

Epoch-making Eratosthenes

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ANCIENT GREEK CHRONOGRAPHY¹ developed when historians began to ask for temporal distances between past events and themselves. As long as there was no fixed point of reference, i.e. a common era, each event had to be located in time in relation to other events, and this relation was expressed by intervals in years or generations. Such a method to bridge the time span into the past by adding intervals between events can be labeled a “diastematic” system of dating. It was the Italian historian Santo Mazzarino² who derived it from the Greek word *diastēmatikós*—proceeding by intervals.

A good example of the construction of such a diastematic chronology by joining intervals between important events and arranging a sequence of periods given by years can be seen in the famous fragment from the *Chronographiai* by Eratosthenes of Cyrene (276/3–194/1 B.C.):³

Ἐρατοσθένης δὲ τοὺς χρόνους ᾧδε ἀναγράφει·
ἀπὸ μὲν Τροίας ἀλώσεως ἐπὶ Ἡρακλειδῶν κάθοδον ἔτη ὀγδοήκοντα·
ἐντεῦθεν δὲ ἐπὶ τὴν Ἰωνίαν κτίσιν ἔτη ἐξήκοντα·

¹ Chronography is used in two different meanings: (1) It denotes a historiographical genre that records historical events precisely dated by reference to a chronological standard. (2) It refers to the process of associating persons or events with precise dates, i.e. the activity of dating, in particular for times before chronological standards existed. Cf. A. A. Mosshammer, *The Chronicle of Eusebius and Greek Chronographic Tradition* (Lewisburg 1979) 85.

² S. Mazzarino, *Il pensiero storico classico*² II.2 (Bari 1966) 412–461 (n.555), esp. 427, 446, 448.

³ Erat. *FGrHist* 241 F 1a (from Clem. Al. *Strom.* 1.138.1–3). For recent research cf. K. Geus, *Eratosthenes von Kyrene: Studien zur hellenistischen Kultur- und Wissenschaftsgeschichte* (Munich 2002).

τὰ δὲ τούτοις ἐξῆς ἐπὶ μὲν τὴν ἐπιτροπίαν τὴν Λυκούργου ἔτη ἑκατὸν
 πενήκοντα ἑννέα·
 ἐπὶ δὲ τὸ προηγούμενον ἔτος τῶν πρώτων Ὀλυμπίων ἔτη ἑκατὸν ὀκτώ·
 ἅφ' ἧς Ὀλυμπιάδος ἐπὶ τὴν Ξέρξου διάβασιν ἔτη διακόσια ἑνενήκοντα
 ἑπτὰ·
 ἅφ' ἧς ἐπὶ τὴν ἀρχὴν τοῦ Πελοποννησιακοῦ πολέμου ἔτη τεσσαρά-
 κοντα ὀκτώ·
 καὶ ἐπὶ τὴν κατάλυσιν καὶ Ἀθηναίων ἦτταν ἔτη εἴκοσι ἑπτὰ·
 καὶ ἐπὶ τὴν ἐν Λεύκτροις μάχην ἔτη τριάκοντα τέσσαρα,
 μεθ' ἧν ἐπὶ τὴν Φιλίππου τελευτὴν ἔτη τριάκοντα πέντε·
 μετὰ δὲ ταῦτα ἐπὶ τὴν Ἀλεξάνδρου μεταλλαγὴν ἔτη δώδεκα.

Eratosthenes defines the ages as follows:

From the fall of Troy until the return of the Heraclidae	80 years,
from these until the settlement of Ionia	60 years,
the time thereafter until Lycurgus' guardianship	159 years,
until the year preceding the first Olympiad	108 years,
from this Olympiad until the invasion of Xerxes	297 years,
from this until the beginning of the Peloponnesian War	48 years,
and until its end and the defeat of the Athenians	27 years,
and until the battle of Leuctra	34 years,
after this until Philip's death	35 years,
thereafter until the passing away of Alexander	12 years.

