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A study of Lucretius, *De rerum natura* I 635-920:

Lucretius and his sources

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Ph.D. Classics



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Abstract

My thesis is a study of lines 635-920 of *DRN I*, Lucretius' refutation of the theories about the fundamental nature of matter elaborated by Heraclitus, Empedocles, Anaxagoras and other unnamed thinkers. My main concern is establishing what source Lucretius used in these lines and how he used it. In chapter 1 I give my reasons for believing that Lucretius, in *DRN I* 635-920, was following an Epicurean source, which in turn derived its information from Theophrastean doxography. In chapter 2 I argue that books XIV and XV of the $\Pi\Phi$ were not Lucretius' source-text for Lucretius' refutation of earlier thinkers. In chapter 3 I discuss how lines 635-920 fit in the structure of the first book of Lucretius' poem, whether the *critique* was an addition from a later stage in composition, and whether the source is more likely to be Epicurus himself or a later Epicurean author. In chapter 4 I focus on Lucretius' own additions to the material he found in his source and his poetical and rhetorical contributions. Lucretius contributed extensively himself to this section as a finished poetic product. It will appear that even if the philosophy comes from the source, Lucretius shows understanding of the points in the way he adapts his poetical devices to the philosophical arguments. It will also appear that Lucretius foreshadows philosophical points in what have often been thought the 'poetical sections' or 'purple passages' of his poem (e.g. the invocation of Venus in the proem, and the description of Sicily and Aetna in *DRN I* 716-733), so that he could take them up later on in his narrative and provide an adequate explanation of reality.

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Introduction

Lucretius' criticism of the theories of matter of Heraclitus, Empedocles, Anaxagoras and other unnamed thinkers in lines 635-920 of *DRNI*, which I shall henceforth refer to as the *critique*, is a unique piece of literature as it presents criticism of the views of earlier philosophers in poetry. Understanding how Lucretius used his sources is important for judging his achievement. Although enquiries into the problem of how Latin authors used their Greek sources have now become somewhat unfashionable, studying Lucretius' philosophical poem from this viewpoint still has much to teach us.

As a Roman poet Lucretius would have considered it natural to reproduce Greek models, and would have been expected to do so. Livius Andronicus 'translated' the *Odyssey* into Saturnian verses in the third century B.C. Ennius' (239-169 B.C.) introduction of the hexameter into Latin literature, with his 18 books of *Annales*, meant that the relationship between Latin texts and their Greek counterparts gained a further aspect. The style of the works of Roman literature could be directly compared to the Greek original they derived from.¹ Indeed Ennius claimed that the spirit of Homer had been reincarnated in him. It may also be that, where the early books of the *Annales* are concerned, Ennius took over, not only the

¹ Lucretius himself highlights the importance of Ennius' import of the hexameter to Latin literature: *detulit ex Helicone perenni fronde coronam* (*DRNI* 118). See Giancotti 1959: 70-73.

style, but also some of the content from works of Greek Epic.

Lucretius' later contemporaries Catullus² and Horace,³ at times do little more than translate Greek originals, and this is evident in spite of the loss of most of the possible Greek sources. Roman poets often displayed their skill by translating Greek models, sometimes to the same metre, or to a different metre. They meant their work to be set against Greek originals.

It is well known that Latin dramatic authors relied heavily on Greek sources. Plautus, in his 'adaptations' of plays by the 'New Comedians' Menander, Diphilus and Philemon, appears to have intervened little as far as plot and content are concerned. He seems invariably to take these over from Greek sources, often translating entire sections of the Greek originals. Similarly Caecilius Statius' *Plocium* was closely based on Menander's comedy by the same title (Τὸ πλόκιον), as is shown by Aulus Gellius *Noctes Atticae* II. 23.⁴

Lucretius had a trusted source for the content of his poem in the philosophy of Epicurus, but could not rely on Epicurus as a poetic model, or as a guide on how

² Catullus translates Sappho (in poem 51) and Callimachus.

³ Some of Horace's *Epodes* are based on Archilocus and Hipponax; some of his *Odes* on Alcaeus (e.g. the Soracte ode) and Bacchylides.

⁴ Gellius' criticism of Statius centres on the fact that Statius fell short of the literary qualities of Menander; he seems to expect the plot of the Roman play to reproduce accurately the plot of the Greek original. Roman readers, at least at the time of Gellius, judged the literary merits of comedies by setting them side by side with the original and comparing the poetry of the two. Indeed in the final sentence of II. 23 Gellius implies that Statius should not have rivalled a model with which he could not compete.

to write didactic poetry.⁵ Although there are uncertainties about Epicurus' views on poetry and, more generally, the arts, it looks as though he had at least partial reservations about their value. Studies by Asmis (1995),⁶ Sider (1995) and Wigodsky (1995) have dispelled the earlier belief that Epicurus denied that poetry could produce pleasure — i.e. that it had any value — and that he therefore rejected it altogether. It is now generally agreed that Epicurus rather considered poetry one of the unnecessary pleasures.⁷

Epicurus had reservations about whether poetry had any educational value.⁸

⁵ This does not mean that Epicurus' remarks about σαφήνεια in language (below page 284) did not influence the way in which Lucretius wrote his poem. Asmis (1995: 33-34) argues that Lucretius was showing, by giving to his verses the clarity which Epicurus only thought possible in prose, that poetry could convey a philosophical message clearly. Cabisius (1979: 245) has argued that by writing poetry Lucretius was challenging Epicurus' view, and defending conventional παιδεία from Epicurus' attacks. He seems to overlook the fact that later Epicureans had a partially different attitude to poetry, but there may yet be some truth in his remarks, of which Asmis' are a weaker version.

⁶ Asmis (1995: 16-17) points out that the allegorist Heraclitus (*Homeric Problems* 4) says that Epicurus got rid of all poems, and criticises Epicurus (*Homeric Problems* 79) for deriving, despite his condemnation of poetry, the notion the pleasure that is the ultimate goal, by misinterpreting *Odyssey* IX lines 6-7 and 11. She argues that if Epicurus used this passage in support of his philosophy, he could hardly have "excluded poetic entertainment from the life of pleasure". Sider (1995: 39) objects that it is unlikely that Epicurus would have based any argument on a poetic passage. The fact that Epicurus mentioned these Homeric lines in his writings certainly does not entail that he thought Homer's opinion in any way corroborated his argument, but shows that Epicurus was willing to quote from Homer and therefore presumably did not think that one should refuse to listen to poetry altogether.

⁷ See also Craca 2000: 7-20 and Janko 2000: 9, note 2.

⁸ A number of passages in Plutarch suggest Epicurus was skeptical about the educational value of poetry. In *Moralia* 1086 f Epicurus is said to have spoken in terms of ποιητικὴ τύρβη and of

This may be due to the fact that the poems known to him invariably spread what was in his view false, and dangerous, belief. There is no indication that Epicurus explicitly condemned poetry as a *medium*, but it also seems clear that he thought the wise man should not compose poetry; the wise man should rather write prose. Diogenes Laertius (X. 120) reports the maxim μόνον τε τὸν σοφὸν ὀρθῶς ἂν περί τε μουσικῆς καὶ ποιητικῆς διαλέξασθαι. Ποιήματα τε ἐνεργεῖται⁹ οὐκ ἂν ποιῆσαι.

Arrighetti argues (1998: 18-19) that Epicurus is not condemning poetry because it may spread false belief, since ὁ σοφός would be immune to this.¹⁰ The

Ὅμηρου μωρολογήματα. *Moralia* 15 makes reference to the Epicurean advice of waxing the ears not to hear the Sirens. And Plutarch *Moralia* 1094 e provides evidence for Metrodorus claiming that there is nothing shameful about being totally unfamiliar with Homer (Giancotti 1959: 16-17). Further evidence comes from Cicero's *De finibus* I. 21. 72 where the Epicurean Torquatus says, referring to Epicurus: *an ille tempus aut in poetis evolvendis, ut ego et Triarius te hortatore facimus, consumeret, in quibus nulla solida utilitas omnisque puerilis est delectatio . . .*

⁹ Asmis (1995: 22) suggests retaining ἐνεργεῖν and explaining it as a gloss. According to her Epicurus, whether the restoration is accepted or not, means “practicing energetically”, so that he would be allowing the wise man to compose poetry as a hobby. Sider (1995: 35-36) criticises Asmis’ reasoning about the gloss, but accepts her reading of the fragment. Arrighetti (1998: 16-18) rejects Asmis’ proposal in favour of the more reasonable reading “in practice”. Arrighetti lays much weight on Epicurus’ reference to ὁ σοφός and suggests that Epicurus was simply saying that poetry is not the right medium in which to convey philosophical research. Arrighetti (1998: 16 note 9) explains the corruption to ἐνεργεῖν as a misunderstanding of an abbreviation.

¹⁰ Arrighetti points out that Epicurus himself used poetic quotations, that Philodemus says that the wise man is able to detach himself from false implications when reading poetry in *Περὶ εὐσεβείας* (see Obbink 1995: 189-209), and that this is in line with the positive attitude in *Περὶ τοῦ καθ’ Ὅμηρον ἀγαθοῦ βασιλέως*. Presumably, according to Arrighetti, when Epicurus quoted poetry in works which

Epicureans Metrodorus (331-278 B.C.), Zeno of Sidon (born *circa* 150 B.C.), and Demetrius of Laconia (*circa* 100 B.C.) discussed poetry. And this seems perfectly in line with Epicurus' statement that only ὁ σοφός can judge poetry. It seems clear from Philodemus, however, that the Epicureans of the first century B.C. followed Epicurus in thinking that poetry was not appropriate for expressing philosophy, nor any scientific discussion. This may just clear Philodemus of the charge of being inconsistent with his Epicurean *credo*,¹¹ but not Lucretius, whose poem is most certainly scientific. Lucretius' undertaking was innovative, and unorthodox.

Lucretius had to look elsewhere for a model on which to base his didactic philosophical poem. He found his chief literary model in Empedocles. At various points of the discussion we shall find evidence that Lucretius wanted his poem to resemble Empedocles' stylistically, and thereby invited the reader to compare the two. It is worth pointing out at the outset, however, that although many passages in Lucretius, and especially the prologue to his poem, probably imitate Empedocles, at no point can the content of extended sections of *DRN* be shown to derive directly from Empedocles.¹²

By presenting Epicurean doctrine in Empedoclean guise Lucretius was innovating, and combining the style of one source with the content of an unrelated source. This was a daring undertaking. It looks as though contemporary attempts at Latin didactic poetry derived both style and content from the same model. Indeed the

could be read by the non-wise, he would have got rid of any potentially misleading implication?

¹¹ Arrighetti (2003: 142) points out how Philodemus' choice of epigrams as the form of his poetry is perfectly coherent to the role the Epicureans attributed to poetry.

¹² See below note 640, and Giancotti 1978: 82-83.

only certain mentions that we have of Roman didactic poetry contemporary to Lucretius are Cicero's *Aratea*, and Sallust's *Empedoclea*, the latter of which may have taken up both content and form from Empedocles' poem.¹³

It may be that Lucretius had precedents for his undertaking, namely the production of a didactic poem expounding Epicureanism. T. Albucius may have composed an Epicurean poem in the late second century B.C., or at least combined Epicureanism and poetry.¹⁴ It is certainly possible that, as Janko (2000: 9, note 7) suggests, Albucius was taught, during his exile in Athens, by the Epicurean Zeno of Sidon, whose interest in poetry is apparent from the writings of Philodemus. Even if such a work existed and was available to Lucretius I very much doubt that he would have used it as a stylistic model.¹⁵ Lucretius' stylistic model was Empedocles.

But from where did Lucretius draw the philosophical content for his Empedoclean framework, and how close did he keep to it? Comparison with contemporary Roman writers of philosophy suggests that it was the norm to be

¹³ Sedley (1998: 1-2) suggests that this work was presumably a translation or imitation of Empedocles. He seems right to argue that Cicero, by quoting the two works in the same context, in *Ad Quintum fratrem* II. 9. 3 implicitly compares Lucretius' poem to Sallustius' *Empedoclea*: . . . *Lucreti poemata ut scribis ita sunt, multis luminibus ingenii, multae tamen artis. Sed cum veneris, virum te putabo si Sallusti Empedoclea legeris, hominem non putabo*. I think Sedley is probably right in punctuating the text in this way (rather than full stop or aposiopesis after *veneris*).

¹⁴ Klebs, E. 'Albucius (2)' in *Paulys Real-Encyclopädie der classischen Altertumswissenschaft* 1893: 1330-1331. Cicero calls him *perfectus Epicureus* (*Brutus* 131) and Fronto an *aridus [poeta]* (*De eloquentia* I. 2 line 14; Van den Hout 1954: 131).

