The Tanbīh al-anām ʿalā mā yaḥduthu fī ayyām al-ʿām *(Warning to humanity about what happens during the days of the year) by ʿAbduʾ l-Raḥmān al-Jādirī (777/1375–818/1416)*[1]

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Abstract: The article studies, translates, and edits a calendar entitled *Tanbīh al-anām ʿala mā yaḥduthu fī ayyām al-ʿām (Warning to humanity about what happens during the days of the year)*, written by al-Jādirī (777/1375-ca. 818/1416). The author is a well-known *muwaqqit* who worked in Fes. The book was written at the request of an unknown scholar who asked al-Jādirī to adapt to the latitude of Fes a calendar written by the mathematician and astronomer Ibn al-Bannāʾ (654/1256–721/1321) for the latitude of Marrakesh. Al-Jādirī calls this calendar *Taqyīd fī l-shuhūr al-ʿajamīya wa-mā yaḥduthu fī-hā*. Even though there is no known reference to this *Taqyīd* in the bibliography about Ibn al-Bannāʾ, al-Jādirī's *Tanbīh* most closely resembles his *Risāla fī l-anwāʾ*. This latter work was strongly influenced by the well-known *Kitāb al-anwāʾ* written by ʿArīb b. Saʿīd (d. 370/980–981). Al-Jādirī knew ʿArīb's work and probably employed it in order to complete the calendar written by Ibn al-Bannāʾ, to which he added materials borrowed from other sources. This represents thus a revival of the Andalusi tradition of calendars and treatises about Arabic folk astronomy in the early 9th/15th century.

Keywords: astronomy, calendars, *tanbīh*, *mīqāt*, Maghrib, al-Andalus.

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Resum: L'article estudia, tradueix i edita un calendari titulat *Tanbīh al-anām ʿala mā yahduthu fī ayyām al-ʿām (Advertència a la humanitat sobre el que passa durant els dies de l'any)*, escrit per al-Jādirī (777/1375-ca. 818/1416). L'autor és un cèlebre *muwaqqit* que treballava a Fes. El llibre va ser escrit a petició d'un autor desconegut, que demanà a al-Jādirī que adaptés per a la latitud de Fes un calendari escrit pel matemàtic i astrònom Ibn al-Bannāʾ per la latitud de Marraqueix. Al-Jādirī anomena aquest calendari *Taqyīd fī l-shuhūr al-ʿajamīya wa-mā yaḥduthu fī-hā*. Malgrat que no existeix cap menció d'aquest calendari a la bibliografia d'Ibn al-Bannāʾ, el *Tanbīh* d'al-Jādirī s'assembla molt a la seva *Risāla fī l-anwāʾ*. Aquesta darrera obra presenta una forta influència del cèlebre *Kitāb al-anwāʾ* d'ʿArīb b. Saʿīd (m. 370/980–981). Al-Jādirī coneixia l'obra d'ʿArīb i probablement l'emprà per completar el calendari d'Ibn al-Bannāʾ, al qual afegí materials procedents d'altres fonts. D'aquest manera, la tradició andalusina de calendaris i tractats d'astronomia popular àrab va reviure a principis del segle IX/XV.

Paraules clau: astronomia, calendaris, *Tanbīh*, *mīqāt*, Magrib, al-Andalus.

1. Introduction

Abū Zayd ʿAbd al-Raḥmān ibn Muḥammad al-Jādirī was born in Meknes in 777/1375 and died in Fes, probably in 818/1416. He was a *muwaqqit* of the al-Qarawīyīn mosque and wrote astronomical works, as well as treatises on religion and the Arabic language. Among his works, he is the author of a calendar entitled *Tanbīh al-anām ʿala mā yaḥduthu fī ayyām al-ʿām*, which could be translated as *Warning to humanity about what happens during the days of the year*. The work was written on 801/1399.[2] According to the author, the *Tanbīh* is an adaptation to

2. According to D. Lamrabet, *Introduction*, 204, there is only one manuscript of al-Jādirī's *Tanbīh*, no. D2023 of the Bibliothèque Nationale du Royaume du Maroc (BNRM). However, a partial copy of this calendar is preserved in Ms 80 of the Zāwiya Ḥamzawiyya, ff. 174–184; see Alkuwaifi and Rius, «Descripción del MS. 80», 455–456. This manuscript is incomplete since the part corresponding to the period between the end of February and mid-June (almost five months, which represents almost half of the calendar) is missing. Based on this manuscript, Amal Boujenna prepared a working edition of the calendar for her DEA («Diploma of Advanced Studies», Department of Arabic and Islamic Studies, University of Barcelona). Some of the data furnished by this edition were studied by J. Samsó, in «Lunar Mansions and Timekeeping». Even though we lack a full list of the extant manuscripts of the *Tanbīh*, there are at least two others: National Library of Tunis no. 3617 (available online at http://192.168.3.10:81/Manuscrits/Man.pdf/03617.pdf); al-Qāsimiyya University of Sharja, Islamic Manuscripts House, majmūʿ 374, Id 20190659. Our edition is based on MS D2023 (Morocco) and MS

the latitude of Fes of the calendar written by Ibn al-Bannā' for the latitude of Marrakesh. Therefore, it follows the usual pattern of Andalusi calendars: a brief introduction followed by the monthly calendar in which the author provides information on the characteristics of each month, as well as astronomical and meteorological data, agricultural and zoological information, medical data and dietary advice. As we will see, al-Jādirī is one link in a chain of treatises that goes back to 10th-century Cordoba. The *Tanbīh* provides helpful insights into the dissemination of scientific knowledge and the role that popular astronomy played in the societies of Western Islam, especially from the 13th century onwards.

2. The development of calendars in the Andalusi tradition

2.1 Calendars and kutub al-anwā' *in Arabic culture*[3]

After the rise of Islam, the Indian concept of the lunar zodiac was combined with native Arabic meteorological folklore on the so-called *anwā'* stars to compose a formal system of «lunar stations or mansions» (*manāzil al-qamar*). These stations constituted an extended zodiac along the ecliptic, defined in this case by the moon rather than the sun. From the medieval Islamic perspective, there were twenty-eight lunar stations distributed in the zodiacal constellations. Although each station was identified with specific stars, for convenience, each station represented 12° 51' of the arc, much like each zodiacal sign extended 30° along the ecliptic. The *anwā'* system is a kind of rudimentary solar calendar. The heliacal ascent of one of these stars, or asterisms, coincides with the acronychal setting of another. Between the coincidence of sunrise and sunset with one pair of asterisms and the next, there is a period of thirteen days, and, taking into account that there will be twenty-eight coincidences,

3617 (Tunis). Manuscript 3617 contains a colophon stating that, on the one hand, the copyist wrote the text on Thursday 1st Dhu l-Qaʿda 1137 (Thursday, 12th July 1725), and on the other, that the text was copied from a manuscript written by al-Jādirī on mid-Jumada II 801 (February 1399). MS 80 Zāwiya Ḥamzawiyya reproduces partially this colophon and seems to be a manuscript derived from MS 3617 (Tunis). MS D2023 lacks the colophon and differs somewhat from MS 3617 and MS 80. The text of the edition has been checked against MS 80 (hereinafter, MSZ). Unfortunately, we have been unable to consult the manuscript of al-Qāsimiyya University. However, the two manuscripts employed here provide enough basis for editing and studying the *Tanbīh*.

3. We summarize from D.M. Varisco, «The Origin of the Anwā'» and M. Forcada, Ibn ʿĀṣim, 19–33.

the solar year can be divided by twenty-seven periods of thirteen days, and one of fourteen, to reach the total amount of the 365 days of the solar year:

$$27 \cdot 13 + 14 = 365$$

The *anwā'* system generated a very rich literature of popular and oral tradition including sayings and proverbs in rhyming prose on the stars, the rains, the cycles of grazing, etc. The genre of *anwā'* books was created mainly by the great philologists from the 3rd/8th century onwards, who devoted themselves to collecting the lexicographical and literary materials associated with this astrometeorological tradition in monographic treatises, with the titles of *kutub al-anwā'* and *kutub al-azmina*. As well as these authors, there was a second generation who unified the two genres and produced general treatises. Two of these authors were Ibn Qutayba (213–828/276–889) and Abū Hanīfa al-Dīnawarī (d. 282/895–6), who wrote the two most important books on *anwā'* from a historical point of view. In the classical tradition of the Greco-Roman world, there is a long tradition of calendars and *parapegma* (calendars organised around the annual cycle of visibility of certain stars) which was known and adapted in the Arab world. This second type of *anwā'* books includes one by Sinān ibn Thābit (d. 331/943), who translated Ptolemy's work on *parapegma* entitled *Pháseis*. Within this group of works, there are almanacs that, besides the cycles of the stars, contain various materials of a meteorological, medical, agronomical and administrative nature. One example is the *Kitāb al-azmina* of Ibn Māsawayh (d. 243/857), particularly interested in health, which became Arabised by taking the *anwā'* system from the Arab tradition.

2.2 Kutub al-anwā' *and Andalusi calendars*[4]

ʿAbd al-Malik b. Habīb's (d.238/852)[5] «Treatise on the stars» (*Risāla fī l-nujūm*)[6] asserts that al-Andalus had known the Arabic astrometeorological tradition from

4. See on this topic M. Forcada, «Books of anwā'» and R. Puig, «Anwā' and mīqāt».

5. See on him M. Fierro, HATA, Corán, Id 7, Hadiz, Id 6, Fiqh, Id 27, Mística, Id 3, Historia, Id 7, Poesía, Id 26, Adab, Id 5, Medicina, Id 2, Astronomía, Id 3, Filosofía, Id 2, Otros, Id 6; see moreover D. Serrano Niza, «Ibn Ḥabīb».

6. P. Kunitzsch has edited, translated into English and studied this text; cf. P. Kunitzsch, «ʿAbd al-Malik b. Habib's Book on the Stars». On the book and its context, see also M.G. Balty-Guesdon,

earlier times, as well as its relationship with the classical tradition. This work describes the lawful use of astronomical material of popular origin and is opposed to astrology, which the author condemns. In this sense, there is some parallelism with al-Jādirī's calendar. ʿAbd al-Malik b. Habīb's work has little to do with the *kutub al-anwāʾ* and the almanacs produced in al-Andalus, the tradition of which begins in the middle of the 4th/10th century with the *Kitāb al-anwāʾ* written by ʿArīb b. Saʿīd (d. 370/980–981).

ʿArīb's treatise circulated widely and there are three main versions.[7] The most famous of these is a treatise that its editors entitled *Calendar of Cordoba*. It is attributed to ʿArīb b. Saʿīd in a Judeoarabic manuscript.[8] The *Calendar* is a reduced version of ʿArīb's treatise, to which, basically, a list of saints from Spain[9] has been added while elements of popular tradition and Arabic literature have been removed. In turn, a similar Arabic text has been the subject of two Latin translations: one, by an unknown translator, is entitled *Liber Regius*,[10] while the other is attributed to the well-known translator Gerard of Cremona.[11] According to Gerard's Latin translation, the book can be jointly attributed to ʿArīb b. Saʿīd and Rabīʿ b. Zayd. The version that seems closer to the original text appears in the manuscript no. 2049 of the Millī Malik Library in Tehran, which is attributed to a certain «Kātib al-Andalusī», who is most probably ʿArīb b. Saʿīd; this text is summarised in MS no. 2918 of the Baladiyya Library in Alexandria.[12] A third version is contained in MS 6699 of Hasaniyya library in Rabat.[13] It is an anonymous treatise entitled *Risāla fī awqāt al-sana*.

Around the same time, there are two sources of the same kind: the first is the *Kitāb al-anwāʾ* by Aḥmad b. Fāris, including astrological content that shows some influence from ʿArīb b. Saʿīd's *Kitāb al-anwāʾ*;[14] the second is the *Kitāb al-anwāʾ*

Médecins et hommes de science, 135–139 and M. Forcada, «Astronomy, Astrology», 48–57.

7. For a general approach to this work, see M. Forcada, «Calendar of Cordoba».

8. Edited, studied and translated into French by Ch. Pellat, *Le Calendrier de Cordoue* (on the basis of a previous edition by R. Dozy).

9. Most of them are from Cordoba.

10. Edited and studied by J. Martínez Gázquez and J. Samsó, «Una nueva traducción latina».

11. Edited by Ch. Pellat, *Le Calendrier de Cordoue*.

12. Both manuscripts have been edited, studied and translated into Spanish by A. Alkuwaifi, El *Kitāb al-anwāʾ del Kātib ʿArīb ibn Saʿīd*; see also M. Forcada, «*Kitāb al-anwāʾ* of ʿArīb b. Saʿīd».

13. Edited, studied and translated into Spanish by M.A. Navarro, *Risāla fī awqāt al-sana*.

14. Edited and studied by M. Forcada, «Astrology and Folk Astronomy».

wa-l-azmina by Ibn ʿĀsim al-Ghurbālī (d. 403/1013),[15] which is a book of *anwāʾ* in the Arabic tradition, based on the works of Ibn Qutayba and Abū Ḥanīfa al-Dīnawarī, to which certain materials appearing in ʿArīb b. Saʿīd's *Kitāb al-anwāʾ* are added. The work is a faithful reflection of the oriental *anwāʾ* books introduced into al-Andalus but also an indication of the importance assumed by the local tradition.

Two centuries later, the *al-Mustawʿib al-kāfī* of Ibn Khalaf al-Umawī al-Qurtubī (d. 602/1206)[16] was written, taking Ibn ʿĀsim's book as a basis, to which *mīqāt* material has been added. Moreover, he took from ʿArīb b. Saʿīd's treatise some astronomical data that Ibn ʿĀsim does not mention, such as the length of the day, the altitude of the sun, the date of the equinoxes and solstices, etc.

Finally, we find the *Risāla fī-l-anwāʾ* of Ibn al-Bannāʾ al-Marrākushī (654/1256–721/1321),[17] who, although born in Morocco, had Andalusi origins. His calendar is based, the author tells us, on the works of *anwāʾ* of ʿArīb b. Saʿīd, Ibn ʿĀsim and al-Umawī al-Qurtubī, in addition to an unspecified *Kitāb al-Filāha*, and the «Book of Plants» (*Kitāb al-Nabāt*) of Abū Ḥanīfa al-Dinawarī. Ibn al-Bannāʾ gives some astronomical data, taken from ʿArīb b. Saʿīd, such as sunrise and sunset hours, lunar mansions and *anwāʾ* duration. He also copies day and night duration values that are calculated for the latitude of Cordoba, approximately, and, therefore, not applicable to Marrakech. From Ibn ʿĀsim, he takes certain meteorological data and, finally, he borrows from Ibn ʿĀsim some passages from *The Nabataean Agriculture*. Moreover, he copied from al-Umawī al-Qurtubī the calculations of the shadows to determine the times of the prayer. Some decades later, the astronomer and *muwaqqit* al-Jādirī wrote his *Tanbīh al-anām* on the basis of Ibn al-Bannāʾ's works.

15. Edited by Nūrī Ḥammūdī al-Qaysī and Muḥammad Nāyif al-Dulaymī; study, partial edition and translation into Spanish by M. Forcada, *Ibn ʿĀṣim*. The book will be quoted from Forcada's edition.

16. Edited by Y. Samadī. On the author and his works, see Fierro, HATA, Corán, Id 915, Fiqh, Id 930, Mística, Id 476, Poesía, Id 1201, Adab, Id 502, Astronomía, Id 110, Otros, Id 542; on *al-Mustawʿib al-kāfī*, see R. Puig, «*Le Kitāb al-mustawʿib al-kāfī*».

17. Edited, translated into French and studied by H.P.J. Renaud, *Le calendrier d'Ibn al-Bannāʾ*; see also M. Forcada, «Les sources».

3. Al-Jādirī and the *Tanbīh al-anām ʿalā mā yaḥduthu fī ayyām al-ʿām*

3.1 The author

Abū Zayd ʿAbd al-Raḥmān Muḥammad b. Abī Ghālib al-Jādirī al-Muwaqqit was born in Meknes in 777/1375 and died in Fes, probably in 818/1416.[18] He was a *muwaqqit* of the *al-Qarawīyīn* Mosque. We know that he wrote other works of an astronomical nature, as well as treatises on religion and language, including:

- *Rawḍat al-azhār fi ʿilm al-layl wa-l-nahār*: a treatise on the measurement of time and *mīqāt* containing 26 chapters and 335 verses, compiled in 793/1391.[19]
- *Iqtiṭāf al-anwār min rawḍat al-azhār*, a commentary on the *Rawḍa*.
- *Mukhtaṣar al-iqtitāf*, a summary of the *Rawḍa*.
- *Sharḥ* (Commentary) from the *Urjūza* of Abū Miqraʾ, presumably a commentary of the famous *urjūza* on the calendar and the determination of time written by this important *muwaqqit* of his time.[20]
- *Kitāb al-Jadwal*, a treatise on the use of astronomical instruments containing 42 chapters.
- *al-Nāfiʿ fī aṣl ḥarf nāfiʿ*: a commentary on the Koran.
- *al-Mudhakkar wa-l-muʾannath*: a grammatical work.
- *Tanbīh al-anām ʿalā mā yaḥduthu fī ayyām al-ʿām*.

3.2 The Tanbīh al-anām

This study is based in the text of the treatise contained in two manuscripts: MS D2023 of the BNRM and MS 3617 of the BNT. In the following we give the codicological description of the two manuscripts.

18. Cf. M. Mannūnī, «*Maktabat*», 156; Lamrabet, *Introduction*, 203–204; H. Suter, *Die Mathematiker*, 172, no. 424.

19. Ed. R. Saidi, *Natāʾij al-afkār*.

20. It is known that Abū Miqraʾ was active in 730/1330.

3.2.1 Codicological description of MS D2023 of the BNRM

The copy of the treatise is found on pages 512 to 528 of the manuscript. The numbering is modern Western, in pencil, inscribed in the upper corner alternately on the right and left. There are catchwords, in the same hand as the text, in the left corner of the bottom margin of each verso leaf to indicate the word with which the next page begins. There are 22 lines per page. The writing is large and clear Maghribi style and it seems to be written by the same hand. The ink used is black except for some parts written in red ink: the titles of the months, the numbering in *abjad* (that is to say, in alphanumeric notation), two brief quotations from poems of Abū Nuwās in March (about spring) and in September and the word *faṣl* which serves to introduce a section at the end of each month. In addition, the place of the title of the book is indicated in blue ink on the left margin on the second page. After the *basmala*, we find the name of the author as Abū Zayd ʿAbd al-Raḥmān ibn Muḥammad al-Jādirī who is described as *shaykh* (master) and *faqīh* (expert in religious law):

Incipit (512):

الحمدُ لله مُدير الفلك الدوّار ومُولج الليل في النهار وصلّى الله على سيّدنا محمّد المختار وآله وأصحابه [...] الأخيار ما نجم في الأفق نجم غاب أو عار وأفصح الطير وأورقت الأشجار.[21]

(Al-ḥamdu li-Llāhi mudīru al-falaki al-dawwāri wa-mūliju al-layli fī l-nahāri wa-ṣallā Allahu ʿalā sayyidinā Muḥammadin al-mukhtāri wa-ālihi wa-aṣḥābihi (...) al-akhyāri mā najama fī l-ufuq najmun aw ghaba aw ʿāra wa-afṣaḥa al-ṭayru wa-awraqat al-ashjāru)

Glory be to God, he who moves the rotating sphere, he who brings night into day, God bless our lord Muḥammad, his chosen prophet, his family and his selected companions (...), as long as a star rises in the horizon and then disappears or wanders, the birds chirp and the trees put on leaves.

Title: تنبيه الأنام على ما يحدث في أيام العام
Tanbīhu al-anāmi ʿalā mā yaḥduthu fī ayyāmi al-ʿāmi.
Warning to humanity about what happens in the days of the year.

21. Word that may be read as المحثل or الممثل. Since the first alif bears a *waṣla* or a *madda*, it might be an abbreviation.

Explicit (528):

وهذا في آخر ما قصدنا ذكره وهو جهد المقلّ المجتهد ولا تجود يد إلّا بما تجد والحمد لله ربّ العالمين وصلّى الله على سيّدنا محمّد خاتم النبيين وإمام المرسلين انتهت.

(Wa-hādha fī ākhiri mā qaṣadnā dhikrahu wa-huwa juhdu al-muqilli al-mujtahidi wa-la tajudu yadun illa bi-mā tajidu wa-l-hamdu li-Llāhi rabbi al-ʿalamīna wa-ṣallā Allahu ʿalā sayyidinā Muḥammadin khātami al-nabiyyīn wa-imāmi al-mursalīna intahat).

This is the last thing we wanted to mention. It is the great effort of one who does not have much property, because a hand only gives what finds. Praised be God, lord of the worlds. God bless our lord Muḥammad, the last prophet and imam of the envoys. The end.

The content of the treatise is structured into a brief introduction and 12 chapters, which correspond to the 12 months of the Julian calendar, from January to December, adopting the non-Arabic terminology of the month as the title of the chapter. To represent the numbers, he uses the *abjad* system or the Hindu figures indiscriminately. Digits are always used to introduce the day of the month and, also, for the value of the *uss*. In contrast, he systematically uses the *abjad* system to give the degrees of the signs. However, he uses both at the same time to give the value of the day arc or the value of the altitude of the sun at noon, or the value in feet of this altitude, since he usually uses the *abjad* system for the integer part and Hindu numbers for the fractional value. The hour value appears sometimes in *abjad* and sometimes in numbers. We must also say that, as expected, the copyist usually uses the Maghribi variant of the *abjad* system in which, for example, to represent the value of 60, he uses the letter *ṣād* instead of the *sīn*. The text of the treatise presents five corrections in the margin, one in the month of March, another in May, another in June, another on August 15th, the last on September 27th. All of them are a misspelled word corrected in the margin except in one of the cases, when the copyist forgot a preposition that he adds in the margin.

3.2.2 Codicological description of Ms. 3617 of the BNT

The copy of the treatise is found in folios 1r to 8r of the manuscript. The numbering is in modern Western notation, written in pencil and inscribed in the centre at the top of the page. There are catchwords in the same hand as the text, in the left corner

of the bottom margin of each verso to indicate the word with which the next page begins. There are 25 lines per page. The writing is large and clear Maghribi style and it seems written by the same hand. The ink used is black except for some parts written in red ink: the *incipit* giving the name of the author, the word *sammaytuhu* («I called it») introducing the title of the treatise, the titles of the months, the numbers usually written in *abjad* for the numerical values given, almost all the conjunctions *wa* (and) introducing the items given for every day mentioned each month, and the word *faṣl* (section) which serves to introduce a section at the end of each month. There are three annotations in the margins from the same hand aiming at correcting some words in the text in fols. 4r, 4v and 6v. After the *basmala* we find the name of the author as Abū Zayd ʿAbd al-Raḥmān ibn Muḥammad al-Jādirī.

Incipit (1r):

الحمدُ لله مُدير الفلك الدوّار ومُولج الليل في النهار وصلّى الله على سيّدنا محمّد نبيه المختار وآله وأصحابه الأخيار ما نجم في الأفق نجم أو عار وأفصح الطير وأورقت الأشجار.

(Al-ḥamdu li-llāhi mudīru al-falaki al-dawwāri wa-mūliju al-layli fī l-nahāri wa-ṣallā Allahu ʿalā sayyidinā Muḥammadin nabīhi al-mukhtāri wa-ālihi wa-aṣḥābihi al-akhyāri mā najama fī l-ufuq najmun aw ʿāra wa-afṣaḥa al-ṭayru wa-awraqat al-ashjāru)

Glory be to God, he who moves the rotating sphere, he who brings night into day, God bless our lord Muḥammad, his chosen prophet, his family and his fine companions, as long as a star rises in the horizon or wanders, the birds chirp, and the trees put on leaves.

Title: تنبيه الأنام على ما يحدث في أيام العام
Tanbīh al-anām ʿalā mā yaḥduthu fī ayyām al-ʿām.
Warning to humanity about what happens in the days of the year.

