



ĀṬĀR AL-BĀQĪĀ

AL-ĀṬĀR AL-BĀQĪĀ ‘AN AL-QORŪN AL-KĀLĪĀ (*The Chronology of Ancient Nations*), a historical work by Bīrūnī, composed at the age of twenty-seven, in A.D. 1000 (he calls the year 1311 of Alexander “this year of ours,” ed. Sachau, p. 194). The book is one of the works that first gave him fame in the West; it is no. 105 in Bīrūnī’s own bibliography (see Kraus, *Ēpître*, p. 42). He dedicated this magnificent mine of historical information to his master, Šams-al-ma‘ālī Qābūs b. Vošmgīr, the Ziyarid ruler of Jorjān. By this time, according to the *Chronology*, he had already completed at least seven books on various technical aspects of astrology and astronomy or on history, and was planning two more. Unfortunately, none of these nine has survived.

The *Chronology* is preserved in at least eleven manuscripts (Sezgin, *GAS* VI, p. 270). The oldest, ‘Ommūmī (Beyazit) 4667, was copied by Ebn al-Mo‘ezzī for Sa‘īd b. Mas‘ūd Qass (Krause, *Handschriften*, pp. 437-532, esp. 479); Sa‘īd is apparently identical with Ġars al-Na‘ma b. Mas‘ūd b. Qass al-Baġdādī, who lived during the reign of the last caliph, al-Mosta‘šem (1242-58) (Suter, *Mathematiker*, pp. 153-54, 227 no. 371a.). Unfortunately, Sachau had access to only three manuscripts, the earliest of which was copied in the seventeenth century. These manuscripts contain the same lacunae, some of which are quite extensive; as a matter of fact two of the manuscripts were probably copied from (copies of) the third, now Edinburgh University Library 161, which was copied by Ebn al-Kotbī, possibly in Tabrīz or Marāġa, in 707/1307-08 (see Soucek, “An Illustrated Manuscript”). The major lacunae in Sachau’s edition have been filled by Garbers and Fück (Garbers, “Eine Ergänzung;” Fück,



“Sechs Ergänzungen”), so that the text should now be read in the following sequence (*DII = Documenta Islamica Inedita*): Sachau pp. 3-131; *DII* pp. 45-68; Sachau pp. 132-194; *DII* pp. 72-74; Sachau pp. 195-206.22; *DII* pp. 74-79.10; Sachau pp. 206.22-209.17; *DII* pp. 79-80; Sachau pp. 209.17-214; *DII* pp. 80-84; Sachau pp. 215-307; *DII* pp. 84-95; Sachau p. 308-331.16; *DII* pp. 95-98; Sachau p. 331.18-362. There still remain minor lacunae in Sachau’s text; these could be filled and many other problems in the text resolved by an examination of the several early manuscripts not utilized by him.

Contents. The *Chronology* may be divided into three major sections: astronomical (chapters one to five), historical (chapters six to eight), and religious (chapters nine to twenty-one). There is extensive interchange between sections of material falling into each of these categories and numerous digressions are scattered throughout the work, a characteristic that enhances both the reader’s enjoyment and his instruction. The *Chronology* is based on wide reading in Arabic and other sources regarding the chronology of Arabia, Palestine, Syria, Iraq, and Iran, and on oral information obtained by Bīrūnī from his contemporaries in northern and northeastern Iran. The information concerning the Egyptians, the Greeks, the Romans, and the Byzantines comes from a few Arabic versions of Greek texts, while that on India is very limited and, of course, not yet based on the direct contact with Indians that Bīrūnī profited from in the 410s/1020s and the 420s/1030s. (See Pingree, “Al-Bīrūnī’s Knowledge,” for the development of his knowledge of Indian astronomy.)

