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Measuring the End: Heraclitus and Diogenes of Babylon on the Great Year and *Ekpyrosis*

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Abstract: This paper first examines surviving testimonies on the doctrine of the Great Year in Heraclitus and attempts to demonstrate the reliability of Aëtius' version handed down by the mss., according to which the Great Year is equal to 18,000 solar years. On the basis of such evidence it is also possible to newly examine Diogenes of Babylon's views about this topic. In the second part, the paper better defines the relationship between the Great Year and the theory of cosmic conflagration. It argues that in the sources at our disposal there are enough elements to credit Heraclitus with the doctrine of *Ekpyrosis*, although, in all probability, the philosopher never provided an in-depth description of it. Finally, the same problem is analysed in relation to Diogenes of Babylon. In the most mature phase of his career, this Stoic departed from the *Ekpyrosis* doctrine of the early Stoics and especially of his master Chrysippus. The paper formulates some hypotheses on the reasons for this choice (arguing that it most probably reflects an original attitude towards Heraclitus on Diogenes' part) and highlights that it was hardly an isolated, 'heterodox' stance during the final phase of the early Stoa.

Keywords: cosmology; Diogenes of Babylon; early Stoicism; *Ekpyrosis*; Great Year; Heraclitus

1 Heraclitus and Diogenes of Babylon on the Great Year: A Reappraisal

In the final chapter of Book 2 of the *Placita*, Aëtius collects a series of cosmological *doxai* concerning the duration in solar years of the revolution of the planets and the so-called

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Great Year. As for the first point, in §1 the doxographer specifies the duration of the year for Saturn (30 years), Zeus (12 years), Mars (2 years), the Sun, Mercury and Venus (12 months),¹ understood as the duration of their revolution around the Earth, obviously within a geocentric astronomical model. As for the Great Year, in §2 Aëtius gives a very generic definition of it: the Great Year has run its course the moment when the planets reach the position from which they set out (γίνεσθαι δὲ τὸν λεγόμενον μέγαν ἐνιαυτὸν, ὅταν ἐπὶ τοὺς <αὐτοὺς> ἀφ' ὧν ἤρξατο τῆς κινήσεως ἀφίκωνται τόπους). In the rest of the chapter Aëtius clearly distinguishes two types of Great Year:² a) a shorter one, namely the period in which the solar cycles perfectly coincide with the lunar ones (§§3–6); and b) a longer one (the Great Year proper), which measures the period in which the conjunction of the revolutions of the seven planets takes place (§§7–10). The Luni-Solar Year is said to be equal to eight years by some (§3), and by others to nineteen (§4), seventy-six (§5) or fifty-nine (§6—a *doxa* explicitly attributed to Oenopides and Pythagoras). As for the second type of Great Year, in §7 Aëtius says that according to some people it falls in the period considered to be the starting point of time, that is, the moment when the seven planets return to the position they had when they first began to move (οἱ δ' ἐν τῇ λεγομένῃ κεφαλῇ τοῦ χρόνου, αὕτη δ' ἐστὶ τῶν ἐπτὰ πλανητῶν ἐπὶ ταύτῃ ἡμέρᾳ τῆς ἐξ ἀρχῆς φορᾶς ἐπάνοδοσ). However, only the last three paragraphs of the chapter provide precise numbers regarding its probable duration in solar years and only two of them attribute such a *doxa* to a specific philosopher: the first to Heraclitus of Ephesus, the second to the Stoic philosopher Diogenes of Babylon, one of Chrysippus' most prominent pupils and the successor of Zeno of Tarsus as fifth head of the school. The Aëtian passage that interests us runs as follows:

T1. Aët. 2.32.8–10 MR (II, p. 1114 = DG, p. 364)³

§8 Ἡράκλειτος ἐκ μυρίων ὀκτακισχιλίων ἡλιακῶν. (P₅, S₈)

§9 Διογένης ὁ Στωικός ἐκ πέντε καὶ ἐξήκοντα καὶ τριακοσίων ἐνιαυτῶν τοσοῦτων ὅσος ἦν ὁ καθ' Ἡράκλειτον ἐνιαυτός. (P₆, S₉)

§10 ἄλλοι δὲ δι' ἑπτακισχιλίων ἑπτακοσίων ἑβδομήκοντα ἐπτὰ. (P₇)

§8 Heraclitus [says that the Great Year consists] of 18,000 solar years.

§9 Diogenes the Stoic [says that the Great Year consists] of 365 years times what the [Great] Year was according to Heraclitus.

§10 But others [say that the Great Year occurs] every 7777 [solar years].⁴

1 The last three planets are associated in that they have the same speed (ισόδρομοι). Aëtius adds that the lunar cycle lasts 30 days, that is, the month that separates its appearance from its conjunction with the Sun.

2 Mansfeld/Runia (2020) II, 1118.

3 = 22 A 13 [I] DK (= fr. 65 [b] Marcovich = LM III 9 R64); Diog. Bab. SVF 3.28.

4 Transl. by Mansfeld/Runia (2020) IV, 2017.

The correct reconstruction of Aëtius' text on this important aspect of Heraclitus' physics is a *vexata quaestio*. At this point in the *Compendium*, we come across a problem that is not easy to solve. The mss. of Ps.-Plutarch (P) and Stobaeus (S) present the *lectio* ἐκ μυρίων ὀκτακισχιλίων (i.e., 18,000), which is confirmed by the parallel Arabic sources of the *Placita*⁵ and is followed by Diels in the *Doxographi Graeci*⁶ and in the editions of the *Vorsokratiker* following the first.⁷ In the first edition of the *Vorsokratiker* (1903), however, Diels accepted Tannery's conjecture ἐκ μυρίων ὀκτακοσίων (i.e., 10,800).⁸ This last conjecture is the one most commonly printed in Heraclitus editions, in which the Great Year is typically said to consist of 10,800 solar years. This is the case, for example, with the collections by Marcovich (fr. 65),⁹ Mouraviev (T 457)¹⁰ and, more recently, Laks and Most (III 9 R64).¹¹ In their new monumental edition of Aëtius, however, Mansfeld and Runia have (in my opinion, correctly) left the reading of the mss. unchanged, showing that, *at least for the doxographer (and his sources)*, the Great Year of Heraclitus was equal to 18,000 solar years.¹² Now, is it conceivable that Aëtius' version actually reflects Heraclitus' original opinion on the subject? I believe that it is worth checking the plausibility of a positive answer to this question, which is of considerable importance for our understanding of both Heraclitean and early Stoic physics. Indeed, the Great Year of Heraclitus is the only parameter by which we can calculate the one theorized by Diogenes of Babylon (and this, as we will see, is the only case in which we are able to attribute such a calculation to a Stoic philosopher).

In my opinion, in order to ascertain whether Aëtius is a reliable source on Heraclitus' Great Year, it is necessary to take the two following steps: 1) see if any of the other doxographical testimonies on the subject offer alternative versions that are irrefutably better and more reliable; 2) examine the historical-cultural

5 Cf. Qustā ibn Lūqā, p. 166.4–5 Daiber (1980) (= T 458 Mouraviev).

6 Diels (1879) 364.

7 Diels/Kranz (1951–1952⁶) I, 147.

8 Tannery (1887) 168, whose conjecture clearly aimed to homogenize Aëtius' *doxa* to Censorinus' testimony in T2.

9 Marcovich (2001²) 346.

10 Mouraviev (2000) 353.

11 It is curious that Laks/Most (2016) III, 271 accept the reading of the mss., but then translate 10,800. It is equally odd that they do not take Censorinus' testimony (T2) into account at all.

12 Mansfeld/Runia (2020) II, 1120: "(...) the mistake [*sc. 18,000 instead of 10,800*] could have occurred already in the doxographical tradition. Mindful that we *are* reconstructing A[*ëtius*] and not Heraclitus, however, we retain the mss. reading." (My additions in Italics).

set on fire.¹⁶ Aristarchus¹⁷ thought this took 2434 solar years; Aretes of Dyrrachium,¹⁸ 5552; Heraclitus and Linus,¹⁹ 10,800; Dion,²⁰ 10,884; Orpheus,²¹ 120,000; and Cassandrus,²² 3,600,000 years. Others think it is infinite and will never return.²³

A significant element should be highlighted at this point. In *De die natali*, Censorinus draws a clear distinction between theories on the duration of the Great Year (*Annus magnus*) and one on the duration of the Greatest Year (*Annus maximus*). Paragraphs 2–10 of chapter 18—that is, those that immediately precede the passage quoted above—are entirely devoted to the Great Year. Among the various theories specifically ascribed to Greek authors, there are, for instance, those of Philolaus (59 solar years), Callippus (76 solar years), Democritus (82 solar years),²⁴ and Hipparchus (204 solar years).²⁵ The section on the Great Year ends with a reference to the Egyptian calendar (1461 solar years).²⁶ It is strange that, before moving on to the theories on the Greatest Year, Censorinus does not mention Plato's Great Year (cf. below, § 3). But this is of secondary importance for our purposes. What interests us here is the second part of the testimony about the Greatest Year, where Heraclitus is mentioned together with Linus in relation to the claim that this Year consists of 10,800 solar years. A simple comparison of the two doxographical lists by Aëtius and Censorinus reveals numerous differences: in addition, for example, to the name-labels discrepancies between Aët. 2.32.5–6 and *De die nat.* 18.8, above all the absence of any distinction between *Annus magnus* and *Annus maximus* in Aëtius stands out. This shows that Censorinus did not depend on Aëtius, but on a parallel source.²⁷ I contend that this source is in all likelihood to be found in an eclectic author (not necessarily a doxographer) who tended, on the one hand, to present Heraclitus within an Orphic-mystery context and, on the

16 = Aristot. fr. 828 Gigon (= fr. 25A Rose = fr. 19A Ross). In the surviving Aristotelian works we find no explicit reference to the Great Year or the Greatest Year, not even in *Meteor.* 1.14.352a29–31, where only a great winter and floods are mentioned (οὐτῶ περιόδου τινὸς μεγάλης μέγας χειμῶν καὶ ὑπερβολῆ ὄμβρων). See de Callatay (1996) 32–42.

17 Tannery (1888) argues that the period of 2484 solar years (in fact, just a luni-solar cycle) attributed by Censorinus to Aristarchus of Samos is a mistake and needs to be corrected to 2434. See also Samuel (1972) 49.

18 This passage and *De die nat.* 21.3 are the only mentions of this author known to us.

19 = fr. 87 Bernabé (= fr. 8 West).