With his chronography, Eratosthenes reached a new level of sophistication in re-arranging recognized dates, finding new ones and setting the standard for his followers. His *kanones* (“systems of chronology”), as they were called by Dionysius of Halikarnassus,⁴ proved to be extremely successful in that they were widely accepted in antiquity and acknowledged by his followers, e.g. Apollodorus. Down to the present, much of our chronology draws on his calculations. His dates from Xerxes onwards are corroborated by other evidence and easily convertible into years B.C.; but his fragment 1a is the earliest source that allows us to calculate the date for the first recorded Olympic games, which we generally treat as the first secure

⁴ *Ant. Rom.* 1.74.2 (Erat. F 1b). Dionysius claims to have proved their soundness in another treatise, probably under the title *Chronoi*, now lost: Clem. Al. *Strom.* 1.102 (FGrHist 251 F 1).

date in Greek history.⁵

Eratosthenes' chronography is the result of several complex calculations and considerations based on methods developed since the end of the fifth century B.C. Besides the computation of diachronic distances, ancient historians started then to fix events and persons in synchronic relations to each other. This necessity arose when two or more dating systems from different *poleis* or cultural backgrounds were involved and had to be made comparable and understandable to the whole Greco-Roman world. So Thucydides (2.2) found his famous date for the outbreak of the Peloponnesian War or Timaeus synchronized the Spartan kings and ephors, Athenian archons, Argive priestesses of Hera, and Olympic victors. Such famous synchronisms, however, as the foundation of Rome and Carthage in the same year by Timaeus⁶ or the battles of Salamis and Himera on the same day by Herodotus⁷ have little to do with historical reality. They easily reveal their literary purpose and serve the articulation of meaningful relationships in the past.⁸

⁵ Only Timaeus of Tauromenium could possibly claim priority in fixing the date of the first Olympics, as he estimated the foundation of Rome and Carthage as 38 years before the first Olympiad (*FGrHist* 566 F 60, from Dion. Hal. *Ant.Rom.* 1.74.1). It thus seems that the first Olympiad served him as a point of orientation. As Timaeus is said to have synchronized the Spartan kings and ephors, the Athenian archons, the Argive priestesses of Hera, and the Olympic victors (*FGrHist* 566 T 10, from Polyb. 12.11.1), one should assume that he constructed his own temporal grid with the first Olympic victor firmly placed somewhere. The distance between the fall of Troy and the first Olympic games as calculated by Timaeus (F 125, from Censorinus *DN* 21.3) was ten years longer than that of Eratosthenes. But since we must unfortunately agree with Dionysius of Halicarnassus because we do not know Timaeus' *kanones*, we therefore cannot say exactly how he dated his first Olympic games.

⁶ Timaeus F 60; cf. D. Asheri, "The Art of Synchronization in Greek Historiography: The Case of Timaeus of Tauromenium," *SCI* 11 (1991/2) 52–89, at 62–73.

⁷ Hdt. 8.166; cf. 8.15.1; 9.100.2, 101.2.

⁸ Cf. R. Bichler, "Der Synchronismus von Himera und Salamis," in E. Weber and G. Dobesch (edd.), *Römische Geschichte, Altertumskunde und Epigraphik. Festschrift für Artur Betz* (Vienna 1985) 59–74, at 67–68; R. Hennig, "Die Gleichzeitigkeits-Fabel. Eine wichtige psychologische Fehlerquelle in der Geschichtsschreibung," *Z.f.Psychologie* 151 (1942) 289–302, once ex-

Setting up diachronic and synchronic lines created a temporal grid.⁹ With the help of such a scheme, it became possible to fix events much as one would locate places on a map. Suggesting an analogy between the system of geographical and that of temporal reference does not seem too far-fetched, if we consider the Hellenistic scholar Eratosthenes. Working in the fields both of geography and chronography, among others, Eratosthenes achieved remarkable progress in each. In addition to calculating the circumference of the earth, he was particularly interested in cartography. Instead of trying to estimate the east-west extension of the *oikoumene* by astronomical devices, he added up the lengths of single stretches handed down by traders, travelers, and *bematistai*.¹⁰ He is said to have been the first to combine the north-south line and the east-west line to form a grid of longitudes and latitudes.¹¹ Eratosthenes, however, neither knew of the theoretically infinite number of lines of longitudes nor did he find these lines by mathematical-geographical reasoning.¹² The adding up of separate distances in space recalls the method employed to estimate the temporal extension of history by using a sequence of time periods and squaring the different diachronic lines with synchronic ones.

To create a chronological system out of periods, Eratosthenes used meaningful historical events to estimate the beginning and end of each interval. Fragment 1a starts with the fall of Troy, and it therefore seems that for Eratosthenes the fall of

plained the tendency to synchronize important events by a psychological fallacy. Asheri, *SCI* 11 (1991/2) 56, calls this type of synchronism didactic or symbolic.

⁹ Cf. Mazzarino, *Pensiero* 439; P. Daffinà, "Senso del tempo e senso della storia: Computi cronologici e storicizzazione del tempo," *RSO* 61 (1987) 1–71, at 1, 15. S. Humphreys, "Fragments, Fetishes, and Philosophies: Toward a History of Greek Historiography," in G. W. Most (ed.), *Collecting Fragments – Fragmente sammeln* (Göttingen 1997) 207–224, at 213, compares Mazzarino's way of conceptualizing time and space with Bakhtin's "chronotopes."

