Revisiting Berossus' Astronomical Fragments

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Abstract: *The so-called astronomical fragments of the Babylonian historian Berossus, author of the early-Hellenistic* Babyloniaca*, have often been deemed spurious on the grounds of their difficult placing in a Babylonian context and their similarity to Greek cosmological doctrines. This article reviews the fragments anew, proposing an intermediate position between wholesale acceptance and rejection.*

Keywords: *Berossus of Babylon, astronomy, astrology, Babylonian history, Graeco-Babylonian tradition, Varro, Poseidonius*

Berossus, a priest of Bēl-Marduk in Babylon (T 2, T 9, F 21), was the author of a *Babyloniaca*, a history of Babylon in three books now preserved as a collection of fragments. The most extensive passages, derived from an epitome by Alexander Polyhistor, are quoted in the extant works of Josephus, Eusebius, and Syncellus.[1] The fragments from Syncellus' *Chronographia* virtually reproduce those in Eusebius' *Chronicle* (only preserved in Armenian), and both authors cite Polyhistor (1st c. BCE) as their source.[2]

[1] The testimonia and fragments are in *Brill's New Jacoby* (*BNJ*) 680 (ed. De Breucker), which preserves the same material, organized in the same way, as the older *FrGrHist* 680 (ed. Jacoby). In contrast to the historiographical fragments, none of the astronomical fragments is a quotation or epitome of a passage of Berossus. Following common usage, I generally write 'fragments' for both types (T and F), unless the distinction is needed. References to Eusebius and Syncellus will be by the Jacoby section numbers, and by the pages of Mosshammer's edition if needed for the latter.

[2] On the problematic question of the several references to an Apollodorus

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A separate group of sources (though also including Josephus) give us a set of testimonia and fragments which deal with astronomical, astrological, and divinatory topics: Cleomedes, Vitruvius, Seneca, Pliny the Elder, and Pausanias. These fragments, sometimes attributed to a pseudo-Berossus, are the object of this paper, but in order to evaluate them it will be necessary to provide some background on the author and the historical fragments.

Two reports (T 2) claim that the *Babyloniaca* was dedicated to king Antiochus, who could be either Antiochus I (reign 281–261 BCE) or II (reign 261–246 BCE).[3] Following the witnesses that Berossus was a priest of Bēl-Marduk, he had been identified with a *šatammu* (a high priest) at the Babylonian Esagila named Bēl-rē-'ûšunu in Babylonian tablets dated between 258–253 BCE, but this connection has recently been called into question.[4] Considering that Berossus claimed to have been born in the age of Alexander the Great (F 1b.1: φησι γενέσθαι μὲν αὐτὸν κατὰ Ἀλέξανδρον τὸν Φιλίππου τὴν ἡλικίαν), it has been suggested that Berossus could be rather the grandson of this *šatammu* (following the conventions of Akkadian onomastics), but this has also been shown to be implausible on the grounds that the original Akkadian name should in fact be Bēl-rē-'ûšu.[5]

As for the preference for Antiochus I or II, the possibility of a Stoic influence would perhaps favor the later king, since Zeno of

made by Eusebius/Syncellus in the Berossus fragments, see G. De Breucker, "Alexander Polyhistor and the *Babyloniaca* of Berossus," *BICS* 55.2 (2012) 57–68, at 61–62. They presumably denote the famous Athenian chronographer (2nd c. BCE), yet the citations must refer to a lost work by a pseudo-Apollodorus, since Apollodorus' chronography started at the fall of Troy.

[3] K. Stevens, *Between Greece and Babylonia: Hellenistic Intellectual History in Cross-Cultural Perspective* (Cambridge 2019) 115–116. Cf. also M. Visscher, *Beyond Alexandria: Literature and Empire in the Seleucid World* (Oxford 2020) 80.

[4] For the identification, see B. Van der Spek, "The šatammus of Esagila in the Seleucid and Arsacid Periods," in J. Marzahn and H. Neumann (eds.), *Assyriologia et Semitica* (Münster 2000) 437–446, at 439.

[5] G. De Breucker, "Berossos: His Life and Work," in J. Haubold et al. (eds.), *The World of Berossos* (Wiesbaden 2013) 15–29, at 15. For the criticism of both identifications, see Stevens, *Between Greece* 118–119; Stevens concedes, however, that the theophoric name of Berossus and his access to cuneiform scholarship almost certainly link Berossus with Esagila.

Citium began teaching at Athens only in about 300 BCE. If Berossus had been born around 325, he would be in his sixties at the beginning of the reign of Antiochus II. The elements of Stoic influence consist not only of Berossus' long-noted theory of conflagration in the astronomical fragments (F 21), but also of the recently argued etymologizing and allegorizing in Berossus' creation myth in book I.[6] In relation to this, Haubold points to (1) Berossus' Greek translation of Θάλατθ (Tiamat, F 1b.6) as Θάλασσα, comparing it with Zeno's reading of Hesiod's Chaos as water (SVF I 104); and to (2) Berossus' myth of the creation of man from the head of Bēl (F 1.7) in terms of the bestowal of intelligence and divine understanding (φρονήσεως χρείας μετέχειν), which Haubold compares with the Stoic interpretation of the myth of Athena.[7] It has been countered that the allegories may derive from Polyhistor's epitome;[8] however, while one can argue that Polyhistor possibly added Stoicizing explanations, it is more difficult to conceive that he invented the etymologies.[9] Etymological explanations of divine names have a long history in Greek thought – think of Pherecydes' rendering of Ζάς for Ζεῦς, Χρόνος for Κρόνος, etc. – but the fact that they were present in the widely influential Stoic doctrines around Berossus' lifetime seems to carry a certain weight in ascertaining the configuration of Berossus' thought. Besides, Haubold points to another element which recalls a Greek philosophical doctrine popular in Hellenistic times, namely the 'Empedoclean' account of the creation of animals from a primordial mix of monsters in water (F 1.6).[10]

The fragments taken from Polyhistor in Eusebius/Syncellus are presented as excerpts/epitomes (if second-hand) and often referred to by book number, so they give us an approximate idea of the structure of the *Babyloniaca*: thus, book I would have contained, in

[6] J. Haubold, "'The Wisdom of the Chaldaeans': Reading Berossos, *Babyloniaca* Book I," in Haubold et al. (eds.), *The World* 31–46, at 35–39.

[7] Cf. also Hesychius' witness that, for Berossus, a certain Σαραχήρω was equivalent to κοσμητρία τῆς Ἥρης (F 13): Haubold, "The Wisdom" 37 n. 36.

[8] Stevens, *Between Greece* 106.

[9] Haubold, "The Wisdom" 37 acknowledges that the expression ἀλληγορικῶς πεφυσιολογῆσθαι (F 1b.7) is probably from Polyhistor.

[10] The idea is developed in Aristotle (*Phys.* 196a) and Apollonius' *Argonautics* (IV 672–684): Haubold, "The Wisdom" 38–39.

this order, a geographical description (F 1.2–3), an account of the civilizational monster-hero Oannes (F 1.4), and the creation myth (F 1.6–8); book II gave a chronology of the prediluvian kings (F 3.10–12) and an account of the flood (F 3.14–17) – Polyhistor appended here the Biblical story of the tower of Babylon and the confusion of tongues from the third book of the Sibylline oracles (F 3.18: Σίβυλλα δὲ φησιν...); and presumably book III (the distinction with book II is not explicit) dealt with the postdiluvian dynasties.

