# *Of Calendars—and Kings—and Why the Winter is Boiling Hot*

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**Abstract**

*This article documents the evolution and survival of an institution that has persisted nearly two and a half millennia until the present day. This institution, the Mandæan calendar, has evolved since its origins in the early Hellenistic period, and has been faithfully maintained since 472 CE at the latest. Its essential structure, 12 equal months of 30 days extended with the addition of five days to maintain its correspondence with the passage of the seasons, has evidently not changed since its initial adoption. After introducing the basic elements of time-keeping among Mandæans today, the article addresses the system of days, months, years, eras, and ages employed in the Mandæan scriptures, and correlates them with the present Mandæan calendar as well as the Julian and Gregorian calendars.*

**Keywords:** Mandaeans; calendar; intercalation

## Mandæans

The Mandæan community, formerly of Iraq and Iran, is the custodian of several cultural institutions not shared by any other ethnic or religious community. The first of these is their system of beliefs and religious observances, which compose the heart of their faith.[1] The second of these is the Mandaic language, its vehicle, which is still spoken as a living language by a small number of Mandæans in Iran and in a global diaspora.[2] The third is

[1]The most ~~compendious~~ documentation of these beliefs and practices remains E. S. Drower, *The Mandæans of Iraq and Iran* (Oxford, 1937), which has yet to be surpassed.

[2]The standard grammar of their written language remains T. Nöldeke, *Mandäische Grammatik* (Halle, 1875). No dictionary of the written language existed until E. S. Drower and R. Macuch published *A Mandaic Dictionary* (Oxford, 1964), which remains the only such reference. The spoken language remained largely undocumented until Macuch published his *Handbook of Classical and Modern Mandaic* (Berlin, 1965). The same author produced two additional text collections, *Neumandäische Chrestomathie mit grammatischer Skizze, kommentierter Übersetzung und Glossar* (Wiesbaden, 1989) and (posthumously with the editorial intervention of G. Dankwarth) *Neumandäische Texte im Dialekt von Ahwaz* (Wiesbaden, 1993). The first and only full-length grammatical treatment of any dialect of the spoken language remains C. G. Häberl, *The Neo-Mandaic Dialect of Khorramshahr* (Wiesbaden, 2009). Most recently, H. Mutzafi has addressed the lexicon in his *Comparative Lexical Studies in Neo-Mandaic* (Leiden and Boston, 2014).

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the script in which it is written, and their sacred literature in which these observances and beliefs appear in a fixed form.[3] The fourth is their calendar, according to which these observances are structured within a chronological framework, and their perception of the continuity of their history is made manifest.

As elaborated in their sacred texts, the core of their faith is a doctrine known as *Naseruta* or 'Nazarenism', the adherents of which are most frequently called 'Nazorenes' (*nasorayi*).[4] Within this group of people, these texts occasionally distinguish between a clergy, *tarmiduta*, and a laity, *mandayuta*. The latter word, which comes from their word for knowledge (*manda*), furnishes us with a useful term for the entire complex of beliefs, culture, faith, and practices associated with this doctrine, namely 'Mandæism'. Thus its followers are often called Mandæans, although we could just as easily refer to them as 'Nazorenes' or even 'Gnostics', using the Greek word for knowledge (*gnosis*) in place of an Aramaic one. To their non-Mandæan neighbours in the region, they are most commonly known as *al-Sabi'una* or Sabians, employing a term lifted from the religious vocabulary of the Qur'an, but this last designation is conspicuous by its absence from their classical literature.

They do not recognise intermarriage or conversion, and consequently each of the four institutions associated with their faith serves as much to define their own separate identity as to distinguish them from these neighbours. While their religious practices, their language, and their literature have been the subject of sustained scholarly interest over the past few centuries, their calendar has received considerably less attention. This article will therefore serve as an initial offering to further research in this area, and establish how the present-day calendar relates to that referenced in the Mandæan scriptures by correlating certain astronomical events contained within them.

## Days

The Mandæan day begins not at sunrise (literary Mandaic[5] *perša* (*d-sepra*) 'break (of morning)' or *nehga* 'dawn') but rather at sunset (spoken Mandaic *bekwɔšɔ*; the LM form is

[3] All of the chief Mandæan scriptures, and quite a few of their other manuscripts, have been translated into one or more languages of scholarship, although only a few have benefited from critical editions. The principal translations are those of M. Lidzbarski, *Das Johannesbuch der Mandäer*, vols. 1 and 2 (Giessen, 1915 and 1922) and *Ginza: der Schatz oder das große Buch der Mandäer* (Göttingen, 1925). Lidzbarski also produced an edition and translation of an abbreviated portion of the liturgy in his *Mandäische Liturgien: mitgeteilt, übersetzt und erklärt* (Berlin, 1920), and E. S. Drower published an edition of a complete manuscript of the same with her translation as *The Canonical Prayerbook of the Mandæans: Translated with Notes* (Leiden, 1959).