¹⁵ The other known attempt at Epicurean poetry, by Pollius Felix (see Statius *Silvae* II. 2. 112-115; Sider 1995: 37), is certainly later than Lucretius.

dependent on Greek models. Roman philosophical authors of the second and first centuries B.C. were accustomed to follow Greek originals closely, and sometimes simply translated these models.¹⁶ The evidence comes mainly from the way in which Cicero composed his philosophical works, and from his comments on the philosophical writings of earlier Roman authors.

Cicero translated from the Greek, not always acknowledging that he had done so. Powell (1995:279-280) looks at passages where Cicero translates. Particularly interesting is Cicero's *Timaeus*, which is a continuous translation of Plato's work by the same title. The precise nature and state of composition of Cicero's *Timaeus* are uncertain. Powell observes that the work has an introduction similar to the ones Cicero uses in other dialogues. In the few surviving lines Cicero does not mention that what follows is a translation from Plato. Powell (1995: 281) thinks the *Timaeus* was an abortive effort, since ". . . there is no known parallel for such a long piece of direct translation being introduced into a dialogue of Cicero's own composition". Cicero produced two other (lost) works, his *Protagoras* and *Oeconomicus* —, which appear from the fragments to have been straight translations of Plato's and Aristotle's works by the same titles. It is interesting that Cicero, in *De finibus* I. 7 considers the possibility of translating entire works by Plato and Aristotle,¹⁷ if only to reject it in this case.

¹⁶ In *Tusculanae disputationes* I. 5 Cicero complains about the fact that philosophy in his age *nullum habuit lumen litterarum latinarum*.

¹⁷ *Sed id neque feci adhuc nec mihi tamen ne faciam interdictum puto. Locos quidem quosdam, si videbitur, transferam et maxime ab iis quos modo nominavi, cum inciderit ut id apte fieri possit, ut ab Homero Ennius, Afranius a Menandro solet.* Cicero is explaining, in *De finibus* I. 6-7 why there is

There are indications that Cicero's first philosophical dialogue, *Hortensius*, was based on Aristotle's *Protrepticus*, although one cannot tell how closely Cicero followed Aristotle in defending philosophy. It may be that Cicero at the start of his philosophical career considered it acceptable to simply translate an entire work into Latin, or at least base a whole work on a single Greek model. Cicero was certainly not ashamed of translating passages from Greek originals.¹⁸

The extent to which Cicero translated Greek sources in his later works is debated. Books one and two (only) of *De officiis* have been thought to derive from Panaetius. But it looks as though Panaetius was the main source which gave Cicero his structure, but not the only one. Cicero clearly followed very closely a Greek Epicurean source in his review of δόξα of the gods in *De natura deorum* (below pages 51-53).

Whether or not we think that Cicero's famous comment in his letters to Atticus (XII. 52) that his works are "ἀπόγραφα" is false modesty on Cicero's part,¹⁹ the background from Cicero's philosophical writings suggests that Cicero, and presumably anyone writing philosophy in Latin in the first century B.C., would have found it natural to use Greek sources, and might have done no more than translate

more point in reading his philosophical works than the straight translations of Greek dramatic texts. Cicero points out that he adds his own *iudicium* and *scribendi ordo*. Asmis (1983: 49-50) thinks Cicero is signaling three contributions: invention, arrangement and style. But one cannot be certain that *iudicium* means *inventio* here. Reid (1925: 8) had suggested not unreasonably that *iudicium* means literary taste in this context.

¹⁸ Cicero is prepared to take over the same material from Plato's *Phaedo* 80-81 in *Somnium Scipionis* 21 and *Tusculanae disputationes* I. 27 and 72.

¹⁹ Rawson 1975: 233 and Obbink 1996: 96-97.

his Greek source into Latin.²⁰

A further point seems worth making in this context. Both *Academica* (I. 4) and *De finibus* (I. 1) suggest that people who were likely to read philosophical works in Latin also knew Greek.²¹ Presumably only part of the *eruditi Graecis litteris* would refuse to read Latin literature. We have seen above (page 9 and note 4) how Gellius compares ‘Roman’ comedies with their Greek counterparts, so it is possible that Roman readers of Latin philosophical works did the same.

Some of the readers of Cicero’s dialogues, and of Lucretius’ poem, would probably have been familiar with the Greek originals which Cicero and Lucretius were following, and thus able to compare the two. Cicero and Lucretius would have been aware of this. Roman philosophers might have wished to be compared to their Greek philosophical models as much as Roman poets did, although in Lucretius’ case, as we shall see, this certainly did not imply any kind of ‘challenge’ to Epicurus.

Cicero provides some interesting remarks on the work of Roman Epicureans who were earlier or contemporary with Lucretius.²² Two writers of Epicureanism,

²⁰ Cicero’s bias does not hinder him from being a close friend of the Epicurean Atticus and praising Lucretius’ poem. It is perhaps unlikely that Cicero would attack Amafinius and Rabirius (below) because they held Epicurean beliefs; it may be that these writers misinterpreted Epicureanism, as well as having a poor style.

²¹ *Tusculanae disputationes* V. 116 (*Epicurei nostri Graece fere nesciunt*) presumably refers to Amafinius’ pupils. Howe (1951: 60) notes how “better trained and more literate Epicureans like Cassius could smile at Amafinius and Catius”.

²² For a list of known Roman Epicureans in the late Republic, see Ferguson (1990: 2262).

Amafinius and Rabirius,²³ are criticised by Varro in *Academica* I. 4.²⁴ The continuation of the passage (*Academica* I. 5-6) shows that Amafinius used the word *corpuscula* to refer to Epicurus' atoms, and may suggest that Amafinius discussed how atoms come together to form things.

In *Ad familiares* XV. 19. 1-2 Cassius, in his reply to a letter by Cicero, criticises the same Amafinius, and Catius (Shackleton Bailey 1977: 62). They are referred to as *mali verborum interpretes*. And in *Ad familiares* XV. 16 Cicero reports that Catius Insuber translated Epicurus' εἶδωλα with the word *spectra* (Shackleton Bailey 1977: 60). Catius wrote *quattuor libros de rerum natura et de summo bono* (Porphyry *Ad Horatii saturas* III. 4. 1). And Quintilian (*Institutio oratoria* X. 1. 124) cites Catius among other Roman prose writers: . . . *in Epicureis levis quidem sed non iniucundus tamen auctor est Catius*. It is worth mentioning that Pliny the Younger (letters IV. 28) shows that Titus Catius was famous enough for

²³ See *Tusculanae disputationes* IV. 6-7 (*cum interim illis silentibus C. Amafinius exstitit dicens, cuius libris editis commota multitudo tulit se ad potissimum disciplinam . . . Post Amafinium autem multi eiusdem aemuli rationis multa cum conscripsissent, Italiam totam occupaverunt*); *Pro Caelio* 40-41; *De natura deorum* I. 8. Howe (1951: 57) considers it probable that Amafinius was a contemporary of Lucretius, and argues that *DRN* V 336-337 (*hanc primus cum primis ipse repertus / nunc ego sum in patrias qui possim vertere voces*) should be explained by saying that such writers did not antedate Lucretius.

²⁴ *Nulla arte adhibita de rebus ante oculos positus vulgari sermone disputant, nihil definiunt nihil partiuntur nihil apta interrogatione concludunt, nullam denique artem esse nec dicendi nec disserandi . . .* It is not easy to see what exactly Varro's words refer to, but it may be that Cicero would have made Varro speak in such terms if Amafinius and Rabirius simply translated earlier Greek works. Further criticism of the Latin Epicureans comes in Cicero *Tusculanae disputationes* II. 7, as Shackleton Bailey (1977: 381) points out.

his portrait to be hung in the library of Herennius Severus.

The picture that emerges is one of Epicureanism spreading rapidly in Rome, probably at first in higher circles, and increasingly in Roman society. Phaedrus, who was born *circa* 138 B.C., may have gone to Rome in 88 (*Ad familiares* XIII. 12), possibly to teach, but was back in Athens in 79 (Raubitschek 1949: 97-98). Raubitschek (1949: 103) points out that Appius and Lucius Saufeius were also known Epicureans who had studied in Athens under Phaedrus.²⁵ The production of the works of Rabirius, Amafinius and Cadius suggests that Epicureanism was growing stronger among non Greek-speaking Romans. Sedley (1998: 61-65) seems right therefore to suggest that in Italy in Lucretius' day there was a lively interest in philosophy. It is worth noting, however, that Cicero complains about the lack of philosophical production in Latin and the fact that learned Romans refused to read philosophy which was not in Greek.²⁶

That establishing Lucretius' philosophical source is relevant to a specifically 'literary' analysis of his poem has been questioned. While pointing out that Lucretius depends heavily on Epicurus for his philosophy, Kenney (1977: 8) remarks that "which work or works he chiefly followed and how much, if any, independence of Epicurus he allowed himself are questions not of primary concern to those interested in the *DRN* as literature. It is important, however, to grasp the width of the line

²⁵ The possibility that Lucretius himself was taught by Phaedrus in Athens — or Rome? — cannot be discounted.

²⁶ *De finibus* 1-6 and *Tusculanae disputationes* I. 5. Cicero may be exaggerating the extent to which he is breaking new ground, but the implication in *Tusculanae disputationes* I. 6-7 seems to be that the works of Amafinius were not good enough to be read by the *eruditi*.

separating the Epicurean texts that Lucretius had before him from what he made of them". I am not sure I agree with Kenney. Understanding the difference between Epicurus's dry prose and Lucretius' poetry does not seem to be the whole story: additions to content can have a literary aspect too. The way in which Lucretius structured his philosophical material should be kept in mind when considering the literary qualities of the poem. Especially in a passage such as the *critique* where philosophical arguments, rhetoric and poetry become, as we shall see, fused into one, forming an idea of what material Lucretius' source might have contained and what might have been introduced by Lucretius is relevant to literary analysis of Lucretius' poetry. This helps to put Lucretius' literary merits into perspective and to see where his achievement stands. Although we know that Lucretius followed Epicurus closely at various points in his poem, and Thucydides for a considerable section of *DRN VI*, our understanding of Lucretius' poetry and of how far he understood or altered the philosophical issues in *DRN* is hampered by our scant knowledge of what material Lucretius was using at various points in his narrative.

The indebtedness of this study to David Sedley's book *Lucretius and the Transformation of Greek Wisdom* will be apparent to the reader: he has pointed the way. I follow the approach he has adopted and, in many respects, develop, in relation to lines 635-920, some of the leads he has pointed at, though coming to different conclusions on some issues.

To come back to the aims of my thesis. My main concern is establishing what source material Lucretius used in the *critique*, and in what way he used it. The debate on Lucretius' use of sources is very much open. Two recent studies on the topic take radically opposing views. Schrijvers (1999) thinks of Lucretius as an 'eclectic late

Hellenistic writer'; Sedley (1998), on the contrary, pictures Lucretius as a 'fundamentalist' who relied exclusively on Epicurus' ΠΦ as his source.

Assessing Lucretius' handling of the *critique* depends on understanding how he used his Greek source. Adaptation, elaboration and addition (at times through 'contamination' of sources) were the means by which Lucretius could make the content of *DRN* more effective and more enjoyable. I am convinced there are many sections in the *critique* where Lucretius should be thought to be independent of his lost source, and many sections where he heavily elaborated the material he found in his source. Lucretius seems to have used his Greek source comparatively freely.

Speculating on Lucretius' source is also relevant to the history and development of the Epicurean school. Studying the *critique* from the point of view of Lucretius' use of sources sheds some light on how Epicureans went about producing polemical texts. Kleve (1978: 40) writes "there is a need of seeing polemics in Lucretius from a new angle. Pinning down the opponents of Lucretius is only one part of the problem; in addition we have the contents of his arguments, his ways of arguing and above all his place in a polemical tradition which goes back more than two centuries before his own time. However, the history of Epicurean polemics still has to be written".

Discussion of Lucretius' sources will involve analysis of the remains of books XIV and XV of Epicurus' ΠΦ, to try to determine their content. Since it has been suggested that books XIV and XV of Epicurus' ΠΦ were Lucretius' source for the *critique*, I shall dedicate considerable space to analysis of the relevant papyri from the library in Herculaneum and provide a new edition of some of the fragments, as a result of autopsy of the papyri in Naples' *Biblioteca Nazionale Vittorio Emanuele*

III, corroborated by use of the multispectral digital images of the papyri. This will, I hope, be a small step forward towards a much needed reconstruction of Epicurus' treatise ΠΦ.

