

The Jewish and Christian Background of the Earliest Islamic Liturgical Calendar¹

The present study will be focused on the early Islamic liturgical calendar and, in particular, in its structural elements datable to the lifetime of Muḥammad (d. c. 632/635²) and especially the period preceding the radical change of the Islamic calendar from a lunisolar model to the purely lunar.³ Sporadic Christian influences in later times⁴ will be out of our scope.

Non-Liturgical Calendrical Background

We can leave unresolved the difficult problem of intercalating but we need to establish a rough correspondence between its twelve regular (non-intercalated) months and the months of the Julian calendar.

According to the Muslim traditions related to the life of Muḥammad (all of them being late, not earlier than the ninth century), the 1st of *Muḥarrām*, AH 10 (AD 631/632) was the 9th of April.⁵ Julius Wellhausen has shown (from the etymology of month names, usage in the pre-Islamic poetry etc.) that the original place of *Muḥarrām* was not the spring but the autumn.⁶ However, following the Muslim traditions, Wellhausen still accepted that, to the early seventh century, *Muḥarrām* and the seventh month *Raġab* (initially the counterpart of the Jewish Nisan⁷) replaced each other, in the way that the autumnal beginning of the year has been changed to the vernal.⁸

These later traditions were no longer considered as reliable by Christine Rink and Ralf Hansen, who reasonably presumed that the structure of the year remained unchanged since the sixth century to the 10 AH reform.⁹ Therefore, they proposed a reconstruction of the original lunisolar Muslim year with the first month, *Muḥarrām* roughly equated to October and the seventh, *Raġab*, to April of the Julian calendar. Evidently, Rink and Hansen were still taking in mind the traditional equation of *Muḥarrām* with April, or, more exactly, a tacit presumption that the first month with the vernal beginning of the year must have been April.¹⁰

Such a presumption would have been natural for the regions where the Antiochian tradition to begin the year in October was dominating. In this tradition, indeed, Nisan has been identified with April. This was the norm for the entire Syriac-speaking Christianity (and even the month names in Syriac follow the respective pattern) and for a great part of the Muslim world including such centres as Damascus and Baghdad. However, it was not a norm in the most of the Byzantine Empire, including Palestine. The identification of Nisan with March and the autumnal beginning of the year in September were there normative.

Rink and Hansen did not resolve nor even formulate the problem whether the first month of the year they were reconstructing was (roughly) October or September.¹¹ Nevertheless, the highly important witness by Nonnosos (early 530s¹²) makes us to opt decisively for the September and not October year.

Namely, Nonnosos's witness puts the pair of the successive holy months, which are obviously *Dū l-Qa'dah* and *Dū l-Ḥiġġah*, near the summer solstice: 'Ἡ δὲ ἑτέρα πανήγυρις δυοὶ μηνὶ παρατείνεται· μετὰ θερινὰς τροπὰς ἄγουσι ταύτην 'And another¹³ festivity lasts two months; it is held after the summer solstice'.¹⁴

This witness belongs not to an Arab but to an educated Byzantine man, whose astronomical erudition must have been based on the second-century *Almagest* by Ptolemy. According to the theory of Ptolemy, the summer solstice in the 530s was falling near the 21st of September.¹⁵

The first of the two sacred months, according to Nonnosos, was starting near the summer solstice, that is, in the last days of June. This means that it was roughly corresponding to July, and the next month *Dū l-Ḥiġġah* was roughly corresponding to August. This means, in turn, that the first month of the year, *Muḥarrām* was corresponding to September and not to October.

Now we are able to modify the table of correspondence between the lunisolar Islamic (and pre-Islamic) calendar with the Julian proposed by Rink and Hansen¹⁶ (Table 1).

Table 1.

Pre-Islamic/early Islamic	Julian (tradition)	Julian (reconstruction)
<i>Muḥarrām</i>	April	September
<i>Šafar</i>	May	October
<i>Rabīʿ I</i>	June	November
<i>Rabīʿ II</i>	July	December
<i>Ġumādā I</i>	August	January
<i>Ġumādā II</i>	September	February
<i>Raġab</i>	October	March
<i>Šaʿbān</i>	November	April
<i>Ramaḍān</i>	December	May
<i>Šawwāl</i>	January	June
<i>Dū l-Qaʿdah</i>	February	July
<i>Dū l-Ḥiġġah</i>	March	August

The data of Table 1 are corroborated with another testimony of Nonnosos dealing with the first great festivity of the Arabs whose duration was one month that was σχεδόν που τοῦ ἔαρος κατὰ τὸ μέσον τελουμένην, ὅτε τὸν ταῦρον ὁ ἥλιος ἐπιπορεύεται¹⁷ ‘accomplishing near to the middle of the spring, when the sun is beginning to traverse¹⁸ the (zodiacal sign of) Taurus’.

