

THE DATING OF *ALBUMASAR IN SADAN**

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ABSTRACT

Albumasar in Sadan, a collection of the teachings of the most famous Arabic astrologer, Abū Ma‘shar is well known for its assertion that comets are part of the supralunary regions. The horoscopes and other astronomical data present in *Albumasar in Sadan* give us a perfect opportunity to date different chapters of the work. The dates fall between AD 848 and 885, indicating that Abū Ma‘shar’s pupil, Abū Sa‘īd Shādhān ibn Baḥr collected the utterances of his master over a very long period of time. We also address some contradictions between *Albumasar in Sadan* and other works of the famous Arabic astrologer.

KEY WORDS: ABŪ SA‘ĪD SHĀDHĀN IBN BAḤR, *ALBUMASAR IN SADAN*, ABŪ MA‘SHAR’S WORKS, ARABIC ASTROLOGY, HOROSCOPES, COMETS.

LA DATACIÓN DE *ALBUMASAR EN SADÁN*

RESUMEN

Albumasar en Sadán, una colección de doctrinas del astrólogo árabe más famoso, Abū Ma‘shar, se conoce bien por su afirmación de que los cometas son parte de las regiones supralunares. Los horóscopos y otros datos astronómicos presentes en *Albumasar en Sadán* nos ofrecen una excelente oportunidad para datar capítulos diferentes de la obra. Las fechas caen entre el 848 y el 885 d.C., evidenciando que el discípulo de Abū Ma‘shar reunió las enseñanzas de su maestro durante un período de tiempo muy largo. También abordamos algunas contradicciones entre *Albumasar en Sadán* y otras obras del famoso astrólogo árabe.

PALABRAS CLAVE: ABŪ SA‘ĪD SHĀDHĀN IBN BAḤR, *ALBUMASAR EN SADÁN*, OBRAS DE ABŪ MA‘SHAR, ASTROLOGÍA ÁRABE, HORÓSCOPOS, COMETAS.

* We would like to thank David Juste and Charles Burnett for reading our draft and providing us with insightful comments.

The most famous Arabic astrologer, Abū Ma‘shar (787–886), in addition to being the author of several books, is known to posterity through the ‘Dialogues on Astrology’ (*Mudhākarāt Abī Ma‘shar fī asrār ‘ilm al-nujūm*), written down by his pupil Abū Sa‘īd Shādhān ibn Bahr. This contains Abū Ma‘shar’s astrological teachings in the form of dialogues¹, and was translated to Latin twice. A twelfth-century translation survives only in fragments², but the standard Latin version is a translation (probably from Greek) made in the thirteenth century³. Since Lynn Thorndike’s 1954 article⁴, the work has generally been referred to as *Albumasar in Sadan*. It has become well known in scientific circles for its assertion that comets are part of the supralunary regions, a correct observation that was in conflict with the Aristotelian scientific world-view of the Middle Ages and antedates Tycho Brahe’s discovery by seven centuries.

The difficult relations among the Arabic, Greek and Latin versions were investigated by David Pingree in 2003⁵. None of the three versions are complete, but the paragraphs missing from one version can be found in one or both of the others. Three manuscripts of the Arabic version are known. Two are versions of the same redaction: MS Ankara Saib 199, ff. 1a–26b (henceforth MS A) and the shorter MS Huntington 546 ff. 62–85v of the Bodleian Library, Oxford⁶. There is another Arabic version in Cambridge University Library, MS Gg. 3. 19, ff. 1v–13r (henceforth MS C). A critical edition of the medieval Latin translation was published in 1998 by Graziella Federici Vescovini⁷, but editions of the Arabic and Greek versions of the text are still *desiderata*.

Franz Rosenthal wrote in 1963:

The exact date of the composition of the “Discussions” [the *Mudhākarāt*] is uncertain and is likely to remain so, unless the contents should provide

¹ The question-and-answer form was present in all fields of Arabic scientific literature. See: H. DAIBER 1991. However, one should distinguish between real dialogues (as in our case) and the dialogue as literary form.