Chapter 1. Lucretius drew the *critique* from an Epicurean polemical text

I doubt that Lucretius consulted the original writings of Heraclitus, Empedocles and Anaxagoras, reconstructed the thought of the three Presocratics, and elaborated his own counter-arguments against their theories of matter.²⁷ Although Lucretius may well have known the works, or at least quotations from the works, of Heraclitus and Anaxagoras, and he was certainly familiar with the work of Empedocles,²⁸ it is reasonable to assume that in lines 635-920 Lucretius largely reproduced the arguments he found in a Greek²⁹ text.³⁰ I also doubt that Lucretius elaborated his own counter-arguments on the basis of

²⁷ Brown (1989: 150) criticises the suggestion that Lucretius' knowledge of the Presocratics does not derive from his own study of the original texts: "this suggestion should be treated with caution in view of Lucretius' demonstrably wide reading in other areas of Greek literature . . ."

²⁸ Above page 12 and below chapter 4.4, especially pages 322-328.

²⁹ That Lucretius was using a Latin source should, I think, be ruled out, in view of his remarks on the difficulty of translating from the Greek in *DRN* I 136-139, which presumably apply to the poem as a whole.

³⁰ I do not mean that Lucretius had necessarily a written work in front of him. I intend source to be understood in a wide sense. Lucretius *may* have been taught philosophy, and, if so, would have taken notes. If Epicurean education was based on Epicurus' ΠΦ, as seems likely, seeing that Philodemus' library had multiple copies of the same work (presumably for handing out to students), this makes it *a priori* likely that Lucretius was familiar with, and may have taken notes from, Epicurus' ΠΦ.

second-hand information regarding the views of the three Presocratics. I do not exclude the possibility that *some* arguments are Lucretius' own contribution, but evidence from elsewhere in the poem suggests that he would have depended on a Greek source.

DRN VI 1138-1286 are extremely close to Thucydides' description of the Athenian Plague (II 47-52). Lucretius' use of sources in his this passage, however, is complicated by the fact that he includes material from the Hippocratic corpus. Munro (1864b: 394-395) was the first to notice how lines 1184-1195 resembled passages in the Hippocratic corpus (e.g. line 1184 with Hippocrates *Prorrhēt.* I. 49, line 1185 with Hippocrates *Praenot. Coac.* 193, line 1186 with Hippocrates *Progn.* 8, line 1188 with Hippocrates I.1.24). *Contaminatio* is perhaps a better explanation than an intermediary source between Thucydides and Lucretius.³¹

³¹ Clay 1983: 290, note 5. Scholars have suggested that Lucretius used an intermediary source, possibly a (later) Epicurean text now lost. Ernout and Robin (1928: 351 and 361) postulated a Latin intermediary. This was suggested to them by what were thought mistranslations of Thucydides (Bright 1971: 607, note 2). Clay, defending Lucretius' originality, insists that it was Lucretius who fused the two (with the implication that, as Munro thought, Lucretius was familiar with the Hippocratic corpus). That Lucretius used an intermediary source in Greek or, much less probably, in Latin is perhaps unlikely, but cannot be ruled out. That this intermediary could have been an Epicurean text is pure speculation, although Diogenes Laertius X. 28 refers to a work *Περὶ νόσων δόξαι πρὸς Μιθρήν* by Epicurus (Giancotti 1994: 565). The most probable explanation is that Lucretius depends on Thucydides directly, but on Hippocrates indirectly (Professor Sharples suggests to me that it is not certain that the Hippocratic writings were as prominent in the first century B.C. as they became later). It may be that the material from the Hippocratic corpus was *scholia* on the text of Thucydides which Lucretius used, or that Lucretius used as a source a medical commentary on Thucydides' description of the Athenian Plague.

Whether or not Lucretius added the Hippocratean elements himself, it seems a far remark that description of the Plague is little more than a ‘translation’ of Thucydides’ account into Latin hexameters.³² And some philosophical sections of *DRN* can be shown to reproduce very closely the arguments found in Epicurus’ own works. This is clear when one compares, for example, *DRN* I 418-448 with Epicurus’ letter *Ad Herodotum* 39(b)-40,³³ or *DRN* I 483-583 with *Ad Herodotum* 41, or again *DRN* IV 53-175 with *Ad Herodotum* 46-48.³⁴

Further evidence that Lucretius habitually reproduced the arguments in his Greek

³² For Lucretius’ ‘reworking’ of the material in Thucydides, see Commager 1957. Sedley argues that Lucretius would have reworked the account of the Plague had he lived to complete his poem. On how Sedley’s theory that book VI (as well as most of book IV and book V) are an unrevised ‘first draft’ is open to a number of objections, see below Appendix (a), pages 389-391.

³³ Woltjer 1877: 18-19.

³⁴ Despite the similarities between *DRN* and *Ad Herodotum* it looks as though Lucretius did not use *Ad Herodotum* as his primary source, since *DRN* treats topics which are omitted altogether in Epicurus’ *Ad Herodotum* (e.g. the material in *DRN* II 730-990) and there are divergences in the order of topics. Sedley (1998: 141) argues that the sequence in *DRN* IV 176-215 reproduces the one of ΠΦ II, and not the one of *Ad Herodotum*, shows that “Lucretius’ debt to *On Nature* has not been mediated by the use of the *Letter to Herodotus*”. It is hard to disprove altogether that Lucretius used *Ad Herodotum* for some sections of his poem, but a hypothesis according to which Lucretius often switched from one Epicurean source to another is rather uneconomical. I take it that *Ad Herodotum* reproduced, at times, the now lost text by Epicurus which Lucretius used. On whether this text is more likely to have been Epicurus’ ΠΦ, or some other work, see below page 227. On the structure of *Ad Herodotum*, and how far it reflected the structure of ΠΦ, below Appendix (c), pages 405-408.

sources comes from *DRN V* and *DRN VI*. Sections of this book are, as we shall see,³⁵ very close to the arguments which appeared in works by Theophrastus. I take it that Lucretius in books V and VI was following a text by Epicurus himself who had incorporated Theophrastean material,³⁶ although it is very hard to prove that Lucretius did not gain access to the Theophrastean information either directly from Theophrastus, or through a later writer who reproduced Theophrastus independently of Epicurus.³⁷

³⁵ Below pages 199-204.

³⁶ If Lucretius corresponds to Theophrastus, and Epicurus is not extant, there is no need to suppose that the intermediary was a later Epicurean one; only *if* Lucretius and Theophrastus agree against Epicurus, might there be a case for supposing that the intermediary was a later Epicurean one.

³⁷ Runia (1997: 99-101) suggests that Lucretius had “sources of access” to doxographical material other than Epicurus, pointing out that in *DRN V* 705-750 (a) Lucretius organizes his discussion according to the doxographical *diaeresis* (moon as recipient of light / moon source of its own light) while Epicurus, who refers to this *diaeresis* in *ad Pythoclem* 94, does not integrate it, as Lucretius does, with the questions of the moon’s transformations and its eclipse; (b) Lucretius operates a distinction between bastard (*nothus*) and own (*proprius*) light which is not found in Epicurus, nor in Aëtius, but is paralleled in the Philonic text *De somniis* I. 21-32 (I. 23 τί δὲ; σελήνη πότερον γνήσιον ἢ νόθον ἐπιφέρεται φέγγος ἡλιακαῖς ἐπιλαμπόμενον ἀκτίσιν ἢ καθ’ αὐτὸ μὲν ἰδίαι τούτων οὐδέτερον, τὸ δ’ ἐξ ἀμφοῖν ὡς ἂν ἐξ οἰκείου καὶ ἀλλοτρίου πυρὸς κρᾶμα;) and in Lucian *Icaromenippus* paragraph 20; and (c) refers explicitly in *DRN V* 727 to the theory of Berossus that the moon is a rotating sphere, half of which is inflamed. Runia takes it that the astronomical fragments were part of Berossus’ work Βαβυλωνιακά which he dates between 290-270 B.C., too late for Theophrastus and for most of the books of Epicurus’ ΠΦ. Argument (a) may show no more than that *Ad Pythoclem* is earlier than the text Lucretius used as his source (*if* we suppose that once he had made the integration Epicurus could not have failed to do so always). The use of (b) the term *nothus*

Lucretius may have included material later than Epicurus in *DRN V*. Schofield (1999: 749, note 30) suggests that Lucretius cannot be taken as evidence for Epicurus' own views on the development of civilisation, although he grants that there is some genuine material from Epicurus in *DRN V* 925-1157 (lines 1120-1130 can be compared with Κύριαι δόξαι 7, and lines 1151-1157 with Κύριαι δόξαι 35).³⁸ Schofield points out that Lucretius' phases of softening (1011-1023) and exhaustion (1143-1150) are at odds with the views of Hermarchus, Epicurus' friend, philosophical associate and successor as head of the school.³⁹ Assuming this material was not in Epicurus it is unclear whether it is more likely that Lucretius contaminated later material with Epicurus' treatment, or that he was following a text by an Epicurean author later than Epicurus' himself. One may also consider the possibility that Hermarchus' views were

certainly links the three texts in question, but can Lucian and Philo be taken as representing the 'doxographical tradition' (*nothus* is not in Aëtius, Runia 1997: 101, note 43)? As for argument (c) it is not certain — as Sedley (1998: 91-92 and 92, note 125) notes — that Berosus' astronomical considerations first appeared in his Βαβυλωνιακά. Berosus' dates make it possible that Epicurus knew of his views. Usener (1887: 384) and Bailey (1947: 1439-1440) thought that such a view is cited in *Ad Pythoclem* 94 (κατὰ στροφήν τοῦ σώματος τούτου). Runia (1997: 101, note 50) objects that the distinctive feature of being ἡμιπύρωτος is not in Epicurus. Even if Runia is right, it may be that Lucretius is performing *contaminatio* in this section of *DRN V*, as he seems to have done in the Plague passage in book VI (above note 31).

³⁸ Cole (1967: 15-46) points to extensive parallels between Vitruvius', Diodorus', Tzetzes', Posidonius' and Lucretius' account of the development of civilization to show that all of these go back to a Democritean original. Cole (1967: 170) suggests that there may be a Cynic source.

³⁹ On Hermarchus and Epicurus see Longo Auricchio 1987: 25.

not the same as Epicurus', because Hermarchus was innovating.⁴⁰

It has been suggested by Kleve (1978: 67) that the target of *DRN* IV 777- 817 is the Academic Carneades, because of the content and style of the passage. It is worth noting, with Bailey (1947: 1274), that a similar objection is moved against the Epicurean images by Cicero in *Ad familiares* XV. 16. 2 and in *De natura deorum* I. 108. Cicero may reflect an objection against the Epicureans he found in his Academic source, and Lucretius may be reproducing the response to such a point. But it seems somewhat unlikely that Epicurus himself would not have anticipated what are such obvious objections to his theory of images when setting it forward. Cicero could have overlooked (or not known about) Epicurus' explanation. That Lucretius introduced ideas later than Epicurus in *DRN* IV 777- 817 is not proven.

Kleve defends the theory that *DRN* I 1052-1113 are aimed at the Stoics specifically,⁴¹ pointing out that Diogenes (fragment 20 Chilton = fragment 66 Smith) similarly confutes a theory which supposes a finite world in an infinite void, but while according to the theory in Lucretius the world is spherical and tends toward the centre, in Diogenes "the earth is limited by the heavens above, but extends below without limitation".⁴² Kleve goes on to point out that Diogenes also presents other variants of the

⁴⁰ Vander Waerdt (1988: 90-98) argues that Hermarchus innovated on Epicurus' views on anthropology.

⁴¹ As for the claim that a Stoic theory is under scrutiny in *DRN* V 55-234, see Furley (1966: 27-30) and Sedley (1998: 74, note 60).

⁴² Kleve 1978: 67-68.

theory (without reference or supporting argument). Lucretius would have chosen the version of the theory which dealt with the Stoics. This argument, if it should be called that, is not stringent.⁴³

The problem with *DRN* I 1052-1113 is especially difficult because Plato and Aristotle, Epicurus' usual targets, also adopted a geocentric theory (Plato did not think that the elements had a natural tendency of their own; Aristotle thought that fire and air moved upwards), and because it is not certain whether lines 1083-1093 introduce a new theory or not. I am inclined to believe, with Furley (1966: 18), that Lucretius is describing just one theory, according to which earth and water tend towards the centre, apart from fire and air, which move away from the middle. Schmidt (1990: 221) puts forward six points to support his claim that the Stoics are the target: **(a)** Lucretius speaks in terms of tendency towards the middle of all stuff, even light matter: that thinkers other than the Stoics, including Aristotle, held such a view has not been proven; **(b)** despite the general tendency of *all* things towards the centre there is a mention of centrifugal movements: a conflict between two such views can only be found within the Stoic school; **(c)** Lucretius' opponent believes in void outside the world, but Aristotle did not; **(d)** Plutarch similarly discusses tendency towards the centre in cosmology in connection with Stoicism; **(e)** Aristotle considered the theory of the closeness of the heavenly bodies ridiculous, and **(f)** the theory of increase which Lucretius treats in connection with the

⁴³ Indeed Smith (1992b: 511) is not able to rule out that the Stoics are the target in *Diogenes*, although he prefer to assume that the target is Xenophanes.

stars is a Stoic theory.