Expanding on the traditional comparison between Berossus and Manetho as historians/chronographers of the Seleucid and Ptolemaic kingdoms writing in Greek, Visscher has stressed the fact that both authors belonged to the local priestly elite, which thus emerged with its own voice in the historiographical genres, in contrast to the previous Greek histories which just relied on the knowledge treasured by this class.[11] Both authors seem to have defended the prestige of their countries' pre-Persian culture, showing an undeniable acquaintance with indigenous sources: while Manetho used Egyptian king lists such as the Turin list, Berossus' history shows clear parallels with Mesopotamian king lists and chronicles, the *Enūma Eliš*, and the *Poem of Atra-hasīs*. The nature of Berossus' work has prompted comparisons to Greek historians such as Herodotus, Hecataeus, and Megasthenes, whereas Manetho is viewed as a more strict chronographer.[12] Tuplin cautions that there is no hard evidence that Berossus directly read any Greek historian, but, as with the question of Greek philosophy, it seems hard to believe that Berossus produced a piece of scholarship in Greek without being familiar to some degree with other works in Greek, especially works in his genre of choice.[13] In fact, the style and title of his work

[11] Visscher, *Beyond Alexandria* 114–116.

[12] J. Dillery, *Clio's other sons: Berossus and Manetho* (Ann Arbor 2015) vii; I. Moyer, "Berossos and Manetho," in Haubold et al. (eds.), *The World* 213–232, at 222–229.

[13] C. Tuplin, "Berossos and Greek Historiography," in Haubold et al. (eds.), *The World* 177–198, at 186–188. As an anonymous reader has pointed out to me, Berossus' introductory discussion of plants in Babylonia (F 1.2), mentioning, apart from dates, "apple-trees and the rest of fruit-trees" (μῆλα καὶ τὰ λοιπὰ ἀκρόδρυα), could respond to Herodotus' observation that Babylonians do not cultivate trees because the land is best suited for cereals

("things Babylonian", containing geography, ethnography, marvels, and chronological history) have a precedent in Megasthenes' *Indica*, written at the court of Seleucus I (reign 305–281 BCE).[14]

Given their insider status, it is possible that both Berossus and Manetho employed a strikingly direct style. Consider, for example, Manetho F 15 Jacoby (=Lydus, De mens. IV 87):

> Ἰστέον δὲ, ὡς ὁ Μανέθων ἐν τῷ περὶ ἑορτῶν λέγει τὴν ἡλιακὴν ἔκλειψιν πονηρὰν ἐπήρειαν ἀνθρώποις ἐπιφέρειν ...
>
> It must be understood that in his account on festivals Manetho says that the solar eclipse brings a baneful insult to humans ...

We can make a comparison with Berossus' F 21, in which it is stated that Berossus (not the Babylonians according to Berossus) predicted a conflagration and a flood; similarly, in F 18–20 Berossus is said to have presented a lunar model, not the Babylonians' lunar model. Such a markedly authorial voice would help explain the later appearance of a pseudo-Manetho, author of an extant astrological treatise in hexameters, and the transformation of Berossus into a practicing astrologer in T 5ab.

Overall, modern scholarship has broadly accepted the reliability of Berossus' historical fragments, deeming it plausible that his activity as a priest of Marduk granted him access to Babylonian documents.[15] However, the astronomical fragments (F 15–22) are the subject of longstanding debate due to the difficulty situating them in a Babylonian context. It is significant that Jacoby separated these fragments in a sub-entry titled "(Pseudo-) Berossus of Cos," alluding to T 5ab.[16] Expressing a general distrust in the authentic-

(I 193).

[14] Visscher, *Beyond Alexandria* 54, 97. Visscher explores Berossus' incorporation of Seleucid narratives of power, comparing the *Babyloniaca* with Megasthenes' *Indica*: for example, as Megasthenes presents the Indian marvels in the new light of possible imperial exploitation, in the matter of Nebuchadnezzar's wife Berossus substitutes the Near-Eastern Herodotean *topos* of the instigator-queen for a narrative of euergetism for the good of the empire.

[15] Berossus himself indicated his access to Babylonian sources (T 1). Stevens, *Between Greece* 103 marks this as another of the elements that recall Greek historiography.

[16] Jacoby was following 18th-century scholarship here: cf. Stevens, *Between*

ity of the astronomical fragments as a whole, Kuhrt highlighted the coincidences between some of Berossus' theories and those attributed to Greek pre-Socratic philosophers, and accepted Momigliano's view that the Greeks invented a perfect first transmitter of Babylonian astronomy.[17]

Nevertheless, it seems reasonable that a Greek-style historiographical work on the Babylonians would have incorporated some astronomy, since this no doubt was perceived by Berossus' time as a relevant aspect of Babylonian culture. As Kosmin observes, the mention of Indian faunal *thaumata* in Megasthenes' *Indica* neatly parallels the astronomical theories in the *Babyloniaca*, as both would have been expected components of the respective works.[18] Similarly, Diodorus Siculus could not escape writing a long section on Chaldean astronomy (II 29–31) in the chapters on Mesopotamian history in his *Bibliotheca historica* (1st century CE).

The judgment of Stevens, which leaves open the possibility of spurious material accreting around Berossus' name but rules out wholesale rejection, is probably the most accurate.[19] This follows from Steele's identification of several items in Berossus' lunar fragments (F 18–20) found in Babylonian sources and not in the Greek tradition; Steele maintains that Berossus' fragments show no familiarity with strictly astronomical material due to the extremely technical nature of Babylonian astronomical practice, and instead proposes as Berossus' influences the *Enūma Eliš* and related texts,

Greece 110. Somewhat inconsistently, the testimonia (including T 5ab) are only in the entry 'Berossus'.

[17] A. Kuhrt, "Berossus' Babyloniaka and Seleucid Rule in Babylonia," in A. Kuhrt and S. Sherwin-White (eds.), *Hellenism in the East. The Interaction of Greek and Non-Greek Civilizations from Syria to Central Asia after Alexander* (Berkeley 1975) 23–56. Cf. especially 40 for the moon fragments (F 18–20) and their similarities with Greek pre-Socratics, and 43 for her conclusion. See also De Breucker, "Berossos" 19–20. *Contra* J.P. Verbruegghe and J.M. Wickersham, *Berossus and Manetho. Introduced and Translated* (Ann Arbor 1996) 14–15, who argue against the theory of different authors adducing Josephus' testimonium (T 3).

[18] P. Kosmin, "Seleucid Ethnography and Indigenous Kingship: The Babylonian Education of Antiochus I," in Haubold et al. (eds.), *The World* 199–212, at 203.

[19] Stevens, *Between Greece* 111.

"developed along Greek philosophical lines".[20]

In my analysis, I will cover all the fragments which bear a relation with astronomy or astrology. I begin with T 3 on the contents of the *Babyloniaca*, then continue with the fragments that are easy to situate within the *Babyloniaca* (F 17, F 16b), then with more substantial ones (the lunar theory in F 18–20 and the conflagration in F 21), and finally I deal with the rest, including the biographical fragments (F 22ab, T 5c, T 7abc, T 5 ab, T 6, F 15, F 16a).

#	*Source*	*Topic*
T 3	Josephus *Ap.* I 129	Berossus transmitting Chaldean astronomy and philosophy to the Greeks
T 5ab	Vitruvius *De arch.* IX 6.2 and IX 2.1	Berossus' migration to the island of Cos and his founding of an astrological school there
T 5c	Vitruvius *De arch.* IX 8.1	the sundial invented by Berossus (the *hemicyclium*)
T 6	Pliny *NH* VII 123	honors bestowed on important persons in the disciplines: Berossus' statue in Athens for his "divine predictions"
T 7abc	Pausanias *Perieg.* X 12.9, Suda s.v. Σίβυλλα Δελφίς and [Justinus] *Ad graec*. 37	Berossus' daughter Sabbe, the Babylonian Sibyl
F 15	Palchus 135 (=*CCAG* V.1 196–206), p. 204	Babylonians and Chaldeans teaching the Greeks the fixed stars
F 16a	Syncellus *Chron.* p. 243	use of the epoch of Nabonasar in astronomy, and the reason in Nabonasar's gathering and destroying of the records of his predecessors

[20] J. Steele, "The 'Astronomical Fragments' of Berossos in Context," in Haubold et al. (eds.), *The World* 99–113, at 103–109 (his conclusion at 109).