The first two chapters, on astronomical time-divisions, defining the epochs of the day in different traditions and the natures and lengths of years, are elementary, but contain interjections of unusual bits of historical information, e.g., the midnight epoch of the *Zīj Šahriārān al-Šāh* (p. 6) and a discussion of an Indian intercalation scheme (pp. 12-13) that includes a citation from Āmolī’s *Ketāb al-ġorra* based on the *Tarkīb al-aflāk* of Ya‘qūb b. Ṭāreq (which he referred to directly when writing India, see Pingree, “The Fragments of Ya‘qūb ibn Ṭāriq”). There is also an excursus on Muslim fasting (pp. 7-9) and another on the pre-Islamic Arab calendar (pp. 11-12; see also pp. 34-35, 60-64).

Chapter three discusses various eras: those of the Creation, of the Flood, of Nebuchadnezzar (Nabonassar), of Philip, of Alexander, of Augustus, of Antoninus, of Diocletianus, of the Hejra, of Yazdegerd, and of the Caliph al-Mo‘tazed. All of these except the first are used in one or another astronomical *zīj*, and such *zīj*s normally give instructions and tables for the conversion of



dates from one calendar to another. What is unique in Bīrūnī's presentation is his inclusion of long asides on Jewish, Christian, and Zoroastrian opinions and arguments about the date of Creation, on the origin of the Septuagint, and on the genealogy of Joseph (pp. 14-23), on the Persian traditions regarding the revelations and on Abū Ma'shar Balkī's use thereof in concocting and defending his *Zīj al-hazārāt* and his *Ketāb al-olūf* (pp. 23-27; see D. Pingree, *The Thousands of Abū Ma'shar*, London, 1968) and the story of the adaptation of the Hejra calendar (pp. 29-31), including astronomical data relating to the date of the birth of Moḥammad (see also *DII*, pp. 95-96; E. S. Kennedy and D. Pingree, *The Astrological History of Māshā'allāh*, Cambridge, Mass., 1971, p. 127). The chapter concludes with a discussion of the eras used by the pre-Islamic Arabs (pp. 34-35) and a section on the historical traditions of his native K̄vārazm (pp. 35-36), including a description of Āfrīg's (see Āl-e Āfrīg) construction of the castle at Fīr (modern Bīrūnī) in A.D. 305 and its destruction by a flood of the Oxus in 384/994.

The next chapter, numbered four, is stated to be devoted to legends concerning Du'l-qarnayn, but also contains a long criticism of the "false" claim of the Buyids to descent from the Sasanian emperor Bahrām Gūr (see also p. 213) and praise of the "true" descent of his patron, Šams-al-ma'ālī, and of the shahs of Khorasan i.e., K̄vārazm, and Šervān from the Sasanian royal house (pp. 37-40).

Chapter five discusses the natures and names of the months (and days where appropriate) of various peoples: the Persians, the Sejestānīs (with information from Aḥmad Sejzī; cf. Altheim and Stiehl, "Der Kalender"), the Soghdians, the Khwarazmians, the Egyptians, the "people of the West" (using Amōlī's *Ketāb dalā'el al-qebla*), the Greeks (i.e., Byzantines), the Jews (see further chapter seven), the Syrians (cf. Ludger Bernhard, *Die Chronologie*), and the Arabs; at the end of the chapter (pp. 69-71) is a table of the names of the months in the languages of the nations just mentioned and in those of the Bukharans (?), Qubaians, Turks (twice), Indians, and ancient Greeks (i.e., Macedonians). The names of months and days most interesting for modern scholars, of course, are those of eastern Iran and of Central Asia, and of the West (Spain?). Interspersed in the technical detail of this chapter are various discussions: the *thema mundi* and the birth of Gayōmart (p. 45 and see also pp. 99-100; cf. Pingree, "The Indian and Pseudo-Indian Passages," p. 146 n. 23), of the Sasanian intercalation scheme or schemes (p. 45; see also pp. 32-33, 118-19, and 203-04), of the exposition of the difference between the Indian (actually



Sendhend; see Pingree, *ibid.*, pp. 151-69) year of 6, 5; 15, 30, 22, 30 days and the Greek year in an anonymous *Ketāb ma'kaḍ al-mawāqit* (pp. 51-52), and the determination of the length of Ramaẓān (pp. 64-68).

