The Qibla Misunderstanding

Part Four of Early Islamic Qiblas

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Much has been written over the last thousand years on the topic of how Muslims can correctly identify the qibla direction when they pray. From about 900 until 1800 CE thousands of Arabs wrote thousands of books and articles on how this could be done using astronomy and geography.[1] Despite this, there is still disagreement on the technique used by the earliest Muslims.

In relation to finding the Qibla direction, King and Hawkings divide Islamic history into two parts.[2] First, they suggest that the earliest Muslims used "folk astronomy" to determine the Qibla, and King claims they were wildly inaccurate. For the second section (9 - 16th century) King and Hawkings note that "the techniques of folk astronomy were employed by the legal scholars to demine the Qibla..." but the era really belongs to the mathematicians. It is on this second era that King, Kawkings, Hogendijk and others focus most of their attention.[3]

In this short paper, we will focus on what King calls "folk astronomy" but we need to challenge the mistaken idea that the early Muslims used inaccurate or inadequate methods. Ahmad Dallal who wrote "*Beyond the Hijaz (by the Red Sea*) reflects: *"Syria and Iraq, which were near enough to Mecca so that pre-mathematical methods of computing the direction of the qibla provided fairly accurate results, many of the mosques built in the early period of Islamic expansion were misaligned. With increased knowledge of mathematical astronomy, this flaw was recognized and although some of the misaligned mosques retained their orientation, others were rebuilt to face in the correct direction.*"[4]

I wish to present a different opinion, and in doing so realize that I am not only going against modern scholars, but against the general opinion expressed by Muslim writers for the last thousand years. I trust that in the next few pages I will be able to explain that the early qiblas were actually very accurate, why the change took place to preferring mathematical solutions, and why there were misunderstandings about how the early qiblas were determined.

1. King, David, A, *World maps for finding the direction and distance to Mecca*, Brill 1999, Page 4 & 5 "... the sources are some 10,000 odd scientific manuscripts in Arabic, Persian and Ottoman Turkish, and several hundred scientific instruments; we know of over 1,000 Muslim scientists who worked between the 8th and 18th centuries."
2. King, David A, *World maps for finding the direction and distance to Mecca,* Brill, 1999, 1.2 Folk astronomy, Page 2
3. After the 16th century, we enter into the modern era when chronometers and modern time keeping methods became available, allowing for the adoption of a universal system of latitude and longitude.
4. Dallal, Ahmad, *Islam, Science, and the Challenge of History*, Tseng Information Systems, Inc, 2010 Page 2

In my paper *Early Islamic Qiblas,* I attempted to demonstrate that the early mosques in Islam were not misaligned because of poor tools or inadequate techniques, but rather because they were facing different qibla directions. For the first century of Islam all qiblas pointed to Petra in Jordan. This was not a mistake as we will see later, but as the archeology clearly demonstrates, Petra was, the first original holy city of Islam. According to traditional Islamic history, in the year 61 AH (October 10, 680) Abdulla Ibn Zubayr declared himself caliph in the Holy City, which the later chroniclers of Islam call Mecca, but after this we will called Petra, as all of the Qiblas pointed there. Ibn Zubayr's actions started the second Islamic Civil War. Hajjaj ibn Yusuf was sent with an army to retake Petra. In the process, Petra was destroyed, and as I explain in the book "*Qur'anic Geography*" the Black Rock was whisked away into the Arabian desert, eventually finding its place in the location we call Mecca today. This location became the second Qibla.

Later, in 702 when al-Hajjaj founded the city of *Wasit*, situated midway between Basra and Kufa, he decided to build a new mosque in his honor. But it seems he faced a problem. He refused to pray to the old city of Petra which he helped destroy, and he refused to pray to the new qibla in Mecca.[5] In his protest, he chose to point his new mosque in Wasit to a point directly between Petra and Mecca. This became the third qibla. And for the next 68 years seven large new mosques in Iraq and Syria adopted the same practice. In much the same way, the Muslims of North Africa and Spain also refused to point their qiblas at Mecca and chose rather to point their qiblas south, most of them parallel to a line drawn between Mecca and Petra, and this became the fourth qibla.

