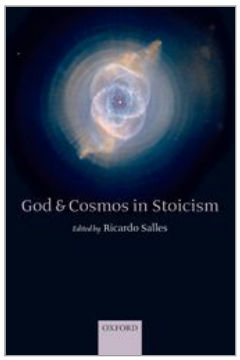

God and Cosmos in Stoicism
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Stoic Themes in Peripatetic Sources?

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Abstract and Keywords

This chapter presents a brief preliminary survey of several texts which might suggest a close affinity between the Peripatetic and Stoic doctrines of principles. The goal is to see to what extent these parallels may amount to a genuinely shared position on any of the issues under examination. The discussion starts with the Antiochean account of the physics of 'Old Academy' presented in Cicero's *Acad*. 1. 24-9. Section 2 deals with 'physical' fragments of Peripatetic Critolaus; it tries to see whether they could provide any ground for Antiochus' incorporation of Peripatetic physics. The third section deals with the 'suspect' cases of Stoicizing in the Peripatetic tradition: Xenarchus' arguments against the fifth body and the use of the concept 'prime matter' by Boethus of Sidon and Nicolaus of Damascus. Section 4 looks at some parallel discussions in Alexander of Aphrodisias.

Keywords: peripatetic sources, Stoicism, Stoic themes, old academy, Cicero, Antiochus, Xenarchus, Boethus of Sidon, Nicolaus of Damascus, Alexander of Aphrodisias

The question of relation between Aristotelian and Stoic philosophy of nature is complex and controversial. There is a notorious problem of the use of Aristotle by the early Stoics. Numerous affinities of approach suggest that Stoics did make use of Aristotelian legacy when formulating their own theories,[1] but the evidence, such as references to Aristotle in the Stoic works, is not forthcoming, and healthy scepticism seems to be indicated.[2] A different but related set of problems arises in connection with post-Aristotelian Peripatos, particularly Hellenistic and post-Hellenistic, for which we have less historical and literary evidence than for the schools of the Imperial period. In doxographical outlines, Stoic and Aristotelian positions are often presented as close to each other.[3] Some parallels in terminology and arguments have been pointed out by scholars.[4] We have evidence that some members of the Stoic school are influenced by Aristotelian physical doctrines.[5] On the other hand, the debates between the two schools in late antiquity are also well-documented. We know of anti-Stoic polemic by Alexander of Aphrodisias, chair of Aristotelian philosophy in Athens at the end of the second century AD (his criticism of Stoic theory of mixture, determinism, corporealist metaphysics and psychology, theory of elements, conflagration);[6] of anti-Aristotelian arguments about void by the Stoic Cleomedes.[7]

In this chapter, I am going to give only a brief preliminary survey of several texts which might suggest a close affinity between the Peripatetic and Stoic doctrines of principles. The goal is to see to what extent these parallels may amount to a genuinely shared position on any of the issues under examination. The discussion is organized by source rather than by topic. I start with the Antiochean account of the physics of ‘Old Academy’ presented in Cicero's *Acad.* 1. 24–9; **(p.136)** continue in section 2 with ‘physical’ fragments of Peripatetic Critolaus, trying to see whether they could provide any ground for Antiochus' incorporation of Peripatetic physics. The third section deals with the ‘suspect’ cases of Stoicizing in the Peripatetic tradition: Xenarchus' arguments against the fifth body and the use of the concept ‘prime matter’ by Boethus of Sidon and Nicolaus of Damascus. In the fourth section, I look at some parallel discussions in Alexander of Aphrodisias.

1

Perhaps one of the earliest known statements of ‘harmony’ between Stoa and Peripatos is the one attributed to Antiochus of Ascalon (*c*.130–68 BC), who reinvents the system of the ‘Old Academy’ as shared by the three schools, including Peripatetics. The passage from Cicero's *Acad.* 1. 6. 24–9 which contains the ‘physical’ section of an epitome of Antiochus' system (presented in the dialogue by Varro) is well-known and has been discussed in recent literature.[8] The peculiarity of this epitome is that it forms a part of doxographical background to Antiochus' argument against the ‘sceptical’ Academy. The argument is complex and has as its main battlefield ‘logic’ (i.e. epistemology).[9] However, the physical section plays an important role as well, because a shared cosmological framework would make the adoption of Stoic epistemological approach more natural. There is evidence that Cicero did make a special effort to present the Antiochean side of the argument accurately.[10]

According to Varro, who speaks on behalf of Antiochus in Cicero's dialogue, this system traces its origin back to the Old Academy under its third scholarch Polemo, who taught Zeno of Citium. Zeno does ‘institute a reform’ of the system; but the description of this reform does not suggest any destructive purpose.[11] In fact, the physical doctrine of ‘Polemo’ seems to be least affected by changes, compared to ethics and logic. In *Acad*. 1. 39, Varro mentions only two points of this doctrine to which Zeno took exception. The first has to do with the existence of the fifth element; the second is Zeno's corporealist thesis: an incorporeal thing cannot have causal efficacy (both will be discussed shortly). The attribution to Polemo has been recently examined in detail by D. N. Sedley who concluded largely in its favour on the basis of his analysis of multiple parallels with the physics of the *Timaeus*.[12] I am going to focus on the features of this text which **(p.137)** might be imported by Cicero's Antiochus from Stoic or Peripatetic sources. (I reproduce the text in full.)

(1) 24 Of nature they spoke thus: they divided it into two aspects, one being active, another as it were yielding itself to it as the one which something could be produced. They held that power is in the active aspect, and something called matter in the one acted upon; yet so that each one is in the other, since neither matter can exist without being held together by some power, nor power without any matter (for there is no thing that would not be constrained to being somewhere). But that which is made up of both they already called body and as it were some quality< . . . >.[13]

(2) 26< . . . > So, some of those qualities are primary, others derived from them. The primary ones are of one kind and simple, and the derivative ones various and as it were of many sorts. Thus air (for we also use this word as Latin) and fire and water and earth are the first; from these are derived the forms of things with soul and those that are generated from the earth. Therefore the former [qualities] are called principles and (to translate from the Greek) elements; among these, air and fire have a power of motion and production, and the others, viz. water and earth, [a power] of receiving and as it were suffering. Aristotle thought that there was a fifth kind, from which stars and minds are made, unique and unlike those four I have mentioned.[14]

(3) 27 But they regard as underlying everything that has no appearance and lacks any of these mentioned qualities (let us by frequent usage make this word more familiar and common), something called matter, from which everything is moulded and wrought, which can receive everything and undergo all kinds of change in every part, and even pass away, not into nothing but into its parts which can be cut and divided infinitely, since in nature there is no minimum which cannot be divided, but all things that are moving move by infinitely divisible intervals.[15]

(4) 28 And since that power which we named ‘quality’ moves in this way and since it so turns this way and that, they believe that this very matter as a whole in its entirety moves along, and that those are produced which they call ‘the qualified’; from these in the whole of nature which is cohesive and continuous with all its parts

> a single cosmos is produced, outside which there is no part of matter and no body, but all the things that are in the world **(p.138)** are its parts, which are held by the sentient nature in which resides perfect reasoning, the same and eternal (for there is nothing more powerful, which could cause it to pass away);[16]
>
> (5) 29 They say that this power is the soul of the world, being mind and perfect wisdom, which they call god, and as it were the providence for all things that are subordinate to it, providing first and foremost for heavenly bodies, then on earth things that concern the humans. They also call it necessity because nothing can be otherwise than has been established by it in the middle of as though fated and immutable nexus of eternal order. Sometimes too they call it chance because it produces many things that are unforeseen and not expected by us because of the obscurity of their causes and our ignorance of the same.[17]

1. A parallel for two principles, active (involving ‘power’) and passive (involving ‘matter’), is indeed found already in Theophrastus' summary of Plato's natural philosophy.[18] But the terminology of the passage is also close to Stoic.[19] The word ‘power’ (*vis*=δύναμιζ) is used to refer to the active principle in several late reports.[20] We are not told explicitly whether the principles are corporeal. We can infer that they are not, both from Zeno's ‘exception’ and from the way the notion of the composite is introduced.[21] On the other hand, they are said not to exist without each other, i.e. outside a corporeal substance: this might strike some Platonist thinkers as a rather weak sense of incorporeality.[22] The choice of the word ‘power’ may go back to Plato, *Sophist* 246A, where δύναμιζ is used to secure a necessary compromise for a discussion between the ‘Gods’ and the ‘Giants’.[23] Since Antiochus’ unification **(p.139)** project ultimately caters for both ‘Gods’ and ‘Giants’, the usage may be intentional.[24]

The unity of the cosmos which is held together by its active principle defined as god is stated a little later (in (4) and (5)), but the philosophical account of this unity is not specified (three different types are possible: Stoic monism, Platonic dualism, and Aristotelian ‘pluralism’ of principles). It is important to note that god is identified with the active principle which is an aspect of nature. This suits the Stoics

with their immanent theology, but probably not Aristotle who speaks of the first unmoved mover as a transcendent principle.[25]

2. There is no indication of a specific method by which the first qualities are derived from the active and passive principles. The four elements are set in correspondence with four elemental qualities: this is close to the Stoic (possibly also Platonic), but not Aristotelian, method of derivation.[26] The manner of generation of complex qualities from simple ones is also not specified: all we learn is that complex forms are somehow constituted by simple ones (*ex his ortae . . . gignuntur*). Obviously, at least three different stories could be told here by the three schools (Stoic total pervasion and tension, Platonic mingling of elemental solids in the *Timaeus*, Aristotelian mixture in *GC* 1. 10) but the differences are not spelt out. We can infer from subsequent discussion that the process must be teleologically ordered.

The theory of the ‘fifth element’ is attributed to Aristotle alone (and not to [Plato], Speusippus, Philip of Opus).[27] This attribution presents a problem for understanding the force of Zeno's rejection of the fifth element: if it is an amendment to Polemo (or the ‘Old Academy’), then it is not clear why Aristotle is named as its only proponent. If the amendment is addressed only to Aristotle, it is not clear why it appears in the context of the ‘Old Academy’. Moreover, the version of the doctrine of aether in this passage, according to which it is a material of stars and minds, does not have enough ground in Aristotle's extant texts.[28] One possibility would be to take this reference to Aristotle as anachronistic, signalling the difference between the Antiochean consensus and **(p.140)** near-contemporary Aristotelianism. As we shall see shortly, a theory of aether is attributed in the sources to Critolaus and his followers. Cicero's knowledge of Aristotelian psychology is based not just on the lost exoteric works, but also on post-Aristotelian Peripatetic writings and reports which might inform his perspective on the current doctrines of the school.[29] Antiochus' own position on the ‘fifth substance’ is not stated, but he probably was with the Stoic–Platonic mainstream.[30] Zeno's denial of the fifth element is presented here and elsewhere as a minor technical issue.[31] This is not the way it will be taken in later Aristotelian tradition.[32]

3. The description of matter as formless and qualityless substrate subject to change is found in Stoic sources.[33] The idea that prime matter undergoes change in its parts is in better agreement with Plato's picture of receptacle and Stoic theory of matter than with Aristotle's.[34] On the few occasions when Aristotle may be thought to employ the concept of prime matter, he uses it not in a collective sense, but relatively to a particular substance or process of change.[35] The thesis of infinite divisibility is well attested as Stoic, and could be given an Aristotelian reading (*possint* in *quae intervalla item infinite dividi possint* should be referring to potentiality in a technical sense).[36]

4. The active principle is said to move ‘in this way’, which probably refers to its ability to pervade the whole of matter. *Ultro citroque* could be taken in a neutral, most general sense of moving in every direction; or as referring to two reciprocal aspects of pneumatic motion.[37] This description of active principle passing through matter would certainly suit the Stoics.

