf. Goldstein, 1976, esp. nn. 1, 2. Moreover, we hear of an Arabic astrolabe maker of the fourteenth century who was a Moroccan Jew (Colin, 1936).