One cannot be certain about Schmidt's points **(a)** and **(b)**: Lucretius uses *omnia* in lines 1053 and 1056, but Furley plausibly suggests that in those lines *omnia* refers rather to earth and water in the antipodes. Sedley (1998: 79) is right that there is no sign of Lucretius exploiting an inconsistency between centripalism and centrifugality of air and fire in the position he is attacking, as Plutarch does in *S.V.F.* II. 434, presumably following a Peripatetic source.⁴⁴ As for **(c)**, it is true that in lines 1074-1082 Lucretius assumes void outside the world, but he does not expressly say the opponents subscribed to this. Lucretius' source may simply be arguing in Epicurean terms; according to Furley (1966: 17-18) there is "no need to think the propositions were held by his opponents". It is unclear whether **(c)** makes it less likely that the opponent was Aristotle. Point **(d)** can be disregarded; Plutarch's testimony may not be relevant at all to Lucretius. Point **(e)** seems to cast some doubt on the identification of Aristotle as the target. As for Schmidt's point **(f)**, this detail seems in fact to speak against thinking that the Stoics are the intended target of Lucretius' source, since Sedley (1998: 78-79) draws attention to the fact that the Stoics thought that the heavens were nourished not by fire, but by moisture. One cannot be certain that Lucretius' source was attacking the Stoics here. It certainly seems possible, if not likely, that Furley is right in holding that Zeno's theory reported in *S.V.F.* I. 99 is a response to the arguments we find in Lucretius. Lucretius is probably reflecting Epicurus' polemic with earlier thinkers. However one cannot take

⁴⁴ Schmidt (1990: 214-215) thinks that Plutarch and Lucretius depended on the same tradition.

it for granted that the intended target is Aristotle, as this requires Epicurus to have known only the works, or part of the works, where Aristotle had not yet elaborated the fifth element. It would not be the first time that we are not able to identify the quadruple pluralists Epicurus was taking issue with (see below pages 122-126).

Lucretius may perhaps have incorporated philosophical material later than Epicurus, but if he did so, he did so extremely sparingly. His source was Epicurus. Lucretius' remarks in *DRN* III 9-13 and *DRN* V 52-55 read like a statement to the effect that most, if not all, of his philosophical material is based directly on Epicurus' words. Lucretius would not have expressed himself in such terms had Epicurus not been his main source.⁴⁵

It may be objected that in some passages of *DRN* it cannot be proved, or even inferred, that Lucretius closely followed a Greek source. This seems to be the case for the prologues to each of the six books,⁴⁶ *DRN* I 398-417,⁴⁷ *DRN* I 921-950, the praise

⁴⁵ On the didactic 'process' between Epicurus and Lucretius as represented in the poem see Schiesaro 2003: 58-60. He notes that *DRN* stages two didactic processes: one between Epicurus and Lucretius and one between Lucretius and Memmius. The image of *vestigia*, which Lucretius uses for Epicurus, illustrates the process of memory: the relationship hinted at is that between father and son. On Lucretius' didactic relationship with Memmius, below pages 376-382.

⁴⁶ *DRN* I 1-158, or arguably 1-155. The prologue is a special case, if Sedley (1998: 23-32) is right in suggesting that Lucretius is following Empedocles' prologue to his *Περὶ φύσεως* in structure (below pages 323-324).

⁴⁷ Below note 383.

of Empedocles and Sicily at *DRN* I 716-732,⁴⁸ parts, if not all, of the account of sex and love at *DRN* IV 1037-1287, perhaps the attack on myths of punishment in the afterlife at *DRN* III 978-1023, and possibly the Magna Mater passage in *DRN* II 600-660.⁴⁹ Some of these passages certainly contain ‘original composition’, but to suppose that Lucretius — even if he had received philosophical training — independently elaborated the arguments in the *critique* seems quite a different matter. None of the passages mentioned

⁴⁸Lines 716-732 are part of the *critique*. Sedley (1989: 15) tentatively suggests that the passage itself could be “direct imitation of a lost passage of Empedocles”. But Empedocles is reported not to have describe Aetna in his writings. Lapini (2003: 96-97) points out that Timaeus, as reported by Diogenes Laertius VIII. 71 tells us, argued that Empedocles could not have committed suicide by throwing himself into Aetna because, amongst other reasons, he never mentions the craters of Aetna. On Lucretius’ description of Aetna, below pages 328-330.

⁴⁹Perret (1935) suggests that Lucretius and Varro, who was the first to treat the topic, depended on a Latin text, probably derived from Phrygian sources, which described the ritual and presented Cybele as *mater generosa*, while Boyancé (1941: 149) thinks Lucretius’ interest reflects his school’s interest in the *exegesis* given by the Stoics gave of the “myths païens”, pointing out that Zeno and Cleanthes were of oriental origin (Zeno was from Citium on Cyprus, and Cleanthes from Assos) and therefore would have been interested in cult of Cybele and Galli. Craca (2000: 28-29) refers to the treatment of the cult of Cybele in Philodemus’ *Περὶ εὐσεβείας* and considers the possibility that Apollodorus of Athens’ *Περὶ θεῶν* was Philodemus’ source. According to her (2000: 30) it is possible the *critique* of the myth comes from the Epicurean school, but it is more likely that Lucretius used a literary source which his audience would know well and appreciate. There is a parallel between the account of Cybele in *DRN* II and pseudo-Aristotle *Mirabilia* 162 (Sharples 1985: 133-134).

contains philosophical arguments,⁵⁰ let alone detailed counter-arguments such as we find in the *critique*.⁵¹ The *critique* is a challenging passage from a philosophical point of view, and it is unlikely that Lucretius decided to do without a guide in this section of his poem.

1.1 Lucretius' information is 'second-hand'

Rösler (1973: 50-53) has shown that the reading of the three Presocratics in the *critique* shares misunderstandings introduced by Peripatetic doxography. Diels' term 'doxography', which will occur repeatedly in what follows, is slippery and potentially misleading, therefore I shall define briefly how I understand the word.

Distinguishing what is 'doxography' from what is 'use of doxography' has proved a hard task. Mansfeld (2000: 347) defines doxography as follows: ". . . a systematic collection of tenets (*doxai* etc.) and not much more than that, though it may have a critical undertone and even sport explicit criticism".⁵² He defines the term more inclusively than Diels, who thought that doxographical texts are those the content of

⁵⁰ Both the final section of *DRN* III and *DRN* IV 1037-1287 contain philosophical arguments, but the style and presentation of these lines suggest that Lucretius was not following step by step a philosophical source-text.

⁵¹ Some of Lucretius' characteristically Epicurean counter-arguments are rather complex, e.g. the initial argument against Heraclitus on rarefaction and condensation followed by the ruling out of other means of transmutation of the element (below pages 38-40).

⁵² As Mansfeld puts it "doxography proper is offspring of Aristotle's dialectical overviews" and therefore originally considered positive as well as negative aspects of the δόξαί.

which can be traced back to Theophrastus' *Φυσικὰ Δόξαι* (henceforth *ΦΔ*).⁵³ Mansfeld (1990: 3061-3062) also emphasises that the tradition was more fluid than Diels had envisaged.

The practice of composing lists of *δόξαι* was developed considerably by the Peripatetic school,⁵⁴ although such collection of tenets most probably originated much earlier. There are indications that some kind of listing of *δόξαι* was practised in the Academy, but also previously (Mansfeld 1986: 3).

The nature of the evidence for specific works, and the problems over how we define 'doxography' in the first place, make it difficult to determine whether counter-arguments appeared in the doxographical tradition, and what kind of counter-arguments these may have been. Paradoxically, if counter-arguments are 'use of doxography', Theophrastus' *ΦΔ* may itself turn out not to have been pure, i.e. 'criticism free',

⁵³ Mansfeld (1990: 358-359 and 1992b: 64-66) argues persuasively that *Φυσικὰ δόξαι*, rather than *Φυσικῶν δόξαι*, was the wording of the title.

⁵⁴ Earlier *δόξαι* are reviewed in Aristotle's *Physics* (184a10 -192b4) and especially in *Metaphysics* A, where *δόξαι* take up most — twenty six out of thirty three and a half pages in the OCT edition — of the book, allowing for some Aristotelian theory within the 'critical' section. Theophrastus not only reported views in his lost *ΦΔ*, but is also said to have composed one book *Πρὸς τοὺς φυσικοὺς* (FHS&G 137 and 138) and works devoted to report and, at least in some cases, criticism of individual philosophers' theories (FHS&G 137 27-32, 33, 39, 40, 41), assuming that these were not part of the *ΦΔ*. The Peripatetics were perhaps the first philosophical school to collect information for the sake of collecting. Aristotle held that a consideration of previous views might help in arriving at the truth; therefore understanding and reporting of earlier views was required. In this sense 'providing information' was the Peripatetic school's aim when listing earlier views.

doxography. Taurus, as Mansfeld (1990: 3207) mentions, shows that counter-arguments were included in ΦΔ (FHS&G 241A).

Baltussen (2000: 242) suggests that the term ‘critical endoxography’ “represents much better the theory and practice of the early peripatetic school . . .” Aristotle and Theophrastus collected views on particular topics in the context of dialectic (ἐνδοξία). It is not wholly clear whether Baltussen thinks Theophrastus’ ΦΔ, of which Theophrastus’ *De sensibus* may have been a part, was itself an example of ‘critical endoxography’. Theophrastus’ *De sensibus* shows that the Peripatetics produced works, or at least sections of works, which listed, in more or less comprehensive fashion, previous opinions *and* passed judgement on them.

The surviving text which comes closest to a ‘criticism free’ form of doxography is Aëtius’ *Placita*, as reconstructed by Diels through Pseudo-Plutarch and Stobaeus, although here too criticism appears on rare occasions. Aëtius uses forms of the verb ἀμαρτάνειν in reference to Thales in I. 2. 2, and to Anaximander in I. 3. 3, Anaximenes in I. 3. 4 and Anaxagoras and Plato in I. 7. 7. Criticism is also explicit in I. 5. 3, against Plato.⁵⁵ This kind of incidental criticism, however, is very different from Lucretius’ series of counter-arguments. In Lucretius the aspect of reporting positive, as well as

⁵⁵ Mansfeld (1990: 3206-3207) implies that the traces of argument surviving in Aëtius derive from Theophrastus, and that the objection in I. 7. 7 states the Epicurean argument against the Stoics. Baltussen (2000: 242, note 18) mentions that Aristotle regularly uses ἀμαρτάνειν when judging views of others (*Nicomachean Ethics passim*; *Physics* 213a24; *Topica* 125b20, *Metaphysics* 1090b32, *De respiratione* 474a18).

unacceptable, aspects of other thinkers' views is completely lost.⁵⁶

It can be said, generally speaking, that in their reports of earlier δόξαι (a) the Peripatetics found support in earlier views and at times rejected them, to argue that their own views were right; (b) the Neo-Pyrrhonists and Academic Sceptics argued that no view is right, since for them the very existence of rival views is *itself* an argument against the truth of any of them;⁵⁷ and (c) the Epicureans were more prone to attack everyone else.⁵⁸ Members of the Epicurean school produced texts listing earlier views⁵⁹ with the

⁵⁶ Compare this with Epicurus' introduction to his polemic against earlier δόξαι in column XXIV of ΠΦ XIV, where Epicurus points out that he discusses such views to free pupils from the ταραχή which they may cause (below pages 95-96).

⁵⁷ Mansfeld (1999: 18) argues that the diaphonic structure which is found in Aëtius is derived from the Sceptics, who wished to show deadlocks in opinion. According to Mansfeld (1992b: 68-69) the pupils of Arcesilaus composed " . . . a predecessor, or several predecessors" of the *Vetusta Placita* by using Theophrastus' collection of δόξαι as well as other sources, and tried to produce a ἀντιλογία and διαφωνία: in most chapters of Aëtius the *diaeresis* is not complete but the διαφωνία "is brought out quite effectively". Boys-Stones (2001: 123-146) suggests that the Middle Platonists considered all other philosophies deviations from Plato as a way of replying to the Sceptics.

⁵⁸ According to Obbink (2001: 225) in his review of earlier δόξαι on the gods in book II of Περὶ εὐσεβείας: "Philodème n'aborde pas l'histoire de la théologie de manière purement négative et destructrice". Nevertheless Philodemus' attitude seems more one sided than texts produced by the Peripatetic school or any other school.

⁵⁹ One could draw a further distinction when considering such works, i.e. between those which (a) had a preliminary list of views followed by a separate section refuting such views, as in Theophrastus' *De sensibus*, such as e.g. Philodemus' Περὶ ποιημάτων and Diogenes of Oenoanda's inscription on physics

intent of refuting them; they usually layed less emphasis on reporting comprehensively previous views, and concentrated on refutation of earlier views more than Theophrastean ‘doxography’ had done, and the post-Theophrastean *Placita* tradition would do.