While there is little written evidence for all of this, outside of charting the physical qiblas of ancient mosques, and then interpreting Islamic history at the time of their construction, it does provide explanation of why the Qiblas pointed where they did, and we suddenly realize that the early were quite accurate.

Since Muslims writing in the second era, all the way up until modern historians did not recognize Petra or any of the other options as possible Qiblas, they assumed that Mecca was the only Qibla ever used, and thus assumed that the early Muslims were very inaccurate at measuring their Qiblas.

5 See page 43-44 in Early Islamic Qiblas (the first paper in this series)

But were they? Part one of my paper, *Early Islamic Qiblas*, demonstrated that many of the early qiblas were amazingly accurate, sometimes to less than one degree. Below are four tables each demonstrating the accuracy of the mosques that pointed to the four different qiblas.

Mosques Pointing to Petra

Year AH	Year CE	City	Country	Name	Original Qibla	Degree of Error	Rebuilt
6	627	Guangzhou	China	Grand Mosque	Petra	2.81°	never
8	629	Methala, Kerala	India	Cheraman Juma	Petra	.26°	unknown
15	637	Hama	Syria	Jāmi' Hama al'Kabīr	Petra	0.61°	never
80	699	Humeima	Jordan	Qaṣr Humeima	Petra	7.33°	never
82	701	Amman	Jordan	Umayyad Mosque	Petra	11.34°	never
86	705	Ṣan'ā	Yemen	Grand Mosque	Petra or Jer	0.36°	never
87	706	Khirbat al Minya	Israel	Khirbit al Minya	Petra	0.8°	never
89	708	Damghan	Iran	Masjid i Tarik Khana	Petra	5.59°	never
90	709	Jerusalem	Israel	Al Aqṣa Mosque	Petra	3.43°	never
95	714	Jericho	Israel	Khirbat al-Mafjar	Petra	0.59°	never
95	714	'Anjar	Lebanon	'Anjar Palace Mosque	Petra	3.61°	never
125	743	Amman Airport	Jordan	Mushatta Palace	Petra	3.99°	never
unknown	unknown	Bowhar	Oman	Sahī Ramdah Mosque	Petra	0.58°	never
unknown	unknown	Suma'il	Oman	Suma'il Omani Mosque	Petra	1.55°	never
unknown	unknown	Samarkand	Uzbekistan	Bibi Samarkand	Petra & Jer.	1.78°	never

Average accuracy is within 2.9 ° (1.99 if we remove the two worst examples)

Mosques Pointing Between Petra and Mecca

Year AH	Year CE	City	Country	Name	Original Qibla	Degree of Error	Rebuilt
87	706	Wāsiṭ	Iraq	Ḥajjāj Mosque	between	.29°	never
91	709	Damascus	Syria	al-Umawi al-Kabīr	between	1.75°	never
102	721	Boṣra	Syria	Mosque of Boṣra	between	0.35°	never
107	726	Hayr al Gharbi	Syria	Hayr al Gharbi	between	3.21°	never
110	728	Hayr al Sharqi	Syria	Qaṣr Hayr al Sharqi	between	2.8°	never
122	740	Baalbeck	Lebanon	Ba'albeck Mosque	between	0.67°	never
127	744	Ḥarrān	Iraq	Mosque and University	between	0.32°	never
155	772	Raqqa	Syria	Raqqa Mosque	between	0.86°	never

Average accuracy is within 0.98°

Mosques Pointing Parallel to a line drawn between Petra and Mecca

Year AH	Year CE	City	Country	Name	Original Qibla	Degree of Error	Rebuilt
115	732	Tunis	Tunisia	Jāmi' al-Zaytuna	parallel	0.99°	never
168	784	Córdoba	Spain	Córdoba Mosque	parallel	2.01°	never
221	836	Qayrawān	Tunisia	Jāmi' Uqba Ibn Nafi'	parallel	4.22°	never
236	850	Sūsa	Tunisia	Great Mosque of Sūsa	parallel	6.78°	never
252	866	Qayrawān	Tunisia	Al-abwan al-thalathah	parallel	3.54°	never