Nonnosos must have followed the Byzantine astronomical conventions. These conventions were implying, for the vernal equinox (then about March 21 or 22¹⁹), the ecliptic point 8° Aries.²⁰ This results into the approximate equation 1° Taurus ≈ April 12 or 13 and the interval from the 12th or 13th of March to the 12th or 13th of April for the *average* Julian dates of the month *Raġab*. Indeed, Nonnosos himself provided his dating as approximate.

The real astronomical dates of the lunar month *Raġab* would have been oscillating around these Julian values. It is clear, however, that *Raġab* encompassed the vernal equinox (that was falling within March), which must explain the most high level of sanctity of this month already in pre-Islamic times.²¹

10th of *Muḥarrām* (*Āšūrā*) as a commemoration of the Exodus

The link between the fast of the 10th of *Muḥarrām*, *Āšūrā*, and the Jewish fast on the 10th of Tishri, *Yom Kippur* (Day of Atonement), was so obvious even to the earlier scholars that Georges Vajda was authorised to state: ‘C’est un fait établi depuis longtemps que le jeûne du 10. Muḥarrām... n’est autre chose que le Yom-Kippour juif.’²² However, this sentence ceased to be a univocal indication of the relevant tradition.

There is a number of *ḥadīths* stating that this fast has been established by the Jews in the memory of the Passover. They describe the scene when Muḥammad arrived to Medina and saw there Jews fasting on the day of *Āšūrā*; they explained their custom as following: ‘This is a good day, the day

on which God/Allah rescued the sons of Israel from their enemy. So, Moses fasted this day' (هَذَا يَوْمٌ صَالِحٌ،)²³ Then, Muḥammad answered: 'I am more deserving [or have more right to] Moses than you' (فَأَنَا أَحَقُّ بِمُوسَى مِنْكُمْ) and established the fast on this day.²⁴

The autumnal fast of the 10th of Tishri was so improper time for the commemoration of the spring events of the Passover that the scholars believed that this answer ascribed to Jews was in fact a Muslim invention. Thus, Georges Vajda insisted that '[i]l s'agit donc d'une invention musulmane nettement tendancieuse, en tant qu'elle ôte à l'Â[shûrâ] son caractère proprement juif et permet ainsi aux Musulmans de l'annexer'; he was of the same opinion about the traditions relating this Muslim feast to the commemoration of Noah's exit from the ark.²⁵ However, Suliman Bashear concluded that, albeit the story about Muḥammad's encounter with the Jews in Medina is to be dated to the second century of Islam, '...one is also inclined to believe that the material connecting 'āshūrā with the Judeo-Christian ancient prophets is actually the older one'.²⁶ We can substantiate this claim further.

A tradition connecting *Yom Kippur* with the Exodus is attested to in a document preserved only in Slavonic but contemporaneous to the early Islam (and earlier than the eighth-century story about Muḥammad's conversation with Jews in Medina). This is the so-called Eleutherius recension of the *Narration of the Twelve Fridays*²⁷ (thereafter *Eleutherius*).

There, the commemoration of the salvation from the Pharaoh is allotted to the Friday before the Exaltation of the Holy Cross (September 14):

The tenth Friday is after the Exaltation of the True Cross, on which day Moses divided the sea with his wand so that it devoured their enemies.²⁸

Eleutherius was composed as a document of anti-Jewish polemics in the apocalyptic—according to the common opinion of the Christians and the Jews—times of the Muslim conquest of Byzantine and Iranian lands. It was originally written from a Syrian point of view and, most likely, in Syriac. Its *terminus ante quem* can be defined from the date it sets for the fall of the Muslim rule. This date, as all other such dates in similar documents, is of course false: such dates were true prophecies, indeed, but only in the sense of not being *vaticinia ex eventu*. *Eleutherius* witnesses a tradition similar to that of the *Apocalypse* of Pseudo-Methodius where the duration of the Muslim rule is estimated as 63 years; this results into either 63 AH (685 AD) or 76 AH (698 AD) as the *terminus ante quem* that must have been relatively remote from the time of composition.²⁹ Now I would propose an even earlier *terminus ante quem*.

