

ANCIENT CHRONOGRAPHY, ERATOSTHENES AND THE DATING OF THE FALL OF TROY*

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Abstract

Through close scrutiny of the surviving fragments of ancient chronography, it is possible to work out the way Eratosthenes, in his lost *Chronographiai* (ca. 220 BC), arrived at his date for the Fall of Troy (1183 BC) – a ‘universal’ reference point in antiquity. By combining new information from Manetho, with Timaeus, Ctesias, Herodotus and other sources, he devised a compromise chronology for the Greek past: ‘high’ enough to satisfy Hellenistic cultural interests, and ‘low’ enough to satisfy Alexandrian critical scholarship. What was reckoned originally to be an event of the 10th century BC, and later raised as far as the 14th century BC in competition with the older eastern civilisations, ended ‘appropriately’ being placed half-way in the 12th century BC. Surprisingly, this date, the mechanics of which were previously not fully understood, ultimately played a misleading role in the modern debate of the Greek archaeological ‘Dark Age’.

‘I claim, therefore, to have shewn that many of our early Greek dates are demonstrably, and many more of them probably, too early...’ This confident conclusion written nearly 75 years ago by the classicist A.R. Burn was printed in a journal as important as the *Journal of Hellenic Studies*.¹ Chronology since then has come round a full circle. While by 1960 Burn himself, under the pressure of growing interpretation

* For reading an early version of this paper (2004) my thanks go to Prof. Fergus Millar and Prof. Robert Fowler. The latter’s criticisms have helped to shape some points which had not been adequately expressed before, and also became the reason for the brief discussion in Appendix 2. His challenge for a broader study of ancient chronography cannot be met at present (but cf. Kokkinos 2003; 2009). I am grateful to the anonymous referees for encouragement, and particularly to the one who insisted on ‘openness’ regarding the ‘low’ *archaeological* chronology, for which Appendix 1 (somewhat beyond the conclusion of this paper) was written. As ‘openness’ usually leads to ‘inconvenient truths’ (like Al Gore’s documentary on global warming), I hope that he/she is now strong enough to take them. Many thanks to my colleague Peter James on whom I naturally tried this appendix with progressive results. It is now 25 years that Peter and I have studied together the minutiae of chronology (philological, astronomical, archaeological, scientific), and our differences have never been too great.

¹ Burn 1935, 145. Opposition to the ‘high’ philological dates which had been introduced into Greek archaeology by W.M.F. Petrie, whose interpretation of chronology based on his 19th century excavations in Egypt was triumphantly announced also in the same journal (Petrie 1890), had already been led by classicist C. Torr (1896). Besides, long before the inception of field archaeology, arguments against the ‘high’ chronology of the Greek historians (rediscovered since the works of J. Scaliger and D. Petavius) were strongly made by I. Newton (1728 – published posthumously).

in the field of archaeology, had had to retract his claim that the Trojan War should be dated no earlier than the 10th century BC, from the mid-1980s several contemporary scholars could criticise much of the archaeological and chronological wisdom that led to placing the event at the beginning of the 12th century BC.² As a result, classicists from the mid-1990s would again begin recognising that the ‘original’ date assumed for the *Troika* could only have fallen in the 10th century.³ This paper will attempt to explain how ancient chronography ended being stuck with a ‘high’ date, ultimately misleading the modern debate of the Greek archaeological ‘Dark Age’ (see Appendix 1).

When Eratosthenes around 220 BC sat in Alexandria to construct what was destined to become the standard chronology of the ancient world (with the Fall of Troy placed at 1183 BC), he must soon have realised the shock he would create in the name of Hellenistic ‘science’. But on what basis did he achieve this? What was the new evidence that he presented? Can we guess the method followed in his scheme in view of the unfortunate loss of his *Chronographiai*? The long-held modern view that Eratosthenes relied on the Spartan king lists, which presumably had already been fixed in time, has rightly been called ‘nonsense’ by D. Panchenko – for in the 3rd century BC nobody knew the actual lengths of the reigns of the early kings, unknown even in the 5th century to Herodotus (7. 204; 8. 131).⁴ This view is actually based on a forced reading of a much quoted statement by Plutarch (*Lycurgus* 1. 3). In reference to writers of the past who provided an absolute date for Lycurgus the lawgiver, Plutarch simply says that they (with Eratosthenes mentioned first) worked this date out by ‘computing the time’ (*analegomenoi ton chronon*) of the ‘successions’ (*diadochais*) of the Spartan kings. This does not mean that an *official* king list was available, nor that it also included generally *accepted* reign lengths. On the contrary it implies that Eratosthenes, in the first place and by unspecified means, would have been responsible for calculating *a* version of the royal chronology.⁵

Much earlier than Plutarch, Polybius (12. 11. 1) had referred to Timaeus of Tauromenium (*ca.* 270 BC), as having attempted – previously to Eratosthenes – to

² Burn 1960, 408; James, Thorpe, Kokkinos and Frankish 1987; James, Thorpe, Kokkinos, Morkot and Frankish 1991a; 1991b; 1992; James, Kokkinos and Thorpe 1998; Morkot 2000; 2003; James 2003; 2005; 2006.

³ Burkert 1995; Panchenko 2000.

⁴ Panchenko 2000, 41. It is not even clear how far the lists in Herodotus meant to serve as king lists or genealogical tables, since kings such as ‘Cleomenes’ of the Agiads and ‘Hegesicles’, ‘Ariston’ and ‘Demaratus’ of the Eurypontids, known to Herodotus elsewhere (for example 1. 65; 5. 48–51; 6. 61–66), are not included – already discussed by Prakken (1940).

⁵ The same goes for the indirect reference in Diodorus (1. 5. 1), *sylogizomenoi tous chronous*. Sositius of Laconia (*ca.* 250 BC) may have put together a Spartan king list in his work *Chronōn Anagraphē* (FGH 595 F 2) – *cf.* Cartledge 2002, 297.

create a timescale by drawing comparative tables involving Sparta while utilising the list of the Olympic victors as a yardstick. As is well known, this list had initially been compiled by Hippias of Elis (*ca.* 400 BC) and doubts about the way it had been put together had been expressed elsewhere by Plutarch himself (*Numa* 1. 4). Criticism would have begun with Aristotle (*ca.* 340 BC), whose discovery of an inscribed discus at Olympia (synchronising Lycurgus with Iphitus of Elis the founder of the Olympic Games – Plutarch *Lycurgus* 1. 2) must have created a radical revision, perhaps reflected in Aristotle's lost book *Olympionikai* (Diogenes Laertius 5. 26).⁶ Some utilisation of the Olympiad reckoning, even if not for the purpose of universal chronography, may in fact slightly predate Timaeus as it seems to appear in Dicaearchus of Messena (*ca.* 300 BC), another Sicilian,⁷ who would conceivably have acquired such knowledge from his teacher Aristotle himself (*Bios Hellados* = Fr. 58a Wehrli).⁸ Thus although since the time of Herodotus (and probably earlier) a rough estimate could be made by counting back the number of given generations, the Spartan 'king lists' were not fixed in absolute time before Timaeus and Eratosthenes, and themselves then became the result of chronographic construction involving real or imagined 'synchronisms' with famous people and events – with inevitable compromises along the way.⁹

