

CHAPTER 7

*The eclectic Pythagoreanism of
Alexander Polyhistor*

A. A. Long

INTRODUCTION

Ask anyone to list some Greek philosophers, and chances are that Pythagoras will be mentioned. His name was, of course, one of the most illustrious throughout the eleven hundred years of Greek philosophy's creative history, and it became more hallowed the further one gets from the great man's actual lifetime. The closer we are to that date, however, the less we can say with any security about what Pythagoras thought and taught. Starting in the third century BC, many works purporting to fill that gap were fabricated. They drew some of their content from material attributed to the late fifth/early fourth-century Pythagoreans Philolaus and Archytas, but most of it from a mishmash of Academic or Peripatetic ideas.¹

This Hellenistic corpus of work on Pythagoras and Pythagoreanism includes one text that is significantly different. I refer to the so-called *Pythagorean Commentaries* (*hypomnemata*) recorded by a certain Alexander of Miletus, nicknamed Polyhistor, in the first decades of the first century BC, and thence transmitted by Diogenes Laërtius in his *Life of Pythagoras* (8.25–33), probably composed around AD 200.² Alexander was one of Diogenes'

I am grateful to Carl Huffman and David Sedley for encouraging me to work on Alexander Polyhistor, and to Phil Horky and Jaap Mansfeld for helpful comments on the draft I delivered to the Cambridge Conference, where I benefited particularly from observations made by the late Anna Ju. I thank Carl Huffman again for further suggestions that have enabled me to improve this final version. By the time this study was already in press I learned that Alexander Polyhistor is the subject of a chapter that André Laks will contribute to the forthcoming Cambridge University Press volume *A History of Pythagoreanism*, edited by Carl Huffman.

¹ See Thesleff 1965.

² Commentaries or notes is a better translation of *hypomnemata* than Hicks' 'memoirs' (in the Loeb edition of Diogenes Laërtius). According to Iamblichus, *VP* 262, Timaeus of Tauromenium drew on a work entitled *People of Croton's Hypomnemata* for reconstructing his own history of the Pythagoreans, on which see von Fritz 1940: 65–6, and Burkert 1972: 104–5. *Hypomnemata* is the standard term for Pythagoras' supposed writings, and is already found in the fabricated Letter of Lysis to Hipparchus (Burkert 1961: 25), where Pythagoras is said to have bequeathed his *hypomnemata* to his daughter Damo. For recent discussion of this letter, see Kahn 2001: 74–6, and Riedweg 2005: 120–1.

principal sources for biographical details such as the birthplace of his philosophers, but this passage concerning the Pythagoreans, taken from Alexander's *Successions of Philosophers*, is the only extended citation of his work that Diogenes has included. We are in no position to determine how much scissors and paste Alexander applied to what he allegedly 'found' (D.L. 8.24) in this Pythagorean manual, or the extent of Diogenes' editing of what he in turn found in Alexander's material. Unlike the typical pseudo-Pythagorean works, which were composed in a form of Doric, the text Diogenes excerpted is written in regular Attic dialect. In other ways, too, it is unrepresentative of those other works, because of the sheer number of doctrines it records and the variety of philosophical and medical theories it represents, with sources that seemingly range from as early as the fifth century up to and including the late second or early first century BC. For all these reasons Alexander's text (as I shall call Diogenes' excerpt) is of exceptional interest.

During the first half of the twentieth century Alexander's text attracted a fair measure of scholarly work (as this study will subsequently note), but some sixty years ago that activity waned. It is time to take a fresh look at this intriguing material, which is mentioned in the most recent studies of Pythagoreanism but only cursorily.³

Most of Diogenes' *Life of Pythagoras* is a typical compilation of biographical details, anecdotes and summaries of doctrine. Early on Diogenes (8.6) ridicules reports that Pythagoras left no writings, and gives the titles of several works attributed to him. The content of these works, according to Diogenes, was entirely ethical and prescriptive with the exception of metempsychosis, a teaching that he says Pythagoras originated (8.14). Diogenes then asserts that no Pythagorean doctrines were accessible before the time of Philolaus. After recording a long list of so-called Pythagorean precepts (*symbola*) such as 'Don't stir the fire with a knife' or 'Don't sit down on your bushel', and a further list of prescriptions and exemplary actions, Diogenes gives his report from Alexander's *Successions* concerning the *Pythagorean Commentaries*.

Diogenes (8.25–33) purports to cite several pages of Alexander's 'findings' from this work, and appends to them a further set of precepts and some doctrinal statements (8.34–5) taken (so he says) from Aristotle's work *On the Pythagoreans* (fr. 195 Rose). He then rounds off this sequence of excerpts with the words: 'This is what Alexander says he found in the

³ See Burkert 1972: 53; Dillon 1977: 342–4; Huffman 1993: 218–19; Kahn 2001: 79–83 (the fullest discussion, which I discuss at the end of this paper); and Riedweg 2005: 23.

Pythagorean Commentaries, and what comes after them is stated by Aristotle' (8.36). Diogenes' *Life of Pythagoras* continues for a further fifteen sections of largely anecdotal material. Its doctrinal core is the excerpt from Alexander.

This man was the author of an astonishing number and range of works, most of them on places and peoples: hence his nickname Polyhistor.⁴ Cited especially by the grammarian Stephanus of Byzantium, Clement of Alexandria and anonymous scholia, Alexander was in essence an antiquarian compiler, whose works consisted largely of excerpts from his voluminous reading. Apart from his *Successions of Philosophers*, he also wrote a work *On Pythagorean Precepts* (Clem. Alex. *Strom.* 1.358). It is a fair guess that Diogenes Laërtius garnered his list of *symbola* from this work. There is nothing else to suggest that Alexander had any special interest in the ideas of philosophers as distinct from details about their lives. He was a Greek by birth, but spent his mature years (c. 80–60 BC) in Rome, where the mythographer Hyginus was one of his students.

Alexander's lifetime gives us a terminus *ante quem* for the date of the *Pythagorean Commentaries*, but suggestions about when this work was composed before then have ranged from the late second/early first century BC (Zeller 1903: 108) to as early as the first half of the fourth century (Wellmann 1919, Delatte 1922, and Wiersma 1942). Since the publication of Burkert's *Weisheit und Wissenschaft* in 1962, the favoured date for the work has been the end of the third century.⁵ Controversy over the compositional date of the *Pythagorean Commentaries* is inextricably implicated in questions concerning the work's sources and originating doctrines. Zeller found in it strong traces of Stoicism, but most later scholars, with the exception of Mansfeld, have not followed his lead.⁶ Wellmann, Delatte and Wiersma opted for an early date because they found numerous connections with Pre-socratic thinkers, especially Heraclitus, Empedocles, Alcmaeon and Diogenes of Apollonia, and also with Hippocratic texts. Wellmann (1919: 226) actually proposed that the text, apart from a few Stoic accretions, derives from the circle of such Pythagoreans as Philolaus and Eurytus. His study

⁴ I take this and the following information from the very informative article of Schwartz 1894.