² C. BURNETT 2003.

³ The ‘Dialogues on Astrology’ found another way to the Latin West: it is one of the sources used by the writer of the *Centiloquium Hermetis*, a popular collection of astrological aphorisms. D. PINGREE 2003: 54–57. On the similarities of the two works see also: M. HEIDUK 2004: 272–273.

⁴ L. THORNDIKE 1954.

⁵ D. PINGREE 2003.

⁶ We would like to thank the Institut für Geschichte der Arabisch-Islamischen Wissenschaften in Frankfurt am Main for sending to us a copy of MS A.

⁷ G. FEDERICI VESCOVINI 1998: 273–330.

some basis for astronomical calculations that might prove helpful⁸.

In their 2016 article, Ralph Neuhäuser et al. tried to determine which comet Abū Maʿshar referred to in the famous chapter on comets in *Albumasar in Sadan*⁹. Here we attempt to contribute to this effort by examining other astronomical data in the text, mainly horoscopes. This research gives us the opportunity to reflect on some points of interest, especially some contradictions between *Albumasar in Sadan* and the Arabic astrologer's other works.

We rely mainly on the Latin text, but we have also checked the relevant paragraphs in the Arabic manuscripts. We found that the Latin text fully reflects the meaning of the Arabic version, and is generally free of mistranslations¹⁰.

Lynn Thorndike has compared *Albumasar in Sadan* to Martin Luther's *Table Talk*¹¹: a free dialogue between master and students on technical questions. The work is somewhat heterogenous, with different topics following each other without any apparent organizing principle. Its spontaneous nature, however, offers a valuable insight into how astrology was taught in the Arabic world – a question on which standard textbooks of astrology provide little information.

In his 2007 book on physiognomy and astrology in the Dead Sea scrolls, Mladen Popović justly remarks:

⁸ F. ROSENTHAL 1963: 455.

⁹ R. NEUHÄUSER [ET AL.] 2016: 136–158.

¹⁰ The Latin translation often gives a different form of expression from that in the Arabic text. One example is the reference to the full Moon (*imtilāʾ al-qamar*, 'fullness of the Moon', MS A f. 16a l.6), which is given in the Latin version as an opposition between the Sun and the Moon (*quotiens dyametribat Luna Solem*). While we found no mistakes in the translations of astronomical terms, such as the names of the planets and the zodiac signs, some other items of text seem to have undergone slight changes of meaning. For example, in Chapter 12 (*Interrogatio de amore*), a couple's love is portrayed by the Latin text as adulterous (*adulteria et fornicationes*), while the Arabic uses no such harsh terms: in the original version they are simply a couple in love (*al-'ishq wa-al-ulfa*, 'love and affection', MS A f. 9b l.16, MS C f. 9v l.1). These small changes strengthen the assumption that the Latin version was not translated directly from the Arabic. Proper names, on the other hand, are often simply omitted. For example Chapter 3 of the Latin edition replaces the long chain of people in the first story set in the court of al-Ma'mūn (MS A f. 2b l.16–17, MS C f. 2v l. 5–6) with the simple phrase *Dixit Albumazar quod dixit mihi quidam amicus meus*. Elsewhere, they are entirely different in the Latin, such as a village of al-Rayy that appears in the Latin version as Baldac (which is the usual medieval Latin term for Baghdad). This last example was noted by D. M. DUNLOP 1971: 234–235.

¹¹ L. THORNDIKE 1923–1958, I. p. 651; L. THORNDIKE 1954: 23.

There is not much evidence for education in the sort of learning one finds in physiognomic and astrological handbooks. We do not know exactly how people became familiar with such learned knowledge and on what level¹².

He continues:

A large part [of physiognomic learning] would have been transmitted orally, as the texts alone did not suffice. The situation for astrology would not have been much different. Individual readers of the handbooks would not get very far. Vettius Valens referred to pupils he instructed further about his book. Most likely, people would have learned the different aspects of the astrological art through direct communication in an apprenticeship with a master astrologer¹³.