One of the prophecies (in the form of commemoration) is the following:

The fifth Friday is before the summer solstice, on that day the descents of Hagar took over many countries, and they were driven out by King Karda.³⁰

The strange name of the king, Karda, has been changed into 'Alexander' in several manuscripts (thus in the line of the seventh-century traditions of Alexander *redivivus* as the last Roman Emperor), but the name Karda goes back to the archetype of the extant manuscripts and has all chances to be the original one. In fact, Karda is a form of the second part of the name Yezdigerd,³¹ and the prophecy could be about Yezdigerd III, the last Sassanian king (632–651), a Zoroastrian himself but supported against the Muslims by Christians. Therefore, the text could be dated to the period when the anti-Muslim struggle by Yezdigerd was still attracting some hopes—probably, in the 640s.

Eleutherius witnesses two facts simultaneously: that the tradition of commemorating the events of the Passover in September has been accepted by some Christians and that it was Jewish—at

least, considered to be Jewish by these Christians (because the doctrine of the twelve Fridays was, according to this document, a secret Jewish knowledge).

Eleutherius is earlier than the parallel *ḥadīṣ* claiming that the commemoration of the Exodus in September/*Muḥarrām* is a knowledge received from Jews, thus being a witness of the Judeo-Christian tradition available in the first Islamic century, whose existence has been supposed by Bashear.

10th of *Muḥarrām* (‘*Āšūrā*’): non-Rabbinic

The number 10 for the date of the fast is, from a liturgical point of view, a fundamental constant, much less changeable than the fast/feast’s meaning. In the ‘mainstream’ Christian reincarnations of *Yom Kippur* (such as the Exaltation of the True Cross on September 14 and the Decapitation of John the Baptist on August 29), there is no falling on the 10th day of some month. However, we have to deal with marginal Christian traditions, where the situation would have been different.

In the Jerusalem ‘mainstream’ calendar, there is, on the 10th of September, a commemoration whose connexion with *Yom Kippur* is out of doubts: this is the memory of martyr Baripsabas (Βαρῖψαβᾶς, but the Greek spelling is varying). He was the owner of the vessel containing the blood of Jesus. Because of this, he has been killed by robbers who thus tried—in vain, of course—to take this blood off.³²

The very name of Baripsabas is a later distortion of the Jewish name Bar Šubḥa’el that belonged to a divinised high priest in the Second Temple Jewish tradition preserved in a liturgical text of the Betä ʿĪsra’el³³ (Falasha, the so-called Ethiopian Jews) and reflected in some Christian documents from Jerusalem.

Without making the final choice between a marginal Jewish tradition and a no less marginal Christian one, we have to insist, however, that the ‘*Āšūrā*’ fast has not been borrowed in the rabbinic Judaism.

Rağab—*Ša’bān*—*Ramaḍān*: a liturgical cycle

Three months *Rağab*, *Ša’bān*, and *Ramaḍān* are, according to our reconstruction of the lunisolar calendar, the three spring months. The exceptional sanctity of *Rağab* follows from its position within the astronomical year encompassing the vernal equinox and, therefore, is not specific to any religion. However, the mutual connexion of the three spring months is something less usual. We see such connexion in the early Islamic traditions, according the famous saying ascribed to Muḥammad himself: ‘*Rağab* is the month of God, *Ša’bān* is my month, and *Ramaḍān* is the month of my *umma*/community’ (رجب شهر الله وشعبان شهري ورمضان شهر أمتي).³⁴ The very wording of this sentence, especially read against the calendrical background of the three spring months, would recall God’s miracles at the night of the Passover and the gathering of the people near Sinai.

The three spring months encompass a unique liturgical cycle in the Jewish and Christian traditions due to the festival ‘of the Weeks’ (Pentecost), which creates a 50-day (more or less, depending on the way of counting) liturgical cycle. As we have seen above, there was no such cycle in the lunisolar calendar of *Ġāhiliyyah*: the most holy month of *Rağab* and the two summer festive months were separated with the three-month gap.

The Muḥammad’s saying quoted above has been often contested by Muslim scholars, but it shows that, at least, in some Muslim traditions, *Rağab*, *Ša’bān*, and *Ramaḍān* were considered as a liturgical unity.

Rağab: isrā' (but not mi'rāğ) as the Passover

The month of *Rağab* is presently considered in most of Islamic traditions as that of both *isrā'* ('night journey') and *mi'rāğ* ('ladder' or, metaphorically, 'ascension (of Muḥammad)'), whereas previously different dates for *isrā'* and *mi'rāğ* were assigned, including those in *Ramaḍān*. It is clear now that the unity of both *isrā'* and *mi'rāğ* stories within a unique plot is a later development and *isrā'* was not a continuation of the *mi'rāğ* story (and, as I hope to demonstrate, nor *vice versa*).³⁵

Uri Rubin has recently shown that the destination of *isrā'*, *al-masğid al-aqṣā* 'the farthest sanctuary/temple/mosque' (Q 17:1), is indeed the earthly Jerusalem, not the heavenly sanctuary, but idealised after the pattern of the 'New Jerusalem' of Christianity.³⁶