Lycurgus is a good case in point. According to Simonides (Plutarch *Lycurgus* 1. 4), in the 6th century BC, he was reckoned to be son of king Prytanis – thus belonging to the *ninth* generation of the Eurypontids. According to Herodotus (1. 65), in the 5th century BC, he was the uncle of king Leobotas – thus belonging to the *eighth* generation of the Agiads. After further transformations, according to Aristotle (Plutarch *Lycurgus* 1. 2), in the 4th century BC, he appeared to be contemporary with the much later character, Iphitus of Elis – thus belonging to the *thirteenth* generation of the Spartan king lists. In the following decades Timaeus had to invent a 'second' Lycurgus to account for the glaring time discrepancy (Plutarch *Lycurgus* 1. 3). It is not clear whether Eratosthenes in the 3rd century BC followed Simonides or some other source (he certainly ignored Aristotle) in terms of Lycurgus' affiliation, but in the single, most important fragment we have of his new scheme, Lycurgus

⁶ Christesen (2007, 61–62) thinks that the discus is unlikely to have been unknown to Hippias, but this view overestimates how much could have been found by Hippias, and underestimates the possibility of discoveries after his time (*cf.* Shaw 2003, 65–70).

⁷ An even earlier connection in Sicily, attributed to Philistus (*ca.* 400 BC) by Stephanus of Byzantium (*FGH* 556 F 2), can be discounted as it looks retrospective coming from an age when Olympiad reckoning was commonplace. By the same token, such reckoning has retrospectively been attributed as early as to Xanthus (*FGH* 765 F 30) and Hellanicus (*FGH* 4 F 47a), older contemporaries of Herodotus, before even Hippias' list of victors had been constructed.

⁸ See below n. 30.

⁹ Admitted by Mosshammer (1979, 178).

has acquired the precise date of 884 BC (*FGH* 241 F 1a).¹⁰ To achieve consistency Eratosthenes must have developed a Spartan chronology more ‘accurate’, as it were, than that of Timaeus, whose scheme nevertheless could not have been far off – that is to say judging from the latter’s date for the Fall of Troy in 1193 BC, ten years earlier than that of the former.¹¹ So the question is from where did Eratosthenes draw confidence for his revolution in Greek chronographic thought?

Thinking of the environment in which Eratosthenes advanced his research – that is to say Egypt in the Early Ptolemaic period – it should not have been difficult to guess the direction of his inquiry. In fact a neglected hint (*FGH* 244 F 85) has always been available in George the Syncellus (*ca.* AD 800), displaying at least an interest that Eratosthenes would have had in looking into the local Egyptian records. Despite superficial objections from critics, which do no justice (as we shall see below), K. Geus in his recent study on Eratosthenes rightly accepted Syncellus’ statement.¹² By the time of Eratosthenes, an unexpectedly fresh work on ancient Egypt had been published in Alexandria – that of a local Hellenised priest Manetho of Sebennytus (*ca.* 260 BC).¹³ Eratosthenes’ employment of the reckoning system of

¹⁰ Among the various ‘synchronisms’ then in circulation, that of Lycurgus with Homer, surprisingly carried no significance for Eratosthenes, as he dated Homer ‘100 years after the capture of Troy’ (*FGH* 241 F 9a) – that is 1083 BC according to his chronology – in sharp contrast to Herodotus (2. 53) who placed Homer 400 years before his own time, or *ca.* 830 BC! Even the clever improvement of Apollodorus, who followed Eratosthenes, placing Homer ‘100 years after the Ionic migration’ (*FGH* 244 F 63b) or 943 BC, could not really solve the problem as Lycurgus would have met Homer only as a child. Mosshammer (1979, 178), added that ‘it is by no means clear’ how Eratosthenes computed the epoch of Lycurgus. A possibility would be through Thucydides’ reference to the introduction of the Spartan constitution ‘rather more than 400 years’ before the end of ‘the late war’ (1. 18. 1), assuming that this was taken to be the Decelean War (ending in 404 BC), and assuming that a life span of 80 years for Lycurgus would then be added by Eratosthenes to present the birth year – so $404 + 400 + 80 = 884$.

¹¹ The present writer disagrees with the view that Timaeus’ date for the Fall of Troy must be pushed back to 1334/3 BC by proxy dating based on *FGH* 566 F 80 (Asheri 1983, 56–57; 1991–92, 70, n. 31), and the correct figure (based on Olympiad reckoning familiar to Timaeus) should be that conveyed by Censorinus: 1193 BC (*DN* 21. 3 = *FGH* 566 F 126) – see Jacoby 1904, 147, 162; *cf.* Pearson 1987, 47. Timaeus’ date must have guided Manetho of Sebennytus (*ca.* 260 BC), before Eratosthenes, whose Fall of Troy in 1195/4 or 1194/3 BC fell 670 years (the total of Egyptian 20th–26th Dynasties) before the conquest of Egypt by Cambyses in 525/4 BC (27th Dynasty). The precise date is indeed acknowledged later by an Egyptian successor, ‘Thrasyllus’ of [Mendes] (*FGH* 253 F1) – conceivably a mistake for Ptolemy of Mendes (*FGH* 611 F 1a–c). Pearson’s legitimate assumption that Timaeus may have been reckoning from the start of the Trojan War (or in other words that he may have dated the end of the war to 1183 BC before Eratosthenes) cannot really be accepted, because the fragments specify the ‘fall’ of Troy and so does Manetho – *to ilion healō* (*FGH* 609 F 2).

¹² Geus 2002, 57; *cf.* doubt in Niese 1888, 102; see general criticism in the review by Möller (2003), drawing on Blomquist (1992, 64) and Grafton (1995, 21–26).

¹³ Möller (2005, 258) is rightly surprised to accept that Eratosthenes would have ignored Manetho, but she is presumably succumbed to ‘arguments’ by J. Dillery (1999), which however cannot be found in his paper! For Manetho’s work (conveniently translated in the Loeb series by W.G. Waddell in 1940), see now Verbrugge and Wickersham 1996.