Although Popović's book treats the Qumran community around the beginning of our era, the situation must have been similar in the medieval Arabic world. Direct communication between apprentice and master astrologer is exactly what we see in *Albumasar in Sadan*. Students ask Abū Ma'shar questions about astrological techniques they do not understand or about things they have read in textbooks. Abū Ma'shar relates anecdotes and sometimes answers by specific examples. The disciples sometimes contradict Abū Ma'shar, who occasionally avoids going into details to save his authority, which can be felt in the whole work to be undiminished¹⁴.

The second part of the penultimate chapter of the Latin text, *De thesauro*, and the last chapter, *De significatione in interrogatione*, seem to be unrelated to the sayings of Abū Ma'shar, who is no longer a protagonist of the stories. This last part of the text begins with a horoscope that David Pingree successfully dated to 7 November 939¹⁵, postdating Abū Ma'shar's death by half a century.

However, horoscopes in the first part of the work may also be dated astronomically, giving us a chance to determine with some certainty when the text was composed.

In Chapter 28, Abū Ma'shar refers to another of his works, an introduction to astrology¹⁶. The *Kitāb al-mudkhal al-kabīr 'alā 'ilm aḥkām al-nujūm* was written

¹² M. POPOVIĆ 2007: 216.

¹³ M. POPOVIĆ 2007: 217.

¹⁴ It is not entirely clear how many students are present. Abū Sa'īd Shādhān ibn Baḥr is the only one who is mentioned by name, but not all of the questions are said to have been posed by him. Abū Sa'īd is sometimes referred to in third person, sometimes in first person. In the Latin text, he is sometimes called Sadan, sometimes Aposaytes or Aposaites, the two forms varying even within a single chapter.

¹⁵ D. PINGREE 1977: 314. Pingree's dating is only approximately correct, see note 39.

¹⁶ *Vera et memini ego in introductione mea quod in nocturnis nativitatibus notabiliorem habet signi-*

in 848/849¹⁷, which serves as the *post quem* date of that paragraph, and possibly of the whole work.

Some of the stories and horoscopes date back to the time of Caliph al-Ma'mūn (r. 813–833). One such, an anecdote in Chapter 3 of the Latin translation¹⁸, relates the experience of another astrologer (the names are different in the two redactions of the Arabic text), and is only retold by Abū Ma'shar.

In Chapter 32 (*De occultis in corde meo*), we find a second group of anecdotes, relating things that happened to Abū Ma'shar 'cum Amerimnum'¹⁹. According to Federici Vescovini's explanatory notes, this is a corrupted form of the name al-Ma'mūn. The presence of Abū Ma'shar alongside al-Ma'mūn is problematic, however, because we know from the *Fihrist* of Ibn al-Nadīm that Abū Ma'shar started to study astrology at the age of 47²⁰. If this corresponds to the year 832/833 (lunar years!), then he could not have been an astrologer at the time of al-Ma'mūn, who died in August 833²¹.

This problem is closely related to the question of Abū Ma'shar's birth year²². Arabic sources do not contain this specific information, only the fact that by the time of

fictionem quam pars fortune. G. FEDERICI VESCOVINI 1998: 322. In the Arabic version: *wa-qultu fī kitāb al-mudkhal anna sahm al-ghayb bi-al-layl aẓhar dalālat^{an} min sahm al-sa'āda*, 'I said in the Introduction that the lot of the absent in the night is more distinct as a sign than the lot of fortune', MS A f. 25a l.17.