F 16b	Pliny *NH* VII 193	number of years of Babylonian observations attributed to Berossus
F 17	Anon. *Isagoge* in Arat. *Phaen.* p. 142	stars' names and significations
F 18	Cleomedes *De motu* II 4	nature and motion of the moon
F 19	Aetius *Plac.* II 25.12, II 28.1, and II 29.2	nature of the moon
F 20	Vitruvius *De arch.* IX 2.1–2	nature and motion of the moon
F 21	Seneca *NQ* III 29	conflagration and flood
F 22ab	Pliny *NH* VII 160 and Censorinus *De die nat.* 17.4	maximum span of human life according to Berossus and Epigenes

T 3 (Josephus Ap. *I 129): astronomical doctrines*

In this passage, Josephus notes the similarity of the writings "on us" (περὶ ἡμῶν) of the Chaldeans with "our own writings" (τοῖς ἡμητέροις γράμμασι), offers Berossus as an example, then quickly summarizes the contents of the *Babyloniaca* from the deluge on, finally focusing on the part dealing with Nebuchadnezzar. He presents Berossus in the following way:

> μάρτυς δὲ τούτων Βηρῶσος ἀνὴρ Χαλδαῖος μὲν τὸ γένος, γνώριμος δὲ τοῖς περὶ παιδείαν ἀναστρεφομένοις, ἐπειδὴ περί τε ἀστρονομίας καὶ περὶ τῶν παρὰ Χαλδαίοις φιλοσοφουμένων αὐτὸς εἰς τοὺς Ἕλληνας ἐξήνεγκε τὰς συγγραφάς. οὗτος τοίνυν ὁ Βηρῶσος ταῖς ἀρχαιοτάταις ἐπακολουθῶν ἀναγραφαῖς ...
>
> An example of these is Berossus, a Chaldean by birth, distinguished among those dedicated to learning, since he introduced to the Greeks the writings on astronomy and on the philosophy of the Chaldeans. This Berossus, then, following the most ancient records ...

The summary begins with an echo of Berossus' words at the beginning of the first book, where records are mentioned (F 1.1). Beros-

sus also refers to their great antiquity, a question which I will tackle in the discussion of F 16b:

> περιέχειν δὲ τὰς ἀναγραφὰς ἱστορίας περὶ τοῦ οὐρανοῦ καὶ θαλάσσης καὶ πρωτογονίας καὶ βασιλέων καὶ τῶν κατ' αὐτοὺς πράξεις.
>
> The records contain inquiries into the heaven, <the earth (only in the Armenian version),> the sea, the first generations, and the kings and their deeds.

It is possible that Josephus, when presenting Berossus' knowledge as a warrant of his education to his Greek-speaking audience, put astronomy first because the heavens are mentioned first here, since there does not seem to be an astronomical section at the beginning of the *Babyloniaca* judging from the beginning of F 1. Steele suggests that Berossus did not write a specific astronomical section in the manner of Diodorus (II 29–31), but rather inserted astronomical lore whenever he felt it appropriate in different parts of his account.[21] On first impression, this would perhaps seem to be appropriate for the prediction of flood in F 21, but the description of the functioning of the moon (see below) seems too detailed to be included in any non-astronomical context. In my view, the available evidence rather points to the presence of an astronomical section within a larger part on customs, technology, and knowledge. There is a fragment placed by Athenaeus in book I (F 2=Athen. IV 44.639c), on a festival at Babylon in which the masters take the role of the slaves and the other way around. Such information is not indicated in our remains of Polyhistor's epitome, but its content matches what appear to be standard sections in the Greek accounts of Babylon and Egypt. I append a table with the sequence of topics in Herodotus and Diodorus; in bold, the sections devoted to customs, technology and knowledge.

[21] Steele, "The Astronomical fragments" 109.

Herodotus' Babylon (book I)	*Diodorus' Babylon (book II)*	*Herodotus' Egypt (book II)*	*Diodorus' Egypt (book I)*
178–183 city of Babylon and its marvels	1–7 first kings	1–5 first civilization according to Egyptians	1–29 creation of the world and civilization (gods, first men)
184–191 fashioning of the country by kings	8–13 building of Babylon, marvels	6–34 land and the Nile	30–41 land and the Nile
192–193 agriculture	14–28 deeds of kings	**35–67 customs and religion**	42–68 first kings
194–195 other technology	**29–31 astronomy**	68–76 curious animals	**69–98 customs & religion**
196–200 customs		**77–81 other customs**	
		82–85 divination and medicine	
		86–90 embalmment	
		... 99 first kings	

As we can see, these sections tended to belong together. This is of course no proof that they did so, too, in Berossus, but if there was a section on curious customs in the manner of Herodotus – cf. Herodotus I 199 on the ritual sexual act that every Babylonian woman was allegedly forced to perform with a stranger once in her life – it seems plausible that an account of technology and knowledge (perhaps the "philosophy" of the Chaldeans of T 3) was also present in the same part of the *Babyloniaca*. Also for comparison (probably a

closer one), it is worth noting that Manetho included astronomical content in a section identified by the ancient witnesses as "on festivals" (ἐν τῷ περὶ ἑορτῶν, F 15 Jacoby).[22]

F 17 (Isagoge in Arat. Phaen. *p. 142 Maass)*

Commenting on lines 10–11 of Aratus' *Phaenomena*, the anonymous author of this short introduction to Aratus (p. 140–144) takes issue with Aratus' statement that Zeus "fixed the significations in the heavens when he separated the stars" (τά γε σήματ' ἐν οὐρανῷ ἐστήριξεν / ἄστρα διακρίνας), arguing that while the god is the creator of the stars (142.13–14 *stellas enim constituit et fundauit deus*), the names and significations were added to them by men versed in astronomy/astrology (*nomina uero et signa postea et astrologiam peritissimi addiderunt eis et fabulas condiderunt proprias*). He brings up Aratus 71 on Dionysus' devising of the Crown for Ariadne as another example of such error, then adduces in support:

> istas enim appellationes et significationes stellarum postea aliquando Berossus ait in 'Procreatione' ita significans exposuit nihil ad constitutionem mundi ab eo factam. Talia quippe alia Eudorus dicit.
>
> Concerning these names and meanings, Berossus mentions them later at some point in the Creation, implying that he did not present anything in relation to the constitution of the world which he made. Eudorus says similar things.[23]

De Breucker considers this fragment to be spurious, claiming that the Babylonians reserved the task of naming the planets for the gods, perhaps thinking of statements such as *Enūma Eliš* VI 90 ("with the third name, 'Bow star', he [Marduk] made it to shine in the sky").[24] However, the anonymous commentator seems to be quite specific in pointing out that these names and meanings are not discussed in the part on the creation of the world (*constitutio*

[22] Also, Diogenes Laertius states that Manetho wrote a "summary of physics" (ἡ τῶν φυσικῶν ἐπιτομή, F 17 Jacoby=DL I 10), possibly the same section of *Aegyptiaca* to which the astronomical content belonged.

[23] The last sentence may refer to Diodorus of Alexandria's commentary on Aratus, which is quoted *via* Eudorus in Achilles, *Isag.* 1.