The lengthy chapter six constitutes the core of the historical section of the *Chronology* as it consists largely of tables of kings and the years of their reigns. Much of this material is derived from the *Ketāb ta'rīk senī molūk al-arż wa'al-anbiā'* of Ḥamza Eṣfahānī and other chronicles, some from the now lost Arabic translation of Theon's *Handy Tables* or from some derivative thereof. Bīrūnī begins with the genealogies and king-lists of the Jews according to Jewish and Christian interpretations of the Old Testament. Following this he gives king-lists of the Assyrians, Babylonians, Chaldaeans (i.e., Neo-Babylonians and Achaemenids), Egyptians, Macedonians (i.e., Ptolemys), Romans, and Byzantines (twice). He states that the king-lists of the Assyrians, the Egyptians, and the first for the Byzantines (which ends in 871) came from a single book; it seems to have depended on Eusebius' *Chronicle* (in spite of Altheim and Stiehl, *Die Araber in der alten Welt* III, Berlin, 1966, pp. 11-14, who argue that Bīrūnī's source for the Egyptians was an Arabic version of Manetho). The king-lists of the Chaldaeans, Macedonians, and Romans are taken from Theon's *Handy Tables*. The second list of Byzantine emperors (which ends in 913) is derived from Ḥamza.

The chronological lists of the Persians, which are interspersed with many digressions on Iranian mythological or historical traditions, are divided into three periods: the Pīšdādīān and Kayānīān, the Aškānīān (Arsacids), and the Sasanians. For each of these periods Bīrūnī gives at least three king-lists; one according to common opinion as reconstructed by himself, and two given by Ḥamza from different sources. To this basic material he adds a table of mixed Assyrian, Neo-Babylonian, and Achaemenid kings drawn from a Western source (pp. 110-11); tables of the Aškānīān according to Abu'l-Faraġ Zanġānī and to the *Šāh-nāma* of Abū Maṣṣūr 'Abd-al-Razzāq (pp. 116-17); and tables of the Sasanians according to Zanġānī and to Mūsā Kesrawī, the latter from Ḥamza (pp. 126-31).

The next large section of this chapter is devoted to pre-Islamic Arab chronology, with tables of the Himyarite, Ghassanid, and Lakhmid kings. This is followed by chronological tables of events in the life of Moḥammad and of the reigns of the early caliphs, the Omayyads, and the 'Abbasids. The final table in this long chapter is in *ṭaylasān* form, displaying the intervals in days (expressed sexagesimally and decimally) between the eras used in



astronomical tables (see another example in Pingree, *op. cit.*, pp. 185-86).

The digressions in chapter six are both numerous and long. They include a criticism of the astrologers' computation of the longest possible human life enlivened by some examples of teratology and two extended citations from Šādān's *Ketāb al-modākarāt* (pp.78-84; cf. Pingree, *ibid.*, pp. 170-71). A list of the titles of princes (pp. 100-02), with which should be compared the discussion of the titles of the caliphs (pp. 132-35) as well as of the ecclesiastical titles of the Christians and, from Aḥmad Ahwāzī, the ecclesiastical and political titles in Byzantium (pp. 289-90); the date of the birth of Mānī (p. 118; see also p. 208); the horoscopes of the years in which Ardašīr I and Yazdegerd III were crowned (p. 119); astrological arguments for limiting the duration of the Aškānīān to 240 or to 265 years (*DII* p. 45); the so-called "chess problems" from his own, otherwise lost *Ketāb al-arqām* (pp. 135, 138-39; cf. E. Sachau, *ZDMG* 29, 1875, pp. 148-56); and the conversion of dates in one calendar to those in another, in part derived from Abū Mašār (pp. 140-43; see Pingree, *The Thousands*, pp. 37-41 and cf. 130-31).