The ending of the paragraph does have more affinities with the *Timaeus*: the Demiurge uses all materials to create the cosmos and the cosmos is eternal.[38] The thesis of eternity should not have been passed by Zeno without an amendment, as Cicero points out elsewhere in the dialogue.[39] But given the overall ‘harmonizing’ **(p.141)** goals of this summary, it is possible that Antiochus was prepared to treat the Stoic theory as essentially the same as the other two on this point in that, according to the Stoics, the world is perishable in the end of each big annual cycle, but the sequence of cycles itself is unlimited.[40] Once again, the text suppresses the differences between the treatments of the question of eternity in three schools which could have been ripe already before the time of Cicero's philosophical *Lehrjahre*.[41]

5. The doctrine of providence is at home, in different ways, with Stoics and Platonists.[42] The case of Peripatetics is more complicated. Aristotle does not make any pronouncements about providence, but accepts natural teleology. His successors Theophrastus and Strato are sceptical about natural teleology; Strato is on record denying providence, as Cicero points out in *Acad*. 42, speaking as his own character on behalf of the ‘Philonean’ Academy to the Antiochean Lucullus.[43] A version of the doctrine of providence, according

to which there is providence in the heavenly, but not in the sublunary realm, is attested as Aristotle's in the source possibly dependent on Critolaus.[44] A version which involves sublunary providence at the level of species (but not individuals) does not seem to appear until Alexander of Aphrodisias.[45] The use of both ‘necessity’ and ‘chance’ as synonyms for ‘providence’ could suggest a misleadingly easy way of incorporating Aristotelian doctrine, according to which strict necessity rules in the heavens, and chance and some sort of necessity (hypothetical) in the sublunary realm, but perhaps none of the operations can be rightfully described as providence in a traditional sense. The text of Cicero's *Academics* makes it clear that Antiochus selects a particular version of Aristotelianism for his historical concordance, leaving aside those features of the school doctrine which do not fit his historiographical project. In doing so, Antiochus uses the expository method familiar also from other ancient writers who in their polemical works, in order to clarify and strengthen their position on a certain point, provide a doxographical preamble or interlude presenting their position as a part of a broad intellectual consensus. The Stoics and Aristotelians are often treated as allies in polemical writings against Epicureans, on the subjects of teleology, role of gods, and the nature of mind.[46] In this kind of polemical context, the existing well-known differences between ‘allied’ schools become less important **(p.142)** than their basic agreement against the common opponents. On the whole the system of the ‘Old Academy’ outlined in this text seems to be better suited to Stoics than to Aristotle. This may be due to a genuine affinity between Zeno and Polemo or to the editorial activity of Antiochus (described by Cicero as someone *qui appellabatur Academicus, erat quidem, si perpauca mutavisset, germanissimus Stoicus*).[47]

Several points of Antiochean consensus would need a clarification with regard to the ‘standard’ Aristotelian doctrine. The active principle is described as immanent rather than transcendent. The theory of elements is different from the standard Aristotelian view (where each element is made up of two qualities). The concept of matter as an incorporeal passive principle without qualities is not explicitly used by Aristotle.[48] The force of corporeality or incorporeality as an attribute of this principle (which cannot exist on its own on both Aristotelian and Stoic accounts) is something that may

deserve investigation. The unity of the universe seems to be construed in terms of physical cohesion provided by the motion of the active principle; if we try to apply this model to the Aristotelian cosmos, the only candidate for the role of the active principle will be the first body (of the heavens), whose motion although not pervading the cosmos, still brings about all the sublunary processes. The question of the eternity of the world (another point on which the three schools could have come up with at least three different accounts) is not highlighted. ‘Providence’ clearly is not a word from Aristotle's philosophical vocabulary.[49] But on this version of ‘concordance’ between the three schools, Aristotelians are committed to a belief in providence. There is a question whether this version of Aristotelianism is just a construct of tendentious doxography, or whether any developments in the current school doctrine might give support to any of these peculiarities.

2

In this section I consider several cosmological fragments of Critolaus of Phaselis, the scholarch of Lyceum active probably about two generations prior to Antiochus.[50] Epiphanius has the following report about Critolaus:

> Aristotle, the son of Nicomachus, was by origin a Macedonian from Stagira, according to some sources, a Thracian, according to others. He said that there are two principles, god and matter, and things above the moon fall in the scope of divine providence, while those under the moon subsist unprovided and are carried on by some irrational **(p.143)** drive, as they chance. He says that there are two worlds, the upper and the lower, the upper being imperishable, the lower perishable. And he says that the soul is body's continuous activity (*endelekheia*). . . . And Critolaus the Phaselite believes the same as Aristotle.[51]

It is not clear that the summary goes back to Critolaus, but this is a plausible conjecture.[52] The statement of the main tenet does not differ considerably from the Antiochean summary. We find the two principles described as ‘god and matter’ where Cicero's Varro had the seat of power (god) and matter.[53] The *endelekheia* could be an error for *entelekheia*. It is impossible to tell whether it is just a scribal error or a reading in the original (whatever that was),[54] but it is the best evidence we have for the Peripatetic origin of this passage. The division of the universe into two different parts can be interpreted as Aristotle's distinction between the sublunary region of coming to be and perishing and the indestructible world of heavens. We have seen in the previous section that, if the Antiochean summary does indeed cover Peripatetics, they are committed to *some* theory of providence, perhaps developed under pressure from rival schools. Epiphanius concurs with Cicero/ Antiochus on this point, apparently disagreeing about the substance of the theory.

The most detailed report of Critolaus' cosmology comes from Philo's *De Aeternitate Mundi,* which has preserved some of his arguments for the eternity of the world.[55] These arguments are of interest to us because they present the Peripatetic school position as distinct from the positions of both Plato's *Timaeus* and the Stoics.[56] They possibly give us a glimpse of the intellectual milieu in which this position is being established, although the exact amount of Critolaus' material in these passages is hard to assess.[57] The first argument printed by Wehrli is as follows:

> And Critolaus, one of those who worshipped the Muses, an adherent of Peripatetic philosophy, used the following reasons in support of the doctrine of the eternity of the cosmos: ‘If the cosmos has come to be, the earth too must have come to be; but if the **(p.144)** earth is generated, then so surely is also the humankind; but human being is ungenerated, [being] of the eternal kind, as will be shown. Hence the cosmos too is eternal.’[58]

The proof of the eternity of humankind which follows upon this fragment is stated as a refutation of the view according to which the human race is not eternal but has come to existence.[59] The source of this opposing view is not entirely clear,[60] but a structural parallel with the argument against the eternity of the world refuted by Theophrastus is worth noting: 'if the world is eternal, then humankind must be eternal; but in fact it is not, as is clear from the recent origin of crafts'.[61] Theophrastus' argument is reported by Philo as refuting the impossible assumptions of the opponents. The text following Critolaus' argument is focused on the impossible consequence which follows from the opposite view, namely that humans (or living organisms) are earth-born.[62] In the end this proof invokes the Aristotelian (and Platonic) thesis that permanence of biological species through reproduction is the only way for human individuals to achieve immortality.[63] The continuity with Theophrastus' argument reported in the same source is remarkable. The overall position established by the proof does not seriously differ from that of Aristotle's.

The second of the arguments cited by Wehrli is as follows:

> Critolaus, continuing his attack, used also the following argument: 'That which is its own cause of health is free from illness; also that which is its own cause of being awake is awake; if so, then also that which is the cause of its own existence is eternal; but the cosmos is the cause of its own existence, given that it is the cause of existence for everything else; hence, the cosmos is eternal.'[64]

(p.145) The statement of the argument is too short to give us a precise idea of its philosophical background.[65] Disease is invoked earlier in the treatise, as an example of the kind of destruction brought about by an internal cause.[66] Philo also cites *Timaeus* 32B5–C1, where Plato explains that the balanced elemental constitution of the cosmos accounts for its being free from disease and old age.[67] It is possible that Critolaus' second argument is meant to be an *ad hominem* strengthening of Plato's reasoning in the *Timaeus*, showing that the latter is strong enough to prove the eternity of the cosmos and not just its indestructibility. Whether Critolaus himself is the author of this plan is impossible to tell.[68] Furthermore, the specific background of the argument is not immediately clear. It seems to be based on the analysis of several key concepts:

> (1) If x is a cause of its own state P then it is in the state P.

(2) If x is the cause of its own existence, then it exists.
(3) The cosmos is [always] the cause of its own existence.
(3′) For it is the cause of existence of anything else.
(3″) i.e. it is the cause of existence of any of its states.
(4) Therefore the cosmos [always] exists, i.e. is eternal.

The point illustrated by the examples seems to be that in order for a thing to cause its own state it must be in that state. An example of the opposite case would be the state brought about by an external cause, in which case a thing would not need to be in that state (e.g. when the state of health is brought about by medicines; or being awake by an alarm clock). In the case of the world and its states, however, it seems that there is an assumption spelled out in 3′ and 3″, that the world as a whole is always a cause to any process; therefore it is the cause of any of its own states, and the cause of its own existence.[69] In the context of this argument the assumption does sound question-begging in that it is not clear what warrants the permanent supply of processes or states on whose existence the existence of the world seems to be made dependent.[70] Perhaps it could be taken as a reply to the argument for the destructibility of the world from the destructibility of its parts, in the sense that any process within the world, even the process of destruction, does have the world as its cause (and therefore is always local not global destruction). It is difficult to be certain also about the opponents of Critolaus. In his case, Stoics are not ruled out.[71] On the other hand, his **(p. 146)** contemporary and near-contemporary Stoics, according to reports, do not show strong commitment to the theory of conflagration.[72]

All this, of course, does not tell us much about the details of Critolaus' analysis of the cosmic structure. We can only assume that Critolaus recognized the main tenets of Aristotle's cosmological doctrine, but there is not much information about his position on multiple controversial issues of interpretation (type and mechanism of causation exercised by the first unmoved mover, heavenly bodies and their relation to the unmoved principle).[73]

Fr. 16 attributes to Critolaus and Diodorus of Tyre the view that ‘[god] is the intellect [coming] from the impassive aether’.[74] The preposition ἀπό, ‘from’, is problematic. Olivier took it as meaning that the intellect, i.e. Aristotle's god, has

material constitution.[75] But it could refer to the origin of the activity of intellect in the upper cosmos in a more general way. It does seem to suggest an idea of direction from the sphere of fixed stars downwards, but the report is too brief, so any details would have to be speculative. The only thing that seems uncontroversial is the reference to Aristotle's thought-god of *Metaph*. 12. 9.

The question of cosmic structure is closely related to the question of providence. It has been argued, on the strength of fr. 15 Wehrli, that Critolaus might be the first thinker in the post-Aristotelian tradition credited by the sources with the view that there is providence in the upper cosmos but not in sublunary region.[76] This view appears to be more restrictive than the 'Antiochean' version, according to which divine providence somehow still operates in the sublunary world, albeit on a diminished scale. A similar statement of 'diminished' providence in sublunary world is found in a number of other Peripatetic sources. An example would be [Aristotle], *De Mundo* 6, with the highest god operating through intermediaries,[77] like the Persian King, not personally involved in any affairs of the state but still exercising his power through appointed representatives.[78] **(p.147)** The political character of analogy makes difficult a 'strong' interpretation of separation, or 'transcendence', of the divine being so construed. In fact, the use of military metaphor by Aristotle in *Metaphysics* 12. 10 (1075a13–15) raises similar problems. On the other hand, we can compare the political metaphors used by anti-Stoic authors to criticize Stoic theological doctrine: corporeal nature of the active principle and the doctrine of total pervasion bring about comparisons of Zeus with Proteus and all kinds of lower natures.[79]

The sparseness of our sources makes it particularly difficult to establish the relation between these two versions of the doctrine of providence in the post-Aristotelian Peripatos. In the fr. 37, Critolaus uses the god of the universe as a political metaphor. The fragment is based on two reports. Fr. 37a comes from Plutarch's discussion (in *Precepts of Statecraft*) of whether a public figure should be involved in all the minutiae of his office directly or whether he should occupy himself only with most important things and maintain dignified distance from everything else. Plutarch reports the view of Critolaus:

> But there are others who think the conduct of Pericles was more dignified and splendid, one of whom is Critolaus the Peripatetic, who claims that just as the 'Salaminia' and the 'Paralus', ships at Athens, were not sent out to sea for every service, but only for necessary and important missions, so the statesman should employ himself for the most momentous and important matters, as does the King of the Universe,
>
> > For God great things doth take in hand,
> > But small things passing by he leaves to chance,
>
> according to Euripides. (*Precepts*, 811C10–D7, tr. Fowler)

The force of the analogy is reverse to that of *Metaph*. 12. 10 and *De Mundo*: the main context here is political, and the highest god is cited as an analogy of a politician. The wording, particularly of Euripides' quotation, might seem to support Epiphanius' report. The second version of this fragment, from the *Life of Pericles*, seems to endorse a less restricted account of providence:

> And he [Pericles] avoiding constant presence and insolence, approached people as though at intervals, neither making pronouncements over every issue nor always coming forward to speak to the gathering, but giving himself, says Critolaus, as a warship 'Salaminia', to big tasks, and attending to others by sending as speakers his friends and comrades. (*Pericles* 7 = Critolaus fr. 37b Wehrli)

Here the 'divine' example is missing: it could mean either that it is not coming from Critolaus in fr. 37a or that it is omitted by Plutarch for stylistic reasons in this text. **(p.148)**