[4] All examples from Mandaic and other languages have been transcribed phonemically. Transcriptions of the literary language do not indicate post-vocalic fricative allophones of the *b/g/d/k/p/t* stops. At an indeterminate point in its history, the sound system of Mandaic was restructured, resulting in the emergence of a new series of fricative phonemes. These new phonemes are indicated in transcriptions of the spoken language.

[5] Nöldeke (*Mandäische Grammatik*, pp. XIX–XXIV) divides the history of the written language into two phases, Old and Young Mandaic. In the 1960s, Macuch introduced an alternative periodisation, consisting of "Classical", "postclassical", and "Neo-Mandaic", implying the existence of a standardised register of the language, as elaborated in dictionaries and grammars along the lines of other classical languages, and measuring all manifestations of this language according to their adherence to this register. There is no evidence that Mandaic was ever elaborated in this manner. While Macuch's new periodisation still remains popular with scholars, in light of its deficiencies I have elected instead to distinguish between "literary" (LM) and "spoken" (SM) registers of the language. The boundary between these two registers is not firm; literary forms may appear in speech, and vernacular forms abound in the literature.

unattested)[6] and continues through the night and the day until the following sunset. It is therefore not equivalent to the civil day of Coordinated Universal Time (UTC). It comprises four distinct parts, which correspond to our night (LM *lilya*, SM *lilyɔ*), morning (LM *sepra*, SM *sobah*), midday (SM *qamietɔ*), and evening (LM *payna*, SM *pienɔ*). Noon and midnight are designated simply as *palga d-yawma* 'middle of the day' or *palga d-lilya* 'middle of the night' in the scriptures; a reflex of the latter survives as *falge-lilyɔ* in the spoken language, and *qamietɔ* 'midday' has assumed the former's role, with the neologisms *qamɔ qamietɔ* 'before midday' and *bɔtar qamietɔ* 'after midday' corresponding to the civil day's AM and PM. Each day is further divided into twenty-four seasonal hours (LM *šita,* SM *šɔyɔ*, back-formed from the LM pl. *šayi*), which vary according to the length of the day and the night, and are themselves subdivided into parts of twelve (LM *šuša* 'five minutes', evidently from Akkadian *šuššu* 'one sixth'), and sixty (LM *pegya*, SM *daqiqe* 'minute').[7] The literary Mandaic word for 'hour' has survived as the spoken Mandaic word for a 'moment' of time, *šitɔ*.[8]

## Weeks

Mandæans observe a five-day 'floating week' anchored to 'today' (LM *yawmay*, literally 'my day;' SM *ɔmɔ* or *ɔh yumɔ* 'this day'). 'Today' is always preceded by 'yesterday' (LM *etmal*, SM *etmɔl*) and 'the day before yesterday' (SM *lahmal*, the LM word is unattested). Similarly, it is always followed by 'tomorrow' (SM *peršɔ*, a reflex of the LM word for 'dawn'; the LM word for 'tomorrow' is unattested)[9] and 'the day after tomorrow' (SM *rəmahrɔ*, part of which, *mahrɔ*, is possibly a reflex of an earlier word for 'tomorrow').

In addition to the 'floating week', Mandæans also observe a fixed seven-day week that begins with on the day corresponding to our Sunday (LM *habšabba*, SM *hawšabbɔ*). It is followed in turn by Monday (LM *trayn habšabbɔ*, SM *trawšabbɔ*), Tuesday (LM *tələata habšabba*, SM *klɔtawšabbɔ*), Wednesday (LM *arbɔ habšabba*, SM *arawšabbɔ*), Thursday (LM *hamša habšabba*, SM *hamšawšabbɔ*),[10] Friday (LM *orobta*, SM *oroftɔ*), and Saturday (LM *šabta*, SM *šaftɔ*).

## Months

The months of the year are conventionally known by names ultimately derived from the Babylonian calendar, but over time they have also acquired two more sets of monikers

[6]Mutzafi (*Comparative Lexical Studies*, p. 194) proposes that it emerged from a compound of *be(t)-* 'place of' and LM **kəbaša* 'subduing'. Another possibility is an adverbial phrase, **be-kbaša* (*d-šameš*) 'at the subduction (of the sun)', along the same lines as the frequently attested *bə-nehga* 'at dawn', and subsequently lexicalised as a noun.