Olympiads (following Timaeus) in combination conceivably with the newly compiled Egyptian king lists (at least back to the beginning of the Persian period), meant that international events could now be dated absolutely. For example, for the first time a precise date was given to the beginning of Cyrus' reign in Persia, which was equated to the first year of the 55th Olympiad (55. 1) – our own 560/59 BC.¹⁴ This date was taken as a fundamental point of departure of future universal chronography, and one could afford to ignore it only at one's own peril, as did the early school of Biblical chronographers.¹⁵ Similarly later, Claudius Ptolemy (*ca.* AD 140) using Mesopotamian astronomical evidence, which seems to have been brought to Alexandria from Rhodes by Hipparchus (*ca.* 140 BC) where it would conceivably have been introduced by Berossus (*ca.* 270 BC), produced an absolute Babylonian chronology back to the beginning of the 'Nabonassar Era' in 747 BC – also holding good today.¹⁶ But what was the accepted date for the beginning of Cyrus' reign in Persia before Eratosthenes? What had to be revised in the chronology of the Persian period by the newly compiled Egyptian evidence? And indeed, was there anything to be revised earlier, in the received Greek knowledge of the Assyrian period, by the Mesopotamian evidence put forward later in a definitive form by Ptolemy?

Before the time of Eratosthenes and Manetho, the reign lengths of the Persian kings conveniently available to the Greeks had been 'established' by one of the most unreliable of ancient authors – Ctesias. Surprisingly his *Persika* enjoyed a lasting popularity to the end of antiquity, inevitably because Ctesias had been present at the accession of Artaxerxes II in 404 BC, and thus could be believed to have collected

¹⁴ The main fragment of Eratosthenes reveals the Persian connection in setting Xerxes' passing to Greece at 480/79 BC in parallel to Olympic reckoning (*FGH* 241 F 1a). Apollodorus (*ca.* 150 BC), who based himself on Eratosthenes, refers to Persian kings as having previously being linked to this system (*FGH* 250 F 6). It is now almost certain that Eratosthenes was responsible for fixing Cyrus' Year 1 to 560/59 BC (*cf.* Mosshammer 1979, 87, 118, 262), but it must be noted that the length of Cyrus' reign in Persia is only an assumption based on Herodotus, unconfirmed by Near Eastern sources (Kokkinos 2009, 7, n. 18). A series of writers from Polybius in the 2nd century BC onwards adopted this datum as testified by Julius Africanus in the 3rd century AD (*apud* Eusebius *Praeparatio Evangelica* 10. 10. 4).

¹⁵ See Kokkinos 2003. From the earliest Biblical chronographer Demetrius of Alexandria, a contemporary of Eratosthenes, to Theophilus of Antioch (*ca.* AD 185), the date of the Fall of Jerusalem under Nebuchadrezzar II managed to slowly drop from *ca.* 660 to 629 BC (as against the modern 587/6 BC). We have to wait to Clement of Alexandria (*ca.* AD 200) to find the Graeco-Persian chronology of Eratosthenes (by then confirmed by Claudius Ptolemy) being introduced into Christian chronography, lowering the event to 588 BC (see *Strom.* 1. 21/ 127. 1). Yet in order to accommodate it Clement inevitably got into a tangle with Biblical prophecy and history. He spanned the captivity, lasting '70 years' according to the prophet Jeremiah (25:11), from the 'seventh year' [read seventeenth] of Nebuchadrezzar (588/7 BC) to the 'second year' of Darius I (520/19 BC) – reckoned inclusively – when it actually lasted only 47 years (*Ezra* 1:1) to the 'first' (or 'second') year of Cyrus over Babylon (540/39 BC). What Clement was tacitly conceding was that the 'prophetic' number would instead have concerned the distance between the destruction of the First Temple (586 BC) and the construction of the Second Temple (516 BC).

¹⁶ See Depuydt 1995.

accurate information about the king's predecessors.¹⁷ The work has not survived but his relevant table can be reconstructed from various fragments (*FGH* 688):

(1) Cyrus	'30 years' – F 9. 8	(modern, 29 years)
(2) Cambyses	'18 years' – F 13. 14	(modern, 8 years)
(3) Bagapates	'7 months' – F 13. 15	(modern, 7 months)
(4) Darius I	'31 years' – F 13. 23	(modern, 36 years)
(5) Xerxes I	LOST – F 13. 33	(modern, 21 years)
(6) Artaxerxes I	'42 years' – F 14. 46	(modern, 41 years)
(7) Xerxes II	'45 days' – F 15. 48	(modern, x-months)
(8) Secyndianus	'6 months and 15 days' – F 15. 49	(modern, x-months)
(9) Darius II	'35 years' – F 16. 57	(modern, 19 years)

If we count the parts of a year (nos. 3, 6–7) as whole years, we have here a total of 158, plus the length of the 'lost' reign of Xerxes. This reign, which would also have been inflated like most reigns in Ctesias, has recently been argued to be indirectly recoverable via an early Biblical chronographer, Demetrius of Alexandria.¹⁸ It seems probable to have been '28 years' long, making Ctesias' grand total 186. Adding this number to 404 BC, when Artaxerxes II took over the throne, we are driven back to 590 BC for the beginning of Cyrus in Persia.¹⁹ This is *30 years* too early by comparison to the later accepted date of 560/59 BC for the same event.

Now among the data of Manetho concerning the ancient Egyptian dynasties (not all of which were of equal strength as we judge today), there was a list of the 27th Dynasty which was made up of Persian kings. In the 'scientific' eye of Eratosthenes, as one can only imagine, this list, collected and translated from original native sources, had to cancel Ctesias' Persian table at a stroke. The total was significantly shorter. Of course the 27th Dynasty in Manetho began only with the conquest of Egypt by Cambyses, but the correct length of Cyrus' and Cambyses' reigns must have been readily available to Eratosthenes from old Herodotus (1. 214; 3. 66–67). The latter may have frequently been 'supplanted' in the scholarly circles of Alexandria and elsewhere,²⁰ but he had to be trusted on this point against the then

¹⁷ See Drews 1973, 104; Wacholder 1974, 114; Adler 1989, 17, 28; Verbrugge and Wickersham 1996, 27; cf. Braun 1938, 6–13; Macginnis 1988; Bichler 2004; Lenfant 2004; Stronk 2007.

¹⁸ See Kokkinos 2003, 9, n. 12. Note that the reign of Xerxes is given by Clement as '26 years' (*Strom.* 1. 21/ 128. 1 – apparently slightly corrupted), based on earlier chronographers who used Ctesias, despite the fact that in Clement's own time the figure of '21 years' had been established for Xerxes beyond any doubt by Ptolemy's Canon.

¹⁹ The same basically is the conclusion of Bonquet (1990, 13), who was forced to the slightly later date of 583 BC by employing the known figure of '21 years' for Xerxes. However, Bonquet was fully aware of the inflation in Ctesias' figures, and his article is a significant contribution.