Explicit (7v-8r):

وهذا آخر ما قصدنا ذكره وهو جهد العلل المجتهد ولا تجود يد إلّا بما تجد والحمد لله ربّ العالمين وصلّى الله على سيّدنا محمّد خاتم النبيين واله وسلم كثيرا.

(Wa-hadhā ākhiru mā qaṣadnā dhikrahu wa-huwa juhdu al-ʿilali al-mujtahidu wa-la tajūdu yadun illā bi-mā tajid wa-l-ḥamdu li-Llāhi rabbi al-ʿalāmīn wa-ṣalla Allāhu ʿalā sayyidinā Muḥammadin khātami al-nabiyyīn wa-ālihi wa-sallama kathīran)

And this is the last thing we intended to mention, which is the painstaking effort put forth [to find] the causes, and no hand is generous except with what it finds. Praise be to God, Lord of the worlds. May God bless our lord Muḥammad, the Seal of the Prophets, and his family and peace in abundance.

Colophon (by the copyist) (8r)

انتهى استخراج هذا المجموع المبارك أواسط جمادى الآخر سنة إحدى وثمانمائة على يد مؤلفه عبد الرحمان ابن محمد الجادري لطف الله تعالى به بمنّه وفضله. هكذا قال في النسخة التي نسخت منها وكان تمام هذه النسخة عشية يوم الخميس الأول من ذي القعدة عام ١١٣٧. عرّفنا الله خيره ووقانا شرّه أمين.

(Intahā istikhrāju hādha al-majmūʿi al-mubāraki awāsita jumādā al-ākhari sanata ihdā wa-thamānimiʾatin ʿalā yadi muʾallifihi ʿAbd al-Raḥmāni ibn Muḥammadin al-Jādirī laṭṭafa Allāhu taʿālā bihi bi-mannihi wa-faḍlihi. Hākadhā qāla fī l-nuskhati allātī nasakhtu minha wa-kāna tamāmu hādhihi al-nuskhati ʿashiyyata yawmi al-khamīsi al-awwali min dhī al-qaʿdati ʿāmi 1137. ʿArrafanā Allāhu khayrahu wa-waqānā sharrahu amīn)

The extraction of this blessed collection ended in the middle of Jumādā al-Ākhar in the year 801 by the hand of its author ʿAbd al-Raḥmān ibn Muḥammad al-Jādiri, may God Almighty bless him with his grace. This is what he said in the copy from which I copied, and this copy was complete on the evening of the first Thursday of Dhū-l-qaʿda in the year 1137. May God make us aware of his goodness and protect us from his evil. Amen.

3.2.3 General characteristics

The only information the author gives in the introduction is that one of his professors, whom he defines as a «jurist, learned and judicious», shared with him a brief treatise (*taqyīd*) attributed to Ibn al-Bannāʾ,[22] who is described as a Sunni imam. He also says that, in that treatise, the non-Arabic months are reported and, also, what happens in them with respect to the coming of the seasons, the increase and decrease in the length of the day and the meridian shadow measured in feet. He also tells us that Ibn al-Bannāʾ had composed it for the city of Marrakech but that his teacher

22. See below, §3.3.

asked him to adapt it to the latitude of Fes and that this is his reason for writing this treatise. The author does not specify the value of the latitude that he attributes to the city of Fes but it can be inferred from the data he offers, namely the information on the different months of the year and, especially, the value of the solar altitude at noon at the equinoxes (March 14th and September 15th). The value given is 56;20°. Therefore, we can apply the well-known formula that equals the value of the meridian altitude to the complementary of the latitude plus (or minus) the declination:

$$h_m = (90 - \phi) \pm \delta$$

Taking into account that, at the equinox, the declination is non-existent, we can deduce that the value ascribed by the author to the latitude of Fes will be the complement of this meridian altitude, that is to say 33;40°. The author also says that he added what suits the inhabitants of the countryside and the city: the entry of the Sun into the lunar mansions, but specifying their positions in the months and not according to their division by zodiacal signs. He refers to the fact that he has already mentioned this information in another of his books, although he does not specify which book it is. Then, he gives the title: *Tanbīh al-anām ʿalā mā yaḥduthu fī ayyām al-ʿām*: «Warning to humanity about what happens during the days of the year». In Arabic scientific literature, there is a genre of treatises characterised by brevity and conciseness, which includes the term *tanbīh* in the title as a common characteristic. It means literally «warning», but it could be translated as «notes» or «annotations». It presents similarities with other treaties that have in their titles the word *taqyīd* (summary, overview).[23]

The text of the months follows the same tripartite structure as the calendars of ʿArīb and Ibn al-Bannāʾ:

(1) Introduction about the general characteristics of the month. In the entry of the first day, the author gives more information of this kind.
(2) Information attributed to a specific day that forms the calendar as such.
(3) Information not attributed to a specific day.

The first part contains the following data:

23. Cf. M. Diaz Fajardo, «Ibn al-Raqqām's Notes».

- Name of the month according to non-Arabs and the number of days.
- Its zodiac sign and nature.
- The *uss* (root, exponent or *epact*).
- The lunar mansion with which the Arabic month begins.
- The longitude of the sun.
- The arc of the day.
- The duration of dusk and dawn.
- The altitude of the sun at noon measured in degrees and the equivalent shadow measured in feet.
- The value that must be added to the meridian shadow (at noon) each day to obtain the altitude of the sun at the time of the *ẓuhr* and *ʿaṣr* prayers.

The second part contains data on several topics[24] that occur in each month. The third part is a paragraph introduced by the word *faṣl* (section) in which the author offers materials not assigned to a specific day.[25] As in most sources of this kind, the author gives the names of the months with the Roman nomenclature attributed to the non-Arabs (*ʿajam*) of al-Andalus (the Christians),[26] and he also gives the Syriac and Coptic names.

3.3 Al-Jādirī's calendar in the Andalusi tradition of calendars and kutub al-anwā'

As we have seen above, al-Jādirī says in the introduction that he adapts a «*taqyīd*» attributed to Ibn al-Bannā', in which the latter «mentioned the non-Arabic months (*al-shuhūr al-ʿajamīya*) and what happens in them (*wa-mā yaḥduthu fī-hā*) respecting the entrance of the seasons, the waxing and waning of the day, and the feet [of a

24. Meteorology, agriculture, zoology, medicine, dietary advice, ephemerides, celebrations, religion.

25. In ʿArīb's calendar, this section is preceded by a sentence that, in most cases, reads as mā lam yunẓam *ʿalā al-jadwal wa-lam yunḍamm fī thiqāf al-ayyām*. Although the translation of thiqāf is dubious (cf. R. Dozy, *Supplément*, s.v.), the sentence may be translated as «what is not included in neither the table nor the entries of each day». Al-Jādirī gives instead of this sentence the term *faṣl* for designating this miscellaneous paragraph.

26. Most obviously, this is an echo of the time in which ʿArīb's *K. al-Anwāʾ*, when the Christians formed a substantial part of Andalusi population. During the Naṣrid dynasty, the Christians were a tiny minority.

gnomon's shadow] at noon».[27] It is doubtful that Ibn al-Bannā' ever wrote a treatise entitled *Taqyīd al-shuhūr al-ʿajamīya wa-mā yaḥduthu fī-hā*. The sentence seems to be more a description of contents than a title, or else a generic title that can be given to any calendar.[28] Even though a more thorough study of Ibn al-Bannā''s bibliography and the calendars of the Maghrib would possibly shed more light on the issue, it is indubitable that *Tanbīh* bears a strong resemblance to Ibn al-Bannā''s *Risāla fī l-anwā'*. Al-Jādirī's calendar may be conceptualised as another element of the Andalusi tradition that stems from ʿArīb's *K. al-Anwā'* and one of the last testimonies. Through the calendar of Ibn al-Bannā', the knowledge of nearly five centuries of existence is reflected and updated and, at the same time, made available to a new society. Although the author says that he is modifying a work by Ibn al-Bannā', what he actually does is write another calendar. Al-Jādirī keeps the general usual structure of many works of the Andalusi tradition, including *Risāla fī l-anwā'*, but changes most of the contents. Perhaps because al-Jādirī knows that most astronomical data of Ibn al-Bannā''s *Risāla* are borrowed from other sources, al-Jādirī gives his own data, which coincide with the place where the *Tanbīh* was conceived (Fes). Even though he reproduces most of the information of Ibn al-Bannā''s *Risāla*, he omits some of it and gives information from ʿArīb's *K. al-Anwā'* instead, which is explicitly mentioned in the entry of February 7th. The most salient materials borrowed from this source are the following: firstly, the *uss* of the month;[29] secondly, two poems by Abū Nuwās;[30] and, thirdly, several ephemerides of important figures of Islam.[31] This subject seems to interest al-Jādirī because he borrows from several historians and religious scholars additional information on personages of Islam that does not feature in

27. Lamrabet, *Introduction*, 168, no. 30, abridges these words and says that Ibn al-Bannā' possibly wrote a treatise entitled «*Taqyīd fī l-shuhūr al-ʿajamīya wa-mā yaḥduthu fī-hā*», which al-Jādirī mentioned in his *Tanbīh*.

28. There are anonymous works that bear a similar title. See, for instance, *Taqyīd fī l-shuhūr al-sana al-ʿajamīya*, in BNRM (A. al-Ṭāhirī, *Fihris Kutub al-Ṭibb*, 200), and *Taqyīd fī l-shuhūr al-ʿajamīya* in the Library of the Great Mosque of Meknes (A.S. al-Barrāq, *Fihris al-Makhṭūtāt*, 356).

29. See below § 4.1.2.

30. Entries of March 15th and final section of September.

31. Dates mentioned by ʿArīb but not by Ibn al-Bannā': February 7th, the Prophet was sent; March 26th, the table was sent down to Jesus; April 10th, Jesus spoke in the cradle; May 10th, Jesus returned to heaven; May 18th, John the Baptist was killed; May 25th, Muḥammad passed away; June 7th, killing of ʿUthmān ibn ʿAffān and the caliphate of ʿAlī; June 19th, caliphate of ʿUmar; August 11th, Abū Bakr passed away and ʿUmar became caliph; September 24th, John the Baptist was killed; November 5th, Muʿāwiya became caliph; November 8th, ʿUmar was killed.

either Arīb's *K. al-Anwā'* or Ibn al-Bannā''s *Risāla*.[32] Al-Jādirī suppresses all magical and divinatory materials that Ibn al-Bannā' includes in his calendar taken from ʿArīb b. Saʿīd's *Kitāb al-Anwā'*. As far as the religious context is concerned, it is worth noting that al-Jādirī's calendar is surprising because it introduces a significant change: although it is probably based on an *anwā'* work and uses the lunar mansions, it completely omits any reference to the *anwā'* and their astrometeorological implications. This is the same phenomenon observed in the «Treatise on the stars» (*Risāla fī-l-nujūm*) by ʿAbd al-Malik b. Ḥabīb, the oldest work of its kind written in al-Andalus, in which all the elements of the system, with the exception of the *anwā'*, are mentioned. The reason in both cases may be the same, the condemnation of the belief in *anwā'* as the cause of the rain that appears directly in the *Muwaṭṭa'*.[33] In the case of ʿAbd al-Malik ibn Ḥabīb, the socio-religious context of his time seems to have contributed to this elimination of *anwā'* in his treatise. Other features related to the religious background are the omission of the Jewish feasts mentioned by ʿArīb and Ibn al-Bannā' and the scorn that al-Jādirī's pours on Christians.[34] Although further research is needed, it seems that the social context was decisive for al-Jādirī, who turned his back on anything that could defy religious orthodoxy.

4. Contents of the treatise

Obviously, there are many points of contact between al-Jādirī's poem on the measurement of time on the *mīqāt*, the *Rawda* and the summary, the *Iqtiṭāf*, on the one hand and this calendar, the *Tanbīh*, on the other. The most obvious difference between them is that, in the poem (and in the summaries such as the *Iqtiṭāf*), the author describes how to calculate different parameters: longitude or declination of the sun, ascensions (right and oblique), the solar longitude and latitude, the altitude, the corresponding shadow, etc. In the calendar, though, the author offers these values for

32. March 15th: al-Jawharī al-Māzarī, Qādī ʿIyāḍ and al-Khwārizmī. April 20th: al-ʿAbd al-Wādī. December 25th: al-ʿAbd al-Wādī, al-Ṣanhājī, Abū al-Qāsim Khalaf Abū Bakr al-Ṭarābulusī, Ibn Hishām («the commentator of the *Hāshimiyya*»). On these authors, see the apparatus of the translation. Al-Ṣanhājī, Abū al-Qāsim Khalaf Abū Bakr al-Ṭarābulusī and Ibn Hishām have not been identified.

33. M. Forcada, «Astronomy, Astrology», 53; on the attitude of Mālikī scholars towards *anwā'* and astrology, see M. Forcada, «Ibn ʿAbd Rabbihi», 131–135 and 139–140, and «Ibn ʿAbd al-Barr».

34. On June 24th, al-Jādirī says «may God destroy them»; on September 1st, «may God confuse them!».

the latitude of Fes for different days throughout the months of the year right away, sparing the users from having to make these calculations.

The content of the calendar is composed of abundant and varied information on different aspects of daily life that we could classify under the following headings:

- Characteristics of the month.
- Astronomical and meteorological data.
- Muslim, Christian (and other) religious celebrations and ephemerides.
- Agricultural and zoological information.
- Medicine and dietary advice.

4.1 Presentation of the months

Each chapter begins with the name of the month according to non-Arab Andalusians, the equivalence in Syriac, the number of days it contains, the sign of the zodiac that corresponds to it, its nature[35] and its *epact* (*al-uss*: the base, the exponent). Then, he gives the lunar mansion with which the lunar month begins. Next, the longitude of the sun, the length of the day arc, the duration of twilight and dawn, the altitude of the sun at noon in degrees and the equivalence in shadows measured in feet, the value for the shadow at noon and for evening prayer. It also gives the Arabic version of the Coptic name of the month given in ʿArīb's calendar with a detailed explanation of its vocalisation. This information does not appear at the beginning, but at the date corresponding to the beginning of the Coptic month, which is the main difference from the previous sources.

4.1.1 Nature of the months

At the beginning of each month, and after having given its name in Syriac, the number of days and the sign of the zodiac, he describes the humour and the nature that characterises each month:

35. According to al-Jādirī, «nature» (*ṭabīʿa*) includes two different concepts mentioned by ʿArīb's *K. al-Anwāʾ*: one hand, the prevailing humour; on the other, the quality of being cold, hot, wet or dry.

January: cold and wet.
February and March: phlegm.
April: sanguine: hot and humid.
May: sanguine. He says that this month is a mixture of spring and summer: its nature is a balance between hot and dry.
June: blood.
July: bilious (yellow bile): hot and dry.
August and September: bilious (yellow bile).
October: black bile: cold and drought
November and December: black bile

4.1.2 The *uss* values

The *uss* is a numerical value assigned to each month. In the case of January, its value is one. Taking as a starting point the day of the week on which the month of January of the year in question begins, and counting from this day as much as the radical value attributed to the successive months, the day of the week with which each of the following months will begin can be determined. Al-Jādirī names these values with the word «*uss*», which can mean «exponent of a power». The list of these values is as follows:

Month	**Value**	**Difference**
January	1	+3
February	4	+3
March	4	–
April	7	+3
May	2	+2
June	5	+3
July	7	+2
August	3	+3
September	6	+3
October	8 (1 in MS Z)	+2
November	4	+3
December	6	+2

This equivalence is derived from the structure of the months of the solar calendar: when the month has 31 days, the difference is 3 since it is the difference between 31 and (7 x 4); when the months have 30 days, the difference will be 2; and for February, which has 28 days, the difference is 0. The ultimate source of these values is ʿArīb's *K. al-Anwā'*, who borrows from a mnemonic poem by the famous astronomer and astrologer al-Fazārī (fl. 2nd/8th century).[36] These values obviously coincide with those that appear in other Andalusi calendar and similar works such as the *Kitāb fī ʿilm al-awqāt bi-l-ḥisāb* by Ibn al-Bannā', in which we also find the value of 8 in the month of October.[37] As Samsó mentions, Latin versions of the *Calendar of Cordoba* call this value *epacta* or regula. ʿArīb calls it *āya*, a term which corresponds to the term *sennal* that appears in an Alfonsine treatise, the *Libro del astrolabio llano*, in which the same procedure is explained and the values given are those of the Latin version of the *Calendar of Cordoba*.

4.1.3 Equivalence of the calendar with the Coptic months

The first equivalence with the Coptic calendar is introduced on January 26th. Then, the author describes the characteristics of this calendar saying that all Coptic months have 30 days except for the last month that has 35, with the exception of leap years, when it has 36. After introducing the name of each of the months, he gives a detailed description of its vocalisation, probably because, since these names are non-Arabic terms, they were unfamiliar to the users of the calendar.

Month Entry	**Month Name**	**Order**
January 26th	Amshīr [Meshir]	6th
February 25th	*Baramhān* [*Paremhat /Phamenoth*]	7th
March 27th	*Barmūda* [*Parmouti*]	8th
April 26th	*Bashans* [*Pashons*]	9th

36. A. Alkuwaifi, *El Kitāb al-anwā'*, 1: 34–36 and 2: 13; see J. Samsó, «Tres notas», 170–174 and *On Both Sides*, 436–437.

37. Al-Jādirī's values are the same as the table Samsó gives from ʿArīb. It is worth noting that one manuscript gives for the month of October 1 instead of 8 but, ultimately, the two values are equivalent.

Month Entry	**Month Name**	**Order**
May 26th	*Baʾuna /Būna* [*Paoni*]	[10th]
June 25th	*Abīb* [*Epi*]	[11th]
July 25th	Musra [*Mesori*]	12th
August 29th	*Taut/Tūt* [*Thout*]	1st (*nayrūz* in Egypt)
September 28th	*Bābah* [*Paopi*]	[2nd]
October 28th	*Hatūr* [*Hathor*]	[3rd]
November 27th	*Hahayk/Kayhak* [*Koiak*]	[4th]
December 27th	*Ṭūba/Ṭūbī*	[5th]

4.2 Astronomical and astrometeorological materials. Chronology and meteorology.

The astronomical section brings certain innovations compared to other works of this kind. This is also the main objective of this calendar, judging by the instructions received by the author: it was the adaptation of the astronomical materials of the calendar of Ibn al-Bannāʾ to the latitude of Fes. These data reflect the way of putting into practice the theory presented by the author himself in other treatises. The author's knowledge in this area has been extensively studied previously in the *Iqtiṭāf al-Anwār*.[38] In some cases, the data have been compared with those of ʿArīb and Ibn al-Bannāʾ. This comparison seeks to highlight al-Jādirī's contribution to the received tradition.

4.2.1 Entry of the sun into the signs

The values of the entry of the sun into the signs can be compared with the formulas for the equivalence of the degree of the sun and the day of the year found in the *Iqtiṭāf*, [39] a formula which had also been used by Ibn al-Bannāʾ:[40]

38. E. Calvo, «Two Treatises», 179 ff.

39. Chapter 6; see E. Calvo, «Two Treatises», 174.

40. In his *Kitāb fī ʿilm al-awqāt bi-l-ḥisāb*, chapter 5; see E. Calvo, «Two Treatises», 172.

Degree of the sign = day of the month + 10 + tabulated value

When the result is more than 30, the rest belongs to the following month. By recalculating the dates according to this formula we obtain the following table in which the dates seem to correspond to the first degree of the sun in each sign.

Date of entry	**Sign**	**Constant**	**Recalculated values**
January 14th	Aquarius	7	14 + 10 + 7 = 31 => Aquarius 1°
February 13th	Pisces	8	13 + 10 + 8 = 31 => Pisces 1°
March 15th	Aries	6	15 + 10 + 6 = 31 => Aries 1°
April 14th	Taurus	7	14 + 10 + 7 = 31 => Taurus 1°
May 15th	Gemini	6	15 + 10 + 6 = 31 => Gemini 1°
June 15th	Cancer	6	15 + 10 + 6 = 31 => Cancer 1°
July 15th	Leo	5	15 + 10 + 5 = 30 => Leo 0°[41]
August 16th	Virgo	5	16 + 10 + 5 = 31 => Virgo 1°
September 16th	Libra	4	16 + 10 + 4 = 30 => Libra 0°[42]
October 17th	Scorpio	4	17 + 10 + 4 = 31=> Scorpio 1°
November 16th	Sagittarius	5	16 + 10 + 5 = 31 => Sagittarius 1°
December 15th	Capricorn	6	15 + 10 + 6 = 31 => Capricorn 1°

4.2.1.1 Longitude of the sun for the first day of each month

Al-Jādirī gives the value of the solar ecliptic longitude for the first day of each month. In the following table, these values are recorded together with the recalculated solar declination corresponding to each of these ecliptic longitude values.

Month	**Longitude (λ)**		**Recalculated declination (δ)**
January	Capricorn 23°	(λ= 293)	-21° 32’
February	Aquarius 19°	(λ= 319)	-15° 09’
March	Pisces 17°	(λ= 347)	-5° 08’
April	Aries 13°	(λ= 13)	5° 08’

41. It should be 1°.
42. It should be 1°.

Month	**Longitude (λ)**		**Recalculated declination (δ)**
May	Taurus 17º	(λ= 47)	16° 57’
June	Gemini 14º	(λ= 74)	22° 32’
July	Cancer 16º	(λ=106)	22° 32’
August	Leo 16º	(λ= 136)	16° 04’
September	Virgo 16º	(λ= 166)	05° 32’
October	Libra 15º	(λ= 195)	-05° 55’
November	Scorpio 16º	(λ= 226)	-16° 40’
December	Sagittarius 17º	(λ= 257)	-22° 51’

4.2.1.2 Dates of the equinoxes and solstices

In the calendars of Ibn al-Bannāʼ and ʻArīb and their different versions,[43] the beginning of the seasons is determined according to several sources and methods. Even though this issue deserves further study, we can say that ʻArīb and Ibn al-Bannāʼ follow two methods. The first is a «natural calendar» of Greek origin in which the seasons begin before the astronomical date because the effects of the seasons may be felt before the solstices and the equinoxes.[44] ʻArīb says that spring begins on February 15th according to *ahl al-filāḥa* («the farmers» or the «experts in agriculture»).[45] Ibn al-Bannāʼ says that summer begins on May 16th according to the «physicians» (*ḥukamāʼ*), and autumn on August 15th, without mentioning the source.[46] The second method is the astronomical. ʻArīb mentions the date when the sun enters a sign according to the *Sindhind* and the *Mumtaḥan* tradition.[47] Ibn al-Bannāʼ also mentions astronomically determined dates. In addition, ʻArīb and Ibn al-Bannāʼ include dates borrowed from «physicians», «computists»

43. Abbreviations of these works: IB, Ibn al-Bannāʼ, *Risāla fī l-anwāʼ*, ed. H.P.G. Renaud; CC, «*Calendar of Cordoba*», version of ʻArīb’s *K. al-anwāʼ*, ed. Ch. Pellat; RAS, *Risāla fī awqāt al-sana*, version of ʻArīb’s *K. al-anwāʼ*, ed. M.A. Navarro; KA, *K. al-anwāʼ*, longest extant version of ʻArīb’s *K. al-anwāʼ* ed. A. Alkuwaifi. We thank M. Forcada for his help in this section.

44. J. Samsó, «La tradición clásica», 179–182.

45. See the corresponding entries in KA.

46. See the corresponding entries in IB.

47. J. Samsó, *On both Sides*, 684–686; see also M.Viladrich, «The Mumtaḥan Tradition».

and «astronomers» which approximately coincide with the astronomical dates of solstices and equinoxes.[48]

Al-Jādirī systematizes these data according to two criteria. The first one is the natural calendar, which al-Jādirī calls «the method of the farmers» (*madhhab al-fallāḥīn*).