If both this fragment and fr. 15 go back to Critolaus,[80] it might mean that a 'dualist' formulation of providence theory reported in Epiphanius' summary is compatible with 'diminished providence' illustrated by these analogies of human agency (statesman, general). That might imply some (perhaps very low) degree of involvement with sublunary region.[81] We don't know if Critolaus might have a good way of reconciling the two possible approaches. But such an attempt (if ever made) cannot be expected to be a simple adjustment to the Stoic doctrine of providence as far as possible within the Aristotelian framework.[82] The use of political or military metaphor seems to indicate a focus shift in Peripatetic discussion of providence from the criticism of teleology to the

proof of causal priority of the first principle in the sublunary region.[83] The formulation in Epiphanius may reflect the former tendency.[84] Similar interpretation of the Aristotelian position is reported in some other sources; it is easy to see how it can be used for polemical purposes.[85] The second approach could have been taken on board by polemical doxography of a different type, for instance, by Antiochus. It seems clear, however, that the source of the tension lies within the Aristotelian system itself.[86]

As we have seen, Varro in *Acad.* 1. 26 attributes to Aristotle the doctrine according to which the fifth element is the material from which stars and minds are made.[87] The extant works of Aristotle do not have any explicit statement of such theory.[88] On the other hand, the Stoics do believe that the soul is made of a variety of fire which is the same as the fine substance of the heavenly region.[89] **(p.149)**

According to the report preserved by Tertullian, the Peripatetic of Critolaus' circle believed that the aether which surrounds the cosmos is in some way the source of existence for human soul:

> I don't mean just those who fashion [the soul] out of the visible bodily components . . . as Critolaus and his Peripatetics from some fifth substance, if indeed it is also a body because it encloses the bodies, but also the Stoics who, although they claim almost in our words that soul is spirit, insofar as blowing and spirit are close, will nonetheless readily persuade us that soul is body.[90]

This is seconded by Macrobius: ‘Critolaus the Peripatetic [says] that soul is made of the fifth substance.’[91]
The view that human souls are made of the heavenly substance could be regarded as a sign of ‘Stoicizing’ attitude.[92] But the possibility of interpreting this report as based on the texts of Aristotelian corpus has been pointed out as well. The traditional interpretation of the sometimes asterisked passage concerning νοῦζ θύραθεν in *GA* 2. 3 took it to refer to the direct effect of the divine intellect on the human soul.[93] Along the same lines the difficult text about the source of right desire in *EE* 8. 2 is taken to refer to the divine element within us.[94] We may note that Critolaus and Peripatetics are set apart from Stoics by Tertullian who thinks that the former

are more committed ‘corporealists’ than the latter, despite the more elusive corporeal nature of their divine body—because it is not a spirit within the body.[95]

According to Cicero in *De Divinatione*, Cratippus who was a student of Antiochus and left the Academy for the Peripatetic school taught that human soul in part has a divine origin.[96]

> The human soul is in some degree derived and drawn from a source exterior to itself. Hence we understand that outside the human soul there is a divine soul from which the human **(p.150)** soul is sprung. Moreover, that part of human soul which is endowed with sensation, motion and desire is inseparable from bodily activity; while the part that thinks and reasons is most vigorous when it is most removed from the body. (*Div*. 1. 70, tr. Rackham)

The most natural parallel that suggests itself is, of course, the *Timaeus*, but otherwise there is little clarity about the status of the divine and human soul. There is no evidence of any role for the aethereal body, or of a more precise cosmological framework of this theory of soul. Much is unclear with regard to Cratippus’ original position, so it would be premature to draw any conclusions about its compatibility with Peripatetic theories of his time. But on the basis of the cited passage we can at least say that the issue of compatibility does not seem to be decisive in the matter of Cratippus’ new school allegiance: it appears from Cicero that he can believe in the world-soul and at the same time be a card-carrying Peripatetic.[97]

A very brief survey of Critolaus’ fragments shows that some of the ‘Stoicizing’ features similar to those signalled in the Antiochean concordance in *Acad*. 1. 26–9 (two principles, commitment to a theory of providence, aethereal constitution of the soul) are present in the near-contemporary Peripatetic doctrines. However, it seems that the properly doctrinal background of these features originates in the traditional Peripatetic agenda and reflects the problems within the Aristotelian tradition. Critolaus' arguments for the eternity of the world are characteristic in this respect, showing the same commitment to this tenet as is shown by the earlier Peripatetics such as Theophrastus.

3

In this section I shall discuss Xenarchus' arguments against the fifth body and the use of the notion of prime matter in some Peripatetic sources after Andronicus (Boethus and Nicolaus of Damascus). Andronicus' name is usually connected with his edition of Aristotelian corpus.[98] Although the details of his editorial contribution are elusive and we are rightly warned by Barnes not to make Andronicus' work a single landmark in what may be a continuous and complex process, to some extent it is still a convenient landmark, in that it signals the engagement of this group of Peripatetics with exegetical and doctrinal problems on the basis of ‘our’ (or at least ‘nostratic’) text of Aristotelian corpus. There have been suggestions that some Peripatetics of this generation were influenced by Stoicism.[99] **(p.151)**

The Fifth Element

Xenarchus of Seleucia criticized Aristotle's theory of aether in his treatise *Against the Fifth Substance*.[100] He is sometimes described as being only ‘notionally’ Peripatetic, in fact almost a Stoic, at least somebody heavily influenced by Stoicism.[101] His objections to Aristotle, along with the replies by Alexander of Aphrodisias, are preserved by Simplicius. There are two sets of arguments on *Cael*. 1. 2 reported by Simplicius under two lemmata (268b11–269a18 and 269a18–32), partly overlapping, and two references elsewhere.[102] The following arguments are reported by simplicius:

(a) Aristotle's division of all simple lines into straight and circular is flawed; the cylindrical helix is also simple (*apud* Simplic. *in Cael*. 13. 22–8, 14. 14–21).
(b) It is not correct that each simple body has only one simple movement: Aristotle's rectilinear simple motions belong to the bodies when they are still on their way to becoming complete elements; once they reach their natural place and become complete elements, some of them (namely air and fire) can move in a circle (21. 33–22. 17 = 42. 10–14).
(c) Two versions: (*c*′) A composite body may have a simple motion, in accordance with the prevailing tendency (Alexander) (23. 24–6). (*c*″) There are infinite composite movements but no infinite composite bodies (Simplicius) (23. 11–15).

(d) Even on Aristotle's account, each of the middle elements (water and air) has two natural movements; so it is not impossible for fire to have two (namely one rectilinear upward, another circular, depending on its location) (23. 31–24. 7).
(e) The body moving in a circle cannot be simple, because its different parts move with a different speed (on the equator and on the poles) (24. 21–7 = 42. 8–10).
(f) Aristotle makes a methodological mistake when he tries to prove his physical thesis by means of mathematical demonstrations (*ad hominem*) (25. 11–13 = 42. 7–8).
(g) There is a problem with Aristotle's proof that circular motion is natural to heavenly body only (50. 18–24).
(h) The principle ‘one thing has only one contrary’ is invalid: in Aristotle's ethics, virtue has a pair of vices as its contraries (55. 25–31).
(p.152)
(i) Aristotle's definition of ‘the light’ as ‘floating above all bodies’ is unsound, because it contradicts the other definition (‘moving upwards’) (70. 20–2).
(j) It is possible that there should be void outside the cosmos: Chrysippus’ definition may be corrected to avoid controversy (286. 2–6).

These arguments are based on a close study of Aristotle's text, and directed first of all at finding the incongruities in the technical arsenal of Aristotle's arguments.[103] How much of a positive theory would follow upon this destructive criticism is a different matter; I shall attempt a very brief survey of general options offered by the fragments.

Argument (*a*) draws on near-contemporary work in geometry (Apollonius of Perga), where the properties of cylindrical helix are discussed and where it is sometimes treated as a simple line.[104] There is no explicit attempt to revise the Aristotelian concept of natural motion,[105] but we would like to know whether argument (*i*), where Xenarchus criticizes the ‘static’ definition of the light because of the apparent conflict with the ‘dynamic’ one, leads to any substantive doctrinal amendment.[106] Argument (*b*), supported by (*d*) and perhaps (*h*), could be taken as an implicit outline of what Xenarchus sees as a plausible theory of elemental motions: the elements move with Aristotle's simple motions till they get their proper forms (i.e. reach their natural places), and then they either

continue to move (with natural motions of a different kind, in the case of fire and air) or rest (as water and earth).[107] But in each case, Xenarchus' criticism of Aristotle's arguments and the alternative suggestions seem to be based on a close systematic reading of Aristotle, which assumes the overall consistency of all the doctrines within the corpus. In (*b*), Xenarchus invokes Aristotle's idea that the elements reach their actuality and thus their proper form when they reach their natural place.[108] The notion that air and fire are in circular motion could be based on Aristotle's theory of exhalation in the *Meteorology*, where the cause of this rotation, the circular motion of the adjacent heavenly body, is not described as unnatural.[109] In (*d*), again, Xenarchus invokes Aristotle's theory of natural motions of the 'middle' elements (air and water),[110] in order to undermine **(p.153)** Aristotle's argument according to which each simple body has only one natural motion. The argument in (*h*) is remarkable because it seems to assume doctrinal consistency throughout the corpus, the assumption we find in later commentators such as Aspasius and Alexander. Argument (*g*) may seem to favour fire as the outermost elemental layer. Xenarchus' unspecified objection is cited in support of the difficulty formulated—and resolved—by Alexander in order to show that circular motion is natural for the aether.[111] Argument (*e*) is strong enough to criticize any concept of a simple and unmixed layer. Although the resulting picture of elemental layers might have parallels with the Stoic universe, this is not decisive: the distribution of the elements is the same in the Platonic cosmos, with provisions made for vagueness of boundaries.[112]

The most expressly 'Stoic' argument seems to be (*j*). It is directed against Aristotle's thesis in *Cael*. 1. 9, 279a11–17 that 'there is no place nor void nor time beyond the heaven'. The objection has to do with 'void' and the context might suggest that Xenarchus is arguing in support of the *Chrysippean* concept of void.[113] Simplicius quotes Alexander's criticism of Chrysippus' concept of extracosmic void. If the void exists it is either (1) finite or (2) infinite. (1) If finite, it is limited by some body, which the Stoics deny. So it must be infinite. (2) If infinite:

> (i) from Chrysippus' own definition of the void ('void is an interval which, while capable of receiving a body, has not received it'),[114]
> (ii) void and body are relatives, and therefore
> (iii) the infinite void and infinite body also must be relatives (i.e. just as void is the space which can receive a body, infinite void is the space which can receive an infinite body).
> (iv) Thus, if the relation between the void and the body is as described by the Stoic definition, then the infinite body should exist, which the Stoics themselves deny.[115]

(p.154) Then Xenarchus is quoted (most likely by Alexander) as trying to save the Chrysippean thesis:

> Xenarchus transformed 'capable of receiving' into 'receptive', so as to resolve in this way the absurdity brought about by the use of relatives; but the transformation has not added anything. For 'receptive' is nothing but 'capable of receiving', and if so it still remains a relative. (286. 2–6 Heiberg)[116]

This argument is regarded by Moraux as a clear evidence of Xenarchus' Stoic leanings.[117] But it is not entirely clear whether Xenarchus' correction was originally intended to support Chrysippus. Algra indeed has suggested that it could be read as an objection to Aristotle's denial of existence of void outside the cosmos in *Cael*. 1. 9, 279a13–15.[118] In this case, the replacement of 'capable of receiving' with 'receptive' would address a different kind of problem, namely, that void is defined as capable of receiving a body while in fact, as Aristotle says, there is no body outside the cosmos. 'Capable of receiving' would be taken as an 'open' possibility which can be realized, for all we know about the cosmos. 'Receptive' would be a pure, or 'counterfactual' possibility, referring to the intrinsic receptive power of the void which could have been actualized had it not been for the *de facto* impossibility of such realization.[119] Thus, whatever the exact thesis that is being supported by Xenarchus, the force of his amendment consists in making sense of the definition of void, without making it dependent on the realization of the possibility which it claims. Now, even if Xenarchus is in fact defending the Stoic position, it is unlikely that he is trying to block the *reductio* from the assumption of the 'infinite body', as is suggested by Alexander, for that would be a defence based on granting as a 'logical possibility' the assumption ('infinite body') while the goal (in

Alexander's report) seems to be to invalidate that assumption.[120] It seems more likely that Xenarchus' original target was on a more general level (e.g. definition of the void), and Alexander adduced this modification of the position he criticizes in his own argument in order to show that his *reductio* (from ‘infinite body’) is strong enough to hold out against this adjustment which might be effective as an objection to Aristotle's argument.