²⁰ By 'supplanted' is not meant ignored or discarded, since Herodotus remained a vital read in the Hellenistic period (see Murray 1972; cf. recent bibliography in Hornblower 2006), but rather argued

current discredit of the Persian information in Ctesias.²¹ But unlike Herodotus whose last absolute date given was the ‘sixth year’ of Xerxes (7. 7, 20; 8. 51), while Thucydides had only referred to the ‘thirteenth year’ of Darius II (8. 58), Manetho continued his table of the Persian kings providing a sound link to Artaxerxes II’s accession in 404 BC (and beyond). All in all, the beginning of Cyrus rule in Persia for the first time was to be pegged firmly at 560/59 BC, which was sufficiently earlier than the beginning of Cyrus in Babylon (530/29 BC), as Claudius Ptolemy’s Canon was to confirm with astronomical evidence three-and-a-half centuries later.

Yet, despite the correction/reduction of 30 years at this level, it was unfortunately still felt obligatory to take a lead from Ctesias’ fantastical scheme for the periods before the Persian. Previously to Cyrus, Ctesias in his chronology had fitted the Median kings. This list has survived in Diodorus (2. 32. 6; 34. 1. 6):

(1) Arbaces	‘28 years’
(2) Maduces/Mandaukes	‘50 years’
(3) Sosarmus	‘30 years’
(4) Artias/Artykas	‘50 years’
(5) Arbianes	‘22 years’
(6) Arsaeus/Artaeus	‘40 years’
(7) Artynes	‘22 years’
(8) Artibarnas	‘40 years’
(9) Aspadas/Apandas = Astyages	LOST

The total here is 282, plus the ‘lost’ reign of Astyages. The length of this reign, being the last Median and known better to the Greeks, would hardly have been shorter than that in Herodotus – especially since Ctesias, like Herodotus, is known to have placed the entire history of Cyrus’ youth under Astyages (*FGH* 90 F 66). The reign of Astyages was ‘35 years’ long (Herodotus 1. 130), thus making the grand total 317. Adding this to Ctesias’ date of 590 BC for the beginning of Cyrus’ rule in Persia, the Fall of Nineveh would have been placed by Ctesias at 907 BC.

against on many issues. For example Herodotus as a ‘falsifier of fact but out of ignorance’ in Manetho’s work, see Dillery 1999, 97–98. Criticism of Herodotus had started implicitly by Thucydides (1. 20) and continued through Ctesias (who paradoxically belonged to Herodotus’ school), Aristotle, Timaeus and Manetho, to the substantial polemics of the Late Hellenistic and Roman periods (by Aelius Harpocration, Plutarch, Valerius Pollio and Libanius) – for example, see Evans 1968.

²¹ Slightly earlier than Manetho, Berossus had performed a similar feat with his research on Mesopotamian records revealing almost identical Persian figures. Yet, there does not seem to be evidence that Early Seleucid Berossus was used (or indeed that he was even available) in Egypt during the Early Ptolemaic period – all of his known fragments would seem ultimately to depend on Posidonius of Apamea (*ca.* 135–50 BC) with no earlier attestation (see Verbrugghe and Wickersham 1996, 27–31). As mentioned above, Hipparchus could have been the first to bring ‘Berossus’ type of evidence to Alexandria, but only shortly before Posidonius was born and thus a century too late to be used by Eratosthenes (*contra* Mosshammer 1979, 262; and Shaw 2003, 55, who follows him.).

Of course Eratosthenes could now differ by adding the same total to 560 BC, thus placing – we cannot but assume – the Fall of Nineveh at 877 BC instead. It does not matter whether Eratosthenes actually mentioned the Fall of Nineveh as such, since he could not but follow the overall structure of Greek chronography as it had been linked to the Eastern king lists by Ctesias. If this has to be so, it is ironic, and probably conspicuous, that Herodotus' total of 150 or 156 years for the Median empire had to be ignored here.²² It seems that reducing Ctesias' figures more drastically would have been politically incorrect in Hellenistic Alexandria, as the Greek past must at all costs have been kept as antique as possible to match the heavy competition from the newly discovered histories of the Eastern kingdoms.²³ Had Herodotus' total (vastly superior by comparison) being adopted at this point by Eratosthenes, the assumed date for the Fall of Nineveh would have been placed as late as 710 or 716 BC (modern 612 BC).²⁴

Previously to the Medians, Ctesias in his chronology had fitted the Assyrians. His list of kings was totally artificial, constructed out of 'generations' (*geneas* as he admits) of fathers followed by their sons – eight generations back to the Trojan War, 22 back to the beginning of the empire, 30 in all. The precise list cannot be recreated with confidence, but it does not matter since the total figure has been preserved and we can easily guess at the way it worked. Diodorus in 2. 21. 8 (all manuscripts) tells us that Ctesias had the Assyrian empire lasting 'more than 1360 years', and thus a number less than 1370 is called for. But we should note that this number in Diodorus 2. 28. 8, has been rounded off to 'more than 1300', as it became convenient to later chronographers. While king no. 1 was 'Ninus' who started in Year 1, king no. 22 was 'Teutamus' under whom the Trojan War took place in Year 1000+ (Diodorus 2. 22. 2), and king no. 30 was 'Sardanapallus' whose capital fell in Year 1360+ (Diodorus 2. 23. 1). Thus there were more than 360+ (and less than 370) years between the Fall of Troy and the Fall of Nineveh. The number represents eight or nine generations (kings nos. 22 to 30), depending on inclusive reckoning, and

²² The individual reigns in Herodotus 1. 107 (Deioces 53, Phraortes 22, Cyaxares 40, Astyages 35) add up to 150 years, which include (*syn*) the 28 years of Scythian domination during Cyaxares' reign. Yet, Herodotus 1. 130 gives '128 without (*parex*) counting the Scythian rule', i.e. a total of 156 years (*cf.* Drews 1969, 7–8; Helm 1981, 90, n. 28). The attempt of Scurlock (1990) to add the 28 years to the figure of 150, ending with 178 years in all, unfortunately ignores Herodotus' total.

²³ Chronology as an apologetic tool, which came to the fore particularly in the disputes between Greeks and Jews, see Wacholder 1968; and note the term used by Mendels (1990, 106): '... the "grand debate" of the Hellenistic period, namely the debate on inventions, priority of origins and cultures.' Josephus' first book *Against Apion* is the best illustration of the 'who is older' competition which took dimensions in the Early Hellenistic period. Chronological propaganda was of course on the cards much earlier (see Boer 1956).

²⁴ See below n. 33.

for Ctesias each generation must obviously have had to be either 46 years ($8 \times 46 = 368$) or 41 years ($9 \times 41 = 369$) – the first being a recognisable unit of ancient generational count, even if among the highest proposed.²⁵ So, assuming that the original number was ‘368’, adding it to 907 BC (Fall of Nineveh) Ctesias would have dated the Fall of Troy to 1275 BC.