Chapter seven presents an elaborate explanation and criticism of the intricacies of the Jewish calendar, followed by a discussion of technical aspects of the Greco-Syrian, Muslim, and Persian calendars. The only earlier work than Bīrūnī's on the Jewish calendar (except, perhaps, for that of his older contemporary, Qā'enī) seems to be the *Maqāla fī estekraġ ta'rīk al-Yahūd* composed by K̄vārazmī in the early 3rd/ninth century, though Bīrūnī appears not to have known it. Bīrūnī applies Hipparchus' method to the data on the lengths of the seasons in the Jewish calendar to derive the longitude of the solar apogee (pp. 183-85). Other excursions give the names of the planets and of the zodiacal signs in Arabic, Greek, Persian, Syriac, Hebrew, Sanskrit, and Khwarazmian (pp. 192-93), and a *moġarrad* table for correlating the thirty-year Muslim intercalation cycle with the week-days (pp. 197-200; see for the earliest *moġarrad* table, D. Pingree, "The Fragments of the works of al-Fāzārī," *JNES* 29, 1970, pp. 103-23, esp. 110-11, frag. Z 10).

The eighth chapter—the last in the historical section—is one of the most interesting since in it Bīrūnī has collected information concerning "pseudo-prophets" and their sects. These include Būdāsaf and the Sabians of Ḥarrān, the Buddha, Zeus, Zarādošt (Zoroaster), Bar Dišān (Bardesan), Marcion, Mani, Mazdak, and several from the early Islamic period. The chapter concludes with a *ṭaylasān* table illustrating the intervals between the eras of the false prophets (*DII* p. 82).



Chapters nine through twenty give extremely valuable accounts of various peoples' festal calendars: the Persians (nine), Soghdians (ten), the Khwarazmians (eleven), the Greeks (thirteen), the Jews (fourteen), the Malkite Christians of K̄vārazm (fifteen), the Nestorian Christians (seventeen), the Sabeans of Ḥarrān (eighteen), and the Muslims (twenty). Interspersed among these are chapters twelve (on the K̄vārazmšāh's reform of the Khwarazmian festal calendar in 959), sixteen (on Lent and its dependent festivals), and nineteen (on the Arabic names of the months, on the beginnings of the seasons in various calendars, and on the fairs of the pre-Islamic Arabs). Aside from the many stories that Bīrūnī relates concerning the origins of various festivals, some of his more interesting digressions in the chapters under review are the following: a table of the lucky and unlucky days in the Persian calendar (pp. 230-32; cf. the "Egyptian days"); a table of the names of the *nakṣatras* in Soghdian and Khwarazmian (pp. 239-40; cf. W. B. Henning, *JRAS*, 1942, pp. 229-48, esp. 242-48; also Pingree "The Indian and Pseudo-Indian Passages," p. 146); a description of the homocentric solar model of Abū Ja'far Kāzen (p. 259; J. Samsø, "A Homocentric Solar Model by Abū Ja'far al-Khāzin," *JRAS* I, 1977, pp. 268-75); a brief discussion of the principles of hydrology (pp. 261-265); and the horoscope of the founding of Baghdad on 29 July 762 (pp. 270-271; see Pingree, "The Fragments of the Works of al-Fazārī," p. 104).

The final chapter in the *Chronology*, numbered twenty-one, provides a wealth of historical, divinatorial, anecdotal, and astronomical information about the *manāzel al-qamar* (lunar mansions). The last part of this section is a table of the longitudes and latitudes of the fixed stars in the *manāzel*; its epoch is 989. Bīrūnī concludes the chapter and the book with a short treatise concerning the projection of points on the surface of a sphere onto a plane and the construction of celestial and terrestrial maps.