The objection (*f*) (Aristotle uses mathematical proofs to demonstrate physical causes) could be read, as Moraux points out, as an *ad hominem* argument in Aristotelian context (with regard to Aristotle's criticism of μετάβασιζ εἰζ **(p.155)** ἄλλο γένοζ in *An. Post*. 1. 7).[121] A similar methodological concern is probably in the background of the following report. According to Julian's *Oration upon the Mother of Gods*, Xenarchus explains the coming to be of form and matter by the motion of the ‘fifth body’ and criticizes Aristotle and Theophrastus for enquiring into the transcendent principles of natural processes.

> But some sharp Peripatetic, such as Xenarchus, says: we see that the cause of these (i.e. of form and matter being held together) is the fifth circular body. And Aristotle made himself laughable by investigating and worrying about these matters, and similarly Theophrastus. At any rate, he ignored his own words. For just as having arrived at the incorporeal intelligible substance he stopped and did not worry about the cause, saying that this is so by nature, so in the case of the fifth substance he should have accepted it being so by nature not investigating the causes any further, but stopped with them and not even venture out to the intelligible, for it is nothing by its own nature, and besides has an empty supposition. For I do remember hearing[122] that Xenarchus says such things. (Julian, *Or*. 8 (5) 3. 17–34)

The reference to Theophrastus (fr. 158 FHSG) can be compared with Theophrastus' methodological remarks concerning the scope of scientific explanation in *Metaphysics* 9b16–10a21.[123] Theophrastus points out that the study of the first principles of nature cannot seek to explain every principle: that would eliminate the idea of explanation (because of the infinite regress). This project is too rich, as it were, to make sense.[124] On the other hand, the project of

studying heavenly bodies in astronomy, limited to the study of the geometry of their motions and positions, is too limited: it is based on description and lacks the account which is explanatory in a proper sense. Theophrastus seems to suggest that a suitable methodological approach would seek to establish the principles on the basis of their proper activities: just as a student of biology studies the soul only to the extent to which it is the principle of various activities of living beings, so the student of nature as a whole should study the first principles to the extent to which they serve to explain the heavenly motions.[125] Xenarchus' reproach to Aristotle and Theophrastus seems to be that they do not apply the same methodological restriction to the theory of the ‘fifth’ heavenly element. In this fragment, it is remarkable that Xenarchus wants to come across as a consistent Peripatetic, in fact, more consistent in this particular issue than the founders of the school.

It seems that despite some apparent affinities with Stoicism (criticism of the fifth substance; criticism of Aristotle's argument against extracosmic void), there is no clear evidence that Xenarchus is committed to any distinctly Stoic doctrine. **(p.156)** Rather, he seems to be criticizing ‘Aristotelem per Aristotelem’, appealing in his criticisms primarily to the texts of Aristotle and Theophrastus and pointing up inconsistencies within the doctrine taken as a whole. His suggestions could be seen as attempts to amend the system rather than replace it with a different (e.g. Stoic) system. The report according to which he had Aristotelian definition of the soul might seem reassuring in this respect as well.[126]

The Prime Matter

The prime matter seems to be the most likely genuine bridge-concept between the two systems.[127] Yet, as we shall see, the integration of this concept into the Aristotelian exegesis was not straightforward. In Peripatetic physical doxography, the principle of matter appears as a counterpart to the principle of form.[128] Characteristic are two excerpts published by Stobaeus, printed by Diels as frgg. 2 and 3 of Arius Didymus, in which a summary of Aristotelian principles is presented:

> Aristotle. And since nature in accordance with its concept is a certain principle of motion and rest, neither matter, by its proper definition, can move, nor form. For one is always formless, the other is form; and the former is not a body, although of bodily nature, and the latter completely incorporeal. And they say that matter is not a body not just because it seems to lack the bodily dimensions, but because, in accordance with its proper definition, it also misses out on many other characteristics of the body: shape, colour, heaviness, lightness, generally all quality and quantity. For were it to partake of these, it would be of some kind and some quantity; but since it does not partake of them, it would not be a body, but bodily, because it underlies all the qualities as a matrix; for in the same way as form separated from matter happens to be incorporeal, so too matter is not body when form is removed. For the existence of body requires that the two come together.[129]

The next fragment (which I do not cite in full) outlines the concept of form:

> Now, form is different from figure to this extent, namely, that one is going through in depth, another is on the surface; and one is similar to white colour used in painting, **(p.157)** another gives form to the substance of milk; the same [principle] is called 'form', insofar as it both gives matter form and provides it with [inner] structure.[130]

'Form' here refers to the principle of hylomorphic constitution discussed by Aristotle in physics.[131] The way the contrast with shape is drawn deserves attention: form pervades matter 'in depth', as it were physically imparting to it all its qualities. This reminds us of the description of the manner of operation of the active principle in the Stoic system.[132]

The notion of prime matter as 'formless and unqualified' is not found in this form in any of Aristotle's writings, but apparently is adopted by all the authors of this period (and later by Alexander of Aphrodisias).

Simplicius' *Physics* commentary has preserved for us a discussion of the concepts of matter and substrate (ὑποκείμενον) by the early commentators.[133] The issue under discussion is the relation between privation (στέρησιζ) and the substrate. If the substrate exists only in potentiality, and what

is in potentiality is in the state of privation, it seems that the substrate is none other than privation, by its proper account.[134] To avoid this conclusion, we need to assume that the substrate exists in actuality, while the lack of forms which it can receive belongs to it accidentally.[135] This must be a solution to the problem given by Alexander of Aphrodisias, who is cited as explaining that when the substrate has a privation as an accident it is the matter of something, while the substrate as such (i.e. within a hylomorphic composite) does not have a privation.[136] Simplicius cites Boethus who seems to distinguish between the substrate-before-the-change and the substrate-within-the-composite-after-the-change as follows:

> It is called 'matter' on account of its being *qualityless and formless*; for matter seems to be named relatively to the thing which will be; but once it has received a form, it is no longer called 'matter', but 'the substrate'; for something is said to be the substrate with respect to that which already exists.[137]

Alexander points out that Boethus fails to distinguish between the 'qualityless and formless' matter proper and the substrate-before-the-change, or 'antecedent' matter, which contains privations of relevant forms incidentally. Notably, Alexander corrects Boethus' analysis while retaining the notion of 'formless and qualityless matter' which he says is different from the two outlined meanings of substrate.[138] **(p.158)** The prime matter, according to Alexander, can receive both form and privation (the view criticized by Simplicius, who does not reject the notion of prime matter nonetheless).[139]

Another instance where the concept of prime matter is incorporated into Aristotle's usage is found in the *Epitome* of Aristotle's philosophy by Nicolaus of Damascus.[140] In his summary of Aristotle's theory of nature (based on *Physics* 2.1), Nicolaus distinguishes the matter of a particular from 'formless and unqualified matter':

> 1 . . . [b]<F>or nature is said to be matter, viz. matter of two kinds:
> 2 [a]One of particulars. This is without order (ῥυθμόζ), [[b] this possibly is shape] and it is without form in comparison with anything else, to which it ascends, and in which is contained all

> artificial matter and every element, e.g. fire and water and the rest.
> 3 The other matter which is supreme is wholly unspecified and without form. (Tr. Drossaart-Lulofs)

Drossaart-Lulofs points out a parallel between this description of particular matter (where the Greek word ῥυθμόζ is transcribed in Syriac) with Aristotle's *Metaphysics* Δ4, 1015a7, where matter is described as ἀρρύθμιστοζ, and argues that Nicolaus interprets the ὅλωζ πρώτη ὕλη of 1015a8 as the 'supreme formless matter'. If he is right, it means that Nicolaus overlooked Aristotle's examples which make clear that 'first matter' is used in the sense of generically prior (thus bronze is the proximate matter of statue, but water is 'prior' generically, because it is the matter of all metals).[141] The list of meanings in *Metaphysics* Δ contains no references to the formless and qualityless prime matter, but Nicolaus cannot omit it in his classification, and so includes it without any (or on slightest) textual evidence.

We can see that Hellenistic prime matter, with its 'Stoic' epithets 'formless', 'qualityless', is accepted by virtually all post-Aristotelian Peripatetics, but they do show some amount of uncertainty about finding its analogues in Aristotelian texts. When eventually it is accepted as the matter of the four elements, it is also **(p.159)** established that, differently from its Stoic counterpart, the Aristotelian concept of prime matter is unambiguously 'not a body', even though it does not exist without a body.[142] Another way of putting this would be to say that 'qualityless', ἄποιοζ, is a stronger concept for Peripatetics than for the Stoics with their technical concept of corporeal 'quality'.[143]

4

In this section I would like to draw attention to several aspects of Alexander's discussion of the elements which may be based on earlier traditions of Peripatos and reflect some of the agenda of the Stoic doctrine of principles.

Alexander opens his treatise *De Anima* with a summary of Aristotelian doctrine of principles. He introduces the principles of matter and form of natural bodies and shows the derivation of the four elements from these principles. This latter procedure is not found in Aristotle, but has a parallel in the Antiochean 'concordance'.[144]

> Since there is a difference in natural bodies (namely, some of them are simple, others composite), the matter of the composite bodies and their substrate is itself a natural body composed of form and matter (for every natural body is composed of these). As for the simple bodies, they have no composite substrate, for otherwise [a body] would itself be composite. And if their substrate is not composite, it is not a body, given that every body is composed of form and matter. (3. 21–7 Bruns)

The 'formless and shapeless' matter, corresponding to the prime matter of the 'Antiochean' consensus, is defined here in a more technical way as the matter underlying the elements:

> Thus, the substrate of simple bodies and their matter is some simple nature lacking form, which by its own account lacks figure, form and shape. Because it is and is said to be formless that is called form which having come to be in it brings to an end its mentioned privation; and such nature one would call matter in a strict sense. (3. 27–4. 4 Bruns)

We may note that 'lacking qualities' for Alexander means also 'lacking dimensions': Alexander points out that prime matter does not exist separately from any elemental form.[145] The order of derivation of prime matter in *De Anima* is the reverse of the one we found in Antiochus' summary: Alexander calls the prime matter 'matter in a strict sense', but the derivation starts from the **(p.160)** elements. This may be in line with the way Aristotle treats the matter of the elements.[146]

Alexander does explain the role of form in the generation of elements. Just as the natural form generally is the substance of a thing, in the same way primary qualities (hot/cold, dry/moist) in proper combinations are the natural forms of the elements:

> For of fire, since it is a simple natural body, the form is heat and dryness, as well as the lightness supervening upon these, and the matter is the substrate of these, which being by its own nature none of these, can receive equally these and their opposites (and owing to this nature, there are transformations of simple bodies into each other). (5. 4–9 Bruns)

The property of lightness which supervenes on the ‘agent’ qualities of heat and dryness[147] is the principle of motion and as such a ‘power’ of fire which accounts for its natural motion upwards. This model of ‘supervening power’ is used by Alexander in his exposition of Aristotle's definition of soul. Soul is defined as the power supervening on the multiple bodily structures, whose material constitution ultimately goes back to the combinations of four ‘simple bodies’:

> So that if there is going to be, beside the simple bodies, some composite natural body, it must have more simple bodies as its underlying substrates; and this multitude is the multitude derived from the variety of forms that are in them, and therefore such bodies are composite. And the nature and form of a thing which has several different forms underlying it with matter must be more manifold and more perfect, since each particular nature in the bodies underlying it[148] contributes something to the form which is common to them all. For such a form is in a way a form of forms and as it were a perfection of perfections. Therefore those should not marvel at the variety of forms in the natural bodies who have the causes of their variation clearly in their underlying substrates. For it is plausible that both the multitude of forms in the bodies underlying them and their varied mixture contain the causes of so great a variation.[149]

The combinations are in accordance with a specific composite ‘form’, a ‘formula’ that corresponds to each particular species.[150] Using this approach, Alexander develops a scale of beings similar to one reported by some sources for Chrysippus.[151] But while the Stoic ladder is built on the principle of increasing pneumatic tension, Alexander's is that of increased complexity which can be expressed in terms of elemental combinations. This kind of analysis does not **(p. 161)** seem warranted by any of Aristotle's treatises.[152] On the other hand, it fits well with doxographical expositions of Aristotelian physics of the Imperial age, such as the physical fragments of Arius ‘Didymus’ discussed above.[153]

The fifth element is never mentioned in this derivation of the elements, save for a brief remark towards the end of the account, to the effect that the soul of gods, if indeed it were called soul, would be called so homonymously.[154] Extant fragments from Alexander's discussion of the souls of heavenly bodies suggest that the homonymy is based on the functions of

the soul. In the case of heavenly bodies, Alexander emphasizes, against the Stoics, that there are no parallels to the sublunary life functions such as nutrition and sense perception.[155] It seems also that there is no homonymy in the case of ‘nature’ (as opposed to ‘soul’): the souls of heavenly bodies are their natures, comparable to the lightness of fire and heaviness of the earth.[156]

In this account of the elements in *De Anima*, physics seems to be completely separated from theology. Rather, in the proem to the treatise Alexander explains at some length why physics in fact is the best theology.[157] But among the school works we do find a number of texts showing that properly theological concerns are still very much alive in Alexander's theory of elements, in connection with the problem of providence. I am going to look at the texts which discuss the relation between divine power and the cosmic elements.