When using ‘doxography’ in what follows I shall use the term to refer to texts listing earlier views which ultimately depend on Theophrastus’ collection of tenets, but keeping in mind that the tradition was not rigidly fixed, that the information was adapted to different uses in different schools, and that in some cases counter-arguments appeared.

That Lucretius relied on information handed down by the Theophrastean doxographical tradition, rather than the original writings of the Presocratics is most evident in his treatment of Heraclitus. His confutation of Heraclitus depends on the definition of Heraclitus’ ἀρχή that Aristotle gives in *Metaphysics* A. 3. 983b8. Lucretius follows Aristotle’s and Theophrastus’ reading and presents Heraclitus as a physical monist who adopted fire as his *material* ἀρχή.⁶⁰

In DK B30 Heraclitus does say that the κόσμος itself is an ‘ever-living fire’, but this does not show that he envisaged fire as a material ἀρχή. The term κόσμος means “world-order”, rather than “world” before the fourth century B.C. Heraclitus thought of πῦρ as the regulating element of the world. Heraclitus’ πῦρ had aspects other than the

(below page 63), and those which (b) criticised earlier views at the same time as they listed them, such as Cicero and Philodemus on the gods (below note 97).

⁶⁰ Aristotle considers the ultimate material “a substrate which persists but undergoes changes of quality” and reads all the Presocratics’ principles in this way, thus misinterpreting them (McDiarmid 1953: 91).

purely material, such as process and change.⁶¹

The inclusion of Heraclitus with the Ionian monists is probably due to Aristotle. Pre-Aristotelian sources suggest that Heraclitus was not universally seen as a material monist. In Plato's *Sophist* 242D Heraclitus is treated as someone who combines monism and pluralism — a suitably Heraclitean thing for him to have done, given his doctrine of the identity of opposites. DK B26, DK B117 and DK B118 show that the opposition between fire and water was important for Heraclitus. Plato *Cratylus* 402 may reflect this to some extent. And Mansfeld (1983: 44) endorses Snell's suggestion that *Cratylus* 402A-C and Aristotle *Metaphysics* A. 3. 983b20-984a5 (dealing with Thales) derive from Hippias. Mansfeld disagrees with Snell's further supposition that Plato swapped Heraclitus for Thales because he was being humorous. According to Mansfeld (1986: 23-24) Hippias' 'doxographical work' probably implied, as does Plato, that Heraclitus derived things from water.⁶² It looks as though it was Aristotle's reading⁶³ that misled Lucretius or, more probably, Lucretius' source, and led him to consider, mistakenly, Heraclitus a typical Ionian monist, who posited fire as his material στοιχείον.

⁶¹ Some scholars (e.g. Zeller, Burnet, Cherniss) have even gone as far as to argue that fire was purely symbolic for Heraclitus.

⁶² Cicero *De natura deorum* III. 35 may be relevant: *sed omnia vestri* [the Stoics], *Balbe, solent ad ignem vim referre, Heraclitum, ut opinor sequentes, quem ipsum non omnes interpretantur uno modo*. But perhaps the uncertainty refers to Heraclitus generally rather than the discussion of στοιχείον specifically.

⁶³ Aristotle did not rely only on originals for his discussion of the monist physicists (Mansfeld 1986: 34-35).

That the information in Lucretius ultimately depends on Theophrastus is itself unremarkable. Given Heraclitus' obscurity it seems natural to assume that anyone commenting on his theories, even if he had available his original text,⁶⁴ would look for help in interpreting Heraclitus' notoriously obscure prose. Theophrastus' collection of δόξαί, or later collections which derived from it, would certainly have been the obvious place to look.

Further evidence that Lucretius depends on the Peripatetic tradition comes from his attribution to Heraclitus of the non-Heraclitean theory of creation through rarefaction and condensation. While it seems extremely unlikely that Heraclitus himself ever referred to condensation and rarefaction, it would appear from FHS&G 225 that Theophrastus attributed such a theory to Hippasus and Heraclitus.⁶⁵ McDiarmid (1953: 94-95) is probably right in suggesting that it was Theophrastus who introduced such an erroneous inference.⁶⁶

The interpretation of Heraclitus as a material monist who believed in condensation and rarefaction shows that at least some of the arguments in Lucretius'

⁶⁴ We shall see chapter 4.1 how there are indications that Lucretius parodied Heraclitus' expressions, which suggests a degree of familiarity with Heraclitus' text.

⁶⁵ Rösler 1973: 52. Theophrastus is reported (FHS&G 226B) as having attributed condensation and rarefaction to Anaximenes alone in his *ιστορίαι* (which *could* be the same work as the $\Phi\Delta$) but elsewhere apparently to Diogenes of Apollonia as well (FHS&G 226A).

⁶⁶ In *Physics* A. 6. 189b8-10 and *Metaphysics* A. 8. 988b34-989a1 Aristotle's remarks suggest that all monists used condensation and rarefaction and this may have misled Theophrastus (Cherniss 1964: 14).

critique are based on the information about the Presocratics handed down by the Peripatetic school. The argument in lines 647-664 depends on a specifically Peripatetic reading of Heraclitus as a material monist, a reading which the doxographical tradition took over. Aëtius (I. 3. 11) comments on Heraclitus and Hippasus: . . . ἐκ πυρὸς γὰρ τὰ πάντα γίνεσθαι καὶ εἰς πῦρ πάντα τελευτᾶν λέγουσι. τούτου δὲ κατασβεννυμένου κοσμοποιεῖσθαι τὰ πάντα· πρῶτον μὲν γὰρ τὸ παχυμερέστατον αὐτοῦ εἰς αὐτὸ συστελλόμενον γῆ γίγνεται, ἔπειτα ἀναχαλωμένην τὴν γῆν ὑπὸ τοῦ πυρὸς φύσει ὕδωρ ἀποτελεῖσθαι, ἀναθυμιώμενον δὲ ἀέρα γίνεσθαι, πάλιν δὲ τὸν κόσμον καὶ πάντα τὰ σώματα ὑπὸ πυρὸς ἀναλοῦσθαι ἐν τῇ ἐκπυρώσει. Aëtius's entry shows elaboration.⁶⁷ It speaks in terms of πυρὸς κατασβεννυμένου, but τὸ παχυμερέστατον αὐτοῦ εἰς αὐτὸ συστελλόμενον suggests that the quenching of fire results from a process of condensation.

Against this background it is somewhat surprising that Lucretius only attributes condensation and rarefaction to Heraclitus hypothetically (Giussani 1898: 90).⁶⁸ In line

⁶⁷ It is unclear whether Aëtius is here attributing to Heraclitus a theory of air, water and earth as prior to other substances. Lucretius makes no reference at all to the processes whereby Heraclitus' fire turns into water, earth, and air. A theory comparable to the one in Aëtius here surprisingly appears, later on in the *critique*, as part of Lucretius' criticism of Empedocles and the quadruple pluralists in lines 782-802. This is so surprising that some critics have thought the lines are aimed at the Stoics' reading of Heraclitus (below page 75).

⁶⁸ Theophrastus' statement that Heraclitus envisaged condensation and rarefaction in FHS&G 225 is followed by the statement that all things are an exchange for fire, which is presented as a supporting reason

647 the imperfect subjunctive is used: *nihil prodesset enim calidum denserier ignem*. The fact that the line of argument in the *critique* puts in doubt whether Heraclitus employed condensation and rarefaction, and proceeds to refute the possibility of other means of transformation may indicate that whoever constructed the arguments was not at the mercy of Theophrastus' reading of Heraclitus, but rather elaborated the information, and indeed considered the possibility of an interpretation of Heraclitus different from Theophrastus'. But the fact that means other than condensation and rarefaction are considered may well rather betray a desire to argue against any other possible forms of fire-monism. Aristotle's way of proceeding in *De caelo* Γ. 5. 304a8-304b12 is a useful comparison.⁶⁹ Alternatively the consideration of means other than condensation and rarefaction may simply signal that the argument will rule out the possibility of such a process, Heraclitus not allowing for void. What seems certain is that either Lucretius or, more probably, his source, speculated on the information handed over to them by the doxographical tradition concerning Heraclitus, perhaps to extend the confutation to other forms of fire-monism.

for the claim that Heraclitus used condensation and rarefaction (γάρ). This may indicate that Theophrastus himself was aware of the fact that Heraclitus did not make clear the means by which fire turned into other elements. This may also be the reason why Aristotle did not, as far as we know, explicitly attribute condensation-rarefaction to Heraclitus.

⁶⁹ One may wonder whether Lucretius' source concentrated on Heraclitus as much as Lucretius does (granted that Lucretius speaks in terms of Heraclitus and his followers), or addressed fire monism, or perhaps monism, in more general terms. We shall see in chapter 2 how Epicurus similarly attacked the monists' theory of condensation and rarefaction in ΠΦ XIV, although ΠΦ XIV was not Lucretius' direct source.

A further indication that Lucretius' *critique* ultimately depends on doxography comes from its ordering according to the number of principles.⁷⁰ As Mansfeld (1990: 3153) points out: "Lucretius is explicit about the number of principles involved, and he has arranged the doctrines in the sequence one - two⁷¹ - four - infinitely many. This arrangement is a sure sign of a doxographic backdrop; numerous parallels exist".⁷²

Although Lucretius certainly does not stress that Anaxagoras' principles were infinitely many, and indeed this is only implicit in the number of examples Lucretius gives, and the *cetera* of line 842, Mansfeld's general point is valid. The chances are that

⁷⁰ Mansfeld (1990: 3154) surmises from the absence of references to Posidonius and Asclepiades that there is no reason to think that Lucretius' source for the doxographical material was as late as the first century B.C. Presumably he has in mind the *Vetustissima Placita*, if not Theophrastus' ΦΔ. Diels dated the *Vetusta Placita* to the first half of the first century B.C. Mansfeld (1990: 3062 and 3167-3170) suggests that a precursor of the *Placita* existed at the time of Chrysippus. According to Mansfeld Varro and "Cicero (or Cicero's Academic sources)" used this source rather than its first century update.

⁷¹ Lucretius mentions two versions of dualism, one (a) involving the pairing air-fire and the other (b) the pairing earth-water (lines 712-713). The latter has been thought to refer to Xenophanes' theory, the former to Parmenides'. Plato in *Sophist* 242c has the pairings moist-dry, hot-cold, without attributions. But Theophrastus in FHS&G 227A singles out Parmenides as believing in two elements πῦρ καὶ γῆ (ἢ μᾶλλον φῶς καὶ σκότος). FHS&G 227C and 227D also make the point that Parmenides thought earth and fire to be the two elements. If Lucretius, or his source, had Parmenides in mind for the pairing air-fire, using air to allude to Parmenides' night (Greek ἀήρ is often linked with mistiness and obscurity), he knew the correct version, not the Peripatetic doxographical one, which Cicero adopts in *Academica* II. 118. But in Lucretius the abstract pairings may be more important than any specific attributions.

⁷² See Mansfeld 1990: 3157-3161.

the arrangement derives from the doxographical tradition. In my view Lucretius imported the arrangement according to number of principles from a Greek Epicurean text which based its classification on the one developed by Aristotle and Theophrastus. The author of Lucretius' source-text adapted this classification, so as to have three distinct categories: monism, limited pluralism and unlimited pluralism. Lucretius' handling of the confutation of Anaxagoras has obscured this approach.⁷³

It is worth noting in this context, though, that the sequence in Aëtius is remarkably different from the one in Lucretius.⁷⁴ Anaximenes (I. 3. 4) is followed by Anaxagoras (I. 3. 5), and Heraclitus only comes later on (I. 3. 11), at the start of the sequence leading to Epicurus.⁷⁵

The fact that Lucretius attacks the fire-monists in lines 655-664, the quadruple-pluralists in lines 742-745 and Anaxagoras in line 841 because they do not allow for the existence of void also betrays dependence on doxographical information. The argument

⁷³ We shall see in chapter 4 how laying emphasis on the personalities of Heraclitus and Empedocles especially was a priority in Lucretius' agenda.

⁷⁴ Mansfeld (1990: 3161) notes that the list in Aëtius is not organised according to the number of principles, but he does not provide an explanation for it.