¹⁰ Strab. 1.4.5 (64); cf. Geus, *Eratosthenes* 271–272.

¹¹ See Geus, *Eratosthenes* 275.

¹² Cf. P. Janni, *La mappa e il periplo. Cartografia antica e spazio odologico* (Rome 1984) 65–73.

Troy provided the starting point of computable time. While quite a number of modern scholars agree that the Trojan War in fact never took place, it is intriguing to see how the ancients attempted to date it with great precision.¹³ Eratosthenes calculated the fall of Troy, according to the era now in common use, to 1184/3 B.C.¹⁴ Alternative dates as reckoned by ancient scholars were—converted into years B.C.—1334,¹⁵ 1300,¹⁶ 1212,¹⁷ 1208,¹⁸ 1193,¹⁹ 1176,²⁰ 1150,²¹ 1149,²² 1131,²³

¹³ The collection of dates that follows is from W. Burkert, “Lydia Between East and West or How To Date the Trojan War: A Study in Herodotus,” in J. B. Carter and S. P. Morris (eds.), *The Ages of Homer. A Tribute to Emily Townsend Vermeule* (Austin 1995) 139–148.

¹⁴ The question whether this is also Castor’s date and whether in this he followed Eratosthenes was once much debated; see P. Fraccaro, *Studi Varroniani. De gente populi Romani libri IV* (Padua 1907) 95 n.1, for literature and alternative dates (1193 or 1172/1).

¹⁵ Duris *FGrHist* 76 F 41 (Burkert 143).

¹⁶ Deduced from Hdt. 2.145 by Burkert (142).

¹⁷ Dicaearchus F 58 Wehrli. W. Ax, “Dikaiarchs *Bios Hellados* und Varros *De vita populi Romani*,” *RhM* 143 (2000) 337–369, at 342 n.15, has the correct reading of 436 years for the interval between the fall of Troy and the first Olympiad (now in W. W. Fortenbaugh and E. Schütrumpf [eds.], *Dicaearchus of Messana. Text, Translation, and Discussion* [New Brunswick/ London 2000] 279–310, with new fragment numbers). Burkert (143) calculates with 306 years before the first Olympiad, arriving at 1082 for the Dicaearchan date of the fall of Troy.

¹⁸ *Marmor Parium* 24.

¹⁹ Timaeus F 125. The modern reconstruction of Timaeus’ date for the fall of Troy is based on the assumption that he dated his first Olympic games as did Eratosthenes. This date for Troy, however, is not Castor’s date, as was demonstrated by E. Schwartz, “Die Königslisten des Eratosthenes und Kastor.” *AbhGött* 40.2 (1894/5) 1–96, at 1–18.

²⁰ Varro fr.3, 14 Peter; cf. Ax, *RhM* 143 (2000) 359–360.

²¹ Deduced by Burkert (142) from Democritus fr.68 B 5 D.-K. (from Diog. Laert. 9.41).

²² Deduced by Burkert (143) from Ephorus *FGrHist* 70 F 223 plus Thuc. 1.12.3; G. L. Huxley, “Thucydides and the Date of the Trojan War.” *ParPass* 12 (1957) 209–212, argues for a mid-thirteenth century date in Herodotus’ and Thucydides’ thought.

²³ Deduced by Burkert (142) from Pind. *Pyth.* 4.9–11, 65; cf. Hdt. 4.154–165.

966,²⁴ or 910.²⁵ All these dates are based on creative calculations and rather prove that the Greeks in fact had no genuine knowledge about when the fall of Troy might have taken place.

The first period, between the fall of Troy and the return of the Heraclidae, lasts 80 years, a detail that Eratosthenes probably found in Thucydides (1.12).²⁶ He then turned to the Spartan king list for the time preceding the Olympic victor list:²⁷ this is shown by Plutarch, who remarked that Eratosthenes and Apollodorus calculated according to Spartan kings.²⁸ Some indirect evidence is provided by Diodorus, who says explicitly that he follows Apollodorus in reckoning the dates by the reigns of the Spartan kings.²⁹ For his part Apollodorus, as was shown by Felix Jacoby,³⁰ followed Eratosthenes. Diodorus' calculation of the interval between the Trojan War and the return of the Heraclidae as 80 years and the interval from there till the first Olympiad as 328 years³¹ should then go back via Apollodorus to Eratosthenes. Moreover, the two points of reference in F 1a—the return of the Heraclidae and the guardianship of

²⁴ Deduced by Burkert (144) from Pherecydes *FGrHist* 3 F 2, assuming three generations to 100 years.