⁵ A later date for Alexander's source text is supported by parallels between Aëtius 4.5 (Diels 1879: 391) and D.L. 8.30, where the context of both passages is the location of the soul's cognitive faculty. Aëtius refers to 'certain of the more recent thinkers', a formula he uses at 2.29.4 (Diels 1879: 360) to signify Pythagoreans subsequent to 'the research of Aristotle and the assertion of Philip of Opus'. I owe this point to Jaap Mansfeld.

⁶ See Wiersma 1942: 97, 112, and Festugière 1945: 1. In my opinion, they do not undermine the cumulative effect of the Stoic parallels that Zeller 1903: 103–5, adduced. Zeller's findings have been confirmed and supplemented by Mansfeld 1971: 98–102; see below.

was sufficiently influential for Kranz to include the entire Alexander passage in subsequent editions of DK.⁷ But in an extended study from 1945, Festugière sought to prove that the main body of the text, together with its anatomical observations (D.L. 8.30–1), cannot precede the late fourth/early third century, and that such Stoic words and formulations as it does contain are due to a still later compiler. Subsequently, with the exception of a short article by Boyancé (1967), proposing an earlier date for part of Alexander's original text, the findings of Festugière have been seemingly accepted without any question.

In view of this complex history of interpretation we had better make no presuppositions concerning the compositional date of the *Pythagorean Commentaries*, as supposedly quoted by Alexander, and whether a single author was primarily or wholly responsible for the work's composition. For all we know, Diogenes has modified Alexander's text, and Alexander has done the same to the version of the work that he claims to have transmitted. It is virtually certain that Alexander worked from material that already contained the different chronological and doctrinal strata that we find in Diogenes. In the latter's excerpt Alexander's text opens with statements about principles and mathematics that unquestionably reflect the systematic Platonism propagated by Speusippus and Xenocrates. Yet, much of what follows this beginning has no obvious Academic background and could be inspired by pre-Platonic or post-Platonic ideas, or by both. In which case, the truth about the work's composition as a whole would be partly but only partly grasped by any one of the scholars I have cited.

These uncertainties raise many questions about how we should situate this text in the history of Pythagoreanism. Should we think of it as an early instance of the Neo-Pythagoreanism later associated with such names as Moderatus, Numenius, and Nicomachus, or as largely a product of early Academic Platonism, projected onto the name of Pythagoras, or as a text that contains traces of an early and authentic Pythagoreanism, or, finally, as a text that has been strongly marked by Stoicism? I will argue that all four of these interpretative options are in order, making Alexander's text too heterogeneous to be associated with a single philosophical movement. That heterogeneity, of course, may still allow the text to be the work of a single historian or doxographer, as I will actually propose in the conclusion of this study.

⁷ It is presented in DK vol. 1 58 'Pythagorean School' as B1a under the heading of 'Anonymous Pythagoreans' alongside texts of Aristotle.

TEXT AND CONTEXT

Before taking up these issues, I will comment briefly on the relevance (or irrelevance) of Alexander's text to philosophy in the first century BC, which is this volume's general theme. The passage in Diogenes Laërtius takes the form of a doxography, organised topically as follows:

- 1 Principles (Monad and Indefinite Dyad), numbers, four elements, universe (8.25)
- 2 The Earth: including equality of the opposites up down, light dark, hot cold, dry moist; terrestrial and celestial air (8.26)
- 3 Heat as the source of divinity, heavenly bodies, human beings and all other living things (8.27)
- 4 Immortality of soul in general, embryology and sensory functions (8.28–9)
- 5 Tripartition of human soul in particular and its relation to the body (8.30)
- 6 Eschatology: destiny of pure and impure souls and demonology (8.31–2)
- 7 Ethical principles and rituals (8.33)

Festugière (1945: 5–8) maintained that this order of topics 'must' depend on Theophrastus' doxographical categories, as found in Aëtius (in the order principles, universe, earth, soul and seed), but that its primary source is the *Timaeus*.⁸ Alexander's topics do correspond to a large extent with Aëtius' headings, but the proposed connection with the *Timaeus*, though sometimes close, is not as consistently obvious as Festugière maintained. Here, as elsewhere in his important study, Festugière was overeager to establish a post-Platonic date for all the material in the Alexander doxography.

Was this text available to Roman authors of the first century BC? If so, little possible trace of it is evident in Cicero. He drops the name of Pythagoras in no fewer than seven of his philosophical works, but discursively for the most part, and at greatest length in the preface to *Tusculans* 4, where he endorses the tradition that Pythagoreans had a great influence on the early culture of Italy but coyly declines to expatiate on its numerous traces (*vestigia*). Cicero's Pythagoras is primarily the exalted founder of an esoteric fellowship, renowned for piety, defence of divination, and an 'absurd' ban on eating beans.⁹ As far as doctrines are concerned, Cicero cites the soul's immortality, its consisting of number, and

⁸ For Aëtius, see Diels 1879: 181–4; Mansfeld and Runia 2009. For the *Timaeus* see 27d–31b, 48a–52d and 53c–57c.

⁹ *ND* 1.74: *Laws* 2.26; *Div.* 1.5, 2.119. Cicero firmly rejects the legend that King Numa was a follower of Pythagoras, *Rep.* 2.28.

as having two parts, which, in this context, he also attributes to Plato.¹⁰ He gives no comprehensive doctrinal summary of Pythagoreanism as in Alexander's report. There is just one passage where Cicero chimes to some extent with Alexander's text. In a doxographical survey of basic principles, probably derived from Antiochus, Cicero reports that 'the Pythagoreans take the universe to originate from numbers and mathematical principles' (*Luc.* 118). Strikingly, however, Cicero does not follow Alexander and the later Pythagorean tradition in positing the Monad and Indefinite Dyad as the foundation of the system.

In the introduction to his translation of the *Timaeus*, Cicero gives Nigidius Figulus the credit for reviving the long dormant philosophy of Pythagoras.¹¹ Figulus was celebrated for his learning, but there is no scrap of evidence concerning anything he wrote about Pythagorean doctrines. The closest Latin text I have found that has any clear connection with the Alexander material is Varro (*Ling. Lat.* 5.11), who says that, according to Pythagoras, 'all the principles of things are binary, such as limited and unlimited, good and bad, life and death' (*omnia rerum initia bina esse, ut finitum et infinitum, bonum et malum, vitam et mortem*).¹² Pythagorean doxography vacillates between monism and dualism. In its oldest form, as attested by Aristotle (*Metaph.* 1, 987a13), the Pythagoreans posit two *archai*, the limited and the unlimited, a doctrine which in essence goes right back to Philolaus (DK 44 B1). Varro evidently had access to a text that set out a Pythagorean table of opposites, starting with limit and unlimited. Those terms, however, are completely absent from Alexander's doxography, while in Varro's statement there is no mention of numbers. I infer that Varro had access to a text, perhaps a summary of Aristotle's *Metaphysics*, which gave a quite different account of Pythagorean principles from the one we find in Alexander Polyhistor.