The beginning of the seasons according to a natural calendar

al-Jādirī's *Tanbīḥ*	**ʿArīb's *K. al-Anwāʾ***	**Ibn al-Bannā's *R. fī l-anwāʾ***
Spring		
February 15th (farmers)	February 15th (KA, farmers)	–
Summer		
May 16th (farmers)	May 16th (KA, saying spring instead of summer; *ḥukamāʾ*)[49]	May 16th («*ḥukamāʾ*»)
Autumn		
August 16th (farmers)	–	August 15th (no source)
Winter		
November 14th (farmers)	November 14th[50] (CC, Hippocrates and Galen) November 16th (KA/RAS Hippocrates and Galen)	November 16th (Hippocrates and Galen)

48. For example, ʿArīb says that spring begins on March 16th according to: *madhhab al-qudamāʾ min ahl al-ṭibb, wa-l-ḥisāb wa-l-taʿdīl, wa-madhhab Abuqrāṭ wa-Jālīnūs, wa-ʿulamāʾ al-ṭibb qāṭibatan wa-l-falāsifa wa-l-munajjimīn min-hum*. This sentence may be translated as the «method of the ancient physicians, computists and astronomers, and the method of Hippocrates and Galen and the experts in medicine in general, and of the philosophers and astrologers»; see KA on March 16th and CC/RAS on March 17th. Ibn al-Bannā' mentions the beginning of spring according to the method of «the physicians, computists, and most astronomers» (*madhhab ahl al-ṭibb wa-l-ḥisāb wa-akthar ahl al-taʿdīl,*), and the beginning of autumn according to Hippocrates and Galen; see IB on March 16th and September 16th.

49. This term may allude to either physicians or philosophers.

50. The entries of KA, CC, RAS and IB say «end of autumn and beginning of winter».

The second criterion is the astronomical determination of the dates. Al-Jādirī gives two sets of dates of solstices and equinoxes that are relatively accurate according to the date when the *Tanbīh* was written. On the one hand, four of them are attributed to «physicians and astronomers» (*al-aṭibbāʾ wa-ahl al-taʿdīl*); another two items (equinoxes of spring and autumn) are not attributed to any particular source. It is worth noting that the dates given by al-Jādirī coincide very exactly with the values of the entry of the sun into the signs analysed above (4.2.1). However, al-Jādirī's values also coincide with some of the dates that appear in the calendars of ʿArīb and Ibn al-Bannāʾ.

Solstices and equinoxes according to astronomy

al-Jādirī's *Tanbīḥ*	**ʿArīb's *K. al-Anwāʾ***	**Ibn al-Bannāʾ's *R. fī l-anwāʾ***
Spring Equinox		
March 14th (no source)	**March 16th** (KA/CC/RAS, *Mumtaḥan* KA (also) ancient physicians, computists, astronomers, Hippocrates and Galen, experts in medicine in general, philosophers and astrologers)	**March 13th** («some authors»)
March 15th (physicians, astronomers)	**March 17th** (CC/RAS, computists, astronomers Hippocrates, Galen and other physicians) (KA, no source)	
	March 20th (CC/RAS, *Sinhind*)	
Summer Solstice		
June 15th (physicians, astronomers)	**June 15th** (RAS, no source)[52]	**June 15th**[51] (no source)
	June 16th (CC, no source)[53] (RAS, *Mumtaḥan*)	**June 18th** («method of the experts in this issue»)

51. RAS: longest day of the year and shortest night.
52. CC: longest day of the year and shortest night.
53. CC: longest day of the year and shortest night.

al-Jādirī's *Tanbīḥ*	**ʿArīb's *K. al-Anwāʾ***	**Ibn al-Bannā's *R. fī l-anwāʾ***
	June 18th (CC, *Mumtaḥan*)	
	June 23rd (CC/RAS *Sindhind*)	
Autumn Equinox		
September 15th (no source)	**September 16th** (KA/CC/RAS, Hippocrates, Galen)	**September 16th** (Hippocrates, Galen)
September 16th (physicians, astronomers)	**September 18th** (KA/CC/RAS, *Mumtaḥan*)	
	September 23rd (KA/CC/RAS, *Sindhind*)	
Winter Solstice		
December 15th (physicians, astronomers)	**December 15th** (KA/CC, no source)[55] December 16th (RAS, no source)[56] December 17th (KA/CC, *Mumtaḥan*) December 18th (RAS, *Mumtaḥan*) December 20th (KA/CC, *Sindhind*) December 22th (RAS, no source)	**December 15th**[54] (no source)

4.2.2 Entry of the sun into the lunar mansions (*manāzil al-qamar*)

Al-Jādirī includes in each month the dates of the solar year in which the Sun enters every one of the lunar mansions without giving more information on them. In

54. KA/CC: longest night of the year.
55. KA/CC: longest night of the year.
56. RAS: shortest day and longest night of the year.

a previous study, J. Samsó[57] reconstructed these values from the data given in the *Rawḍa* and the *Tanbīh*.[58] Almost all the values recalculated in that study coincide with the ones given in the manuscripts used in the present study.[59]

Order	**Date**	**Mansion**
22	January 8th	*Saʿd al-dhābiḥ*
23	January 18th	*Saʿd bulaʿ*
24	January 27th	*Saʿd al-suʿūd*
25	February 8th	*Saʿd al-akhbiya*
26	February 19th	*al-Fargh al-muqaddam*
27	March 8th	*al-Fargh al-muʾakhkhar*
28	March 24th	*al-Rishāʾ/Baṭn al-ḥūt*
1	April 5th	*al-Naṭḥ*
2	April 20th	*al-Buṭayn*
3	May 4th	*al-Thurayyā*
4	May 17th	*al-Dabarān*
5	May 30th	*al-Haqʿa*
6	June 17th	*al-Hanʿa*
7	June 30th	*al-Dhirāʿ*
8	July 14th	*al-Nathra*
9	August 2nd	*al-Ṭarf*
10	August 6th	*al-Jabha*
11	August 23rd [MZS] /21st [$_3$]	*al-Zubra*
12	September 3rd	*al-Ṣarfa*
13	September 20th	*al-ʾAwwāʾ*
14	October 1st	*al-Simāk*
15	October 17th	*al-Ghafr*
16	October 29th	*al-Zubānā*
17	November 10th	*al-Iklīl*
18	November 16th	*al-Qalb*
19	November 29th	*al-Shawlah*
20	December 10th	*al-Naʿāim*
21	December 23rd	*al-Balda*

57. See Samsó, «Lunar Mansions», 133–136 and table 5.

58. For this second treatise he used as his source the incomplete manuscript from the MZS, the only one available at that moment.

59. For *al-Muqaddam* (26) the data proposed was February 13th and for *al-Zubra* (11) there is a variation in the data given in the manuscripts studied.

4.2.2.1 The mansion of the new moon (the beginning of the lunar month)

January:	*Saʿd al-suʿūd*
February:	*al-Farg al-muqaddam* (occasionally: [*al-Fargh*] *al-muʾakhkhar*)
March:	*al-Naṭḥ*
April:	*al-Thurayyā*
May:	*al-Hanʿa*
June:	*al-Dhiraʿ* (occasionally: *al-Nathra*)
July:	*al-Ṭarf*
August:	*al-Ṣarfa*
September:	*al-Ghafr*
October:	*al-Qalb* (occasionally: *al-Iklīl*)
November:	*al-Naʿāʾim*
December:	*Saʿd al-dhābiḥ*

4.2.3 Arc and duration of day and night

Al-Jādirī gives different values for the day arc of the sun for the beginning and the middle of the month. On some occasions, he completes the data with an allusion to the fact that the night arc is the remainder up to 360° and, on one occasion (December 15th), he gives the values of the two arcs. He gives 18 values in total. In the following table, the values for the beginning of the month have been recalculated according to the longitude values given by the author for the first day of each month (4.2.1.1). The value for June 15th has been recalculated from the values of the latitude of Fes, 33;40°, and the obliquity of the ecliptic, 23;30°, adopted by al-Jādirī.

Month	**Day**	**Arc of the day**	**(Recalculated)**	**Arc of the night**
Jan.	1st	148;12°	149;32°	–
	14th	152°		–
Feb.	1st	159;10°	159;13°	–
Mar.	1st	173;06°	173;08°	the remainder
	15th	180°	180°	180°
Apr.	1st	189;30°	186;51°	–
May	1st	203;30°	203;25°	the remainder
June	1st	212;45°	212;04°	the remainder

Month	Day	Arc of the day	(Recalculated)	Arc of the night
	15th	213;48°	213;40°	–
July	1st	212;12°	212;04°	–
Aug.	1st	202;15°	202;54°	the remainder
Sept.	1st	187;30°	187;23°	the remainder
	15th	180°	180°	180°
Oct.	1st	172°	172;05°	the remainder
Nov.	1st	157°	157°	–
	16th	151;12°	–	the remainder
Dec.	1st	147;15°	147;24°	the remainder
	15th	146;12°	–	213;48°

4.2.3.1 Duration of day and night

The above data is supplemented by numerous values on the duration of day and night, which refer to days other than those for which the value of the day arc was given (except September, 1st and December, 15th, for which both values are given), since knowledge of one datum implies knowledge of the other, if we take into account the equivalence 1h = 15°. The author gives 23 values. It seems that some of the values have been rounded as well.

Month	Day	Length of Day	–	Length of Night
January	8th	10 hours (150°)	–	14 hours
	28th	10;30 (157;30°)	–	13;30
February	5th	10;45 (160°)	–	[13;15]
	13th	11 (165°)	–	13
	28th	11;30 (172;30°)	–	12;30
March	15th (equinox)	[12 (180°)	–	12]
	28th	12;30 (187;30°)	–	[11:30]
April	1st	12;20 (186°)	–	[11:40]
	12th	13 (195°)	–	[11]
	28th	13;30 (202;30°)	–	10:30
May	19th	14 (210°)	–	10

Month	Day	Length of Day	–	Length of Night
June	15th (solstice)	14;15 (213;45°)	–	9:45
July	10th	14 (210°)	–	10
	30th	13;30 (202;30°)	–	10;30
August	16th	13 (195°)	–	11
September	1st	12;30 (187,30°)	–	11:30
	15th (equinox)	12 (180°)	–	12
	29th	11;30 (172;30°)	–	12:30
October	15th	11 (165°)	–	13
	31th	10;30 (157;30°)	–	13:30
November	20th	10 (150°)	–	14
December	1st	9;48 (147°)	–	14;12
	15th (solstice)	9;45 (146;25°)	–	14;15

4.2.4 Meridian altitude of the sun and the corresponding shadow

Al-Jādirī gives a great amount of data on the meridian altitude of the sun, around five values per month or once every week. This information is followed by the magnitude of the shadow cast by a gnomon. The reason he gives all these values is probably its importance in calculating the times of the *ẓuhr* and the *ʿaṣr* prayers. But, unlike Ibn al-Bannā's calendar, no table is given for these prayers. A general explanation of the times of these prayers is given instead in the entry for the first day of January. The formulae exposed are those that could be described as the standard ones, the ones that we find developed in al-Jādirī's *Iqtiṭāf*: the *ẓuhr* prayer should be performed when the meridian shadow is increased by a quarter of the gnomon. The *ʿaṣr* prayer, when the meridian shadow is increased by the length of the gnomon and, finally, the end of the *ʿaṣr* prayer when the meridian shadow is increased twice the length of the gnomon.

The measurement of the gnomon used is given as equal to six feet and two thirds (6 2/3), which is equivalent to a *qāma*, «the height of a man».[60] The extended shadow, as is known, corresponds to the cotangent of the meridian altitude.

60. See the entry of February 13th.

The following table presents the values of the meridian altitudes (h_m) mentioned in the text and the corresponding shadows. In some cases only the value of the shadow in feet is given, so the value of the corresponding altitude has been recalculated and, conversely, in some cases only the altitude is given. In these cases, the value of the shadow in feet has been recalculated from it.

The text gives a total of 52 values. From the recalculation of the values for the shadow it is quite clear that al-Jādirī gives always rounded values for the shadows much more convenient, probably, for the needs of his readers. For this reason, the recalculated values of the meridian altitude from the values given by al-Jādirī for the shadow may not be as accurate as they should be.

The last column gives the day of the year where the values of meridian altitude and shadow given coincide (i.e. they are symmetrical).

Month	**Day**	**h^m**	**[h_m recalc.]**	**Shadow**	**[Sh. recalc.]**	**[Equival.]**
Jan.	1st	33;54°		10	9;55	
	8th	35°		9;30	9;31	
	13th	36°		9	9;10	
	21th	38°		8;30	8;32	
	28th	40°		8	7;57	
Febr.	1st	41°		7;40	7;40	
	5th	42;20°		–	7;19	
	8th	43;24°		7	7;03	
	13th	45°		6;40 (*qāma*)	6;40	
	21th	48;06		6	5;59	
	27th	–	50;29	5;30	–	
March	1st	[44;10°]	50;59	5;24	–	
	6th	[43;10°]	53;08	5	–	
	14th	56;20°		4;30	4;26	
	19th	58;20°		4	4;06	
	28th	62°		3;30	3;33	
April	1st	63;24°		3;20	3;20	
	8th	66°		3	2;58	
	12 th	67;30°		–	2;46	
	18th	–	69;27	2;30	–	
	19th	70°		–	2;25	

Month	**Day**	**h^m**	**[h_m recalc.]**	**Shadow**	**[Sh. recalc.]**	**[Equival.]**
May	1st	73;20°		2	2	
	16th	77°		1;30	1;32	
June	1st	79;15°		1;15	1;16	
	15th	79;50°		1;12	1;12	
July	1st	79°		1;20	1;18	
	13th	77°		1;30	1;32	[May 16th]
	15th	76;20°		–	1;37	
	28th	73;20°		2	2	[May 1st]
	29th	73°		–	2;02	
Aug.	1st	72;30°		2;15	2;06	
	9th	70°		–	2;25	[April 19th]
	10th	–	69;27	2;30	–	[April 18th]
	16th	67;30°		2;45	2;46	[April 12th]
	20th	66°		3	2;58	[April 8th]
Sept.	1st	62°		3;30	3;33	[March 28th]
	10th	58;20°		4	4;06	[March 19th]
	15th	56;20°		4;30	4;26	[March 14th]
	23th	53°		5	5;01	[March 6 th]
Oct.	1st	50;24°		5;30	5;31	
	7th	48;06°		6	5;59	[Feb. 21th]
	15th	45°		6;40 (*qāma*)	6;40	[Feb. 13th]
	20th	43;24°		7	7;03	[Feb. 8th]
	29th	40;30°		7;48	7;48	
Nov.	1st	39;40°		8	8;02	
	10th	37;15°		8;40	8;46	
	15th	36°		9	9;10	[January 13th]
	20th	35°		9;30	9;31	[January 8th]
	28th	33;45°		10	9;59	
Dec.	1st	33;20°		10;06	10;08	
	15th	32;50°		10;20	10;20	
	22th	–		33;02°	10;15	–

From the value of the meridian altitude at the spring equinox of March 14th and the autumnal equinox of September 15th, where the altitude of the sun at noon is, according to the author, 56;20°, the value that the author attributes to the latitude of Fes can be determined by means of the aforementioned formula: $h_m = (90 - \phi) + \delta$. As mentioned earlier, the value obtained is $\phi = 33;40°$.[61]

In the same way, taking into account that the author considers June 15th as the day of the solstice, and that the altitude of the sun at noon given for that day is 79;50°, by using the same formula, the value of the maximum declination can be obtained:

$$\varepsilon\ (\delta_{max.}) = 79;50 - 90 + 33;40 = 23;30°.$$

In the same way, we can verify it using the value given to the solar altitude for the winter solstice, on December 15th, which is 32;50°. The maximum declination obtained from it will again be $\varepsilon = 23;30°$. The author gives another piece of information for May 22nd and July 7th, as he says that, in Mecca, there is no shadow there at that moment. This implies that the altitude of the sun at noon is 90° and, therefore, that the declination of the Sun on that day coincides with the latitude of this city. Since he does not give the declination for these two days, we cannot determine the exact value for the latitude he ascribes to Mecca.

4.2.5 Duration of morning and evening twilight

Al-Jādirī gives values for the duration of morning and evening twilight, twice for the months of April, May, June, August and September, namely for the beginning and middle of each. He gives one value for January, July and December, while, for February, March and mid-October, he says that the value is «as mentioned» (*kamā taqaddama*). For the first of July the text says that it decreases about half a degree. No value is given for November and for the first of October and December.

The data are mostly given in degrees with the indication that this number must be divided by 15 in order to obtain the equivalent number of hours. On other occasions, he gives the values directly in hours and fractions of hours. The values

61. The modern value for the latitude of Fes is of 34° approximately.

vary between an hour and a half at the winter solstice and almost two hours at the summer solstice (since one hour equals 15°, it implies that each degree of arc equals 4 minutes of hour).

The recalculated values are given in square brackets.

Date	**Duration of morning and evening twilight**	
	degrees	**hours**
January 1st	[22;30°]	1;30
February 1st	As mentioned	
March 1st	As mentioned	
April 1st	23°	[1;32]
April 14th	24°	[1;36]
May 1st	[25°]	1;40
May 15th	26°	[1;44]
June 1st	26;30°	[1;46]
June 15th	[27°]	1;48 (maximum duration)
July 1st	[26;30°]	[1;46]
July 15th	26°	[1;44]
August 1st	[25°]	1;40
August 16th	24°	[1;36]
September 1st	23°	[1;32]
September 16th	[22;30°]	1;30
October 1st	–	
October 17th	As mentioned	
November 1st	–	
December 1st	–	
December 15th	23°	[1;32]

4.3. Other information

Throughout the text, the author gives information related to meteorology, agronomy and zoology, as well as medical and dietary facts. Finally, he adds some Islamic and Christian (and other) religious ephemerides. As mentioned earlier, a

small part of this information is specific to al-Jādirī and although most of it can be found in earlier calendars.[62]

4.3.1 Meteorology[63]

January
According to the author, this is the best time for sea navigation. This statement can be found in earlier calendars. On the 20th of this month, the dark nights come out. They are characterised by the excessive cold.

February
On the 7th, it is the month the first of the three *jamarat* starts, although, according to al-Jādirī, ʿArīb said that it starts on the 8th and is that of water. Between each *jamra*, there are seven days. Therefore, the second starts on the 14th and is that of earth, and the third is the one of wood and starts on the 21st. The heat increases and the cold decreases. The heat comes out of the ground: the camel, the horse and the bull feel it in their hoofs. On the 9th, the days called *al-bulq* (white and black, «variegated») begin. On the 25th, the first of the fateful days (*ayyām al-ḥasūm*) unfolds: there are seven nights and eight days known as «the nights of the old woman» (*layal al-ʿajūz*) and «the nights of the shepherd» (*layal al-raʿī*). The first of these nights is the night of the 26th. The cold intensifies during these nights while it reaches its end: it resembles the lamp when its light intensifies before going out and the patient when he improves a little before dying. Al-Jādirī offers a poem about them that appears in many sources.

March
The first day of this month is also the first day of the period known as *makhnīṭīsāt*, which are seven weeks in which «no one dares enter the sea». By the 4th, the days of the old woman's nights are ending and, on the 15th, which the author considers the Spring equinox, a poem by Abū Nuwās about spring is included. The author

62. More insights will be given in the apparatus of the translation.

63. About the materials on weather, see M. Forcada, *Ibn ʿĀṣim*, 146–154 and D.M. Varisco, *Medieval Agriculture*, 105–127.

also says that this month is called «the harmful» (*al-ḍārr*) because, in it, one should take refuge from thunderbolt.

April
On the 18th, the seven *makhnīṭisāt* end and, on the 27th, the Nīsān rains begin. They last for seven days. The author also says that this month is the one with the most moderate weather according to the inhabitants of all countries.

May
By the 3rd of this month the rainy days of Nīsān end and, on the 6th, the winds that carry epidemics and diseases start. On the 15th, the abundance of heat begins. This month is considered a mixture of spring and summer as its nature is a balance between hot and dry.

July
Sometimes a wind will blow in on the 4th of this month that can damage the eyes. On the 12th, the simoom begins and last 40 days, 20 in this month and 20 in the following one.

September
This month is temperate. The author gives a poem by Abū Nuwās about this month.

November
On the 22nd, the black and white days come in. They last 20 days, called black nights, and another 20 after them.

December
On the 3rd, the steam starts coming out of people's mouths and it is cold. On the 9th, the water is getting cold and, on the 12th, the dark nights begin: they are the simoom of winter. There are twenty such nights in this month and twenty in the next one. If it rains heavily in the seven days between Christmas and *ḥājūz*, it will also rain during the year. If these days are clear, the year will be dry. If it rains on the first of these days, it will rain at the beginning of the year and also in the middle and at the end.

4.3.2 Agronomic and zoological information

The author offers information each month regarding agricultural and zoological activity, explaining the plants that are cultivated in each period of the year and the animals that proliferate.

January
On the 27th, ploughing time ends. During this month, the almond trees bloom, grapefruit and sugar cane ripen, and grapefruit jam is prepared. The sap runs down the trunk of the tree. The heat is felt. The birds are calm and mate. Trunks of pomegranates and olive trees are planted. Fruits and cuttings such as apple and quince are planted. The vines are pruned. Wood that is cut this month stays in good condition for longer, but only if cut on a clear day and with a waning moon.

February
On the 6th, snakes open their eyes. The winds begin to pollinate. On the 14th, it is said that no animal stays in its burrow, but rather they are active. During this month, roses and jasmine are planted and all aromatic trees are transformed. The birds sing and the swallows and the white stork approach the towns. Marine animals are launched. Most trees are flowering. The kite and the crow have chicks, ants appear and silkworms make silk in some countries. Summer vegetables are sown, the almonds are beaten, beans grow. At the end of the month, there are roses. The cats are restless. In the following months, the parturition of female camels increases.

March
The 1st is the first day of the *makhnīṭīsāt*. They are seven weeks during which the sea is closed. The bee-eater appears. On the 15th, the fish spawn. The author includes a poem by Abū Nuwās about spring.

April
It is said that if dough is kneaded on the 27th, it rises without yeast. On this day, the substance condenses and seeding is completed. In this month, palm trees are pruned, cucumbers flourish and appear, olive trees bloom, figs pile up, crops are sown, barley is full, roses abound, and with them, water of cologne, juice, jam and ointment, also with violets. [The infusion of] fumitory is drunk. The trunks of grapefruit, jasmine and bitter orange are planted. The first grapes are piling up.

May

In this month, the wheat is threshed. Olives and grapes pile up. Honey is made from bees. Summer fruits appear. Nut, jam and apple juice are made. The linen is torn. Chamomile and other seeds are sold; with them, ointments are made. Beans and barley are harvested. Vipers are hunted to make antidotes.

June

On the 4th, women and all animals desire to have sex. On the 8th, men and all animals love the females. On the 13th, stallions are isolated from breeding mares after pregnancy. The mares remain isolated until farrowing. The duration of the pregnancy is 11 months. On the 24th, the crops harvested there are not neglected. Whoever sprinkles the figs on that day with soil, none of his fruits will fall, even if they do not pick them up. In this month there are the first grapes and figs. Nuts and watermelon stack. Blackberries are ripe. The parts of the cut branches of the planting that are one year old are cut by hand, not with iron, in this way they take root. The wheat harvest is over. Honey is extracted.

July

In this month, the hype begins. The vines and all the fruit are ripe. Partridge chicks fly and chase each other. The dates are ripe and bright. At the end of the month, the planting of winter vegetables begins for those who have water. Thyme and other herbs are harvested.

August

Experienced people affirm that the wood that is cut on day 3 or the day before does not rot. During this month, autumn beans are sown in the orchards. Blue wallflower, turnips, carrots and cabbages are planted. Acorns pile up. The logs and cuttings planted at the end of the month are growing well. The mule goes from the sea to the rivers. Sardines abound. The wood cut this month does not rot. Each crop is watered in the early afternoon so that it grows more (and in the same way the previous month) because this irrigation takes away from the crop the heat accumulated during the day. Grapefruits flower and throng at the end of the month. The *sindī*, i.e. the watermelon, is ripe.

September

It is said that, on the 27th day, the fruits that must be kept until winter, are harvested. In this month, sowing and ploughing begin in the cold mountains. The

nuts are collected. Henna and vegetables are cut. The salt condenses. Some olives turn black. Chestnuts and acorns appear. Fig and almond trees are planted. Pomegranate and fruit juices are made.