[24] De Breucker, "Berossos" 19. Lambert's translation.

mundi; cf. Berossus F 1.9, ἀποτελέσαι δὲ τὸν Βῆλον καὶ ἄστρα καὶ ἥλιον καὶ σελήνην καὶ τοὺς πέντε πλανήτας) but only later (*postea aliquando*): we should then infer that *Procreatione* was a title for the whole book I (matching the important presence of the creation myth), and that toward the last portion of the same book there was a section discussing *inter alia* astronomy. This accords well with my hypothesis in the discussion of T 3.

F 16b (Pliny NH *VII 193)*

This fragment reports Berossus' period of 490,000 years of Babylonian celestial observations, the period during which the Babylonians would have purportedly observed the heavens and obtained their expertise. Comparably vast periods are attested for the prediluvian reigns in the Mesopotamian chronicles, so the enormity of the value should not surprise us, but the passage seems to tread new ground in identifying these historical periods with astronomical observations. Pliny places Berossus' value side-by-side with the numbers attached to the same concept by other authors: Epigenes 720,000 years and Critodemus 490,000, like Berossus. The fragment probably derives from the initial claim in the *Babyloniaca* about the use of the ancient records, combined with the years assigned to the first kings at the beginning of book II. Let us look at the first passage (F 1.1):

> ἀναγραφὰς δὲ πολλῶν ἐν Βαβυλῶνι φυλάσσεσθαι μετὰ πολλῆς ἐπιμελείας ἀπὸ ἐτῶν που ὑπὲρ μυριάδων ιε′ περιεχούσας χρόνον. περιέχειν δὲ τὰς ἀναγραφὰς ἱστορίας περὶ τοῦ οὐρανοῦ ...
>
> [He says] that in Babylon are being kept records of many things, comprising a little more than 150,000 years [15 μυριάδες=15×10,000]. The records contain inquiries into the heaven ...

It is worth noting that in Pliny's passage there is a similar reference to material preservation (*coctilibus laterculis inscriptas*); also note that, as discussed above, the first kind listed is astronomy. However, the number is clearly not the same. Now, looking at F 3.13 (book II), Berossus gave the period for the prediluvian dynasties as equivalent to 10 kings and 120 *sars*. The latter were, as explained in F 3.10, periods of 3,600 years: 120 *sars* then equal 432,000 years, which is

closer to the number in Pliny.

In his initial mention of the preserved records, Berossus possibly referred to the postdiluvian period, and wrote fifteen μυριάδες for fifteen *sars*, perhaps unwilling to disengage the reader so early with foreign units, and/or because of a limited knowledge of the Greek language.[25] Fifteen *sars* (54,000 years) is an exact eighth of the 120 *sars* of the prediluvian dynasties, and the roundness of the division is probably significant in view of Berossus' simple numbers.[26] A similar unequal proportion between these periods can be computed in the Sumerian king list W-D 444.[27] However, the Greek readers of Berossus would have suspected the number of 15 myriads – much longer than the postdiluvian period but not yet covering the whole Babylonian history – and attempted a rough calculation of the postdiluvian period: Diodorus Siculus thus criticizes the Chaldeans for their alleged period of celestial observation of 473,000 years, which is the exact result of adding a tenth to the rounded number 430,000 (from Berossus' prediluvian period of 432,000 years); and Cicero similarly in *De divinatione* (II 97) brands the 470,000 years of observation an absurd Chaldean claim. Poseidonius is cited throughout Cicero's text as the main source for the Stoic views in the dialogue, which are actually the main topic, and thus it can be safely assumed

[25] Xisuthros (Ziusudra) saved the prediluvian records (F 4.14, F 4.17), but F 1.1 seems to refer to records being kept continuously in Babylon. For Berossus' probably precarious Greek, consider the anomalous, recurring accusatives at the last position of sentences in F 1b.1–2: τὴν ἡλικίαν / περιέχουσας χρόνον / μέσην.

[26] In F 5b Polyhistor gives for the postdiluvian dynasties only 9 *sars* 2 *ners* 8 *sosses* (=34,080 years), plus 190 years. The only explanation I can think of is that he thought (quite reasonably given that a *ner* was 600 years and a *sos* 60) that a *sar* was equal to 6000 years; thus 9 × 6000 = 54,000, and the total would be "a little more" than 15 *sars*. This would imply that the correct equivalences of the *sars* in years in the fragments are not due to him, and that the explanation of *sars*, *ners*, and *sosses* in F 3.10, for which Apollodorus is cited, was not in Polyhistor, nor in Berossus.

[27] This is the only Mesopotamian list covering both the prediluvian and the postdiluvian years (up to ca. 1800 BCE). Up to the third dynasty of Ur, I have counted 24,524 years, roughly a tenth of the 241,200 years of the antediluvian kings in this list. Cf. the comparative table and references in J.-J. Glassner, *Mesopotamian Chronicles* (Atlanta 2004) 57.

that the report in *De divinatione* goes back to him.[28]

Now, if readers correctly understood the myriads of the beginning of book I as *sars*,[29] the addition of the 432,000 years of the prediluvian period plus the 54,000 postdiluvian years can correspond to the 480,000 (*via* roundings) in Sextus Iulius Africanus (attributed to the Chaldeans, *apud* Syncellus p. 18) and to the value in Pliny (490,000).

It is difficult to say where Epigenes' 720,000 years (in Pliny's passage) came from. This period equals exactly 200 *sars*, and the Armenian version of Berossus F 1 gives "two hundred and fifteen myriads"; maybe these two hundred stem from a correction in Berossus' text that prompted Epigenes' value. In any case, we know from Seneca (*NQ* VII 4) that Epigenes (as well as Apollonius of Myndus) claimed to have studied with the Chaldeans (*apud Chaldeos studuisse se dicunt*), so it is quite possible that he took the number from Berossus.

As for the astrologer Critodemus, a relevant parallel may be Manilius' *Astronomica*, which contains a remark on the long history of observations by priests for the establishment of astrological theory (I 54–57). A similar, more precise reference could have been found in Critodemus, and since his work seems to have taken the form of a poem in seven books – probably with a numerological purpose – the number 490,000 (=700×700) would have felt appropriate.[30]

Pliny's source could have been Varro, since all three of the au-

[28] Given its similar number and chronology, Diodorus' report also probably goes back to Poseidonius. Cf. A. Jones and J. Steele, "Diodorus on the Chaldeans," in J. Crisostomo et al. (eds.), *"The Scaffolding of our Thoughts": Essays on Assyriology and the History of Science in Honor of Francesca Rochberg* (Leiden 2018) 333–352, at 350. In other parts, Diodorus' account of the astronomical views of the Babylonians is incompatible with Berossus' doctrines: for example, Diodorus asserts that, according to the Babylonian view, the moon receives its light from the sun (II 31.6), against Berossus F 18–20. For the multiplicity of sources in Diodorus, see C. Muntz, "The Sources of Diodorus Siculus, Book I," *CQ* 61.2 (2011) 574–594.

[29] Readers of foreign chronographies must have been used to such corrections. Take, for example, Manetho F 1 Jacoby *apud* Eusebius, where the Egyptian years of the first kings are taken (wrongly) as lunar months.

[30] For the number of books of Critodemus' work, cf. C. Tolsa, *The Orphic astrologer Critodemus* (Boston/New York 2024) 78.

thors cited seem to appear recurrently in his astronomical/astrological references. Epigenes and Berossus are cited on the matter of the maximum human lifespan in Censorinus 17 (F 22b), who had Varro as a principal source for chronological data (and Epigenes appears again at Censorinus 7).[31] Also, the information of F 22b is repeated in Pliny VII 160, where an echo of Critodemus' theory of critical points in life follows.[32]

F 18–20 (Cleomedes De motu *II 4; Aetius* Plac. *II 25.12, 28.1, 29.2; Vitruvius* De arch. *IX 2.1–2)*

In these fragments, Berossus is attributed a model for the explanation of the phases of the moon in which the moon is seen as a semi-fiery body (ἡμίπυρος, Cleomedes/Aetius) whose fiery half rotates at the same rate – from the point of view of the observer on the Earth – as the synodic orbit, so that it looks towards the sun and away from the Earth at the time of conjunction (new moon), and half a revolution later, at full moon, the fiery half is turned away from the sun, facing the Earth.

