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Finding the Sacred Direction: Medieval Books on the Qibla

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Abstract. Medieval Islamic scholars wrote a great number of books on the qibla, the Sacred Direction. These books had a huge readership and provided instructions for finding the direction of Mecca by either exact or approximate means. In principle, the qibla was a purely religious subject, but in practice its determination required the use of astronomy as an applied science. As so often, religion and politics had many points of contact and, in this case, it was generally political considerations that prevailed. Finally, the analysis of nautical charts can offer new perspectives. As yet, modern scholarship has not established the link between this area of study and the classical literature on this subject.

1. Preliminaries

Medieval Islamic scholars wrote a great number of books on the qibla, the Sacred Direction. These books had a huge readership and provided instructions for finding the direction of Mecca by either exact or approximate means. In principle, the qibla was a purely religious subject, but it needed the use of astronomy as an applied science. On the other hand, religious and politics had many points of contact and, in this case, it was politics was usually prevailed. But the qibla can be also studied from the perspective of other disciplines, such as geography, archaeology or historiography[1].

2. Religion

The Koran contains several passages that indicate that Muslims should face the Sacred Mosque when praying. "Turn then your face towards the Sacred Mosque, and wherever you are, turn your face towards it" (2,144)[2]. Muslim scholars stated that the Sacred Mosque was the Ka'ba, but the Koran also indicates that the tenets of Islam should be easy to follow: that is, no one should be able to argue that he cannot fulfil his religious duties.

The ḥadith (oral traditions relating the words and deeds of Muḥammad) give valuable information on this topic. Following a ḥadith that indicates "what is between the East and the West is a qibla", most Muslims considered that the qibla was due South. Indeed, in some Arabic dialects "qibla" means "South".

[1]M. Rius, *La alquibla en al-Andalus y al-Magrib al-Aqsà*, Barcelona: Universitat de Barcelona, 2000.

[2]http://quod.lib.umich.edu/k/koran

But this affirmation is in direct conflict with the Koran, because the Ka'ba is of course not due South from every geographical point.

2.1. Fiqh

Many manuals on Islamic law include chapters explaining the qibla, and Muslim fuqahā' even wrote specific treatises on the question. Surprisingly, one finds many manuscripts on the qibla in the Maghrib (from the twelfth to the seventeenth centuries, by authors such as al-Mittījī, al-Maṣmūdī and al-Tājūrī), but hardly any from al-Andalus.

The four sunni schools of law commonly accepted that there are two different kinds of Muslims: those who are in Mecca and can see the Ka'ba with their own eyes, and those who cannot. Those in Mecca had to be absolutely exact: they were required to pray towards the samt. But for the rest (that is, ninety-nine per cent of Muslims), it was only necessary to know the jiha, the general direction. The fuqahā' also explained that Muslims who were already in Mecca but were blind, or whose view of the Ka'ba was blocked by a mountain, could also face the jiha.

It is clear, then, that it was necessary to know the jiha. But what exactly did this term mean? For some fuqahā', the jiha was an angle of ninety degrees: wherever Muslims prayed inside this angle was the jiha. Other scholars, however, thought that it was legitimate to pray within a margin of 180 degrees. In any case, how could a believer know the jiha? There were two ways of determining it. A Muslim who did not know the jiha should follow the example of other people – for instance, the Companions of Muḥammad or the ancients, who were always a good model. This practice was called the taqlīd, following the traditional way. But a Muslim who knew astronomy, for example, could use the ijtihād; that is, he could make a personal effort to perform his religious duties correctly.

3. Geography

Whether the believer was familiar with astronomy or not, he had to use a geographical approach. Here a distinction should be made between "sacred" geography and mathematical geography.

3.1. Sacred Geography[3]

'Alī al-Sharafī of Sfax (fl. 1551-79)[4] gives a good example of sacred geography. As we see on fol. 2 of the ms. Arabe 2278 (Bibliothèque Nationale de Paris), the Ka'ba is placed at the centre of the world and around it are thirty-two miḥrābs giving the direction of the qibla for the entire ecumene. Obviously, these maps do not aim to be exact, but merely provide an indication of the jiha.

Modern scholarship has not yet established the link between sacred and mathematical geography. In our view, nautical charts show a link between

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[3]D.A. King, *Mecca-Centred World-Maps: World-Maps for Finding the Direction and Distance to Mecca: Innovation and Tradition in Islamic Science*, Leiden: Brill and London: Al-Furqan Islamic Heritage Foundation, 1999.