This Christian background of the story is corroborated with the Ethiopian hagiography, especially with the *Life* of one of the so-called Nine Syrian Fathers, abba Afṣe. Afṣe, together with his companions, has had made yearly miraculous journeys to Jerusalem, assisted in them with an angelic being (Gabriel, Uriel or Michael). Similar stories are presented as well in the *Lives* of some other 'Syrian' Ethiopian Fathers.³⁷ The 'Syrian Fathers' are semi-legendary, and their *Lives* are preserved in late manuscripts (since the fourteenth century). Therefore, an Islamic influence could not be theoretically excluded. Nevertheless, there was hardly a need of borrowing in Islam the traditions based on the Christian custom of pilgrimage to Jerusalem. The balance of probabilities opts for a Christian provenance of the miraculous journeys.

Concerning the meaning of the night journey, the most important observations were made by Angelika Neuwirth. According to her, the whole *sūrah* 17 is a commentary to its first verse. The *sūrah* as a whole deals with Exodus topics, including the Decalogue (Q 17:22-39) and other revealed things, thus encompassing the events of Exodus from the plagues of Egypt to Sinai.³⁸ I would add that the very idea of a *night* journey is going back to the night of the Passover, which is the night journey par excellence.³⁹ In this way, the term *isrā'* is an equivalent of the Jewish term Passover.

These considerations substantiate a *Rağab* date for the commemoration of *isrā'*, providing that this month englobes the time of the Passover, the vernal equinox.

Ša'bān: the Second Passover?

The night of the eve of the 15th of *Ša'bān*, the so-called *laylat al-barā'ah* 'night of deliverance/liberation' is normally considered as an Islamic innovation. The modern scholars follow some (not all) Muslim authors, sharing, moreover, their view that the fast of *Ša'bān* is derived from the fast of *Ramaḍān*, and the *laylat al-barā'ah* is derived from the *Ramaḍān laylat al-qadr*.⁴⁰

After having established that the *Rağab* feast commemorating *isrā'* is the Islamic recension of the Passover, we can look at the problem from a different perspective. The vigil of the 15th of *Ša'bān* is quite fitting with the requirements for the Second Passover (Num. 9:9-13). The date in the middle of a lunar month is here exactly biblical.

This observation make us to take more seriously the claims of some other Muslim scholars who considered the veneration of *laylat al-barā'ah* as going back to *Isrā'īliyyāt* traditions,⁴¹ that is, to the Jewish and Christian background of Islam.

Ramaḍān: the Pentecost and mir'āğ

After having established that *Ramaḍān* was the month encompassing the Pentecost it was to be expected that the Qu'rān—the new New Testament of the Muslims—has been sent during this month, as it is, indeed, stated explicitly in Q 2:185. Other important commemorations in *Ramaḍān*

(except its fast that is later than 'Āšūrā' and, therefore, out of our scope) are also related to the Pentecost.⁴²

Heribert Busse has shown that the story of *mi'rāğ* follows the late Jewish apocalyptic literature.⁴³ Most of these apocalypses, however, have an exact calendrical setting. In all such cases, the heavenly journeys or other kinds of heavenly revelations either started or culminated at the Pentecost. Such are the cases of 2 *Enoch*, 3 *Baruch*, *Apocalypse of Abraham*, 4 *Ezra*, as well as 2 *Baruch*.⁴⁴ The most striking parallel—with the *Ladder of Jacob* (a Jewish text preserved in Slavonic only)—has been so far overlooked by the scholars.⁴⁵ The *Ladder of Jacob* does not contain explicit calendrical information, but the revelation received by Jacob is in the same vein as in other Second Temple Jewish apocalypses and Muḥammad's *mi'rāğ* ('ladder!') too.

Therefore, it is certainly that the story of *mi'rāğ* belongs to the Pentecost, whereas that of *isrā*' to the Passover. The two stories are mutually connected (on the level of liturgical calendar) but different.

***Ramaḍān: laylat al-qadr* and the (Second?) Coming of the Messiah**

One of the most important recent achievements in the studies of Islamic traditions became the discovering of a Christian background behind *laylat al-qadr*. Modern scholars defined it as Nativity traditions.⁴⁶ Christoph Luxenberg and, after him, Guillaume Dye interpreted *qadr* or *qadar* in the sense of horoscope: literally, 'destiny' (the equivalent terms in Syriac and Greek being *ḥelqā* and *ἐιμαρμένη*), also called in Greek *γένεσις* ('nativity', that is, the day thereof evaluated in the horoscope) and, in Syriac, *bēt yaldā* (the same meaning, literally 'house of nativity').⁴⁷ Therefore, *laylat al-qadr* is to be translated as 'night of destiny' in the sense of 'night of the "nativity"'. Referring to the 'star of Jacob' (Num. 24:13) and the Star of Bethlehem traditions, Dye argues that, in the case of *laylat al-qadr*, this astrological 'nativity' is the star pointing out the Nativity of Christ.