[7]Macuch, *Handbook*, p. 511 furnishes this word, but in his *Neumandäische Texte* he reports that his learned informant Salem Choheili consistently uses the word *šuši*. As this word employs the LM plural morpheme *-i* rather than any of the SM plural morphemes, it is evidently a classicism.

[8]While this word is evidently cognate with Syriac *ša'ta* and Arabic *sa'ah*, the expected form would be **šata*, not *šita*, as no regular Mandaic sound rule could produce the latter form. Instead, *šita* looks very much like a Babylonian reflex of the same word, from Proto-Semitic **sa't-* > **še't-* > **šit-*. It was therefore possibly borrowed from that source, together with *šuššu*, even if its etymon is unattested within the corpus of Akkadian.

[9]Macuch, *Handbook*, p. 241:1 and n. 230. Once again, the fact that the entire voluminous corpus of Mandaic literature lacks so basic a word as "tomorrow" proves the limits of the linguistic perspective offered by textual corpora.

[10]Thursday is also known as *yum Hibel Ziwɔ* "the day of (the saviour spirit) Splendid Hibel".

with 'Mesenæan' or zodiacal (e.g. *qam Dawla* 'for Aquarius') and seasonal (e.g. *Awwal Setwa* 'first of winter') associations:

| Name | Zodiac | Gloss | Season | Gloss |
|---|---|---|---|---|
| 1. *Šabat* | *Dawla* | Aquarius | *Awwal Setwa* | first of winter |
| 2. *Adar* | *Nuna* | Pisces | *Mes Setwa* | midst of winter |
| 3. *Nisan* | *Embəra* | Aries | *Axer Setwa* | last of winter |
| 4. *Ayar* | *Tawra* | Taurus | *Awwal Abhar* | first of spring |
| 5. *Siwan* | *Selmi* | Gemini | *Mes Abhar* | midst of spring |
| 6. *Tammuz* | *Sartana* | Cancer | *Axer Abhar* | last of spring |
| 7. *Ab* | *Arya* | Leo | *Awwal Gayta* | first of summer |
| 8. *Aylul* | *Šombolta* | Virgo | *Mes Gayta* | midst of summer |
| 9. *Tešrin* | *Qayna* | Libra | *Axer Gayta* | last of summer |
| 10. *Mašrəwan* | *Arqəwa* | Scorpio | *Awwal Payez* | first of autumn |
| 11. *Kanun* | *Hetya* | Sagittarius | *Mes Payez* | midst of autumn |
| 12. *Tabit* | *Gadya* | Capricorn | *Axer Payez* | last of autumn |

Each of these twelve months consists of 30 days. In addition to these 30-day months, there is also a period of five epagomenal days called *Par$^{w}$anaya*, during which Mandæans commemorate the souls of the departed.[11] The *w* of this name is written but omitted outside of learned pronunciations; among Iraqi Mandæans, these same epagomenal days are colloquially known either as (*ʿid*) *al-Bronaya* or as *Benjeh*, which seemingly derives from the Middle Persian *panjag* 'pentad'. They fall between the 8th month, *Aylul*, and the 9th month, *Tešrin*.

Taqizadeh observes that the Mandæan calendar corresponds exactly to the Sasanian civil calendar, and constitutes the "only true continuance of that once very widely used calendar".[12] Stern concurs: "This is identical with the late Sasanian, Persian Zoroastrian calendar […] and in direct continuity with it, as in fact their months are exactly coterminous".[13] Much like this calendar, and the Babylonian calendar from which it took the names of its months, the New Year (1 *Šabat* / *Dawla*, which is known as *Dehba Rabba* 'the great feast') must have been tied to the vernal equinox, at least notionally. Because the Mandæan year is presently shorter than the tropical year, its New Year falls earlier and earlier against the passage of the seasons with every year. For this reason, it last coincided with the vernal equinox during the years between 1004 and 1007 CE; it will coincide with the equinox again only in 2508 CE.

According to the astronomer Abu'l-Hasan Kušyar b. Labban al-Jılı (ca. 971–1029 CE), 'When the Persian dynasty came to an end, and the rule of the Arabs began, no one cared to continue observing the fixed rule, and the five (Gatha days) remained at the end of Aban-mah up until the year 375 of Yazdgird and the sun took up residence in Aries on the first day of Farwardın-mah and the five (days) were moved to the end of

[11]Drower, *Mandæans*, p. 204. I use the term 'epagomenal' here with its usual reference to days that do not belong to any month but are nonetheless annually added to the calendar, in order to distinguish them from other less frequent or regular forms of intercalation, such as leap days.