20 Sc. Dion of Naples. See Freyburger/Chevallier (2019) 102 n. 29.

21 = fr. 358 [I] Bernabé (= fr. 250 [I] Kern). See van der Waerden (1953).

22 Cf. Cic. *De div.* 2.88 (= Panaet. test. 140 Alesse).

23 Transl. by Parker (2007) 47.

24 Censor. *De die nat.* 18.8.

25 Ibid. 18.9.

26 Ibid. 18.10.

27 According to Mansfeld/Runia (2020) II, 1121–2, who follow Rocca-Serra (1980) IX on this point, “it is very likely that the material ultimately derives from the *Placita* tradition” (most probably via Varro).

other, to link the Orphic tradition with the Stoic one.²⁸ This sophisticated overlapping is the main reason why, in my opinion, Censorinus' version is less genuine than Aëtius'. But this obviously does not mean that Censorinus' source was necessarily a Stoic philosopher, as claimed by West, according to whom "there is a fair possibility that Censorinus' information about the length of the Great Year in Heraclitus and Linus was derived indirectly from Diogenes [of Babylon] himself."²⁹ In supporting this claim, West refers above all to an important fragment of Linus, which according to Stobaeus belongs to his poem *On the Nature of the World*. The fragment reads as follows:

T3. Stob. 1.10.5 Dorandi³⁰ (= I, p. 119.8 Wachsmuth)³¹

ὡς κατ' ἔριν συνάπαντα κυβερνᾶται διὰ παντός·
 ἐκ παντός δὲ τὰ πάντα, καὶ ἐκ πάντων τόπαν ἐστί.
 πάντα δ' ἐν ἐστίν, ἕκαστον ὄλου μέρος, εἰν ἐνὶ πάντα,
 ἐκ γὰρ ἐνός ποτ' ἐόντος ὄλου τάδε πάντ' ἐγένοντο,
 5 ἐκ πάντων δὲ ποτ' αὐθις ἐν ἔσσειται ἐν χρόνου αἴσηι,
 αἰὲν ἐν ὄν καὶ πολλά· καὶ οὐ κατὰ ταῦτόν ἀθρήσαι
 πολλάκι δ' ἔσται ταῦτά, καὶ οὐποτε πείρας ἐπεισιν
 αἰεὶ πείρατ' ἔχων· ἴπήιον γένος ἔλλαχε ταυτόντ.
 ὦδε γὰρ ἀθάνατος θάνατος περὶ πάντα καλύπτει
 10 θνητὸς ἐών, καὶ πᾶν θνήσκει φθαρτόν, τὸ δ' ὑπάρχον
 φαντασίαις τ' ἄλλο<ιο>τρόποις καὶ σχήμασι μορφῆς
 ἀλλάξει τρόπον, <ὡς> ἀποκρύπτεμεν ὄψιν ἀπάντων,
 ἄφθορον ἔσσειτ' ἐόν τ' αἰεὶ, καθὸ τῆιδε τέτυκται.

2 τόπαν Meineke : τὸ πᾶν FP : ὄλον West, coll. v. 3 || 4 ὁμοῦ dub. West || 6 ἀθρήσαι Heeren : -οῖσαι FP, damnat West || 8 ἔχων πήιον γένος ἔλαχε (sic) τούτων (τούτων F) FP : damnat West : ἔχων· ποῖον Grotius || ταυτόν Usener || 11 ἀλλοιοτρόποις Meineke : ἄλλοτρόποις FP.

So through discord all things are steered through all.
 From all are all things, from all things the all,
 all things are one, each part of a whole, all things in one;
 for from a single whole all these things came,

28 This is a trend that we find in Middle Platonism as well. Cf. Plut. *De def. orac.* 12.415F6–416A1 (= Orph. fr. 358 [II] Bernabé = fr. 250 [II] Kern): καὶ ὁ Κλεόμβροτος “ἀκούω ταῦτ” ἔφη “πολλῶν καὶ ὀρῶ τὴν Στωικὴν ἐκπύρωσιν ὡσπερ τὰ Ἡρακλείτου καὶ τὰ Ὀρφείως ἐπινεμομένην ἔφη οὕτω καὶ τὰ Ἡσιόδου καὶ συνεξάπτουσιν.” See Bernabé (1996) 68.

29 West (1983) 58. The hypothesis had already been put forward by Reinhardt (1916) 183–191, esp. 190, who thought that Diogenes of Babylon was the source not only for Censorinus, but also for Plutarch (cf. the previous note) and Aëtius. Against this thesis, see the well-founded objections by Mondolfo/Tarán (1972) 130–2.

30 I wish to thank Tiziano Dorandi for allowing me to view and quote this passage from Stobaeus according to his forthcoming edition. Since the passage is in some cases corrupt, I provide the reader with Dorandi's critical apparatus as well. At line 8, I prefer to leave the odd second hemistich between *cruces*.

31 = Lin. fr. 81 Bernabé (= fr. 2 West). Cf. Damasc. *De princ.* 25 bis (I, p. 67.13 Westerink).

- 5 and from all things in due time one will be again,
forever being one and many; and often it will not be possible
 [to view the same things according to the same thing.
And there will never be a limit
although it (sc. *kosmos/aion*?) always has limits; fit has been allotted
 [the same kind†.
- For so undying death covers all things,
10 although it is mortal. And all that is corruptible dies, and the substrate
by multiform appearances and patterns of shape
will change its form, so as to cover the sight of all things,
and it will always be uncorrupted, in the way in which it was fashioned.³²

There is no doubt that this passage by Linus is marked by significant Heraclitean echoes.³³ But I do not believe that, as West claims, there seems to be a relationship between Linus and Diogenes of Babylon “in developing Chrysippus’ theory.”³⁴ As we will see shortly, Diogenes belonged to the last generation of the early Stoics, a generation often engaged not so much in a moderate development of traditional theories, as in rethinking, reforming, and sometimes rejecting the foundations of Chrysippus’ physics, particularly his doctrine of cosmic conflagration (cf. **T16**). If so, Censorinus’ testimony cannot at all be regarded as more reliable (than Aëtius’) when it comes to the issue of the duration of the Great Year by Heraclitus, and—indirectly—by Diogenes of Babylon.

But let us now turn to the second general question: the Great Year in the Eastern World. In the non-Greek sources available to us, the Great Year is often associated with a natural catastrophe destined to end the world or with a cosmic conflagration. In the past it was argued that the natural catastrophe thesis belonged to Babylonian culture, while the idea of a conflagration belonged to Persian (and particularly Iranian) culture.³⁵ However, as van der Waerden has pointed out, the so-called ‘Persian System’ (i.e., conjunction of all planets in the year 3102 BCE as the mid-point in a cycle of 360,000 solar years-cycle) was not originally Persian, but was borrowed from Hellenic sources.³⁶ According to Marcovich, Heraclitus was most likely informed of both of these traditions,³⁷ the intertwining of which in many

³² My translation here follows—with several substantial changes and additions—West (1983) 57, which in turn is based on the conjectures proposed in West (1966) 155–6. I am grateful to David Konstan for helping me to better understand this difficult passage.

³³ Cf., e.g., 22 B 10 DK (= fr. 25 Marcovich); B 21 DK (= fr. 49 Marcovich); B 41 DK (= fr. 85 Marcovich); B 62 DK (= fr. 47 Marcovich); B 80 DK (= fr. 28 Marcovich).

³⁴ West (1983) 58.

³⁵ See van der Waerden (1952) 143–5 and West (1971) 190–2. Note that the modern Assyriological scholarship has shown that in the extant cuneiform sources there is no evidence of the existence of a Great Year.

³⁶ Van der Waerden (1978) 377.

³⁷ Marcovich (2001²) 347–8.

points is undeniable. But in Heraclitus' case I think that the sources suggest above all a link with the Babylonian world,³⁸ although van der Waerden does not exclude Indian influences (i.e., the *Mahâbhârata* and the *Laws of Manu*).³⁹

The origin of the Babylonian doctrine of the Great Year and its link with a natural disaster (a flood or conflagration) is attributed to a certain Berossus (or Berosus), a priest of the Babylonian god Bêl (Marduk) and the author of a work in three books entitled *Babylonian History (Babyloniaca)*. This was written in koine Greek and aimed at making the Greeks familiar with the history of the author's country and, above all, with its astronomical and astrological discoveries.⁴⁰ Berossus' (official) contacts with the Greek world are represented by his founding of an astrology school on the island of Kos (probably around 300 BCE).⁴¹ In Book 3 of the *Naturales quaestiones*, Seneca attests that Berossus endorsed the thesis that the destruction of the world will come about either through a conflagration or through a flood. Both of these catastrophic phenomena would be caused by the movement of the planets and their conveyance in the same constellation, namely: Cancer, in the case of the conflagration; Capricorn, in the case of the flood (as is widely known, Cancer is the zodiac sign which the Sun enters on June 21, whereas Capricorn is the one which it enters on December 21). Here is the relevant, if disputed, passage from Seneca:

T4. Sen. *Nat. quaest.* 3.29.1 Hine (p. 158)⁴²

Berosos, qui Belum interpretatus est, ait ista cursu siderum fieri. adeo quidem adfirmat ut conflagrationi atque diluio aequè tempus adsignet. arsura enim terrena contendit quandoque omnia sidera quae nunc diuersos agunt cursus in Cancrum conuenerint, sic sub eodem posita uestigio ut recta linea exire per orbés omnium possit; inundationem futuram cum eadem siderum turba in

³⁸ See, among others, van den Broek (1972) 75 and n. 2; see also Mansfeld/Runia (2020) I, 1116 and Viano (2021).

³⁹ Van der Waerden (1978) 360–1. See also van den Broek (1972) 92–4.

⁴⁰ On the *Babyloniaca* see, among others, Drews (1975) and Burstein (1980²). On Babylonian astronomy and the zodiac, I will refer to van der Waerden (1948), (1949), (1951), Hunger/Pingree (1999), Brown (2000), and Ossendrijver (2012) 32–5.

⁴¹ Cf. Vitruvius *De arch.* 9.6.2. In fact, the authenticity of this piece of news is debated. See van der Waerden (1978) 377. On the figure of Berossus, in addition to Schnabel (1923), see Schwartz (1897), de Breucker (2012), and the papers collected in Haubold/Lanfranchi/Röllinger/Steele (2013).