Different dates had already been put forward for this event by the time of Ctesias (*ca.* 400 BC) – for example by Hecataeus (*ca.* 520 BC), Pindar (*ca.* 475 BC), Democritus (*ca.* 440 BC), Herodotus (*ca.* 430 BC) and Thucydides (*ca.* 415 BC).²⁶ Herodotus seems to have known two low (in the 10th century BC) and one high date (in the 13th century BC),²⁷ but Ctesias was determined to support the ‘higher’ chronology – Herodotus (2. 145) gave a rough figure for it between 800 and 900 years before his time of writing, that is to say between *ca.* 1330 and 1230 BC which is perfectly comparable to that of Ctesias. Indeed 1275 BC could have been Herodotus’ own placement of Troy’s fall (see Appendix 2). This date did not automatically go down well with Ctesias’ successors. The chronographer of the Parian Marble (264/3 BC) clearly had to employ the rounded figure of ‘300’ (Diodorus 2. 28. 8) in place of Ctesias’ original ‘368’, to arrive at 1208/7 BC for the Fall of Troy ($907 + 300 = 1207$).²⁸ But what would Eratosthenes have done with the Trojan War having presumably reduced (as required by his scheme) the Fall of Nineveh to 877 BC? We know that Eratosthenes dated the Fall of Troy to 1183 BC,²⁹ so evidently he

²⁵ See Jacoby 1902, 39; *cf.* Boncquet 1990, 15.

²⁶ Panchenko (2000) has reviewed expertly the dates of the early writers known to us, turning Democritus into the champion of a middle (or low-middle) chronology for the Fall of Troy (1151/0 BC). The present writer would differ to his approach, believing that Democritus’ date was probably 1171/0 BC (*cf.* Mansfeld 1983), but he would still be champion of such a chronology, as no one is known in the 5th century (Hecataeus belongs mostly to the 6th) to have supported a lower date.

²⁷ As shown appropriately by Burkert (1995). The two low chronologies (one involving Egyptian ‘Proteus’ and the other Hecataeus’ private genealogy) were almost certainly interdependent. The present writer would differ from Burkert only in his count of generations between Proteus (no. 334) and Psammetichus (no. 342), which are eight rather than ‘seven’, and thus 266 years added to 670 BC (the beginning of Psammetichus’ reign according to Herodotus) will place the Trojan War at 936 BC (rather than 910 BC).

²⁸ It should be stressed that events in the Parian Marble before the Battle of Salamis are consistently dated *inclusively* from the baseline of 264/3 BC, thus ‘217 years’ as stated (not 216) lie between archon Diognetus (264/3 BC – *FGH* 239 A/1 intro.) and archon Calliades (480/79 BC – *FGH* 239 A/2, 51). In modern calculations it would be easier to add the Parian’s stated sums to a baseline of 263/2 BC, so ‘945’ years to the Fall of Troy (*FGH* 239 A/1, 24) would be 1208/7 BC. Burkert (1995) laments the ‘inconclusive explanations’ offered in regard to Parian’s chronology – for an attempt, see Piérart 1989.

²⁹ Usually given as 1184/3 BC, but Clement of Alexandria (*FGH* 241 F 1a), our main source for Eratosthenes’ date, gives the added figure of 860 years before 323 BC (the death of Alexander), which is precisely 1183 BC. Censorinus (*FGH* 241 F 1c) agrees placing the event 407 years before Year 1 of Olympiad 1 (776 BC). Dionysius of Hal. (*FGH* 241 F 1b) calculates to 1184 BC, while Clement in another fragment (*FGH* 241 F 1d) to 1185/4 BC after emendation.

employed a figure of '306' instead. Although this may be thought to be a number corrupted gradually in the manuscripts of Ctesias – from '360' to '306' to '300' – it seems rather an intentional calculation on the part of Eratosthenes. It accounts exactly for 9 generations of 34 years. Adding six years to the rounded number of '300' is also closer to the 'more than 300' as Diodorus says. Hecataeus' reckoning of three generations per century, as transmitted by Herodotus (2. 142), or mathematically 33.33 per generation, is a number liable to be rounded off as 34. Indeed Agathias (*ca.* AD 560) cites Ctesias for the duration of the Assyrian empire as lasting '1306 years' (*Hist.* 2. 25. 4). Also the figure '306' (nine generations \times 34) itself might not have appeared solely in Eratosthenes. According to Burkert, Dicaearchus of Messene (*ca.* 300 BC) may have used it earlier to date the Fall of Troy '306 years before the first Olympiad' (*Bios Hellados* = Fr. 58a Wehrli), thus $776 + 306 = 1082$ BC – the lowest estimate available in antiquity for this event after that of Hecataeus.³⁰ After reducing the Persian baseline by 30 absolute years, Eratosthenes could not have afforded to operate with one of the longest generation units (46 years) used by Ctesias for the Assyrian period, and so he would have switched to one of the shortest, that of Hecataeus found in Herodotus ($33\frac{1}{3}$ years). The Parian chronographer had no such concern as he refrained from dating the beginning of Cyrus in Persia.³¹ Therefore, the difference between Eratosthenes' new date for the Fall of Troy (1183 BC) and that of the Parian chronographer (1207 BC) was basically Eratosthenes' reduction of the Persian baseline by '30 years' – minus the added six years to the Assyrian period before the Fall of Nineveh (required by the nine generations recorded in Ctesias).³²

³⁰ Smethurst (1952, 224) believed that Dicaearchus 'exerted considerable influence on Eratosthenes'. However, the reading '306' (rather than '336?') seems to be Burkert's emendation (1995, 143), the scholion on Apollonius Rhodius itself has '436' as given by Ax (2000, 342, n. 15). This is not to say that in Ax's case another emendation is not required elsewhere in the text, for the total ('2943') of MS *L* is indeed emended (see Mirhady 2001, 68, F 59). Admittedly, nevertheless, the reading '436' does indeed work without emendation with the total ('2936') of MS *P* – not mentioned by the editor despite his potentially brilliant reconstruction of the 'Sampi' digit in the number. At all events, it must be noted that the appearance here of Olympiad reckoning (if not retrospective on the part of the Scholiast) is earlier than Timaeus as discussed above.

³¹ Writing before Eratosthenes, the Parian chronographer would not be in the position to challenge Ctesias' Persian figures, though he must have been aware of the problem of absolute chronology. Following Ctesias he accepted a length of 31 years for Darius I, but nevertheless he placed them (inclusively) between 519/8 BC ('[2]56 years' + 263/2 BC – *FGH* 239 A/2, 44) and 489/8 BC ('[2]26 years' + 263/2 BC – *FGH* 239 A/2, 49), whereas Ctesias would have required something like 541–511/0 BC. Thus in absolute terms the Parian, evidently following Herodotus (and possibly Berossus?), was not at this point far off modern chronology, which puts Darius I between 522 and 486 BC!

³² Would Eratosthenes have had some knowledge, direct or indirect, of the work of the Parian chronographer? Interestingly, it is said that he knew the younger Euenos of Paros, presumably a poet like the elder Euenos (*FGH* 241 F 3).