²⁵ Deduced by Burkert (141) from a possible source of Hdt. 2.143–145.

²⁶ Eratosthenes could have followed Ephorus, who started his universal history with the return of the Heraclidae (F 223) and then calculated back the distance to the fall of Troy by two generations. This, however, is difficult to maintain as it is based on a circular argument. It presupposes that Eratosthenes calculated with 40 years to one generation, a generation length commonly ascribed to calculations with the Spartan king list. This was established by E. Meyer, *Forschungen zur Alten Geschichte* I (Halle 1892) 179–182, who cited the 80-year interval in Thucydides to demonstrate the 40-year generation count in the Spartan king list (according to Meyer it went back to Hecataeus); see Burkert, in *Ages* 142–144, for critical discussion.

²⁷ Cf. Schwartz, *AbhGött* 40.2 (1894/5) 60–61; F. Jacoby, *Apollodors Chronik* (Berlin 1902) 430; Mosshammer, *Chronicle* 117–118.

²⁸ Plut. *Lyc.* 1.2 (Erat. F 2; Apollod. *FGrHist* 244 F 64).

²⁹ Diod. 1.5.1 (Apollod. F 61a).

³⁰ Cf. Jacoby, *Apollodors Chronik* 35–38.

³¹ The difference in years between Eratosthenes F 1a (327 years) and Diodorus is due to Diodorus' inclusive calculation; see Mosshammer, *Chronicle* 336 n.2, for Eratosthenes' exclusive calculation.

Lycurgus—confirm Eratosthenes' use of the Spartan king list.

If Eratosthenes built his chronology before the first recorded Olympiad on the Spartan king list, while applying the Olympic victor list for the periods following the first Olympiad, he encountered a problem: the two lists had to be connected, i.e. synchronized at some point, in order to provide a continuous chronological standard. Jacoby³² noticed some difficulties since he did not see an internal connection between the two lists, especially as the king list, in fact, lacked a convenient basic date. Schwartz³³ assumed that the beginning of the Spartan ephors' list provided such a basic date, while Meyer³⁴ thought that counting back in generations from the fixed dates of kings in the fifth and fourth centuries would have provided a solution to Eratosthenes' dilemma. This problem does not seem to have been addressed recently and I would like to suggest a different solution.

In the following, I shall argue that the “missing link” that made it possible to synchronize the Spartan king-list with the Olympic victor list was provided by the famous discus of Iphitus at Olympia. In his *Life* of Lycurgus (1.1), Plutarch reports that some say Lycurgus (the Spartan lawgiver) flourished at the same time as Iphitus (founder of the Olympic games) and that both together established the Olympic truce. Among these purported authorities was Aristotle, who provided as proof the discus at Olympia on which an inscription preserved the name of Lycurgus. Pausanias gives us a fuller description of this famous discus: “The discus of Iphitus has inscribed upon it the truce that the Eleians proclaim at the Olympic festivals; the inscription is not written in a straight line, but the letters run in a circle round the discus.”³⁵ The alleged age of the discus has

³² On Erat. F 1 (pp.708–709).

³³ Schwartz, *AbhGött* 40.2 (1894/5) 64–67. There are two different calculations for the beginning of the ephors' list: according to Apollodorus it started in 768/7, according to another tradition in 754/3 or 753/2.

³⁴ Meyer, *Forschungen* 169–173.

³⁵ Paus. 5.20.1 (transl. Jones, Loeb).

long aroused suspicions about its authenticity.³⁶ That it was probably made during the fourth century B.C.—more exactly after 364 when the Eleans came to peaceful terms with the Spartans—has been convincingly argued by Massimo Nafissi.³⁷ In any case, Aristotle was the first who claimed to have seen it. More important, he seems to have been the first to make use of it as proof of the synchronism between Lycurgus and Iphitus. According to the discus of Iphitus, however, Lycurgus was not immediately considered actually to be the co-founder of the Olympic games, but only to have instituted the Olympic truce together with Iphitus, which is admittedly not the same as founding the games. This difference, however, was soon forgotten when Hieronymus of Rhodes ascribed the first recorded Olympic games to Lycurgus.³⁸