Quaest. 2. 3 is entitled ‘What the power is that comes to be from the movement of the divine body, in the body adjacent to it which is mortal and subject to coming to be’. Heavenly body is supposed to be the source of divine providence operating to some extent in the sublunary world: this thesis Alexander sets out to prove. The problem goes back to the Hellenistic Peripatetic thesis (discussed above) that providence extends only till the sphere of the moon.[158]

The author considers two solutions, based, respectively, on two different models of the aether's function within the cosmos. According to the first theory, **(p.162)** divine power accrues to sublunary things after the four elements have been formed (48. 22–4). This terse formula should not be taken as any admission of the beginning of the cosmos: ‘before’ and ‘after’ should refer to a history of individual composites whose physical constitution ultimately rests on the four combinations of the hot and cold and the dry and the moist. The divine power, on this picture, is a fifth separate physical factor, quasi-elemental power *sui generis*, which enters the constitution of bodies composed of the four elements and accounts for special properties, such as mental properties:

> The simple bodies too contribute to the coming-to-be of the bodies that come to be from them, and so too does the divine power in which they have a share according to their proximity. It is on account of this power that these

> no longer possess in themselves a principle only of motion in accordance with overcoming tendency, but have acquired in addition also a certain soul-borne motion which possesses its origin and coming-to-be from the divine power in which they have a share. (48. 29–49. 4 Bruns, tr. Sharples, modified)

This seems to be a quasi-physicalist picture of the heavenly influence, perhaps parallel to the reports of Critolaus we have discussed.[159] But there is a further detail: the power acts differently on different bodies depending on their elemental constitution: those whose constitution is finer and purer get more, others less.

The criticism of this solution in our treatise is as follows. On this picture, only such natural substances will benefit from this power as are formed by blending and alteration of the simple bodies, because the scope of influence of this divine nature is restricted to certain kinds of elemental mixture. It does not work for simple bodies in their unmixed state—not even if they are combined by juxtaposition. For the effects to take place, 'chemistry' is needed.[160]

We also get some details about the way the divine body was supposed to produce psychic powers.[161] The divine power exercises some selection in acting upon the elements. The range of selection is defined by the elemental constitution of different natural substances, presumably because mixture is the main method by which divine power propagates itself through the region of nature. A remarkable claim here is that the divine nature is mixed with the bodily mixture and modified in this process.[162] This process has parallels with the Stoic 'total pervasion', the mechanism by which the active principle acts upon **(p.163)** matter.[163] As a whole, this kind of providential design cannot be described as Stoic, at least not as what we know as mainstream Stoic, because it excludes the divine principle from the elemental generation.[164] This solution to the main problem is rejected by the subsequent discussion in the *Quaestio*, to which we shall turn shortly.

There is another text in Alexander's corpus which seems to invoke the same half-way physicalist Peripatetic theory, and which is rightly cited by scholars in parallel with this solution. In the last section of the treatise *De Intellectu* (*Mantissa* 2), the author tells us about a Peripatetic doctrine[165] according to

which divine intellect pervades the whole cosmos and permanently operates ‘in matter as one substance in another, in actuality’.[166]

> When, from the body that was blended, there comes to be fire or something of this sort as the result of the mixture, which is able to provide an instrument for this intellect, which is in this mixture—for it is in every body, and this too is a body—then this instrument is said to be intellect potentially, supervening on this sort of blending of bodies as a suitable potentiality for receiving the intellect that is in actuality. (112. 11–16 Bruns, tr. Sharples)

Human thought is the activity of the divine intellect operating by means of the human capacity of thinking (which is the potential intellect).[167] Alexander says that this account has several characteristic Stoic ‘faults’: (*a*) god is said to be in the lowest beings (presumably because the intellect is said to pervade all matter);[168] (*b*) in sublunary things there is providence by direct divine intervention;[169] (*c*) thinking is not ‘up to us’. We shall note, however, that despite conceptual and terminological affinities with the Stoic theory, the thesis proposed by our unknown Peripatetic is different from the Stoic one: with the Stoics, the active principle pervades the matter as a whole ‘by the whole’, making no exceptions. Peripatetic divine nature in our theory is mixed not with all bodies without exception but only with those whose elemental constitution makes them suitable for such a mixture. There is no complete pervasion of the cosmos by the divine principle. But Alexander does not want to allow even for a ‘partial’ mixture (he goes against this view also in the treatise *De Mixtione* which is written in part **(p.164)** for the benefit of the Aristotelians susceptible to the Stoic reasoning). His own view of divine influence seems to be concisely stated in the second solution to *Quaest.* 2. 3.

The second solution is based on a more consistently physicalist view of the cosmos, and it claims to make a stronger case for the divine providence than the first one, because according to it, the action of the divine power is much more pervasive and covers the whole of the cosmos. Here the author seems to be after the notion as powerful as the Stoic one, except that the divine influence he has in mind reaches the sublunary cosmos by being propagated in the succession of movements rather than via ‘total pervasion’.[170] The author refers to the fact that divine body in its motion heats the tinder sphere (as Aristotle describes this, controversially, for the sphere of the sun in *Meteor.* 1. 3), thus producing the primary qualities: heat and

dryness.[171] Together with their opposites, i.e. coldness and moisture, these form the qualitative basis for the whole of the physical cosmos. Furthermore, ‘divine body’ refers to the whole ensemble of the heavenly bodies, so that the elemental generations and changes display some degree of regularity for which they depend on the perfect regularity of the heavens. This order is propagated to the composites, and thus pervades the whole cosmos. In this way divine power is said to inform the matter with the first and simple forms, from which then the full variety of composite natural substances comes to be. Again we are told explicitly that ‘all those bodies which have more finer and purer bodies in their blending have a more perfect form, and all those which have in themselves less of such a body, and more of the passive and denser, have a more imperfect form’.[172] In this second solution, mental properties are explained by a finer physical constitution, but we have to understand that this latter is itself a function of the divine cosmic order. Thus providence is exercised by the Aristotelian god in an ‘oblique’ way: it accounts for the coming to be of the elements and elemental processes, whose regularity gives rise to the regular compounds. The Aristotelian idea of regularity of sublunary processes dependent upon the heavenly revolutions is interpreted by Alexander in terms of providence.[173] Differently from the Stoic providence, this one ultimately operates on the level of species, not individuals. **(p. 165)**

CONCLUDING REMARKS

Stoic and Peripatetic physics must have a number of common features: strong teleological commitment, rationalist ethics, and theology, together with denial of traditional Platonic doctrine of forms and shared belief in physical continuum, almost guarantee that there will be parallels and affinities between the two systems. Yet it seems, from this brief survey, that these common features do not easily translate into the details of two cosmological doctrines. Everything works differently: the doctrine of the principles, theories of matter and elements, and the parallel theories of providence. Even in the Hellenistic Peripatos, when physics in a narrow sense is not among the school priorities, the background of the key tenets and arguments reported by the sources seems to be their distinct school agenda rather than common principles highlighted in the *ad hoc* doxographies in the engaged philosophical discussions. The critical tendencies within the

school (the case of Xenarchus and the fifth element) do not necessarily amount to the rejection of the system, despite the fact that the system revised on the basis of criticisms may be significantly (for some, perhaps irreconcilably) different from the criticized original.

Alexander's engagement with the Stoics is probably both the closest and the most critical compared to all his known predecessors. It is the closest because he is probably fully conscious of the shared values, and it is the most critical because he is particularly keen to articulate all the relevant differences, both in terms of systematic exposition and Aristotelian exegesis. Although he does not tell us much about his Stoic sources, he does know them well, and not only as the targets for his criticism, but also as a possible inventory of argumentative and expository techniques. The structural parallels between his and Stoic arguments and terminology can be quite striking: the nature's ladder starting from the four elements, and the full-scale action of the divine power in the *Quaest*. 2. 3 are just two examples. But they also underscore the difference of his approach: the ladder is constructed in a Peripatetic way and has a role of illustration, and the divine providence pervades nature by providing its material framework. An interesting document, the so-called Vitelli fragment 2,[174] could be used as a late anachronistic footnote to the Antiochean harmony among the three schools. In it, Alexander is replying to the criticisms of a Stoic named Heraclides (who held the Stoic philosophical chair in Athens around Alexander's time or a little earlier).[175] As the title makes clear, Heraclides attacked the Aristotelian doctrine of the fifth body:

> By the same Alexander, from the treatise *Against Heraclides*, a review of Aristotle's arguments concerning the fifth substance; where he argues against a certain Stoic **(p.166)** philosopher who criticizes Aristotle saying that Aristotle differs from Plato in his view of gods and soul's immortality. (fr. 2. 1–4 Vitelli)

Alexander says, after a rhetorical opening:

> That in this respect the Stoic school is in a greater disagreement with Plato than Aristotle is, everyone can easily see. For Plato thinks that the first god is incorporeal, and says that he rests in self-contemplation and thought, and there are some secondary gods managing the coming to be and being of other things, and what Aristotle says is in agreement with this; [Plato] also says that the soul is some incorporeal and imperishable substance, and each of these [claims] about it is proven also by Aristotle. They [Stoics], on the other hand, make god a body, and postulate that this body passes through all things; further, they say that soul is body, and that it is perishable, and that some souls perish immediately along with the perishing [bodies] that have them, while others are preserved until the most absurd conflagration. (fr. 2. 8–18 Vitelli)

The Stoic charges against Aristotle and Alexander's grievances against the Stoics are exploiting familiar features of both respective systems. What is more remarkable here is that both Heraclides in his criticism and Alexander in his reply seem to be claiming some common Platonic heritage, and these claims apparently will not conflict with the improvements on the Platonic system which must be made in each school.*

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Notes:

(1) This has been well shown in the seminal work by D. E. Hahm (1977).

(2) Famously argued by F. H. Sandbach (1985).

(3) Cf. Galen, *Propr. Plac*. 15. 1 Nutton; *Nat. Fac*. 1. 5. 12; Alexander, *De Prov*. 3. 15 Thillet.

(4) See below at pp. 140–1, 150 n. 90, and 154–55.

(5) *Mixt*. 3. 216. 9–15 Bruns.

(6) There are several detailed studies of these debates, cf. Todd 1976; Sharples 1983; Moraux 2001. On Alexander's school being located in Athens, see data in Chaniotis 2004.

(7) Bowen and Todd 2004.

(8) Görler 1990; Sedley 2002; Gourinat in this volume (Ch. 3).

(9) Antiochus' own polemical context is set by his debate against Philo's version of the history of the Academy in the ‘Roman Books’ (for which see Brittain 2001: 169–254).

(10) *Att*. 13. 19. 5, quoted and discussed in Griffin 1997: 16; see also Görler 1990: 123–6; Brittain 2006: pp. xxxv–xxxviii.

(11) *Acad*. 1. 35: *sed Zeno cum Arcesilam anteiret aetate valdeque subtiliter dissereret et peracute moveretur, corrigere conatus est disciplinam*.