October
On the 2nd, the Nile recedes and the people of Egypt begin planting. On the 17th, the sowing of the land arrives since it was the beginning of Adam's tillage. During the month the olives are collected. The sheep give birth and there is milk. Lettuce, anise, fennel and onion are planted. At the end of the month, the leaves fall from the trees, the ants take refuge in their anthills and the sea is rough, so no ship sails through it.

November
During this month, most of the planting is completed. The vines are planted and grow rapidly. The olives are planted. The oil is expelled. The leaves of the fruit trees are falling. The sugar cane is harvested. Fall beans are piling up. The turnip is planted. Acorns, chestnuts and seeds of myrtle are harvested and their juice is made. The vegetable is covered so that the ice does not damage it. Any boneless animal dies. Snakes close their eyes.

December
In this month, the early almond trees bloom. The first grapefruits are ripe. Rainwater is stored in this month and in the following one because it is not spoiled. The palm piths are ripped out, the springs sprout, pepper blooms. Pumpkin, eggplant, garlic and opium poppy are planted.

4.3.3 Medical and dietary information

January
On the 26th, drinking running water before eating preserves health. During this month, the nature of women desires offspring.

February
During this month, the blood test and the taking of medication apply.

March
On the 11th, the proverb says: «if the child is weaned on that day, he will not ask for more milk». The beginning of this month is happy because it is the winter regime while the end of the month is a mixture because there is heat and humidity. Therefore, it is time to eat moderately, as well as having moderation in housing and clothing.

April
On the 26th, the blood stirs and bleeds with the bloodletting.

June
On the 24th, it is said that no woman on the face of the earth becomes pregnant. During this month it is better to use cooling, soft foods, drinks, clothes and clothing that regulate the body and lower its degree of humidity and avoid the affliction of hunger and thirst.

July
During this month, vomiting and excessive movement should be avoided, as well as fullness of food, so it should be divided into two or three meals.

August
On the 9th, anyone who is stung by a scorpion on this day dies within an hour. During this month it is recommended to completely avoid sweets, fats and salts. In addition, cupping, sexual intercourse and exhaustion are forbidden.

September
During this month it is appropriate to eat and drink sweets but to avoid all salty foods, watermelon and beef.

October
During this month, people switch from white clothes to dyed and thick ones. The sheep give birth and there is milk. Lettuce, anise, fennel and onion are planted. At the end of the month, the leaves fall from the trees, the ants take refuge in their anthills and the sea is rough so no ship sails through it. It is better to use cool and warm food, drinks and rooms. In this month, cow meat and its derivatives are avoided and navigation and intercourse are reduced. The bath must be brief and fat and salty foods are taken.

November
At the end of the month, it is unpleasant to go to the baths for fear of catching a cold, as well as to drink water in the evening for fear of dropsy. In this month, foods, drinks and parts that moisten and heat are used, such as honey, butter, meat with bread and garlic soup, etc., as well as vegetables stew such as carrots. Rub with clove oil or something similar, take whatever scent you like. The use of vomiting and intercourse is suggested because it is said that, during this month, sex in moderation is good.

December
This month is not the time to take medicine or draw blood.

4.3.4 Ephemerides

The calendar includes some interfaith religious holidays and also some biblical and Koranic characters.

4.3.4.1 Islamic Ephemerides

January
On the 20th, ʿAlī was killed.
On the 21st, David, Joshua, Jeremiah and Shuʿayb passed away.

February
On the 7th, the Prophet was sent.

April
On the 20th, the Prophet was born. It was mentioned by al-ʿAbd al-Wādī.

May
On the 25th, the Prophet Muḥammad is said to have passed away.

June

On the 7th, the massacre of ʿUthmān ibn ʿAffān and the caliphate of ʿAlī took place.
On the 19th, the Caliphate of ʿUmar was started.

July
On the 13th, the Prophet emigrated.
On the 29th, Moses was born.
It was the destruction of *al-Bayt al-Maqdīs*, according to some historians.

August
On the 11th, it was the death of Abū Bakr and the caliphate of Omar, may God be pleased with them both, and it was said in June.
On the 24th, Mary passed away.
On the 26th, the revolution was overthrown.

September
On the 24th, John, son of Zechariah was killed

October
On the 1st, God created Adam.
On the 2nd, Eve was created.
On the 8th, Isaac was shot.

November
On the 5th, Muʿāwiya sat for the caliphate.
On the 8th, the death of ʿUmar is said to have taken place. He was killed by Abū Luʾluʾa, the servant of al-Mughīra ibn Shuʿba.

4.3.4.2 Ephemerides from Christianity and other religions

January
On the 1st, *nayrūz*, which is the seventh of Christ and the day and night of his circumcision. It is called the night of *hajūz*.

February
On the 27th, it is said that Moses passed away.

It is said that, in this month, David founded Jerusalem and the children of Israel carried the body of Joseph from the Nile.

March
On the 15th, according to al-Jawharī, on a day like this, Noah sheltered the ship and the flood did not cease.
On the 22nd, it is said that Mary became pregnant with Jesus.
On the 26th, Communion would have been revealed to Jesus, son of Mary.

April
On the 2nd, it is said that God created Adam, although it is also said that this took place in the beginning of October.
On the 10th, it is said that Adam passed away and Jesus, son of Mary, spoke in the cradle.

May
On the 10th, Jesus is said to have returned.
On the 13th, God split the sea for Moses and the sea remained calm during that day.
On the 18th, it is said that John, son of Zechariah, was killed.

June
On the 24th, the sun was blocked for Joshua son of Nūn, for a period of one day for the conquest of Ashkelon in the Levant.
And the feast day for Christians: the day of Pentecost, which is John's birthday.

August
On the 29th, *nayrūz* will be in Egypt.

September
On the 1st, Christians claim that Joshua, son of Nūn died.

December
On the 25th, Jesus was born. Al-Jādirī says that this was mentioned by Ibn al-Bannā', al-Wādī and others and that al-Ṣanhāji added that the birth was at noon, while Abū al-Qāsim (disciple of Abū Bakr al-Ṭarābulusī) said that the birth was

on the 24th day and the night was the 25th day because that day precedes night among non-Arabs, contrary to what happens among Arabs.

Moreover, Ibn Hishām mentioned the *Hāshimiyya* commentator and added that Jesus was born on Wednesday and God raised him [to Heaven] when he was thirty-three years old.

5. Concluding remarks

Probably the most relevant characteristic of this work is the fact that it combines elements that, on the one hand, go back to the oriental tradition of the *anwā'* books and, on the other, that it represents the continuation of the Andalusi tradition elaborated from oriental materials and autochthonous elements, among which ephemerides found in Christian liturgical books are included. This type of literature reflects the assimilating character of the Arab-Islamic civilisation in a very clear way, it shares a very conservative character and makes it possible to establish the contributions of the different cultures that integrated it. Some clear examples are, for instance, the dates of navigation in the Mediterranean, which continued from Hesiod to the 19th century and, in the same way, we find the survival of the Hippocratic medicine. Here, we add a third example, namely the preservation of the calendar system when it no longer has any function and to which, in addition to the Julian calendar, the feasts of the Christian saints were superimposed. This type of literature is not at all specific to the Arab-Islamic or Maghribī world, since exactly the same phenomena are preserved in the calendars published in the peninsula until the 20th century, some of which are still being published. In this respect, our contribution is the description of one of these calendars which bear witness to this conservative trend, as the calendar of al-Jādirī is adapted mainly from the one by Ibn al-Bannā' al-Marrākushī, and it provides this interreligious scientific character given by individuals cultured in the different affiliations to different religions. Perhaps one of the most remarkable elements of this calendar is the fact that it completely avoids recourse to the pre-Islamic system of *anwā'* asterisms, despite the fact that it systematically uses the lunar mansions, a system which seems to be useless when the authors living in North Africa and in al-Andalus adopted the Julian calendar, which was more precise for the requirements of agricultural activity and animal husbandry with the breeding of domestic animals. To be sure, the tradition and the association be-

tween certain phenomena and the agricultural cycle which makes it a system is preserved in the Calendar of Cordoba and in the calendar of Ibn al-Bannāʾ. Beyond any doubt, this work of al-Jādirī's confirms the existence of a calendar tradition on both sides of the Strait of Gibraltar.

Translation[64]

[1] In the name of God, the merciful, the compassionate, God bless our lord Muḥammad and his family. The teacher, the faqih, Abū Zayd ʿAbd al-Raḥmān b. Muḥammad al-Jādirī, may God, may he be exalted, have him in his glory, be pleased with him and honour him, said:

[2] Glory be to God, he who moves the rotating sphere, he who brings night into day, God bless our lord Muḥammad, his chosen prophet, his family and his selected companions (...),[65] as a long as a star rises in the horizon and then disappears or wanders, the birds chirp and the trees put on leaves.

[3] One of our learned and judicious jurist teachers informed me of a short treatise (*taqyīd*) attributed to the Sunni Imam Abū al-ʿAbbās al-Azdī [Ibn al-Bannāʾ] in which he mentioned the non-Arabian months and what happens in them with respect to the entrance of the seasons, the waxing and waning of the day, and the feet [of a gnomon's shadow] at noon. Ibn al-Bannāʾ had composed it for the precious Marrakech, but our teacher wanted to adapt it to the latitude of Fes, so he asked me to make that foundation.

[4] So, I proceeded to what he wanted and mentioned it in this part to the fullest extent, and added to it what happens in the months over the course of the ages in a way that befits this summary and what the Bedouin and urban people desire. I referred to the entry of the sun into the lunar mansions, not according to what requires its division by zodiacal signs, but specifying the positions of the asterisms in the months, as we mentioned in another book. This is, God willing, the

64. The division into paragraphs of the edition and translation has been made by the authors of this article. As for the abbreviations, see note 43 above.

65. See above, note 21.

right thing to do. I called it *Warning (Tanbīh) to humanity about what happens during the days of the year*. I ask God for help because He is the best provider.

[5] January

It is the first month for non-Arab Andalusians. In Syriac, it is called *Kānūn al-ākhir*. It is thirty-one days long, its sign is Capricorn, its nature is cold and wet, and its *epact* is 1. In the month of January, the Arabian month [determined by the visibility of the new moon] begins at *Saʿd al-suʿūd* .[66]

[6] First Day. The *nayrūz* occurs, which is the seventh day from the [birth] of Jesus Christ, upon him be peace, and the day of his circumcision. Its night is called the night of the *ḥājūz* because this night separates one year from another.[67]

[7] The sun is at 23 [degrees] of Capricorn according to the tropic position. Its day arc is 148 degrees and one fifth. The duration of twilight and dawn is one and a half equal hours.

[8] The meridian altitude is 34 degrees minus one tenth. It is ten feet. For the evening prayer (*al-ʿaṣr*), always add to the noon a *qāma*, which is 6 feet and 2 thirds. For the noon prayer (*al-ẓuhr*), add a quarter of that measure, i.e. 1 foot and 2 thirds. You must know that a foot has fifteen fingers.

[9] Eighth Day. The sun enters *Saʿd al-dhābiḥ*.[68] The altitude of midday is 35[69] degrees. It is nine and a half feet. The day has ten equal hours and is increased by a quarter of an hour [from its minimum length]. The night has 14 hours and decreases a quarter of an hour with respect to its maximum duration.

[10] Day Thirteen. The meridian altitude is 36 [degrees] and it is 9 feet.

66. The 24th lunar mansion.

67. KA, same day. About the «night of the *ḥajūz*», which one should no confuse with the layyālī al-ʿajūz, see KA, 1: 63 and 2: 19–20.

68. The 22nd lunar mansion.

69. Figure borrowed from MSZ.

[11] Day Fourteen. The sun enters the sign of Aquarius. The day arc is 152 degrees.

[12] Day Eighteen. The sun enters *Saʿd bulaʿ*.[70]

[13] Twentieth Day. Dark nights that bring intense cold appear. It is said that, on such a day as this, ʿAlī [Ibn Abī Ṭālib] was killed, God have him in his glory.

[14] Twenty-One Day. The meridian altitude is 38 [degrees]. It is 8 and a half feet. On such a day, David, Joshua, Jeremiah and Shuʿayb perished, upon them be peace.

[15] Day Twenty-Six. *Amshīr* begins,[71] a Coptic month, which is written with *fatḥa* on the *hamza*, although some say with *kasra*, *sukūn* above the *mīm* and *kasra* below the *shīn* followed by a *yā'* and lastly a *rā'*. It is the sixth month. All Coptic months have 30 days, except the twelfth, which has 35 and 36 in the leap year. Drinking plain water before eating is said to preserve health.

[16] Day Twenty-Seven. The sun enters *Saʿd al-suʿūd*.[72] Farming time ends.

[17] Day Twenty-Eight. The meridian altitude is 40 [degrees]. It is 8 feet. The day lasts ten and a half hours and the night, 13 and a half hours.

[18] Section

In this month, the almond tree blossoms, grapefruit and sugar cane ripen, and grapefruit jam is made. The sap runs down the trunk of the tree. The heat is felt.[73] The birds are calm and mate. Pomegranate and olive tree trunks are planted. Fruits and cuttings such as apple and quince are planted. The vines are pruned. The wood that is cut in this month prolongs its good condition, but only if it is done on a clear day and with a waning moon. Try, in this month, to have a child

70. The 23rd lunar mansion.
71. The 6th, Meshir.
72. The 24th lunar mansion.
73. According to IB, Arabic text, 3, the sentence would be: «there is warm wàter in the rivers».

because the nature of women, in this month, desires offspring, with God's permission. It is the best time for maritime navigation. God is the wisest.

[1] February

In Syriac, it is called *Subāṭ*, with *ḍamma* on the *sīn*, although it is also said with *shīn* [*Shubāṭ*]. It has 28 days and, in the leap year of the Syriac calendar, 29. However, we do not follow this practice at home. Its sign is *Aquarius*, its nature is phlegmatic, and its *epact* is 4. The new moon occurs in *al-Farg al-muqaddam*,[74] although it sometimes takes place in [*al-Farg*] *al-mu'akhkhar*.

[2] First Day. The sun is 19 [degrees] in Aquarius. The day arc is 159 [degrees] and one sixth. The altitude of noon is 41 [degrees]. It is 7 feet and two thirds. Evening twilight and morning twilight is as mentioned before.

[3] Fifth Day. For [the length of] the day, add one hour to the setback and get 10 and three-quarter hours. For the night, the same value is subtracted. The altitude of noon is 42 degrees and a third.

[4] Sixth Day. It is said that the snakes open their eyes[75] and the pollinating winds begin.

[5] Seventh Day. One of the three *jamarāt*[76] occurs, although ʿArīb [ibn Saʿīd] said that it happens on the eighth day.[77] Between each *jamra*, 7 days pass and then the heat rises from the earth, the camel, the horse and the bull feel it on their hoof. The first [*jamra*] is said to correspond to water, the second to earth, and the third to wood.[78] On this day, the Prophet (God bless him and save him), was sent, according to the chroniclers.

74. The 26th lunar mansion.

75. February 1st in IB, KA and RAS.

76. «Embers», periods of intense cold.

77. 7th day, according to KA and IB; RAS mentions the 7th day for the first *jamra*; RAS and CC say that the three *jamarāt* begin on the 8th day.

78. Explanation not extant in KA, CC, RAS and IB.

[6] Eighth Day. The sun enters *Saʿd al-akhbiya*.[79] The height at noon is 43 [degrees] and two fifths. It is 7 feet.

[7] Ninth day. The *al-ayyām al-bulq*[80] finish.

[8] Day Thirteen. The sun enters the sign of Pisces. The day has 11 hours and the night has 13. The meridian altitude is 45 degrees. The shadow of everything at noon is the same as the [size] of the thing [that projects it] and is equivalent to a *qāma*.[81]

[9] Day Fourteen. The second *jamra* appears. It is said that no animal remains in its burrow, but rather they are active.

[10] Day Fifteen. The season of spring is coming according to the opinion of the farmers.

[11] Day Nineteen. The sun enters *al-Farg al-muqaddam*. It is said that, in this month, roses and jasmine are planted and all aromatic trees are transformed.

[12] Twenty-First Day. The third *jamra* appears. Heat increases and cold decreases. The meridian altitude is 48;10 [degrees]. It is 6 feet.

[13] Day Twenty-Five. The Coptic month *Baramhān*[82] enters. It is pronounced with *fatḥa* at the beginning and on the *rāʾ* and *sukūn* on the *mīm* and no vowel the *hāʾ*. The first of the *ayyām al-ḥasūm*[83] takes place, which encompass 7 nights and

79. The 25th lunar mansion.

80. «Black and white days». The same sentence in CC, same day. CC says that these days begin on November 22nd, whereas IB and KA say January 21st.

81. Height of a man.

82. 7th month, Paremhat or Phamenoth.

83. «Consecutive days». The expression *ayyām al-ḥasūm* is only mentioned in one manuscript of IB, on the same day. According to R. Dozy, *Suplément*, s.v., *ḥasūm* also means «fateful nights». These days are the well-known *ayyām al-ʿajūz*, «days of the old woman»; see on them P. Galland-Pernet, «La vieille et les jours d'emprunt» and D.M. Varisco, *Medieval Agriculture*, 124–126.

8 days. They are called *layyāl al-ʿajūz, layyāl ṣiyān*[84] and *layyāl al-rāʿī*.[85] The first of them is the 26th night.

[14] About them, the poet said mentioning the name of these nights:[86]

> There are still seven [cold] days of winter left[87] // the days of our cunning old woman of the month
> And when her days are done and gone // *ṣinn* and *ṣinnabr* with *wabr*,
> And *āmir* and his little brother *muʾtamar* // and *muʿallil* with *muṭfīʾ al-jamr*
> Then the winter runs away// and burning hot [days] will come to you.[88]

The cold intensifies on those nights because it is ending; it resembles the lamp when it accentuates its light before going out and the patient when he improves a little before dying.

[15] Day Twenty-Seven. Moses, upon him be peace, is said to have passed away on this day. At midday, it is 5 and a half feet.

[16] Day Twenty-Eight. The day has 11 and a half hours and the night, 12 and a half hours.

84. Sic. It is a most unusual expression. Since *ṣiyān* means, according to E.W. Lane, *Lexicon*, s.v., «receptacle used as a repository for a garment», and since these days are cold, one might imagine that the Bedouin must pick up more clothes.

85. KA and RAS, same day, say that February 25th is *ṣinn*, the first day «of the old woman» and the first of the *nawʾ* of the shepherd (*al-rāʿī*). It is worth noting that al-Jādirī gives *layyāl al-rāʿī* instead of *nawʾ al-rāʿī*, possibly because of his refusal of *anwāʾ* mentioned in the study. Al-Jādirī also says that the «days of old woman» are «nights».

86. Poem about the «days of the old woman» mentioned in several lexicons and sources of Arabic folk astronomy (see, for instance, al-Marzūqī, *Kitāb al-azmina*, 202 and KA, same day). According to Ibn Manẓūr, *Lisān al-ʿArab*, s.v. *kasaʿa*, the author is Abū Shibl al-Aʿrābī.

87. Or. *kusiʿa al-shitaʾu bi-sabʿatin ghubri*: the author of the poem seems to rewrite the Bedouin expression *kasaʿa al-nāqata bi-ghubrihā*, that, according to A.B. Kazimirski, *Dictionnaire*, s.v. *kasaʿa*, means: «il a refoulé le lait de la chamelle»: the shepherd leaves some milk in the she-camel's teat in order to strengthen it. In this context, the hemistich would mean that, at the end of the winter, when the days are warmer, seven days of intense cold arrive.

88. The last verse follows the version of KA, same day. However, the three precedent verses are similar to those given by Ibn Manẓūr and al-Marzūqī.

[17] Section

In this month, birds sing and swallows and white storks approach the cities. The marine animals are launched. Most of the trees bloom. The kite and the raven have chicks. The ants appear. Silkworms make silk in some countries. Summer vegetables are sown. In our land, we have almond grits. The beans grow. At the end of the month, there are roses. The cats are restless. In the following months, the parturition of female camels increases. Blood drawing and medication taking apply. It is said that, in this month, David, peace be upon him, founded Jerusalem and that the Israelites took the body of Joseph, peace be upon him, out of the Nile.[89]

[1] March

In Syriac, it is called *Ādhar* with a vowel *fatḥa* long at the beginning and *dhāl* with diacritical points without a long vowel. It is 31 days long. Its sign is Pisces. Its nature is phlegmatic. Its *epact* is 4. The new moon takes place in *al-Naṭḥ*.

[2] first day. The sun is in Pisces 17 degrees. The day arc is 173;10 degrees. The night arc is the rest of the rotation. The altitude of noon is 44 degrees and a sixth. It is 5 and two-fifth feet. The duration of evening twilight (the *shafaq*) and dawn (the *fajr*) is as mentioned above. This day is the first of the *makhnīṭisāt*: they are seven weeks without entering the sea.[90] It is said that, in them, the bee-eater appears: a bird that feeds on bees.[91]

[3] Fourth Day. The days of the nights of the old woman end.

89. KA, 1: 168 and 2: 58, says that David founded Jerusalem and that the Israelites «took out Joseph from the well». With respect to Joseph, KA echoes what Koran says (12; 10–19) about how Joseph's brothers abandoned him in a well and then a caravan rescued him; al-Jādirī echoes the stories from the *Midrash* which say that Joseph's coffin was sunk in the Nile and Moses recovered it before the Exodus.

90. Ibn al-Bannā', RA, on the same day, and other sources name these periods *bakhnās*, pl. *bakhānīs*. See on this point M. Forcada, «Science across the borders: al-Andalus and Byzantium in the 10th century», summarized in KA, 1: 66–70 and 2: 21–22.

91. Although the text says that the bee-eater (*yāmūn*) appears on these weeks (*fī-hā*), it would probably be better to understand that it appears on this day (*fī-hī*). It is worth noting that this bird is not mentioned in either IB or any version of ʾArīb's *K. al-anwāʾ*.

[4] Sixth Day. The altitude of noon is 43 degrees and a sixth. It is five feet.

[5] Eighth Day. The sun enters *al-Fargh al-mu'akhkhar*.

[6] Day Eleven. It is said «if the child is weaned on this day, he will not ask for more milk».

[7] Day Fourteen. The [length of] night and day is equal and is known as the vernal equinox. The altitude of noon is 46 degrees and a third. It is four and a half feet.

[8] Day Fifteen. The sun enters Aries. It is the beginning of the spring season for doctors and for astronomers.[92] Al-Jawharī[93] reported that, on a day like this, Noah, peace be upon him, sheltered the ship and the flood did not stop.[94] On this day, the fish spawn.

Abū Nuwās said about spring:

> Do you not see the sun descending on Aries // and the weight of time has risen, so it is equal?
> And the birds sang after their astonishment // and the wine was filled around it completely.[95]

[9] The entry of the sun into Aries is the beginning of [astronomical] time and of the anniversary of the years of the world. As for the right interpretation of what our Prophet Muḥammad, God bless and save him, said in the sermon given the tenth year on the feast of sacrifice:[96] «Time has completed its cycle and is as it was on the day that God created the heavens and earth».[97] The day in which he said this[98] coin-

92. IB, March 16th.

93. Possibly the lexicographer Abū Naṣr al-Jawharī (d. early 11th century).

94. RAS, March 17th.

95. A longer version of this poem (four verses) appears in KA, May 17th; see, on this point, the apparatus of the edition and translation of KA. Ibn Qutayba, *K. al-Anwā'*, 19, and al-Marzuqī, *Kitāb al-azmina*, 120, quote these two verses.

96. The well-known «farewell sermon», pronounced in the «farewell pilgrimage».

97. The sentence appears in several sources that narrate the «farewell pilgrimage». See, for instance, Ibn Isḥāq, *Sīrat Rasūl Allāh*. We borrow the translation from the version of Ibn Ishāq's *Sīra* by A. Guillaume, *The Life of Muhammad*, 651.