[4]M. Herrera, "The nautical atlases of 'Alī al-Sharafī of Sfax", *Suhayl* 8 (in press).

the two. The chart made by al-Mursī[5] in the fifteenth century offers complete information on the two shores of the Mediterranean basin, a network of winds and, at the extreme right, a circle with the lunar mansions. Mansions were often used in folk astronomy to obtain latitudes, times and directions, and therefore to determine the qibla, but it is highly unusual to find a diagram of this kind in a nautical chart.

3.2. Mathematical Geography

Mathematical geography was very useful for obtaining an accurate idea of the qibla. However, it faced a huge problem. In the Middle Ages longitudes were not exact, as it was very difficult to gain an idea of the size of the Mediterranean. As Ptolemy's values for the sea were too large, Muslim geographers took the Canary Islands as the origin meridian for Eastern cities and the Atlantic shore as the origin meridian for Western ones[6]. But this problem raised great confusion regarding longitudes and astronomers sometimes preferred to avoid procedures that required exact coordinates.

4. Astronomy

4.1. Mathematical Astronomy

Aware of the situation, and lacking an exact solution, astronomers like al-Battānī (tenth century) devised approximate methods for obtaining the qibla. Eventually, astronomers developed techniques to find the qibla by an exact procedure using spherical trigonometry, but by the time this procedure was perfected, most of the important mosques (in Egypt, Ifrīqiya and al-Andalus) had already been built.

In their treatises, astronomers included chapters on the instruments they employed to calculate the qibla.[7] The astrolabe, the sundial, the balāṭa and other instruments were all used, though only to obtain approximate values. For example, in his treatise on the astrolabe Ibn al-Ṣaffār (d. 1035), states that the qibla for Cordova is 30 degrees South-East.

4.2. Folk Astronomy

Though astronomy studies were limited to the elite, most Arabs had some knowledge of folk astronomy. Sunrise and sunset at equinoxes and solstices, the mansions of the moon and the rising and setting of some important stars were useful instruments for determining a direction and, consequently, for calculating the qibla. Indeed, the Arabs had built the Ka'ba with astronomical alignments:

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[5]M. Comes, "Ibrāhīm al-Ṭabīb al-Mursī", *Las artes y las ciencias en el occidente musulmán*, Murcia, 2007, 74-81.

[6]M. Comes, "The "Meridian of Water", in the Tables of Geographical Coordinates of al-Andalus and North Africa ", *Journal for the History of Arabic Science* 10 (1994), 42-51 (reprinted in M. Fierro & J. Samsó, eds., *The Formation of al-Andalus*, Part 2 *Language, Religion, Culture and the Sciences*, Aldershot, 1998, 381-391).

[7]D.A. King, *In Synchrony with the Heavens. Studies in Astronomical Timekeeping and Instrumentation in Islamic Civilization*, 2 vols., Leiden: Brill, 2004-5.

the major axis is oriented towards the rise of Suhayl (Canopus, α Carinae) and the minor axis is related with sunrise in winter and summer. In fact, the Koran allows the study of the sun and stars as guides to determine the qibla or a direction when travelling by land or sea.

5. Archaeology

However, these theoretical considerations are not really reflected in Muslim architecture. Among the Andalusian mosques, for instance, the most important building – the aljama mosque in Cordova – seems to be oriented not towards the Ka'ba, but in the same direction.[8] Medieval chronicles attribute this to a miscalculation of the qibla, but there is no description of the method used to build it or of how the direction was determined. In all probability it was oriented towards the rise of Suhayl, because we know that al-Ḥakam II (r. 961-976) ordered Aḥmad b. Fāris al-Munajjim to climb a mountain near Fuengirola in order to find out whether the star was visible from there. The story must have impressed the local people, because the mountain received later the name of Suhayl.

5.1. Qibla in al-Andalus

It is not surprising that a high percentage of mosques in al-Andalus were built following the example of Cordova, the main city. Many mosques were also built towards the South (as we have seen, due South was the wrong direction in al-Andalus, but had a strong tradition and enjoyed prestige because it was the qibla in Medina). Another group of mosques was oriented towards the East (the right direction for al-Andalus, but occasionally rejected as "too similar" to the Christian churches). Finally, a third group came to a diplomatic compromise: neither South, nor East, but South-East.