⁴² = Beros. *FGrHist* 680 F 21 (= *BNJ* 680 F 21 de Breucker = fr. 37 Schnabel [1923] 266–7). Immediately after this passage, Seneca dwells at length on the theories relating to the end of the world (*Nat. quaest.* 3.29.2–30.8). With regard to the idea of a cosmic conflagration, he notes: *et istas ego receperim causas (neque enim ex uno est tanta pernicies), et illam quae in conflagratione nostris placet hoc quoque transferendam puto: etc.* (ibid. 3.29.2). Note that the conflagration and/or the global flood is also discussed by Seneca in *Dial.* 6.26.6 and *Ben.* 6.22. However, the authenticity of the astronomical/astrological fragments of Berossus (*FGrHist* 680 F 15–22), and therefore of T4 as well, is a matter of dispute. For further critical insights, I will refer to Kuhrt (1987) and de Breucker (2013).

Capricornum conuenerit. illic solstitium, hic bruma conficitur, magnae potentiae signa, quando maxima in ipsa mutatione anni momenta sunt.

Berosus, who translated Belus, says that the movement of the stars is the cause of all this. He is so confident in his assertion that he gives a date for both the conflagration and the flood. He maintains that the earth will burn whenever all the stars that now have different courses converge in Cancer and are positioned beneath the same point, so that a vertical line can pass through all their spheres; a flood will occur when the same group of stars converge in Capricorn. The summer solstice occurs in the former constellation, the winter solstice in the latter; these are very powerful zodiac signs, since they are the most important turning points in the annual cycle.⁴³

As van den Broek observes, “these rather improbable theories were especially favoured among astrologers, since Greek astronomy had already reached a point of development at which the doctrines of Berossus could not be accepted.”⁴⁴ However, from a series of testimonies collected first by Schnabel and then by Jacoby⁴⁵ we learn that, in Book 2 of the *Babyloniaca*, Berossus strove to give an astronomical and mathematical foundation to his theses by trying to quantify the Great Year ‘scientifically’. In particular, he calculated that the total duration of the reigns of the 10 antediluvian Babylonian kings was 432,000 solar years, equal to 120 *šars*, the *šar* being a Babylonian numeral, meaning 3,600, which Berossus used as a numerical unit equal to 3,600 solar years. From the results of this calculation (which the most recent evidence has shown to be inaccurate⁴⁶), Berossus speculated that the antediluvian period of 432,000 solar years coincided with the Babylonian Great Year composed of 12 months: each month would therefore correspond to 36,000 solar years (= 10 *šars*).⁴⁷ The relationship between these data and the versions of Heraclitus’ Great Year in T1 and T2 is evident. In both cases 1 *šar* is a perfect multiple of both Aëtius’ figure (18,000 solar years = 5 *šars*) and Censorinus’ one (10,800 solar years = 3 *šars*). But even in this case, I consider Aëtius’

43 Transl. by Hine (2010) 49.

44 Van den Broek (1972) 74 with further bibliography in n. 4.

45 Beros. *FGrHist* 680 F 3 (= *BNJ* 680 F 3 de Breucker = frs. 29–30 Schnabel [1923] 261–3).

46 I will refer to the two cuneiform texts WB 62 and WB 444 (in fact two copies of the so-called ‘Sumerian King List’), preserved at the Ashmolean Museum in Oxford. On this point, see van den Broek (1972) 91 and n. 2, with further bibliography; for a recent re-edition and translation of these texts, I will refer to Glassner/Foster (2004) 117–26 (text 1: ‘Chronicle of the single monarchy’), with an overview of all the extant sources.

47 As van den Broek (1972) 91–2 points out, “from his [*sc. Berossus*]’ chronological system it can be derived that he thought that from the end of the flood to the death of Alexander the Great, 36,000 years or one month of the new world year had elapsed. It follows from this that he assigned a similar duration (120 *šars*) to subsequent world periods.” See *ibid.* 91 n. 3 and 92 n. 1. However, the reliability of this information is questioned today: see, for instance, the caveat by de Breucker (2015) in his commentary on F 21.

version more plausible, because it takes into account the central role that the figure of Zeus—undoubtedly to be identified with cosmic Fire—plays in Heraclitean philosophy, on the physical and religious levels.⁴⁸ As a matter of fact, from Aëtius' perspective, 18,000 solar years correspond to 1,500 years of Zeus, since in Aët. 2.32.1 MR the Year of Zeus is said to be equivalent to 12 solar years. In addition, there may also be another explanation for Heraclitus' choice in the light of the corpus of fragments. If, as Burnet suggests, one interprets in a cosmological sense the *upward and downward path* of B 60 (= fr. 33 Marcovich: ὁδὸς ἄνω κάτω μία καὶ ὤστῃ), by associating it with the turnings of Fire (πυρὸς τροπαί) of B 31 (= fr. 53 Marcovich), then one might conclude that Heraclitus voluntarily sought to divide in two the 12th part of the Babylonian Great Year (= $2 \times 18,000$ solar years).⁴⁹ For this reason, I would contend that Heraclitus assigned a duration of 18,000 solar years to the Great Year of his cosmological system. Consequently, in the light of T1, we are also able to quantify the Great Year of the Stoic Diogenes of Babylon, which is equal to 365 times the Great Year of Heraclitus: that is, 6,570,000 solar years.⁵⁰

2 From the Great Year to *Ekpyrosis*: Heraclitus on Determinism and Everlasting Recurrence

What has been said about Heraclitus' Great Year raises the problem of the link between the Great Year and the natural disasters that, as we have seen, are already connected to this event in Eastern traditions. Heraclitus was most probably aware of the theories about the flood. He opted for the conflagration because, evidently, only the concept of *Ekpyrosis* could emphasize the privileged role of Fire in his physics

48 Cf. Philod. *De piet.*, *PHerc.* 1428, col. 330.26–31 Vassallo = fr. 17 Schober (= *CPH* XX 117, *partim* = fr. 77 [c] Marcovich, *partim*), on which see Vassallo (2018) and (2021) 509–11. Cf. also 22 B 32 DK (= fr. 84 Marcovich).

49 Burnet (1930⁴) 157, who however is among the most strenuous deniers of an *Ekpyrosis* theory in Heraclitus (see below, § 2). I am completely unpersuaded by the attempt to justify Censorinus' version, viz. 10,800 solar years, as the result of 360×30 , where the number 30, according to the majority of supporters of this thesis, would be the duration of a human generation on the basis of the testimonies collected in 22 A 19 DK (among others, see West [1971] 155–8; on the relationship between Heraclitus and Hesiod's much debated fr. 304 Merkelbach/West [= fr. 254 Most], see van den Broek [1972] 76–112, esp. 84–90); according to other scholars, this is the cycle of birth, that is the cycle of the soul (22 B 63 DK); according to others still, it corresponds to the Year of Saturn indicated by Aëtius (2. 32.1 MR). See Marcovich (2001²) 347–9.

50 See Long/Sedley (1987) II, 307. At any rate, as de Callatay (1996) 105 points out, both in this case and in the other (i.e., $365 \times 10,800 = 3,942,000$), Diogenes of Babylon's Great Year "looks like the strange combination of heteroclitite elements, since 365 is the number of days in a solar year while 10,800 and 18,000 seem only fitting for sexagesimal computations."

and cosmology. Below, I will try to show that Heraclitus a) actually upheld a doctrine of conflagration; b) intertwined this doctrine with his concept of *Ananke/Heimarmene*; c) only assigned a background role to *Ekpyrosis* in his system, without however describing its mechanism in detail (as the Stoics instead attempted to do at a later date).

Let's start from three *doxai* belonging to Book 1 of Aëtius' *Compendium* that deal with ἀνάγκη and εἰμαρμένη in Heraclitus.

T5. Aët. 1.7.13 MR (I, p. 373 = DG, p. 303)⁵¹

Ἡράκλειτος τὸ περιοδικὸν πῦρ αἰδίων, εἰμαρμένην δὲ λόγον ἐκ τῆς ἐναντιοδρομίας δημιουργῶν τῶν ὄντων. (S₁₂)

Heraclitus [says that the deity is] the [eternally] recurrent everlasting Fire, while Fate is *Logos*, producer of the things that exist by turning in contrary directions.⁵²

T6. Aët. 1.27.1 MR (I, p. 672 = DG, p. 322)⁵³

Ἡράκλειτος πάντα καθ' εἰμαρμένην, τὴν δ' αὐτὴν ὑπάρχειν καὶ ἀνάγκην· γράφει γοῦν· “ἔστι γὰρ εἰμαρμένη πάντως.” (P₁, S_{2b}, T₁)

Heraclitus [says that] all things [occur] in accordance with Fate, and that it (sc. Fate) and Necessity are the same. Indeed he writes: “For it (sc. Necessity) is Fate in every respect.”⁵⁴

T7. Aët. 1.28.1 MR (I, p. 690 = DG, p. 323)⁵⁵

Ἡράκλειτος οὐσίαν εἰμαρμένης λόγον τὸν διὰ τῆς οὐσίας τοῦ παντὸς διήκοντα· αὐτὴ δ' ἐστὶ τὸ αἰθέριον σῶμα, σπέρμα τῆς τοῦ παντὸς γενέσεως καὶ περιόδου μέτρον τεταγμένης. (P₁, S_{2a})

Heraclitus [says that] the substance of Fate is the *Logos* that passes through the substance of the All: it is the ethereal body, seed of the coming-to-be of the All and measure of [its] ordered [cosmic] revolution.⁵⁶

T5 and **T7** present no novelties compared to the text that Diels reconstructed synoptically in the *Doxographi Graeci*. In these two *doxai* the identity of Fate and *Logos* is established, which may certainly have been (partly) influenced by Stoicism.⁵⁷ However, it cannot be denied *a priori* that a justification for this view can be found in the *ipsissima verba* of Heraclitus known to us,⁵⁸ as well as in the pre-Heraclitean

⁵¹ = 22 A 8 [I] DK.

⁵² Transl. by Mansfeld/Runia (2020) IV, 2076, with slight changes.

⁵³ = 22 A 8 [II] DK. Cf. Qusṭā ibn Lūqā, p. 134.12–13 Daiber (1980) (= T 418 Mouraviev).

⁵⁴ Transl. by Mansfeld/Runia (2020) IV, 2086, with slight changes.

⁵⁵ = 22 A 8 [III] DK. Cf. Qusṭā ibn Lūqā, p. 134.21–23 Daiber (1980) (= T 422 Mouraviev).

⁵⁶ Transl. by Mansfeld/Runia (2020) IV, 2086, with slight changes.

⁵⁷ See Mansfeld/Runia (2020) I, 695.