Before returning to that document, it is worth noting that Posidonius, according to his own words, as reported by Galen (T91 Edelstein/Kidd), said that no writing by Pythagoras has been preserved 'to us'. Posidonius, however, 'from what some of Pythagoras' pupils have written' infers that Pythagoras agreed with Plato and Hippocrates in assigning a composite nature to the soul.¹³ Did Posidonius study the work of such pupils? Many scholars have supposed that the Pythagorean doxography reported by Sextus at *M* 7. 94ff. reached him via Posidonius because the context includes

¹⁰ *Tusc.* 1.10, 39; 4.10. ¹¹ See Dillon 1977: 117. ¹² See Mansfeld 1990: 182.

¹³ Cicero, *Tusc.* 4.10, credits Pythagoras with anticipating 'Plato's bipartite' distinction between rational and non-rational parts of the soul. Plutarch more cautiously (*Virt. mor.* 441A) suggests that Pythagoras was probably aware of this distinction.

Sextus' allusion to Posidonius' supposed commentary on the *Timaeus*.¹⁴ But I. G. Kidd (in his commentary on Posidonius) has convincingly shown that there is no reason to extend Posidonius' presence in Sextus' text beyond that single statement. If that is so, we have no secure evidence that Posidonius made any reference to the mathematical cosmology credited to Pythagoreanism in the Academy and Lyceum, and reported in Alexander's text.¹⁵

In light of these points about Cicero, Varro and Posidonius, it seems quite doubtful whether Alexander's text made any significant impact in Rome during the first century BC. Dillon (1977: 117) suggests that Figulus 'may have learned his Pythagoreanism from' Alexander, who, he says, 'taught in Rome in the 70s' BC. Maybe so, but did Alexander actually do any teaching? Even if we suppose that he did, it is likely to have involved grammar and antiquarianism rather than any formal instruction in philosophy. As to Cicero, Dillon speculates that, though he never mentions Alexander, 'he should have known of him', and 'may not have got on with him and perhaps ignored him for that reason'. This amusing comment begs all kinds of questions. At this point, we should leave speculation aside, and take a close look at what Alexander tells us about his findings in the *Pythagorean Commentaries*.

PHILOSOPHICAL CONTENT AND CHARACTER

The first section (D.L. 8.25) merits particularly close attention.

Principles

The starting point [*arche*] of everything is the Monad. From the Monad the Indefinite Dyad subsists [*hypothenai*] as matter for the Monad, which is cause.

If anything is certain about Alexander's material, it is the Academic origin of these allegedly Pythagorean principles and elements. The concepts of Monad (or One) and Dyad originated in the early Academy. They were

¹⁴ See Burkert 1972: 54–6.

¹⁵ If, however, Posidonius took the *Timaeus* to be a broadly Pythagorean work, as he may well have done, he could have helped to propagate Roman interest in the specifically Pythagorean tradition. There are a number of intriguing correspondences between Diogenes Laërtius' report of Alexander and well-attested Posidonian material. Thus Posidonius wrote a book entitled *On heroes and daemons* (fr. 24 EK), beings to whom Alexander's Pythagoreans attribute divinatory powers (D.L. 8.32). Much of Alexander's terminology (D.L. 8.25–7) is also found in Posidonius (cf. Posidonius *ap.* D.L. 7.138–9, 142–3). I am grateful to the late Anna Ju for drawing my attention to these correspondences.

seemingly first stated by Plato himself in his famous Lecture on the Good.¹⁶ Under the influence of Speusippus and Xenocrates, these concepts (in place of Philolaus' limit and unlimited) came to be assigned as principles to Pythagoras and the Pythagoreans as early as Theophrastus, and thereafter they become ubiquitous in Pythagorean doxographies.¹⁷ Thus Aëtius (1.3, Lemma on Pythagoras' *archai* (Diels, *DG* p. 281)) states that the Monad is called 'the active and everlasting [or 'specific'] cause, i.e. *nous* God', while the Indefinite Dyad is termed 'passive and material, i.e. the visible world'. However, Aëtius' implicit contrast between visible and intelligible worlds reflects Neo-Platonic influence, of which there is of course no trace in Alexander's text. Its account of the Pythagorean *archai* is quite spare, as compared with parallel accounts given by such later figures as Eudorus and Sextus Empiricus (*M* 10.261–2).¹⁸

Eudorus posits a transcendent One, over and above the other two *archai* (called Monad and Indefinite Dyad), with good and bad things assigned to these latter two principles respectively. In Sextus, the derivation of the Dyad from the Monad is explained in terms of the contrast between *self-identity* (*autotes*, the Monad) and *otherness* (the Dyad). Whatever that distinction means, it purports to provide an explicit account of the relation of the principles to one another. In Alexander, by contrast, all we get is the vague verb 'subsists' (*hypostenai*) to state how the Dyad stands with respect to the Monad.

Neither here nor anywhere else does Alexander's account use the terms 'limit' and 'unlimited'. In contrast with the comparable treatments by later writers he employs no theology or ethics in characterising the principles. As we have seen, Aëtius identifies the Monad with divine *nous*, and in another Aëtian lemma (ps.-Galen 35 (*DG* p. 618)) Pythagoras is said to have made the Monad God and the good, and assigned bad to the Indefinite Dyad alone with its domain extending over the visible world. Cosmic goodness and badness are completely absent from Alexander's account.

This material shows that Alexander's source for his opening section precedes the development of Neo-Pythagoreanism in the sense of a movement whose first principle is an absolutely transcendent One. This chronology is confirmed, I think, by the staccato way Alexander continues (8.25).

¹⁶ See Burkert 1972: 17–22, and Dillon 2003: 17–21.

¹⁷ Thphr., *Metaph.* 11a27–b7; see Burkert 1972: 58–9. For Speusippus and Xenocrates, in detail, see Dillon 2003: 40–63 and 98–111.

¹⁸ On Eudorus, cited by Simplicius, in *Phys.* 181, 10ff. Diels, see Dillon 1977: 126ff. and Bonazzi 2007b.