Given the unreliability of Ctesias, the question arises as to what date could have been produced for the Fall of Troy, if only the length of Herodotus' Median empire was to be adopted (while using Eratosthenes' assumed '306' figure for the Assyrians back to Teutamus). The answer is that Eratosthenes, as already mentioned, could have added Herodotus' 150 or 156 years to 560 BC, arriving at a date of 710 or 716 BC for the Fall of Nineveh, to which the '306' years would have set the Fall of Troy at 1022 BC or 1016 BC. It must simply have been a matter of contemporary politics that one of these lower dates did not become universal instead of 1183 BC. Of course today, thanks to documentary discoveries (ancient copies of Babylonian Chronicles), we actually know that Nineveh fell in 612 BC.³³ Had Eratosthenes known this, and had he had the courage to ignore Hellenistic cultural tensions which required an 'older' chronology for the Greeks,³⁴ whatever Assyrian number was to add from Ctesias (300, 306, 360, 368), the Trojan War would have turned out to be an event of the 10th century.

In fact, such an estimate was not beyond the earliest Greek intellectual imagination, based on a rough calculation of traditional genealogy. For example, Hecataeus claimed a 'divine' ancestor in the 16th generation (Herodotus 2. 143), that is to say between two and three generations before the Trojan War – no mingling of divine and human was allowed after this cataclysmic event.³⁵ Hecataeus' ancestors during the *Troika*, would be between the 14th and the 13th generations, the Fall of Troy registering approximately at the middle point of the latter. If Hecataeus wrote in *ca.* 520 BC, having visited Egypt in *ca.* 530 BC (most likely before the Persian conquest of 525), he would have been born around 560 BC. Applying his rule of $33\frac{1}{3}$ years per generation we have the following table:

Gen. 1 ends <i>ca.</i> ?	(Death of Hecataeus)
Gen. 2 ends <i>ca.</i> 560 BC	(Birth of Hecataeus)
Gen. 3 ends <i>ca.</i> 593.33 BC	
Gen. 4 ends <i>ca.</i> 626.66 BC	
Gen. 5 ends <i>ca.</i> 659.99 BC	
Gen. 6 ends <i>ca.</i> 693.32 BC	
Gen. 7 ends <i>ca.</i> 726.65 BC	
Gen. 8 ends <i>ca.</i> 759.98 BC	
Gen. 9 ends <i>ca.</i> 793.31 BC	
Gen. 10 ends <i>ca.</i> 826.64 BC	

³³ See Grayson 1975, 38–52.

³⁴ See above n. 23.

³⁵ It was suggested by Burkert (1995, 143–44) that by example of the 'Neileids' of his home town Miletus, Hecataeus' Trojan War would have taken place between the third and fourth generations after Poseidon – Nestor and his sons fought at Troy.

Gen. 11 ends	ca. 859.97 BC	
Gen. 12 ends	ca. 893.30 BC	
Gen. 13 ends	ca. 926.63 BC	
<hr/>		ca. 943 BC (Fall of Troy)
Gen. 14 ends	ca. 959.96 BC	
Gen. 15 ends	ca. 993.29 BC	
Gen. 16 ends	ca. 1026.62 BC	(Divine Ancestor)

This artificial table clearly reveals a perceived date of *ca.* 943 BC for the Fall of Troy, which is very close to the *ca.* 936 BC date extracted from the Egyptian 'Proteus' chronology also put forward by Hecataeus.³⁶ Other Greek private genealogies of the 6th century BC indeed pointed to the middle of the 10th century BC for the Trojan War, for example that of the Philaids (*FGH* 3 F 2).

In conclusion a 'low' chronology of approximately *ca.* 940 BC came first, but soon had to become 'high', raised to *ca.* 1275 BC, in the ensuing competition at the meeting of the Greeks with the older eastern cultures. Up and down it went, when by setting the Fall of Troy '1000 years' before the Crossing of Alexander to Asia in 335/4 BC, Douris of Samos (*ca.* 300 BC) satisfied himself in reaching the ultimate date of 1335/4 BC for the earliest historical event of Greece (*FGH* 76 F 41). Presumably this was now deservedly 400 years earlier than Hecataeus' original estimate! By comparison, Eratosthenes was being 'scientific' to having to bring the date down to a compromising 1183 BC. From the Biblical point of view, supported by the Tyrian Annals (now linked to Mesopotamian chronology), a more realistic absolute dating had also begun to be created, by which the beginning of the kingdom of Judah was being reduced to the 10th century. This we still follow today.³⁷ The famous king Solomon had therefore to be alive during the Trojan War as dated by Hecataeus! Clement of Alexandria (*Stromateis* 1. 21/ 114. 2; 117. 6; 130. 2), of course, did not miss the opportunity to underline such 'discovered' a synchronicity based on Phoenician evidence: 'Hiram gave his daughter to Solomon about the time of the arrival of Menelaus in Phoenicia, after the capture of Troy, as is said by Menander of Pergamus, and Laitus in *The Phoenicia*'. To follow the development of ancient chronography from Greece to Egypt to Babylon to Tyre to the Bible is a fascinating journey, much understudied in its wider implications, for which more will have been written elsewhere.

³⁶ See above n. 27.

³⁷ See recently Galil 1996.

APPENDIX 1

A 'Dark Age' by Circular Argument

After a long journey, ancient chronography came to agree on a 'high' date (1183 BC – though in fact 'middle', as even higher figures had been proposed) for the Fall of Troy, the earliest event which could be accepted as 'history' by Greeks. This philological date played a misleading role at the beginning of the modern debate on the Greek archaeological 'Dark Age' near the end of the 19th century. Although this is not the place to go into the complex historiography of ancient chronology as a subject,³⁸ a brief clarification of what is meant by 'misleading' will be in order following the suggestion of one of the anonymous referees of this journal. At the inception of the era of excavations the only background dating available for the period before *ca.* 700 BC was *philological* (ancient literary texts and surviving ancient documentary evidence), in combination with partly dependent *astronomical* theories. Out of these was slowly developed a new method of dating: *archaeological* – as stratified pottery was linked to philological evidence and thus placed in 'exact' time. Whole or part dependence on ancient chronography is therefore beyond doubt at this stage. In recent decades an unthinkable method of absolute dating (or a combination of two) has been introduced: *scientific* – radiocarbon dating and dendrochronology are meant to be totally independent at least in principle. This will be mentioned last.