This synchronism between Lycurgus and Iphitus apparently caused immediate difficulties with other already established dates. Eratosthenes and Apollodorus,³⁹ according to Plutarch (*Lyc.* 1.2), both employed the Spartan king list to assert that Lycurgus lived long before the first Olympiad. Two positions thus have to be reconciled: on the one hand, Lycurgus was said to have been a contemporary of Iphitus, founder of the Olympic games, so he should have lived at the same time as the first Olympic games. On the other hand, it had been claimed that Lycurgus lived many years before the first Olympiad. How huge this gap was can be seen in Eratosthenes' *kanones* (F 1a) where Lycurgus is placed exactly 108 years earlier than the year preceding the first Olympic games. If one is to maintain both synchronisms, that between Iphitus and the first Olympic victor and that between Lycurgus and Iphitus, while bridging

³⁶ See A. Hönle, *Olympia in der Politik der griechischen Staatenwelt von 776 bis zum Ende des 5. Jahrhunderts* (Bebenhausen 1972) 10, and F. J. Fernandez Nieto, *Los acuerdos belicos en la antigua Grecia* (Santiago de Compostela 1975) 158 n.1, for earlier literature.

³⁷ M. Nafissi, "La prospettiva di Pausania sulla storia dell'Elide: la questione pisate," in D. Knoepfler and M. Piérart (eds.), *Éditer, traduire, commenter Pausanias en l'an 2000* (Geneva 2001) 301–321, at 309–310.

³⁸ Hieronymus of Rhodes F 33 Wehrli, from Athen. 635F.

³⁹ Cf. Jacoby, *Apollodors Chronik* 108–118, 122–127.

the temporal gap between Lycurgus and the first Olympic games, there are two solutions.

Plutarch gives us Timaeus' solution, which assumed the existence of two men by the name of Lycurgus (*Lyc.* 1.4). This pattern of argument is still followed today when scholars argue that it was not the Spartan lawgiver but a homonymous Arcadian hero who, together with Iphitus, instituted the Olympic truce.⁴⁰ But there is another solution for filling the gap between Lycurgus and the first Olympic games, a gap that should not exist if Lycurgus ultimately is equally responsible for the foundation of the games.

The way out of this dilemma was apparently found by inserting a number of so-called uncounted Olympiads. Eusebius reports 27 uncounted Olympiads that were not written down in the official lists before the Eleans, who controlled the sanctuary at Olympia, started to record each winner of each contest.⁴¹ Devising unrecorded Olympiads allowed synchronizing Lycurgus and Iphitus, founder of the games, so Iphitus could remain both the founder of the first counted Olympic games and a contemporary of Lycurgus. Iphitus founded the games that were won by Coroebus, the first recorded victor, and thus provided the first officially numbered Olympic games, but he likewise could be considered to have co-founded the Olympic games with Lycurgus, only these took place 27 uncounted Olympiads earlier. What happened by inserting the uncounted Olympiads was that Iphitus' foundation of the games was

⁴⁰ Wilamowitz, *Homerische Untersuchungen* (Berlin 1884) 284–285, postulated two men each with the names Iphitus and Lycurgus; J. Toepffer, *Beiträge zur griechischen Altertumswissenschaft* (Berlin 1897) 360; L. Piccirilli, *Vite di Licurgo e di Numa: Plutarco* (Milan 1980) XVI; cf. Jacoby on *FGrHist* 257 (p.839).

⁴¹ Euseb. *Chron.* 1.90 Karst (Aristodemus *FGrHist* 414 F 1, Cl. Polybius 254 F 2). The alternative number of 13 unrecorded Olympiads ascribed to Callimachus (fr.541 Pfeiffer) has been explained as games held every eight years; cf. L. Weniger, "Das Hochfest des Zeus in Olympia," *Klio* 5 (1905) 1–38, 184–218, at 189. This would result in almost as big a gap, 104 years. To my mind, however, the number of 13 unrecorded Olympiads could also reflect an alternative, much shorter calculated gap between Lycurgus and the first Olympics.

divided from their first recorded victor and thus Iphitus was synchronized both with the foundation of the games and with Lycurgus. The actual list with counted victors could then start with the first known and recorded champion Coroebus.

Returning to Eratosthenes F 1a, we find the same span of 27 Olympiads between Lycurgus and the first recorded Olympic games. Eratosthenes established the interval between Lycurgus and the first recorded Olympic games, more precisely the year preceding the first Olympiad, as 108 years. If we divide 108 by 4 (as one Olympiad comprises 4 years), we get 27.⁴² Hence, either Eratosthenes has calculated with an interval of 27 uncounted Olympiads, which recurs later in Eusebius, or Eusebius or his source have for their part found an explanation for the 108 years as the result of the multiplication of 27 by 4.