⁷⁵ Schofield (1975: 3-4) endorses Diels' suggestion that in chapter 3 of Book I of the *Placita* (Περὶ ἀρχῶν) Aëtius did not use a doxographical epitome in the strict sense, as he seems to have done elsewhere, but a biographically organised epitome of the kind Hippolytus and Diogenes drew upon (Theophrastus still being the ultimate source).

is ‘anachronistic’ as far as Heraclitus is concerned.⁷⁶ Void only became a topic of debate amongst Greek philosophers well after his time.⁷⁷ Aristotle in *De caelo* Δ. 2. 309a19 groups Empedocles and Anaxagoras as not believing in void. Aëtius (I. 18. 1) groups all the φυσικοὶ ἀπὸ Θάλεω as not allowing for void.⁷⁸ It is interesting that Lucretius, or, more probably, his source, happily repeated the same argument against different targets (with the formulation getting progressively shorter).⁷⁹

In lines 746-752 Lucretius attacks Empedocles for allowing for infinite divisibility, immediately after having attacked him for not allowing for void (lines 742-745). The argument against infinite divisibility is also used against Anaxagoras in line 844. The general statement in Aëtius I. 16. 1 οἱ ἀπὸ Θάλεω καὶ Πυθαγόρου παθητὰ σώματα καὶ τμητὰ εἰς ἄπειρον may be behind this, especially in the case of Empedocles (Rösler 1973: 57).⁸⁰ It is not clear whether the general statements in Aëtius

⁷⁶ On whether the argument could be intended against the Stoics, rather than Heraclitus himself, below pages 67-69.

⁷⁷ The matter was probably first considered by Zeno of Elea (fifth century B.C.). Anaxagoras tried to show that τὸ κενὸν οὐκ ἔστιν (KRS text 470).

⁷⁸ Rösler 1973: 56.

⁷⁹ The same arguments are also used against different opponents, at times, in Cicero’s *De natura deorum* I. 25-43, and therefore, one would assume, in Cicero’s Epicurean source.

⁸⁰ One can see why Giussani (1898: 99-100) calls lines 742-762 “. . . quasi un sommario della prima parte del primo libro”, since the existence of void, and the impossibility of infinite divisibility have been two of the topics treated thus far. Bailey (1947: 728) notes that the point is “stated dogmatically” because of Lucretius’ discussion in lines 335-345, and draws attention to *DRNI* 331 *quod tibi cognosse in multis erit utile*

regarding void and infinite divisibility go back to Theophrastus, *if they did they may have influenced Epicurus himself, as well as later Epicureans.*

Lucretius has seven examples of Anaxagoras' 'stuffs': *ossa, viscus, sanguen, aurum, terra, ignis, umor*. Rösler (1973: 59-60) argues that Lucretius' illustrations derive from the doxographical tradition.⁸¹ Robin (1925: 162-163) and Bailey (1947: 746), on the other hand, thought that the examples derive from Anaxagoras' own writings.

Viscus / viscera probably goes back to Anaxagoras;⁸² it is paralleled in KRS text 485: πῶς γὰρ ἂν ἐκ μὴ τριχῶς γένοιτο θρῖξ καὶ σὰρξ ἐκ μὴ σαρκός; Examples of animal tissues figure in Aëtius' discussion of Anaxagoras in I. 3. 5, where θρῖξ, φλῆψ, ἀρτηρία, νεῦρα, ὄσῳ καὶ τὰ λοιπὰ μόρια are mentioned. A comparable and more comprehensive list of animal tissues in connection with Anaxagoras' theory is found in Simplicius *In phys.* (C.A.G.: 460, lines 15-17): . . . καὶ τροφῆς δὲ τῆς αὐτῆς

rebus and 357-390 — cf. also *DRN* I 565 where *inane* makes things *mollia*, with examples from the four Empedoclean elements. There may be an indication here that Lucretius pointed out where Empedocles was at odds with the theory he had set out thus far in the book. Still, I am inclined to believe Lucretius was reproducing arguments he found in his Greek source.

⁸¹ Rösler (1973: 61) also rightly compares DK B12 . . . ἕτερον δὲ οὐδὲν ἐστὶν ἀλλ' ὄτων πλείστα ἐνι, ταῦτα ἐνδηλότατα ἐν ἑκαστὸν ἐστὶ καὶ ἦν with 875-879, although he notes that there is no mention in Lucretius of Νοῦς (which is prominent in DK B12).

⁸² Schofield (1975: 14) has argued that DK B10, a scholium to Gregory of Nazianzus XXXVI. 911, is neither a quotation of Anaxagoras (Diels), nor a paraphrase of Anaxagoras' words. See however KRS: 369-370.

προσφερομένης οἶον ἄρτου πολλὰ καὶ ἀνόμοια γίνεται, σάρκες ὅσῃ φλέβες
νεῦρα τρίχες ὄνυχες καὶ πτερὰ δὲ εἰ οὕτω τύχοι καὶ κέρατα αὖξεται δὲ τὸ
ὅμοιον τῷ ὁμοίῳ . . .).⁸³ None of these texts is an exact parallel for Lucretius' use,
since they do not claim that Anaxagoras thought that skin etc. was made up of portions
of skin, but rather state, in the context of the problem of nutrition, that they are portions
of skin, bones etc. in bread and water.⁸⁴ This still implies, though, that Anaxagoras
considered such substances fundamental.⁸⁵ And Lucretius' example from gold in line 839
is paralleled in Theophrastus FHS&G 228,⁸⁶ and in Diogenes Laertius II. 8.
Theophrastus, who presumably had Anaxagoras' text at his disposal, seems to have
focused on gold in his explanation, assuming that Simplicius reflects Theophrastus'

⁸³ Simplicius' examples may derive from Theophrastus. Schofield (1975: 10-11) argues that Simplicius took over the examples from the writings of Theophrastus, conflating it with material from Ammonius' lectures on the *Physics*. According to Schofield Simplicius, who only ever speaks of Anaxagoras' first book, did not consult Anaxagoras' text, but depended on the fragments of Anaxagoras which he found in Theophrastus' *De Anaxagora* (as proposed by Lanza).

⁸⁴ Cherniss (1964: 3) thinks that Aristotle's application of his technical term ὁμοιομερῆ to the theory of Anaxagoras implies that Anaxagoras spoke of flesh, bone etc. as constituents of Empedocles' so-called elements, to explain how things were generated by the four 'elements'.

⁸⁵ On the presentation of the problem of nutrition in Anaxagoras in the *critique*, below pages 83-84.

⁸⁶ . . . τὰς μὲν σωματικὰς ἀπείρους ποιήσας· πάντα γὰρ τὰ ὁμοιομερῆ, οἶον ὕδωρ ἢ πῦρ ἢ χρυσόν, ἀγένητα μὲν εἶναι καὶ ἀφθαρτα φαίνεσθαι δὲ γινόμενα καὶ ἀπολλύμενα συγκρίσει καὶ διακρίσει μόνον, πάντων μὲν ἐν πάσιν ἐνόντων. ἐκάστου δὲ κατὰ τὸ ἐπικρατοῦν ἐν αὐτῷ χαρακτηριζομένου. χρυσοῦς γὰρ φαίνεται ἐκεῖνο, ἐν ᾧ πολὺ χρυσοῦς ἐνι, καίτοι πάντων ἐνόντων . . .

comments accurately in FHS&G 228.

It is Lucretius' mention of *terra*, *ignis* and *umor* that is hard to square with the idea that Lucretius drew his examples from Anaxagoras' own text. While Aristotle *Metaphysics* A. 3. 984a11 gives water and fire as example of ὁμοιομερῆ and Diogenes Laertius II. 8 report that Anaxagoras held the Empedoclean elements to be ὁμοιομερῆ, in *De caelo* Γ. 3. 302a28 Aristotle says that 'Αναξαγόρας δὲ τούναντίον· τὰ γὰρ ὁμοιομερῆ στοιχεῖα (λέγω δ' οἶον σάρκα καὶ ὀστοῦν καὶ τῶν τοιούτων ἕκαστον), ἀέρα δὲ καὶ πῦρ μίγμα τούτων καὶ τῶν ἄλλων σπερμάτων πάντων. It also seems relevant that *De generatione et corruptione* A. 1. 314a18 makes no mention of the four elements: ['Αναξαγόρας] . . . τὰ ὁμοιομερῆ στοιχεῖα τίθησιν οἶον ὀστοῦν καὶ σάρκα καὶ μυελὸν καὶ τῶν ἄλλων, ὧν ἕκαστου συνώνυμον τὸ μέρος ἐστίν. KRS (373) take it that Anaxagoras did not consider the four elements were not primary substances. It is certainly conceivable that Anaxagoras had limited himself to metals and animal tissues. Anaxagoras may well have spoken in terms of portions of the opposites rather than the four elements themselves. He refers to hot/cold and wet/dry in DK B12 and DK B15; the opposites also appear in DK B3.

Theophrastus used, following *Metaphysics* A, water and fire as examples in FHS&G 228A. According to McDiarmid (1953: 111) the use of fire and water as examples is misleading.⁸⁷ In giving three of Empedoclean elements as examples of

⁸⁷ McDiarmid (1953: 111-112) suggests that “the fact that Theophrastus adds gold along with fire and water as an example of the homoeomerics is a tacit recognition that these are not elements in the Empedoclean sense”.

Anaxagoras' fundamental stuffs the *critique* seems to agree in error once again with the Peripatetic tradition which influenced Simplicius and Diogenes Laertius. Yet it seems worth noting that the examples do not appear in a list as inclusive as the one in Lucretius. We cannot assume that Lucretius' list of examples reproduces exactly the one in his source; Lucretius may well have added examples himself, for rhetorical reasons.⁸⁸

There are two kinds of text Lucretius may have used, which could have contained the doxography-derived information found in the *critique*: (a) texts which reflected the doxographical tradition in scope by emphasising different views on a topic, whether correct or incorrect and (b) texts which were more critical in their listing and review of earlier δόξαί.

Both kinds of texts would have been available to Lucretius. The availability of texts of type (a) is shown by Cicero *Academica* II. 118-123 where the speaker, Varro, lists the views on the elements of thirteen thinkers: Thales, Anaximander, Anaximenes, Anaxagoras,⁸⁹ Xenophanes, Parmenides, Leucippus, Democritus, Empedocles, Heraclitus, Melissus, Plato and the Pythagoreans. Cicero was probably following a

⁸⁸ It may be significant in this respect that only bone, flesh and blood are used in the actual arguments.

⁸⁹ The report of Anaxagoras' theories in Cicero calls for comment: *materiam infinitam, sed ex ea particulas, similis inter se, minutas, eas primum confusas, postea in ordinem adductas a mente divina*. It looks as though a development in distinct chronological phases is envisaged. On the whole it is *materia infinita* rather than the *minutae particulae similes inter se* which take centre stage. This should be compared with Theophrastus 228 FHS&G, the 'Anaximandrian' reading of Anaxagoras. The information in Cicero seems very different from that in Lucretius' confutation of Anaxagoras.

‘doxographical’ list by the ‘New Academy’. Reid (1885: 52) suggests Cicero depended mainly on Clitomachus’ lost work Περὶ αἰρέσεων (Diogenes Laertius II. 92), which was probably a critical history of philosophy. It is interesting that, apart from Plato, all the thinkers included in the list in *Academica* are Presocratics.⁹⁰ This may point to the fact that, as Mansfeld (1990: 3180-3183) suggests, the doxographical texts Cicero used go back to the third century B.C., rather than having been updated later.

But texts which (b) reviewed δόξαι in a way which was more emphatically critical would also have been available to Lucretius. Members of the Epicurean school composed works which refuted earlier thinkers’ views, following Epicurus’ example. That Epicurus had a critical vein is shown by the fact that he wrote an Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς,⁹¹ by the fact that he is said to have criticised Anaxagoras (Diogenes Laertius X. 12) and the Cyrenaics (Diogenes Laertius X. 136-137), and by the title Πρὸς Μεγαρικὸς διαπορίαι (Diogenes Laertius X. 27). Philodemus refers to Epicurus’ Πρὸς Δημόκριτον (Arrighetti text [11]), and Plutarch to the second book τῶν Πρὸς Θεόφραστον (Usener 29-30). Most of the ‘preserved’ books ΠΦ contain polemic of some kind.⁹² *Ad Herodotum* and *Ad Pythoclem* also display criticism of earlier

⁹⁰ Lucretius limits himself to the Presocratics in the *critique*.

⁹¹ On this text, below pages 193-194 and 254.

⁹² Criticism is attested in most of the ‘extant’ books, e.g. II, XI, XIV, XV, XXXIV (below note 192). And in ΠΦ XII — Philodemus tells us — Epicurus criticised Prodicus, Diagoras, and Critias (Arrighetti text [27] 2). Polemic in ΠΦ also appears in *PHerc.* 1413 (Arrighetti 1973: 650), which is thought to be from the ΠΦ (below note 391), and in *PHerc.* 1039, which is probably from ΠΦ (Puglia 1988b; see especially fragment

views.⁹³ I accept however that Epicurus was not as harsh in his polemics as later writers, e.g. Diogenes Laertius and Cicero, portray him to be. Sedley makes a good case for thinking that Epicurus' polemical vein was exaggerated by his disaffected contemporary, Timocrates, who then influenced later writers.⁹⁴

Colotes, Epicurus' younger contemporary, confuted the views of a number of earlier thinkers in his Ὅτι κατὰ τῶν ἄλλων φιλοσόφων δόγματα οὐδὲ ζῆν ἔστιν.⁹⁵ Hermarchus similarly attacked philosophical opponents. Obbink (1988: 432) suggests that in his work Πρὸς Ἐμπεδοκλέα⁹⁶ a number of philosophical schools were attacked including the Pythagoreans and Plato (although the intended targets were rather the Stoics and Peripatetics who are not named in the text, but who considered these earlier thinkers authorities).