(12) Sedley 2002; cf. Frede 2005: 217–19

(13) 24 *de natura autem . . . ita dicebant ut eam dividerent in res duas, ut altera esset efficiens, altera autem quasi huic se praebens, ex qua efficeretur aliquid. in eo quod efficeret vim esse censebant, in eo autem quod efficeretur materiam quandam; in utroque tamen utrumque, neque enim materiam ipsam cohaerere potuisse si nulla vi contineretur, neque vim sine aliqua materia (nihil est enim quod non alicubi esse cogatur). sed quod ex utroque, id iam corpus et quasi qualitatem quandam nominabant < . . . >.*

(14) 26 *< . . . > Earum igitur qualitatum sunt aliae principes, aliae ex his ortae. Principes sunt unius modi et simplices; ex his autem variae ortae sunt et quasi multiformes. Itaque aer (hoc quoque utimur iam pro Latino) et ignis et aqua et terra prima sunt; ex his autem ortae animantium formae earumque rerum quae gignuntur e terra. Ergo illa initia et (ut e Graeco vertam) elementa dicuntur; e quibus aer et ignis movendi vim habent et efficiendi, reliquiae partes accipiendi et quasi patiendi, aquam dico et terram. Quintum genus, e quo essent astra mentesque, singulare eorumque quattuor quae supra dixi dissimile Aristoteles quoddam esse rebatur.*

(15) 27 *Sed subiectam putant omnibus sine ulla specie atque carentem omni illa qualitate (faciamus enim tractando usitatius hoc verbum et tritius) materiam quondam, e qua omnia expressa atque efficta sunt, quae omnia accipere posit omnibusque modis mutari atque ex omni parte, atque etiam interire, non in nihilum sed in suas partes, quae infinite secari ac dividi possint, cum sit nihil omnino in rerum natura minimum quod dividi nequeat; quae autem moveantur, omnia intervallis moveri, quae intervalla item infinite divide possint.*

(16) 28 *Et cum ita moveatur illa vis quam qualitatem esse diximus et cum sic ultro citroque versetur, et materiam ipsam totam penitus commutari putant et illa effici quae appellant qualia, e quibus in omni natura cohaerente et continuata cum omnibus suis partibus unum effectum esse mundum, extra quem nulla pars materiae sit nullumque corpus, partes autem esse mundi omnia quae insint in eo quae natura sentiente teneantur, in qua ratio perfecta insit quae sit eadem sempiterna (nihil enim valentius esse a quo intereat);*

(17) 29 *quam vim animum esse dicunt mundi, eandemque esse mentem sapientiamque perfectam, quem deum appellant, omniumque rerum quae sint ei subiectae quasi prudentiam*

quondam, procurantem caelestia maxime, deinde in terris ea quae pertineant ad homines; quam interdum eandem necessitatem appellant, quia nihil aliter possit atque ab ea constitutum sit inter quasi fatalem et immutabilem continuationem ordinis sempiterni; non numquam quidem eandem fortunam, quod efficiat multa improvisa ac necopinata nobis propter obscuritatem ignorationemque causarum.

(18) fr. 230 FHSG (=Simplicius, *In Phys*. 25. 5–15 Diels); Sharples 1995: 67–73, cf. Sedley 2002: 63.

(19) Cf. DL 7. 134.

(20) *SVF* 2. 311 (=Sextus, *M*. 9. 75); 2. 444 (=Plut. *Comm. Not*. 1085C); 2. 1044 (=Alex. *Mixt*. 225. 18 Br.). cf. also the usage in [Aristotle], *De Mundo* 6 and discussion in Moraux 1984: 37–48.

(21) If we take the force of *iam* to be adversative with respect to the preceding clause.

(22) In fact, Brittain 2006: p. xxxii, suggests that Antiochus probably accepted both Zeno's corrections, including the one to do with corporeality of the first principles.

(23) *Soph*. 247D8–E4: λέγω δὴ τὸ καὶ ὁποιανοῦν τινα κεκτημένον δύναμιν εἴτ᾽ εἰς τὸ ποιεῖν ἕτερον ὁτιοῦν πεφυκὸς εἴτ᾽ εἰς τὸ παθεῖν καὶ σμικρότατον ὑπὸ τοῦ φαυλοτάτου, κἂν εἰ μόνον εἰς ἅπαξ, πᾶν τοῦτο ὄντως εἶναι· τίθεμαι γάρ ὅρον ὁρίζειν τὰ ὄντα ὡς ἔστιν οὐκ ἄλλο τι πλὴν δύναμις. For discussion, see Brunschwig 1988: 64–76 and John Cooper in Ch. 4 (pp. 99–101) above. There is no question of an exact parallel between the ontology of the *Sophist* passage and Antiochus; only a way of establishing a terminological agreement between the two antagonistic positions (I am grateful to Ricardo Salles for querying this point).

(24) This can be compared with the notorious textual problem of DL 7. 134 for which the *Suda* reads ‘incorporeal’ (ἀσωμάτους) instead of ‘bodies’ (σώματα) of the main MSS (cf. Todd 1978; Frede 2005; Cooper pp. 97–101 above).

(25) For detailed discussion of the place of prime mover in the cosmos, see Sharples 2002: 4–12. In *Acad*. 2. 121, Cicero

speaking as a Philonian sceptic, points out that Strato the Peripatetic denies his god the role of creator.

(26) Cf. DL 7. 136–7 (=*SVF* 2. 580); cf. Galen, *De Elem. ex Hipp*. No trace of Plato's geometrical construction of the elements (alluded to by Varro in *Acad*. 1. 6) is found. For a parallel with *Tim*. 49D–E, see Sedley 2002: 58 and n. 36. According to Aristotle, each element is constituted by two qualities (*GC* 2. 4), but one of the two is regarded as 'dominant'.

(27) Cf. [Plato], *Epin*. 981B–C; Speusippus fr. 122 Isnardi (= [Iambl.] *Theolog. Arithm*.); [Plato] ap. Xenocraten (frgg. 264–6 Isnardi Parente (=Simpl. *In Phys*.)). One might wonder if the reference to Zeno's predecessors (*superiores*) at *Acad*. 1. 39 includes anyone other than Aristotle.

(28) This whole section was often taken to be a fragment of Aristotle's lost dialogue *De Philosophia* (Fr. 27 Ross). cf. Untersteiner 1963: 266; Moraux 1963: 1222; Gigon does not include this text in his edn. of fragments. For further arguments against an 'all-inclusive' treatment of *De Philosophia*, see Hahm 1982, cf. Furley 1989*a*: 204–11. See p. 149–50 below.

(29) Cf. Görler 1989; Furley 1989*a*; Sharples 2001: 169–73.

(30) Cf. Brittain 2006: p. xxxii.

(31) *Fin*. 4. 12–13.

(32) Cf. Alex. *Mixt*. 10 and below, pp. 151–6 and 161–4.

(33) ἄποιοζ DL 7. 134 (*SVF* Z 1. 85, 493 (Cl.), 2. 300; 3 Arch. 12); Sext. *M*. 9. 11 (= 2. 301); Plot. 2. 4. 1 (= 2. 320), Simpl. *In Phys*. 227. 23 (= 2. 326); ἀσχημάτιστοζ Orig. *Orat*. (= 2. 318); Galen, *Meth. Med*. 2. 7, 10. 155 K. (= 2. 322); 2. 326. For Platonic background, see Sedley 2002: 55–6; for interpretation of Stoic concept, see Frede 2005: 219–22; Cooper, pp. 96–102 above; and Gourinat Ch. 3.

(34) *Tim*. 50A-C, [Ar. Did.] fr. 27. 463. 5–13 Diels.

(35) *Metaph*. 7. 3, 1029a10–30; *GC* 2. 1, 329a24–32; cf. Charles 2004. For recent discussions, see Algra 2004; Broadie 2004; Charles 2004.

(36) See LS 50, cf. *SVF* 482–91. It is attacked at length as Stoic in [Galen], *De Qualitatibus Incorporeis* 109–61 Giusta (cf. however, Sedley 2002: 67). The theory of motion ‘by infinitely divisible intervals’ has some affinities with Aristotelian theory as developed by Strato. Cf. fr. 82 Wehrli, Sorabji 1983: 377–9.

(37) So Brittain 2006: 98 n. 25; Rackham translates: ‘vibrates to and fro’. Cf. *SVF* 2. 451 (=Nemes. *Nat. Hom*. 18. 6 Morani). Cf. however, Sedley 2002: 67 n. 59.

(38) *Tim*. 32C–33B, 41B.

(39) *Acad*. 2. 119; cf. Donini 1982: 79; Furley 1989*a*: 203.

(40) Cf. Mansfeld 1979; Long 1985: 26–31; Salles, pp. 126–9 above.

(41) Cf. Furley 1989*a*: 201–4.

(42) See Reydams-Schils 1999.

(43) *Acad*. 2. 120–1; cf. Theophrastus, *Metaphysics* 10a22–11a12; Strato, fr. 32, 33, 35 (Wehrli). Discussion in Berryman 1996.

(44) Sharples 2002: 23; Mansfeld 1992: 134–52, with Critolaus fr. 15 Wehrli cited below.

(45) Sharples 2002: 18–36; edns. of *De Providentia* with translations by H.-J. Ruland (1976), S. Fazzo and M. Zonta (1999), P. Thillet (2003).

(46) This technique is used by Galen (see Kupreeva 2004; Tieleman 2007) and Alexander of Aphrodisias (see Todd 1976; Sharples 1983; Mansfeld 1988). Cicero resorts to it as well, for instance, in *De Natura Deorum* (see Furley 1989*a*: 203–4). On the use of doxographical techniques by ancient authors in general, see Mansfeld 1990.

(47) Cic. *Acad*. 2. 132; cf. Görler 1990.

(48) It can be argued that it does not necessarily conflict with Aristotle's system, but that is a different issue (Algra 2004: 92–4).

(49) The few occurrences of *meiromai* in the corpus are non-technical.

(50) For chronology, see Olivier 1895: 6; Wehrli 1969 [2:] 63–4; Dorandi 1999: 37. On the place of Critolaus in the history of Hellenistic Peripatos, see Sedley 1989: 117–18.

(51) Fr. 15 Wehrli=Epiph. *Adv. Haereses* 3. 31 (592. 9–14, 19 Diels).

(52) Wehrli 1969 [2]; Sharples 2002.

(53) Wehrli says that the report may be a result of Epiphanius' not distinguishing between Peripatetics and Pythagoreans. According to him, this is supposed to account for the bipartite division of the cosmos. For criticism of Epiphanius as a source, see Sharples 1998: 104 n. 296.

(54) Wehrli ad loc. suspects the text of Epiphanius (perhaps rightly). On the other hand, cf. Cicero, *Tusc*. 1. 22 (see J. E. King's note ad loc.). I am grateful to Ricardo Salles for querying this point.

(55) On the problem of authorship and structure of the text, see Runia 1981: 105–12.

(56) On the role of the three school positions in the structure of Philo's treatise, see Runia 1981: 112–21.

(57) Wehrli prints just two arguments; Olivier 1895: 16–18, lists five (or maybe four, depending on construal); Arnaldez (1969) also indicates that reference to the third person (Critolaus) is made at the beginning of ch. 74, which possibly allows us to add some material from chs. 74–5. Philo's report is possibly contaminated: scholars point out that sometimes it is difficult to decide whether the rhetorical prose belongs to Critolaus or the author. Nonetheless, it is possible to track some elements of these texts which exhibit consistency of doctrine.

(58) Fr. 13 Wehrli (Philo *aet*. 55): Κριτόλαοζ δὲ τῶν κεχορευκότων* Μούσαιζ, τῆζ Περιπατητικῆζ ἐραστὴζ φιλοσοφίαζ, τῷ περὶ τῆζ ἀιδιότητοζ κόσμου δόγματι συνειπὼν ἐχρὴσατο τοιαύταιζ πίστεσιν· εἰ γέγονεν ὁ κόσμοζ, ἀνάγκη καὶ τὴν γῆν γεγονέναι· εἰ δὲ ἡ γῆ γενητὴ, πάντωζ καὶ τὸ ἀνθρώπων γένοζ· ἄνθρωποζ δὲ ἀγένητον ἐξ ἀιδίου τοῦ γένουζ ὑφεστώτοζ ὥσπερ ἐπιδειχθὴσεται. ἀίδιοζ ἄρα καὶ ὁ κόσμοζ. Fort. συγκεχορευκότων Olivier.

(59) Chs. 56–69.

(60) Arnaldez 1969 ad loc. suggests Stoics, referring to Sextus, *M*. 9. 28 (who reports the argument by recent Stoics according to which the first men were earth-born; the context is the origin of the human notion of god).

(61) Chs. 130–1 (argument), 145–9 (Theophrastus' refutation) are reprinted as parts of Theophrastus' fr. 184 FHSG.

(62) The argument would refute Lucretius 5. 795–836; cf. Sedley 1998: 166–85, on possible links between Theophrastus and Lucretius.

(63) Ch. 69 Cohn is concluded with: μένει γὰρ εἰζ ἀεί, φθειρομένων τῶν ἐν εἴδει, τεράστιον ὠζ ἀληθῶζ καὶ θεῖον ἔργον. There is no certainty that this material comes from Critolaus himself (and not an intermediary source). Some language may be owed to Philo (cf. Arnaldez on ch. 63), but the argument proper construes well with the brief formulation of fr. 13 and is immediately followed by the next argument directly attributed to Critolaus (=fr. 12 Wehrli). Sharples 1997: 160, rightly compares the reasoning to Aristotle's in *GC* 2. 10, but notably the motion of heavens is not invoked by Critolaus as a cause.