This survey will indicate to some degree the rich variety of the contents of the *Chronology*. Much of this material Bīrūnī has gleaned, as has been intermittently demonstrated, from the works of his predecessors, and much of the value of his book for us lies in the fact that many of his sources are no longer extant. He has also relied heavily on informants, such as Abu'l-Faraġ Zanġānī (pp. 44, 215, and 230; he also used Zanġānī's chronicle, see pp. 116, 117, 126-28, and 319-20), Abu'l-Ḥasan Āḍarġorā (pp. 44, 99, and 219), Aḥmad Seġzī (p. 42; see also note 32), the Espahbaġ Marzbān b. Rostam (p. 209), and the Jewish physician Ya'qūb b. Mūsā, whom he met in Jorġān (p. 276). He regrets not to have been able to consult anyone competent to explain the Jacobite



Christian calendar to him (p. 315).

The factual material drawn from many disparate sources, the honesty with which it is presented, and Bīrūnī's intelligent and critical treatment of it make the *Chronology* an invaluable collection of information concerning many topics of Near and Middle Eastern history. The inadequacy of these sources, however, prevented Bīrūnī from dealing adequately with regions outside of Iran and Iraq, or from solving many of the problems inherent in his material, even when he recognized them as problems. The influence of his book among later Muslim writers, save for the chronologists, does not appear to have been great, though a serious investigation of this matter has yet to be made. The existence of a dozen manuscripts of the *Chronology* surely proves that it was read, but the question remains: By whom?

BIBLIOGRAPHY

Bīrūnī's own P. Kraus, *Ēpître de Bīrūnī*, Paris, 1936, p. 42.

Editions: C. E. Sachau, *Chronologie orientalischer Völker von Albêrûni*, Leipzig, 1878, repr. Leipzig, 1923 and Baghdad, 1963. Eng. tr., idem, *The Chronology of Ancient Nations*, London, 1879, repr. Frankfurt, 1969.

Pers. tr. 'A. Q. M. E'tezād-al-salṭana and A. Dānāserešt, Tehran, 1321 Š./1942-43.

Russ. tr., M. A. Sal'e, Tashkent, 1957.

The lacunae: K. Garbers, "Eine Ergänzung zu Sachaus Ausgabe von al-Bīrūnīs "Chronologie orientalischer Völker",," *Documenta Islamica Inedita (DII)*, Berlin, 1952, pp. 45-68.

The same scholar has translated this passage into German in *Der Islam* 30, 1952, pp. 39-80.

J. Fück, "Sechs Ergänzungen zu Sachaus Ausgabe von al-Bīrūnīs "Chronologie orientalischer Völker",," *DII*, pp. 69-98; pp. 75.7-76.18 were edited and translated into English by S. H. Taqizadeh, "A New Contribution to the



Materials Concerning the Life of Zoroaster,” *BSOS* 8, 1935-37, pp. 947-54; pp. 77.14-78.10 were edited (pp. 132-34) and translated into English (pp. 122-24) by F. Rosenthal, *Aḥmad b. aṭ-Ṭayyib al-Sarāḥsī*, New Haven, 1943.

On the manuscripts see M. Krause, “Stambuler Handschriften islamischer Mathematiker,” *Quellen und Studien Gesch. Math. Astr. Phys.*, Art. B, vol. 3, Berlin, 1936, pp. 437-532, esp. 479.

H. Suter, *Mathematiker*. P. Soucek, “An Illustrated Manuscript of al-Bīrūnī’s *Chronology of Ancient Nations*,” *The Scholar and the Saint*, ed. P. J. Chelkowski, New York, 1975, pp. 103-68.

On Bīrūnī’s India see also D. Pingree, “Al-Bīrūnī’s Knowledge of Sanskrit Astronomical Texts,” *The Scholar and the Saint*, New York, 1975, pp. 67-81, and idem, “The Fragments of the Work of Ya’qūb ibn Ṭāriq,” *JNES* 27, 1968, pp. 97-125, esp. 115 (frag. T 5).