In the case of Greece, local archaeological evidence could not be placed correctly in time until W.M.F. Petrie at the turn of the 20th century announced his discoveries of stratified Mycenaean pottery in Egypt.³⁹ This led to a large amount of Greek material which was previously thought to date centuries later being backdated to earlier centuries leaving a void behind. In terms of 'relative' chronology this was perfectly legitimate, even if this was now making Greek archaeology directly dependent on the 'absolute' dates of Egypt. A question, nevertheless, became immediately obvious: on what were Egypt's absolute dates based? Egyptian archaeology was dated by links to the *philological* evidence of the Egyptian 'Dynastic' system. This system was made up from ancient textual (primarily Hellenised Manetho) and documentary (surviving native monuments) evidence, in combination with partly depended *astronomical* theories. When using the monuments, however, the task had been one of putting flesh on the already 'established' Manethonian chronology. The order of the dynasties as set by Manetho was basically followed, with various adjustments of the individual reign lengths. Astronomical theories, such as Sothic dating, added an illusory dimension.⁴⁰

³⁸ A convenient summary is found in James, Thorpe, Kokkinos, Morkot and Frankish 1991a, 6–26. See particularly Barr 1985; Grafton 1993.

³⁹ Petrie 1890; 1891; *cf.* his address to the Egypt Exploration Fund in 1901 (Drower 1985, 263–64).

⁴⁰ Particularly after the publications of James *et al.*, Sothic chronology has been begun to be sidestepped by Egyptologists – for further critiques, see Rose 1994; Schaefer 2000; O'Mara 2003; but contrast Depuydt 2005. One is reminded of Gardiner's familiar statement (1961, 148): 'To abandon 1786 BC as the year when Dyn. XII ended [based on Sothic dating] would be to cast adrift from our only firm anchor, a course that would have serious consequences for the history, not of Egypt alone, but the entire Middle East.' The consequences have been shown to be much broader than Gardiner could anticipate.

But nothing changed the fact that a ‘preconceived’ chronological framework (precisely that of ancient chronography) was systematically being promoted and it was never denied.⁴¹

Manetho’s text, in the bare fragments transmitted to us, carried a date for the Fall of Troy close to the ancient Greek consensus: 1195/4 or 1194/3 BC (based on Timaeus).⁴² This date was linked to the end of the Egyptian 19th Dynasty (Fr. 55 Waddell), either by Manetho himself or by one of his ancient copiers – but this does not matter in the present context. Inevitably any discovery of Greek pottery associated with material belonging to the 19th Dynasty would automatically transfer Manethonian ‘absolute’ dates (bolstered by the monuments and astronomical theories) to the Greek pottery, labelling it as product from approximately the time of the Trojan War. In the short run, Petrie’s discoveries had exactly this effect. C. Torr objected to the avalanche caused by Petrie, but clearly on the wrong archaeological grounds.⁴³ As we can judge today the ‘relative’ chronology of Petrie was definitely necessary. However, Torr was right in demanding that Egyptian ‘absolute’ chronology should first be demonstrated on a ‘dead-reckoning’ principle: working back from the known to the unknown, adding the highest reign lengths present in the monuments for individual pharaohs, and determining their true succession, while ignoring Manetho and astronomical theories. Strong arguments against the misleading ‘high’ dates of ancient chronography (rediscovered since the 16th century by J. Scaliger and D. Petavius), were not new and had been put forward already by I. Newton in the 17th century.⁴⁴ Torr even offered his own ‘dead-reckoning’ by the monuments which led to a much shorter Egyptian chronology, which would have allowed the Trojan War to have fallen close to the turn of the 10th century BC. As was expected, and only with one exception,⁴⁵ Manethonian Egyptology soon rejected Torr. Thus in a circular fashion, a notorious practice often in archaeology, Greece basically received Greek inflated philological dates via Egypt to assign ‘correctly’ in time its own Greek archaeological material! The last comment of Petrie seemed to fail even to hide the circularity: ‘After seeing the archaeological evidence and their unanimity, we may perhaps begin to grant some probability to the legendary Greek chronology.’⁴⁶ The resulted hiatus, the so-called ‘Dark Age’, created a battlefield for the following generations of Greek archaeologists in their effort to fill it up. This effort continues.⁴⁷ Petrie’s gift to Greece was ‘relatively’ valuable and under the circumstances ‘absolutely’ useless.

⁴¹ The grave uncertainties about the astronomical chronology which was then used to back Manetho had been clearly admitted at the very time Petrie was firing at Greece (for example Griffith 1900).

⁴² See above n. 11.

⁴³ Torr 1896; after exchanges with opponents lasting for several years, see Torr 1902.

⁴⁴ Newton 1728.

⁴⁵ Lieblein 1914.

⁴⁶ Petrie 1891, 205. Surprisingly this circular argument was still not apparent in 1971 to Snodgrass (2000, 12): ‘If these traditional dates, as most scholars seem to assume, were reached only by the ramshackle structure of the Spartan pedigree, with forty years to its generation, then their accuracy is a remarkable coincidence.’ Snodgrass’s discussion of chronography (2000, 10–16), includes some excellent and honest statements about a subject he is struggling to bring into line. Also note Cartledge (2002, 297–98), in reference to the congruence between pottery and pedigrees, who says: ‘we cannot pretend that in the present state of our knowledge this is much more than a happy coincidence.’

⁴⁷ This period has been filling up to such an extent with archaeological material dated ‘absolutely’ by circular arguments, that Snodgrass (2000, xxiv) in his new edition of *The Dark Age of Greece* now regrets not having originally (1971) named the book *The Early Iron Age of Greece*. Despite the rhetoric – lacking an absolute date – Snodgrass is wise in keeping presently the old title.

K. Kitchen, today's leading Egyptologist, believes that conventional Egyptian chronology can after all be demonstrated by 'dead-reckoning' backwards without dependence on external sources.⁴⁸ Yet, this is wishful thinking. Kitchen simply borrows from biblical chronology via a hypothetical identification of Pharaoh Shoshenq I (22nd Dynasty) with the infamous 'king Shishak', whose invasion of Judah is dated to 926/5 BC (1 *Kings* 14:25, written not earlier than the 7th and probably in the 6th century BC).⁴⁹ Biblical (*philological*) chronology is basically sound back to the 10th century BC – in parallel to the Tyrian Annals – being linked to Mesopotamian chronology which is established at least back to 911 BC (pegged *astronomically* to an eclipse of the sun on 15 June 763 BC mentioned in the Assyrian eponym list).⁵⁰ But apart from the phonetic similarity, Shoshenq I and 'Shishak' (arguably the Pharaonic nickname 'Sesi' abbreviated from 'Ramesses', as we know in the case of Ramesses III of the 20th Dynasty) are almost certainly two different individuals, as their records of campaign and other evidence suggests. In sum, even if many Egyptologists would still not openly admit, Egyptian chronology has been irreparably eroded not only by the uncertainty of its Sothic dating, not only by the exposure of its claim not to be depended on a hypothetical identification in the Bible, but now also by being shown to have basically been built around the inflated ancient Greek chronographic tradition.