- ¹⁷ On the dating of the work, see: H. HERMELINK, 1962.; R. LEMAY, 1995: 29. According to Richard Lemay, Abū Ma'shar slightly revised his work in 876. R. LEMAY, 1995: 29–30, 44, 49, 68, 82, note 44, 133, 155–156, 183. Lemay also thought that the eighth book predates the whole work. R. LEMAY 1995: 140.
- ¹⁸ G. FEDERICI VESCOVINI, 1998: 298–299. In the Arabic version: MS A ff. 2b–3b, MS C ff. 2v–3r. The dating of the horoscope is not satisfactory. The two possibilities are December 817 / January 818 and December 829. It should be noted that Dunlop's English translation (D. M. DUNLOP 1971: 235.) contains a mistake: *sunbula* should have been translated as Virgo, and not Spica Virginis, which is a fixed star in Libra, a different sign of the zodiac. For the fixed star Spica, the Arabic text specifically uses *al-simāk al-a'zal*. MS A f. 4a l.7, MS C f. 4r l.8.
- ¹⁹ G. FEDERICI VESCOVINI 1998: 326–327.
- ²⁰ R. TAJADDUD, 1971: 335; B. DODGE 1970, II: 656. In his biographic article on Abū Ma'shar, David Pingree dates this event to about eight years earlier, without giving reasons. D. PINGREE 1981: 33.
- ²¹ A horoscope cast by Abū Ma'shar on 5 March 832 is extant. Cf. D. PINGREE, 1981: 39. It provides an *ante quem* date for the beginning of Abū Ma'shar's career as an astrologer.
- ²² The most recent and most exhaustive treatment of Abū Ma'shar's life and works is Richard Lemay's introductory volume to his edition of Abū Ma'shar's *Kitāb al-mudkhal al-kabīr*. R. LEMAY, 1995. There, Lemay takes a highly unfavourable view of all previous authors on the subject but has little other than assumptions to add to the facts already well known when it comes to the reconstruction of Abū Ma'shar's life.

his death in 886 he was more than one hundred years old (in lunar years of the Arabic calendar, not solar years)²³. On this basis, David Pingree speculated²⁴ that an example horoscope preserved in one of Abū Ma‘shar’s works, *Kitāb aḥkām taḥāwil sinī al-mawālīd*²⁵, dated to 10 August 787, is in fact his own birth horoscope, because the date corresponds to his approximate year of birth. However, according to al-Bīrūnī, Abū Ma‘shar was still alive as late as 893/894²⁶, and the *Albumasar in Sadan* clearly states that he did not know his own birth horoscope²⁷. A possible reason for this could be that by the time Abū Ma‘shar really started to learn astrology, at the age of 47, there was nobody he could ask about his time of birth.

It is unnecessary, however, to envisage Abū Ma‘shar as an astrologer of al-Ma‘mūn. In the Arabic original, instead of *Amerimnum*, we find al-Muwaffaq (r. 870–891), a caliph whose favourite astrologer happened to be Abū Ma‘shar²⁸. The Arabic text does not permit astronomical dating of the horoscope in question²⁹, but the Latin contains the additional information that *Caput Draconis* was located at 29° Gemini, which during al-Muwaffaq’s reign happened only in January 885³⁰.

There is also a reference to another caliph, al-Mutawakkil (r. 847–861), although we do not find his name in the work. In Chapter 27 (*De propria potestate*), Abū Ma‘shar is asked how to determine the end of a ruler’s reign astrologically³¹. He answers that this may be done using the *ylegh* (hyleg), and continues: *Verbi gratia: erat precedens coniunctio in Leone et Iupiter in Aquario et Luna in Geminis*. This sounds like an example related to the question, and indeed, the Arabic version specifically

²³ Cf. e.g. R. TAJADDUD 1971: 335; B. DODGE 1970, II: 657. Richard Lemay opted for solar years. R. LEMAY 1995: 8.

²⁴ D. PINGREE 1962: 487, D. PINGREE 1968: V.

²⁵ D. PINGREE 1968: 126–129.

²⁶ E. SACHAU 1998 [1878]: 340–341, quoted by M. ULLMANN 1972: 317.

²⁷ *Et non habuit Albumazar figura nativitatis sue (...)*. G. FEDERICI VESCOVINI 1998: 313. The Arabic is more specific: *wa-kāna lā ya ‘rifu li-nafsihi mawlidan*, ‘he did not know his [lit.: for himself a] nativity’, MS A f. 16a l.7.