Chapter three: on K̄vārazm, one may now consult the archeological work carried out in K̄vārazm by S. P. Tolstov and reported, e.g., in his “Dated Documents from the Toprak-kala Palace, and the Problem of the “Śaka Era” and the “Kaniška Era”,” *Papers on the Date of Kaniška*, ed. A. L. Basham, Leiden, 1968, pp. 304-26.

Chapter five: Bīrūnī’s list of the names of the angels of the days in a Persian month is that given in the *Bundahišn* (see A. Christensen, *Iran Sass.* p. 158); for an Indian adaptation of a similar list see Varāhamihira, *Pañcasiddhāntikā* 1, pp. 24-25, and O. Neugebauer and D. Pingree, *The Pañcasiddhāntikā of Varāhamihira II*, Copenhagen, 1971, pp. 14-15.

For Sīstān see F. Altheim and R. Stiehl, “Der Kalender Sīstān’s bei al-Bīrūnī,” *Festgabe für Hans Wehr*, ed. W. Fischer, Wiesbaden, 1969, pp. 192-96.

On the Syrian calendar and Bīrūnī’s description of it see P. Ludger Bernhard, *Die Chronologie der Syrer*, Vienna, 1969.

The horoscope of Gayōmart is found in the *Bundahišn*; see D. Pingree, “The Indian and Pseudo-Indian Passages in Greek and Latin Astronomical and Astrological Texts,” *Viator* 7, 1976, pp. 141-95, esp., p. 146 n. 23.

On the *Zīj al-Sendhend* see D. Pingree, *ibid.*, pp. 151-69.



The year-length that Bīrūnī copied from Ḥamza Eṣfahānī is also that of the *Sendhend*.

Chapter six: Ḥamza Eṣfahānī's *Ketāb ta'rīk* was edited by I. M. E. Gottwaldt, St. Petersburg and Leipzig, 1844; Latin tr. idem, Leipzig, 1848.

Eng. tr. of the first book, on Persian chronology, U. M. Daudpota, "The Annals of Ḥamza al-Iṣfahānī," *Journal of the K. R. Cama Oriental Institute* 22, 1932, pp. 58-120.

Pers. tr., J. Še'ār, *Tārīk-epayāambarān o šāhān*, Tehran, 1346 Š./1967.

On the legends and chronologies of Gayōmart and the Pīšdādīān see A. Christensen, *Le premier homme et le premier roi*, pts. 1 and 2, Upsala, 1918 and Leiden, 1934.

See also S. Hartman, *Gayōmart*, Upsala, 1959 and its review by M. Boyce, *BSOAS* 17, pp. 174ff.

On the legends concerning the Kayānīān see A. Christensen, *Les Kayanides*, Copenhagen, 1932; also B. T. Anklesaria, "The Names of the Achaemenians in Alberoni," *Proceedings and Transactions of the All-India Oriental Conference, Twelfth Session*, Benares, 1948, pp. 692-702, and E. Yarshater, "Lists of the Achaemenid Kings in Biruni and Bar Hebraeus," *The Commemoration Volume of Biruni International Congress in Tehran*, Tehran, 1976, pp. 45-61.

Bīrūnī's information concerning the Sasanians is discussed in A. Christensen, *Iran Sass*. For a comparison of Bīrūnī's chronology of the early caliphs with Māšā'allāh's see E. S. Kennedy and D. Pingree, *The Astrological History of Māshā'allāh*, Cambridge, Mass., 1971, pp. 142-43.

The series of horoscopes of the vernal equinoxes of the years in which Sasanian kings were crowned that Bīrūnī used is preserved in Seǰzī's *Ketāb al-qērānāt wa taḥāwīl senī al-ālam*; see D. Pingree, "Historical Horoscopes," *JAOS* 82, 1962, pp. 487-502 (esp. p. 496), and *The Thousands of Abū Ma'shar*, London, 1968, pp. 82-93.