98. The usually accepted data of the sermon is 9th Dhū l-Hijja, 10/6th March 632.

cided with the entry of the sun in Aries. Blessed be he whose knowledge is the equivalent to the knowledge of ancient and modern authors! If there had been no other miracle of his, God bless and save him, but his insights about the time in which the [sun] performs its cycle without knowing astronomical computus, his saying would be enough testimony of his mission. The refutation of al-Māzarī and the Qādī ʿIyāḍ[99] of al-Khwārizmī claiming that this[100] was investigated and was not found [true] is unclear, because I investigated and found it [true] as I have mentioned.[101]

[10] Day Nineteen. The meridian altitude is 58 and a third. It is 4 feet.

[11] Day Twenty-Two. It is said that Mary became pregnant with Jesus, upon him be peace.[102]

[12] Day Twenty-Four. It is said about the days after and around the twenty-fourth day that the sun enters *al-Rishā'*, also called *Baṭn al-ḥūt*.[103]

[13] Day Twenty-Six. The table was sent down to Jesus,[104] son of Mary, upon him be peace.

99. As is well known, al-Māzarī (453/1061–536/1141) and the Qādī ʿIyāḍ (476/1083–544/1149) were two of the most outstanding legal scholars of the Maliki school in the Maghrib. The second was a disciple of the first.

100. The coincidence of the Sun in Aries, the «farewell pilgrimage» and the creation of the heavens.

101. Some keys for understanding the preceding paragraph are given by Qādī ʿIyāḍ, *Ikmāl al-muʿlim*, 5: 470–471, and al-Qurṭubī, who quotes al-Māzarī in *al-Jāmiʿ li-aḥkām*, 10: 203. According to Qādī ʿIyāḍ, «al-Imām», seemingly his teacher al-Māzarī, consulted what the most famous astronomer and mathematician al-Khwārīzmī (d. ca. 232/850) mentioned about the interpretation of the Prophet's saying and found that al-Khwārīzmī believed that the date of the sermon coincided with the time of the creation of the heavens. It must be understood that the time of the creation of the heavens and the time of the entrance of the Sun in Aries are one and the same. Al-Qāḍī ʿIyād goes on saying that the «imam» mentions that he checked the data and concluded that, on the 9th of Dhū l-Hijja of year 10, the sun was at 20° of Pisces but that, on the 9th of Dhū l-Hijja of year 9, the sun was at the beginning of Aries; al-Khwārizmī had mistaken the dates. Qādī ʿIyāḍ says that both were mistaken because the sermon was given on the 10th of Dhū l-Hijja. We thank M. Forcada for his help in interpreting this paragraph.

102. Only mentioned in KA, same day.

103. The 28th lunar mansion.

104. Koran, 3: 112–113. Also mentioned in KA and RAS, same day.

[14] Day Twenty-Seven. *Barmūda* begins, a Coptic month.[105] It is written with *fatḥa* on the *bā'* and on the *dāl* without diacritical points.

[15] Day Twenty-Eight. The length of the day increases by half an hour from the equinox: it is 12 and a half hours. The length of the night decreases the same. The altitude of midday is 62 degrees. It is 3 and a half feet.

[16] Section

In this month, cucumbers, cotton, sugar cane, grapefruit, marjoram, mint, roses and lily are planted. Olives are also planted. The fish go from the sea to the rivers. Silkworms reproduce. The autumnal bean appears. The regime of the first part of the month is the same as that of winter but, in the second part of the month, the mixture is heat and humidity.[106] Therefore, it is a time for temperate eating, housing and clothing. It is said that this month is known as «the harmful one» because, in it, one has to protect himself from thunderbolts. One *ḥadīth* says about it: «whoever (...) escapes from harm, gets half a dinar or (...) paradise».[107]

[1] April

In Syriac, it is *Nīsān* with a *kasra* on the consonant *nūn*; sometimes the *nūn* is pronounced with *fatḥa* [but al-Tūzirī told that only with *kasra*].[108] It has 30 days. Its sign is Aries. Its nature is sanguine, warm and moist. Its *epact* is 7. The new moon takes place in the Pleiades.

[2] First Day. The sun is in Aries 13 degrees. The day arc is 119 and a half degrees and has 12 and a third hours. The altitude of noon is 63 degrees and two fifths. It is 3 and a third feet. The duration of evening twilight and morning twilight is 23 degrees. Divide it by 15 and you get the equal hours.

105. Parmouti, 8th month.

106. According to KA, 1: 179 and 2: 64: the regime of the first part of the month is the same as the regime in winter but, because Spring starts in the second part of the month, end of the month, the complexion of the month becomes hot and humid and so the regime must change.

107. Distorted sentence that does not seem correspond to any prophetic hadith known.

108. Unclear sentence that seems a quote from an author named al-Tūzirī (a man from Tozeur, Tunisia).

[3] Second Day. It is said that God, may He be exalted, created Adam, peace be upon him, although it is said also that it was at the beginning of October. God is wiser.

[4] Fifth Day. The sun enters *al-Naṭḥ*.[109]

[5] Eighth Day. The altitude of noon is 66 degrees. It is 3 feet.

[6] Tenth Day. It is said that Adam, peace be upon him, passed away and that Jesus son of Mary, peace be upon him, spoke in the cradle.

[7] Day Twelve. The day has 13 hours. The altitude at midday is 67 and a half degrees.

[8] Day Fourteen. The sun enters Taurus. The duration of evening and morning twilight is 24 degrees.

[9] Day Eighteen. It is two and a half feet at midday. It is the last day of the seven *makhnīṭisat*.[110]

[10] Day Nineteen. The altitude at midday is 70 degrees.

[11] Twentieth Day. The sun enters *al-Buṭayn*.[111] On this day, the prophet, God bless and save him, was born, according to al-ʿAbd al-Wādī.[112]

[12] Day Twenty Six. *Bashans*[113] enters. It is pronounced with *fatḥa* on the *bā'* and on the *sīn* with diacritical dots and with *sukūn* on the *nūn* and on the *sīn* without diacritical dots. It is a Coptic month. In this month, the blood is agitated and bloodletting is practised.

109. The First lunar mansion.

110. According to KA, the 5th *bakhnīs* occurs on April 17th.

111. The 2nd lunar mansion.

112. He may be the Zayyanid king of Tlemecen and man of letters Abū Ḥammū II (723/1323–790/1398), also known as Abū Ḥammū al-Zayyānī al-ʿAbd al-Wādī al-Tilimsānī.

113. Pashons, the 9th month.

[13] Day Twenty-Seven. It is the beginning of the rains of the month of *Nīsān*, which last seven days. It is said that, dough is kneaded on this day, it rises without yeast. On this day, the substance condenses and the seeding is completed.

[14] Day Twenty-Eight. The day has 13 and a half hours and the night has 10 and a half.

[15] Section

In this month, the palm trees are pruned, the cucumbers prosper and appear, the olive trees bloom, the figs accumulate, the crops are sown, the barley is complete, the roses abound and, with them and, also with violets, cologne, juice, jam and ointment are made. [Infusion of] fumitory is drunk.[114] The trunks of grapefruit, jasmine and bitter orange trees are planted. Early grapes accumulate. This month is the one with the most moderate weather according to all people in all countries.

[1] May

In Syriac, it is said *Ajyār*[115] with a *fatḥa* at the beginning and *sukūn* on the consonant *jīm*, with two diacritical dots below on the *yā'*; some omit the *jīm*. It has 30 days. Its sign is Taurus. Its nature is sanguine. Its *epact* is 2. The new moon takes place in *al-Han'a*.[116]

[2] First Day. The sun is in Taurus 17 degrees. The day arc is 203 and a half degrees. The night arc is the rest of the rotation. The altitude at midday is 73 degrees and a third. It is 2 feet. The duration of morning and evening twilight is one equal hour and two-thirds.

[3] Third Day. The days of the month of *Nīsān* end.[117]

114. Fumaria species are sometimes used in herbal medicine. Some varieties may have anti-inflammatory and analgesic potential.

115. Both manuscripts give this most unusual form of Ayyār.

116. The 6th lunar mansion.

117. This may refer to the rains of Nīsān, which end on May 3rd according to CC and RA, and on May 5th, according to KA and IB.

[4] Fourth Day. The sun enters the Pleiades.

[5] Sixth Day. On this day, one wards off a wind that brings epidemics and diseases.

[6] Tenth Day. It is said that Jesus, peace be upon him, returned to heaven.[118]

[7] Day Thirteen. God split the sea for Moses, peace be upon him, and the sea remained calm during this day.

[8] Day Fifteen. The sun enters Gemini. The duration of evening and morning twilight is 26 degrees. On this day, the abundance of heat begins.

[9] Day Sixteen. The summer season (*ṣayf*) begins according to the method of the farmers.[119] The altitude of midday is 77 degrees. It is one and a half feet.

[10] Day Seventeen. The sun enters Aldebaran.

[11] Day Eighteen. It is said that, on this day, John, son of Zechariah, peace be upon them, was killed.

[12] Day Nineteen. The day lengthens one hour because it has 14 hours. The night has 10.

[13] Day Twenty-Two. The sun is at the zenith at noon, in the centre, at the Zemzem well and at all the wells of Mecca, God Almighty honours it.[120] A standing person does not have a shadow, as the sun is at the zenith.[121] Then, it goes down to the north.

[14] Day Twenty-Five. It is said that our prophet, Muḥammad, God bless and save him, passed away.

118. The same day in RAS; May 11th, according to KA.
119. According to the «doctors» (*ḥukamāʾ*) in KA and IB, the same day.
120. May 17th, according to KA, RAS and IB.
121. That is, at 90º of altitude.

[15] Day Twenty-Six. *Ba'una* enters, with *fatḥa* on the *bā'* and *ḍamma* on the *hamza* and *fatḥa* on the *nūn*. Some omit the *hamza* and pronounce *ḍamma* on the *bā'*.[122] It is a Coptic month.[123]

[16] Day Thirty. The sun enters *al-Haq'a*.[124]

[17] Section

In this month, one finds freekeh, olives and grapes are being formed, bees make honey and summer fruits appear. Walnut jam and apple juice are made. The flax is uprooted. Chamomile and other seeds are sold; with them, ointments are made. Broad beans and barley are harvested. Vipers are hunted to make the theriaca. This month is a mixture of spring and summer because its nature is a balance of hot and dry.

[1] June

In Syriac, it is said *Ḥazīrān* with a *fatḥa* on the *ḥā'* without diacritical points, a *kasra* on the *zāy* and *fatḥa* on the *rā'*. It has 30 days. Its sign is Gemini. Its nature is sanguine. Its *epact* is 5. The new moon occurs in *al-Dhirā'*[125] and sometimes in *al-Nathra*.[126]

[2] First Day. The sun is in Gemini 14 degrees. The day arc is 212 degrees and three quarters. The night arc is the rest of the rotation. The altitude at midday is 79 degrees and a quarter. It is one and a quarter feet. The duration of the twilight, evening and morning, is 26 degrees and a half.

[3] Fourth Day. It is said that, on this day women, and all animals desire intercourse.

122. Namely: Būna.
123. 10th month: Paoni.
124. The 5th lunar mansion.
125. The 7th lunar mansion.
126. The 8th lunar mansion.

[4] Seventh Day. It is said that, on this day, the killing took place of ʿUthmān ibn ʿAffān, God be pleased with him, and the caliphate of ʿAlī, God be pleased with him.

[5] Eighth Day. It is said that, on this day, also men and all animals love women.

[6] Day Thirteen. Stud horses are isolated from breeding mares after they become pregnant. The mares remain isolated until they give birth. The duration of pregnancy is 11 months.

[7] Day Fifteen. The sun enters the head of Cancer. It is the summer solstice. It is the beginning of the summer season according to the doctors' calendar. The day arc is 213 degrees and four fifths. The day has 14 and a quarter hours: it is the longest day of the year. The night lasts 9 and three-quarter hours: it is the shortest night of the year. Then, the night begins to lengthen and the day to shorten. The altitude at noon is 80 degrees minus one sixth: it is the maximum altitude of the sun in our area. It is one and a fifth feet: the minimum shadow in our area. The duration of the evening and morning twilight is one hour and four fifths: the maximum duration in our area, according to what is obtained with the precise instrument. The sun returns from north to south.

[8] Seventeenth Day. The sun enters *al-Hanʿa*.[127]

[9] Day Nineteen. The caliphate of ʿUmar, may God be pleased with him, is said to have taken place.

[10] Day Twenty-Four. It is the day of the *ʿAnṣara* and the birth of John, upon him be peace, a day of celebration for Christians, may God destroy them! Experienced people claim that the crop which is harvested on this day is not eaten by worms. It is said that, on this day, the sun stood still for Joshua, son of Nūn, upon him be peace, for a day in the conquest of ʿAsqalān in Syria. It is said that, if fig trees are covered with dust on this day, no fruit will fall even if the trees are not pruned. It is said that, on this day, no female on the face of the earth becomes pregnant.

127. The 6th lunar mansion.

[11] Day Twenty-Five. *Abīb* enters, pronounced with *fatḥa* on the *hamza* and *kasra* on the *bā'*; it is a Coptic month.[128]

[12] Day Thirty. The sun enters *al-Dhirā'*.[129]

[13] Section

In this month, there are the first grapes and figs. Walnuts and watermelon are being formed. The blackberries are ripe. The ends of the branches that are one year old are pruned by hand, not with iron tools, so that the roots get stronger. The wheat harvest is complete. Honey is extracted. In this month, it is better to use foods, drinks, rooms and clothes that are refreshing, soft, regulate the bodies and decrease the degree of humidity in them, as well as avoiding the affliction of hunger and thirst.

[1] July

In Syriac, it is called *Tammūz*: it is pronounced with a *fatḥa* in the consonant *tā'* that bears two diacritical points above and with a *ḍamma* in the *mīm*, that bears *shadda*, and with *zāy*. It is 31 days long. Its sign is Cancer. Its nature is bilious, hot and dry. Its *epact* is 7. The new moon occurs in *al-Ṭarf* [130] and sometimes in *al-Jabha*.[131]

[2] First Day. The sun is in Cancer 16 degrees. The day arc is 212 degrees and a fifth. The altitude of midday is 79 degrees. It is 1 and a third feet, minus half a finger. The duration of twilight, evening and morning, decreases by about half a degree.

[3] Fourth Day. It is said that the fleas go away and that, perhaps, on this day, a wind will blow that will make you fear for your eyes.

128. The 11th month: Epip.
129. The 7th lunar mansion.
130. The 9th lunar mansion.
131. The 10th lunar mansion.

[4] Seventh Day. The sun is at the zenith, in the centre of the Zemzem well and of all the wells of Mecca. There is no shade for a person on foot.[132] Then, [the sun] returns descending to the south.

[5] Tenth Day. The day decreases a quarter of an hour since it has 14 hours. The night lengthens a quarter of an hour as well because it has 10 hours.

[6] Day Twelve. The simoom of summer begins: they last forty days, twenty in this month and twenty in the following month.[133]

[7] Day Thirteen. The altitude [of the sun] at noon is 77 degrees. It is 1 and a half feet.

[8] Day Fourteen. The sun enters *al-Nathra*.[134] It is said that, on this day, the Hijra of the prophet, God bless him and save him, took place.

[9] Day Fifteen. The sun enters Leo. The altitude [of the sun] at noon is 76 degrees and a third. The duration of evening and morning twilight is 26 degrees.

[10] Day Twenty-Five. The Coptic month *Musra* begins.[135] It is pronounced with *ḍamma* in the *mīm*, with *sukūn* in the *sīn* with no diacritical dots and with *fatḥa* or *kasra* on the *rā'*. It is the twelfth month and it is the leap month. It has 35 days and, in a leap year, 36.

[11] Day Twenty-Eight. The altitude [of the sun] at noon is 73 degrees and a third. It is 2 feet.

[12] Day Twenty-Nine. The altitude [of the sun at noon] is 73 degrees. It is said that, on this day, Moses, peace be upon him, was born and that the destruction of Jerusalem took place, as mentioned by historians.

132. The same situation as on May 22nd.

133. July 11th, according to CC and RAS. The simoom are periods of hot weather; see CC, 110, note 4.

134. The 8th lunar mansion.

135. The 12th month: Mesori.

[13] Day Thirty. The day has 13 and a half hours and the night 10 and a half hours.

[14] Section

In this month, the threshing begins. The vines and all the fruits are ripe. Partridge chicks fly and are hunted. The dates are ripe and radiant. At the end of the month, the planting of winter vegetables begins for those who have water. Thyme and other herbs are harvested. In this month, vomiting and excessive movement should be avoided, as well as fullness of food, so it should be divided into two or three meals.

[1] August

In Syriac, it is called *Āb*, with *fatḥa* on the prolonged *hamza*, and after it *bā'* with a single diacritical dot below. It is 31 days long. Its sign is Leo. Its nature is bilious. Its *epact* is 3. The altitude [of the sun] at noon is 76 degrees and a third. The duration of evening and morning twilight is 26 degrees. The new moon occurs in *al-Ṣarfa*.[136]

[2] First Day. The sun is in Leo 16 degrees. The day arc is 202 degrees and a quarter. The night arc is the rest of the rotation. The height [of the sun] at noon is 72 and a half degrees. It is 2 and a quarter feet. The duration of evening and morning twilight is 1 equal hour and two-thirds.

[3] Second Day. The sun enters *al-Ṭarf*. [137]

[4] Third Day. Experienced people affirm that the wood that is cut on this day or the day before is not eaten by worms.

[5] Sixth Day. The sun enters *al-Jabha*.[138]

[6] Ninth Day. The altitude at noon is 70 degrees. It is said that whoever is stung by a scorpion on this day dies within an hour.

136. The 12th lunar mansion.
137. The 9th lunar mansion.
138. The 10th lunar mansion.

[7] Tenth Day. At noon, it is 2 and a half feet.

[8] Day Eleven. It is said that Abū Bakr passed away on this day and that ʿUmar became the caliph, God be pleased with them both, although it is [also] said [that it was] in June as said before.

[9] Day Sixteen. The sun enters Virgo. It is the beginning of autumn for farmers.[139] The day has 13 hours and the night has 11 hours. The duration of evening and morning twilight is 24 degrees. The height [of the sun] at noon is 67 and a half degrees.[140] It is 2 and three quarters feet.

[10] Day Twenty. The scorching simoom stop. The altitude [of the sun] at noon is 66 degrees. It is 3 feet.

[11] Day Twenty-One.[141] The sun enters *al-Zubra*.[142]

[12] Day Twenty-Five. Mary, peace be upon her, died.

[13] Day Twenty-Six. The *Torah* was revealed on this day.

[14] Day Twenty-Nine. The month *Tawt*[143] enters, with *fatḥa* in the first of the two *tā'*, which can also be pronounced with *ḍamma* [*tūt*]. It is the first month of the Coptic calendar and, in it, the *nayrūz* is celebrated in Egypt.

[15] Section

In this month, the autumn beans are sown in the orchards. The blue wallflower, turnips, carrots and cabbages are planted. Acorns pile up. Logs and cuttings planted at the end of the month grow well. The mullet goes from the sea to the rivers. Sardines abound. The wood cut in this month does not rot. In this month, each

139. Same date in KA and RAS, but August 16th in IB; see IB, 47, note 4 of the French translation, where Renaud remarks that the date should be September 16th.

140. MS Z gives a different value.

141. MS Z says day 23.

142. The 11th lunar mansion.

143. The 1st Coptic month: Thout.

crop is irrigated at the beginning of the afternoon so that it grows more and in the same way as in the previous month, because this irrigation eliminates the heat accumulated during the day from the crop. Grapefruits flower and accumulate at the end of the month. The *sindī*, meaning the watermelon, is ripe. In this month, sweet, fat and salty foods should be avoided entirely. In addition, cupping, sexual intercourse, and exhaustion are forbidden.

[1] September

In Syriac, it is called *Aylūl*. It is pronounced with *fatḥa* at the beginning and with *sukūn* in the *yā'* that has two diacritical points below it. It is 30 days long. Its sign is Virgo. Its nature is bilious. Its *epact* is 6. The new moon occurs in *al-Ghafr*[144] and sometimes in *al-Simāk* .[145]

[2] First Day. The Christians, may God confuse them!, claim that, on this day, Joshua son of Nūn, peace be upon him, died. The sun is in Virgo 16 degrees. The day arc is 187 degrees and a half and the night arc is the rest of the rotation. The day has 12 equal hours and a half and the night has 11 and a half. The height of the [sun] at noon is 62 degrees. It is 3 and a half feet. The duration of evening and morning twilight is 23 degrees.

[3] Third Day. The sun enters *al-Ṣarfa*.[146]

[4] Day Ten. The altitude [of the sun] at noon is 58 degrees and a third.[147] It is 4 feet.

[5] Day Fifteen. Night and day are the same, as it is the autumnal equinox, and both have 12 hours. The altitude [of the sun] at noon is 56 degrees and a third. It is 4 and a half feet.

144. The 15th lunar mansion.
145. The 14th lunar mansion.
146. The 12th lunar mansion.
147. MS Z gives a different value.

[6] Day Sixteen. The sun enters Libra. It is the beginning of autumn according to the procedure of Hippocrates, Galen and other doctors and astronomers.[148] The duration of evening and morning twilight is 1 equal hour and a half.

[7] Day Twenty. The sun enters *al-ʿAwwā'*.[149]

[8] Day Twenty-Three. The altitude [of the sun] at noon is 33 degrees. It is 5 feet.

[9] Day Twenty-Four. It is said that, on this day, John son of Zachary, peace be upon him, was killed.

[10] Day Twenty-Seven. It is said that, on this day, the fruits that are to be stored until winter are collected.

[11] Day Twenty-Eight. *Bābah* enters, with *fatḥa* on both *bā'* and sometimes with *ḍamma* on the second *bā'*; it is a Coptic month.[150]

[12] Day Twenty-Nine. The day has 11 and a half hours and the night 12 and a half hours.

[13] Section

In this month, sowing and ploughing begin in the cold mountains. The nuts are collected. Henna and vegetables are cut. The salt condenses. Some olives turn black. Chestnuts and acorns appear. Figs and almond trees are planted. Pomegranate and fruit juice are made. This month has moderate temperature. In it, black bile churns. The fish appear. It is good to take sweet things, in solid and liquid form, but avoid taking everything salty, melon and beef.

148. KA, RAS and CC omit «astronomers»; IB, Hippocrates and Galen.
149. The 13th lunar mansion.
150. 2nd month, Paopi.

Abū Nuwās said about this month:[151]

September has arrived and heat has disappeared // because Sirius extinguished its fire
[You two,] get up and mix up water and wine // because the result of their union is joy.

[1] October

In Syriac, it is called *Tishrīn al-awwal*. It is pronounced with *fatḥa* on the *tā'* which has two diacritical points above it and with *sukūn* on the *shīn* with diacritical dots. It is 31 days long. Its sign is Libra. Its nature is black [bile], cold and dryness. Its *epact* is 8.[152] The new moon occurs in *al-Qalb*[153] and sometimes in *al-Iklīl*.[154]

[2] First Day. The sun is in 15 degrees of Libra. The day arc is 172 degrees and the night arc is the rest of the rotation. The altitude [of the sun] at noon is 50 degrees and two fifths. It is 5 and a half feet. It is the first day of Alexander's era and the new year for the Syrians. On this day, the sun enters *al-Simāk*.[155] It is said that, on this day, God created Adam, upon him be peace.

[3] Second Day. The Nile in Egypt recedes and the people of Egypt begin planting. It is said that, on this day, Eve was created.

[4] Seventh Day. The height [of the sun] at noon is 48 degrees and a tenth. It is 6 feet.

[5] Eighth Day. The sacrifice of Isaac, upon him be peace, is said to have taken place.

151. The poem appears in KA in the entry of September 28th; see the apparatus of the edition and the translation of KA.

152. MS Z gives a different value.

153. The 18th lunar mansion.

154. The 17th lunar mansion.

155. The 14th lunar mansion.

[6] Day Fifteen. The altitude [of the sun] at noon is 45 degrees. The shadow of all things is equal to its height.[156] It is 6 and two-third feet. The day has 11 hours and the night, 13.

[7] Day Seventeenth. The sun enters Scorpio and *al-Ghafr*.[157] The duration of evening twilight and morning twilight is as advanced. On this day, [the time for] the sowing of the land arrives since it was the beginning of Adam's tillage, upon him be peace.[158]

[8] Day Twenty. The altitude [of the sun] at noon is 43 degrees and two fifths. It is 7 feet.