18). For Epicurus' attitude towards earlier philosophers see Capasso 1981: 388-389.

⁹³ Kleve (1978: 41) calculates that in *Ad Herodotum* and *Ad Pythoclem* 10 paragraphs out of 80 contain explicit criticism (he compares this with 1153 lines out of 7411 in Lucretius. Kleve assumes that the amount of polemic in ΠΦ was considerably higher than Lucretius.

⁹⁴ Sedley 1976b: 148.

⁹⁵ Colotes' work is lost, but Plutarch's *Adversus Coloten* provides evidence about it. Vander Waerdt (1989: 230) notes that: "beginning with Democritus, who takes pride of place as the father of atomism, and concluding with certain unnamed contemporaries whom Plutarch identifies with the Cyrenaics and the Academic followers of Arcesilaus, who suspend judgement on all matters, Colotes attacks in chronological order Parmenides, Empedocles, Socrates, Melissus, Plato and Stilpo".

⁹⁶ The title Ἐπιστολικά περὶ Ἐμπεδοκλέους in Diogenes Laertius X. 25 is probably a corruption of two separate items (Vander Waerdt 1988: 88, note 5).



Later, surviving examples of compositions by Epicurean authors which systematically refuted earlier thinkers' views are (1) the listing and refutation of earlier views on the fundamental nature of matter by the Epicurean Diogenes of Oenoanda,⁹⁷ (2) the listing and refutation of earlier views on various subjects in works by Philodemus, e.g. his *Περὶ ποιημάτων*,⁹⁸ *Περὶ μουσικῆς*, and *Περὶ ῥητορικῆς*,⁹⁹ and especially (3) the lists and refutation of δόξαι on the gods found in Cicero's *De natura deorum* I. 25-43 and in Philodemus' *Περὶ εὐσεβείας*, which resemble one another to a striking degree.¹⁰⁰

It may be that (a) Cicero was using Philodemus' *Περὶ εὐσεβείας* directly¹⁰¹ or that (b) both Philodemus and Cicero, were following a common source which listed

⁹⁷ Diogenes states that criticism ought to precede the presentation of (Epicurean) positive theory. Cicero, similarly, has confutation ahead of the presentation of Epicurean theory in *De natura deorum* I. In Philodemus, however, the *critique* of earlier δόξαι came in *PHerc.* 1428. i.e. in the final part of the work.

⁹⁸ See Asmis (1992a: 396-397) for Philodemus' discussion in *Περὶ ποιημάτων* V of the δόξαι *παρὰ Ζήνωνι*, with no names attached to such theories.

⁹⁹ Janko 2000: 191.

¹⁰⁰ Both authors refer to (a) Xenophon's *Ἀπομνημονεύματα* (31), to (b) the *Φυσικός* of Antisthenes (32), to (c) book III of Aristotle's *Περὶ φιλοσοφίας* (33), to (d) books I and II of Chrysippus *Περὶ θεῶν*, the former book treating the Stoic theology in general, and the latter explaining the mythology of Orpheus, Musaeus, Homer and Hesiod, (41) and (e) to the *Περὶ τῆς Ἀθηνᾶς* of Diogenes of Babylon.

¹⁰¹ Pease thinks that Cicero used an epitome prepared by an assistant of his, or by Philodemus himself. It is not easy to see why Cicero left out Heraclitus and Prodicus, who appear in Philodemus. Diels thought this is because their views are like those of the Stoics and Persaeus respectively.

earlier δόξαί on the gods, composed by an earlier Epicurean, such as Zeno, or Phaedrus, whom we know had been to Rome, and perhaps taught there (above page 18).¹⁰²

Obbink (2001: 209 and 2002: 188-189), followed, more tentatively, by Dyck (2003: 9), argues that (a) Cicero had a copy of Philodemus' work in front of him,¹⁰³ because chapters 25-41 of *De natura deorum* I are translated from the conclusion of Philodemus' treatise: the lists of philosophers match exactly,¹⁰⁴ as does the order in the

¹⁰² Whether Phaedrus could have been the source depends to some extent on what one makes of the suggestion by Summers (1997: 310) that the book Cicero asks for in his *Ad Atticum* XIII. 39 (Φαίδρου ΠΕΡΙΟΣΩΝ *et* ΠΑΛΛΙΔΟΣ) was Phaedrus' Περὶ δόξων (rather than Περὶ θεῶν). This is relevant because Cicero wrote the letter when he had started writing his refutation of Epicurean theology (see *Ad Atticum* XIII. 58, with Obbink 1996: 23, note 1). Cicero had already written the list of views about the gods, without consulting these books. If Summers is right, it may be that Cicero had already received Phaedrus' Περὶ θεῶν from Atticus. If not, one can accept the inference that Phaedrus' Περὶ θεῶν would have served only to fill up any gaps (Dyck 2003: 7). As to ΠΑΛΛΙΔΟΣ, or as MS R has it ΣΙΑΛΙΑΔΟΣ (Shackelton Bailey 1966: 237), Summers (1997: 311) proposes Περὶ φιλίας (Cicero looking forward to the *Laelius de amicitia*) in place of Orelli's Παλλάδος, which is accepted by Obbink (1996: 22-23) as <Διογένους Περὶ> Παλλάδος, an alternative title for Diogenes of Babylon's Περὶ τῆς Ἀθηνᾶς. The possibility that the second title too is, as Summers thinks, a book by Phaedrus seems certainly worth considering.

¹⁰³ Auvray-Assayas (2001: 229) doubts that Cicero had the text of Philodemus "«sous les yeux»: la structuration de la mémoire, suivant les méthodes pratiquées par les Anciens, suffit à expliquer qu'il restitue le même ordre que Philodème, . . ." But the kind of correspondence in detail we find between Philodemus and Cicero suggests direct copying to me, and we know that Cicero was asking for books (rather than working from memory).

¹⁰⁴ In note 14 Obbink points out that "re-examination of the papyrus has yielded several new names as well as gaps where the name of several philosophers present in Cicero but previously missing in Philodemus

summary of views of the poets. Obbink suggests further, inconclusively in my view, that Philodemus' source¹⁰⁵ was the Stoic Diogenes of Babylon.

Certainty that Cicero was using Philodemus' work would have important implications for the diffusion of Philodemus' prose works.¹⁰⁶ But it seems impossible to rule out that both Philodemus and Cicero were following closely the list in a text by Zeno. Criticism of earlier δόξαι in a list was a topic where reproducing the sequence which had already been worked out in the school would have been natural. It has been suggested that Philodemus' works were in fact his notes of lectures by Zeno.¹⁰⁷

are securely placed", something Pease (1955: 40) suspected. Obbink (2002: 195) also uses as argument the fact that Cicero's compressed catalogue of the faults of poets' account of the gods reproduces the order in Philodemus' lengthy account of views of the poets, historians, mythographers and grammarians, despite the omission by Cicero of δουλεία of the gods and the cosmogonies.

¹⁰⁵ The list which is behind Philodemus' and, either directly, or indirectly, Cicero's list does not seem directly based on the same source as the one in Aëtius I. 6-7, which starts with the 'atheists', then considers Anaxagoras and Plato, and then picks up from Thales again to consider 27 philosophers (some of these are grouped together as holding the same theory, so that 22 δόξαι are discussed).

¹⁰⁶ Philodemus' poetry has been found in papyri in Egypt, and Gigante (2003: 22-23) notes that Cicero in *In Pisonem* 70-71 says that Philodemus' poetry is read by many people. Yet this does not mean that his prose works were widely read. Arrighetti (1998: 28, note 25) remarks that Philodemus' works did not have, and were not meant to have, wide diffusion. The fact that the works of Philodemus, exception made for those on the history of philosophy, are not mentioned in later authors still seems to need explaining if Philodemus' prose works had wide diffusion.

¹⁰⁷ Gigante (1983: 179) disagrees with Vogliano's view, taken up by Sedley (1989: 103-104) and Dorandi (1997: 46-47), that Philodemus did not contribute any thoughts, but just composed *hypomnemata* of

Philodemus explicitly says in some of his works that he is following Zeno.¹⁰⁸ If Philodemus' work was a report of Zeno's lectures the question arises of whether Cicero and Zeno could both independently derive from a common source. Yet there is also evidence that Philodemus did independent research and updating in some of his works.¹⁰⁹

Whether Cicero was copying Philodemus, or Zeno, it seems clear that there was in circulation in Italy at Lucretius' time an Epicurean text listing and refuting earlier views on the gods. I would assume that a similar text, or similar texts, existed listing and refuting earlier views on matter, a text which is reflected in Lucretius and in the doxographical list of Diogenes of Oenoanda (below pages 61 and 63).

Determining whether Lucretius used (a) a relatively neutral 'doxographical' text as source of his information, or followed (b) a text which had derived its information from 'doxography', but was one-sided in criticising all earlier δόξα apart from atomism will take up the remainder of this chapter.

Zeno.

¹⁰⁸ For pupils to write up their teacher's lectures was not uncommon in the ancient world, and they were sometimes transmitted under the name of the pupil as author with that of the teacher appearing only as part of the title.

¹⁰⁹ It seems clear Philodemus updated the *Index Academicorum* which refers to the death of Antiochus (69 B.C.) and his successor Aristus. Puglia's (1998: 142) suggestion that Philodemus only went to Athens in 86, after having spent time in Alexandria, is interesting in this context. If this is correct it seems likely that Philodemus would have conflated in his works material from his previous studying in Alexandria and what he learned from Zeno in Athens.

1.2 Lucretius used an Epicurean polemical source text

I accept Rösler's inference (1973: 62) that Lucretius' direct source was not a neutral one or one coming from a philosophical school other than the Epicurean school.¹¹⁰ It strikes me as unlikely that Lucretius depended *directly* on a doxographical text on element-theories composed in a philosophical school other than his own. His procedure throughout *DRN* was, as far as one can tell, to use Epicurean texts for his philosophical material (above page 30). I take it that Lucretius derived the philosophical arguments of the *critique* from an Epicurean source-text.

Three considerations suggest that Lucretius was following an Epicurean source:

(1.2.1) Lucretius' use of *homoeomeria*, (1.2.2) Lucretius' choice of Heraclitus as

¹¹⁰“Lukrez hat also in Buch I eine doxographische Zusammenstellung benutzt . . . Daß Lukrez direkt von Theophrast abhängt, kommt nicht in Betracht . . . Denn es scheidet wohl aus, daß der Dichter selbst eine neutrale oder einer anderen philosophischen Richtung verpflichtete Zusammenstellung in dieser Weise für epikureische Bedürfnisse umgearbeitet hat”. Mansfeld, on the other hand, implies that Lucretius used ‘doxography’ directly: “. . . Lucretius avails himself of the doxographical material to discuss problems in philosophy better. His reproductions of the points of view to be found in doxographies are brief; his arguments c o n are long poetical excursions, and his further expositions of the Epicurean views are quite extensive” (1990: 3154). The fact that some of his information is doxography-derived does not mean Lucretius used doxography *first hand*. The elaboration of the doxographical material, and perhaps even the inclusion of the “extensive expositions of Epicurean views” may not be down to Lucretius, but to the author of the text Lucretius used as source.

representative for the category of Ionian monism,¹¹¹ (1.2.3) Lucretius' inclusion, in his confutation of Empedocles, of arguments which are not aimed at the views of Empedocles but try to dispel every comparable theory without naming the proponents of such theories,¹¹² and (1.2.4) the Epicurean angle apparent in Lucretius' philosophical discussion: only that information is reported about earlier δόξαι which an atomist can attack, only those points are raised which involve a conflict with the atomistic theory.

1.2.1 *Homoeomeria*

Lucretius uses *homoeomeria* to refer to Anaxagoras' theory. Supposing that Lucretius followed some Greek authority for using the noun in this way seems more plausible than thinking that such a use of a Greek word was Lucretius' innovation. Epicurus himself used the adjective and the noun from the root ὁμοιομερ-, and we shall come back to the relation between Epicurus' use of ὁμοιομέρεια in chapter 2, and to the relation of Lucretius' use to Epicurus' in chapter 3. What concerns us here is whether Lucretius'

¹¹¹ The arguments against Anaxagoras could not as easily be extended to a category of unlimited pluralists. The only other unlimited pluralist among ancient Greek philosophers, excluding the atomists (Aristotle, *Physics* 1.2 184b20; Theophrastus FHS&G 229), was Anaxagoras' pupil Archelaus (FHS&G 228A). Moreover McDiarmid (1953: 115) suggests that the similarity between Archelaus and Anaxagoras regards Νοῦς rather than the material principles.