The synchronism between Lycurgus the Spartan lawgiver and Iphitus the founder of the Olympic games, which became possible after Aristotle had discovered the discus of Iphitus at Olympia, enabled Eratosthenes to connect the Spartan king list with the Olympiad era. At the same time, he gave Lycurgus an authoritative date in that he reconciled the divergent traditions of the Spartan king list and the relatively new Olympiad era.⁴³ Eratosthenes' fragment is the first literary evidence that gives an exact interval between the first recorded Olympic games and later historical dates, which are easily enough converted into precise years B.C.; as there is not much doubt that Alexander the Great died in 323, the battle of Leuctra took place in 371, the Peloponnesian War began in 431, and Xerxes invaded Greece in 480, it is possible to date the first recorded Olympic games to 776 B.C. This fragment of Eratosthenes fixed the beginning of the Olympiad era within the Greek chronological system, and allows us to convert its date into our chronological system of numbered years before the starting point of the common era.

But while Eratosthenes' fragment 1a gives us the convertible date of the first recorded Olympic games, it does not prove that

⁴² Jacoby, *Apollodors Chronik* 125–127, has the calculation, but assumes two men with the name Lycurgus.

⁴³ Cf. Mosshammer, *Chronicle* 174–180.

for him history started with the Olympic games. It rather reveals that for Eratosthenes the time ascertainable by computation started with the fall of Troy. He made no distinction between events before and after the first recorded Olympiad, and it is obvious that he did not treat the first recorded Olympic games as a boundary between mythical and historical times. This observation, however, contradicts the widespread assumption that the distinction between the mythical and the historical period divided by the first Olympic games as enunciated in Varro derives from Eratosthenes. The Roman grammarian Censorinus (III A.D.) comments on Varro's three-fold periodization:⁴⁴

I shall now deal with the period that Varro calls *historical*. He divides time into three periods. The first stretches from the beginning of mankind to the first cataclysm [i.e. the flood of Ogyges]; because of our ignorance it is called "obscure" [*ádēlon*]. The second stretches from the first cataclysm to the first Olympiad; because many myths are recorded in it, it is called "mythical." The third stretches from the first Olympiad to us. Because the events in it are contained in true histories, he calls it "historical."⁴⁵

It was Jacoby who argued that Censorinus' passage could be traced back to Eratosthenes, since the first recorded Olympiad figured prominently in Eratosthenes, and Varro used Eratosthenes' work.⁴⁶ This assertion is not convincing, since the first

⁴⁴ Varro fr.3 Peter, from Censorinus *DN* 21; transl. of this and the following passage A. Grafton, "Tradition and Technique in Historical Chronology," in M. H. Crawford and C. R. Ligota (eds.), *Ancient History and the Antiquarian: Essays in Memory of Arnaldo Momigliano* (London 1995) 15–31, at 24–25.

⁴⁵ Censorinus then goes on to tell how long these periods were, but the mathematics do not work. For the interpolation see n.54 below.

⁴⁶ Jacoby on *FGrHist* 241 F 1c (p.709, cf. 707); cf. B. Reischl, *Reflexe griechischer Kulturentstehungslehren bei augusteischen Dichtern* (diss. Munich 1976) 88 n.5. Already Fraccaro (*Studi* 92–93) had argued that Varro did not follow the Eratosthenian-Apollodoran system, but that his dates correspond to those of Castor. Most recently, Geus (*Eratosthenes* 316 n.29) disagrees with Jacoby's assumption.

recorded Olympiad does not seem to have had a different quality for Eratosthenes from the other events used to delimit the intervals in F 1a. Moreover, it is not certain that Varro used Eratosthenes' text at all,⁴⁷ and if he did, he was not able to find much about the pre-history before the Trojan War. Plinio Fraccaro once argued that the division of time into the periods *adēlon*, *mythikōn*, and *historikōn* looks truly Varronian, but the idea of starting the *spatium historicum* with the first recorded Olympics, although it here appears for the first time, may not be Varro's invention. Instead of Eratosthenes, Varro probably used a different Greek source, as the Roman would have rather taken the foundation of Rome as the characteristic division between the mythical and the historical times.⁴⁸

Wolfram Ax recently suggested that Varro found his three-fold periodization in Castor of Rhodes.⁴⁹ Varro used the work of his near contemporary and arranged his own *De gente populi Romani* according to the Greek model by lists of kings, such as the kings of Sicyon, Argos, and Athens that he found in Castor's work.⁵⁰ Eduard Schwartz once claimed that Castor