[12]S. H. Taqizadeh, 'An Ancient Persian Practice Preserved by a Non-Iranian People', *Bulletin of the School of Oriental Studies, University of London*, 9, no. 3 (1938), pp. 603–619.

[13]S. Stern, *Calendars in Antiquity: Empires, States, and Societies* (Oxford, 2012), p. 183.

Isfandarmuδ-mah', which is the twelfth month of the Zoroastrian calendar.[14] Kušyar is speaking not only as an astronomer but also as a witness to a contemporary event, which de Blois identifies with the *wihezag* 'intercalation' of the *mobaδ* Farroh-sroš referenced in a personal letter dated only two years after this reform.[15] Farwardın is the first month of the Sasanian calendar, corresponding to the Mandæan *Šabat / Dawla*, and the year 375 of Yazdgird corresponds to 1006 CE. In that year, as noted above, 1 *Šabat / Dawla* corresponded to Friday, 15 March, the vernal equinox, and the precise day on which the sun transits from Pisces to Aries, recommencing its cycle through the houses of the zodiac.[16] That is to say, both Mandæans and Zoroastrians observed their new year on the same date in 1006 CE, indicating that the two calendars were synchronized as recently as that date.

Additional proof of the essential identity of the Mandæan calendar with the Zoroastrian one comes in the form of the Sogdian, Chorasmian, and Armenian variants of this same calendar, according to which the five epagomenal days appear after the twelfth month, as in the Egyptian calendar, and the New Year (*Nawroz*) therefore falls on 6 Frawardın, or 6 *Šabat / Dawla* according to the Mandæan calendar. It is on this day that Mandæans celebrate *Nawruz Zuta* 'little *Nawroz*'.[17] This was also the Zoroastrian practice, prior to a reform that shifted the epagomenal days to the end of the eighth month (the Mandæan *Aylul / Šombolta*, and the Zoroastrian *Aban*), in order to make them coincide with the vernal equinox, which de Blois dates to the first decade of the sixth century,[18] and then once again after the reform described by Kušyar, which shifted them back to the end of the twelfth month (the Mandæan *Tabit / Gadya*, and the Zoroastrian *Isfandarmuδ*), although he notes that neither reform was universally adopted, at least not initially.[19]

Even though the first set of names transparently derives from the Babylonian calendar, the sequence of the Mesenæan months (which presumably coincided with the passage of the sun through the houses of the zodiac, from Aries to Pisces) is offset by two. The name of the first Babylonian month, *Nisan*, is applied to the third Mesenæan month, and so forth. In discussing the Sogdian calendar, which is identically offset, Stern explains this phenomenon "by assuming that the name *nisan* was adopted in a period when the Sogdian, i.e. Persian Zoroastrian, third month coincided with the Babylonian Nisan. This occurred in the late fourth—early third centuries BCE, i.e. around the end of the Achæmenid and beginning of the Hellenistic periods".[20] Thus the identification of the Mesenæan names with their Babylonian equivalents by way of their Zoroastrian equivalents must have occurred roughly 23

[14]F. de Blois, 'The Persian Calendar', *Journal of Persian Studies*, 34 (1996), pp. 39–54 [41]. The translation is his.

[15]F. de Blois, 'The reform of the Zoroastrian calendar in the year 375 of Yazdgird', in *Ataš-e dorun, the Fire Within: Jamshid Soroush Soroushian Memorial Volume* II, (ed.) C.G. Cereti and F. Vajifdar (Bloomington, IL, 2003), pp. 139–145.

[16]All dates prior to 15 October 1582 are provided according to the Julian calendar, unless otherwise noted. According to the Gregorian calendar, the vernal equinox and transit of the sun to Aries both occurred on 21 March 1006 CE.

[17]Drower, *Mandæans*, p. 87.

[18]K. Rudolph dates the reform to the reign of Yazdgird III in his 'Mandaeans III: Interaction with Iranian Religions', in *Encyclopædia Iranica* (online edition, 2008), url: http://www.iranicaonline.org/articles/mandaeans-iii (last accessed 8 August 2018). Panaino ('A "Neglected" Source', p. 97, fn. 2 and 103, fn. 50) objects to this hypothesis on the basis of the testimony of the Islamic-era sources and the Syriac Martyrium of Gregory, which de Blois ('Persian Calendar', p. 47), cites as both a witness to and a *terminus ad quem* for this reform.