The data is distributed unevenly among the sources: Cleomedes (probably drawing from Poseidonius, his main source) gives the supplementary information that Berossus considers two other motions for the moon (longitude, latitude), in addition to the rotation about its own axis; Aetius sums up the data in Cleomedes regarding the composition and mechanism of the phases; and Vitruvius explains in detail the daily changes that produce the lunar phases in Berossus' model. Another witness of the doctrine, again on composition and rotary motion, is found in Lucretius *De rerum nat.* V 720–728 (attributed to the Chaldeans).[33]

[31] A.T. Grafton and N.M. Swerdlow, "Technical Chronology and Astrological History in Varro, Censorinus and others," *CQ* 35 (1985) 454–465, at 456 and 460.

[32] Tolsa, *The Orphic astrologer* 169–170.

[33] In Plutarch *De facie* 928E, the half-carbonized moon which the Stoic character Pharnaces proposes is described with the same adjective as in Berossus' witnesses (ἡμίπυρος), not mentioning Berossus or the Chaldeans, but probably drawing on Cleomedes' *De motu*, with which the dialogue presents numerous, specific parallels.

Steele has shown that as many as four concrete items in these attestations appear in non-technical cuneiform sources on the moon: (1) the consideration of motion in latitude (Cleomedes); (2) the tracking of the moon's motion day by day (Vitruvius); (3) the focus on new, first half-moon, and full moon, but not on the second half-moon (Vitruvius); and (4) the mention of the diametrical opposition with the sun on the horizon at full moon (Vitruvius).[34] These elements strongly imply the authenticity of the fragment, even if there was probably a preference for a model which could speak to a Greek audience. For example, Diogenes Laertius (IX 9–10) attributes to Heraclitus a doctrine according to which the stars are shaped like bowls or boats (σκάφαι) that contain fiery matter.[35] Also, in his report Vitruvius adduces an affinity between the element of fire in the moon and the sun (*propter eius proprietatem luminis ad lumen*) that recalls Greek philosophical theory.[36]

F 21 (Seneca NQ *III 29)*

This is perhaps the best-known astronomical fragment of Berossus. He is reported to have established an astronomical condition for the time of a conflagration (*conflagratio*, *arsura*) when all the stars are in Cancer, and similarly for a general flood (*diluuium*, *inundatio*) when all the stars are in Capricorn. The fragment appears in book III on terrestrial waters of Seneca's *Natural Questions*, more precisely in his inquiry into the causes of catastrophic flood (27.1).

As in the lunar model, Berossus seems to have combined a traditional core of Mesopotamian doctrines with Greek philosophical ideas. Of course, there is the Babylonian tradition of the flood,

[34] Steele, "The astronomical fragments" 103–109.

[35] It is striking that Kuhrt, "Berossus' Babyloniaka" 39 and Steele, "The astronomical fragments" 106 only mention the more general coincidence with the opinions of Anaximander and Xenophanes that the moon does not shine with its own light, which are recorded by Aetius along with that of Berossus (F 19).

[36] The doctrine of like-to-like attraction was ascribed to the ancients by Plato (*Lys.* 214b), and can be found prominently in Empedocles, specifically in relation to the four primary elements (109 and 110 DK). Plutarch, *De facie* 926E also relates Empedocles to this kind of argument, quoting 27 DK on the different states of the world.

but also the predictions of destructive floods in the *Enūma Anu Enlil* series that depend on certain astronomical observations, sometimes involving planetary conjunctions;[37] and in texts from the Seleucid period (3rd c. BCE) we find predictions of rains linked to the conjunction of planets in one sign.[38] Predictions of fire in the *Enūma Anu Enlil* are less frequent, and sometimes not literal but linked to political revolts.[39] The idea of a general conflagration is thus likely due to Stoic influence, which, as mentioned above, has also been proposed for Berossus' use of allegory and etymology.[40] Therefore, such influence does not disprove the authenticity of the fragment. In fact, one can note a similarity between this fragment and the lunar theory in the prominent use of the halfway division of the zodiac resulting in two similar, alternating periods, which recalls the natural halfway division of the moon's orbit (full moon to new moon and new moon to next full moon).[41]

[37] For predictions of destructive flood in *EAE*, see J. Fincke, "Additions to already edited *Enuma Anu Enlil* tablets, part III. A new copy from Babylonia for the tablet on planets (MUL.UDU.IDIM) of the omen series," *Kaskal* 12 (2015) 267–279, at 274: "[if] a planet comes near Jupiter (...) a flood of water will carry off the land". Cf. similarly F. Rochberg, *Aspects of Babylonian Celestial Divination: The Lunar Eclipse Tablets of Enūma Anu Enlil* (Horn 1988) 280.

[38] See M. Ossendrijver, "Weather Prediction in Babylonia," *JANEH* 8 (2021) 223–258 for Babylonian astrometeorological tablets. Cf. the late Babylonian rain tablet TU 19=AO 6449 in H. Hunger, "Astrologische Wettervorhersagungen," *Zeitschrift für Assyriologie und Vorderasiatische Archëologie* 66 (1976) 234–260, at 249 for predictions of rain patterns from the position of the planets at the beginning of the year, and 252 for immediate rain from the positions of planets and conjunctions in the signs.

[39] Cf. W. Van Soldt, *Solar Omens of Enuma Anu Enlil: Tablets 23 (24) – 29 (30)* (Istanbul 1995) 117: "if a cloudbank is red: a fire [will break out] in the workhouse, [...] there will be chaos in the country". Fire appears more frequently in the protases, and the results are generally destructive.

[40] Scholars in the past have interpreted that Stoics such as Diogenes of Babylon imported Berossus' theory of conflagration: cf. the discussion in C. Vassallo, "Measuring the End: Heraclitus and Diogenes of Babylon on the Great Year and *Ekpyrosis*," *Apeiron* 56.4 (2023) 643–671, at 667 n.120.

[41] Some authors have connected this fragment with Berossus F 16b on the period of celestial observations: cf. M. Lang, "Book Two: Mesopotamian Early History and the Flood Story," in Haubold et al. (eds.), *The World* 47–60, at 50–51 following B. Van der Waerden, *Science Awakening II: The Birth of*

It is difficult to be precise about Seneca's source for the fragment, but Poseidonius would be a good candidate, judging from the context in the *Natural Questions*. The topic is initially defined as an inquiry into the causes of the ultimate flood, and the ocean is immediately mentioned as a possible cause (27.1 *utrum oceani uiribus fiat et externum in nos pelagus exurgat*) along with excessive rains. Seneca then proceeds in chiastic order, first with rains (27.4–10) and secondly with tides (28.6–7); the conjunction of the sun and the moon is then said to be a cause of higher tides (a premonition of Berossus' theory), and the flood is qualified as a tide "not bounded by laws" (*solutus legibus*, 28.6), comparable to the conflagration (28.7). Finally, the stars are introduced as a third cause of "these things" following Berossus' witness (*ista cursu siderum fieri*, 29.1), referring to flood and conflagration, which finally appear again in reversed order – first conflagration then flood. In the conclusion, however, it is the multiple causes of the flood which reappear as the main topic, with the causes of the conflagration noted only in passing (29.2).