[9] Day Twenty-Eight. *Hatūr* enters, with *fatḥa* on the *hā'* and *ḍamma* on the *tā'* which carries two diacritical points above, although it is said with *hamza* instead of *hā'*. It is a Coptic month.[159]

[10] Day Twenty-Nine. The altitude [of the sun] at noon is 40 and a half degrees. It is 7 and four-fifth feet. On this day, the sun enters *al-Zubānā*.[160]

[11] Day Thirty-One. The day has 10 and a half hours and the night, 13 and a half hours.

[12] Section

In this month, the olives are collected. People change the white garment for the coloured one and for thick clothes. Sheep give birth and there is milk. Lettuce, anise, fennel and onion are planted. At the end of the month, the leaves fall from the trees, the ants take refuge in their anthills and the sea is rough so no ship sails through it. It is better to use cool and warm food, drinks and places to live. In this month, cow

156. When the altitude of the sun is 45°, the shadow cast by an object has the same value as the height of that object.

157. The 15th lunar mansion.

158. September 15th according to KA.

159. The 3rd, Hathor.

160. The 16th lunar mansion.

meat and its derivatives are avoided, and navigation and intercourse are reduced. Also in this month, the bath must be brief, and fat and salty things are taken.

[1] November

In Syriac, it is called *Tishrīn al-thānī*. It has 30 days. Its sign is Scorpio. Its nature is black [bile]. Its *epact* is 4. The new moon occurs in *al-Naʿāʾim*.[161]

[2] First Day. The sun is in Scorpio 16 degrees. The day arc is 157 degrees. The altitude [of the sun] at noon is 39 and two-thirds degrees. It is 8 feet.

[3] Fourth Day. Snakes close their eyes, except vipers. Vermin go underground.

[4] Fifth Day. *Muʿāwiya*, may God be pleased with him, is said to have seized the caliphate.

[5] Eighth Day. The passing of ʿUmar , may God be pleased with him, is said to have taken place. Abū Luʾluʾa, servant of al-Mughīra Ibn Shuʿba, killed him[162].

[6] Day Ten. The sun enters *al-Iklīl*.[163] The altitude [of the sun] at noon is 37 and a quarter degrees. It is 8 and two-third feet.

[7] Day Fifteen. It is the beginning of winter according to the farmers' system. The altitude [of the sun] at noon is 36 degrees. It is 9 feet.

[8] Day Sixteen. The sun enters Sagittarius and *Qalb al-ʿaqrab*.[164] The day arc is 151 degrees and a fifth and the night arc is the rest of the rotation.

[9] Day Twenty. The day has 10 hours and the night has 14 hours. The altitude [of the sun] at noon is 35 degrees. It is 9 and a half feet.

161. The 20th lunar mansion.
162. Same day in KA and RAS but both sources omit the name of the assassin.
163. The 17th lunar mansion.
164. The 18th lunar mansion.

[10] Day Twenty-Two. The black and white days enter: there are twenty days called the black nights and [another] twenty after them.

[11] Day Twenty-Seven. *Kahayk* [enters], with *fatḥa* on the *kāf* and on the *hā'*, although it is also said by prefixing the *yā'* to the *hā'* [*kayhak*]. It is a Coptic month.[165]

[12] Day Twenty-Eight. The height [of the sun] at noon is 33 and three quarter degrees. It is 10 feet.

[13] Day Twenty-Nine. The sun enters *al-Shawla*.[166]

[14] Section

In this month, most of the planting is done. The vines are planted and grow quickly. The olive trees are planted. The oil is squeezed out. The leaves of fruit trees fall. Sugar cane is harvested. Autumn beans pile up. The turnip is planted. Acorns, chestnuts and myrtle seeds, that is, the myrtle, are collected and their juice is made. The vegetable is covered so that the ice does not damage it. At the end of the month, it is unpleasant to go into the baths for fear of catching a cold, as well as to drink water at night for fear of dropsy. Every animal without bones dies. The snakes close their eyes. In this month, foods, drinks, and rooms that moisten and heat are used, such as honey, butter, meat with bread and garlic soup, and the like, as well as stewing vegetables such as carrots. Rub yourself with wallflower oil or something similar, take whatever perfume you like. Use vomiting and intercourse because they say that, in this month, intercourse in moderation is good. God is wiser.

[1] December

In Syriac, it is called *Kānūn al-awwal*. It has 31 days and, in the leap year for the non-Arabs of al-Andalus, it has 32. We follow this calendar. Its sign is Sagittarius. Its nature is black [bile]. Its *epact* is 6. The new moon occurs in *Saʻd al-dhābiḥ*.[167]

165. The 4th, Koiak.
166. The 19th lunar mansion.
167. The 22nd lunar mansion.

[2] First Day. The sun is in Sagittarius 17 degrees. The day arc is 147 degrees and a quarter and the night arc is the rest of the rotation. The day has 9 and four-fifth hours and the night has 14 and a fifth hours. The altitude [of the sun] at noon is 33 degrees and a third. It is 10 and a tenth feet.

[3] Third Day. It is said that steam begins to come out of people's mouths because the cold is getting worse.

[4] Ninth Day. The cold of the water and the rigour of winter intensify.

[5] Tenth Day. The sun enters *al-Naʿāʾim*.[168]

[6] Day Twelve. The black nights appear: they are the simoom of winter, twenty nights in this month and twenty in the following.

[7] Day Fifteen. The sun enters the beginning of Capricorn. It is the winter solstice and the beginning of winter according to the doctors' system. The day arc is 146 degrees and a fifth. The day has 9 hours and three quarters, it is the shortest day of the year. The night arc is 213 degrees and four fifths. The night has 14 hours and a quarter, it is the longest night of the year. Then the day begins to lengthen and the night to shorten. The altitude [of the sun] at noon is 33 degrees minus one sixth, it is the minimum height in our country. It is 10 and a third feet, it is the maximum extent of shade at noon. The duration of evening and morning twilight is 23 degrees.

<Day Twenty-Two. The altitude [of the sun] at noon is [...]. It is 10 and a quarter feet>[169]

[8] Day Twenty-Three. The sun enters *al-Balda*.[170]

168. The 20th lunar mansion.
169. This sentence only appears in MSZ, 183.
170. The 21st lunar mansion.

[9] Day Twenty Five. Jesus was born, peace be upon him. This was mentioned by Ibn al-Bannā',[171] al-ʿAbd al-Wādī[172] and others. Al-Ṣanhājī[173] added that the birth was at noon while Abū al-Qāsim Khalaf Abī Bakr al-Ṭarābulusī[174] said that the birth was on the twenty-fourth day and the night was on the twenty-fifth day because day precedes night among non-Arabs, contrary to what happens among Arabs. In this respect, Ibn Hishām, the commentator of the *Hāshimiyya*,[175] added that Jesus was born on Wednesday and that God raised him [to heaven] when he was thirty-three years old. If, in the seven days between Christmas and *ḥājūz*, it rains abundantly, it will also rain during the year. If those days are clear, the year will be dry. If it rains on the first of those days, it will rain at the beginning of the year and also in the middle and at the end. This is the experience of those who investigate.

[10] Day Twenty-Seven. *Tūba* enters, with *ḍamma* in the *ṭā'* without diacritical dots and *bā'* bearing a diacritical dot below. It is a Coptic month,[176] which is called *Tūbī* with *yā'* after the *bā'*.

[11] Section

In this month, the early almond trees bloom. The first grapefruits are ripe. Rainwater is stored in this month and the following one because it is not spoiled. The palm piths are ripped out. In this month, the springs sprout. Pepper blooms. Pumpkin, eggplant, garlic and opium poppy are planted. This month is not the time to take medicine or draw bloodletting.

This is the last thing we wanted to mention. It is the great effort of one who does not have much property, because a hand only gives what finds. Praised be God, lord of the worlds. God bless our lord Muḥammad, the last prophet and imam of the envoys. The end.

171. Not extant in IB.

172. See above no. 43.

173. Unidentified author.

174. Sic. The name might be Abū al-Qāsim Khalaf [ibn]Abī Bakr al-Ṭarābulusī; unidentified author.

175. Unidentified author and work. It is unlikely that he is the famous Ibn Hishām (d. 218/833) who wrote the biography of Muḥammad.

176. The fifth, Tobi.

[Colophon Ms 3617]

The extraction of this blessed collection ended in the middle of Jumādā al-ākhar in the year 801 by the hand of its author ʿAbd al-Raḥmān ibn Muḥammad al-Jādirī, may God Almighty bless him with his grace. This is what he said in the copy from which I copied, and this copy was complete on the evening of the first Thursday of Dhū-l-qaʿda in the year 1137. May God make us aware of his goodness and protect us from his evil. Amen.

Bibliography

Al-Barrāq, A.S. (2004), *Fihris al-Makhṭūṭāt al-Maḥfūẓah fī Khizānat al-Jāmiʿ al-Kabīr bi-Miknās*, Rabat.

Alkuwaifi, A. (2022), *El Kitāb al-anwāʾ del Kātib ʿArīb ibn Saʿīd*, Ph. dissertation, University of Barcelona, Barcelona, 2022, (2 vols.) https://www.tdx.cat/handle/10803/687180, last access 1st June 2023.

— & Rius, M. (1998), «Descripción del MS. 80 of al-Zāwiya al-Hamzawīya», *Al-Qantara*, 19: 445–463.

al-Ṭāhirī, A. (coord.) (2002), *Fihris kutub al-ṭibb wa-l-filāḥa wa-l-nabāt al-maḥfūẓa fī l-Maktaba al-ʿĀmma fī l-Ribāṭ*, Rabat.

Balty-Guesdon, M.G. (1992), *Médecins et hommes de science en Espagne Musulmane (IIe/VIIIe-Ve/XIe s.)*, Ph.D. dissertation (Université de la Sorbonne Nouvelle), Lille.

al-Bukhārī (2002), *Ṣaḥīḥ*, Damascus-Beirut.

Calvo, E. (2004), «Two Treatises on Mīqāt from the Maghrib (14th and 15th Centuries AD)», *Suhayl*, 4: 159–206.

— (2008), «*Mīqāt* in Ibn Bāṣo's *al-Risāla fī'l-ṣafīḥa al-mujayyaba dhāt al-awtār* (Treatise on the plate of sines)», *A Shared Legacy. Islamic Science East and West*, eds. Calvo, E., Comes, M, Puig, R. and Rius, M., Barcelona, 151–168.

Díaz-Fajardo, M. (2012), «Ibn al-Raqqām's Notes on Practical Geometry», *Suhayl*, 11: 117–145.

Dozy, R. (1927), *Supplément aux dictionnaires arabes*, Leiden.

Fierro, M. (2014), HATA = *Historia de los autores y transmisores de al-Andalus*, Madrid, https://www.eea.csic.es/red/hata/enlaces.php (accessed 1st June 2023)

Forcada, M. (1992), «The Andalusian sources of the calendar of Ibn al-Bannāʾ of Marrakech», *Actas del II Congreso Hispano-Marroquí de Ciencias Históricas: Historia, Ciencia y Sociedad*, Madrid, 183–196.

— (1993), *Ibn ʿĀṣim*, Kitāb al-anwā' wa-l-azmina-al-qawl fī l-shuhūr. *Estudio, traducción y edición crítica*, Barcelona.

— (1998), «Books of *anwā'* in al-Andalus», *The Formation of al-Andalus. Part 2: Language, Religion, Culture and the Sciences*, eds. Fierro, M. and Samsó, J., Ashgate, 305–328.

— (2000), «The *Kitāb al-anwā' of ʿArīb b. Saʿīd* and the *Calendar of Cordova*», *Sic itur ad astra: Studien zur Geschichte der Mathematik und Naturwissenschaften. Festschrift für den Arabisten Paul Kunitzsch zum 70. Geburtstag*, eds. Folkerts, M. and Lorch, R., Wiesbaden, 234–351.

— (2000), «Astrology and Folk Astronomy: *the Mukhtaṣar min al-Anwā'* of Aḥmad b. Fāris», *Suhayl*, 1: 107–205.

— (2005), «Astronomy, Astrology and the Sciences of the Ancients in Early al-Andalus (2nd/8th-3rd/9th centuries)», *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften*, 1–74

— (2011), «Calendar of Córdoba», in *Encyclopaedia of Islam THREE*. Consulted online on 01 June 2023 <http://dx.doi.org/10.1163/1573-3912_*EI3*_COM_2437>.

— (2022), «Ibn Abd Rabbihi. *Adab* and the Rational Sciences», *Connected Stories: Transmissions of Knowledge between East and West in the Pre-Modern Islamic World*, eds. Meouak, M. and de la Puente, C., New York, 131–156

— (2023), «Ibn ʿAbd al-Barr y los *anwā'*: astronomía y religión en al-Andalus», *Al-Qanṭara*, 44: 1–21.

Galland-Pernet, P. (1958), «La vieille et la legende des jours d'emprunt au Maroc», *Hésperis*, 44: 29–94.

Guillaume, A. (1955), *The Life of Muhammad: A Translation of Ibn Isḥāq's Sīrat Rasūl Allāh*, Oxford, 1955.

Ibn ʿĀṣim (1996), *Kitāb al-anwā' wa-l-azmina*, ed. Nūrī Ḥammūdī al-Qaysī and Muḥammad Nāyif al-Dulaymī, Beirut.

Ibn Qutayba (1956), *Kitāb al-Anwā'*, ed. Hamidullah, M. and Pellat, Ch., Hyderabad.

Ibn Manẓūr (2014), *Lisān al-ʿArab*, Beirut

al-Khaṭṭābī, M. (1986), «*ʿIlm al-Mawāqīt*», al-Muḥammadiyya, Morocco.

Kazimirski, A.B. (1875), *Dictionnaire arabe-français*, Cairo.

Kunitzsch, P. (1987), «Manāzil», *Encyclopaedia of Islam*, 2ª ed., Leiden, VI, pp. 358–360.

— (1994), «ʿAbd al-Malik b. Ḥabīb's Book on the Stars», *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften*, 9: 161–194.

— (1997), «ʿAbd al-Malik b. Ḥabīb's Book on the Stars (Conclusion)», *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften*, 11: 179–188.

Lamrabet, D. (2014), *Introduction à l'histoire des mathématiques maghrébines*, Rabat.

Lane, E.W. (1863), *An Arabic-English Lexicon*, London.

Martínez Gázquez, J. and Samsó, J. (1981), «Una nueva traducción latina del Calendario de Córdoba», *Textos y estudios sobre astronomía española en el siglo xiii*, ed. Vernet, J., Barcelona, 9–78.

Mannūnī, M. (1963), «Maktabat al-Zāwiya al-Ḥamzīya», *Tiṭwān*, 8: 97–177.

al-Marzuqī (1996), *Kitāb al-azmina wa-l-amkina*, ed. al-Manṣūr, J., Beirut

Navarro, M.A. (1990), *Risāla fī awqāt al-sana: un calendario anónimo andalusí*. Granada.

Pellat, Ch. (1960), «*Anwā'*», *Encyclopaedia of Islam*, 2ª ed., Leiden, 1, 538–540.

— (1961), *Le calendrier de Cordoue publié par R. Dozy. Nouvelle edition accompagneé d'une traduction française annotée*, Leiden, 1961.

Puig, R. (2018), «Le *Kitāb al-mustaw'ib al-kāfī wa-l-muqni' al-shāfi'* d'Ibn Khalaf al-Umawī al-Qurṭubī (m. 1206) d'après le manuscrit Ahmadiyya 11925/12 de la Bibliothèque Nationale de Tunis», *Actes du 13e Colloque Maghrébin sur l'Histoire des Mathématiques Arabes*. Tunis 30–31 mars et 1er avril 2018, Tunis, 267–282.

— (2022), «*Anwā'* and *Mīqāt* in Calendars and Almanacs of the societies of al-Andalus and the far Maghrib», *Routledge Handbook on the Sciences in Islamicate Societies. Practices from the 2nd/8th to the 13th/19th Centuries*, ed. Brentjes, S., London-New York, 595–607.

Qādī ʿIyāḍ (1998), *Ikmāl al-mu'lim bi-fawā'id Muslim*, ed. Ismāʿīl, Y., al-Manṣūra.

al-Qurṭubī, (2006), *al-Jāmi' li-aḥkām al-Qur'ān*, ed. ʿAbd Allāh ibn ʿAbd al-Muḥsin al-Turkī, Beirut.

Renaud, H.P.J. (1948), *Le calendrier d'Ibn al-Bannā'* (1256–1321 J. C), Paris.

Samadi, Y. (2017), *al-Mustaw'ib al-kāfī wa-l-muqni' al-shāfi'*, ed. Samadī, Y., Rabat.

Saidi, R. (2013), *Natā'iŷ al-afkār fī šarḥ Rawḍat al-azhār de Abū ʿAbd Allāh Muḥammad al-Ḥabbāk (Comentario de la urŷūza Rawḍat al-azhār fī ʿilm waqt al-layl wa-l-anhār de Abu Zayd al-Ŷādirī). Edición y estudio*. Unpublished doctoral dissertation, University of Barcelona, Barcelona; http://hdl.handle.net/2445/62864

Samsó, J. (1978), «La tradición clásica en los calendarios hispanoárabes y norteafricanos», *Actas del segundo congreso internacional de estudios sobre las culturas del mediterraneo occidental*, Barcelona, 177–186. (Reprinted in J. Samsó, *Astrometeorología y astrología medievales*)

— (1980), «Tres notas sobre astronomía medieval hispánica en el siglo xiii», in *Estudios sobre historia de la ciencia árabe*, ed. Vernet, J., Barcelona, 167–179.

— (1983), «Sobre los materiales astronómicos en el Calendario de Córdoba y en su latina version del siglo xiii», in Nuevos estudios sobre astronomía española en el siglo de Alfonso X, ed. J. Vernet, Barcelona, 125–138. (Reprinted in J. Samsó, *Astrometeorología y astrología medievales*)

— (1994), *Islamic Astronomy and Medieval Spain* (Variorum. Aldershot).
— (2007), *Astronomy and Astrology in al-Andalus and the Maghrib* (Ashgate Variorum. Aldershot).
— (2008), «Lunar Mansions and Timekeeping in Western Islam» *Suhayl*, 8:121–161. (Reprinted in J. Samsó, *Astrometeorología y astrología medievales*)
— (2008), *Astrometeorología y astrología medievales*, Barcelona.
— (2020), *On Both Sides of the Strait of Gibraltar: Studies in the History of Medieval Astronomy in the Iberian Peninsula and the Maghrib*, Leiden-Boston.
Serrano Niza, D. (2004), «Ibn Ḥabīb», *Biblioteca de al-Andalus*, eds. Lirola Delgado, J. and Puerta Vílchez, J.M., Almería, 3: 219–227.
Sezgin. F. (1979), *Geschichte des Arabischen Schrifttums*, vol. vii, Leiden.
Suter, H. (1897), *Die Mathematiker un Astronomen der Araber und ihre Werke*, Leiden.
Troupeau, G. (1968), «Le livre des temps de Jean Ibn Māsawayh traduit et annoté», *Arabica*, 15: 113–142.
Varisco, D.M. (1991), «The Origin of the *Anwā'* in Arab Tradition», *Studia Islamica*, 74 (1991), 5–28.
— (1994), *Medieval Agriculture and Islamic Science. The Almanac of a Yemeni Sultan*. Seattle.
Vernet, J. (1983), *Nuevos estudios sobre Astronomía española en el siglo de Alfonso X*, Barcelona.
Viladrich, M. (1996), «The Mumtaḥan Tradition in al-Andalus: Analysis of the Data from the Calendar of Cordova Related to the Entrance of the Sun in the Zodiacal Signs», *From Baghdad to Barcelona. Studies in the Islamic Exact Sciences in Honour of Prof. Juan Vernet*, eds. Casulleras, J. and Samsó, J., Barcelona, 253–265.

Appendix: arabic text

Edition of the text

Symbols used to identify the manuscripts in the edition: National Library of Tunis, manuscript 3617 [ت]; National Library of Morocco, manuscript D2023 [و]. The orthography of *hamza* and alif *maqṣūra* and the representation of dagger alif have been regularized. The form of the ordinals from twenty to thirty has been kept in the edition.

[تنبيه الأنام على ما يحدث في أيّام العام للجادري]

//[و. 512] [ت. 1ظ]

[1] بسم الله الرحمان الرحيم وصلّى الله على سيّدنا محمّد وآله.[177] قال الشيخ الفقيه أبو زيد عبد الرحمان بن محمد الجادري رحمه الله تعالى ورضي عنه وكرّمه.[178]

[2] الحمد لله مدير الفلك الدوّار ﴿ومولج الليل في النهار﴾[179] وصلىّ الله على سيّدنا محمّد نبيه المختار وآله وأصحابه[180] الممثل الأخيار ما نجم في الأفق نجم[181] غاب[182] أو عار[183] وأفصح الطير وأورقت الأشجار أمّا بعد.

[3] فإنّ بعض شيوخنا الفقهاء العلماء الأذكياء أطلعني على تقييد منسوب للإمام السنّي أبي العبّاس الأزدي ذكر فيه عجمية الشهور وما يحدث فيها من دخول الفصول وزيادة النهار ونقصانه وأقدام زواله وكان وضعه ابن البنّاء[184] بمرّاكش الغرّاء فأراد شيخنا أن يكون ذلك على عرض فاس وطلب منّي بنيان ذلك[185] الأساس.

177. وصلىّ الله على سيّدنا محمّد وآله: [ت] صلىّ الله على سيّدنا ومولانا محمّد وآله وصحبه وسلّم تسليما.
178.رحمه الله تعالى ورضي عنه وكرمه: [ت] رحمه الله تعالى ورضي عنه أمين.
179. القرآن، سورة العمران 27/3. سورة الحاجّ 61/22. سورة لقمان 29/31 وإلخ.
180. أصحابه: [و] أصحابه الممثل' أو أصحابه المحثل.
181.نجم: سقطت من [و].
182. غاب:سقطت من ت.
183. عار: [و، ت] غار.
184. ونقصانه وأقدام زواله وكان وضعه ابن البنّاء: سقطت من [و].
185. ذلك: [ت] ذا.

[4] فابتدرت لما أراد وذكرته في هذا الجزء على أكمل[186] المراد وزدت عليه مماّ[187] يحدث في الشهور على مرّ الدهور ما[188] يليق بهذا المختصر ويرغب فيه أهل البدو والحضر وذكرت فيه //[و. 513] حلول الشمس بالمنازل لا على ما يقتضيه قسمتها على البروج بل على تحقيق مواضع نجومها منها[189] كما ذكرناه في غير هذا الكتاب وهو[190] إن شاء الله الصواب. وسمّيته تنبيه الأنام على ما يحدث في أيّام العام وبالله أستعين إنّه خير معين.

[5] فأوّل الشهور عند عجم الأندلسيين[191] شهر ينّير ويقال له بالسريانية كانون الآخر[192] وأيّامه أحد[193] وثلاثون يوما وبرجه الجدي وطبيعته البرودة والرطوبة وأسّه واحد ويستهلّ[194] فيه الشهر العربي بسعد[195] السعود.

[6] فاليوم الأوّل منه النيروز وهو سابع المسيح عليه السلام ويوم ختانه وليلته تسمّى ليلة[196] الحاجوز لأنّها تحجز بين السنة والسنة.

[7] والشمس فيه على كج[197] من الجدي بالموضع الطبيعي وقوس نهاره قمح وخمس درجة ومدّة الشفق والفجر فيه ساعة معتدلة ونصف ساعة.

[8] وارتفاع الزوال فيه لد غير عشر درجة[198] وأقدامه عشرة وزد أبدا على أقدام الزوال قامة للعصر
وهي ستّة أقدام وثلثا[199] قدم وزد للظهر ربعها وهو قدم وثلثان واعلم أنّ القدم خمسة عشر أصبعا.