[19]de Blois, 'The reform of the Zoroastrian calendar'.

[20]Stern, *Calendars in Antiquity*, p. 181.

centuries ago, give or take a few decades, although we need not conclude that other features of this calendar, such as the position of the new year, the epagomenal days and their position within the calendar, and even the lengths of each month, also date to this period.[21]

## Years

As noted above, due to the discrepancy between the solar or tropical year of 365 days, 5 hours, 48 minutes, and 45 seconds and the Mandæan year of precisely 365 days, the new year currently falls in the summer, on 18 July from 2016 to 2019 CE and 17 July from 2020 to 2023 CE. Because the Mandæan year is presently shorter than the tropical year, its New Year falls earlier and earlier against the passage of the seasons with every year. The Gregorian year and the Julian year it superseded are similarly oriented to the passage of the sun through the heavens and the seasons on Earth, and maintain their correspondence with the seasons by adding an additional day every leap year. The Mandæan calendar does not, and therefore slips against the Gregorian and Julian years (and similarly the passage of the seasons) precisely one day with every leap year.[22] Thus, synchronizing the two calendars is simply a matter of calculating the number of leap years between two dates, and adding or subtracting the resulting number of leap days as needed. A given Gregorian date and its Mandæan equivalent will therefore coincide for four years only once after every 1,504 Gregorian years or 1,505 Mandæan years.

Mandæan years are presently reckoned according to the day of the week on which the New Year occurs. For example, the year that began Wednesday, 18 July 2018 CE according to the Gregorian calendar is a 'Year of Wednesday', and the following year is a 'Year of Thursday', since it began on Thursday, 18 July 2019 CE. The manuscript colophons generally also include a Hijrı date, allowing the reader to triangulate the calendars to derive the corresponding Mandæan, Gregorian, and Islamic dates. Two examples suffice to illustrate this process:

- The earliest manuscript copy of the *Great Treasure* in any European collection is Paris MS Sabéen 1. Its copyist, Ram Baxtiyar, reports that he finished his copy on a Saturday, 14 [sic] *Par*$^{w}$*anaya*, in the 'Year of Sunday', which coincides with AH 968 (1560/61 CE).[23] *Par*$^{w}$*anaya* comprises only 5 days, so 14 must be a mistake for 4. This year was indeed a 'Year of Sunday', as it began on Sunday, 27 October 1560 CE, so according to the present reckoning 4 *Par*$^{w}$*anaya* fell 244 days later on Saturday, 28 June 1561 CE / 14 *Šawwal* AH 968.
- Similarly, the earliest manuscript copy of the *Book of John* is Paris MS Sabéen 10, which was completed by Zehrun bar Adam in al-Mına', Basra, on Thursday, 21 *Axer Payez* in the 'Year of Saturday', which he equates to AH 1026 (1617 CE). That year began on Saturday, 24 October 1615 CE; *Axer Payez* corresponds to *Tabiṯ* / *Gadya*, which means he was

[21] A. Panaino ('A "Neglected" Source for the History of the "Reformed" Zoroastrian Calendar', in *Non licet stare caelestibus: Studies on Astronomy and its History offered to Salvo De Meis*, (ed.) A. Panaino (Milano-Udine, 2014), pp. 97–112) cautions against drawing conclusions about the 'pre-history' of this calendar (p. 100), which I read to mean prior to the sixth century CE reform.

[22] In the Julian calendar, 'leap years' occur once every four years, without exception. In the Gregorian calendar, centuries are not leap years, save for divisible by 400; thus, the year 1900 CE was not a leap year, but 2000 CE was.

[23] J. H. Petermann (ed.), *Thesaurus sive Liber Magnus Vulgo 'Liber Adami' Appellatus Opus Mandaeorum Summi Ponderis. Tomus I: Pars 1 s. Dextra.* (Leipzig, 1867), p. 395, ln. 7.

writing exactly 355 days later, on Thursday, 13 October 1616 CE / 2 *Šawwal* AH 1025 (*pace* Zehrun bar Adam).[24]

The present calendar must therefore have been followed faithfully since our earliest manuscript colophons, and likely even earlier, though no colophons survive to attest to this fact. An exception may be made for the 'seasonal' months, which do not actually correspond to the seasons of the tropical year. The first month of the calendar coincides with *Awwal Setwa*, literally 'the first of winter', which presently falls less than a month after the summer solstice, during the dog days of summer; the last time that 1 *Awwal Setwa* coincided with the winter solstice was Sunday, 12 December 1415 CE, on which date or during the previous three solstices these names must have been adopted. The 'first of winter' will coincide once again with the winter solstice only on Monday, 21 December 2916 CE. Unlike the Babylonian and Mesenæan names, these seasonal month names do not appear outside of the colophons in the Mandæan scriptures, a further indication that they must have been adopted in medieval times.