For the horoscope of the coronation of Anōšīravān see D. Pingree and W. Madelung, "Political Horoscopes Relating to Late Ninth Century 'Alids," *JNES* 36, 1977, pp. 247-75, esp. pp. 249-50 and 266-67.



Chapter seven: Ǧvārazmī's *maqāla* was published as the first work in *Al-resā'el al-motafarreqa fi'l-hay'a*, Hyderabad-Deccan, 1948 (the third work in this volume is the *Maqāla fi estekrāj ta'riḳ al-Yahūd* of Abu'l-Ḥasan 'Alī b. 'Abdallāh b. Moḥammad b. Bāmsāḍ Qā'enī); see also E. S. Kennedy, "Al-Khwārizmī on the Jewish Calendar," *Scripta Mathematica* 27, 1964, pp. 55-59.

Chapter eight: Concerning the Harranians in general see D. Chwolsohn, *Die Ssabier und der Ssabismus*, 2 vols., St. Petersburg, 1856, though he does not know the *Chronology*.

Concerning Būdāsaf see further D. Pingree, *The Thousands of Abū Ma'shar*, pp. 4-5 and 16.

Concerning Bābā see F. Rosenthal, "The Prophecies of Bābā the Ḥarrānian," in W. B. Henning and E. Yarshater, eds., *A Locust's Leg. Studies in Honour of S. H. Taqizadeh*, London, 1962, pp. 220-32.

For this chapter see further H. Lewy, "Points of Comparison between Zoroastrianism and the Moon-cult of Ḥarrān," in *ibid.*, pp. 139-61.

H. J. W. Drijvers, *Bardaišan of Edessa*, Assen, 1966.

O. Klíma, *Manis Zeit und Leben*, Prague, 1962.

Idem, *Mazdak*, Prague, 1957.

G. H. Sadighi, *Les mouvements religieux iraniens au II^e et au III^e siècle de l'hégire*, Paris, 1938.

Chapters nine-twenty, the calendars: J. Markwart, "Das Naurōz. Seine Geschichte und seine Bedeutung," in *Dr. Modi Memorial Volume*, Bombay, 1930, pp. 709-65B; there is an English translation of this article by M. Patel in the *Journal of the K. R. Cama Oriental Institute* 31, 1937 pp. 1-51.

Included are Pahlavi calendars of the Khwarazmians and the Soghdians. Much of the information on the Greek calendars comes, through Senān b. Ṭābet's *Ketāb al-anwā'*, from the second book of Ptolemy's *Phaseis*.

See O. Neugebauer, "An Arabic Version of Ptolemy's Parapegma from the "Phaseis"," *JAOS* 91, 1971, p. 506; and J. Samsø and B. Rodriguez, "Las "Phaseis" de Ptolomeo y el "Kitāb al-Anwā' de Sinān b. Thābit," *Al-Andalus* 41, 1976, pp. 15-48; see also E. Wiedemann, "Meteorologisches aus der



Chronologie von al-Bīrūnī,” *Meteorologische Zeitschrift* 39, 1922, pp. 199ff.

An abbreviated version of the Malkite calendar with a French translation was published by R. Gribreau in *Patrologia Orientalis* 5, Paris, 1915, pp. 287-312.

See also G. Messina, “Al-Biruni sugli inizi del cristianesimo a Merv,” *Al-Biruni Commemoration Volume*, Calcutta, 1951, pp. 221-31.

Bīrūnī’s list of Sabean feasts, derived from Hāšemī’s *Zīj al-kāmel*, is radically different from that recorded by Ebn al-Nadīm (*Fehrest* 9,1), apparently from a manuscript copied by one Abū Sa’īd Wahb b. Ebrāhīm.

Search terms:

atar al baghiyeh atar al baaghiyeh atar al bagheeyeh