⁵⁸ See Mansfeld/Runia (2020) I, 398.

philosophical tradition.⁵⁹ In particular, it is possible to find an affinity between the ἐναντιοδρομία of T5 and the παλίντροπος ἄρμονίη of the arc and the lyre mentioned in fragment 22 B 51 DK (= fr. 27 Marcovich = LM III 9 D49), which in my opinion is a metaphor undoubtedly intended to explain the cosmic features of the Heraclitean *coincidentia oppositorum*.⁶⁰ The parallel testimony by Diogenes Laertius should not be overlooked, as here the role of Fate in Heraclitus is related to the kind of ‘turning in contrary directions’ mentioned in T5, although with a slight lexical variant:

T8. Diog. Laert. 9.7 Dorandi (p. 660)⁶¹

(...) ἐκ πυρὸς τὰ πάντα συνεστάναι καὶ εἰς τοῦτο ἀναλύεσθαι· πάντα δὲ γίνεσθαι καθ’ εἰμαρμένῃν καὶ διὰ ἐναντιοτροπῆς¹ ἡρμόσθαι τὰ ὄντα· (...)

¹ ἐναντιοτροπῆς B P F, acc. Ritter : ἐναντιοτροπίας L, acc. Dindorf et Kranz (DK in app. crit.) : ἐναντιοδρομίας Diels (DK in app. crit., ex A 8)

(...) [According to Heraclitus] all things are made of fire and in fire they are destroyed; moreover, all things happen according to Fate and the beings harmonize according to a variation of opposites. (...)

Obviously, the problem remains of the plausibility of attributing a concept of Fate to Heraclitus, regardless of the Stoic exegesis of his philosophy. From this point of view, the Aëtian *doxa* in T6 is very interesting. This is the introductory paragraph of chapter 27 of Book 1 of the *Compendium*, an important chapter entirely devoted to the concept of Fate (*Περὶ εἰμαρμένῃς*).⁶² As Mansfeld and Runia have pointed out, the proximate tradition of this chapter is represented by the well-known passage from Cicero’s *On Fate* (§39) in which Heraclitus is numbered, together with Democritus, Empedocles and Aristotle, among the most rigid ‘determinists’ of antiquity,

⁵⁹ See Mondolfo/Tarán (1972) 104, who refer to the Orphics and Anaximander.

⁶⁰ In Hippolytus’ version (*Ref.* 9.9.2, p. 344 Marcovich), the fragment runs as follows: οὐ ξυϊάσιν ὄκως διαφερόμενον ἔσωτῶ ὁμολογέει· παλίντροπος ἄρμονίη, ὄκωσπερ τόξου καὶ λύρης. On the variant παλίντροπος (attested in Plutarch and Porphyry), see Marcovich (2001²) 125–6, who defends it with unconvincing arguments.

⁶¹ = 22 A 1 DK (= LM III 9 R46a).

⁶² The *doxa* on Heraclitus is immediately followed by one on Plato (§2) and then by a series of *doxai* on the Stoics (§§3–6). The source of Heraclitus’ *doxa* is threefold: Ps.-Plut. *Plac.* 884r (*DG*, p. 322.1) [P]; Stob. 1.5.15 (p. 78.4–6 Wachsmuth) [S]; Theodor. *CAG* 6.13.1 (p. 153.17 Raeder) [T]. See Gundel (1914) 9–10, who however ignores Theodoretus. Dührsen (1998) 115–6 maintains that Theodoretus’ version is to be preferred in the reconstruction of the Aëtian *doxa* and concludes (*ibid.* 118): “Durch Theodoretus Bericht kann es als nahezu sicher gelten, daß Heraklit das Wort ἀνάγκη selber verwendet hat. Der entsprechende Passus bei Theodoret (...) verdient folglich, mit einem im Druckbild besonders hervorgehobenen ἀνάγκη in die Reihe der authentischen Heraklit-Fragmente aufgenommen zu werden.” Mansfeld and Runia criticize this view with good arguments, but I personally do not believe that the text reconstructed on the basis of P and S categorically demonstrates that “ἀνάγκη should not be attributed to Heraclitus’ authentic vocabulary” (Mansfeld/Runia [2020] I, 679). See below.

convinced that everything happens at the behest of Fate, which gives physical and human events the immutable force of Necessity (*omnia ita fato fieri, ut id fatum vim necessitatis adferret*).⁶³ Now, the noteworthy thing is that, unlike Diels in the *Vorsokratiker* (22 A 8 [II] DK), in their new edition of Aëtius, Mansfeld and Runia accept the extended version of the *doxa* transmitted by Stobaeus, which contains a new (and so far neglected) Heraclitus fragment, namely: ἔστι (sc. ἀνάγκη) γὰρ εἰμαρμένη πάντως, “for it (sc. Necessity) is Fate in every respect.”

From the first edition of the *Vorsokratiker* onwards, Diels included these words in the section of the Heraclitus chapter devoted to the *Zweifelhafte, falsche und gefälschte Fragmente* (22 B 137 DK).⁶⁴ Even Marcovich limited himself to recording the passage in the Aëtian doxographical tradition (fr. 28 [d¹]), without assigning any independent value to the fragment. I do not agree with Diels and Marcovich, whereas I believe that Mansfeld and Runia have hit the mark in re-evaluating the Stobaeus *excerptum* and restoring Heraclitus’ *ipsissima verba* in the *Compendium*. We are therefore dealing with the only fragment that unequivocally attests to Heraclitus’ use of the term εἰμαρμένη and, indirectly, of the term ἀνάγκη.⁶⁵ This has considerable consequences on the hermeneutic level, since the synergy of Fate and Necessity can justify—in a deterministic perspective—the presence of the notion of cosmic conflagration in Heraclitus’ thought. In this regard, we should compare four other testimonies, respectively by Plato, Aristotle, Theophrastus, and Diogenes Laertius.

T9. Plat. *Soph.* 242d7–243a2 Diès (p. 346)⁶⁶

Ἰάδες δὲ καὶ Σικελαὶ τινες ὕστερον Μοῦσαι συνενόησαν ὅτι συμπλέκειν ἀσφαλέστατον ἀμφοτέρω καὶ λέγειν ὡς τὸ ὄν πολλὰ τε καὶ ἐν ἔστιν, ἐχθρὰ δὲ καὶ φίλῃα συνέχεται. “διαφερόμενον γὰρ αἰεὶ συμφέρεται”,⁶⁷ φασὶν αἱ συντονώτεροι τῶν Μουσῶν· αἱ δὲ μαλακώτεροι τὸ μὲν αἰεὶ ταῦτα οὕτως ἔχειν ἐχάλασαν, ἐν μέρει δὲ τοτὲ μὲν ἐν εἶναι φασὶ τὸ πᾶν καὶ φίλον ὑπ’ Ἀφροδίτης, τοτὲ δὲ πολλὰ καὶ πολέμιον αὐτὸ αὐτῷ διὰ νεϊκός τι.

63 Cic. *De fato* 17.39 (= *SVF* 2.974 = LS 62C = 68 A 66 [I] DK). See Mansfeld/Runia (2020) I, 674.

64 It should be noted that in *DG* Diels accepted the *lectio* εἰμαρμένη of cod. P of Stobaeus, while in the *Vorsokratiker* he printed the variant εἰμαρμήνα of cod. F (and doubtfully translated: *Denn es gibt alle Fälle Schicksalsbestimmungen* ...). On the complex notion of *Gefälschtes* in DK, I will refer to Wöhrle (2017).

65 For a discussion of this point see the remarks by Mansfeld/Runia (2020) I, 678–9, who, despite some doubts, align themselves with the choice of Mouraviev (2000) 339 [T 416] to support the authenticity of the fragment. However, in the commentary, they also propose an alternative reconstruction and translation of it: ἔστι γὰρ εἰμαρμένη πάντως (sc. κατ’ ἀνάγκην), “fate in every respect agrees with (or: occurs according to) necessity.” See also West (1971) 137: “(...) there is no reason why he [*sc. Heraclitus*] should not somewhere else have spoken of ἀνάγκη. He had no very firm preference for one word in this area.”

66 = 22 A 10 [I] DK (= fr. 27 [c] Marcovich = LM III 9 R31).

67 Cf. 22 B 51 DK (= fr. 27 Marcovich = LM III 9 D49).

Then, some Ionic and later⁶⁸ Sicilian Muses (sc. Heraclitus and Empedocles) thought that the most certain thing is to affirm that being is both many and one, and is held together by Hate and Love. “For what is discordant is always held together,” say the most severe Muses; while the milder ones indulge in the idea that things are like this, but they say that the universe is in alternation now one and friendly through the work of Aphrodite, now multiple and at war through the work of Strife.

T10. Aristot. *Coel.* A.10.279b12–16 Moraux (pp. 38–9)⁶⁹

Γενόμενον μὲν οὖν ἅπαντες εἶναι φασι, ἀλλὰ γενόμενον οἱ μὲν αἰδίων, οἱ δὲ φθαρτὸν ὥσπερ ὅτι οὖν ἄλλο τῶν συνισταμένων, οἱ δ' ἐναλλάξ ὅτε μὲν οὕτως ὅτε δὲ ἄλλως ἔχειν φθειρόμενον,⁷⁰ καὶ τοῦτο αἰεὶ διατελεῖν οὕτως, ὥσπερ Ἐμπεδοκλῆς ὁ Ἀκραγαντίνος καὶ Ἡράκλειτος ὁ Ἐφέσιος.

Everyone claims that it (sc. the heavens) is generated, but according to some, once generated, it is eternal, according to others it is destructible, like every composite thing; others still argue that, in destroying itself, this happens alternately now in one way, now in another, and that this [process] has always occurred, as Empedocles of Acragas and Heraclitus of Ephesus [maintain].

T11. Simpl. in *Phys.*, pp. 23.21–24.12 Diels⁷¹

(...) πυρὸς γὰρ ἀμοιβὴν εἶναι φησιν Ἡράκλειτος πάντα. ποιεῖ δὲ καὶ τάξιν τινα καὶ χρόνον ὠρισμένον τῆς τοῦ κόσμου μεταβολῆς κατὰ τινα εἰμαρμένην ἀνάγκην. (...)

(...) For Heraclitus says that all things are [the result of] a transformation of Fire: he then supposes [that there is] a certain order and an allotted time for the transformation of the cosmos [which takes place] according to a Necessity established by Fate. (...)