From numbers to the formed universe

From the Monad and the Indefinite Dyad issue numbers. From numbers, points; from points, lines; from lines, plane figures; from plane figures, solid figures; from solid figures, perceptible bodies whose elements are four: fire, water, earth, and air. These elements interchange and turn about through and through (*di' holon*), and from them is generated a world that is ensouled, intelligent and spherical, with the earth, which is itself spherical and inhabited all around, at its centre. There are also antipodes, and our 'down' is their 'up'.

The generation of numbers from the Monad and Indefinite Dyad is repeatedly ascribed to the Platonists by Aristotle in *Metaphysics* M (e.g. 1081a14, 1098b7). Alexander's five-stage mathematical sequence – points, lines, plane figures, solid figures and perceptible bodies – does not seem to be exactly attested in any extant Academic or Peripatetic material, but Aristotle, in his criticism of Platonist number theory, has the triad line, plane and body (*Metaph.* M 1085a9). In the same context he criticises those who generate magnitudes from the point, probably in reference to Speusippus (1085a32).¹⁹ Theophrastus refers to the derivation of numbers, planes and bodies in a context where he is criticising those who posit the One and the Indefinite Dyad (*Metaph.* 6a25f.). Alexander's full sequence recurs with much more detail in Sextus (*M* 10.276–83), which reads like a greatly expanded version of this section of Alexander's text, and is attributed to Plato himself by Plutarch (*Quaest. Plat.* 1002a).²⁰ We can conclude that Alexander's text depends on Academic doctrine, the rationale of which was to fill out the traditional Pythagorean theory that number is the world's metaphysical and epistemological foundation.

I turn now to the last two items in the mathematical sequence – solid figures and perceptible bodies. In the parallel passage in Sextus (*M* 10.283) the perceptible bodies are identified *in the first instance* with earth, water, air, and fire, which in turn are taken to be derived from 'solids' (*sterea schemata*). We are presumably to understand solids in mathematical terms, such as the cube, pyramid, dodecahedron and icosahedron of Plato's *Timaeus*. Alexander's text is similar, but confusingly expressed. Instead of saying 'perceptible bodies whose elements are four', it would have been better to write: 'the perceptible bodies, earth, air, fire and water, which are the elements of the world'. However, the general point is clear enough.

¹⁹ See Annas 1976: 185.

²⁰ Cf. Burkert 1972: 247, Cherniss 1976: 49, and the references cited by Festugière 1945: 13.

It seems certain, as Festugière has fully argued, that this portion of the cosmology has been ultimately inspired by the *Timaeus*.²¹ It shares with that account the world's sphericity and intelligent soul. Plato also envisions constant inter-transformations between three of the elements, though he exempts earth from that process (*Tim.* 55d–58c). Early Pythagoreanism, by contrast, adopted neither the four-element theory nor the notion of a world soul. Its distinctive cosmological notions such as the central fire, the earth's revolutions around that fire and the counter earth are strikingly absent from Alexander's *Pythagorean Commentaries*.²²

I have not found any exact parallel for Alexander's statement that the earth is 'inhabited all around', which he implies to be a consequence of its spherical shape. Festugière (1948: 20f.) appropriately refers to *Phaedo* 109a9–b4, where Plato writes about people living in many hollows of the spherical earth. Reminiscence of Plato is probably confirmed by Alexander's ensuing reference to 'antipodes, where our "down" is their "up"', an idea that recalls *Timaeus* 63a. However, the geography of Alexander's text may also reflect authentically old Pythagorean doctrine, because Aristotle alludes to Pythagoreans in connection with his own account of right and left, and of up and down.²³ There, in a discussion of the stars' risings and settings, Aristotle contests the view of the Pythagoreans, who 'situate us above [in the upper hemisphere] and to the right, and situate those [who live in the opposite region] below and to the left'.²⁴

Is Academic doctrine sufficient to account for the rest of this first section of Alexander's text? Not quite. The statement concerning the four elements' 'through and through inter-transformations' specifically recalls the early Stoic doctrine of the elements' origination from one another in cosmogony, and the phraseology (*metaballein kai trepesthai di' holon*), calling attention to the elements' mutual co-extension, is distinctively Stoic.²⁵ Zeno was sufficiently interested in Pythagoreanism to write a work so entitled (D.L. 7.4). Nothing is known about its contents, but, with the

²¹ Festugière 1945: 17–18 with references; cf. Zeller 1903: 104 n. 2.

²² The attempt by Wellmann 1919 to assign Alexander's evidence to a Pythagorean contemporary of Plato, drawing on fifth-century Pythagoreanism, is trenchantly refuted by Festugière 1945. Delatte (1922: 198–201) provides numerous Pythagorean texts to illuminate Alexander's material, but they are largely drawn from Neo-Pythagorean sources. Wiersma (1942: 98–9) recognises that Alexander's first section is Academic in origin but defends Wellmann's general thesis concerning the early date of the main body of the text.

²³ *De Caelo* 2.2.285b22, cited by Delatte 1922: 205.

²⁴ Cf. Cicero, *Rep.* 6.21 in Scipio's discourse on two opposite habitable zones, which Cicero may intend to sound Pythagorean.

²⁵ See *SVF* 1.102 and 2.413. The Stoic affinity is noted by Zeller 1903: 104 n. 2, Festugière 1945: 17, and Mansfeld 1971: 99.

exception of its explicit mathematics, Alexander's account of principles and cosmology is quite consistent with Stoicism. As in his 'Pythagoreanism', so too in early Stoicism we have: a pair of antithetical and coordinate principles, one active the other passive, with the passive principle standing to the active one in a relation of matter to form; four interchanging elements, earth, air, fire, water; and an intelligent and ensouled spherical universe.²⁶

These Stoic affinities do not cast doubt on the primarily Academic and Peripatetic provenance of Alexander's Pythagorean principles and cosmology. Plato's *Timaeus* both directly and through its Academic and Peripatetic interpreters exercised a major influence on the development of Stoic physics.²⁷ According to Theophrastus, Plato could even be credited with two principles, god (or the good) and matter, which strikingly anticipate and correspond to Stoic doctrine.²⁸ Alexander's text, however, seems to signify an author who wanted to mark doctrinal convergences between so-called Pythagoreanism and Stoicism, probably because the latter was the dominant philosophy at the time of composing this account. Stoic influence on Alexander's original will emerge still more clearly when we turn to the dominant role his text assigns to heat.

Alexander's opening section moves clearly and coherently from the two basic principles to the formed universe with the earth at its centre. The next two sections (8.26–7) treat features of the universe and the earth, but without comparable coherence. There are three dominant notions: first, equality of opposite powers; second, a theory about air and *aether*; and third, the role of heat as the essence of divinity and the cause of life. I will take these notions in order.