From my more detailed study of various kinds of Jewish messianic stars, especially those of the night and not of the morning or the evening,⁴⁸ I would conclude that the closest parallel to the star of *laylat al-qadr* would be the 'star of Jacob' (Num. 24:13) as interpreted in the recension A of the *Document of Damascus* (CD VII 18-20): 'And the star is the Interpreter of the Law (*Twrh*) who comes to Damascus, as it is written: *A star moves out of Jacob and a sceptre arises out of Israel* (Num. 24:13). The sceptre is the Prince of the whole Congregation...' Both roles of the Interpreter and the Prince were fitting with both Jesus and Muḥammad.

The *Document of Damascus*'s allusion to the nightly reading and interpreting of the Torah (through the association between the star and the Interpreter of the Law) had a Pentecostal calendrical setting and is to be read in a larger context of messianic expectations at the Pentecost.⁴⁹ Indeed, Q 97 does not mention any particular month, and its traditional *Ramaḍān* interpretation through Q 2:185 is not self-evident. However, the *Ramaḍān* setting of *laylat al-qadr* rapidly develops after Q 97 having been posed into the Judaeo-Christian context of Pentecostal traditions, especially those of nightly studies of Scriptures and Messiah's coming. The early Christian Nativity tradition of Jerusalem made Jesus born on the Pentecost.⁵⁰

One could propose, moreover, an alternative interpretation of *laylat al-qadr*, that of Messiah's second coming imagined in the line of Tertullian's description:

...it was at that time, when he [Jesus] had been received back into heaven [Ascension which was celebrated by the early Church at the Pentecost], that angels said to the apostles that he would so come in like manner as he had also gone up into heaven, namely, at Pentecost.⁵¹

A hypothesis that Muḥammad has been represented in Q 97 as Jesus in his second coming could be worth of further investigation.

The Pleiades of Destiny

If *laylat al-qadr* refers to some star or constellation, there must be other traces of a specific attitude toward this stellar object in qur'ānic and/or pre-qur'ānic traditions.

There are only two important stellar objects in Qur'ān, Sirius (mentioned explicitly in Q 53:47-52) and some unspecified 'star' (*naḡm*) in Q 53:1-4, which could be, however, a proper name for the Pleiades often called in Arabic (following the Mesopotamian tradition) 'star' *tout court*.⁵² Sirius with his heliacal rising (apparent 'first visibility') in July must be excluded if we are dealing with the third spring month. The Pleiades, on the contrary, are perfectly at place.⁵³

With the modern software, we can calculate the Julian dates of the heliacal rising of Alcyone (main star of the Pleiades) in Mecca, which was May 15 in the sixth century and May 16 in the seventh.⁵⁴ The coincidence with the ancient Jerusalem Nativity feast, May 15 (and various Marian feasts in various Christian calendars on the same date) is striking.

This calculation corroborates Luxenberg—Dye's hypothesis and permits to identify the 'star' of the Night of Destiny as either Pleiades or Alcyone alone.

Conclusion

The phenomena discussed above reveal their different origin and different dates of their Muslim adaptation, even though within the earliest period. Thus, 'Āshūrā' and *isrā'* are alternative commemorations of the Passover, whereas *mi'rāğ* and *leylat al-qadr* are alternative commemorations of the Pentecost. This diversity itself, however, makes us realise that the Judaeo-Christian influence on the emerging Islam had several sources representing different Jewish and Christian communities.

Abbreviation

PSLV — Noel Swerdlow and Rainer Lange, *Planetary, Stellar and Lunar Visibility* 3.1 (software available from the Alcyone Software at <http://www.alcyone.de>).

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² For this date, see Shoemaker, *The Death of a Prophet*, pp. 73-117.

³ Q 9:36 forbids explicitly a 'postponement' (*nasī'*) of the sacred months. Cf. especially Rink and Hansen, 'Der altarabische Kalender', and, among the earlier publications, Ginzel, *Handbuch*, pp. 243-247, and de Blois, 'Ta'rikh', pp. 260-261.

⁴ E.g., the *Mawlid* (Muḥammad's birthday) feast in the month *Rabi' al-Awwal* appeared in the 11th cent. (Kaptein, *Muḥammad's Birthday*, pp. 20-4), but the choice of the third month would have followed the Christian calendar of Antioch, where December, the month of Christ's Nativity, was the third month.