The caliphal city of Madīnat al-Zahrā', near Cordova, is a good example of an astronomical orientation, because the priority was precision, not aesthetics. The mosque is very accurately oriented (as well as could be calculated using astronomical procedures but medieval coordinates). When al-Ḥakam II undertook the job of extending the mosque of Cordova the astronomers advised him to follow the example of Madīnat al-Zahrā'; but the fuqahā' opposed this plan, arguing that the historical orientation had been used by eminent men such as the Companions of the Prophet who entered al-Andalus in the times of the Islamic conquest.

The Palace of Comares, in the Alhambra of Granada, is another good example of a mosque oriented using exact procedures. The degree of accuracy obtained was probably due to the use of Ibn al-Raqqām's (d. 1315) tables. This second example coincides closely with the story of Madīnat al-Zahrā': the sultan demanded accuracy in his own palace, but, when it came to historical mosques, he followed tradition.

These two mosques were an exception, because most mosques was built towards the jiha rather than towards the samt. Although the qibla in al-Andalus

[8] J. Samsó, *Las ciencias de los antiguos en al-Andalus*, Madrid: Mapfre, 1992, 60-66.

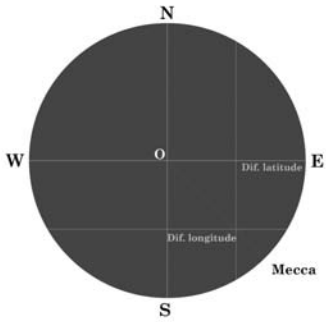

Figure 1. al-Battānī's approximate method.

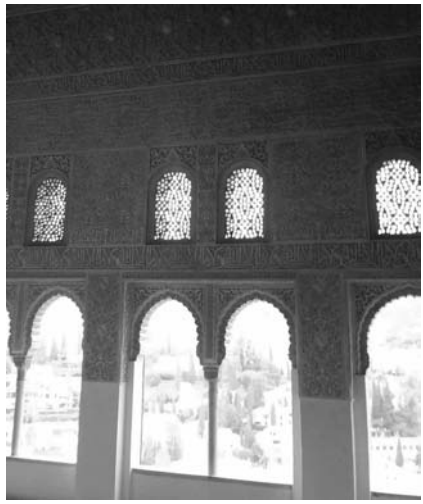

Figure 2. Prayer hall, Comares, Alhambra, Granada.

was nearly due East, many mosques faced due South, or even some degrees South-West. An example is the group of mosques in the Rábita de Guardamar which were built with different orientations, paying no attention to the qibla.

5.2. Qibla in al-Maghrib

Maghribi literature has an abundance of treatises on the qibla, a topic which aroused fierce controversy. Some māliki fuqahā' criticized the mosques in the region, though others held that eminent men could not have built mosques with mistaken orientations and argued that their main objective had been to respect the jiha.

Although we have no clues as to how the orientation of the mosques was decided, there seems to have been a trend towards building them in the direction of Suhayl (around 150-160 degrees from North). Well-known mosques in Fez such as Qarawiyyin and Andalusiyyin face this direction, even though, in theory, only two options were possible: East or South. The case of the Kutubiyya mosque, in Marrakech, is unique as the building was raised towards 154 degrees, but was rebuilt a few years later towards 159 degrees, in the belief that the qibla had been miscalculated in the first construction.

6. Historiography

Last but not least, the historiography is a useful source of information on the qibla. In fact, in the chronicles there are many gaps regarding the methods used to build and orient the mosques. On many occasions, political considerations were more important than religious ones. We have already seen what can be described as a double qibla in the mosques of Madīnat al-Zahrā' and the Palace of Comares. We also find dynastic qiblas, in the case of the almoravids and

the almohads. When the almohads supplanted the almoravids, they demolished all the mosques, arguing that they had to purify the cities. The almohads also claimed that the qibla used to build almoravid mosques was wrong – a strange argument, since the almoravid mosques were constructed towards the East, while almohad mosques faced Suhayl. Obviously, the question had nothing to do with the actual geographical situation of Mecca, but a great deal to do with the objectives of each dynasty.

7. Final Remarks

Technical considerations, geographical features and political issues are factors that had to be combined to obtain an accurate qibla. In fact, the fuqahā', the interpreters of the sacred law, held that an exact qibla was not necessary. Nevertheless, the desire of the faithful to fulfil their religious duties acted as a powerful motor for astronomy, a discipline which flourished under the shadow of religion.

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