Equality of opposite powers: light dark, hot cold, dry moist (D.L. 8.26)

Light and dark have equal shares in the universe, and so too, hot and cold, and dry and moist. In the case of the latter, when hot predominates, summer comes; when cold, winter; when dry, spring; and when moist, autumn. If they are all of equal strength, the year is at its finest; it is healthy during the freshness of spring, but unhealthy in the decay of autumn. During the day too the morning is fresh but the evening is in decay, and therefore more unhealthy.

²⁶ The sphericity of the universe attested by Philolaus B7 is the only early Pythagorean doctrine here; see also Burkert 1972: 303–5.

²⁷ See Reydam-Schils 1999.

²⁸ Theophrastus Fr. 230 in Fortenbaugh *et al.* 1992. At D.L. 3.69 Plato's principles are god and matter. See Sharples 1995: 69, and Sedley 1998b: 349–50.

The equality of opposites has an archaic ring.²⁹ It recurs in different guises in Parmenides, Empedocles and, most relevantly perhaps, in Alcmaeon, who (DK 24 B4) explained health in terms of the *isonomia* of such opposites as moist dry, cold hot and sweet bitter, as does Plato in the physiology of *Timaeus* 82a.³⁰ Comparable passages occur in the early Hippocratic corpus, where, as in Alexander, seasonal changes are explained by the temporary dominance of one such opposite over another.³¹ Aristotle and the Stoics seem to have viewed the terrestrial elements as equal in as much as they are incessantly subject to interchange, as with Alexander's Pythagoreans, but his application of opposites to explain the seasons, and the healthiest and most noxious times, could well go back to late fifth-century sources.

The next section is highly compressed and poorly organised, but it does have a primary controlling idea, the vital power of heat.

Air and aether, heat, divinity and the source of life (D.L. 8.26–8)

The air around the earth is stagnant and noxious and everything within it is mortal; but the uppermost air is in perpetual motion, pure and healthy, and everything therein is immortal and therefore divine. Sun, moon and the other stars are gods; for in them heat predominates, and heat is the cause of life. {The moon gets its light from the sun.} Gods and human beings are akin, because the human being shares in heat. Therefore God cares for us. {Fate is the cause of the world order both in general and in particular.} The sun's ray penetrates the *aether*, both that which is cold and that which is dense – they call [here Alexander switches to direct speech] the [terrestrial] air cold *aether*, but sea and moisture they call dense *aether* – and this ray sinks into the depths and therefore bestows life on everything.

Setting aside the intrusive references to the moon's light and to fate, I paraphrase as follows: the universe is divided into a terrestrial region, the living contents of which are impure and mortal, and a celestial domain, which contains immortal gods, including the heavenly bodies. This conception of the universe is marked by differences between the quality of the air within its upper and lower divisions. Heat (whose source is the sun) is

²⁹ See Kahn 2001: 81.

³⁰ Festugière (1945: 32–9) surveys this material in great detail. Rather than allowing it to be directly influenced by fifth-century ideas, he proposes that Alexander's 'Pythagorean' has derived it from Plato.

³¹ See Hippocrates *Nat.* 4 and *Airs* 10–11, with commentary by Delatte 1922: 205–7, and Longrigg 1993: 91–2. Stoics explain the seasons by variations in the sun's temperature, owing to its distance from the earth, with spring due to *eukrasia* of the air; cf. D.L. 7.151–2. If Philo of Alexandria (*SVF* 2.616) reflects the Stoics, we can attribute to them *isonomia* of the four elements and their reciprocity to one another.

responsible for all life, both the celestial life of the immortal gods and our human selves, and, at the lowest extreme, the life of plants. Differences of air are in fact differences of a single substance – *aether*, such that fire is hot *aether*, air cold *aether*, and water dense *aether*.

The passage raises numerous questions. Here, I shall pursue just three: the division of the universe into lower and higher; the notion of vital heat; and the *aether* terminology.

In a late doxography (Aëtius, *Plac.* 2, Diels, *DG* 336 (= DK 44A16)) Philolaus is reputed to have made a tripartite division of the world into a top region containing purity of elements, a middle domain, where the planets, sun and moon are located; and a sublunar region of biological change.³² Diels took this passage to be probably derived from Theophrastus, but Burkert rightly found traces of the *Timaeus* in it.³³ In Philolaus, on the other hand, the primary and most honourable part of the world is the central fire.³⁴ By deifying the upper region of the universe Alexander's Pythagoreans are in line with Plato, Aristotle and Stoicism.

The emphasis his text lays on vital heat is striking, together with the analysis of three of the traditional four elements as species of air, here redescribed as types of *aether*.³⁵ Festugière rightly notes that Plato in the *Timaeus* distinguishes three different types of air (58d), but unlike our text, Plato confines the word *aether* to the brightest kind of air. There is no suggestion in Alexander's text that the hot *aether* has anything more than a name in common with Aristotle's fifth element.³⁶

In Presocratic contexts *aether* is typically distinguished from air, so Alexander's 'Pythagorean' use of the term for all species of air appears anomalous. With its emphasis on heat and sunlight as the cause of life, we may be warranted in finding a monistic tendency in this part of the text, as in Anaximenes, Diogenes of Apollonia and a time-honoured interpretation of Heraclitus' dominant element fire.³⁷ There are further hints that Alexander's text has incorporated pre-Platonic material. According to D.L. 9.22 Parmenides invoked the sun to explain the origin of human beings, while the sea, as the location for the origins of life in general, harks back to several early Greek thinkers.³⁸ As to specific reminiscences of old Pythagorean doctrine, the most promising text to adduce is probably

³² For the doxographical context, see Mansfeld and Runia 2009: 394–408.

³³ Burkert 1972: 244–5, followed by Huffman 1993: 398.

³⁴ See Huffman 1993: 242–6. ³⁵ See Solmsen 1957 and Mansfeld 1971: 83–103.

³⁶ See Boyancé 1967, who convincingly contests the proposal of Festugière 1945: 23–6 that Alexander's *aether* shows the influence of Plato and Aristotle.

³⁷ As suggested by Wellmann 1919: 228–31, and Wiersma 1942: 101–6.

³⁸ See Delatte 1922: 210–11.

DK 44 A27, where the Anonymus Londiniensis claims that, according to Philolaus, our bodies are constructed out of heat, on the evidence that sperm and the womb are hot.³⁹

In the middle of this section, as we have seen, Alexander's text makes big claims about gods and human beings, but with lightning brevity. What connects the two races is heat, which, in its celestial form as hot *aether* confers not only life but also immortality. Immortality pertains in the first instance to the gods and heavenly bodies, but by implication, owing to our kinship (*syngeneia*) with the gods, are we too immortal? Divinity cares for us (*pronoieisthai*) because in our heat we resemble the divine! And in the next section, our immortality will be made explicit on the grounds that soul as such is immortal.