(64) Fr. 12 Wehrli: ἐπαγωνιζόμενοζ δ΄ ὁ Κριτόλαοζ ἐχρῆτο καὶ τοιούτῳ λόγῳ· τὸ αἴτιον αὐτῷ τοῦ ὑγιαίνειν ἄνοσόν ἐστιν· ἀλλὰ καὶ τὸ αἴτιον αὐτῷ τοῦ ἀγρυπνεῖν ἄγρυπνον ἐστιν· εἰ δὲ τοῦτο, καὶ τὸ αἴτιον αὐτῷ τοῦ ὑπάρχειν ἀίδιόν ἐστιν· αἴτιοζ δ΄ ὁ κόσμοζ αὐτῷ τοῦ ὑπάρχειν, εἴ γε καὶ τοῖζ ἄλλοιζ ἅπασιν· ἀίδιοζ ἄρα ὁ κόσμοζ ἐστίν.

(65) Olivier 1895: 17 suggests that Philo abbreviated his source.

(66) Ch. 20.

(67) Ch. 25. The term ἄγρυπνον is probably supposed to refer to the state of activity.

(68) It could be Philo's (cf. Runia 1981: 83–4), or Theophrastus' (cf. Sedley 1998: 172).

(69) A parallel with *Tim*. 32C–33B suggests itself.

(70) Olivier 1895: 17 calls this an ‘ontological argument’; Arnaldez 1969 cites *Phaedo* 105C as parallel.

(71) As they are in the case of Theophrastus (cf. Runia 1981; Sedley 1998). cf. Olivier 1895: 17–19.

(72) Diogenes of Babylon (*SVF* III Diog, 27); Boethus of Sidon (*SVF* III Boeth. 7).

(73) Cf. Sharples 2002: 14. Note also the criticism of Chrysippus' example of Dion/Theon as stated by Philo: the example is reformulated, assilimating Dion to the whole cosmos, Theon (part of Dion without a leg) to his ‘ruling’ part (soul). Chrysippus' thought experiment (of amputating Dion's leg) will then result in the whole cosmos surviving without its ruling part (Philo, *Aet*. 50–1).

(74) Fr. 16 Wehrli (Stob. *Ecl*. 1. 1. 29b = ‘Aët’. 1. 7. 21): Κριτόλαοζ καὶ Διόδωροζ ὁ Τύριοζ νοῦν ἀπ΄ αἰθέροζ ἀπαθοῦζ. Cf. Sharples 2002: 14; Mansfeld 1992: 134–9.

(75) Olivier 1895: 44–6. Olivier considers the possibility of Stoic influence on the Peripatetics earlier than Critolaus, but thinks that Critolaus himself made no concessions to the Stoic doctrine in his physics (as opposed to ethics).

(76) The main evidence for attribution of this doctrine to Critolaus is Epiphanius' report above; but this view is attributed to Aristotle in a number of late doxographical sources (discussions in Mueller 1994; Sharples 2002). As we shall see below, Alexander of Aphrodisias is concerned with justification of some versions of this view.

(77) *De Mundo* 397b25–30. Cf. Alex. *Quaest*. 48. 5–8 Bruns: εἴη τε ἂν οὕτω πρῶτον ἀπολαῦον τὸ πῦρ τῆζ τοιαύτηζ ἐκ τοῦ θείου δυνάμεωζ, ἔπειτα τοῖζ μετ΄ αὐτὸ διαδιδὸν αὐτὴν, ὡζ πάντα τὰ σώματα τῇ τοιαύτῃ διαδόσει μεταλαμβάνειν αὐτῆζ, τὰ μὲν πλεῖον, τὰ δὲ ἔλαττον.

(78) *De Mundo* 398a6–b28. See discussions in Moraux 1984: 37–48; Sharples 2002: 25–6; Fazzo 2002: 185.

(79) Cf. [Galen], *De Qualitatibus Incorporeis*: εἰ δὲ μεταποιὴσαζ αὐτὸν ὁ Ζεὺζ ἰσαρίθμωζ οἷζ ἔφην συμβεβηκόσι τροπὰζ ἴσχει ποιοτὴτων μυρίαζ, χείρων ἐστὶ τοῦ μυθολογουμένου Πρωτέωζ· ὁ μὲν γὰρ εἰζ ὀλίγαζ φύσειζ ἑαυτὸν μετεποίει καὶ μετεμόρφου καὶ ταύταζ οὐκ ἀπρεπεῖζ, . . . ὁ δὲ οὐκ ἔστιν ὃ τι μὴ καὶ τῶν αἰσχίστων γίγνεται· διὰ μὲν ἀνδρὸζ ἄφρονοζ ἄφρων, διὰ δὲ αἰσχροῦ γνώμηζ αἰσχοποιόζ, διὰ δὲ ζῴων ἀλόγων ἀποθηριούμενοζ, διὰ δὲ λίθων καὶ ξύλων ἄψυχοζ γενόμενοζ, διὰ δὲ κοπρίου βδελυρὰ φύσιζ, ἔτι δ′ ἀχρεῖον. (20 Giusta).

(80) Ian Mueller raised a doubt concerning the origin of the Euripides quotation (1994: 155 n. 42). In fact, the same quotation from Euripides (with a minor change) occurs also in Plutarch's *De Cohibenda Ira* 464A, in a very similar moral context. It is hard to be certain about Plutarch's source: on each occurrence it seems to be from memory (as is also the quotation from Critolaus). But it is by no means impossible that Critolaus should quote Euripides (see Olivier 1895: 27–8 on related topics in Critolaus and a possible source of this fragment). The permanence of political context of quotation might also suggest the same source.

(81) *Pace* Sharples 2002: 23 n. 109.

(82) Moraux in his analysis of *De Mundo* 6 points out that the use of Stoic language and imagery does not mean that the author attempts to ‘Stoicize’ the Peripatetic theory: on the contrary, the task is to emphasize the distinct features of Aristotelian doctrine (Moraux 1984: 38–9, 78–9). The ‘strong’ formulations preserved in the doxographical summaries might be a result of similar emphasis in the original works.

(83) Cf. particularly the second argument for the eternity of the world discussed above (pp. 144–5).

(84) Perhaps in conjunction with a strong division between the heavenly and sublunary worlds emphasized by Aristotle in some key texts (*Metaph.* 12. 8; *GC* 2. 11).

(85) Cf. Atticus fr. 3 for comparison with Epicurus.

(86) Cf. Sharples 2002: 23–4.

(87) *Acad.* 1. 26 above (for more references and discussion see Moraux 1963: 1213–22).

(88) See discussion of *On Philosophy* in Hahm 1982 and Furley 1989*a*: 204–11; cf. below p. 152 n. 103.

(89) *SVF* 2. 1021 (= DL 7. 147), 1. 124 (= Cens. *De Die Nat*. 4. 10); 1. 126 (= Varro, *Ling. Lat*. 5. 59), 2. 423 (= Aug. *De Civ. Dei* 8. 5); Cleanthes (*SVF* 1. 504); Mansfeld 1992: 139–40, cf. Cooper, pp. 103–7 above. Mansfeld 1992: 139 n. 17 finds the report about Zeno's objection to the fifth element in *Acad.* 1. 39 odd because of the closeness of the thesis to his own theory. It seems that if the report is to be taken as valid, then the main target of the criticism was not the aethereal constitution of the soul, but the nature of Aristotle's aether, namely, the fact that it is impassive and does not mix with other elements. This type of aether could not be the material of soul without contradiction within the Stoic theory, and Zeno might want to distance himself from this concept of the fifth element (distinct nature of πῦρ τεχνικόν in the Stoic doctrine of elements notwithstanding).

(90) *Nec illos dico solos qui eam de manifestis corporalibus effingunt . . . ut Critolaus et Peripatetici eius ex quinta nescio qua substantia, si et illa corpus, quia corpora includit, sed etiam Stoicos allego, qui spiritum praedicantes animam paene nobiscum, qua proxima inter se flatus et spiritus, tamen corpus animam facile persuadebunt*. (Tert. *An*. 1. 5 = Critolaus fr. 17 Wehrli).

(91) *Critolaus Peripateticus constare eam* (sc. *animam*) *de quinta essentia* (*In Somn. Scip*. 1. 14. 20 = Critolaus fr. 18 Wehrli)

(92) Cf. Mansfeld 1992: 139–40; n. 89 above.

(93) *GA* 2. 1, 731b24–32a1. For modern deflationary readings, see Freudenthal 1995: 37; Caston 1999: 215–16; on the material of semen, see Rashed 2007: 287–91.

(94) *EE* 8. 2, 1248a16–33, cf. Sharples 2002: 11–12; van der Eijk 2005: 32–41.

(95) This latter remark may or may not refer simply to terminology (πνεῦμα is a good word to use as far as Tertullian is concerned), but the whole report probably owes something to the medical tradition as well. For Tertullian's sources, see Waszink 1947: 22*–44*; most recently, Polito 2006: 316–21.

This report does again raise a question about the source of *endelekheia* in Epiphanius and elsewhere.

(96) Moraux 1973: 223–56.

(97) Moraux has argued against the earlier attempts to interpret Cratippus' theory of natural divination as based on Stoic sources: 1973: 242–56.

(98) On Andronicus and his edn., see Moraux 1973: 45–141; Barnes 1997: 21–66. For the suggestion that both Boethus and Xenarchus could be Andronicus' students, see Moraux 1973: 197.

(99) For Xenarchus, Moraux 1973: 211–12; Gottschalk 1987: 1120; for Boethus and Andronicus, e.g. Sorabji 1999: 103–5.

(100) An edn. and full study of the fragments are still outstanding. Discussion of transmission in Rescigno 2004: 73–80 is very helpful.

(101) See n. 99 above.

(102) Some of these arguments are discussed in Falcon 2001: 150–74; Hankinson 2002/3; Sorabji 2007 provides a general overview.

(103) Notably, there are no criticisms of the 'psychological' argument mentioned by Cic. *Tusc*. 1. 22, and no references outside the scope of *De Caelo*, except for the name of the fifth element in the title.

(104) For references and discussion, see Hankinson 2002/3: 24; Rescigno 2004: 172–6. We may notice a parallel generalizing tendency in Chrysippus who reduces basic kinds of motions to two, straight and curved, and speaks of many more derived from these by combination (*SVF* 492 = Stob. *Ecl.* 165. 15).

(105) For instance, along the lines of Strato's theory of 'squeezing out', cf. Strato frgg. 50–3.

(106) For the discussion of the question of 'lightness' and 'weightlessness' in Stoic physics, see Furley 1989*b*; Hahm 1977: 111–35; Wolff 1988.

(107) Cf. Moraux 2001: 199 n. 10, 211–12; Rescigno 2004: 198–9.

(108) *Cael*. 4. 4, 311a1–10.

(109) *Meteor*. 1. 3, 340b32–41a12.

(110) According to this theory, stated in *Cael*. 4. 4, air, which is naturally light, i.e. upward moving, is heavier than fire, and water, which is naturally heavy, i.e. downward moving, is lighter than earth. Thus the ‘middle’ elements can be taken to have two opposite natural tendencies—one ‘dominant’ and the other ‘recessive’, as it were, which is displayed only relatively to the natural tendencies of their respective ‘extremes’ (i.e. fire and earth).

(111) The aporia is as follows: assume that the fiery layer is moving in a circle not by a natural motion; then fire's natural motion will be upwards; its contrary, downward motion, will be also against nature. So there will be two contraries to the natural (upward) motion, which is incoherent. Moraux 1973: 201, followed by Falcon 2001: 106–7, attribute the aporia to Xenarchus; Hankinson 2002/3: 50–1 and Rescigno 2004: 234–5 think that it is formulated by Alexander himself as a thought experiment. In any case, Xenarchus’ other arguments (*b*), (*d*), and (*e*) show that he is prepared to challenge Aristotle by suggesting that the circular motion of fire can be construed as natural.

(112) Cf. Falcon 2001: 157. Also in Aristotle's *Meteorology* 1. 3, the layers of dry and moist exhalation are not strictly demarcated (e.g. 340b33–41a4).

(113) The discussion of the so-called ‘Archytas” argument at 284. 28–286. 27 Heiberg; Rescigno 2004: 470–502.

(114) Ap. Simpl. 285. 32–5: κενὸν δὲ τοῦτό φασι διάστημα, ὃ οἷόν τε ὂν σῶμα δέξασθαι μὴ δέδεκται.

(115) 285. 27–286. 2 Heiberg.

(116) Ξέναρχος δὲ τὸ οἷόν τε δέξασθαι μετέβαλεν εἰς τὸ δεκτικόν, ὡς οὕτως λύσων τὴν ἐκ τοῦ πρός τι ἐπιφερομένην ἀτοπίαν τῇ θέσει· οὐ μὴν πλέον τι ἡ μετάληψις ἐποίησε, τὸ γὰρ

δεκτικὸν οὐδὲν ἄλλο ἐστὶν ἢ τὸ οἷόν τε δέξασθαι, τοιοῦτον δὲ ὂν μένει πρός τι ὄν.