²⁸ S. BRENTJES 2009: 307–308.

²⁹ G. FEDERICI VESCOVINI 1998: 327, MS C f. 11r l.2–12.

³⁰ In the present article, all planetary positions have been calculated with the computer program Placidus 4.5.1058.

³¹ G. FEDERICI VESCOVINI 1998: 320.

says it is³². *Precedens coniunctio* evidently means the conjunction of the Sun and the Moon; it is necessary for finding the hyleg. Caliph al-Mutawakkil ascended to the throne on 10 August 847, when Jupiter was in Aquarius, the Sun in Leo, and the Moon in Gemini, just as the text states. The calculation of the previous conjunction of the Sun and the Moon, however, is not precise, as it took place in the morning of 16 July 847 at 26° 27' Cancer, not in Leo³³.

There is another problematic sentence in the text which may point to the years prior to 848. In a chapter which begins with the topic of great conjunctions³⁴, Abū Ma'shar says that 'conjunction of the stars' is possible, but he has not yet seen it, and no word has reached him of anybody having seen it³⁵. The sentence has been interpreted by Lynn Thorndike as relating to the great conjunctions, and he was astonished by it, as Abū Ma'shar wrote a whole book on the astrological significance of the conjunctions of Jupiter and Saturn³⁶. The phrase 'conjunction of the stars' is, however, not very specific, and it is not certain at all that it relates to the great conjunctions. (This chapter, as so many others in *Albumasar in Sadan*, is not homogeneous, and treats at least four different topics.) We do not know exactly which rare astronomical event it refers to, and we cannot explain why no-one in Abū Ma'shar's lifetime had seen it or why the disciples even considered it astronomically impos-

³² *Mithāl dhālika inna al-hīlāj li-mas'ala 'an muddat sulṭān kāna darajat al-ijtimā' fī al-asad al-mustarī fī al-dalw fī al-thāmin wa-al-qamar fī al-jawzā'*, 'An example of this is the hyleg of a question about a period of reign, the degree of conjunction was in Leo, Jupiter was in Aquarius in the 8th, and the Moon was in Gemini', MS A f. 22b l.1–2.

³³ Al-Mutawakkil is also mentioned in another of Abū Ma'shar's works, *Kitāb al-milal wa-al-duwal*. Cf. D. PINGREE 1981: 36.

³⁴ Great conjunctions are the meetings along the ecliptic of Jupiter and Saturn, the two slowest of the seven planets known in the premodern world. They occur every 20 years.

³⁵ *Dixit Albumazar quod coniunctio astrorum contingens est. Sed non vidi ipsam unquam, neque etiam aliquis dixit mihi quod vidisset unquam*. G. FEDERICI VESCOVINI 1998: 300. In the Arabic version: *qāla abū ma'shar ijtimā' al-kawākib mumkin wa-mā ra'aytuhu qaṭṭu wa-lā balaghanī anna aḥad^{an} rāhu*, 'Abū Ma'shar said: Conjunction of the stars is possible, but I have never seen it, and it did not reach me that somebody has seen it.', MS A f. 3b l.5, MS C f. 3v l.6–7 (without *an*).

³⁶ L. THORNDIKE, 1954: 24, note 12. The precise dating of the work is problematic. Richard Lemay convincingly argued for a dating between 861 and 864. The date proposed by Pingree (after 869, perhaps as late as 884) would imply a very old, perhaps nonagenarian author. However, the work contains astrological examples that postdate the lifetime of Abū Ma'shar. These are clearly later interpolations and make the dating of the work uncertain and problematic. Cf. R. LEMAY 1995: 234–235. If the conversation reported in the anecdote took place prior to 848, Abū Ma'shar's book on the great conjunctions did not yet exist.

sible. If the dialogue does concern the great conjunctions, then it must have taken place between the start of Abū Ma‘shar’s career as an astrologer in 832/833 and the first great conjunction after that date, which occurred in May 848.

