



5.0 Conclusions

The following conclusions can be drawn from the study;

- A specific depression of the Sun may not be absolutely related to the phenomena observed at Fajr and 'Ishā' time, however the need for a timetable for the masses requires at least a precautionary position which is calculated for the ease of practicality. This position was also validated by Imām Ibn 'Abidīn.
- Any fiqhī decisions must be based on the four schools of fiqh for the sake of accuracy, reliability and to meet the needs of the majority.
- Imām Ibn 'Abidīn states that there is a 3° difference between the two Shafaq and the two Fajr.
- Ḥanafī position on 'Ishā' is al-Shafaq al-Abyaḍ and on Fajr it is the light spread on the eastern horizon.
- Shāfi'ī, Mālikī and Ḥanbalī position on 'Ishā' is al-Shafaq al-Aḥmar and on Fajr it is the light spread on the eastern horizon.
- The former Ḥanafī position on times when 'Ishā' is not present is not to pray it at all. The latter and current position is to pray it Qaḍā after Ṣubḥ Ṣādiq. However, the practice of the Ḥanafī scholars is actually on the Shāfi'ī position. This can be considered valid due to three reasons; firstly, ta'ammul on this position over the years has given it legal validity, secondly, to wait until Fajr would be difficult and thirdly, this will bring about unnecessary confusion among the masses. This is the position of some senior UK Ulamā. (5)
- The Shāfi'ī position in these circumstances, which the remaining two schools have adopted, is to calculate/estimate 'Ishā' and specify a fixed time for it, in which it should be performed; Shāfi'ī, with Mālikī following, base calculations on nearest countries that continue to have 'Ishā', Ḥanbalī look at the nearest days when they had 'Ishā'.
- Al-Fajr al-Kādhīb was found to be Zodiacal Light.
- Exploring alternative sabab for start time of a fast and its completion should only be investigated when there is insufficient time to eat. We can set 30 minutes as a value for that.
- Observational data from none peer-reviewed journals has not been included as it was considered controversial and impossible to determine an accurate view. Those of the 18° view considered the view of observing Fajr at 15° as erroneous as in their view it was too bright. On the otherhand those of the 15° view considered the view of observing Fajr at 18° as erroneous as in their view it was al-Fajr al-Kādhīb.
- 18° as a solar depression for 'Ishā' was agreed by those who were articulating from a sound understanding of the classical texts. (1)
- Al-Fajr al-Ṣādiq was contested; one view was of 18° and the other of 15°.
- It was understood from interrogating the classical texts of both fiqh and astronomy (3) and a large number of experiments carried out and reported in peer-reviewed journals, 15° was the correct position for al-Fajr al-Ṣādiq. (2)
- In exceptional circumstances 'Ishā' is to be prayed. Most are of the view as late as possible and 11:00pm has been decided upon. (6)
- In exceptional circumstances Fajr is to be prayed. Some are of the view it should be the last time in the city or country that Fajr occurred (Ayyam al-Aqrab) others are of the view it should be half of the night (Niṣf al-Layl). (7)
- Recent studies in Exmoor, UK, revealed that al-Fajr al-Ṣādiq took place at around 15°.
- Recent studies in Birmingham, UK, revealed that al-Fajr al-Ṣādiq took place at around 13.4°. However more interestingly, the solar depression based on the observations was found to vary due to seasons, which supports taking into consideration latitudinal and seasonal factors. Having said that, requests have been made to analyse these formulae at first principles and at the time of publish the author had not received those details. Also, as mentioned earlier these formulae are based on observational data which has come under criticism and has not been peer-reviewed and as a result cannot be verified. Finally, it is the view of the author, as supported by astronomers, that this is based on the atmosphere. (4)

(1) The author concludes that esha occurs at 18° and fajr at 15°. Indeed this is the crux of the entire paper. It is basic astronomy that the setting and rising of the sun is symmetrical around the meridian. If whiteness sets at 18° then whiteness rises at 18°. A difference of 3° between rise and set values is (for want of a better word) absurd. Twilight simply follows the sun. Since the sun's path is symmetrical around the meridian, the disappearance and appearance of twilight will be symmetrical. The lengths of magrib (hanafi) and fajr are always the same. The author is unable to resolve these requirements with the different results he presents for esha and fajr. To quote Allamah Zafar Ahmad Uthmani (from any number of academics): "The redness and whiteness that appear in the horizon after sunset both parallel the whiteness and redness that appear before sunrise, as both result from the illumination of the sun. Hence, the time between sunset and the disappearance of the white shafaq is exactly the same as the time between the appearance of the whiteness of dawn until sunrise, as the scholars of mathematics and astronomy have stated explicitly."