This entire passage closely recalls Alcmaeon, who, according to Aristotle (*de An.* 1.2.405a29 (= DK 24 A12)), declared the soul to be immortal because of its resemblance to immortal beings, and by virtue of this property stated that the soul is in everlasting motion, just like the heavenly bodies. Similarly Alexander's text situates the heavenly bodies within ever-moving air or hot *aether*. Immortality of soul is a thesis that a Pythagorean of any vintage must defend. Strikingly, though, Alexander's Pythagoreans are physicalists, through and through. Our text eschews any hint of incorporeal or transcendent reality, and the psychology, to which we shall come shortly, is represented in entirely physical terms.

This section has introduced us to equal elements, seasonal changes, sub-lunar and super-lunar domains, purity and impurity, mortality and immortality, vital heat and sunlight, divinity and types of air or *aether*. This is a lot to take in. As with the opening section on principles, resonance from the Academy is still strong, but here it is evident in general rather than specific points, many of which are shared by the Stoics. When it comes to the passage's most distinctive details – vital heat, divine providence's concern for human beings, and strong physicalism – we are very close, exempting immortality, to early Stoicism. The seemingly intrusive statement (between the theology and the doctrine on the sun) concerning fate (*heimarmene*) is further proof that this passage has passed through the hands of someone whose intellectual background includes Stoicism.⁴⁰ Mathematics and numbers have dropped out completely, and there is nothing that points specifically to Aristotle or Theophrastus. Some theories may

³⁹ See Huffman 1993: 29off.

⁴⁰ So too Festugière 1945: 59.

have a pre-Platonic lineage, and the air/*aether* doctrine appears to be quite unique.

From cosmology and theology, Alexander's text now turns to the soul, reproduction and embryology.

Soul, reproduction, embryology (D.L. 8.28–9)

Everything that shares in heat is alive – hence plants too are living beings – although not all living beings have soul, which is a detachment (*apospasma*) of *aether*, both the hot and the cold, since the soul shares in cold *aether*. Soul is different from life: it is immortal since that from which it is detached is immortal. Living beings are generated from one another by seeds, and their generation out of earth is impossible. The seed [sc. of animals] is a droplet (*stagon*) of brain containing hot vapour within itself. When this droplet is applied to the womb, it emits from the brain ichor, moisture and blood. From these [brain fluids] flesh, sinews, bones, hairs and the whole body are formed, while soul and sentience (*aisthesis*) emerge from the vapour. First congealing in forty days, it [the embryo] acquires form, then according to the ratios (*logoi*) of harmony in seven or nine or at most ten months the completed foetus is brought forth. Within itself it contains all the ratios of life and, with these ratios systematically strung together, the newborn infant is made coherent with each of its parts accruing at determinate times.

By comparison with the stark brevity of the preceding section, this account of biology and embryology is quite full. It also hints for the first time at taking a stand on controversial issues. Plants are *zoia*, living beings, but, unlike Platonic and Aristotelian plants, they lack soul, or so I interpret the implication of the statement ψυχὴν μέντοι μὴ ἔχειν πάντα, where the negative *me* instead of *ou* suggests the statement's concessive dependence on the assertion that plants are *zoia*: 'although not all living beings (i.e. plants) have soul'. The obvious source for the denial of soul to plants is Stoicism.⁴¹ Resonance of Stoicism continues in Alexander's calling soul 'a detachment of hot and cold *aether*' (an expression a Stoic could have used in reference to psychic *pneuma*) and in the emphasis here and in the next section on blood as the soul's nutriment.⁴² However, Alexander's Pythagoreans, as we would expect, posit immortality of soul, which the Stoics do not.

The second hint at adopting a controversial position is the insistence that all reproduction requires seeds, with the attendant denial of spontaneous generation from the earth. Stoics probably rejected that popular theory.

⁴¹ SVF 2.708–11, 714. See Long 1996: 237–9.

⁴² See SVF 1.128, 140, 2.633.

As to the bizarre embryology that follows, the three items emitted from the brain under the seed's influence – ichor, water (*to hygron*), and blood – form a series of fluids that seem to range from the most to the least refined.⁴³ These fluids and attendant processes indicate a physiology that is quite distinct from Stoic theory, in which the heart is the primary organ for embryological development.⁴⁴ The description of the seed as a drop of brain might go back to Alcmaeon (Aëtius. *Plac.* 5.3.3) or even to Philolaus, though it most probably echoes Plato, *Timaetus* 73cd on seed, marrow and brain.⁴⁵

The most intriguing feature of this section is the repeated mention of the *logoi* of harmony in the context of the embryo's development.⁴⁶ Here, we have a notion that looks authentically Pythagorean, connected as it is with precise numbers signifying months for gestation. In late Pythagorean material, starting with Varro, the number of days for a seven-month or nine-month pregnancy are computed on the basis of precise multiplications.⁴⁷ We can probably infer from this material that Alexander's 'ratios of harmony' are intended to invoke numbers pertaining to musical harmonics, as in Hippocratic texts, where numerical ratios are adduced in computing the number of days for different periods of gestation.⁴⁸ Unfortunately, the chronology of the relevant Hippocratic works is too uncertain to warrant any inferences from them concerning which way the influence goes, so far as Alexander's text is concerned.

The extract continues (8.29) with a few lines concerning sense-perception in general and vision in particular, with all sensory functions attributed to 'very hot vapour' (*atmos*).⁴⁹ I pass over this passage except for one particularly intriguing point it contains. Alexander reports that Pythagoras called the eyes 'gates of the sun'. That is a Homeric expression, taken from the beginning of *Odyssey* 24, where Hermes summons the souls of the dead suitors. Lines 9–12 of that book read as follows:

⁴³ Ichor is sometimes used for a vital fluid distinct from blood (as in Homer), or as the watery part of blood (e.g. Plato, *Tim.* 83c, Arist., *PA* 651a18) or as a generic term for bodily discharges.

⁴⁴ See Long 1996: 243–4.

⁴⁵ There may be a genuine reminiscence of Philolaus B13, which Burkert 1972 and Huffman 1993 take to be authentic (see Huffman 1993: 307–32). This fragment, cited by Nicomachus, purports to give Philolaus' theory of 'the four principles of the rational animal', viz. head for intellect, heart for life and perception, navel for initial growth, and genitals for sowing seed. The brain is said to be the human being's origin.

⁴⁶ Zeller (1903: 105 n. 6) relates the expression 'all the *logoi* of life' to the Stoic notion of *spermatikoi logoi*.

⁴⁷ See Delatte 1922: 216–19. ⁴⁸ See Burkert 1972: 262–4.