⁵ Cf. Wellhausen, *Reste*, p. 96; Ginzel, *Handbuch*, p. 248.

⁶ Wellhausen, *Reste*, pp. 94-101; cf. Ginzel, *Handbuch*, p. 239-240.

⁷ Cf. Wellhausen, *Reste*, p. 248.

⁸ Wellhausen, *Reste*, p. 101.

⁹ Oddly enough, Hideyuki Ioh still shares, in his otherwise interesting reconstruction, earlier scholars' opinion that the intercalated earliest Islamic calendar has had the beginning of the year (*Muḥarrām*) in the spring; cf. Ioh, 'The Calendar', pp. 475-9.

¹⁰ Rink and Hansen, 'Der altarabische Kalender', pp. 216-217; cf. pp. 211-212.

¹¹ Taking into account the Sabaeen calendar(s) would complicate the situation even more: according to Christian Robin, in the sixth century, the beginning of the year was there in February: Robin, 'Nouvelles observations'; cf. Robin, 'Die Kalender' and Robin, 'Les évolutions'. The calendars of Arabia were similar to each other, but not uniform with respect to the beginning of the year. Robin, however, uncritically follows the traditional equation of *Dū l-Ḥiġġah* with March for the Julian dates of the 'Last Pilgrimage': 'Les tables disponibles indiquent que la période des 8, 9 et 10 *dhū 'l-ḥijja* 10 h. correspondent aux 8, 9 et 10 mars 632' (Robin, 'Marib et Makka', p. 668), thus establishing a link between the date of this pilgrimage and the vernal equinox (according to my present reconstruction, it preceded the autumnal equinox).

¹² For the date of Nonnosos's embassy reported in his account, see Kavar, 'Byzantium and Kinda'.

¹³ For the first festivity, see shortly below.

¹⁴ The work of Nonnosos is preserved only in an abstract made in the ninth century by Patriarch Photius, *Bibliotheca*, codex 3; quoted at Photius, *Bibliothèque*, I (1959), p. 6.

¹⁵ The date of the summer solstice allegedly observed by Ptolemy in 140 AD was June 25 (which was by 35.4 hours later of the real astronomical date). Instead of observations *sensu stricto*, Ptolemy has produced some harmonisation with the dates of equinoxes and solstices established by Hipparchus three centuries earlier. We can calculate the Ptolemaic dates for the solstices and the equinoxes for any epoch knowing that, according to Ptolemy, the precession of equinoxes was about (and not less than) 1° (of ecliptic) = 1 day per century (the astronomically exact value is 1°24' per century = 1° per 72 years); cf. Neugebauer, *A History*, pp. 54-5, 275-6; Wilson, 'Rheticus', pp. 21-2. The real date of the summer solstice in the 530s must have been c. September 17. Evidently, the real astronomical dates are of no interest to us at all, because we need to understand our Byzantine witness against the background of the contemporaneous Byzantine education. The observed dates reported by Ptolemy, together with their errors in comparison with the presently available astronomical data, are presented by John Philips Britton (Britton, *Models*, p. 18).

¹⁶ Cf. Rink and Hansen, 'Der altarabische Kalendar', p. 212.

¹⁷ Photius, *Bibliothèque*, I (1959), p. 5-6.

¹⁸ The verb ἐπιπορεύομαι in astronomy means not 'travel' or 'go/run through' but 'reach' or (with Accusative, as in our case) 'begin to traverse' (a zodiacal sign): Liddell and Scott, *A Greek-English Lexicon*, p. 652.

¹⁹ The date March 22 is that of the *Almagest* by Ptolemy, allegedly observed by him in 140 AD (when the astronomically exact date of the equinox was by 20.4 hours earlier; Britton, *Models*, p. 18). The Ptolemaic date of the vernal equinox for the 530s is, therefore, March 18 (while the correct date would have been March 15 or 16).

²⁰ van der Waerden, 'History of the Zodiac', p. 228.

²¹ Meir Jacob Kister in his most comprehensive article on the traditions related to *Raġab* does recognise that it was a spring month (Kister, 'Rajab', p. 191 *et passim*) but does not discuss its connotations specific to the vernal equinox. However, such connotations are preserved in the pre-Islamic poetry: 'The visit to the Lady or pilgrimage of the *ḥimā* (*i'timār*) [*ḥimā* "abandoned encampment" "appears to be the place where the "binding" rites took place"] seems to be linked to the season, the spring equinox, *raġab*, for the first encounters (the ideal month of the *'umra* or the *i'timār*), after a visit had been made to the sanctuary of the Ka'aba' (Vadet, 'Kalb', p. 488).