We now turn our attention to the horoscopes, many of which can be dated to the years 868–869. The first two are horary charts concerning love affairs, in Chapters 12 and 13³⁷. The first appears in an anecdote about a prince approaching Abū Ma‘shar to ask him about the woman he loves. As the astrologer is preoccupied, he asks Shādhān to calculate the horary chart. The planetary positions are as follows:

Elements of the horoscope	Text	18 March 869
ascendant	♈	
♂	♈	♈ 29° 40′
♀	♍	♍ 14° 27′
♃	♃ <i>fere in gradu ascendente</i>	♃ 27° 17′
♄	♄ <i>fere in gradu ascendente</i>	♄ 19° 39′

In the following chapter, we find a similar anecdote, also with a horary chart:

Elements of the horoscope	Text	3 November 868
ascendant	♍ 23°	
♀	♃ 15°	♃ 15° 39′
♄	♃ 16°	♃ 7° 59′
♃	<i>concurrrens Saturno (♃)</i>	♃ 2° 21′

In both cases, Jupiter and Saturn are said to be together in the same sign, Sagittarius, which only happened once in Abū Ma‘shar’s lifetime, in 868–869.

In the first case, Abū Ma‘shar finds fault in the astronomical values of the horoscope prepared by Shādhān and makes new calculations based on a revised set of tables. These are called *canones Mamonii* in the Latin translation, which accurately

³⁷ G. FEDERICI VESCOVINI 1998: 305, 306. The first horoscope can be found in MS A ff. 9b–10a and MS C ff. 9r–9v. The second one is missing from both extant Arabic recensions. However, there is no reason to suspect that it is a later, unauthentic addition.

reflects the meaning of the original Arabic *wa-huwa bi-ḥisāb al-mumtaḥan* (‘and it is in the revised calculation’)³⁸. However, the first set of tables – called *canones perpetuos* (‘eternal tables’) in the Latin text – are referred to in the Arabic original as the *Sindhind* (*al-ḥisāb bi-al-sindhind*, ‘the calculation in the *Sindhind*’)³⁹.

The third horoscope, again a horary chart concerning a couple, can be found in Chapter 32 of the Latin text⁴⁰:

Elements of the horoscope	Text	14 August 868
ascendant	♋ 10°	
♃	♋ 15°	♉ 17° 21′
♄	♋ 16°	♋ 17° 57′
<i>pars fortune</i>	♋ 29°	
♃	<i>in secundo</i> (♃♄)	♃♄ 1° 58′
♀	<i>in undecimo</i> (♁♂) 20°	♁♂ 4° 54′
♂	<i>in ipso</i> (♁♂) 20°	♁♂ 0° 18′
☉	<i>in duodecimo</i> (♁♂) 26°	♁♂ 25° 34′
♀	<i>in duodecimo</i> (♁♂) 26°	♁♂ 20° 01′

While we have to assume mistakes in the case of Sun and Mercury, we think that the dating of the horoscope is quite convincing, and no better solution can be found in Abū Ma‘shar’s lifetime. We have no reason to assume that the horoscopes are entirely fictitious.

³⁸ MS A f. 10a 1.8, MS C f. 9v 1.8. Richard Lemay already suspected the correct meaning. R. LEMAY, 1995: 16, note 39. On the phrase and its context, see for example: F. SEZGIN, 1978: 136–137; D. A. KING, 2000: 211–212; D. A. KING & J. SAMSÓ, 2002: 498–499; E. DEKKER, 2013: 279; and in much more detail: J. VERNET, 1956: 503–504. The tables by the astronomers of al-Ma‘mūn were a relatively recent creation, achieved during the lifetime of Abū Ma‘shar (the observations began in 829), and, according to Richard Lemay, overshadowing his own *Kitāb al-ulūf*. R. LEMAY, 1995: 186. The mention of the tables in question does not in itself confirm or contradict the proposed dating of the chapter.