⁴⁹ These lines on *aisthesis* seem out of place. The suitable context for them is the next section on psychology, where *aistheseis* are mentioned all over again.

Hermes the kindly healer led them down broad paths. They went along past Ocean's streams and the White Rock, and past the gates of the sun and the land of dreams.

A page or so later Alexander's text (D.L. 8.31) refers to Hermes and his escorting of souls. Pythagoreans, even Pythagoras himself, may have called the eyes 'gates of the sun' without any interest in the original eschatological context of this striking phrase.⁵⁰ In Alexander, however, the contextual coincidence, if that is what we have here, clamours to be noticed.

The human soul (D.L. 8.29)

The human soul is divided three ways – into *nous*, *phrenes* and *thumos*. *Nous* and *thumos* are also present in the other animals, but *phrenes* are only present in the human being. The soul's domain (*arche*) extends from the heart up to the brain. The part that is in the heart is *thumos*, while the parts in the brain are *phrenes* and *nous*. Sensations (*aistheseis*) are secretions (*stagones*) from these [latter]. The rational part (*to phronimon*) is immortal, but the rest is mortal. The soul gets its nourishment from the blood, but the soul's *logoi* are winds. The soul itself and the *logoi* are invisible, because the *aether* is invisible. The veins, arteries and sinews (*neura*) are the soul's linkages (*desma*). When it is strong and has become self-contained and at rest, *logoi* and actions become its linkages.

This passage, remarkable for its obscurity, terminology and eclecticism, merits a whole paper to itself.⁵¹ The tripartition of the soul sounds Platonic, and features of the text, including the anatomy and the immortality of the rational part, call the *Timaetus* specifically to mind.⁵² But Alexander's text maintains the physicalism I have emphasised before, and there are too many other differences of detail to posit Plato as more than one likely influence. Immediate questions that the passage raises are the use of the old Homeric word *phrenes* to refer to the soul's rational part and the consequential downgrading of *nous*; the interpretation of *stagones* in reference to *aistheseis*; the statement that the soul's *logoi* are winds; and, lastly, the repeated application of *desma*, which I translate 'links', to the soul.

⁵⁰ Pythagoreans liked to align mythological expressions with empirical phenomena: 'sunlike' and 'fiery' are words they are said to have applied to the eyes. See Delatte 1922: 221.

⁵¹ Festugière (1945: 43ff.) discusses the passage at great length, mainly by citing medical texts, especially ones deriving from Diocles of Carystus. I find the passages he cites more tangential than genuinely illuminating. His neglect of Stoic *pneuma* is a major shortcoming, and also his lack of comment on the curiously literary terminology.

⁵² The doxographical tradition often assigns Platonic tripartition to Pythagoras and Pythagoreans; see Burkert 1972: 74.

As regards Alexander's use of *phrenes*, I first quote Kahn (2001: 82): 'This archaic use of *phrenes* seems . . . to have been preserved in medical usage, as the term *phreneitis* for brain-fever shows.'⁵³ That is true enough, but medical usage does not explain why an account of supposedly Pythagorean material should have used this largely anachronistic term. In the doxographical tradition, the Pythagoreans are credited with the doctrine that the heart is the seat of the vital principle (*zotikon*), and the head that of the rational (*logikon*) and intelligent principle (*noeron*).⁵⁴ These three terms call for no comment, but no one, to the best of my knowledge, has come up with a convincingly philosophical or medical parallel for Alexander's use of *phrenes*. I tentatively suggest that it may be explained as a result of the Pythagorean extension of rational capacity (*logikon*) to all animals.⁵⁵ That notion, probably a consequence of metempsychosis, leaves Alexander's Pythagoreans needing a different word for specifically human rationality. Whatever the merits of this suggestion may be, we should note that the combination of cardiovascular and brain-centred theories for the soul's bodily vehicles is typical of this text's eclecticism and syncretism.

My next question is what to make of the claim that *aistheseis* are *stagonēs* from 'these', where 'these' refers to the cerebral *phrenes* and *nous*. *Stagon* is literally a drop of liquid. I had initially found such a reference quite out of place in this account, both because Alexander has previously told us that *aisthesis* in general and vision in particular are 'exceedingly hot vapour' (8.29), and also because of his account's overall affinity with Stoic *pneuma*, which he seems to underline with his reference to the soul's *logoi* (rational principles?) being 'winds'.⁵⁶ On further consideration, I am inclined to think that the liquidity he alludes to with the word *stagonēs* is blood (to which *stagon* commonly alludes) and that *aistheseis* here are particular

⁵³ Festugière (1945: 44f.) refers to Anon. Lond. iv.14–17, where *phrenes* actually alludes to the brain. However, the Hippocratic author of *On the sacred disease*, 20, takes *phrenes* to signify diaphragm, and dismisses its having any connection with intelligence.

⁵⁴ Aëtius 4.5.10 (Diels 1879: 391–2).

⁵⁵ See Aëtius 5.20.4 (Diels 1879: 432), who says: 'Pythagoras and Plato say that even the souls of so-called non-rational animals are rational, but they do not act rationally because of their bodies' poor composition, and their not having the capacity to speak, as in the case of apes and dogs; for they are intelligent (*noousi*) but do not speak' (*phrazousi*). Burkert (1972: 75) says that this last sentence explains the distinction between *nous* and *phrenes* in Alexander's text. How so? Burkert seems to be aligning *phrenes* with *phrazousi*, but he gives no support for this linkage.

⁵⁶ Alexander's earlier mention of *logoi*, in the context of embryology, had seemingly mathematical connotations, but they are out of place here. If *anemoi* is a literary equivalent to *pneumata*, as seems likely, I propose Stoicism again as the ancestor of Alexander's eccentric terminology. Cf. Cleanthes (*SVF* 1.467), who, with allusion to Heraclitus, compares the unification and separation of cosmological constituents to the way 'certain rational principles (*logoi*) pertaining to parts unite and combine in the seed, and then separate out, as the parts develop'.

sensations, not the sense faculties.⁵⁷ Blood, as Alexander immediately observes, is what nourishes the soul, and he has already indicated that the soul's activity involves transmission from the heart to the brain. Support for the notion that *stagonēs* are secretions of blood may be drawn from Alexander's next observation concerning the soul's 'linkages' (*desma*).