(2) The "large number of experiments carried out and reported in peer-reviewed journals" that the author says he used to make this conclusion are listed in Table 4 (page 38). Here the author lists what he says is a "summarisation of all published work of observing twilight using naked eye and photoelectric instruments." These consist of 15 papers, 14 of which are by the same team of researchers (Hassan, Hassnain, Issa, and Abdel-Hadi). However it turns out that this research team are using an exotic definition of fajr, different to that of the author. The researchers say that "the time of observation does not represent the effulgence of light". So they are not using the first discernible light of dawn as we would expect. Instead they are using "what we believe to be the faint white light thread that can be characterized by the normal eye." This is defined by them as a blue/yellow colour change at an altitude of 5° and azimuth of 10°. That is they were looking for a change 5° above the horizon and 10° off to one side. This is not the fajr of the author. It is the research team's own interpretation of a white thread. They say that "twilight occurred when the depression of the sun was between 18° and 20°", however they only considered it dawn when twilight met their definition of a blue/yellow colour change at an altitude of 5° and azimuth of 10°. This was much later at "between 14° and 16°". So the beginning of twilight occurred between 18° and 20°. This increased until it fulfilled the team's definition of a blue/yellow colour change at an altitude of 5° and azimuth of 10°, between 14° and 16°. Hence these results have been misunderstood and misapplied. The one remaining paper by Abid concluded 17° for fajr.

(3) The way this is written makes it seem as if the historical use of 15° fajr is on par with that of 18°. This is simply not the case. The author quotes Barjandi's Hashiya Chagmini which is in turn used by Kamili. This is an exception, not the norm. According to Professor David King, who has studied over 500 medieval manuscripts from as far back as the 2nd century hijri which detail observations, prayer times and timekeeping in the Islamic world from Andalus to Samarkand, no one in the entire Islamic world used an angle as low as 15° for fajr. Some of his publications are listed here: <http://www.davidaking.org/Publications.htm>. It was widely held that fajr begins when the sun is 18 degrees below the horizon, with slight variations (up to 20 degrees) which are still traditionally used in Muslim countries. Even according to Miftahi who is famous for proposing times even lower than 15°, there is historical consensus on this issue among "all [the] muwaqits (expert astronomers) of Syria, Maghreb, Egypt, [and] Turkey since 15th century." It is only in the 20th century, with very few exceptions, that we begin to see frequent reports of lower angles, because of an increase in artificial skyglow and scarcity of ulama studied in the science.

(4) Both these studies are listed by the author as "unpublished work." Hence it is very difficult to cite them with any credibility in an academic paper, especially in the conclusions. Nevertheless, it is very misleading to cite numbers from different studies verbatim without context (as shown above). A study performed in a large city, under a class 8+ Bortle sky will not give the same results as a study performed in a desert. Studies using different definitions of fajr and different methods will not give the same results. To use them together without any discussion of context is very crude astronomy and leads to absurd conclusions. Unfortunately artificial skyglow which has a huge influence on twilight angles has not been discussed in this paper at all.

(5) The shafi position is not simply to "calculate esha and specify a fixed time for it" however one wishes, but very specifically to use the time at the nearest place esha occurs. This is done, as shafi jurists explain, by setting the proportion of night between magrib and esha to the proportion of night between magrib and esha at the nearest place where esha occurs. This will place esha at approximately half night. This is clearly not the current practise in the UK. To say people in the UK are actually acting on the shafi position is a misrepresentation. The shafi position is not to lift the civil time wholesale in UCT (eg. 7.43pm) from the nearest place and use it verbatim, or to fix esha at an arbitrary 11pm. This is a travesty of jurisprudence. The shafi methodology ensures natural order in that esha begins for anyone at a higher latitude at a later or at the very least the same time as anyone at a lower latitude (with a longer night). Setting esha at 11pm goes completely against this logic and results in the situation where esha begins later for people at a lower latitude (where esha exists and nights are longer) than people at a higher latitude.

(6) The author says Esha at "11:00pm has been decided upon." Im not sure how this has found its way into the conclusions. Bringing esha back to 11pm has not been justified by anything that has come in the discussions of fiqh before it. All four schools are clear on when to offer esha during persistent twilight. Setting esha to 11pm is not one of them.

(7) There is no such opinion of setting fajr to "ayyam al-aqrab" when there is day and night in all the discussions of fiqh that have come before. So again I'm not sure how this has found its way into the conclusions. It is not from any of the research that has preceded it. Besides, in the UK even in the summer, a day and night lasts a day and night. There is sunrise everyday. Hence there is tulu of fajr every day, which as the author says occurs at "half the night [as] is agreed by the present day astronomers." If this is the time of tulu according to the author, then to conclude fajr at any other time is not correct.