One might reasonably ask when Mandæans adopted these other names, and whether the calendar of the scriptures is the same as their present calendar. The final tractate of the right-hand volume of the *Great Treasure* contains several more or less precise calendar references, including the following:

> When the world comes to 795 years [in Pisces], it is indicated: a demon (*diba*) comes out of the ground. He unleashes chaos (*awar*) among people, and king after king dies. In the year of this demon, Arabs (*arbayi*) become lords of the entire world, and fraud (*zipa*) cuts off righteousness (*torsa*). In the month of *Šabat—Dawla* of the Meseneans—on the fourth Sunday (*arba habšabba*), fraud cuts off the sun. […]
>
> When it is in 850 years in Pisces, there will be a great plague, and then after Persian kings (*malki parsayi*) there are Arab kings (*malki arbayi*) who last 71 years.[25]

Taqizadeh considers the solar event in the year 795 of Pisces (henceforth AP 795) to be an eclipse, and follows Lidzbarski in identifying the "Arab kings who last 71 years" with the early Islamic state.[26] This would situate all of these dates in the seventh century, even though the time frame and the anachronistic title are both problematic when applied to these rulers.[27] On this basis, he attempted to identify the eclipse with one of two, those of Wednesday, 14 July 622 CE (22 *Šabat / Dawla*) and Thursday, 21 June 624 CE (1 *Šabat / Dawla*) but the first was visible only from Antarctica and the area around Perth, Australia at 2:27 pm AWST (UTC +8), and the second, while theoretically visible from the Middle East, only

[24]I have reckoned all dates prior to October of 1582 according to the Julian calendar. Kristina Plazonic has developed a web browser-based application to correlate the colophon dates with the Gregorian calendar, which is available at https://goo.gl/uLhx32 (last accessed 29 August 2018).

[25]Lidzbarski, *Ginza*, pp. 412–414. Lidzbarski translates *arba habšabba* as 'Wednesday', which is a plausible reading but obviously imprecise for dating purposes (by comparison, the entry for AP 800 refers to 'the month of *Siwan—Selmi* of the Meseneans—on the first day of the month, in the second hour and a half hour'). I am preparing a translation of the entirety of this tractate for publication in the series *Translated Texts for Historians* (Liverpool).

[26]In this regard, Lidzbarski and Taqizadeh is followed by nearly all other scholars who have discussed this passage, e.g. D. D.Y. Shapira, 'On Kings and on the Last Days in Seventh Century Iraq: A Mandaean Text and Its Parallels', *ARAM Periodical* 6 (2010), pp. 133–170 [141], and K. van Bladel, *From Sasanian Mandaeans to Sabians of the Marshes* (Leiden and Boston, 2017).

[27]Taqizadeh, 'Ancient Persian Practice', p. 614.

began just as the sun began to dip below the horizon at 8:40 PM AST (UTC +3), and achieved maximum eclipse only at 9:31 PM AST—23 minutes *after* sunset.[28] Both eclipses occurred in *Šabat / Dawla* according to the present reckoning of the Mandæan calendar, but neither on the fourth Sunday, and in the final analysis neither is a plausible candidate.

In lieu of a plausible seventh-century date for this eclipse or any of the other associated events, I would like to propose here that the phrase "Arab kings who last 71 years" refers to the dynasty of al-Mundhir III, whom the famous Sasanian king Xusraw Anošag-ruwan (531–579 CE) restored to the throne of al-Hırah in 531 CE, and whose family reigned there until 602 CE, whereupon Lakhmid rule came to an end, for precisely 71 years.[29] Since the era of Pisces comprises one thousand years, as indicated below, we can infer that the reign of the 'Arab kings' must have commenced no earlier than AP 850 and no later than AP 929, which is to say as few as 55 years and as many as 134 years after the eclipse of AP 795. In other words, AP 795 could fall as early as 397 CE and as late as 476 CE, working backwards from 531 CE. Within this 79-year period, a single candidate emerges: the total eclipse of Sunday, 20 August 472 CE, which reached its maximum eclipse at 12:48 PM AST, when the sun was at its apex in the sky and clearly visible throughout Mesopotamia and western Iran.[30] That year began on Thursday, 27 July 472 CE, and therefore the date of the eclipse would be the fourth Sunday of the month, 25 *Šabat / Dawla* AP 795.