Average accuracy is within 3.5 °

Mosques Pointing to Mecca

Year AH	Year CE	City	Country	Name	Original Qibla	Degree of Error	Rebuilt
109	727	Banbhore	Pakistan	Banbhore Mosque	Mecca	2.44°	never
112	730	Amman Citadel	Jordan	Umayyad Palace	Mecca	1.36°	never
146	764	Kūfa	Iraq	Qaṣr Ukhaydir	Mecca	3.9°	
232	847	Sāmarra	Iraq	Mosque of Sāmarra	Mecca	1.13°	
245	859	Sāmarra	Iraq	Abu Dulaf Mosque	Mecca	4.6°	
263	876	Cairo	Egypt	Ibn Ṭūlūn Mosque	Mecca	9.27°	-
unknown	unknown	Asnaq	Iran	Friday Mosque	Mecca	4.15°	-
unknown	unknown	Fahraj	Iran	Masjid i Jāmi'	Mecca	10.84°	9th cent.
unknown	unknown	Ṣalālah	Oman	Al Balīd Mosque	Mecca	5.33°	10th cent.

Average accuracy is within 4.78 °

6-125 AH Average accuracy is within 2.9 °
87-155 AH Average accuracy is within 0.9°
115-252 AH Average accuracy is within 3.5 °
109-262 AH Average accuracy is within 4.8 °

This data seems to indicate that not only were the early Arabs very accurate in determining their qibla direction, there seems to be a breakdown in technique as the accuracy of later mosques lags behind those of earlier mosques.

This is exactly the opposite of what Muslim writers between the 9th and 17th centuries claimed. Obviously, as they did not have the tools (nor the desire) to visit mosques all over the world to determine their Qilba direction, they were unaware of the four different qiblas. therefore they concluded that the early methods were wildly inaccurate. And so until now, scholars of Islamic history have assumed the same thing. Not only is it difficult to accept that Petra was the object of the original qibla, we must also adjust our thinking to accept that the earliest Muslims had some method of setting their Qiblas with great accuracy.

So instead of King's proposed two categories (Poor early techniques followed by more accurate mathematical techniques) I would like to suggest a slightly different scenario. From my reading of Islamic writings I have come to the conclusion that the art of determining the qibla direction came out of early navigation, not mathematics. In the ancient past the Arabs sought for methods to help them guide their camel caravans across the trackless deserts of Arabia. They needed to know where cities lay over the horizon in order to guarantee that their caravans arrived at the correct city, and not one of an enemy.

Therefore we need to go back to the time of the caravans to understand how this "folk astronomy" as it has been called worked. The goals of folk astronomy were quite clear. The early Arabs were not interested in mapping the world using latitude and longitude. Rather, they needed to plot their way across the trackless desert,[6] using the stars as their guide, being able to adjust their course with each night's viewing of the stars. I believe that the Arabs developed unique ways of doing this, but they left little in the way of written record of how they did it. So it is impossible to simply point to a book that explains how it was done. We must accept that the early system was lost after the last person skilled in this "folk astronomy" passed away, probably sometime in the late 8th century, as caravan trade shifted from the deserts north into lands using modern Roman roads with Latin milestones.