³⁹ MS A f. 10a 1.2, MS C f. 9v 1.3. Richard Lemay already suspected the correct meaning. R. LEMAY, 1995: 16, note 39.

⁴⁰ G. FEDERICI VESCOVINI, 1998: 327. The horoscope is missing from both Arabic redactions. According to David Pingree, it can be found among the marginalia of Vaticanus graecus 1056. D. PINGREE, 2003: 49.

The following table summarises the results of our investigation into the dating of *Albumasar in Sadan*:

Chapter (Latin edition)	Dating
3. <i>De coniunctione magna</i> , paragraph 2 (pages 298–299)	the time of al-Ma'mūn (r. 813–833) – only retold by Abū Ma'shar
3. <i>De coniunctione magna</i> , paragraph 5 (page 300)	before May 848?
12. <i>Interrogatio de amore</i> (pages 305–306)	18 March 869
13. <i>Alia interrogatio de amore</i> , paragraph 1 (page 306)	3 November 868
21. <i>De cogitatione</i> , paragraph 4 (page 315)	after 826 ⁴¹
27. <i>De propria potestate</i> , paragraph 1 (page 320)	the time of al-Mutawakkil (r. 847–861)
28. <i>De fortuna</i> , paragraph 6 (page 322)	after 848/849
32. <i>De occultis in corde meo</i> , paragraph 4 (page 327)	the time of al-Muwaffaq (r. 870–891), possibly January 885
32. <i>De occultis in corde meo</i> , paragraph 5 (pages 327–328) – missing from the surviving Arabic redactions, extant in Greek <i>marginalia</i>	14 August 868
33. <i>De thesauro</i> , paragraph 2 (page 328)	early November 939 ⁴²

Ancient and medieval writings of many kinds are called books (*liber*, *kitāb*), and we tend to think of them as books in the modern sense of the word: a work that is produced in a relatively short amount of time (months, or a few years), after which it reaches its final, unaltered form. *Albumasar in Sadan* certainly does not fit into this scheme: as our table shows, it does not seem possible to single out one date for its composition⁴³. Abū Ma'shar's pupil, Shādhān seems to have collected the utterances

⁴¹ In this chapter, Abū Sa'īd Shādhān ibn Baḥr and Abū Ma'shar discuss the birth horoscope of a son of the king of India (Sarandīb, Sri Lanka in the original Arabic) and try to determine how long he is going to live. Pingree dated his birth horoscope to 11 January 826, which is a clever guess, but does not really help us date *Albumasar in Sadan*. Cf. D. PINGREE 1981: 33.

⁴² The exact date depends on whether we want the position of Venus or Jupiter to be exact. 3 November gives more exact result for Venus (still in Virgo on that day), 9 November gives more exact result for Jupiter (already in Sagittarius on that day). The Moon was in the right zodiac sign (Cancer) between 3 and 5 November.

⁴³ *Albumasar in Sadan* is, in this respect, like the two grand oeuvres of Abū Ma'shar translated into Latin, his Great Introduction and the *De magnis coniunctionibus*, cf. notes 17 and 36. These two are, however, strictly structured – a characteristic not shared by *Albumasar in Sadan*.

of his master over a very long period of time. As is evident from the above table, the work reached its final state only after Abū Ma‘shar’s death.

As far as we can judge, the chapters are not in chronological order and are heterogeneous in nature, treating several topics rather than just one. The lack of chronological order might be explained by the presence of some other organizing principle, but no such principle can be found in the text. (Medieval lists often lack any kind of logical structure, e.g. the *Dictatus papae*, or the collections of astrological aphorisms like the pseudo-Ptolemaic *Centiloquium*.)

The dating of *Albumasar in Sadan* is made more difficult by the fact that we do not know Shādhān’s dates of birth and death. It is unlikely that he is responsible for the chapters composed after 939, but it cannot be entirely ruled out.

Whatever the problems of its exact dating, *Albumasar in Sadan* offers a valuable insight, a rare glimpse into how astrology was taught in the medieval Arabic world.

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