T12. Diog. Laert. 9.8 Dorandi (p. 661)⁷²

(...) γεννᾶσθαι τε αὐτὸν ἐκ πυρὸς καὶ πάλιν ἐκπυροῦσθαι κατὰ τινὰς περιόδους ἐναλλάξ τὸν σύμπαντα αἰῶνα· τοῦτο δὲ γίνεσθαι καθ' εἰμαρμένην. τῶν δὲ ἐναντίων τὸ μὲν ἐπὶ τὴν γένεσιν ἄγον καλεῖσθαι πόλεμον καὶ ἔριν, τὸ δ' ἐπὶ τὴν ἐκπύρωσιν ὁμολογίαν καὶ εἰρήνην. (...)

(...) [Heraclitus says that] it (sc. the cosmos) is born from Fire and again destroys itself in Fire according to cyclic periods that alternate for all eternity: and this happens according to the [will of] Fate. Moreover, among opposites, what leads to birth is called war and strife, what instead [leads] to conflagration [it is called] agreement and peace. (...)

68 I take the adverb ὕστερον to refer only to Σικελαί (Μοῦσαι), as I will explain shortly. Others (including Diels, whose text I follow) extend the meaning of ὕστερον also to Ἰάδες (Μοῦσαι).

69 = 22 A 10 [II] DK. Cf. also Aristot. *Phys.* Γ.5.205a1–7 (= 22 A 10 [III] DK = LM III 9 R35) ~ *Metaph.* K.10.1067a4–5 (= *deest* DK). See Marcovich (1966).

70 The reading φθειρόμενον is unanimously attested by the mss. I see no reason to accept, as Moraux does, the participle's expunction proposed by Kassel.

71 = Theophr. [*Phys. Op.*] fr. 225 FHS&G (= 22 A 5 [I] DK = LM III 9 R45).

72 = 22 DK A 1 (= LM III 9 R46b).

When read together, **T11** and **T12** can be seen to describe the Heraclitean doctrine of conflagration as a succession of periodic cosmic cycles, which repeat themselves eternally and in an orderly manner according to a rhythm dictated by Necessity and Fate. On the physical level, these cycles are described as the result of the transformation (ἀμοιβή) of Fire, which in Heraclitean philosophy assumes the role of the ‘archetypal’ element.⁷³ **T12** uses this physical process to turn the Heraclitean doctrine of opposites into a way to account for and understand the alternation of war and peace in the world. Indeed, Diogenes Laertius’s source describes these cosmic cycles as a sort of prefiguration of Empedocles’ ones, which—as is well known—are determined by the action of the opposing forces of Love and Hate. What is interesting to note is that this doctrinal overlap between Heraclitus and Empedocles is already confirmed by the so-called ‘Gigantomachy’ of Plato’s *Sophist*. Indeed, in **T9**, Heraclitus and Empedocles are described as philosophers who use Hate and Love as forces that guarantee the substantial unity of multiplicity. As my translation of the opening words of the passage shows, Plato philosophically attributes this doctrine of being to both Heraclitus and Empedocles: the difference between the two Presocratics is only chronological, in the sense that Empedocles came after Heraclitus (ὑστερον). Furthermore, it does not seem to me that Plato contradicts the renowned Heraclitean fragments on War and Strife,⁷⁴ or that he refuses to attribute to Heraclitus the kind of ‘monism’ that Aristotle ascribes to him in Book A of *Metaphysics* (3.984a7–8 Primavesi = 22 A 5 [I] DK).⁷⁵ Indeed, Heraclitus’ ‘monism’ leads exactly to the unity of multiplicity, as stressed by fragment 22 B 50 DK (= fr. 26 Marcovich = LM III 9 D46: οὐκ ἐμοῦ ἀλλὰ τοῦ λόγου ἀκούσαντας ὁμολογεῖν σοφόν ἐστὶν ἐν πάντα εἶναι⁷⁶). Marcovich rightly observes that “the conclusion ‘All things are one’ bears a clear *ontological* implication: ‘beneath all this phenomenal plurality of things there is an underlying unity.’”⁷⁷ Now, it is absolutely

73 See Kerschenssteiner (1955) 390–9, who calls into question the Aristotelian-Theophrastean interpretation.

74 22 B 80 DK (= fr. 28 Marcovich = LM III 9 D63): εἰδέ<ναι> χρῆ τὸν πόλεμον ἐόντα ξυνὸν καὶ δίκην ἔριν καὶ γινόμενα πάντα κατ’ ἔριν καὶ χρεῶν; B 53 DK (= fr. 29 Marcovich = LM III 9 D64): πόλεμος πάντων μὲν πατήρ ἐστι, πάντων δὲ βασιλεύς, καὶ τοὺς μὲν θεοὺς ἔδειξε, τοὺς δὲ ἀνθρώπους, τοὺς μὲν δούλους ἐποίησε, τοὺς δὲ ἐλευθέρους.

75 Pace Finkelberg (1998a) 198. As Mansfeld (1986) 28 remarks, the fact that Plato says that “the Ionian Muses are more strenuous and the Sicilian are milder strongly suggests that he saw Heraclitus as being more of a monist than a pluralist, whereas Empedocles would resemble a pluralist rather than a monist. Which would agree with the other evidence from early sources.” For the same reason, I do not believe that **T9** necessarily contradicts **T10**. On this point, in addition to my remarks below, see Mondolfo (1958) and id. in Zeller (1968) 229–34. Pace Kirk (1959) and (1962) 319–24.

76 Note that εἶναι is a conjecture by Miller instead of the reading εἰδέναι of the mss. (P).

77 Marcovich (2001²) 116. Cf. 22 B 10 DK (= fr. 25 Marcovich = LM III 9 D47): συλλάψεις (v.l. συνάψεις) ὄλα καὶ οὐχ ὄλα, συμφερόμενον διαφερόμενον, συνᾶιδον διᾶιδον. ἐκ πάντων ἐν καὶ ἐξ ἐνὸς πάντα (sc. συνίσταται).

possible that, in Plato's (or his source's) perspective, the Heraclitean harmony of opposites is not a real alternation of cycles, as in Empedocles, but rather an eternal order, dominated by war and interspersed with (very) short periods of peace. Therefore, while in Empedocles we would have two cycles—one dominated by Love, the other by Hate—in Heraclitus there would be only one cycle, dominated by War/Strife and periodically interrupted by cosmic breaks: these are periods of (apparent) peace that on the physical plane, however, corresponds to the conflagration (and the momentary break in the cosmic dialectic). In both cases, however, the regularity of the alternation and the eternal order of the cosmos is guaranteed: in other words, periodic destruction does not exclude that in the cosmic phases the "disharmonious harmony" or "divergent convergence" (B 10) of which Heraclitus speaks is always realized.⁷⁸

It is nonetheless evident that in T9 the real problem concerns the relationship between the two Platonic statements: τὸ ὄν πολλά τε καὶ ἓν ἐστὶν and ἔχθρα δὲ καὶ φιλία συνέχεται. My impression is that Plato (viz. his doxographical source) does not consider them to be two separate pieces of information, the former referring to Heraclitus and the latter to Empedocles. They both refer to Heraclitus and Empedocles together, so that, in this context, Empedocles' ἔχθρα and φιλία are philosophical synonyms of Heraclitus' πόλεμος and εἰρήνη. Both philosophers agree that the many are one. This, however, does not prevent them from envisaging a change in cosmic powers. The difference consists in the fact that: a) for Heraclitus this cosmic change is nothing more than a different 'mixture' of opposites (so, even during the cosmic conflagration, when 'peace' is dominant, the 'harmony' of opposites still holds, as *Polemos* is never ruled out); b) for Empedocles, on the other hand, the unfolding of cosmic cycles does not refer to intermediate phases (viz. increasing Love vs. increasing Hate), but to the extreme moments in which either Hate or Love is dominant (in an 'absolute' and not 'hegemonic' way, as is instead the case for Heraclitus). It remains to be noted that according to Heraclitus the only true cosmic power is *Polemos*, who must be identified with Zeus. Therefore, the Heraclitean cosmic conflagration should be read as the harmony of opposites, in which, however, one of these opposites enjoys absolute pre-eminence. The fact remains that, in the Platonic account, there is no trace of genuine *diaphonia*. In this regard, Mondolfo observed that in the *Sophist* passage what is at stake is not the formation of universe (the cosmological question), but the relationship between the powers embodied by being (the ontological question): in Heraclitus this relationship is a unity of convergent and divergent 'elements'; in Empedocles, it is the duality of Love and Hate.⁷⁹ From my point of view, however, these two Presocratic stances should be reconciled *only* on the cosmological level. If this were not the case, in the Platonic account, for example, we would not find a comparison between divergent/convergent and Hate/Love, but only,

78 See Mondolfo (1958) 77.

79 So R. Mondolfo in Mondolfo/Tarán (1972) cxxxvi.

say, between Fire and the roots—that is between the various elements—and therefore between a ‘monistic’ and a ‘pluralistic’ physical approach. But this is clearly not the case.

On closer inspection, all this is also confirmed by Aristotle in *On the Heavens* (T10): Heraclitus and Empedocles both believe that the heavens (οὐρανός)—to be understood here as the κόσμος in general⁸⁰—are destructible and that such destruction occurs periodically (ἐναλλάξ) and eternally (ἀεί). Only the *ways* in which this happens (ὅτε μὲν οὕτως ὅτε δὲ ἄλλως ἔχειν φθειρόμενον) differ; and by *ways* I essentially mean the *length* assigned to each cycle. According to this doxographical tradition, the key concepts common to the philosophies of Heraclitus and Empedocles remain: a) the eternity and periodicity of this cosmic process and, according to Plutarch, b) its *necessary dialectical structure* (τὴν φύσιν ὡς ἀνάγκην καὶ πόλεμον οὕσαν).⁸¹

However, such a reconstruction inevitably raises the question of the legitimacy of crediting Heraclitus with an *Ekpyrosis* doctrine, which would also imply the idea that a cosmogonic process takes place each time the world is periodically destroyed. From as early as the nineteenth century—first with Schleiermacher⁸² and then especially with Burnet⁸³—the hypothesis of the existence of a Heraclitean doctrine of *Ekpyrosis* has been strongly contested.⁸⁴ In particular, on the one hand an attempt has been made to demonstrate that in the pre-Theophrastean sources the apparent reference to cosmic cycles has nothing to do with a real process of conflagration. On the other hand, it has been argued that those doxographical sources more or less directly dependent on Theophrastus (such as the Middle Platonists and Neoplatonists, as well as Christian authors) are vitiated by the early Stoic concept of *Ekpyrosis*. The second objection is the more insidious, since Stoic cosmology exerted a strong ideological influence on post-Theophrastean doxography and the idea that a combination of philosophical influences lies behind the primacy assigned to the element of Fire in Ionian cosmologies is certainly plausible.⁸⁵ However, we cannot overlook the fact that while the term ἐκπύρωσις is not attested in the surviving Heraclitean

80 On this point, see Cornford (1934) 1–2. Note that, in *Coel.* A.10.280a19–22, Aristotle specifies that the destruction does not concern the κόσμος as such (that is, the totality of the bodies that compose it), but its ‘dispositions’ (διαθέσεις). However, as Mondolfo (1958) 78 rightly points out, this “in no way weakens his previous attribution of the cosmic cycle to Heraclitus equally with Empedocles.”