186. أكمل: [و] الكمل.
187. مماّ: [و] ما.
188. ما: [و] مماّ.
189. منها: [و] منه.
190. وهو: [و] هو.
191. الأندلسيين: [ت:] الأندلوس.
192. الآخر: [و، ت] الأخير.
193. أحد: [و، ت] إحدى.
194. ويستهلّ: [و] يستهلّ.
195. بسعد: [و] في سعد.
196. ليلة: سقطت من [و].
197. كج: [ت] يح.
198.درجات: [و، ت] درجة.
199. وثلثا: [و] وثلث.

[9] وفي الثامن منه[200] تحلّ الشمس بسعد[201] الذابح وارتفاع الزوال له[202] درجة وأقدامه ط ونصف //[ت. 2و] والنهار من عشر ساعات معتدلة وازداد فيه ربع ساعة والليل من[203] يد ساعة ونقص عن منتهى[204] زيادته ربع ساعة.

[10] وفي الثالث عشر منه ارتفاع الزوال لو وأقدامه ط.

[11] وفي الرابع عشر تحلّ الشمس ببرج الدلو ويكون قوس النهار قنب درجة.

[12] وفي الثامن عشر منه تحلّ بسعد بلع.

[13] و[205] في عشرين منه تخرج الليالي السود التي فيها إفراط البرد وقيل فيه قتل علي ابن أبي طالب[206] رضي الله عنه.

[14] وفي الحادي وعشرين منه ارتفاع الزوال لح وأقدامه ح ونصف قدم وفيه توفّي داوود عليه السلام[207] وإرميا ويوشع وشعيب.

[15] وفي السادس وعشرين منه يدخل أمشير شهر قبطي بفتح الهمزة وقيل بكسرها وسكون الميم وكسر الشين المعجمة تولّدت عنها ياء ثم راء وهو السادس من شهورهم وأيّام شهورهم كلّها ثلاثون //[و. 514] يوما إلّا الثاني عشر فإنّه من له والسنة[208] الكبيسة من لو يوما وقيل شرب الماء الجاري فيه قبل الطعام يحفظ الصحّة.

[16] وفي السابع وعشرين منه تحلّ الشمس بسعد[209] السعود ويخرج زمان الحرث.

200. منه: سقطت من [و].
201. بسعد: [و] سعد.
202. له: [و] لد؛ [ت] و. الصواب وفقا لمخطوط حمزوية.
203. من: سقطت من [و].
204. منتهى: [ت] ينتهى.
205. و: [و] هو.
206. ابن أبي طالب: سقطت من [و].
207. عليه السلام: سقطت من]ت[.
208. والسنة: [ز، ت] وفي السنة.
209. بسعد: [ت] سعد.

[17] وفي[210] الثامن وعشرين منه ارتفاع الزوال م وأقدامه ح ويكون النهار من عشر ساعات ونصف والليل من يج ساعة ونصف.

[18] فصل

وفي هذا الشهر ينوّر اللوز ويطيب الأترجّ[211] وقصب السكّر ويعمل مربّات الأترنج[212] ويجري الماء في العود ويوجد الدفء[213] وتهدأ[214] الطير[215] وتتسافد[216] وتضرب أوتاد الرمّان والزيتون ويغرس النوى كلّه والملوخ كالتفّاح والسفرجل وتزبر الكروم وما قطع فيه من الخشب تمادّت صحّته لكن الأولى في يوم صحو والقمر آفل واطلب فيه الولد فإنّ طبائع[217] النساء في هذا الشهر تشتهي الولد بإذن الله وهو أحسن الأوقات لركوب البحر والله أعلم.

[1] شهر فبرير[218]

ويقال له بالسريانية سباط بضمّ السين المهملة وقيل المعجمة وأيّامه ثمانية وعشرون يوما وفي السنة الكبيسة عند السريانيين من كط يوما[219] وليس عليه العمل عندنا وبرجه الدلو وطبيعته البلغم وأسّه أربعة والاستهلال فيه بالفرغ المقدّم وقد يكون بالمؤخّر.

[2] فاليوم الأوّل منه الشمس فيه على يط من الدلو وقوس النهار قنط وسدس وارتفاع الزوال ما وأقدامه ز وثلثان والشفق والفجر فيه[220] كما تقدّم.

[3] وفي الخامس منه يزداد في النهار ساعة على الرجوع فيكون من عشر ساعات //[ت. 2ظ] وثلاثة أرباع ساعة وينقص الليل كذلك وارتفاع الزوال مب وثلث درجة.

210. في: سقطت من [و].
211.الأترجّ: [ت] الأترنج.
212. وقصب السكّر ويعمل مربّات الأترنج: سقطت من [و].
213. ويوجد الدفء: ابن البناء، رسالة، 3، ويوجد دفء الماء في الأنهار.
214. تهدأ: [و] تهد.
215. الطير: [و] الطيور.
216.تتسافد: [ت] تتساند.
217. طبائع: [و] طباع.
218. فبرير: [و] فبراير.
219. يوما: سقطت من [و].
220. فيه: سقطت من [ت].

[4] وفي السادس منه قيل تفتح الحيّات أعينها وتبدأ الرياح اللواقح.

[5] وفي السابع منه تسقط إحدى الجمرات الثلاث وقال عريب يوم الثامن وبين كل جمرة سبعة أيّام فيخرج الدفء من الأرض يجده البعير في خفّه والفرس في حافره والثور في ظلفه وقيل تقع[221] الأولى في الماء والثانية في الأرض والثالثة في العود وفيه أرسل النبي صلىّ الله عليه //[و. 515] وسلّم فيما حكى المؤرّخون.

[6] وفي الثامن منه تحلّ الشمس بسعد الأخبية وارتفاع الزوال مج وخمسان وأقدامه ز.[222]

[7] وفي التاسع منه تخرج الأيّام البلق.

[8] وفي الثالث عشر منه تحلّ الشمس ببرج الحوت ويكون النهار من يا ساعة والليل من يج ساعة وارتفاع الزوال مه درجة وظلّ كلّ شيء مثله في الزوال فيكون الظلّ قامة.

[9] وفي الرابع عشر منه تسقط الجمرة الثانية وقيل لا تبقى دابّة[223] في جحرها ألّا تتحرّك.

[10] وفي الخامس عشر منه يدخل فصل الربيع على مذهب الفلاّحين.

[11] وفي التاسع عشر منه تحلّ الشمس بالفرغ المقدّم وقيل فيه يغرس الورد والياسمين وتحوّل كلّ شجرة ذات عرق.

[12] وفي الحادي وعشرين تسقط الجمرة الثالثة ويزيد الدفء وينكسر البرد وارتفاع الزوال مح وعشر وأقدامه ستّة.

[13] وفي الخامس وعشرين منه يدخل شهر برمهان القبط بفتح أوّليه وبفتح الراء وسكون الميم وبالهاء وفيه أوّل أيّام الحسوم وهي سبع ليال وثمانية أيّام ويقال لها ليال العجوز وليال صيان[224] وليال الراعي وأوّل ليالها ليلة السادس والعشرين.

221. تقع: [و] تقع في.
222. ز: [ت] سبعة.
223. لا تبقى دابّة: [و] لا دابّة.
224. وليال صيان: كذا في [ت] .سقطت من [و].

[14] وقال فيها الشاعر وذكر أسماء لياليها:

كسع الشتاء بسبعة غبر[225] / أيّام[226] شهلتنا[227] من الشهر
فإذا انقضت أيّامها ومضت / صنّ وصنّبر مع الوبر
وبآمر وأخيّه مؤتمر/ ومعلّل وبمطفئ الجمر
ولّى الشتاء مبادرا هربا[228] / وأتتك واقدة[229] من الحرّ

والبرد يشتدّ فيها لانصرافه ويشبه بالسراج يشتدّ ضوءه قبل أن يطفئ والعليل يقوى شيئا قبل أن يموت.

[15] وفي السابع وعشرين منه قيل توفّي موسى عليه السلام وأقدام الزوال خمسة ونصف.

[16] وفي الثامن وعشرين منه النهار فيه من يا ساعة ونصف والليل من يب[230] ساعة ونصف

[17] فصل

وفي هذا الشهر يفصح الطير وتقبل الخطّاف والبلارج إلى الحواضر وتتحرّك دوابّ //[و. 516] البحر وتورّق[231] أكثر الأشجار وتفرخ الحدأة والغراب ويظهر النمل وتحضن دود الحرير// [ت.3 و] في بعض البلاد وتزرع بقول الصيف ويوجد عندنا فريك اللوز ويكبر الفول ويوجد في آخره الورد وفيه تهيج القطاط وفي أشهر الذي بعده يكثر نتاج الإبل ويطّلق إخراج الدم وشرب الدواء وقيل فيه بنى داوود عليه السلام بيت المقدّس وأخرجت بنو إسرائيل جسد يوسف عليه السلام من النيل.

[1] شهر مارس

225. غبر: [و] غبر منه.
226. / أيّام: [ت] و أيّام.
227. شهلتنا: [و] شهلتها.
228. ولّى الشتّاء مبادرا هربا : [و] وللشتاء مباردا هربا ؛ [ت] ولّى الشتّاء مهاربا. الصواب وفقا لعريب، كتاب الأنواء، ت. الكويفي،1: 163.
229. واقدة: [ت] وافدة.
230.يب: [ت] يج.
231.تورّق: [ت، و] تنوّر.

ويقال له بالسريانية آذر بفتح أوّله والذال المعجمة بلا مدّ وأيّامه أحد[232] وثلاثون يوما وبرجه الحوت وطبيعته البلغم وأسّه أربعة والاستهلال فيه بالنطح.

[2] فاليوم الأوّل منه الشمس فيه على يز من الحوت وقوس النهار قعج وعشر وقوس الليل باقي الدور وارتفاع الزوال نا[233] وسدس وأقدامه خمسة وخمسان ومدّة الشفق والفجر كما تقدّم وهذا اليوم أوّل المخنيطسات وهي سبعة أسابيع لا يدخل البحر فيها وقيل فيها يظهر اليامون وهو الطير الذي يأكل النحل.

[3] وفي الرابع منه تخرج أيّام ليال العجوز.

[4] وفي السادس منه ارتفاع الزوال نج وسدس وأقدامه خمسة.

[5] وفي الثامن منه تحلّ الشمس بالفرغ المؤخّر.

[6] وفي الحادي عشر قيل «إذا فطم فيه الصبيّ لم يكن يطلب اللبن».

[7] وفي الرابع عشر منه يعتدل الليل و[234] النهار ويسمّى بالاعتدال الربيعي وارتفاع الزوال نو وثلث درجة وأقدامه أربعة ونصف.

[8] وفي الخامس عشر منه تحلّ الشمس بالحمل وهو أوّل فصل الربيع عند الأطبّاء وأهل التعديل ونقل عن الجوهري أنّ في هذا اليوم دخل نوح عليه السلام السفينة وكثر الطوفان وفيه تتوالد الحيتان. وقال أبو نواس في فصل الربيع

أما ترى و[235] الشمس حلّت الحملا // وطاب وزن الزمان واعتدلا
وغنّت الطير بعد عجمتها // واستوفت الخمر حولها كملا //[و. 517].

232.أحد: [ت] واحد.
233.نا: [و] مد
234. و: [ت] مع.
235. و: سقطت من [و].

[9] وحلول[236] الشمس بالحمل هو ابتداء الزمان وتحويل سني العالم وفي الصحيح عن نبيّنا محمّد[237] صلىّ الله عليه وسلّم فيه قال في خطبة يوم النحر سنة عشر «الآن الزمان قد استدار كهيئة يوم خلق الله السموات والأرض» فكان ذلك اليوم الذي قال هذا فيه صادف حلول الشمس بالحمل فسبحان من علمه علم الأوّلين والأخرين لو لم تكن له صلّى الله عليه وسلّم معجزة[238] سوى أعلامه بوقت الاستدارة من غير أن يعلم تعديل الأزمان لكان قوله هذا شاهدا بالرسالة[239] وليس ردّ المازري والقاضي عياض عن الخوارزمي بأنّ هذا اختبر ولم يوجد كذلك ببيّن فإنّه قد اختبرت فوجدته كما ذكرت.

[10] وفي التاسع عشر منه ارتفاع الزوال نح وثلث وأقدامه أربعة. //[ت.3 ظ]

[11] وفي الثاني وعشرين منه قيل حملت مريم بعيسى عليه السلام.

[12] وقيل في الذي بعده وفي الرابع وعشرين منه تحلّ الشمس بالرشاء ويقال له بطن الحوت.

[13] وفي السادس وعشرين منه قيل فيه نزلت المائدة على عيسى بن مريم عليه السلام.

[14] وفي السابع وعشرين منه يدخل برمودة شهر قبطي وهو بفتح الباء والدال المهملة.

[15] وفي الثامن وعشرين منه يزداد في النهار على الاعتدال نصف ساعة فيكون من يب ونصف وينقص من الليل كذلك وارتفاع الزوال فيه صب وأقدامه ثلاثة ونصف.

[16] فصل

في هذا الشهر تغرس المقاث والقطن وقصب السكّر والترنجان والمردقوش والنعنع والورد والسوسان ويغرس الزيتون أيضا ويخرج الحوت من البحر إلى الأنهار ويتوالد دود الحرير ويدخل[240] الفول الخريفي وهذا الشهر أوّله حكمه حكم الشتاء وآخره مزاجه الحرارة

236. وحلول: [ت] حلل.
237. محمّد: سقطت من[ت].
238. له صلىّ الله عليه وسلّم معجزة: [و] له معجزة صلىّ الله عليه وسلّم.
239. لكان قوله هذا شاهدا بالرسالة: [ت] لكان يقوله بالرسالة.
240. يدخل: [ت] يوجد.

والرطوبة فيؤمر فيه[241] بالأغذية المعتدلة وكذلك المساكن والملابس وقيل هذا الشهر يسمّى بالضارّ ويتّقي فيه الصواعق وقيل في الحديث من بشر بخروج الضارّ فله نصف دينار أو ضُمِنتْ له الجنّة.

[1] شهر أبريل

وهو بالسريانية نيسان بكسر //[و. 518] النون وقد تفتح و[242] حكاه التوزري[243] بالكسر لا غير وأيّامه ثلاثون يوما وبرجه الحمل وطبيعته الدم والحرارة والرطوبة وأسّه سبعة والاستهلال فيه بالثريّا.

[2] فاليوم الأوّل منه الشمس فيه على يج[244] من الحمل وقوس النهارقفط[245] ونصف درجة وساعته يب وثلث ساعة وارتفاع الزوال صج[246] وخمسان وأقدامه ثلاثة وثلث[247] ومدّة الشفق والفجر ثلاث وعشرون درجة فاقسمها على يه تخرج ساعات معتدلة.

[3] وفي الثاني منه قيل خلق الله تعالى آدم عليه السلام وقيل في أوّل أكتوبر والله أعلم.

[4] وفي الخامس منه تحلّ الشمس بالنطح.

[5] وفي الثامن منه ارتفاع الزوال صو درجة وأقدامه ثلاثة.

[6] وفي العاشر منه قيل توفّي آدم عليه السلام وتكلّم في المهد عيسى ابن مريم عليه السلام.

[7] وفي الثاني عشر يكون النهار من يج ساعة والليل من يا ساعة[248] وارتفاع الزوال صز ونصف.

241. فيه: سقطت من [و].
242. و: سقطت من [و].
243. التوزري: [و] النورزي.
244. يج: [و، ت] يح.
245. قفط: [و] قيط؛ [ت] نفط.
246. صج: [ت] صح.
247. وأقدامه ثلاثة وثلث: [ت] وأقدامه ثلاثة وثلثا ساعة.
248. والليل من يا ساعة: سقطت من [و].

[8] وفي الرابع عشر تحلّ الشمس بالثور ومدّة الشفق والفجر كد درجة.

[9] وفي الثامن عشر أقدام الزوال قدمان ونصف وهو آخر المخنيطسات السبعة.

[10] وفي التاسع عشر ارتفاع الزوال ع درجة.

[11] وفي العشرين منه تحلّ الشمس بالبطين وفيه ولد النبي صلّى الله عليه وسلّم ذكره العبد الوادي.

[12] وفي السادس وعشرين منه يدخل بشنس يفتح الباء والسين المعجمة وسكون النون والسين المهملة شهر قبطي وفيه يهيج الدم //[ت.4و] فيؤمر بالفصد.

[13] وفي السابع وعشرين أوّل مطر النيسان ومدّته سبعة أيّام وقيل إذا عجن به العجين خمره دون خميرة وبه يعقد الجوهر ويتمّ الزرع.

[14] وفي الثامن وعشرين منه يكون النهار من يج ونصف ساعة والليل من عشرة ونصف.

[15] فصل

وفي هذا الشهر يقلم النخل ويزكى ويظهر القثاء وينوّر الزيتون ويعقد التين ويسنبل الزرع ويتمّ[249] الشعير ويكثر الورد ويعمل ماؤه وشرابه ومربّاه ودهنه وكذا البنفسج ويشرب الشاهترج وتضرب[250] أوتاد الأترجّ والياسمين والنارنج[251] ويعقد العنب البكير //[و. 519] وهذا الشهر أعدل الأزمان موافق لكلّ إنسان في كلّ البلدان.

[1] شهر مايه

ويقال له بالسريانية اجيار بفتح أوّله وسكون الجيم وبالياء باثنين من أسفل وبعضهم يسقط الجيم وأيّامه أحد وثلاثون يوما وبرجه الثور وطبيعته الدم وأسّه اثنان والاستهلال بالهقعة.

249. ويتمّ: [ت] يسمر.
250. وتضرب: [و] ويضرب.
251. والنارنج: [و] والنارج.

[2] فاليوم الأوّل منه الشمس فيه على يز من الثور وقوس النهار رج ونصف درجة وقوس الليل باقي الدور وارتفاع الزوال عج وثلث درجة وأقدامه قدمان ومدّة الفجر والشفق ساعة معتدلة وثلثان.

[3] وفي الثالث منه يخرج أيّام النيسان.

[4] وفي الرابع منه تحلّ الشمس بالثريّا.

[5] وفي السادس منه يتّقي فيه من ريح يكون عندها الوبأ وظهور العاهات.

[6] وفي العاشر منه قيل رفع عيسى عليه السلام.

[7] وفي الثالث عشر فلق الله البحر لموسى عليه السلام ولا يزال البحر هادنا في هذا اليوم.

[8] وفي الخامس عشر تحلّ الشمس بالجوزاء ومدّة الشفق والفجر كو[252] درجة وفيه أوّل وغرات[253] الحرّ.

[9] وفي السادس عشر أوّل فصل الصيف على مذهب الفلاّحين وارتفاع الزوال فيه عز درجة وأقدامه قدم ونصف.

[10] وفي السابع عشر تحلّ الشمس بالدبران.

[11] وفي الثامن عشر قيل فيه قتل يحيى ابن زكرياء عليهما السلام.

[12] وفي التاسع عشر يزداد في النهار ساعة فيكون من يد ساعة والليل من ي.

[13] وفي الثاني وعشرين منه تسامت الشمس في الزوال وسط في زمزم وجميع آبار مكّة شرفها الله تعالى[254] ولا يكون لشخص قائم ظلّ بها إذ تكون الشمس على سمت الرؤوس ثمّ تهبط في الشمال.

252. كو: [ت] و.
253. وغرات: [و] وغارات.
254. تعالى: سقطت من [ت].

[14] وفي الخامس وعشرين منه قيل توفّي نبيّنا محمّد[255] صلىّ الله عليه وسلّم.

[15] وفي السادس وعشرين منه يدخل بؤنة بفتح الباء وضمّ الهمزة وفتح النون ومنهم من أسقط الهمزة وضمّ الباء وهو شهر قبطي.

[16] وفي ثلاثين منه تحلّ الشمس بالهقعة.

[17] فصل

وفي هذا الشهر يوجد فريك الحنط ويعقّد الزيتون والعنب ويعمل النحل العسل //[ت. 4ظ] وتظهر //[و. 520] الفواكه الصيفية ويعمل مربّى الجوز وشراب التفّاح ويقلع الكتّان ويبيع بزر البابونج وغيره ويعمل دهنه ويحصد الفول والشعير وتصاد[256] الأفاعي لعمل الترياق وهذا الشهر ممتزج من الربيع والصيف فطبيعته الحرارة واليبوسة باعتدال.

[1] شهر يونيه

ويقال له بالسريانية حزيران بفتح الحاء المهملة وكسر الزاي وفتح الراء أيضا وأيّامه ثلاثون يوما وبرجه الجوزاء وطبيعته الدم وأسّه خمسة والاستهلال فيه بالذراع وقد يكون بالنثرة.

[2] فاليوم الأوّل منه الشمس فيه على يد من الجوزاء وقوس النهار ريب وثلاثة أرباع درجة وقوس الليل باقي الدور وارتفاع الزوال عط وربع درجة وأقدامه قدم وربع ومدّة الشفق والفجركو[257] ونصف درجة.

[3] وفي الرابع منه قيل تشتهي فيه النساء الجماع والدوابّ كلّها.

[4] وفي السابع منه قيل فيه[258] كان فيه مقتل عثمان بن عفّان رضي الله عنه وخلافة عليّ رضي الله عنه.

255. محمّد: سقطت من [ت].
256. تصاد: [و] يصاد.
257. كو: [ت، و] كز.
258. فيه: سقطت من [و]

[5] وفي الثامن منه قيل فيه أيضا يحبّ النساء الرجال وجميع الحيوان.

[6] وفي الثالث عشر تعزل فحول الخيل عن الرمك بعد علوقها وتبقى منفردة إلى أن تضع ومدّة الحمل أحد عشر شهرا.

[7] وفي الخامس عشر تحلّ الشمس برأس السرطان وهو المنقلب الصيفي وهو أوّل فصل الصيف[259] على مذهب الأطبّاء وقوس النهار فيه من ريج وأربعة أخماس درجة وساعاته يد وربع وهو أطول يوم في السنة وليلته من تسع ساعات وثلاثة أرباع ساعة وهي أقصر ليلة فيها ثم يأخذ الليل في الزيادة والنهار في النقصان وارتفاع الزوال فيه ف غير سدس درجة وهو غاية ارتفاع الشمس عندنا وأقدامه قدم وخمس قدم وهو أقصر الظلّ عندنا ومدّة الشفق والفجر ساعة[260] وأربعة أخماس // [و. 521] ساعة وهي الغاية عندنا على ما يخرج في الآلة الصحيحة وترجع الشمس من الشمال[261] إلى الجنوب.

[8] وفي السابع عشر تحلّ الشمس بالهنعة.

[9] وفي التاسع عشر قيل كانت خلافة عمر رضي الله عنه.

[10] وفي الرابع وعشرين منه يوم العنصرة وهو ميلاد يحيى عليه السلام ويوم المهرجان عند النصارى دمرهم الله[262] ويزعم أهل التجربة أنّ ما حصد فيه من الزرع لا يستاس وقيل فيه حبست الشمس على يوشع بن نون عليه السلام مقدار يوم على فتح عسقلان بالشام وقيل إنّ من غبّر في ذلك اليوم التين بالتراب لا يسقط من ثمرها شيء وإن لم تزبر[263] وقيل لا تحمل فيه أنثى على وجه الأرض.

[11] وفي الخامس وعشرين منه يدخل أبيب بفتح الهمزة وكسر الباء شهر قبطي.

[12] وفي ثلاثين منه تحلّ الشمس بالذراع.

259. الصيف: [و] المصيف.
260. ساعة: [و] ساعتان. وعلى الهامش ساعة.
261. الشمال: [ت] المشرق.
262. دمرهم الله: [ت] لعنهم الله.
263. تزبر: [ت] توبر.

[13] فصل

وفي هذا الشهر يوجد باكور العنب والتين[264] ويعقد //[ت. 5و] الجوز والبطيخ ويطيب التوت[265] وفيه تقطع فضول قضبان الغرس[266] الذي له سنة باليد[267] لا بالحديد فيقوى أصله ويستوفي فيه حصاد القمح ويعصر العسل وأفضل ما استعمل فيه من المطاعم والمشارب[268] والمساكن والملابس ما برّد ولطّف وعدّل الأجسام وقلّل من تحليل رطوبتها واجتنب فيه مصابرة الجوع والعطش.