F 22ab (Pliny NH *VII 160; Censorinus* De die nat. *17.4)*

The two attestations of this fragment on the maximum length of human life clearly derive from the same source, since the specific data for Alexandria according to Epigenes, for Babylon according to Berossus, and for Italy (without authority) coincide. Furthermore, some examples from the previous, non-astrological part in both passages are identical (e.g. maximum human age according to Arganthonius, the king of the Tartessi). The common source is probably Varro (cf. the analysis of F 16b above).

The so-called *tetartēmorion* doctrine from which both Epigenes' and Berossus' values derive (111⅔ years for Alexandria and 116 years for Babylon) is first attested in Graeco-Egyptian texts of the

Astronomy (Dordrecht 1974) 114. The idea rested on the fact that numbers such as Berossus' 432,000 years appear as great years in the Indian tradition of the yugas, but the factors of this value are recurrent numbers in many astronomical traditions. Specifically, in the Indian tradition the numbers stem from the so-called years of the *Devas*, each consisting of 360 solar years: see S.V. Gupta, *Units of Measurement: Past, Present and Future. International System of Units* (Heidelberg 2010) 6–7.

mid-second century BCE that compute the date of death of individual persons. Thus, if we accept the fragment's authenticity, these latter texts would have transmitted the Babylonian doctrine to Greeks and Romans, as implied in Pliny's text (*quam Petosiris ac Necepsos tradidere*).[42]

The implied precedent for this doctrine in Berossus has led scholars to dispute the authenticity of the fragment. It is true that our knowledge of late Babylonian astrology is very incomplete, but the fact that nothing related to the rising times, including the ascendant, is used in the hitherto published Babylonian horoscopes and other astrological texts makes the authenticity of the fragment unlikely. The *tetartēmorion* makes use of the table of rising times, assigning one year to each time-degree from the table in between two points of the zodiac that are at most distanced by 90 degrees (hence the name).[43] It is true that the scheme upon which the Greek tables of rising times are based (also from the mid-second century BCE on) is of Babylonian origin, but the system has not been attested outside of mathematical astronomical tablets.[44] In my opinion, the fragment is more likely to reflect an inexact inference transmitted through the doxographical tradition. It is illustrative to observe that in Stobaeus I 28.1b the doctrines on comets of Epigenes and Apollonius Myndius that Seneca discusses in *Natural Questions* VII are recorded as the opinions of the Chaldeans, without credit to either author. This is no doubt because both are presented in Stobaeus' source (the same as Seneca's, probably Artemidorus of Parium[45]) as

[42] De Breucker, "Berossos" 19–20. For the dating of Nechepsos and Petosiris, see S. Heilen, "Some metrical fragments of Nechepsos and Petosiris," in I. Boehm and W. Hübner (eds.), *La poésie astrologique dans l'antiquité* (Lyon 2011) 24.

[43] See the explanation of the procedure in O. Neugebauer, *A History of Ancient Mathematical Astronomy* (Heidelberg 1975) 721. Looking at predictions is not useful, because they are mostly absent from the Babylonian horoscopes: in any case, the most that we find related to length of life is "his days will be long": cf. F. Rochberg, *Babylonian Horoscopes* (Philadelphia 1998) 80.

[44] J. Steele, *Rising Time Schemes in Babylonian Astronomy* (Cham 2017) 6–7.

[45] P.T. Keyser, "On Cometary Theory and Typology from Nechepso-Petosiris through Apuleius to Servius," *Mnemosyne* 47.5 (1994) 625–651, at 638–639.

having studied with the Chaldeans (*apud Chaldeos studuisse se dicunt*, *NQ* VII 4), even though Epigenes noted that the Chaldeans had not investigated on comets, and clearly presented the theory as his own (VII 4).

The other mention of Epigenes in Censorinus shows that he was interested in periods of time related to human life (ch. 7 on the length of pregnancy, maybe for horoscopes computed at conception). A plausible scenario would be that he explained the *tetartēmorion* and that a doxographical source used by Varro applied the doctrine to both Epigenes himself and Berossus to establish their opinion on the maximum length of life, taking the latitude of their places of activity.[46]

T 5c (Vitruvius De arch. *IX 8.1)*

Berossus appears again in Vitruvius, now as the inventor of a type of sundial, consisting of a "semicircle hollowed in a square and incised according to latitude" (*hemicyclium excavatum ex quadrato ad enclimaque succisum*).[47] This fragment comes at the beginning of a list of correspondences between sundial types and inventors (Aristarchus the hemisphere, Eudoxus the arachne, etc.) whose authenticity is difficult to trace. Some cases offer possible connections: for example, Parmenio, one of the cited inventors, was the architect of the Alexandrian Serapeion and of the Iasoneion of Abdera; maybe there was a sundial of the type assigned to him in one of these temples. A presumably complex type, πρὸς πᾶν κλῖμα ("for every latitude"), is ascribed to Theodosius, the author of an extant *Spherics* (and to an unknown Andrias).

While we can think it plausible that Berossus mentioned a sundial in the astronomical/astrological part of his work, the Mesopo-

[46] Epigenes was from Byzantium (cf. Censorinus 7) but may have been active in Alexandria. The less charitable interpretation is that, since the tables of rising times for Alexandria and Babylon are the most recurrent ones in the sources, Epigenes could have been attached to Alexandria by a process of elimination and plausible guess.

[47] For the meaning of *succido* in this context, cf. Vitr. *De arch.* III 5.7 on the channels incised in columns. The text probably means that the markings depend on the latitude.

tamian documents only show evidence of gnomons; semicircular sundials are an exclusively Egyptian type found in several specimens dated from the Ramesside to the Graeco-Roman period.[48] Furthermore, it is unlikely that Berossus gave the precise description that we find in Vitruvius, which seems rather inspired in a specific sundial.[49] I envisage a doxographical source for which it was important to ascribe a variety of sundial types to authors. These types (rarely invented by anyone in particular) could have been attributed by plausible approximation; specifically, the Egyptian semi-circular sundial would have been assigned to Berossus because of its antiquity. To argue from a similar context, the so-called Archimedes screw was probably not invented by Archimedes (the attribution first appears in Diodorus, *Bibl.* I 34), but a plausible link existed with Archimedes' work on spirals.

T 7 abc (Pausanias Perieg. *X 12.9, Suda s.v. Σίβυλλα Δελφίς, and [Justinus]* Ad graec. *37)*

In the three witnesses, the Chaldean Sibyl is said to be the daughter of Berossus. Her name Sabbe is recorded by Pausanias, and her mother's name Erymanthe by both Pausanias and the Suda. To the witness of the Suda entry for the Delphic Sibyl we must add that of the entry Σίβυλλα χαλδαία, which records the name of our Sibyl as Sambethe.

In Pausanias, the reference to the Babylonian Sibyl comes in the middle of an apparently chronological sequence of Sibyls, beginning with the Delphic Sibyl Herophile, then Demo from Cumae, then Sabbe "among the Hebrews above Palestine" (παρ' Ἑβραίοις

[48] J. Steele, "Near East Relations: Mesopotamia and Egypt," in A. Jones (ed.), *Time and Cosmos* (Princeton 2016) 45–62, at 52; see for the surviving sundials of this type the database https://aea.mcmaster.ca/index.php/en/database/sundials/semicircular/sd-kv (last accessed 4/9/2025). This *pace* Herodotus II 109, who attributes the γνῶμον and the πόλος to the Babylonians: by πόλος he probably means the semicircle, because of its converging straight lines (converging to a pole) and because he is discussing Egypt.

[49] An Egyptian portable sundial with a hollowed semicircle is now at Musée du Louvre, Paris, Département des Antiquités égyptiennes, inv. E11738 (https://isaw.nyu.edu/exhibitions/time-cosmos/objects/egyptian-miniature-vertical last accessed 4/9/2025).