81 Plut. *De soll. anim.* 964b5–e2 (= fr. 28 [e] Marcovich).

82 Schleiermacher (1808) 368–81 [= (1998) 142–9].

83 Burnet (1930⁴) 142–3, 158–63.

84 For a *status quaestionis* and an analysis of all the problems connected to this theme, see Kirk (1962) 335–8 and above all Finkelberg (1998a) esp. 195–205, who lays bare all the limits of those readings that deny an *Ekpyrosis* theory to Heraclitus *a priori*.

85 On this point, see, among others, Reeve (1982), Sharples (1984), and Salles (2022) 106–12. More generally, on the relationship between Heraclitus and Stoicism, I will refer to Long (1975/1976).

fragments, there are certain elements that allow us—without stretching the textual evidence too much—to understand the transformations of Fire as periodic conflagrations or at least as part of a cosmic order destined to unravel in—and be reborn from—Fire.⁸⁶ If we consider Fire the element that guarantees the continuity of Heraclitean being, we can conclude that destruction and rebirth in Heraclitus do not conflict with the idea of an ‘eternal’ *kosmos*.

T13. Clem. *Strom.* 5.103.6 Stählin (II, p. 396) *et al.*⁸⁷

κόσμον τόνδε, τὸν αὐτὸν ἀπάντων, οὔτε τις θεῶν οὔτε ἀνθρώπων ἐποίησεν, ἀλλ’ ἦν αἰεὶ καὶ ἔστιν καὶ ἔσται πῦρ αἰεζῶν, ἀπτόμενον μέτρα καὶ ἀποσβεννύμενον μέτρα.

This *kosmos*, like everything (it contains), was not made by any of the gods or men, but has always been, is and will be: ever-living Fire, which according to measure is ignited and according to measure is extinguished.

There has been much discussion about the meaning of the term κόσμος that introduces this fundamental fragment. Among recent interpreters, Finkelberg is the one who has most strongly argued that, in Heraclitus’ lexicon, κόσμος cannot have the mere meaning of ‘world’, but must rather mean ‘world-order’. So, here Heraclitus would be proclaiming the eternal and orderly sequence of the alterations of Fire: this sequence would coincide with the cosmic order and would be comparable with the “order of time” (κατὰ τὴν τοῦ χρόνου τάξιν) of which Anaximander speaks in the famous fragment 12 B 1 DK (= Ar 163 Wöhrlé = LM II 6 D6).⁸⁸ Before Finkelberg, Kirk had observed that such an interpretation is a ‘Stoicizing’ reading: the Stoic concept of *Ekpyrosis*, in his view, is precisely what Clement of Alexandria (the main source of the fragment) had in mind—indeed, he referred to as a Greek antecedent of the Christian concept of ‘resurrection’ (ἀνάληψις).⁸⁹ Kirk’s observation is well-founded. We need only consider the fact that at the beginning of the fragment Clement (deliberately) omits the deictic τόνδε, which is attested instead by the Middle and Neoplatonic sources (Plutarch and Simplicius⁹⁰) and, in my opinion, must necessarily have been

⁸⁶ In addition to T13, cf. 22 B 31 DK (= fr. 53 Marcovich = LM III D86); B 64 DK (= fr. 79 Marcovich = LM III D82); B 65 DK (= fr. 55 Marcovich = LM III D88); B 66 DK (= fr. 82 Marcovich = LM III D84); B 67 DK (= fr. 77 Marcovich = LM III D48); B 90 DK (= fr. 109 Marcovich = LM III D87); B 94 DK (= fr. 52 Marcovich = LM III D89c). See, among others, Betegh (2007) and Mouraviev (2008).

⁸⁷ = 22 B 30 DK (= fr. 51 Marcovich = LM III 9 D85). I follow the text established by Marcovich (2001²) 261, without however accepting the punctuation (*ano stigmatē*) between ἔσται and πῦρ (on this point, see below).

⁸⁸ Finkelberg (1998b) 115–7.

⁸⁹ Kirk (1962) 307–8.

⁹⁰ Plut. *De an. procr.* in *Tim.* 1014a (= fr. 51 [c] Marcovich); Simplic. *in Coel.*, p. 294 Heiberg (= fr. 51 [b⁵] Marcovich). As Kirk (1962) 309 points out, “Simplicius is dependent partly upon a Stoic source, but partly (as often) upon Alexander’s commentary.”

present in the original text by Heraclitus. The latter refers precisely to this κόσμος in a twofold sense: on the one hand, as the world in which we live; on the other, as the laws that govern it. Heraclitus consciously assigns the word this double sense. So we can understand why he felt the need to specify: τὸν αὐτὸν ἀπάντων. It is revealing that, unlike the demonstrative adjective τόνδε, these words are reported only by Clement and not by the Middle and Neoplatonic sources. Kirk considers them non-Heraclitean, that is, an interpolation by Clement.⁹¹ But I do not believe that this is the correct solution to the problem. Instead, attention must be paid to the meaning of the expression. In my opinion, Heraclitus meant to stress that there is only one *kosmos*/world⁹² and that it is governed by laws that apply *without exception* to all the beings it contains, which together constitute this *kosmos*/order. For this reason, the genitive ἀπάντων in the fragment can only be neuter.⁹³ We are therefore dealing with the principle of the ‘continuity’ and ‘homogeneity’ of the matter of the universe and the laws that govern it. In the light of this principle, from the fragment it is possible to deduce three forms of ‘determinism’ that make the eternity of the *kosmos* perfectly compatible with its conflagration, which evidently does *not* amount to its annihilation, as Zeller had already brilliantly explained.⁹⁴ There is, first of all, a) an ‘anti-demiurgic’ determinism: not even a god can create, and consequently modify or destroy the *kosmos* forever (a stance perfectly consistent with the anti-creationistic approach adopted by Greek philosophy as a whole). Then we have b) a ‘physico-ontological’ determinism: the ‘elementary’ structure of the *kosmos* is eternal and therefore cannot be changed. From this point of view, I do not think it makes sense to insert a punctuation mark between ἔσται and πῦρ in the fragment.⁹⁵ Heraclitus is saying that this *kosmos* is Fire which, *as such*, is never extinguished: its existence is independent of the ways and times in which it manifests itself (i.e., by being lit/put out). Finally, there is c) a ‘physical-chronological’ determinism: while the essence of Heraclitus’ *kosmos* lies outside of time,⁹⁶ its forms of manifestation do not. The ever-living Fire is ignited and extinguished with a set rhythm that is unchangeable by either divine or human will.⁹⁷

91 So also in Kirk/Raven/Schofield (1983²) 198 n. 1.

92 Cf. Aët. 2.1.2 MR (= 22 A 10 [V] DK); Simpl. in Phys., p. 1121.12 Diels (= fr. 51 [b⁶] Marcovich). See Cornford (1934) 2–5.

93 *Contra* Marcovich (2001²) 268–9, who in his translation implies ἀνθρώπων, like Vlastos (1955) 345 n. 18 before him.

94 Zeller (1892⁵) 689.

95 See Kirk (1962) 310–1, who nevertheless accepts the punctuation. The difficulty of punctuating Heraclitus’ writings was well known to the ancients: cf. Aristot. *Rhet.* Γ.5.1407b11–18; Demetr. *De elocut.* 191–2 (= 22 A 4 [I–II] DK = LM III 9 R6–7).

96 Cf. Aët. 2.4.1 MR (II, p. 794 = DG, p. 331 = 22 A 10 [VI] DK).

97 I disagree with Burnet (1930⁴) 150–1 and Marcovich (2001²) 271–2, who understand μέτρα ... μέτρα in a quantitative rather than chronological sense.

The sum of these three deterministic paradigms shows, first of all, that the two meanings of the word κόσμος discussed above are closely interconnected. More generally, it emerges that Heraclitus had in fact theorized a cosmic conflagration, placing it in the background of all the phenomena dealt with in his physics. But, evidently, in his book he had not set out to explain this theory in detail or to solve the possible conundrums and inconsistencies it gave rise to. This task was left to his ancient readers, especially those who were openly influenced by him, that is the Stoics.⁹⁸

3 Diogenes of Babylon on *Ekpyrosis* and the ‘Heterodox’ Background of the Final Stage of Early Stoic Cosmology

In the *Timaeus*, Plato marks (cosmic) time through the movement of the Sun, Moon and other planets. The Perfect Year—or rather the Perfect Number of Time which completes the Perfect Year (ὁ γε τέλος ἀριθμὸς χρόνου τὸν τέλεον ἐνιαυτὸν πληροῦ), the duration of which Plato does not quantify—is the period at the end of which the fixed stars and planets return to the point from which they began their revolution.⁹⁹ The exponents of the first generation of early Stoicism drew heavily upon the *Timaeus* to develop their doctrine of the Great Year. The problem, however, is that in the corpus of testimonies about the early Stoics, with the exception of T1, we find little or nothing about the Great Year. Even in the passages more or less directly related to this concept, we never find expressions connected to it, except in Arius Didymus’ fr. 37 Diels, which explicitly speaks of the Greatest Year (μέγιστος ἐνιαυτός). Eusebius’ account runs as follows:

T14. Eus. *Praep. ev.* 15.19.1–2 Mras (II, p. 383)¹⁰⁰

ἐπὶ τοσοῦτον δὲ προελθὼν ὁ κοινὸς λόγος καὶ <ή>¹⁰¹ κοινὴ φύσις μείζων καὶ πλείων γενομένη τέλος ἀναζηράνασα πάντα καὶ εἰς ἑαυτὴν ἀναλαβοῦσα ἐν τῇ πάσῃ οὐσίᾳ γίνεται, ἐπανελθοῦσα εἰς τὸν πρῶτον ῥηθέντα λόγον καὶ εἰς τὴν ἀνάστασιν ἐκείνην τὴν ποιούσαν ἐνιαυτὸν τὸν μέγιστον, καθ’ ὃν ἀπ’ αὐτῆς μόνης εἰς αὐτὴν πάλιν γίνεται ἡ ἀποκατάστασις. ἐπανελθοῦσα δὲ διὰ τάξιν, ἀφ’ οἷας διακοσμεῖν ὡσαύτως ἤρξατο, κατὰ λόγον πάλιν τὴν αὐτὴν διεξαγωγὴν ποιεῖται, τῶν τοιούτων περιόδων ἐξ αἰδίου γινομένων ἀκαταπαύστως.