Finally, what is the position of the new *scientific* methods of dating? Despite the scientific hype (much of which is accepted but not really understood by field archaeologists), radiocarbon and dendrochronology are not yet capable of supporting Egyptian conventional chronology which would agree with Manetho (placing the Fall of Troy in the 12th century BC) as against Hecataeus (placing it in the 10th century BC). In fact some recent interpretations of 14C and dendro results, are steadily pushing for even 'higher' dates which in effect support the fantasies of Ctesias (placing the event in the 13th century BC)!⁵¹ It is not possible here to enter discussion on the 'probabilistic' statistics applied to scientific methods which have a series of inbuilt uncertainties – from the field to the lab and inter-lab to the trees and stratosphere to pottery association and stratigraphical interpretation.⁵² Immense caution, and as much common sense, can only be suggested for the time being.

⁴⁸ Kitchen 1991; *cf.* replies by James 1991; James and Morkot 1991; James, Thorpe, Kokkinos, Morkot and Frankish 1992; see now the revision of Kitchen 2007.

⁴⁹ For comments to Kitchen's scheme, see James and Kokkinos 2000; the Egyptological hypocrisy on this point has also been noted by Hughes (1990, 190), Barnes (1991, 66–67) and Galil (1996, 16). In his new preface, Kitchen (2006, xx) accepts that his scheme is based on an 'Assyrian-backed Hebrew synchronism'.

⁵⁰ See Galil 1996. After the publications of James *et al.*, excavated material in Israel previously thought to belong to the 10th century BC were down-dated to the 9th century by Finkelstein and his school (for example Finkelstein 1996). This is a step in the right direction, creating a fully expected *archaeological* 'Dark Age' (parallel to that of Greece), however, at the unexpected *philological* (-*cum-astronomical*) time of famous Solomon. Unfortunately previous centuries were not also possible to be down-dated by Finkelstein, evidently due to the assumingly 'forbidding' Manethonian chronology of Egypt which provides dates to the local archaeology of these centuries. Only when this is realised, harmony will be achieved in Israel (as much as in the entire Mediterranean).

⁵¹ For example Newton, Wardle and Kuniholm 2003, 188; in a sharp contrast 'low' 14C results are also been advocated, see Piasetzki and Finkelstein 2005.

⁵² James, Kokkinos and Thorpe 1998; James 2002; see also the writer's views on the problems of 14C for *internally* dated material such as the finds from the Judaean Desert, in Doudna 2002; for scientific criticisms, see Keenan 2002; 2004; for critical comments on the 'high' dates, see also Bietak 2004.

APPENDIX 2

Herodotus' Date of the Trojan War

D. Asheri estimated correctly Herodotus' placement of Troy (2. 145) as 'ca. 1280–1270 a.C.',⁵³ a date which would have been worked out with the aid of the Spartan king lists (Herodotus 7. 204; 8. 131). With Leonidas as king no. 21, who died in 480 BC, and Heracles as no. 1, who was one generation before the Trojan War, the event would have been dated $20 \times 40 = 800$ years earlier. The 40-year-long generation should then have been a departure from Hecataeus' 'three generations per century' (Herodotus 2. 142),⁵⁴ causing a 'high' chronology which must first have been proposed after Hecataeus (ca. 520 BC) and before Herodotus (ca. 430 BC). Yet, in the present writer's opinion, Pindar (ca. 475 BC) already knew the '1275' placement, and while sticking to the 'three generations per century', he accounted for it with the addition instead of *extra* generations: 25 generations minus 1 = $24 \times 33\frac{1}{3} = 800 + 475 \text{ BC} = 1275 \text{ BC}$ (*Pythian Odes* 4. 10, 65) – or conveniently 24 generations divided by three per century = $8 \times 100 = 800$. In the period between Hecataeus and Pindar, one of the names that might be suspected as the inventor of the 'extra' generations (and thus directly or indirectly of the 'high' chronology itself) is Acusilaus of Argos, or else Hellanicus if older than Herodotus (see Dionysius *Epist. ad Cn. Pompeium* 3). The general conclusion has already been put squarely by R. Ball:

We seem to have a choice between supposing with E. Meyer that the dates for Herakles and the Trojan War were based on the Spartan king lists, and therefore were worked out on the basis of a forty-year generation which is more or less what is needed, or believing that these dates are worked out on the basis of 'three generations to 100 years' but according to some genealogy which we do not have.⁵⁵

Whichever way it was done, we can now say that the 'high' date arrived at for the Fall of Troy was 1275 BC. R. Fowler believes that the 'three-generations-to-the-century' formula was Herodotus' own, but it did not occur to him to apply it to the Spartan king lists, although he did to the ancestors of Agron of Sardis arriving at a date of 'ca. 1330' for Heracles.⁵⁶ But apart from the fact that a 30-year generation was already known before Herodotus to Heraclitus in ca. 500 BC shortly after Hecataeus,⁵⁷ and that Fowler's calculation via Sardis should actually be closer to ca. 1350,⁵⁸ it sounds as special pleading that again would not occur to Herodotus this time to apply the 23-years-per-generation formula evident in the calculation of Agron's own descendants (Herodotus 1. 7). It does not really matter whether the descendants were supposed to form a king list rather than a genealogy, since a formula could still be created from the total number of years (505) given by Herodotus (1. 7).⁵⁹

⁵³ Asheri 1983, 53. It is also the date of Ps.-Herodotus (*Homer* 38), who gives 168 years before Homer, who lived 622 years before 480 BC. This work seems to date no later than AD 150.

⁵⁴ See also Panchenko 2000, 70.

⁵⁵ Ball 1979, 278.

⁵⁶ Fowler 1996, 75.

⁵⁷ See Fränkel 1938; cf. Hesiod *Works and Days* 605–705.

⁵⁸ See Prakken 1943, 21–24.

⁵⁹ Cf. Keyer 1986, 233, n. 17.

Nevertheless, there may be a problem worth considering here. How can we be sure that the '22 generations' of Heraclidae, were not meant originally to be going back to Heracles himself (like the Spartan king lists), rather than only to Agron according to Herodotus understanding? In such a case, adding the total of the Mermnads (170 = Herodotus 1. 14, 16, 25, 86) to the baseline of 548/7 BC for the fall of Sardis (Olympiad 58.1, at least according to Latin Eusebius⁶⁰), as well as then adding the total of the Heraclidae (505 = Herodotus 1. 7), we are driven back to 1223 BC for Heracles (*cf.* Velleius 1. 2. 3) and 1183 BC for the Fall of Troy – one generation of 40 years later. This surely must be striking, as the latter date happens to be precisely that of Eratosthenes! Rather than suggesting an even higher Herodotan chronology for the Fall of Troy, perhaps Fowler should have investigated the reception of Herodotus' data and the assumptions that could be made upon them by subsequent historians and chronographers. What started as 'low' in Hecataeus and found to be 'high' in Herodotus could have ended as 'middle' in Eratosthenes. This may not be an alternative way to the latter's outcome, but rather a complementary and confirmatory one.

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Abbreviations

CQ *Classical Quarterly*.

TLS *The Times Literary Supplement*.

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⁶⁰ See now Kokkinos 2009.

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