(117) Moraux 1973: 203, 209–10.

(118) Algra 2000: 171 n. 25; cf. Rescigno 2004: 483.

(119) Algra 1995 distinguishes between the ‘logical’ and ‘physical possibility’; Moraux 1973: 202 speaks of ‘counterfactual’ possibility as ‘Stoic’ possibility. For the logical background of this concept, see Bobzien 1998: 97–144.

(120) Chrysippus ap Stob. (*SVF* 2. 503, esp. 163. 5–12 von Arnim), cf. also the arguments in Cleomedes, *Meteor*. 1. 1 (104–12).

(121) In this sense, Posidonius fr. 18 EK, with its distinction between physics and astronomy in their respective subject matters and methods, would be following the same overall methodology.

(122) On ‘hearing’ possibly referring to a private reading from Xenarchus, see Sharples 1998: 94 n. 257.

(123) For a good recent discussion, see Rashed 2007: 262–8.

(124) *Metaph*. 9b16–24.

(125) *Metaph*. 10a9–19. cf. also fr. 159 FHSG (= Proclus, *In Tim*. 35A).

(126) Cf. Aëtius 388. 16–20 Diels. (Ξέναρχος ὁ Περιπατητικὸς καί τινες ἕτεροι τῆς αὐτῆς αἱρέσεως τὴν κατὰ τὸ εἶδος τελειότητα καὶ ἐντελέχειαν καθ᾽ ἑαυτὴν οὖσαν ἅμα καὶ μετὰ τοῦ σώματος συντεταγμένην.) One would like to know what Xenarchus made of Aristotle's theory of intellect, but the only explicit report preserved is very elliptic. According to it, Xenarchus understood the potential intellect as somehow the same as the prime matter (*ap*. Philop. 15. 65–9 Verbeke). Moraux (1973: 208) suggested that he could not attribute to Aristotle such an absurdity and must have posited this polemically in the course of his critical discussion of Aristotle's doctrine (cf. Alex. *Mant*. 2. 106. 19–23).

(127) Cf. Alex. *Mixt*. 213. 15–214.6; Galen, *Nat. Fac*. 1. 12; *De Elem. Sec. Hipp*. 4. 3–8.

(128) The meaning of ‘principle’ itself becomes a subject of discussion. The epitome of Aristotle's philosophy compiled by Nicolaus of Damascus opens with a most painstaking enumeration of all the meanings of the ‘principle’ he found in the corpus.

(129) [Ar. Did.] Fr. 2. 448. 1–12 Diels (= Stob. *Ecl*. 1. 11. 4).

(130) [Ar. Did.] Fr. 3. 448. 16–19 Diels.

(131) The list of synonyms at the beginning of the fragment (*morphê, entelekheia, to ti ên einai, ousia hê kata logon*, and *energeia*) is similar in form to the lists of defined terms in Nicolaus of Damascus.

(132) I have discussed some related issues in Kupreeva 2003: 325–40.

(133) Simplic. *In Phys*. 1. 7, 190a13–31.

(134) Simplic. *In Phys*. 211. 9–10.

(135) Simplic. *In Phys*. 211. 10–13.

(136) Simplic. *In Phys*. 211. 13–15.

(137) *Ap* Simpl. *In Phys*. 211. 15–18 Diels: ἄμορφοζ μὲν οὖσα καὶ ἀνείδεοζ ὕλη λέγεται, ἡ γὰρ ὕλη πρὸζ τὸ ἐσόμενον ὠνομάσθαι δοκεῖ· ὅταν δὲ δέξηται τὸ εἶδοζ, οὐκέτι ὕλη ἀλλ΄ ὑποκείμενον λέγεται· ὑποκεῖσθαι γάρ τι λέγεται τῷ ἤδη ἐνόντι.

(138) 211. 13–15. Marwan Rashed has recently come up with a different analysis of Boethus' position in this passage. According to him, Boethus' prime matter has physical existence in actuality (Rashed 2007: 199–205). This analysis is open to some difficulties: first, not even the Stoics made such a strong claim about their own corporeal prime matter, and secondly, it seems that the force of Alexander's correction is to establish proper logical distinctions between the concepts, two of which were conflated by Boethus (211. 18–19, assuming this remark is a summary of Alexander's position). We do not need to take this ambiguity as a sign of a particular theoretical commitment on behalf of Boethus (it is not clear in what way his assimilation of prime matter to the antecedent matter was supposed to work). Alexander's point (*pace* Rashed 2007: 205) is not just that the antecedent matter is always accompanied by a privation as an accident, but also that the principle of prime matter is to be distinguished from any particular antecedent matter in that the former (unlike the latter) can take on both the form and the lack of form for any form F: hence the emphasis on the distinction between the ‘negation’ and ‘privation’. (Most probably Alexander is thinking about the common matter of the four ‘simple bodies’.)

(139) Alexander ap. Simpl. 211. 20–3 Diels. Moraux 2001: 137.

(140) Drossaart-Lulofs 1965.

(141) φύσιζ δὲ ἢ ὅλωζ ἥ τε πρώτη ὕλη (καὶ αὕτη διχῶζ, ἢ ἡ πρὸζ αὐτὸ πρώτη ἢ ἡ ὅλωζ πρώτη, οἷον τῶν χαλκῶν ἔργων πρὸζ αὐτὰ μὲν πρῶτοζ ὁ χαλκὸζ, ὅλωζ δ΄ ἴσωζ ὕδωρ, εἰ πάντα τὰ τηκτὰ ὕδωρ) κτλ.

(142) Alexander, *An*. 3. 26–4.20, cf. Aristotle's discussion of ‘possible body’ in *GC* 1. 5 (320a27–b17).

(143) Frede has argued that Stoic οὐσία has spatial dimensions (see Frede 2005: 222–3). Cf. Cooper at pp. 97–8 and Gourinat Ch. 3 above; on Peripatetic matter, cf. Moraux 2001: 229.

(144) Cf. *Acad*. 1. 25 and discussion at pp. 139–40 above.

(145) *An*. 4. 9–22 Bruns. Cf. the point made about matter as the passive principle in the ‘Antiochean’ synopsis in Cicero, *Acad*. 1. 24, p. 137 above.

(146) Cf. Rashed 2005 on *GC* 2. 1, 329a27–3: ‘Bref, la “matière première” est une modalité des “corps premiers”, et non ceux-ci de celle-là’.

(147) Cf. *GC* 2. 2, 329b18–32.

(148) Alex. *An*. 8. 10–11: i.e. each underlying form contributes to the form that supervenes on the whole.The syntax of the Greek is ambiguous, but the meaning is not affected.

(149) *An*. 8. 5–17 Bruns. Discussions in Moraux 1942: 30–43; Donini 1971; Accattino and Donini 1996; Caston 1997: 347–53; Moraux 2001: 354–9.

(150) *An.* 9. 11–26 Bruns.

(151) *SVF* 2. 458 (Philo, *Leg. Alleg*. 2. 22–3; *Quod Deus Sit Immut*. 35–6), cf. LS 47.

(152) In fact, the inclusion of the elements in the theory of substance is sometimes perceived by Aristotle as problematic, cf. *Metaph*. Z 16, 1040b5–10.

(153) See p. 156 above.

(154) *An.* 28. 26–8 Bruns: ἡ γὰρ τῶν θεῶν ψυχὴ, εἰ καὶ ταύτην δεῖ ψυχὴν καλεῖν, ὁμωνύμωζ ἂν ταύτῃ ψυχὴ λέγοιτο.

(155) Simplicius, *In Cael*. 54. 6–12; Moraux 2001: 192.

(156) Simplicius, *In Cael*. 380. 29–381. 2. Discussion in Accattino 1991: 45; Moraux 2001: 176–80, 194–7, 214.

(157) *An*. 1. 1–2. 25.

(158) Alexander in the treatise *On Providence* preserved only in Arabic cites this as Aristotle's view: ‘for it is clear with regard to the account of the Philosopher that he says that the providence exists until the sphere of the moon (*ilâ nahwa falaki al-qamar*)’. In Greek sources, we find an identical formula in Clement: Οὐδὲν δὲ οἶμαι χαλεπὸν ἐνταῦθα γενόμενοζ καὶ τῶν ἐκ τοῦ Περιπάτου μνησθῆναι· καὶ ὅ γε τῆζ αἱρέσεωζ πατὴρ, τῶν ὅλων οὐ νοὴσαζ τὸν πατέρα, τὸν καλούμενον ὕπατον ψυχὴν εἶναι τοῦ παντὸζ οἴεται· τουτέστι τοῦ κόσμου τὴν ψυχὴν θεὸν ὑπολαμβάνων αὐτὸζ αὐτῷ περιπείρεται. ‘Ο γάρ τοι μέχρι τῆζ σελὴνηζ αὐτῆζ διορίζων τὴν

πρόνοιαν, ἔπειτα τὸν κόσμον θεὸν ἡγούμενοζ περιτρέπεται, τὸν ἄμοιρον τοῦ θεοῦ θεὸν δογματίζων. *Protr.* 5. 66. 4–5.

(159) See p. 149 above.

(160) ‘So the compound bodies, which come to be by the mixture of the simple bodies and by alteration, possess a power of this sort which is in a way mixed and combined with the mixture of the bodies that possess it, and in accordance with this they come to be more perfect bodies and share in a more divine nature and principle; but as many bodies as seem to come to be compound by the composition and juxtaposition of the simple bodies are not also able to share in a power and nature of this sort, each of the simple bodies preserving its own nature in actuality in this sort of composition and mixture. For the divine power does not contribute to the being of bodies that are compounded in this way, remaining in each of them as it was before their composition’ (49. 18–28, tr. Sharples).

(161) *Quaest*. 2. 3. 49. 4–14 Bruns.

(162) *Quaest*. 2. 3. 49. 25–7 Bruns.

(163) Here we may recall Alexander's complaint that some Peripatetics found themselves attracted by the Chrysippean doctrine of mixture (*Mixt*. 3. 216. 9–15). On the distinction between blending and juxtaposition, see *Mixt*. 2. Cf. Hahm 1977; Frede 2005.

(164) See Hahm 1977; Frede 2005.

(165) Developed in response to the objection (probably by Atticus, cf. fr. 7 des Places) that the Aristotelian god being immobile will not be able to deliver his power to the things within the cosmos. See Rashed 1997.

(166) *Mant*. 2. 112. 10 Bruns.

(167) *Mant*. 2. 112. 23–5 Bruns.

(168) *Mant*. 2. 113. 12–14 Bruns.

(169) The proponent of this doctrine seems to believe in the providence which comes about from heavenly motion, as is Alexander's own view. So the Stoic view which is criticized by Alexander also for being superfluous may be just an

implication of this theory of ‘partial mixture’ rather than a professed belief.

(170) M. Rashed (2007: 285–93) speaks of the ‘mechanism’ as a key feature of Alexander's approach (since it emphasizes the transmision of movement).

(171) The fact that these qualities are produced, and not imparted by the heavenly sphere to the sublunary realm, is emphasized in Alexander's commentary on *Meteor*. 1. 3, where he argues against the view that the sun heats ‘by quality’, using some of the reasoning techniques which have affinities with those of Stoic physics. See Alex. *in Netsc.* 18.6–19.9 Hayduck.

(172) *Quaest*. 2. 3. 50. 23–7 Bruns.

(173) In his commentary on *Meteor*. 2. 3 (257b32–258a3), where Aristotle says that the processes of evaporation from the sea must be ordered, Alexander remarks: σημειωτέον δὲ πάλιν ὅτι τάξιν τινὰ καὶ ἐν τοῖζ ἐν γενέσει καὶ φθορᾷ οὖσιν εἶναι λέγει, ἥτιζ τάξιζ παρὰ τὰ ἄστρα αὐτοῖζ τῆζ τοιαύτηζ μεταβολῆζ γίνεται, ταῦτα δέ ἐστι τὰ θεῖα. εἰ δὲ τοῦτο, οὐκ ἀπρονόητα κατ᾽ αὐτὸν τὰ τῇδε (83. 6–9).

(174) Named after G. Vitelli who first described and published it (Vitelli 1902; English tr. Sharples 1994: 89–94).

(175) For this Heraclides we also have epigraphic evidence: *IG* II^{2}3801 (cf. *IG* II^{2}3989); see Oliver 1977: 164–5; Sharples 1990: 93–4 and nn. 80, 82.

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