Desma is not a word one expects to find in a doxographical text on psychology and anatomy, especially with this largely archaic plural instead of the more familiar form *desmoi*.⁵⁸ The triad of *desma* – 'veins, arteries, and *neura*' – may suggest that Alexander's original source has hedged its bets between cardiovascular and neurophysiological theories of the soul's channels of communication in the body, but the imprecision of the entire passage favours the translation 'sinews' for *neura* rather than nerves.⁵⁹ Alexander's point is, presumably, that the blood vessels and the sinews are the linkages by means of which the soul communicates with the rest of the body in executing its basic nutritive and sensory functions. I have wondered whether the use of *desma* could be due to a Pythagorean thought to the effect that the veins and so forth keep the soul *chained* to the body.⁶⁰ Against this, however, is the fact that Alexander describes a strong and self-contained (mature?) soul as having *logoi* (thoughts or reasons) and actions (*erga*) as its 'linkages'. The language is bafflingly obscure. The best I can suggest is that the soul is here being characterised in what we moderns would call its function as mind or centre of consciousness. If that is right, we can understand why the mature soul's relevant links to the whole person are expressed in mental rather than anatomical terms.

Eschatology and rituals

Alexander's text moves on from psychology to eschatology and the soul's postmortem destiny (8.31–2). The treatment of this latter topic draws on familiar mythology, in specifying Hermes as the escort of souls and a celestial domain for the pure, but it also incorporates the following peculiar

⁵⁷ I follow a tentative suggestion from the anonymous referee for Cambridge University Press that Alexander means to say that the senses are drops of blood, since this is what nourishes the soul (D.L.8.30 fin.), in which case it might be implied that there is a difference between *aisthesis* and *aistheseis*, such that the latter are the actualisations of the former. I also note the role that Aristotle attributes to the blood and to blood vessels in transmitting sensory movements: *de Insomniis* 2.461a8ff.

⁵⁸ Plato, *Tim.* 73b, calls marrow life's chains (*desmoi*).

⁵⁹ Festugière (1945: 47) insists that *neura* should be translated 'nerves', but I prefer sinews since I find no other evidence that Alexander's text was influenced by the latest Hellenistic medical discoveries.

⁶⁰ Thus Epictetus (1.9.11), echoing Plato's *Phaedo* warns his students against suicide, even though he grants the rectitude of treating their attachment to the body and to possessions as *desma*.

ideas – ‘unbreakable bonds’ (*desma* again) imposed by the Furies for the fate of the impure, and transmission, by souls ‘called daimons and heroes’, of dreams and prophetic signs not only to human beings but even to sheep and other grazing animals.⁶¹ Could this remarkable interest in supernatural messages to livestock hint at or make up for the most striking omission from Alexander’s explicit text – Pythagoras’ theory of metempsychosis?

It is the final section (8.33) that has the most obvious affinity with Pythagoreanism as a cult marked out by specific rituals and prescriptions. Here we are told that virtue, health, all goodness and divinity are harmony. Alexander’s text gives instructions on how we should worship gods and heroes. Finally, we are offered rules, many of them culinary, about how to stay pure.

CONCLUSIONS

To conclude, I start by quoting the following statement by Kahn (2001: 83):

This curious text thus claims to reflect a living cult that maintains a number of ritual observances characteristic of the Pythagorean tradition from the earliest times. On the face of it, this text represents the updated doctrines or doxography of a Pythagorean community from the third or second century BC, which has preserved features from both the theoretical tradition of the *mathematikoi* and the ritual tradition of the *akousmatikoi*, all of this blended in a strange medley of Presocratic, Platonic, and Stoic elements. If this impression is correct, this text is the only unmistakable trace of a Pythagorean (or Neopythagorean) ritual community from the Hellenistic centuries before 100 BC.

In a footnote to these comments, Kahn suggests, as a much less probable alternative, that Alexander’s original text ‘might represent a purely literary phenomenon, the creation of a learned Hellenistic scholar who is more interested in older traditions and more successful in avoiding glaring anachronisms than the usual authors of pseudo-Pythagorica’.

Kahn’s expression ‘strange medley’ is entirely apt. But, in deciding between his options – traces of a Pythagorean ritual community from the Hellenistic epoch, or the work of a learned Hellenistic scholar – I incline to the latter for the following reasons, though without giving the author Kahn’s compliment of composing an account that has some chronological plausibility.

⁶¹ These ‘daimons’ are presumably departed souls: see Schibli 1993: 147–9, 154–7.

First, the eclecticism is so extreme that it is difficult to credit the text to the ultimate authorship of anyone actually calling himself a Pythagorean. Whoever wrote the work in its final form was familiar with much of what became standard Pythagorean (but in origin early Academic) doxography. That is clear from the opening section on Monad and Dyad. Thereafter, apart from some possible echoes of Philolaus and Alcmaeon, the text veers away from anything distinctively Pythagorean before getting to the final material on eschatology and ritual. The central sections principally reflect a physiology that reads chiefly like a mishmash of Stoicism and medical theory, together with some apparent reminiscence of Presocratic ideas.

My second reason for preferring Kahn’s second option is the literary character of this text. As we have seen, it includes unusual words for a doxography – e.g. *ichor*, *stagon*, *phrenes*, *desma* – and the style in general seems to me more literary or mannered than one expects to find in this kind of handbook writing.

Third and finally, I like Kahn’s suggestion of a ‘learned Hellenistic scholar’ because I doubt whether there already existed a Pythagorean doxography corresponding to all the sections of Alexander’s text – basic principles, cosmology, psychology and so forth. In that case, what we have here must be counted as a piece of pseudo-Pythagoreanism after all, but a piece that registers an exceptional range of reading, and some authentic information, on the part of its author.⁶² Who better to be that author than Alexander Polyhistor himself?⁶³ Could his reporting what he ‘found’ (D.L. 8.24) in the *Pythagorean Commentaries* be itself an elaborate literary forgery, making his *Commentaries* into an ancient likeness of a Borges essay, such as only an immensely learned antiquarian could write?

⁶² In its range, Alexander’s *Pythagorean Commentaries* is probably closest to the tracts attributed to the Peripatetically influenced Ocellus and also to Timaeus Locrus (see Thesleff 1965) but it differs from these texts in its radical eclecticism. Much of Ocellus is devoted to establishing the eternity of the world, but Alexander’s text leaves that question untouched.

⁶³ As originally proposed (though later retracted) by Diels 1890. Burkert 1961, supported by Riedweg 2005: 121, argues persuasively that the pseudo-Pythagorean Letter of Lysis (see n. 2 above), with its mention of Pythagoras’ *hypomnemata*, was written in order to authenticate this fabricated work, which, in its turn, must be identical to the *Pythagorean Commentaries* that Alexander purports to record. Modern suggestions concerning the compositional date of the Lysis Letter (which is transmitted both by Iamblichus and anonymous sources of Greek epistolography) range from about 250 BC (Burkert 1961: 23–5) to the early Roman Empire (Stüdele 1980). I owe to Carl Huffman the intriguing suggestion that if, as I conjecture, Alexander composed the *hypomnemata* (as distinct from excerpting an independently existing text), he probably wrote the Lysis Letter too.