⁴⁷ Fraccaro, *Studi* 238, concluded that Varro preferred the contemporary Castor to Eratosthenes and Apollodorus. The only Eratosthenian fragment that may have come down to us via Varro *Ant.ver.div.* fr.56a Cardauns is fr.26 on the Samian Sibyl, possibly from the *Chronographiai*, quoted by Lactant. *Div.Inst.* 1.6.9. Eratosthenes is said to have found information about this Sibyl in *antiquis annalibus Samiorum*. B. Cardauns, *M. Terentius Varro, Antiquitates Rerum Divinarum* (Wiesbaden 1976) 165, considers direct use of Varro by Lactantius probable (and includes it as fragment 56a), but this would be the only passage. Cf. Geus, *Eratosthenes* 314 n.20. H. W. Parke, *Sibyls and Sibylline Prophecy in Classical Antiquity* (London 1988) 64–67, 88 (for the Samian Sibyl), believes that the Archaic Sibyl was only rediscovered by Eratosthenes. In any case, later chronography dated her floruit to 712/1 or 666/5 B.C.: Euseb. *Chron.* 91.13, 94.12 Helm. She was placed in sixth position between the Trojan War and Tarquinius Priscus.

⁴⁸ Fraccaro, *Studi* 99.

⁴⁹ Ax, *RhM* 143 (2000) 359.

⁵⁰ Cf. F. Della Corte, "L'idea della preistoria in Varrone," in *Atti del congresso internazionale di studi Varroniani I* (Rieti 1976) 111–136, at 130–131 with n.32. The diluvium of Ogyges, whom Varro (*Rust.* 3.1.2–3) believed to be the founder of Thebes, roughly 2100 years before himself writing in 37 B.C., provided a fixed point, the borderline between the "obscure" and the "mythical" period. This is more than 200 years later than the calculation

followed Eratosthenes and Apollodorus in taking the fall of Troy as the starting point for his calculations.⁵¹ This assertion makes it unlikely that the first recorded Olympiad figured very prominently in Castor's calculations. He was, however, more interested in the "pre-history" going back to 2123 B.C. To calculate such a high date in Greek history, which was hitherto only known from Near Eastern sources, he complemented the Assyrian king list⁵² with the Sicyonian king list, which had been invented for chronographical reasons.⁵³

Not even the last sub-period of the mythical age between the Trojan War⁵⁴ and the first recorded Olympic games that was calculated by Censorinus at a length of "just over 400 years" can prove Eratosthenes' authorship of the boundary between a mythical period from the Trojan War to the first recorded Olympiad and a historical period starting with the first re-

provided by Censorinus (Ogyges' diluvium 1600 years before the first Olympics would be 2376 B.C.), prompting H. Peter, "Die Epochen in Varros Werk *De Gente Populi Romani*," *RhM* 57 (1902) 231–251, at 232–235, to argue that therefore this cannot be the Varronian calculation.

⁵¹ Schwartz, *AbhGött* 40.2 (1894/5) 1–11, 94–95.

⁵² R. Drews, "Assyria in Classical Universal Histories," *Historia* 14 (1965) 129–142, at 139, argues for Assyrian evidence.

⁵³ Cf. F. Pfister, "Die Lokalhistorie von Sikyon bei Menaichmos, Pausanias und den Chronographen," *RhM* 68 (1913) 529–537.

⁵⁴ The starting point of this period of 400 years, however, has been interpolated by most editors, because it is immediately evident that Censorinus' numbers in this passage do not work out. Fraccaro, *Studi* 256: <computarunt, hinc ad Cecropis regnum annos circiter CCCC, hinc ad excidium Troiae annos paulo minus CCCC>, cf. 97–99 for Roth's interpolation, which Fraccaro followed. Fraccaro thus thought of a game with intervals of 400 years, which he did not want to ascribe to Varro. Sallmann chose a simpler solution: <computarunt, hinc ad excidium Troiae annos octingentos>; cf. Peter, *RhM* 57 (1902) 239. Grafton, in *Ancient History* 24–26, dismisses this interpolation as "a piece of Latin prose composition done in nineteenth-century Germany," unsuitable to prove Eratosthenes' scientific correctness (one should add: nor that of any other of Censorinus' possible sources). That Censorinus gives more estimates of this last mythical sub-period which lasted around 400 years should make us less suspicious about its starting point, the fall of Troy, especially as Eratosthenes F 1a confirms this interval. Cf. Timaeus, F 125 with commentary (*pace* Jacoby, Censorinus' [Varro's] calculation adds up to 1176, not 1194/3); F 80 uses the fall of Troy as an epoch.

corded Olympics. Censorinus quotes various estimates by other authors for this last period:

Sosibius wrote that this period was 395 years long, Eratosthenes that it was 407 years,⁵⁵ Timaeus that it was 417, Aretes that it was 514, and others have computed it in other ways. Their disagreement shows that it is uncertain.⁵⁶

Felix Jacoby included this paragraph among the Eratosthenian fragments (F 1c), but it is far from obvious who collected these different calculations: it could have been Censorinus or his source (Varro?) who extracted the calculation for this period out of Eratosthenes' text. It is hard to confirm that it was Eratosthenes who made this calculation or acknowledged a difference between the times before and after the first recorded Olympic games.