²² Vajda, 'Jeûne', p. 373. For a review of the early scholarship of the fasts in *Muḥarrām* and *Ramaḍān*, see Wagtendonk, *Fasting*, pp. 41-6.

²³ The wording is somewhat variable according to the *ḥadīths*, e.g., هَذَا يَوْمٌ ظَهَرَ فِيهِ مُوسَى عَلَى فِرْعَوْنَ 'This is the day when Moses became victorious over Pharaoh'; Ṣaḥīḥ al-Buḥārī, *Book of Prophetic Commentary on the Qur'ān* (*Kitāb al-Tafsīr*), book 65, *ḥadīth* 4680; electronic edition at <https://sunnah.com/bukhari/65/>. On these variants, mentioning either 'sons of Israel' or 'Pharaoh', see Bashear, "'Āshūrā", p. 291.

²⁴ Quoted verbatim is Ṣaḥīḥ al-Buḥārī, *Book of Fasting* (*Kitāb al-Ṣawm*), book 30, *ḥadīth* 109; electronic edition at <https://sunnah.com/bukhari/30/109>. For a detailed review of the appropriate *ḥadīth* traditions, see Bashear, "'Āshūrā"; cf. Juynboll, *Encyclopedia*, p. 517.

²⁵ Vajda, 'Jeûne', p. 374; the same opinion in Goiten, 'Ramadan', p. 97. For the traditions related to Noah, see now Bashear, "'Āshūrā", pp. 286-8, 309 (fn. 133); he considered them to be later than those related to Moses. I do not know any exact parallel in the non-Muslim traditions; however, such a commemoration of Noah at Yom Kippur would have been natural in the context of identification of the Noah ark to the Ark of the Covenant. Such an identification is known, even in a liturgical context, in the 'mainstream' Jerusalem Christian tradition (cf. Lourié, 'John II of Jerusalem'). Therefore, it is not to exclude that even this Muslim tradition goes back to Christian or Jewish sources.

²⁶ Bashear, "'Āshūrā", p. 316.

²⁷ For a detailed study of this legend, see Lourié, 'Friday Veneration', pp. 146-77; for the complete English translation, see Ivanov, 'Anti-Jewish polemics', pp. 106-8.

²⁸ Ivanov, 'Anti-Jewish polemics', p. 107.

²⁹ Depending on whether the beginning of the Muslim rule is counted from the *hiġrah* or the Arab invasion in Palestine in 635. See, for the details, Lourié, 'Friday Veneration', pp. 150-5.

³⁰ Ivanov, 'Anti-Jewish polemics', p. 107 (slightly changed).

³¹ *Karda* would have been a part of the form **Yzdkrd*, attested to in Arabic (in a Muslim source) as از دکرد (cf. also Middle Persian and Armenian form *Yazkert*; Nöldeke, *Geschichte*, p. 72, fn. 3; cf. Justi, *Namenbuch*, pp. 148-9, s.v. Yazdkart).

³² For a detailed study of Baripsabas's dossier, see Lourié, 'John II of Jerusalem'.

³³ On this, see especially Lourié, 'A 364-Day Calendar', pp. 419-20.

³⁴ For this saying in Islamic traditions, see Kister, 'Rajab', and Kister, 'Sha'bān'.

³⁵ See especially van Ess, 'Le *Mī'rāġ*', pp. 46-8 (reprint, pp. 1794-6), *pace* Busse, 'Jerusalem in the Story', for whom the *isrā'* account was a later development within the *mī'rāġ* plot; cf. '...both journeys, *isrā'* and *mī'rādj*, were originally the same' (p. 38). Cf., on the history of the *mī'rāġ* accounts, Colby, *Narrating*; for an even later development, see Vuckovic, *Heavenly Journeys*. Angelika Neuwirth's understanding of the *mī'rāġ* accounts as 'mythologizing exegesis' in contrast with the *isrā'* accounts as 'plain' exegesis of the same qur'ānic verses (Neuwirth, 'From the Sacred Mosque', pp. 395-9) is the exactly opposite extremum to that of Busse and, as I will try to show, is not fitting with the fact that the two events have quite different liturgical meanings. Neuwirth's and Busse's studies are, however, most valuable for understanding the liturgical and calendrical background of *isrā'* and *mī'rāġ* respectively.

³⁶ Rubin, 'Muḥammad's Nighth Journey'. Cf. Busse, 'Jerusalem', with further bibliography.

³⁷ See Muraviev, '*Mī'rāġ*'.

³⁸ Neuwirth, 'From the Sacred Mosque', pp. 388-95.