98 A similar hypothesis has recently been put forward by Alessandrelli (2020) esp. 86.

99 Cf. Plat. *Tim.* 39d2–7; also *ibid.* 22c–d and 38b–c. Parallel passages can be found in Cicero (*Nat. D.* 2. 20.51) and Achilles Tatius (*in Arat.* 18, p. 25.6–7 Maass), on which see Mansfeld/Runia (2020) II, 1116. The idea of the eternal recurrence of all things according to a certain number had already been upheld by the Pythagoreans (Simpl. *in Phys.*, p. 732 Diels = Eudem. fr. 88 [I] Wehrli); cf. Orig. *C. Cels.* 5. 20–21. See van der Waerden (1943) and (1952) 129–32; also Marcovich (2001²) 347.

100 = Ar. Did. fr. 37 Diels, *DG*, p. 469 (= *SVF* 2.599, *partim* = LS 52D).

101 <ή> *add.* Diels.

Universal Logos having advanced thus far, or universal nature having grown and increased, it finally dries up everything and takes it up into itself, and comes to be in the whole substance. It returns to the so-called primary Logos and to that resurrection which creates the Greatest Year, in which the reconstitution from itself alone (sc. universal nature) into itself recurs. Having returned because of the order from which it began to create the world in just such a way, it manufactures the same way of life again according to reason, since such periods occur everlastingly without ceasing.¹⁰²

In general, we can say that the early Stoics seem to dwell theoretically on a Great Year or Greater Year to be understood as a period of time that marks the conjunction of the Sun, Moon and planets in a zodiacal sign (cf. T4). However, this astronomical process could represent the background to the cosmological one described by Cleanthes in relation to *Ekpyrosis*: Cleanthes does not mention any Great Year, but clearly seems to link the cosmic conflagration to the moment when the Moon and the other celestial bodies join the Sun (τῆ ἐκπυρώσει λέγει τὴν σελήνην καὶ τὰ λοιπὰ ἄστρα τὸν ἥλιον ἐξομοιώσειν πάντα ἑαυτῷ καὶ μεταβαλεῖν εἰς αὐτόν).¹⁰³ Nemesius attributes a similar view to the Stoics in general: after a certain period of time, the planets return to the area of the zodiac that each occupied at the time when the cosmos originated, retaining their original size and extension (ἀποκαθισταμένους τοὺς πλανήτας εἰς τὸ αὐτὸ σημεῖον κατὰ τε μῆκος καὶ πλάτος); it is these planets that, at predetermined times, trigger the conflagration and destruction of the universe (ἐν ῥηταῖς χρόνων περιόδοις ἐκπύρωσιν καὶ φθορὰν τῶν ὄντων ἀπεργάζεσθαι).¹⁰⁴

Regardless of the degree of reliability of testimonies of this kind, it is possible to infer from them that the early Stoics' reflection on the Great Year cannot be detached from the problem of *Ekpyrosis*. On the basis of the sources available to us, the physical causes and the cosmological functioning of the Stoic world conflagration can be outlined with a fair level of accuracy. It essentially depends on the gradual consumption of water, which is entirely concentrated in the earth and is subject to a continuous process of exhalation (ἀναθυμίασις). This exhalation 'nourishes' the celestial bodies, which are in turn made of fire.¹⁰⁵ Thus, once entirely 'dehydrated', the cosmos becomes so dry that it burns due to the fire released by the celestial bodies, until it is completely destroyed.¹⁰⁶ The theory of *Ekpyrosis* had already been

¹⁰² Transl. by Long and Sedley (1987) I, 309, with a few changes.

¹⁰³ SVF 1.510 (= Plut. *De comm. not.* 1075D3–E1). Note that also in Plato's *Timaeus* the creation of celestial bodies (36d–38b) comes before the genesis of time (38b–39e). See Mansfeld (1989) 146–7 n. 52, which, moreover, strongly questions the idea of a Babylonian influence (via Berossus) on the Stoic concept of *Ekpyrosis* (on this point, see below, n. 120).

¹⁰⁴ SVF 2.625 (= Num. *De nat. hom.* 38).

¹⁰⁵ Cf., e.g., SVF 1.506.

¹⁰⁶ Cf., e.g., SVF 1.102. The bibliography on the various aspects of Stoic *Ekpyrosis* is enormous. In addition to the secondary literature cited below, I will limit myself here to referring to Hahn (1977) 185–99, Furley (1999) 434–9, Gourinat (2002), White (2003) 141–3, Salles (2005), and Long (2006).

introduced by Zeno into his physics,¹⁰⁷ but perhaps it had not been developed extensively enough to avoid misunderstandings and disputes on this point among his successors. In this regard, some scholars¹⁰⁸ have pointed out that Cleanthes¹⁰⁹ did not properly attribute the conflagration to the divine will, but made it only a side effect and negative consequence of the heat of the Sun, which in itself is something beneficial and positive for humankind. Instead, Chrysippus, who developed the most complete and mature thoughts on the subject,¹¹⁰ was convinced that *Ekpyrosis* was a deliberate act of God, indeed the primary purpose of his action, since—as the philosopher argues in Book 1 of his treatise *On Providence*—a moist and ordered cosmos remains an entity divided between body and soul, while a fiery and destroyed cosmos is an ennobled entity, insofar as it is reduced to its soul and its *hegemonikon*.¹¹¹ However, valid arguments have recently been put forward to bring Cleanthes' cosmogonic theory closer to those of Zeno and Chrysippus.¹¹²

What is certain, however, is that among Chrysippus' successors a 'heterodox' approach to the issue of the cosmic conflagration emerged that paved the way for the abrupt reversal of the trend with the Middle Stoicism of Panaetius, which was to strongly affirm the eternity of the world.¹¹³ In the final stage of the early Stoa, the only philosopher who apparently tried to remain faithful to Chrysippus' *Ekpyrosis* was Archedemus of Tarsus. But the innovations he introduced, according to Aëtius¹¹⁴ and Simplicius,¹¹⁵ are a clear sign of the fact that the traditional version of the doctrine of conflagration had been much debated and then progressively abandoned within the Stoic school. Evidently, this also depended on the inability of Chrysippus' pupils to

107 Cf., e.g., SVF 1.106 (on which see Zeller [1876]), 107, and 109. To these testimonies we should add the important piece of evidence by Alex. Lyc. 19.2–4 (= LS 46I), first restored by Mansfeld in van der Horst/Mansfeld (1974) 74 n. 293–6 and, above all, in Mansfeld (1989) 147–8; see *ibid.* 149–73.

108 In particular, Salles (2005) and (2009); but see already Mansfeld (1989) 173–83.

109 On Cleanthes' *Ekpyrosis* theory, cf., e.g., SVF 1.510–512.

110 Cf. SVF 2.585–632.

111 SVF 2.605 (= Plut. *De Stoic. rep.* 1053_B4–c4 = LS 46F, *partim*).

112 See Hensley (2021), who endorses the idea of the uniformity of the cosmogonic views held by Zeno, Cleanthes, and Chrysippus. A middle position is upheld by Harriman (2021).

113 Panaet. test. 130–135 Alesse, on which see Alesse (1997) 264–8. *Ekpyrosis* was only rehabilitated in the 1st century BC by Posidonius, even though he had been a pupil of Panaetius. In all likelihood, though, his was an isolated reaction to the widespread scepticism that had led to the demise of this ancient theory. Cf. Posid. fr. 13, 97a/b, and 99b Edelstein/Kidd, on which see Kidd (1988) I, 118–21, 391–4, and 407–8.

114 Aët. 2.5a.3 MR (II, p. 826 = DG, p. 332.26 = Arched. Tars. SVF 3.15), where Archedemus is said to have identified the earth as the *hegemonikon* of the cosmos, thus making it something more than just the centre of the cosmos. See the commentary by Mansfeld/Runia (2020) II, 829–30.

115 Simpl. in *Coel.* pp. 512.28–513.7 Heiberg (= Arched. Tars. SVF 3.16), where Archedemus is said to have placed fire at the centre of the cosmos, not of the earth. *Mutatis mutandis*, this position had already been upheld by Philolaus (44 A 16–7, 21 DK), on which see Huffman (1993) 231–61.

respond to all the objections to the *Ekpyrosis* theory that had been raised by rival schools and therefore on the need to develop new theories supported by more valid argumentative strategies. However, the sources at our disposal attest that the majority of ‘heterodox’ Stoics (‘heterodox’, that is, with regard to this point) preferred a (radically) sceptical attitude to the corrective arguments that had been introduced, i.e. they preferred to suspend judgement on the subject. The case of Zeno of Tarsus is paradigmatic in this respect.

T15. Eus. *Praep. ev.* 15.18.3 Mras (II, p. 383)¹¹⁶

τὸν μὲν γὰρ τοῦτου μαθητὴν καὶ διάδοχον τῆς σχολῆς Ζήνωνά φασιν ἐπισχεῖν περὶ τῆς ἐκπυρώσεως τῶν ὅλων.

They say that his (sc. of Chrysippus) disciple and successor in the direction of the school had suspended judgement regarding the conflagration of the universe.

At first sight, *epoche* may seem as the most ‘diplomatic’ solution to circumvent the difficulties with a structurally problematic theory. But the attitude of Zeno of Tarsus actually constitutes a turning point in the cosmological speculation of the early Stoics, who—despite certain nuances—until Chrysippus’ time had found one of its foundations in the theory of cosmic cycles. This is all the more true if we consider that Zeno’s ‘scepticism’ was also shared by Diogenes of Babylon. Before Panaetius, Boethus of Sidon had already decisively rejected the *Ekpyrosis* theory, reforming Chrysippus’ physics in a decidedly Aristotelianizing sense.