Even if modern scholars prefer to follow Varro in his distinction between the mythical and the historical period by means of the boundary provided by the first recorded Olympic games, it was not Eratosthenes who can be held responsible. For him, the time assessable by chronographical calculation apparently started with the fall of Troy. He did not try to compute events earlier than the period he considered historical, and this period started with the fall of Troy.

There is one more observation to make. It is rather surprising that Eratosthenes based his chronology entirely on Greek dates. Working in Alexandria, he should have had easy access to Egyptian documents or direct contacts with Egyptian priests. But as John Dillery has argued, he ignored even Manetho's Egyptian history written in Greek, whose chronology takes up the Egyptian king list.⁵⁷ For quite some time, scholars believed in Eratosthenes' authorship of the Theban king list, handed down by Syncellus, who claimed that Eratosthenes translated

⁵⁵ This is exactly the sum that results from F 1a.

⁵⁶ Censorinus *DN* 21.3 (Erat. F 1c; cf. commentary p.709). He might have also quoted Dicaearchus F 58 Wehrli, who calculated for the period between the fall of Troy and the first Olympiad 436 years.

⁵⁷ J. Dillery, "The First Egyptian Narrative History: Manetho and Greek Historiography," *ZPE* 127 (1999) 93–116.

the list of the Theban kings from the Egyptian into Greek by order of the king.⁵⁸ This tendency has changed and today his authorship is mostly rejected. In any case, if Eratosthenes had known this Egyptian king list, it is strange that he apparently made no attempt to use it for his chronography. Jerker Blomquist has argued that Eratosthenes and his colleagues showed little interest in the culture that surrounded them outside the palace and Library.⁵⁹ Eratosthenes' chronography is a good example of such ignorance.

Although he ignored non-Greek events in setting up his chronographic system, he was very successful in giving important Greek events and persons their place in Greek chronology. He followed the classical Greek "diastematic" manner to construct a chronology by adding distances between more or less important events. Successfully squaring the intervals with synchronic events, he reached a rather high precision in dating which was readily accepted by followers and even by us today. The most important synchronism for making his chronology work was to find the connection between two existing means for chronography: the Spartan king list and the list of Olympic victors. In acknowledging the alleged synchronism between Iphitus and Lycurgus and solving the resultant time gap by inserting unrecorded Olympiads, he found it possible to connect the two chronographic devices. Although he thus authoritatively fixed the date for the first recorded Olympic games, it was not Eratosthenes who introduced a boundary between the

⁵⁸ Syncellus 171, 279 (pp.103.6–10, 172.14–8 Mosshammer). Whereas C. Frick, "Kritische Untersuchungen über das alte Chronikon, die ägyptische Königsliste des Eratosthenes und Apollodoros, das Sothisbuch und die ägyptische Königsliste des Synkellos," *RhM* 29 (1874) 252–281, at 256–272, H. Gelzer, *Sextus Julius Africanus und die byzantinische Chronographie* I (Leipzig (1885) 196, and E. Schwartz, "Eratosthenes," in *Charakterköpfe aus der antiken Literatur* (Stuttgart 1943: orig. 1909) 173–197, at 187, accepted their authenticity, B. Niese, "Die Chronographie des Eratosthenes," *Hermes* 23 (1888) 92–102, at 102, doubted it. E. Schwartz, "Apollodoros 61," *RE* 1 (1894) 2861, assumed documentary material, but not the authorship of Eratosthenes and Apollodoros. Jacoby gives Apollod. F 85 under *Gefälschte Fragmente*, Erat. F 48 under *Uechnetes*.

⁵⁹ J. Blomquist, "Alexandrian Science: The Case of Eratosthenes," in P. Bilde et al., *Ethnicity in Hellenistic Egypt* (Aarhus 1992) 53–73, at 64.

mythical and the historical period by means of the first recorded Olympiad. His historical time started with the fall of Troy. Eratosthenes thus created a “diastematic” chronological system that proved remarkably influential in antiquity and modern scholarship and which allows us to regard him as “epoch-making.”⁶⁰

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