[1] شهر يوليه

ويقال له بالسريانية تمّوز بفتح التاء المثنّاة من فوق وضمّ الميم مشدّدة وبالزاي وأيّامه أحد[269] وثلاثون يوما وبرجه السرطان وطبعه الصفراء الحرارة واليبوسة وأسّه سبعة والاستهلال فيه بالطرف[270] وقد يكون بالجبهة.

[2] فاليوم الأوّل منه الشمس فيه على يو من السرطان وقوس النهار فيه من ريب وخمس درجة وارتفاع الزوال عط درجة وأقدامه قدم وثلث غير نصف إصبع ونقصت فيه[271] مدّة الشفق والفجر نحو نصف درجة. //[و. 522]

[3] وفي الرابع منه قيل[272] تذهب البراغيث وربّما هبّت فيه ريح يخاف منها على العينين.[273]

[4] وفي السابع منه تسامت الشمس وسط بئر زمزم وجميع آبار[274] مكّة ولا يكون لشخص قائم ظلّ بها ثمّ ترجع هابطة في الجنوب.

264. والتين: [و] والجوز.
265. التوت: [ت] الثوت.
266. الغرس: [و] الترس.
267. سنة باليد: [و] سيبس اليد.
268. المطاعم والمشارب: [و] الطعام والشراب.
269. أحد: [و] إحدى.
270. بالطرف: [و] بالطرفة.
271. فيه: سقطت من [و].
272. قيل: سقطت من [و].
273. على العينين: سقطت من [و].
274. وجميع آبار: [و] وسائر ديار.

[5] وفي العاشر منه ينقص من النهار ربع ساعة فيكون[275] من يد ساعة ويزداد في الليل ربع ساعة كذلك فيكون من ي ساعات .[276]

[6] وفي الثاني عشر منه تدخل السمائم الصيفية وهي أربعون يوما عشرون من هذا الشهر وعشرون من الذي بعده.

[7] وفي الثالث عشر منه ارتفاع الزوال عز درجة وأقدامه قدم ونصف.

[8] وفي الرابع عشر تحلّ الشمس بالنثرة وقيل فيه كانت هجرة النبيّ صلّى الله عليه وسلّم.

[9] وفي الخامس عشر تحلّ الشمس بالأسد وارتفاع الزوال عو وثلث درجة ومدّة الشفق والفجر كو درجة.

[10] وفي الخامس وعشرين منه يدخل[277] شهر مسر القبطي بضمّ الميم وسكون السين المهملة وفتح الراء وقد تكسر وهو الشهر الثاني عشر من شهورهم وأيّامه له يوما وفي السنة الكبيسة لو يوما.[278]

[11] وفي الثامن وعشرين منه ارتفاع الزوال عج وثلث وأقدامه قدمان.

[12] وفي التاسع وعشرين منه[279] ارتفاعه عج وقيل فيه ولد موسى عليه السلام وفيه كان خراب بيت المقدّس على ما ذكر المؤرّخون.

[13] وفي ثلاثين منه يكون النهار من يج ساعة ونصف والليل من ي ونصف ساعة.

[14] فصل

275. فيكون: [و] ويكون.
276. ي ساعات: [و] يا ساعة.
277. يدخل: [و] مكتوب على الهامش.
278. يوما: سقطت من [و].
279. منه: سقطت من [و].

وفي هذا الشهر يبدأ بالدرس[280] وينضج العنب والفاكهة كلّها وتطير[281] فيه فراخ الحجل وتصاد[282] ويطيب الثمر[283] ويزهو[284] وفي آخره يبدأ بازدراع[285] بقول الشتاء لمن عنده الماء ويجمع الصعتر وغيره //[ت.5ظ] من الأعشاب ويحزر فيه الاستفراغ والحركة الزائدة والامتلاء من الطعام ويقسم على مرّتين أو ثلاثة.

[1] شهر أغشت[286] // [و. 523]

ويقال[287] له بالسريانية آب بفتح الهمزة ممدودة وبعدها[288] باء موحّدة[289] من أسفل وأيّامه أحد وثلاثون يوما وبرجه الأسد وطبيعته الصفراء وأسّه ثلاثة [...][290] والاستهلال فيه بالصرفة.

[2] فاليوم الأوّل منه الشمس فيه على يو من الأسد وقوس النهار رب وربع درجة وقوس الليل باقي الدور وارتفاع الزوال عب ونصف درجة وأقدامه قدمان وربع ومدّة الشفق والفجر ساعة معتدلة وثلثان.

[3] وفي الثاني منه تحلّ الشمس بالطرف.[291]

[4] وفي الثالث منه يزعم أهل التجربة أنّ ما قطع فيه وفي اليومين[292] قبله من الخشب لا يستاس.

[5] وفي السادس[293] منه تحلّ الشمس بالجبهة.

280. بالدرس: [و، ت] بالدراس.
281. وتطير: [و، ت] ويطير.
282. وتصاد: [و] ويصاد.
283.الثمر: [و] التمر.
284. ويزهو: [و، ت] ويزهوا.
285. بازدراع: [ت] بزرع.
286. أغشت: [و]غشت.
287. ويقال: [و] يقال.
288. وبعدها: [و] بعدها.
289. مؤحّدة: [ت] بواحدة.
290. بياض في المخطوطين.
291. بالطرف: [و] بالطرفة.
292.اليومين: [و] اليوم.
293. وفي السادس: [و] وفي السادس عشر.

[6] وفي التاسع منه ارتفاع الزوال ع درجة وذكر أنّ من لدغته فيه عقرب مات من ساعته.

[7] وفي العاشر منه أقدام الزوال قدمان[294] ونصف.

[8] وفي الحادي عشر قيل فيه كانت وفاة أبي بكر وخلافة عمر رضي الله عنهما وقيل في يونيه وقد تقدّم.[295]

[9] وفي السادس عشر منه تحلّ الشمس بالعذراء وهو[296] أوّل فصل الخريف عند الفلّاحين ويكون النهار من يج ساعة والليل من يا ساعة ومدّة الشفق والفجر كد درجة وارتفاع الزوال صز ونصف[297] درجة وأقدامه قدمان وثلاثة أرباع قدم.

[10] وفي العشرين منه تخرج[298] سمائم الحرّ وارتفاع الزوال صو درجة وأقدامه ثلاثة.

[11] وفي الحادي[299] وعشرين منه تحلّ الشمس بالزبرة.

[12] وفي الخامس وعشرين منه[300] ماتت مريم عليها السلام.

[13] وفي السادس وعشرين منه نزلت[301] فيه التورية.

[14] وفي التاسع وعشرين منه يدخل شهر[302] توت بفتح أوّل التائين وقد تضمّ وهو أوّل شهر القبط وفيه يكون النيروز بمصر.

[15] فصل

294. قدمان: [ت] قدما.
295. في يونيه وقد تقدّم: سقطت من [و].
296. وهو: [و] وهي.
297. صز ونصف: [و] صو.
298. تخرج: [و] تحلّ.
299. وفي الحادي: [ت] وفي الثالث.
300. منه: سقطت من [و].
301. نزلت: [ت] قيل أنزلت.
302. شهر: سقطت من [ت].

وفي هذا الشهر يزرع الفول الخريفي في البساتين ويزرع الخيريّ السماوي واللفت والجزر والكرنب ويعقد البلّوط وما غرس في آخره من الأوتاد والملوخ نبت نباتا حسنا وفيه يخرج الحوت البوريّ من البحر إلى الأنهار ويكثر[303] السردين[304] وما قطع فيه من الخشب لا يستاس[305] وفيه ينضح الماء على كلّ غرس مضاف عند العشاء الأوّل[306] حتّى يعلو وكذلك في الشهر الذي قبله فإنّ ذلك النضح يخرج منه ما أصابه من حرّ //[و. 524] النهار وفيه ينوّر الأترجّ [307] ويعقد في آخره ويطيب السندي وهو الدلّاع ويجتنب فيه الحلاوة بالكلّية والدسم والمالح وينهى فيه عن الحجامة والجماع والتعب.[308]

[1] شهر شتنبر

ويقال له بالسريانية أيلول بفتح أوّله وسكون الياء باثنين من أسفل وأيّامه ثلاثون يوما[309] وبرجه السنبلة وطبعه //[ت.6و] الصفراء وأسّه ستّة والاستهلال فيه بالغفر وقد يكون بالسماك.

[2] فاليوم الأوّل منه تزعم النصارى أخزاهم الله أنّ فيه قبض يوشع بن[310] نون عليه السلام والشمس فيه على يو درجة من السنبلة وقوس النهار قفز ونصف درجة وقوس الليل باقي الدور والساعات المعتدلة للنهار يب ونصف ساعة والليل يا ونصف وارتفاع الزوال صب درجة وأقدامه ثلاثة ونصف قدم[311] ومدّة الشفق والفجر كج درجة.

[3] وفي الثالث منه تحلّ الشمس بالصرفة.

[4] وفي العاشر منه ارتفاع الزوال نح[312] وثلث درجة وأقدامه أربعة .

303. ويكثر: [و] ويكثر فيه.
304. السردين: [ت] السرذين.
305. لا يستاس: [ت] لم يستس.
306. الأوّل: [و] الأولى.
307.الأترجّ: [ت] الأترنج.
308. التعب: [ت] الثعب.
309. يوما: سقطت من [و].
310. بن: [و] ابن.
311. قدم: سقطت من [ت].
312. نح: [ت] يح؛ [و] ص.

[5] وفي الخامس عشر منه يستوي الليل والنهار وهو الاعتدال الخريفي ويكون في كلّ واحد منهما اثنتا عشرة ساعة وارتفاع الزوال نو وثلث درجة وأقدامه أربعة ونصف.

[6] وفي السادس عشر منه تحلّ الشمس بالميزان وهو أوّل فصل الخريف على مذهب أبقراط[313] وجالينوس وغيرهما من الأطبّاء وأهل التعديل ومدّة الشفق والفجر ساعة معتدلة ونصف ساعة.

[7] وفي العشرين منه تحلّ الشمس بالعوّاء.

[8] وفي الثالث وعشرين منه[314] ارتفاع الزوال نج وأقدامه خمسة.

[9] وفي الرابع وعشرين منه قيل قتل فيه يحيى بن زكرياء عليه السلام.

[10] وفي السابع وعشرين منه قيل يجمع فيه من الثمار ما يراد خزنه إلى الشتاء.

[11] وفي الثامن[315] وعشرين منه[316] يدخل بابه[317] بفتح البائين وقد تضم الثانية شهر قبطي.

[12] وفي التاسع وعشرين منه يكون النهار من يا ونصف ساعة والليل من يب ونصف ساعة.

[13] فصل

وفي[318] هذا الشهر يبدأ بالزرع والحرث في الجبال الباردة ويجمع الجوز ويقطع[319] الحنّاء والخضر وفيه يعقد الملح ويسودّ بعض الزيتون ويظهر القسطل والبلّوط ويغرس فيه التين واللوز ويعمل فيه[320] شراب الرمّانين[321] وشراب الفاكهة وهذا الشهر معتدل في حرارته وفيه

313. أبقراط: [و] بقراط.
314. منه: سقطت من [ت].
315. الثامن: [ت] التامن.
316. قيل قتل فيه يحيى بن زكرياء عليه السلام وفي السابع... وفي الثامن والعشرين منه: سقطت من [و].
317. بابه: [و] باب.
318. في: سقطت من [ت].
319. يقطع [و] تقطع.
320. فيه: سقطت من [ت].
321.الرمّانين: [و] الرمّان.

تتحرّك المرّة السوداء وتظهر الحيتان //[و. 525] ويصلح أكل الحلاوات وشربها ويجتنب أكل[322] كلّ مالح والبطيخ ولحم البقر.
وقال أبو نواس[323] فيه

مضى أيلول وارتفع الحرور / وأخبت نارها[324] الشعرى العبور
فقوما فألقحا ماء بخمر / فإنّ نتاج بينهما السرور

[1] شهر أكتوبر

وهو[325] بالسريانية تشرين الأوّل بفتح التاء باثنين من فوق وسكون الشين المعجمة وأيّامه أحد وثلاثون يوما وبرجه الميزان وطبعه السوداء والبرودة[326] واليبوسة وأسّه ثمانية[327] والاستهلال فيه بالقلب // [ت 6ظ] وقد يكون بالإكليل.

[2] فاليوم الأوّل منه الشمس فيه على يه من الميزان وقوس النهار قعب وقوس الليل باقي الدور وارتفاع الزوال ن وخمسان وأقدامه خمسة ونصف وهذا اليوم أوّل يوم من سني الإسكندر[328] وأوّل السنة عند السريانين وفيه تحلّ الشمس بالسماك[329] وقيل فيه خلق الله آدم عليه السلام.

[3] و في الثاني[330] منه ينصرف نيل مصر ويبدأ أهل مصر بالزراعة وقيل فيه خلقت حوّاء.

[4] وفي السابع منه ارتفاع الزوال مح وعشر درجة[331] وأقدامه ستّة.

[5] وفي الثامن منه قيل كان[332] ذبح إسحاق عليه السلام.

322. أكل: سقطت من [ت].
323. نوّاس: سقطت من [و].
324. وأخبت نارها: [و] فأخبت نارها
325. هو: سقطت من [و].
326. والبرودة: [ت] البرودة.
327. ثمانية: [ت] واحد.
328. الإسكندر: [و] اسكندر.
329. بالسماك: [و] بالسمك.
330. وفي الثاني: [و] والثاني.
331. درجة: سقطت من [و].
332. قيل كان: سقطت من [و].

[6] وفي الخامس عشر منه[333] ارتفاع الزوال مه وظلّ كلّ شيء مثله وأقدامه ستّة وثلثان والنهار فيه من يا ساعة والليل من يج ساعة.

[7] وفي السابع عشر منه تحلّ الشمس بالعقرب وبالغفر[334] ومدّة الشفق والفجر كما تقدّم وفيه حلول الأرض للزراعة [335] وهو مبدأ حرث آدم عليه السلام.

[8] وفي العشرين[336] منه ارتفاع الزوال فيه[337] مج وخمسان وأقدامه سبعة.

[9] وفي الثامن وعشرين منه يدخل هتور بفتح الهاء وضمّ التاء المثنّاة من فوق وقيل بالهمزة موضع الهاء شهر قبطي.

[10] وفي التاسع وعشرين منه ارتفاع الزوال م ونصف درجة وأقدامه سبعة وأربعة أخماس قدم وفيه تحلّ الشمس بالزبانى.

[11] وفي الواحد وثلاثين منه النهار من ي[338] ونصف ساعة والليل من يج ونصف.

[12] فصل

وفي هذا الشهر يجمع الزيتون وينتقل الناس من لباس البياض إلى المصبوغ وما خشن من الثياب وتضع الغنم ويوجد اللبن ويزرع الخسّ والأنيسون والرازيانج[339] والبصل وفي آخره يسقط ورق الشجر وتسكن النمل أجحارها ويرتجّ البحر فلا //[و. 526] تجري فيه جارية وأفضل ما استعمل فيه من المطاعم والمشارب والمساكن ما رطب وسخن واجتنب فيه لحم البقري وما في معناه وقلّل[340] الركوب والجماع واستعمل فيه الحمّـام من غير إطالة وأكل الدسم والمالح.

333. منه: سقطت من [و] و[ت].
334. وبالغفر: سقطت من [و].
335. للزراعة: [ت] بالزريعة.
336. العشرين: [ت] عشرين
337. فيه: سقطت من [ت].
338. ي: [و] يا.
339. والرازيانج: [و] والزرايانج.
340. وقلّل: [ت] وقال.

[1] شهر نونبر

ويقال له بالسريانية تشرين الثاني وأيّامه ثلاثون يوما وبرجه العقرب وطبيعته السوداء وأسّه أربعة والاستهلال فيه بالنعائم.

[2] فاليوم الأوّل منه الشمس فيه على يو من العقرب وقوس النهار قنز وارتفاع الزوال لط وثلثي درجة وأقدامه ثمانية.

[3] وفي الرابع منه تغلق الحيّات أعينها إلّا الشجاع وتدخل الهوامّ بطون الأرض.

[4] وفي الخامس منه قيل قعد معاوية للخلافة رضي الله عنه.

[5] وفي الثامن منه قيل كانت وفاة عمر رضي الله عنه قتله أبو //[ت.7و] لؤلؤة غلام المغيرة بن شعبة.

[6] وفي العاشر منه تحلّ الشمس بالإكليل وارتفاع الزوال لز وربع درجة[341] وأقدامه ثمانية وثلثان.

[7] وفي الخامس عشر أوّل فصل الشتاء على مذهب الفلّاحين وارتفاع الزوال لو درجة وأقدامه تسعة .

[8] وفي السادس عشر تحلّ الشمس بالقوس وبقلب العقرب وقوس النهار قنا وخمس درجة وقوس الليل باقي الدور.

[9] وفي العشرين منه يكون النهار من عشر ساعات والليل من يد ساعة وارتفاع الزوال له وأقدامه تسعة ونصف.

[10] وفي الثاني وعشرين منه تدخل الأيّام البلق وهي عشرون يوما قيل الليالي السود[342] وعشرون بعدها.

341. درجة: سقطت من [ت].
342. السود: سقطت من [و].

[11] وفي السابع وعشرين منه يدخل كهيك[343] بفتح الكاف والهاء وقيل بتقديم الياء على الهاء شهر قبطي.

[12] وفي الثامن وعشرين منه ارتفاع الزوال لج وثلاثة أرباع درجة وأقدامه عشرة.

[13] وفي التاسع وعشرين منه تحلّ الشمس بالشولة.

[14] فصل

وفي هذا الشهر عموم الزريعة ويغرس الكرم فيسرع نباته ويغرس الزيتون ويعصر الزيت وتسقط أوراق الثمار ويجمع قصب السكّر ويعقد الفول الخريفي ويزرع اللفت ويجمع[344] البلّوط والقسطل وحبّ الآس وهو الريحان ويعمل شرابه وتغطى الخضرة لئلا يضرّ بها الجليد ويكره في آخره دخول الحمّام خيفة الزكام وشرب الماء بالليل خيفة الاستسقاء وتموت كلّ دابّة //[و. 527] ليس لها[345] عظم وتغلق الحيّات عينيها[346] واستعمل فيه من المطاعم والمشارب والمساكن[347] ما حلّل وسخّن كالعسل والسمن واللحم بالثريد وبالثوم وشبهه وأكل طبيخ البقول كالجزر وادهن[348] بدهن الخيريّ ونحوه وخذ من الطيب ما شئت واستعمل القيء والنكاح فإنّهم ذكروا أنّ النكاح في هذا الشهر صحّة باعتدال[349] والله أعلم.

[1] شهر دجنبر

ويقال له بالسريانية كانون الأوّل وأيّامه أحد وثلاثون يوما وفي السنة الكبيسة عند عجم الأندلس اثنان وثلاثون[350] وعليه عملنا وبرجه القوس وطبعه السوداء وأسّه ستّة والاستهلال فيه بسعد الذابح.

343. كهيك: [و] كهيك وعلى الهامش كيهك.
344. الثمار ويجمع قصب السكر... اللفت ويجمع: سقطت من [و].
345. لها: [و] بها.
346. عينيها: [ت] أعينها.
347. والمشارب والمساكن: [و] والملابس والمشارب.
348. وادهن: [و] والدهن.
349. باعتدال: [و] واعتدال.
350. يوما وفي السنة الكبيسة... اثنان وثلاثون: سقطت من [و].

[2] فاليوم الأوّل منه الشمس فيه على يز من القوس وقوس النهار قمز وربع درجة وقوس الليل باقي الدور والنهار من ط ساعات وأربعة أخماس ساعة والليل من يد وخمس ساعة وارتفاع الزوال لج وثلث درجة وأقدامه عشرة وعشر قدم.

[3] وفي الثالث منه قيل يبدأ البخار يخرج من أفواه الناس [ت.7ظ] ويشتدّ البرد.

[4] وفي التاسع يشتدّ برد الماء وكلب الشتاء.

[5] وفي العاشر منه تحلّ الشمس بالنعائم.

[6] وفي ليلة[351] الثاني عشر منه[352] تدخل الليالي السود[353] وهي سموم الشتاء[354] عشرون ليلة من هذا الشهر وعشرون من الذي بعده.

[7] وفي الخامس عشر منه تحلّ الشمس برأس الجدي وهو المنقلب الشتوي وأوّل فصل الشتاء على مذهب الأطبّاء وقوس نهاره قمو وخمس درجة وساعاته ط وثلاثة أرباع ساعة وهو أقصر يوم في السنة وقوس الليل ريج وأربعة أخماس درجة وساعاته يد وربع ساعة وهي[355] أطول ليلة في السنة ثمّ يأخذ النهار في الزيادة والليل في النقصان وارتفاع الزوال فيه لج غير سدس درجة وهو أقلّ ما يكون ببلدنا وأقدامه عشرة وثلث قدم وهو غاية امتداد الظلّ في الزوال ومدّة الشفق والفجر كج درجة.[356]

<وفي الثاني والعشرين منه ارتفاع الزوال [...] وأقدامه عشرة وربع>.[357]

[8] وفي الثالث وعشرين منه تحلّ الشمس بالبلدة.

351. ليلة: سقط من [و].
352. منه: سقطت من [و].
353. الليالي: سقطت من [ت].
354. سموم الشتاء: [و] ليالي الشتاء.
355. وهي: [و] وهو.
356. درجة: سقطت من [و].
357. وفي الثاني والعشرين منه... وربع: سقطت من [و، ت]. إضافة وفقا لمخطوط حمزوية.

[9] وفي الخامس وعشرين منه ولد عيسى ابن مريم[358] عليهما[359] السلام كذا ذكر ابن البنّاء والعبد الوادي وغيرهما زاد الصنهاجي عند الزوال وقال[360] أبو القاسم خلف أبي بكر //[و. 528] الطرابلسي مولده في الرابع والعشرين منه وليلته ليلة الخامس العشرين[361] لأنّ النهار يسبق الليل عند العجم بعكس ما عند العرب وكذالك[362] ذكر ابن هشام شارح الهاشمية وزاد أنّه ولد يوم الأربعاء ورفعه الله إليه وهو ابن ثلاثة وثلاثون سنة. وإن كان في الأيّام السبعة[363] التي بين الميلاد والحاجوز مطر غزير فكذلك تكون السنة وإن كانت صاحية فالسنة قاحطة وإن كان أوّلها مطر كان أوّل السنة مطر وكذالك في وسطها وآخرها[364] تجربة عند المجرّبين.

[10] وفي السابع وعشرين منه يدخل طوبة بضمّ الطاء المهملة[365] وبالباء بواحدة من أسفل شهر قبطي[366] ويقال طوبي بالياء بعد الباء.

[11] فصل

وفي هذا الشهر ينوّر اللوز البكير[367] ويطيب أوّل الأترجّ[368] ويذخر ماء المطر فيه وفي الشهر الذي بعده فلا يتغيّر ويقلع الجمّار وفيه تفور العيون وينوّر البهار ويغرس القرع والباذنجان والثوم والخشخاش وهذا الشهر ليس بوقت للدواء ولا لإخراج الدم.

[13] وهذا في[369] آخر ما قصدنا ذكره //[ت.8و] وهو جهد المقلّ[370] المجتهد ولا تجود يد إلّا بما تجد والحمد لله ربّ العالمين وصلّى الله على سيّدنا محمّد خاتم النبيّين وإمام المرسلين انتهت.[371]

358. ابن مريم: سقطت من [و].
359. عليهما: [و] عليهم.
360. وقال: سقطت من [ت].
361. منه وليلته ليلة الخامس العشرين: سقطت من [و].
362. وكذلك: [و] كذا.
363. الأيّام السبعة: [و] السبعة الأيّام.
364. وآخرها: [و] حرها.
365. المهملة: سقطت من [و].
366. شهر قبطي: سقطت من [و].
367. البكير: [و: مكتوب بين السطرين.]
368.الأترجّ: [ت] الأترنج.
369. في: سقطت من [ت].
370. المقل: [ت] العلل.
371. وإمام المرسلين انتهت: [ت] وآله وسلم كثيرا.

[خاتمة المخطوط ت.]

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372. بن: [ت] ابن.
373. عشية: [ت] غشية.