T16. Phil. Al. *Aet.* 76–78 Cohn/Reiter (pp. 96–7)¹¹⁷

76. Νικηθέντες δὲ ὑπὸ τῆς ἀληθείας καὶ τῶν ἀντιδοξούντων ἔνιοι μετεβάλλοντο· προσκλητικὴν γὰρ ἔχει δύναμιν τὸ κάλλος, τὸ δ’ ἀληθὲς δαίμονιως ἐστὶ καλόν, ὡς τὸ ψεῦδος ἐκτόπως αἰσχρόν. Βοηθὸς γοῦν ὁ Σιδώνιος καὶ Παναίτιος, ἄνδρες ἐν τοῖς Στωϊκοῖς δόγμασιν ἰσχυρότες, ἅτε θεόλη⁵πτοι, τὰς ἐκπυρώσεις καὶ παλιγενεσίας καταλιπόντες πρὸς ὀσιώτερον δόγμα 77. τὸ τῆς ἀφθαρσίας τοῦ κόσμου παντὸς ἠυτομόλησαν. λέγεται δὲ καὶ Διογένης ἠνίκα νέος ἦν συνεπιγραψάμενος τῷ δόγματι τῆς ἐκπυρώσεως ὀψὲ τῆς ἡλικίας ἐνδοιάσας ἐπισχεῖν· οὐ γὰρ νεότητος ἀλλὰ γήρωσ τὰ σεμνὰ καὶ περιμάχητα διδεῖν, καὶ μάλισθ’ ὅσα μὴ δικάζει ἢ ἄλογος⁵ καὶ ἀπατηλὸς αἰσθησις ἀλλ’ ὁ καθαρῶτατος καὶ ἀκραϊφνέστατος νοῦς. 78. ἀποδείξεισι δ’ οἱ περὶ τὸν Βοηθὸν κέχρηται πιθανωτάταις, ἅς αὐτίκα λέξομεν· εἰ, φασί, γενητὸς καὶ φθαρτὸς ὁ κόσμος, ἐκ τοῦ μὴ ὄντος τι γενήσεται, ὅπερ καὶ τοῖς Στωϊκοῖς ἀτοπώτατον εἶναι δοκεῖ. διὰ τί; ὅτι οὐδεμίαν φθοροποιὸν αἰτίαν εὐρεῖν ἔστιν, οὐτ’ ἐντὸς οὐτ’⁵ ἔκτός, ἢ τὸν κόσμον ἀνελεῖ· ἐκτὸς μὲν γὰρ οὐδὲν ἔστιν ὅτι μὴ τάχα που κενόν, τῶν στοιχείων ἀποκριθέντων εἰς αὐτὸν ὀλοκλήρων, εἴσω δ’ οὐδὲν νόσημα τοιοῦτον, ὃ γένοιτ’ ἂν αἴτιον θεῶ τοσοῦτῳ διαλύσεως. εἰ δ’ ἀναίτιως φθείρεται, δῆλον ὅτι ἐκ τοῦ μὴ ὄντος ἔσται ἢ γένεσις τῆς φθορᾶς, ὅπερ οὐδ’ ἢ διάνοια παραδέξεται.

116 = Ar. Did. fr. 36 Diels, *DG*, p. 469 (= Zen. Tars. *SVF* 3.5).

117 = Diog. Bab. *SVF* 3.27; Boet. Sid. *SVF* 3.7; Panaet. test. 131 Alesse (= LS 46P, *partim*).

Some conquered by truth and the arguments of their opponents have charged their views. For beauty has power to call us to it and truth is marvellously beautiful as falsehood is monstrously ugly. Thus Boethus of Sidon and Panaetius, powerful supporters of the Stoic doctrines, did under divine inspiration abandon the conflagrations and regenerations and deserted to the more religious doctrine that the whole world was indestructible. It is said too that Diogenes in his youth subscribed to the doctrine of the conflagration but in later years felt doubts and suspended judgement, for it is not given to youth but to old age to discern things precious and worthy of reverence, particularly those which are judged, not by unreasoning and deceitful sense, but by mind when absolutely pure and unalloyed. The demonstrations given by the school of Boethus are very convincing and I will proceed to state them. If, they say, the world is created and destructible we shall have something created out of the non-existent and even the Stoics regard this as quite preposterous. Why so? Because it is impossible to find any destructive cause either within or without to make away with the world. For there is nothing outside it except possibly a void, since the elements have been completely merged into it and within it there is no distemper such as to cause a dissolution of so great a deity. And if it is destroyed without a cause, clearly the origin of the destruction will arise from what does not exist and this the understanding will reject as not even thinkable.¹¹⁸

When it comes to Diogenes of Babylon, Philo's testimony also raises a relevant question with regard to the aforementioned doctrine of the Great Year. Diogenes underwent a radical change of attitude towards *Ekpyrosis*: from a youthful attitude of uncritical acceptance of this theory—probably the result not so much of conviction, as of the veneration he felt for his teacher Chrysippus—in old age he switched to a form of scepticism. Philo's words give us a sense of the painful reflection that led to this outcome (*ἐνδοιάσας ἐπισχεῖν*). It seems unlikely that Diogenes of Babylon began to express disillusionment with this theory before Chrysippus' death around 208/204 BC, when Diogenes was about 25 years old. Nor is it possible that Diogenes proposed his theory of the Great Year, which 'reformed' the parallel Heraclitean theory, *after* repudiating the Chrysippean theory of *Ekpyrosis*. In abandoning the doctrine of conflagration, Diogenes must at the same time have rejected the theory of the Great Year, which therefore also belonged to the youthful phase of his philosophical career. Of course, if one does not accept that there is a close link between *Ekpyrosis* and the Great Year, one is free to assume that Diogenes' rejection of the conflagration doctrine did not entail a repudiation of the Great Year, but only a reformulation of it.¹¹⁹

¹¹⁸ Transl. by Colson (1941) 239 and 241.

¹¹⁹ Diogenes probably attempted to detach the original idea of a Great Year from that of a succession of time periods linked with the movement of the planets. But we cannot conclude that his doubts about the Great Year (and, consequently, about the world conflagration) coincide with or stem from those about Chrysippus' definition of time as an extension (*διάστημα*) of movement (*SVF* 2.509–521). I think, however, that Diogenes was aware of a chronological problem with regard to (his own interpretation of) Heraclitus' cosmology, especially in relation to **T13**. Although this is a speculative remark, it might be useful to recall that in *On the Eternity of the World* (52–54 = LS 52A, *partim*), taking his cue from the

Most probably, like Chrysippus (and supposedly all the early Stoics), Diogenes knew Heraclitus via direct sources, in the sense that he had access to the original version of Heraclitus' book *On Nature* and could better contextualize what unfortunately are only fragments to us. If so, what it is important to emphasize on the historical-philosophical level is the fact that Diogenes' critical revision of the Chrysippean theory of *Ekpyrosis* went hand in hand with his 'troubled' relationship with Heraclitean philosophy. From this point of view, the correction of the duration of Heraclitus' Great Year is a clear indicator of the fact that, perhaps already at a (relatively) young age, Diogenes acknowledged Heraclitus as an authoritative reference point, yet distrusted any attempt to *uncritically* receive his doctrines into the Stoic system, and even more so the interpretations of such doctrines provided by Chrysippus and the other first-generation Stoics. Therefore, assuming that the mature Diogenes rejected the theory of the Great Year and that of a world conflagration *at the same time* (and this is the most likely hypothesis), I believe that his 'heterodox' position towards Chrysippus also—perhaps, above all—depended on his own rethinking of the foundations of Heraclitus' physics.¹²⁰

4 Conclusions

In this paper I have set out from Aët. 2.32.8–10 MR (T1) in order to examine in depth the Heraclitean and early Stoic theories on the Great Year and cosmic conflagration. I

Platonic view of the nature of the world (as single and everlasting) and time (as the measure of the movement of the Sun and the revolution of the heavens), Philo contends that time—which is by definition without beginning or end—and the world cannot but cover the same span: uncreated time necessarily implies an uncreated world (εἰ γὰρ ἀγένητος ὁ χρόνος, ἐξ ἀνάγκης καὶ ὁ κόσμος ἀγένητος). In other words, Philo observes, the world must be coeval with time and its cause, i.e. God (γίνεται ὁ κόσμος ἰσῆλιξ τοῦ χρόνου καὶ αἴτιος). The contradiction seems to lie in the fact that an eternal God such as the Stoic one governs not just the moment in which the universe comes to an end, but more generally, qua Providence, all the various phases of the cosmos' existence (e.g., SVF 2.1065 [= LS 460] and LS 280—see Reydams-Schils [1999] 70–83). Therefore, time (which depends on God) should continue to exist even when the conflagration has destroyed the world order and thus, in a sense, also time, since without a world order there cannot be any movement of the parts that make up the world (see Long/Sedley [1987] I, 310–1; II, 306). I wish to thank the anonymous referees and Michele Alessandrelli for encouraging me to rethink this topic and to reformulate the original version of this footnote.

120 According to Reinhardt (1916) 183–6, Diogenes conflated the cosmological Great Year with the eschatological one (that is, the span of time it takes the soul to return to the point from which it came and receive eternal damnation or bliss), in order to introduce Berossus' Babylonian astrological theories into Stoic doctrine for the first time, based on the authority of Heraclitus (as well as Orpheus and Hesiod). *Contra* Mondolfo in Zeller (1968) 263–4. In any case, if Diogenes ever made this conflation, it must have happened in the youthful phase of his career (for the reasons set out above).

contend that the mss. reading of 2.32.8 MR, according to which Heraclitus measured the Great Year as 18,000 solar years, is correct. Moreover, in this field the *Placita* provide reliable evidence concerning Heraclitus' view. As a matter of fact, no source seems to be more reliable than Aëtius on this issue and the Babylonian doctrine(s) of the Great Year, which more or less directly influenced Heraclitus, confirm this doxographical account. Given such arguments, we may take Aët. 2.32.9 MR to mean that Diogenes of Babylon's Great Year corresponds to 6,570,000 solar years. As a further step, I have claimed that Heraclitus indeed envisaged a conflagration as cosmo-physical phenomenon strictly related to his theory of fate and necessity. On the one hand, the existence of periodical and eternal destructions in Heraclitus' cosmology implies a conflagrational event of some kind; on the other hand, reports on the eternity of Heraclitus' cosmos do not necessarily imply that he did not posit a conflagration. Finally, noting that Diogenes of Babylon changed his views about the conflagration and ended up rejecting this 'orthodox' Stoic doctrine, I have argued that Diogenes must have simultaneously rejected the traditional Stoic doctrine of the Great Year and the theory of conflagration in his maturity or, at any rate, that he abandoned the connection between the Great Year and the Stoic conflagration. In this regard, Aëtius' account of the revision by Diogenes of Babylon of Heraclitus' measurement of the Great Year suggests that he did not uncritically accept the Heraclitean doctrine in his version of Stoic physics.

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