From the 9th century until now researchers have turned to mathematicians to help solve this problem, rather than to navigators. In the process, many different mathematical solutions have been proposed. At the same time, religious teachers and scholars of Islam have tried to discover what the earlier "folk system" was. They did this, because the Qur'an praised the earlier system when it stated:

وَأَلْقَىٰ فِى ٱلْأَرْضِ رَوَٰسِىَ أَن تَمِيدَ بِكُمْ وَأَنْهَٰرًا وَسُبُلًا لَّعَلَّكُمْ تَهْتَدُونَ

وَعَلَٰمَٰتٍ ۚ وَبِٱلنَّجْمِ هُمْ يَهْتَدُونَ

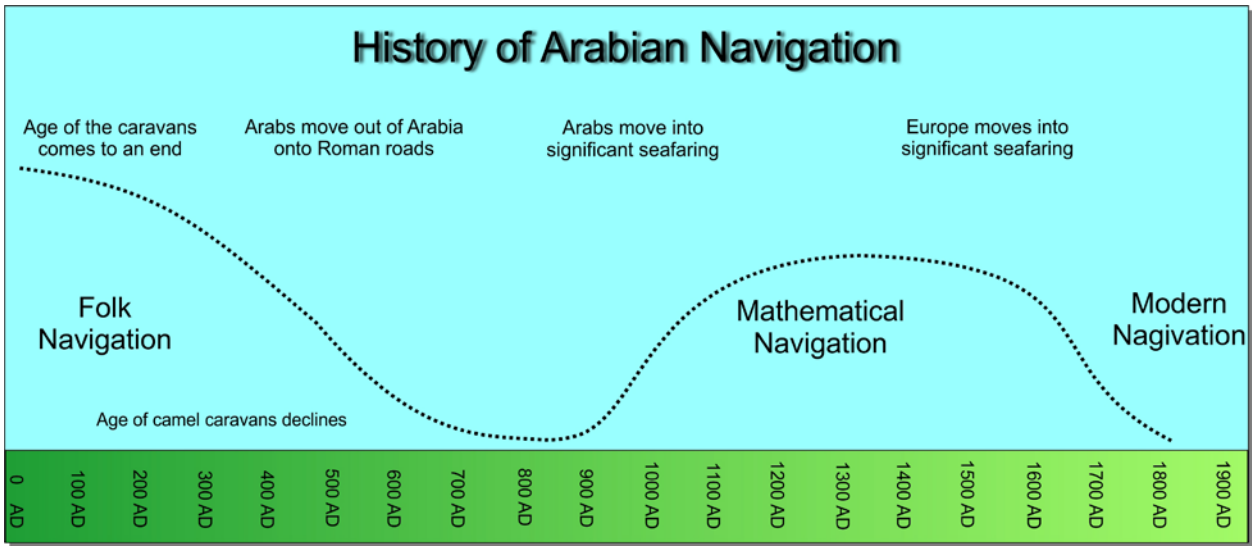
"And He (Allah) has cast into the earth firmly set mountains, lest it shift with you, and rivers and paths, that you may be guided, as well as ***landmarks. And by the stars men are also guided."***

Qur'an, 16:15&16

6. Qur'anic Geography, page 149 explains that Nabataean camel caravans often avoided regular trade routes as these were taxed by local tribes. They preferred to travel across the desert where others could not go, using hidden water cisterns.

From this verse we learn that Allah made river, paths and landmarks for mankind to find his way. And he gave them the stars to guide them. So from a religious viewpoint, it appears that the introduction of new mathematical formulae was a turning away from what God had provided. Therefore, from the 9th century onwards, religious teachers seem to feel that mankind was drifting away from real Islam towards man-made systems. The religious teachers wanted to explain how to find the Qibla using the stars, as this was what the Qur'an encouraged but by that time much had been forgotten. But that did not keep them from proposing all sorts of solutions.

Below is a rough diagram of what I am proposing how Qibla-finding-knowledge may have developed.



So while we can learn many things by reading the proposals made from the 9th century to the 16th century, we must look farther afield for the answers we are looking for. And we must look to early Arab navigation to provide us the clues.

However, before trying to discover just how the Qibla was set in early times, it would be helpful to examine a couple of the solution that religious leaders proposed between the 9th century and the 16th century, of how the early Muslims set the Qibla.