³⁹ Cf. Le Déaut, *La Nuit pascale*.

⁴⁰ Cf. Wagtendonk, *Fasting*, pp. 100-5, especially 104: the fast '...arose out of the ascetic tendency of extending the fast of Ramaḍān'; Kister, 'Sha'bān', pp. 31-2 (while acknowledging an early first Islamic century date for the establishment of the

fast). For the understanding of *laylat al-barā'ah* as an innovation by Muslim scholars, see Fierro, 'The treatises', pp. 224-5, and Rispler-Chaim, 'The 20th Century Treatment'.

⁴¹ Kister, 'Sha'bān', p. 32.

⁴² Quite recently Serguei Frantsuzoff returned to the August Müller's (1885) hypothesis equating the original *Ramaḍān* with January (Французов, 'К уточнению ранних датировок', p. 207). According to Frantsouzoff, the date of the Battle of Badr (17th of *Ramaḍān*, 2 AH) would not have felt in March, because the caravan from Gaza (*sic!*) intercepted by the Muslims must have departed, at the latest, near the end of the Mediterranean navigation, that is, no later than in the autumn. However, in this case, even a January date is not suitable, because the navigation was terminated from the end of October to the beginning of April (Rougé, 'La navigation hivernale'); the interval between October and January is not as long as between October and March but still is too long. Our reconstruction equating *Ramaḍān* with May would fit perfectly with the navigation timeline; nevertheless, it is far from sure that the caravan in question departed from Gaza or any other market depending on Mediterranean navigation (for other possible locations, esp. Bostra and Adaba, cf. Crone, 'Meccan Trade', pp. 115-9).

⁴³ He took into account 1 *Enoch*, 2 *Enoch*, *Testament of Levi*, 3 *Baruch*, *Testament of Abraham*, *Apocalypse of Abraham*, and 4 *Ezra* (Busse, 'Jerusalem in the Story', p. 6).

⁴⁴ For the liturgical calendars implied in these books, see Lourié, '2 Baruch and 4 Ezra'; Lourié, '2 Enoch', with further bibliography.

⁴⁵ See, for bibliography and main theological contents, Orlov, *The Greatest Mirror*, pp. 93-107.

⁴⁶ The first intuition has been formulated by Christoph Luxenberg, 'Weihnachten', who studied *surah* 97 within his large-scale project of re-reading Qur'ān as a document heavily influenced by Christianity (cf. Luxenberg, *The Syro-Aramaic Reading*). He interpreted *sūrah* 97 as a para-liturgical Christian text dedicated to the Nativity feast. Luxenberg's paper has been severely criticised by Nikolai Sinai ('Weihnachten im Koran') who, nevertheless, confirmed the existence of a Christian background related to the Nativity; according to Sinai, the Christian traditions were reworked by Muslims who produced the *sūrah*. Finally, Guillaume Dye put forward an interpretation of *sūrah* 97 as going back to a Christian Nativity tradition, in order that '...la figure de Jésus est *implicitement* présente dans une sourate que l'on croyait, traditionnellement, consacrée à Muḥammad et au Coran'; the *sūrah*, according to Dye, could be a fragment of a Christian hymn written before Muḥammad and certainly depends directly on pre-Islamic Christian hymnography (Dye, 'La nuit du Destin', pp. 164 and 150). For our present study, it is irrelevant whether we are dealing with a reworking of a Christian *Vorlage* or a work of a Muslim who took Christian traditions in mind.

⁴⁷ See Dye, 'La nuit du Destin', pp. 140-1, for important additions to Luxenberg's observations.

⁴⁸ Lourié, 'Inscription', pp. 194-6.

⁴⁹ See, for a concise dossier, Lourié, "The 'Synoptic Apocalypse'", pp. 99-105.

⁵⁰ Ray, *August 15*; Ray, 'Christmas in May?'

⁵¹ *De Baptismo*, 19, 2; quoted by Lourié, "The 'Synoptic Apocalypse'", p. 101.

⁵² Kunitzsch, *Untersuchungen*, p. 84, Nr 186 (cf. p. 49, Nr 60). For Sumerian and Akkadian MUL.MUL (lit. 'star star') in the sense of 'Pleiades' or their brightest star Alcyone (η Tauri) alone, see Куртик, *Звездное небо*, 338-49. Cf. already Grimme, *Pfingstfest*, p. 65, for a Hebrew biblical intermediary between the Mesopotamian and Arabic naming the Pleiades as 'star'.

⁵³ Cf. Grimme, *Pfingstfest*, who, however, did not study the Islamic tradition in particular, nor use precise astronomical data.

⁵⁴ Using PSLV; cf. Robinson, 'Ardua et Astra'.