τοῖς ὑπὲρ τῆς Παλαιστίνης). Pseudo-Justin explains that the Babylonian Sibyl travelled to Cumae to prophesize there (τοὺς χρησμοὺς ἐξαγορεύειν ἔν τινι Κουμᾷ οὕτω καλουμένῃ πόλει), but this is probably a wrong inference from the sequence in a list like that of Pausanias, in which the Babylonian Sibyl comes after the Sibyl of Cumae.

De Breucker dismisses the content as an improbable fiction, suggesting that it originates from the insertion of the story of the Tower of Babel from the third book of the *Sibylline Oracles* (a work of the second or first century BCE) in Polyhistor's epitome of the *Babyloniaca*, probably by Polyhistor himself.[50] I believe this interpretation is correct. We could think of a real background in which a daughter of Berossus was a priestess herself, who would have been turned into a Sibyl by the later tradition. However, several elements in the story suggest Jewish rather than Babylonian pedigree: (1) the Sibyl is first referred to as Hebrew in both Pausanias and the Suda; (2) 'Sambathios' is attested as a Jewish name in Greek inscriptions (e.g. *SEG* 49.1823 C); and (3) the mother's name, Erymanthe, may come from the epithet ἐρυμνήν ("walled") applied to the city of Babylon in the same book of the *Sibylline Oracles* (III) from which the insertion of Polyhistor is taken.[51]

More witnesses of the fragment can be discovered, among them Varro. A list of Sibyls in Lactantius (*Div. inst.* I 6), ascribed to Varro, coincides exactly in the sequence with that of the Suda entry Σίβυλλα χαλδαία. Lactantius is not explicit about their names, but he provides additional information about the first Sibyl, the one we are concerned with, who he says was mentioned by a certain Nicanor who recorded the exploits of Alexander (*cuius mentionem fecerit Nicanor, qui res gestas Alexandri Macedonis scripsit*). This historian is not mentioned anywhere else.

T 5ab (Vitruvius De arch. *IX 6.2 and IX 2.1)*

In these related attestations in Vitruvius, Berossus is said to have

[50] De Breucker, "Berossos" 20. See for more detail De Breucker, "Alexander Polyhistor" 63.

[51] Furthermore, in the Greek period religious functions in Mesopotamian temples were overwhelmingly performed by males: cf. M. Stol, *Women in the Ancient Near East* (Boston 2016) 583.

migrated to the island of Cos, where he inaugurated the science of astrology (*primusque Berosus ... aperuit disciplinam*, IX 6.2). Vitruvius mentions, in addition, two presumed followers of Berossus, Antipater and a certain Achinapolus (Archinapolus in part of the manuscript tradition), the second of whom is said to have cast horoscopes based on the date of conception (*etiam non e nascentia sed ex conceptione*, IX 6.2).

The authenticity of this fragment has also been contested. The prevailing view is that the Greek sources shaped the figure of Berossus as an identifiable astrologer who transmitted Babylonian astrological lore to the Greeks (see above, note 17). Schwartz expressed doubt that a Babylonian scholar at the Esagila would have resigned his prebend to migrate to a small Greek island.[52] More recently, De Breucker argued that, while this does not seem impossible *a priori*, the question should be examined under the light of the probable inauthenticity of the astronomical fragments.[53] However, from what we have seen, the *Babyloniaca* seems to have really contained Babylonian astronomical/astrological material: the doxographical and biographical traditions may be another matter. It can be argued that the choice of Cos seems suspiciously appropriate for a discipline which was often regarded as a form of medicine – this link is especially evident in the related fragment T 6 (see below).[54]

This does not imply, however, that the indicated disciples were not real astrologers, rather that their connection to Berossus – not an astrologer himself – may be very vague. One Antipater, Χαλδαῖος ἀστρονόμος from Syrian Hierapolis, who acquired citizenship of Homolion in Thessaly (πεπολιτογραφημένος δὲ ἐν Ὁμολίῳ, *SEG* 31.576) according to an inscription from Larisa dated to the mid-

[52] E. Schwartz, "Berossos 4," in *RE* III/1 (Stuttgart 1897) 309–316, at 316.

[53] De Breucker, "Berossos" 19–20.

[54] Visscher, *Beyond Alexandria* 111 interprets the story of Berossus' migration to the West in the context of the rivalry between Seleucids and Ptolemies, adducing that Cos was an important area of influence of the Ptolemies. However attractive this idea, if this was the motivation for Berossus' move to the West, Alexandria would have been a much better choice. Furthermore, astrology in the Graeco-Roman world had not reached the high status that it attained in Islamic times and remained a disputed science for the whole Graeco-Roman period.

dle of the second century BCE or a little later, has been plausibly identified with the Antipater from Vitruvius' passage.[55] The second astrologer seems to bear a corrupted Greek name which was corrected to "Athenodorus" by Rose; a more plausible emendation considering the manuscript version Archinapolus could be Ἀρχίπολις. This male name is almost entirely unattested outside Rhodian inscriptions, which would have explained the scribal confusion; and, at the same time, the fact that we have a significant number of Rhodian attestations would perfectly match the Coan milieu of the school story.[56] Thus, if the relationships with second-century Greek astrologers were fabricated *a posteriori*, in the case of Antipater the obvious link would have been his Chaldean origin; and, in the case of the second astrologer, the cultural and geographical proximity between Rhodes and Cos.

It is impossible to ascertain the ultimate origin of the story. If Vitruvius' source was Varro (cf. T 6 below), the historian and chronographer Castor of Rhodes, who is cited as Varro's source for an astronomical calculation of an astral phenomenon related to Venus (Augustine *Civ. D.* XXI 8.2), could have transmitted this piece of information to him: the Rhodian context would be appropriate, but in this case we must leave the matter as entirely speculative.

T 6 (Pliny NH *VII 123)*

This fragment is closely related to the previous one. It portrays Berossus receiving honors from the Athenians (a statue with a golden tongue in the gymnasium) for his predictions (*ob diuinas predictiones*), alongside Hippocrates, who was similarly honored for predicting a plague and sending his disciples for help (*pestilentiam praedixit discipulosque ad auxiliandum circa urbes dimisit*). Pliny mentions that Greece decreed for Hippocrates the honors it paid to Heracles (*honores illi quos Herculi decreuit Graecia*), echoing the pseudo-Hippocratic letters in which, specifically, the Athenians are said to have initiated him into the Eleusinian mysteries (cf. *Ep.* 27.195). The comparison with Heracles is found in the so-called *Decree*, which also includes the

[55] G.W. Bowersock, "Antipater Chaldaeus," *CQ* 33 (1983) 491.

[56] There are about 25 Rhodian attestations in the *LGPN* (last accessed 4/9/2025).

prize of a golden crown (*Ep.* 25.17), a detail on which the story of the golden tongue of Berossus' statue could have been based.