An example of one of these religious solutions is what is known as "sacred geography." Since Muslims around the world wanted to face the Qibla in Mecca, the Muslims of the 9-16 centuries recognized that there were different geographical regions stemming out from Mecca.

Therefore someone looking for the qibla in Turkey would have a different perspective from someone in India or in Africa.[7] Some 20 different schemes of sacred geography are known from some 30 different medieval sources.[8] The concept of Sacred Geography around the Qibla seems to stem from a Yemeni scholar named Ibn Suraaqa (fl. ca. 1000) who first proposed various schemes with 8, 11, and 12 sectors around the Ka'ba [9]

In short the Qibla direction was worked out for these various sectors. For example, if you had only four sections, people would pray either North, South, East or West. With 8 sections they would be more accurate. With 12 sections even more accurate as everyone would be within 30° degrees (360°/12 = 30°) Everyone in that section would know the general direction they should pray towards Mecca. While this might be useful to individuals in their homes or on journeys, it would not be helpful in setting an accurate qibla for a mosque.

Left: One of the oldest known schemes of Islamic Sacred geography, found in a late 15th century copy of the geographical treatise of the 10th century scholar al-Maqdisī but certainly not original to that work. The world is divided into eight sectors about eh Ka'ba but some of the geographical information is missing for various sectors. That which has been copied attests to the early date of the scheme: even the areas of various regions are given, a tradition found already in the writings of the 8th century scholar al-Farāzi (m5:27).[10]

7. King, *The Sacred Geogrpahy of Islam*, also EI[2] under the heading Mecca (As centre of the world), reprinted in King, studies, C_X.
8. King, David A, *World maps for finding the direction and distance to Mecca,* Brill, 1999, pg 51
9. On Ibn Suraaqa see King, Yemeni Astronomy, p. 21 and the article Makka, IV: As centrer of the world in WI2.
10. From MS Berlin SB Ahwardt 6034, fol. 24r, courtesy of the Deutsche Staatsbibliothek.

Many of the other early systems used observable phenomena such as celestial sightings. This was well known to them, as is attested by Ibn ‘Abbas and al-Hasan al-Basrl[11] who implied that the major axis of the rectangular base of the Ka’ba pointed towards the rising of Canopus, the brightest star in the southern celestial hemisphere, and that the minor axis points towards summer sunrise in one direction and winter sunset in the other.

Some medieval Islamic writers mention that the earlier system involved meteorological phenomena such as the winds, and phenomena in the sky.[12] they also note that folk astronomy from pre-Islamic times was practiced by religious teachers at the same time that mathematical astronomy was developed.

There were five applications of traditional astronomical folklore: (1) navigation, (2) the regulation of the lunar calendar; (3) the determination of the times of the five daily Muslim prayers, which are astronomically defined; (4) finding the Muslim Q*ibla* and (5) the organization of agricultural activities in the solar calendar.[13] In the next paper I will concentrate solely on how they determined the Qibla direction.

Historical evidence of clashes between the two traditions is rare. Al-Blruni made some disparaging remarks about those who sought to find the Q*ibla* by means of the winds and the lunar mansions: "When [some people] were asked to determine the direction of the Q*ibla,* they became perplexed because the solution of the problem was beyond their scientific powers. You see that they have been discussing completely irrelevant phenomena such as the directions from which the winds blow and the risings of the lunar mansions".[14]

But, as we will show in the following paper, the rising and setting of lunar mansions, as well as the rising and setting of certain stars were an integral part of the early system of navigation. But it will be only through gathering scraps of information from various sources that we will be able to piece together how the earlier system worked.

11 Heinen, *Islamic cosmology,* 157-8, King page 7.

12 EI2, King, Makka, iv, As centre of the world”

13 see King, *Ethnoastronomy,* and Varisco, *Agricultural almanac).*

14 *(Kitdb Tahdid nihaydt al-amdkin,* tr. J. Ali as *The determination of the coordinates of cities,* Beirut 1967, 12 (slightly modified from EI, Qibla)