If these hypotheses are correct—that the Lakhmids are the "Arab kings who last 71 years", and that the solar event of the fourth Sunday, 25 *Šabat / Dawla* AP 795 can be identified with the total eclipse of Sunday, 20 August 472 CE—then the Mandæan calendar serves as a unique witness not only to the final years of the Sasanian empire, but also the regulation of time under that state. The position of the epagomena after the eighth month reflects the *status quo ante* 1006 CE / 375 of Yazdgird, and the fact that the Mandæan calendar was evidently synchronized with the Yazdgirdi one until 15 March 1006 CE speaks to the essential identity of the two. Had that calendar been realigned with the seasons at any time between the late 5th and early 7th centuries, either by inserting an additional intercalary month every 120 years, as the medieval sources relate, or by some other means, it would have been impossible to arrive at this date, indicating that de Blois's scepticism concerning this practice is justified by evidence of the calendars that succeeded it.[31]

[28]NASA technical publication, 'Five Millennium (-1999 to +3000) Canon of Solar Eclipses Database', URL: https://eclipse.gsfc.nasa.gov/SEpubs/5MCSE.html, last accessed 18/8/2018. Eclipse Predictions by Fred Espenak, NASA's GSFC.

[29]G. Rothstein, *Die Dynastie der Lahmiden in al-Hira. Ein Versuch zur arabisch-persischen Geschichte zur Zeit der Sasaniden* (Berlin, 1898), pp. 71–114

[30]NASA, 'Five Millennium (-1999 to +3000) Canon'. Within this time frame, there were 10 total, annual, or partial eclipses that were potentially visible from portions of Mesopotamia and western Iran. Of these, only two occurred during *Šabat / Dawla*, which ranged from late July to early September during this period: those of Saturday, 9 September 405 CE and Sunday, 20 August 472 CE. Only the latter fell on the fourth Sunday of that month.

[31]de Blois argues that "the notion that the kings of Persia were able to enforce a correction of the calendar regularly every 120 years is one that hardly seems reconcilable with the chequered political history of the country" (*ibid.*, p. 40), and Panaino similarly considers such an intercalation "highly improbable" ('A "Neglected" Source', p. 103), but nonetheless notes that the evidence suggests "a certain synchronization between the occurrence of the spring equinox and the beginning of the New Year was still working in the middle of the 6th century AD" (p. 102).

## Eras, Ages, and Epoch

As noted above, the *Great Treasure* reports its dates according to the 'Year of Pisces', of which AP 795 corresponds to 472/473 CE. AP 1 would therefore be equivalent to 323/322 BCE, roughly around the end of the Achæmenid and beginning of the Hellenistic periods, when Stern posits that the Babylonian months were identified with their Zoroastrian equivalents, resulting in the familiar order of the Sogdian and Mandæan calendars.[32] This is as good a date as any for the adoption of the prototypical Mandæan calendar, but according to the *Great Treasure*, these years of Pisces compose just a small subset of a much larger epoch, spanning fully 480,000 Mandæan years after the creation of Adam (AA), which are equivalent to 479,681 years and 112 days in the Gregorian calendar, or 479,671 years and 167 days in the Julian calendar.

This vast epoch is divided into seven equal ages (*dari*) of 68,571 years, 5 months, 4 days, 6½ hours, 4 twelfths (*šuši*), and 1½ sixtieths of an hour.[33] Each of these ages is governed by one of the seven visible planets, starting with the Sun, Venus, Mercury, the Moon, Saturn, Jupiter, and Mars.[34] These ages are used to measure the three global cataclysms of Mandæan legend: one by destruction and pestilence in AA 216,000, roughly 10,000 years into the age of the Moon; one by flame and fire in AA 372,000, roughly 29,000 years into the age of Jupiter; and then finally the flood of Noah, in 472,000, when only 8,000 years remained out of the age of Mars.[35]

Pisces and the other eleven signs of the zodiac occupy a completely different cycle of 78,000 years, comprising twelve unequal portions at the tail end of this cycle:

> The twelve signs of the zodiac coincide with the seven planets, and the seven planets coincide with the twelve signs of the zodiac. The twelve signs of the zodiac are taken from Jupiter, while 9,000 years remain in Jupiter. The twelve signs of the zodiac receive these from him, coinciding 9,000 years with Jupiter and 69,000 years with Mars. Out of these 78,000 years that the twelve signs of the zodiac occupy, they gave 12,000 years as a portion to Aries, 11,000 years to Taurus, 10,000 years to Gemini, 9,000 years to Cancer, 8,000 years to Leo, 7,000 years to Virgo, 6,000 years to Libra, 5,000 years to Scorpio, 4,000 years to Sagittarius, 3,000 years to Capricorn, 2,000 years to Aquarius, and 1,000 years to Pisces.[36]

Since the age of Mars concludes the epoch of 480,000 years from the creation of Adam, the 1,000 years of Pisces therefore correspond to the final millennium of both this age and the entire epoch.[37] According to the present reckoning, this millennium ran from 1 *Šabat* /

[32]Stern, *Calendars in Antiquity*, p. 181.

[33]Petermann, *Thesaurus sive Liber Magnus,* p. 379, lns. 3–6. This figure was evidently derived by dividing 480,000 into 7 equal parts, which would result in 68,571 years with a remainder of 154 days, 6 hours, 51 minutes, 25 seconds, and 714 milliseconds.

[34]*Ibid*., p. 27, lns. 15–21 and in the parallel on p. 50, ln. 24 to p. 51, ln. 6. This same order, offset by four, reproduces the so-called 'Chaldæan order', which establishes the governorship or 'faces' of the Decans and the 'planetary hours', each of which governs the day in which it falls first. The 'Chaldæan order' is determined by the speed with which the planets appear to move through the heavens, from the slowest (Saturn) to the fastest (the Moon); the motivation for the Mandæan offset is not immediately apparent.

[35]*Ibid*., p. 379, ln. 18 to p. 380, ln. 8.

[36]*Ibid*., p. 379, lns. 6–18. Note that the zodiacal eras follow the same order as the Mesenæan months, but without the offset, beginning with Aries rather than Aquarius.

[37]Similarly, this same period is described as 'the end of the age of Mars' in the *Book of John*, e.g. Lidzbarski, *Johannesbuch*, p. 50.

*Dawla* AP 1 to 30 *Tabit* / *Gadya* AP 1000, which is to say from Sunday, February 10, 322 BCE to Friday, 4 June 678 CE. As an exercise, we might also apply the same approach to arrive at the date of the creation of Adam, 1 *Šabat* / *Dawla* AA 1, and the present date according to the years of Adam. The former is equivalent to 19 December 478,995 BCE, or 15 February 479,004 BCE according to the Gregorian calendar, and the most recent new year, that of 18 July 2019 CE, corresponded to 1 *Šabat* / *Dawla* AA 481,343.

## Conclusions

Unlike secular calendars, "which mar the sweet simplicity of our lives by reminding us that each day that passes is the anniversary of some perfectly uninteresting event" in the words of Oscar Wilde,[38] the Mandæan calendar serves as the charter for the religious life of clergy and laity alike, marking the passage of their numerous feast and fast days, including those that are inauspicious or *embattal* for any enterprise, up to and including death. Though he cautions us that "it would be dangerous to make calendars the basis of Culture", perhaps even the famed Irish wit could be convinced to make an exception for the Mandæan calendar. Remarkably few communities have faithfully preserved their calendars for any span of time approaching its recorded history.

As Taqizadeh observes, only the Zoroastrian communities of Iran and India have continued to use the same calendar to the present day, albeit with some minor changes that are not universally observed even within these communities.[39] It is a historical irony that these two communities, the former a perennial subaltern and the latter an imperial hegemon now reduced to the subaltern status of their former subjects, are not only witnesses to this ancient institution, but also the only surviving communities that employ modern reflexes of it in their daily lives to structure the regular observances of their religions. Their calendars are a palpable reminder of the antiquity of these communities, and one of many visible institutions that attest to aspects of their shared history that would otherwise remain invisible and perhaps even irretrievable.[40]

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[38] O. Wilde, *Reviews* (London, 1908), p. 128.
[39] Taqizadeh, 'Ancient Persian Practice', p. 604.
[40] It is my honour to be given the opportunity to make this small contribution to a volume honouring one whose erudition and contributions to knowledge in this area are unparalleled. Earlier drafts of this article were reviewed by Yuhan Sohrab-Dinshaw Vevaina and Antonio Clemente Domenico Panaino, and were much improved by their helpful criticism and feedback. Any errors of omission, commission, deduction, induction, transliteration, transcription, and/or translation that remain are naturally my sole responsibility.