The fragment appears at the beginning of a list of honors bestowed by Greek institutions on representatives of different disciplines: Berossus for astrology, Apollodorus for grammar, and Hippocrates for medicine. The list continues with mathematicians and architects, but the honors they receive are less exceptional than the first three (Archimedes is honored by Marcellus with the order of not being molested in the taking of Syracuse), or they simply become famous because of their accomplishments. This second group makes the parallel with the preface of Vitruvius book IX relevant, since Vitruvius commences by lamenting that it is mostly athletes who receive the highest honors, not the sages, and then makes his own homage to the latter (*his tribui honores oportere*, pr.3) by recounting their accomplishments, specifically in the domain of geometry (he mentions results by Plato, Pythagoras, Archimedes, and Archytas). The common source of Pliny and Vitruvius is probably Varro, who could have drawn from the same author as in the previous fragment.[57]

F 15 (Palchus 135=CCAG *V.1 196–206, p. 204): astrological authors on the fixed stars*

This attestation is from chapter 135 of an astrological collection attributed to a certain Palchus (a Byzantine rendering of the Arabic Balkhī, the *nisba* of the Persian astrologer Abū Ma'shar), where the composition is explicitly dated to the year of the consuls Olybrius and Ausonius, 379 (*CCAG* V.1 p. 198); that is why this chapter is usually known as *Anonymous of 379*.[58] The title is "Effects of the position of the fixed stars" (ἀποτελέσματα τῆς τῶν ἀπλανῶν ἀστέρων ἐποχῆς), and the fragment appears in a section on the astrological authorities that have contributed to the doctrines expounded. In the work of an astrological author of the same period, Firmicus

[57] See Vitruvius' praise of Varro's *IX disciplinae* (whose topic perfectly matches the content of the fragment) and the clear parallels highlighted in Tolsa, *The Orphic astrologer* 31–32 between Vitruvius, *De arch.* IX 1.16 and Pliny, *NH* II 8.34.

[58] Neugebauer, *A History* 1028.

Maternus, we find a similar passage in which Firmicus' predecessors are organized by traditions (*Mathesis* pr. 5). The *Anonymous* refers first to the Babylonians and Chaldeans, then to the sources who study the Chaldeans (ἱστοροῦσι) – Apollonius Myndius and Artemidorus[59] – and then to Berossus, who wrote about them (συνέγραψε δὲ καὶ περὶ αὐτῶν). The text that follows is corrupt: after ὁ Βηρωσός we find καὶ ὁ ἐφῆς, which Boll emends to οἱ ἐφεξῆς ("and the rest") and Schnabel to ὁ Ἐπιγένης. Boll's reconstruction seems more correct from a textual point of view, and also because it is the end of the account on the Chaldean tradition. Thereafter comes the sequence of Egyptian writers which is concluded with a similar expression (καὶ ἄλλοι τινές). Therefore, οἱ ἐφεξῆς does not echo the story of Berossus' disciples in T 5ab.[60]

F 16a (Syncellus Chron. p. 243)

In this last fragment, Syncellus connects the fact that Claudius Ptolemy begins his Babylonian chronology with Nabonasar – the first king of his canon – with the alleged story that, according to Berossus and Polyhistor, this king gathered (συναγαγών) the records of the previous kings and made them disappear (ἠφάνισεν) so that the regnal lists began with him. It must be said that, as it stands, the fragment would not be astronomical, since it is Syncellus who connects Ptolemy's canon with the (non-astronomical) story on Nabonasar that was apparently found in Berossus.

Even the witness on the *Babyloniaca* is doubtful, however. As it turns out, Nabonasar is only briefly mentioned in F 3a in the surviving fragments, where Eusebius criticizes the account of the prediluvian kings because it contains very scant information: in the middle of this remark we find the sentence "like he says: Nabonasar

[59] Cf. Seneca, *NQ* VII 4 and 17 on Apollonius Myndius. From the *Vita Arati* (p. 13 Maass) we know that one Artemidorus composed a work that was taken to belong to the tradition of the *Phaenomena* (ἄλλοι Φαινόμενα ἔγραψαν); he was presumably the same Artemidorus of Parium whom Seneca quotes in the chapter on comets in *Natural Questions* VII 13, and in I 4 for his views on the causes of rainbow.

[60] So translated by G. Bezza in http://www.cieloeterra.it/testi.379/379.html (last accessed 4/9/2025).

was king that time", which Jacoby puts between crosses. This has been interpreted as implying that Berossus could gather only little information from before Nabonasar, presumably because this king had destroyed the records;[61] however, in its context the phrase is best explained as a ready example of the dry style of this part of the text, which indeed gives very little information about each king. Eusebius must have had Nabonasar in mind from his familiarity with the Greek chronographical tradition, and it was natural that he chose him as an example.

This confusion in modern scholarship was also probably Syncellus', which would explain his deduction about Nabonasar. It is possible that Syncellus did not find Nabonasar anywhere in his Babylonian material. Although this king appears in the Mesopotamian chronicles, we do not have much information on him, and he does not deserve any special place in the cuneiform material.[62]

Conclusions

Despite the difficulties of reconstructing a fragmentary work like the *Babyloniaca*, recent analyses of the fragments have shown that at least the presentation of the lunar theory (Steele on F 18–20) has specific parallels with non-technical astronomical lore in the cuneiform sources. These insights, together with Haubold's identification of Greek philosophical elements (including Stoic) in the creation myth, represent an important shift in the assessment of Berossus' astronomical fragments. Berossus would thus be comparable in this sense to Phoenician sages known to the Greeks such as the Sidonian Mochus (Strabo *Geogr.* XVI 2.24) – identified by Poseidonius as the originator of the theory of atoms – or Sanchuniathon (Athen. *Deipnos.* III 126), whose Phoenician history, containing a creation story and allegorical interpretation in the vein of Berossus, was al-

[61] W. Adler and P. Tuffin, *The Chronography of George Synkellos: A Byzantine Chronicle of Universal History from Creation* (Oxford 2002) 245 n. 1.

[62] Glassner, *Mesopotamian Chronicles* 113. In fact, Syncellus (probably out of desperation) identifies Nabonasar with Salmanasar, the first Assyrian king who subjugated the Israelites (Sync. *Chron.* p. 241) according to the Bible (2 Kings 17:3–23).

legedly translated into Greek by Philo of Biblos.[63] An important difference is that Berossus did not attain the semi-mythical status of these figures (or at least to the same degree), since he placed himself clearly at the beginning of his work in the time of Alexander.

We do not know how Berossus became acquainted with Greek language and culture, but it seems reasonable to suppose that, if he mastered the language to some degree, he must have had access to Greek works that could have served him as models. I have argued from evidence in the fragments and comparing with Greek accounts of Babylonia and Egypt (see the analyses of T 3 and F 17) that there was probably a section at the end of the first book devoted to astronomical/astrological topics. The potentially authentic fragments show elements that can be expected to appear in such a section: stars and planets' names and significations (F 17), the moon (F 18–20), and astral predictions (F 21).

Berossus was not taken as a precursor of pre-Socratic philosophical ideas but seems to have been given this consideration in the case of astrology, for which there was an adequate chronology in the Graeco-Roman world, later than Berossus. This happened in different ways: (1) the biographical tradition placed him at Cos, following the example of Hippocrates in setting up a school there (T 5ab) and earning similar honors for his predictions (T 6); (2) the doxographical works, by derivation or deduction, apparently attributed to Berossus several astronomical and astrological doctrines (F 16b, F 22ab); and (3) what I consider the probable source of Pliny, Censorinus, and Vitruvius for Berossus – M. Terentius Varro – situated his doctrines at the top – implying chronological preference – of lists formed otherwise by Greek and Roman items. This is the case with sundials (T 5c), Sibyls (T 7abc), lunar models (F 20, where Berossus' is followed by Aristarchus'), values for the maximum length of life (F 22ab), and disciplines (T 6).

Thus, we can say that the scholarly interpretation according to which Berossus was made by the later tradition into an identifiable

[63] The prevailing view is that, even if Sanchuniathon may have been an ancient Phoenician figure of authority, the materials that were used by Philo must have been an Hellenistic product. See A. Baumgarten, *The* Phoenician History *of Philo of Byblos. A Commentary* (Leiden 1981) 266–267.

transmitter of Babylonian astrology to the Greeks was broadly correct, but at the same time this does not compromise the existence of an astronomical/astrological section in the *Babyloniaca*.

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