¹¹² Taking a single example as representative for a category of many, is well represented within the tradition of the Epicurean school (below page 86).

use of *homoeomeria* is paralleled in the doxographical tradition.

Aristotle never uses the noun ὁμοιομέρεια,¹¹³ although he probably coined the adjective ὁμοιομερής and used it in contexts dealing with Anaxagoras' theory of matter. Schrijvers (1999: 50) argues that Aristotle transferred "l'emploi technique, c'est-à-dire biologique du terme à son explication de la doctrine d'Anaxagore". This is true, although Aristotle did not use the term in the contexts that dealt with Anaxagoras any differently from elsewhere in his works. Aristotle used the term in his own sense to identify Anaxagoras' principles:¹¹⁴ ὁμοιομερῆ was a convenient label for the idea of 'stuffs', i.e. things which are as a matter of fact, on the level observable to humans anyway, made up of parts like themselves. Aristotle makes the point that Anaxagoras

¹¹³ It is generally agreed that Anaxagoras himself did not use ὁμοιομερ- forms, in spite of three texts which apparently claim that he used the noun ὁμοιομέρεια: Aëtius I. 3. 5, Lucretius *DRN* I 834 and Simplicius *In phys.* (*C.A.G.*: 1123, line 23, where ὁμοιομερείας is applied to τὰ εἶδη). Cherniss (1964: 2-3) points out that although Aristotle constantly calls Anaxagoras' seeds ὁμοιομερῆ, his language shows that he did not imply Anaxagoras used the word (*De caelo* Γ. 3. 302a28, 302b5). I follow the general scholarly consensus (e.g. Mathewson 1958: 77-81, Rösler 1973: 58-59, and, more tentatively, Guthrie 1965: 325-326) on this, although it is not proved that Anaxagoras did not use either of the words. Guthrie (1965: 326) is not able to rule out Bailey's theory (1947: 745) that Anaxagoras used both the noun and the adjective, in different meanings.

¹¹⁴ Aristotle gives a definition and catalogue of his own 'homoemorous stuffs' at *Meteorologica* Δ. 10. 388a13-388a20. The catalogue of ὁμοιομερῆ here is made up of metallic substances and animal and vegetable tissues only (Schofield 1975: 153-154, note 39). This is presumably because elements themselves are even more fundamental. In *Historia Animalium* A. 1. 486a5-486a9 Aristotle separates *homoemorous* from *anhomoemorous* substances in animals.

regards as basic *all*, or almost all, ‘stuffs’. In *Metaphysics* A. 3. 984a11-984a16 τὰ ὁμοιομερῆ is used to refer to Anaxagoras’ elements, with the implication that for Anaxagoras homoemorous stuffs only¹¹⁵ could be everlasting. In *Physics* A. 4. 187a22-187a26 Aristotle uses τὰ ὁμοιομερῆ to refer to the substances which Anaxagoras considered fundamental. And in *De caelo* Γ. 3.302a28-302b2 (quoted above page 46) Aristotle, while again setting Anaxagoras’ theory against Empedocles’, writes that Anaxagoras says that τὰ ὁμοιομερῆ are στοιχεῖα.

Aristotle’s use of τὰ ὁμοιομερῆ in reference to Anaxagoras’ στοιχεῖα meant that the step to the adjective becoming a noun was only small. The association of ὁμοιομερῆ and στοιχεῖα probably encouraged the later doxographical tradition to use the plural ὁμοιομέρειαι, in connection with Anaxagoras’ theory,¹¹⁶ to refer to Anaxagoras’ σπέρματα. Two different senses are attested: **(a)** to describe portions which have portions of everything in them (and are therefore similar to everything) and **(b)** portions which are like the thing they make (i.e. bone for Anaxagoras is made up of bone, rather than say atoms, or earth, fire and water). Meaning **(b)** is better attested.

Meaning **(a)** is exemplified by Aëtius I. 3. 5: . . . ἀπὸ τοῦ οὖν ὅμοια τὰ μέρη

¹¹⁵ Anaxagoras almost certainly considered the opposites eternal and indestructible as well, but since he may not have distinguished between hot as a quality and hot as a stuff, the distinction between opposites and stuffs may be anachronistic.

¹¹⁶ Whether this idea was actually part of Anaxagoras’ theory or not. Schofield (1980: 123-132) argues that Anaxagoras’ σπέρματα actually meant physical ‘seeds’ and was not technical jargon to refer to particles of substances. But from Aristotle onwards the σπέρματα were taken to be particles.

εἶναι ἐν τῇ τροφῇ τοῖς γεννωμένοις, ὁμοιομερείας αὐτὰ ἐκάλεσε καὶ ἀρχὰς τῶν ὄντων ἀπεφῆνατο. Aëtius is explaining that are portions (μέρη) of flesh etc. (ὅμοια) in bread and water.¹¹⁷ This is to my knowledge the only text (with the exception of Simplicius, below note 124) that links the term ὁμοιομέρεια with ‘in everything a portion of everything’. The implication of the context here is that the particles have a portion of everything in them,¹¹⁸ while in Lucretius, and other

¹¹⁷ KRS (378, note 1) point out that Aëtius in this passage seems uncertain of the meaning of the word. There seems indeed to be confusion regarding the term in the doxographical tradition. Aëtius V. 26. 4, lines 14-18, is a puzzling piece of evidence: [Ἐμπεδοκλῆς] τὰς δὲ διαφορὰς τῶν χυμῶν + παραλλαγὰς τῆς πολυμερείας καὶ τῶν φυτῶν γίνεσθαι διαφορὰς ἐχόντων τὰς ἀπὸ τοῦ τρέφοντος ὁμοιομερείας ὡσπερ ἐπὶ τῶν ἀμπέλων. Diels suggests correcting the text to τῶν χυμῶν παραλλαγὰς γίνεσθαι τῆς πολυμερείας καὶ τῶν φυτῶν διαφόρως ἐλκόντων τὰς ἀπὸ τοῦ τρέφοντος ὁμοιομερείας. Here ὁμοιομέρεια seem to mean the particles in the nourishment which are “like” the plants, i.e. are absorbed by and nourish them. If it refers to Empedocles it must mean something like “contain a similar blend of the four elements”, but it does sound more like Anaxagoras’ theory. Aëtius also uses the noun in I. 13. 1 Περὶ ἐλαχίστων: Ἐμπεδοκλῆς ἔφη πρὸ τῶν τεττάρων στοιχείων θραύσματα ἐλαχίστα, οἷον εἰ στοιχεῖα πρὸ τῶν στοιχείων, ὁμοιομερῆ. This is perhaps a confused reference to Empedocles’ view that in the Sphere the elements are so perfectly mixed that they cannot be distinguished. Diels (*D.G.*: 223) considers the information about Empedocles false, and suggests this may be due to a misunderstanding of Theophrastus *De sensibus* § 11 (*D.G.*: 502). It looks as though Aëtius was confused in his use of ὁμοιομέρεια, possibly because his work incorporates the thoughts of thinkers, or reporters, who used the term in different ways.

¹¹⁸ Guthrie 1965: 326. He points out how use is “an accurate description of the material ἀρχαί of Anaxagoras”.

doxographical authors use the term in its meaning **(b)** particles make up a substance which is like themselves. Meaning **(b)** is exemplified by Eriphanius (*D.G.*: 589) and pseudo-Galen (*D.G.*: 611), who call ὁμοιομέρεια Anaxagoras' ἀρχαί. Alexander of Aphrodisias *De anima libri mantissa* 125. 28-30 also seems to use the word to refer to Anaxagoras' portions, which produce things like themselves: τοῖς γὰρ οὕτως λέγουσιν συμβήσεται κατὰ τὰς ὁμοιομερείας τὰς Ἐναξαγόρου τὴν γένεσιν κατὰ σύγκρισιν καὶ ἔκκρισιν τῶν στοιχείων λέγειν οὐ κατὰ μεταβολήν. Both **(a)** and **(b)** involve using an abstract term in a concrete sense; Lucretius' use is closer to the idea in **(b)** but differs from **(b)** because it does not apply the term to Anaxagoras' 'seeds' but to Anaxagoras' theory itself.

Given that the doxographical tradition depends heavily on Theophrastus, it is conceivable that the use of ὁμοιομέρεια to refer to Anaxagoras' seeds, in either sense **(a)** or **(b)** was due to Theophrastus.¹¹⁹ Whether Theophrastus used ὁμοιομέρεια to describe Anaxagoras' portions hinges on how far Simplicius reproduced,¹²⁰ in FHS&G

¹¹⁹ There is little to suggest that Theophrastus used the singular to refer to Anaxagoras' theory, since there is no evidence for use in the singular in later texts, except Lucretius, Simplicius (below note 124) and Philo Judaeus in *Περὶ προνοίας* I. 22 (*D.G.*: 279); Hadas-Lebel 1973: 146. This is the part of Philo's treatise which only survives through the Armenian tradition . . . *Anaxagoras Clazomenius homoiomeriam (partes similes)* . . .

¹²⁰ There seems to be a problem with the fact that the first paragraph of 228A associates Anaxagoras with Anaximenes whereas in the second paragraph of 228A, and in 228B, Simplicius explicitly cites Theophrastus for the association of Anaxagoras and Anaximander (Aristotle himself was not clear whether Anaximander was a monist or a pluralist (KRS: 111)). This raises questions as to whether the first paragraph

228A, the Theophrastean text he had at hand. FHS&G 228A has ὁμοιομερῆ in the Aristotelian sense of stuffs of which the part is like the whole: water, fire (as in Aristotle's *Metaphysics* above) and the metal gold are given as examples. Simplicius concludes by saying that Anaxagoras, and his pupil Archelaos of Athens, posit ὁμοιομερείας as ἀρχάς.

Schofield (1975: 4-7) suggests, developing a proposal by Lanza, that Aëtius I. 3. 5 derives not directly from Theophrastus, but from an Epicurean source, on the grounds that (1) Epicurus is the first author to use the noun ὁμοιομέρεια (although he uses it in a sense different from that in Aëtius),¹²¹ (2) ὁμοιομέρεια is found in Lucretius and ὁμοιομέρεια in Diogenes of Oenoanda,¹²² (3) λόγῳ θεωρητά has an Epicurean ring,¹²³ and (4) the attempt in Aëtius to assimilate Empedocles' and Anaxagoras' theories of elements to Democritus' and Epicurus' theories is probably by an Epicurean. There are not enough grounds to be certain that the ὁμοιομέρ-reading of Anaxagoras originated with Theophrastus.

Lucretius uses *homoeomeria rerum*, in the singular, in an abstract sense to refer

of 228A, where the connection with Anaximenes occurs, is from Theophrastus.

¹²¹ Schofield (1975: 5, note 17) points out that Epicurus uses the term to mean more or less “the attribute of being homoeomerous with” and it is applied (it would seem) to parts, referring to *Ad Herodotum* 52. On Epicurus' use of the noun and the adjective, below pages 130-147 and 177-179.

¹²² Below.

¹²³ Schofield (1975: 7) argues that Aëtius' paragraph on Anaxagoras is made up of Theophrastean material contaminated with material of Epicurean origin.

to Anaxagoras' theory — as mistakenly attributed to him — that everything is made up of particles like itself.¹²⁴ Lucretius' usage is closer to meaning (b) than to meaning (a), but is not parallel to either of the attested meanings. It is striking that Lucretius appears at odds with the doxographical tradition even where it might be influenced by Epicureanism.

The use of the term in the Epicurean Diogenes of Oenoanda is closest to Lucretius' usage: 'Αναξαγόρας δ' ὁ Κλαζομένιος [εἶναι στοιχείον εἶπεν] τὰς ὁμομερείας ἐκάστου πράγματος. Lanza (1966: 71) suggests that Diogenes misunderstood a formulation of the kind ὁμοιομέρεια ἐκάστου πράγματος, and incorrectly used the plural, as perhaps familiar to him through the doxographical tradition, to refer to particles, so that the original meaning is lost. *If* Lanza is right, the conjectured formulation ὁμοιομέρεια ἐκάστου πράγματος would certainly be comparable to Lucretius' *rerum . . . homoeomeria*.

Lucretius' use of *homoeomeria* to refer to Anaxagoras' theory does not suggest that he was drawing directly from the doxographical tradition, but that he is detached

¹²⁴ Guthrie (1965: 326) criticises Bailey (1926: 555) for thinking that Lucretius' usage in the singular is "quite unique", pointing to Simplicius *In Phys.* (C.A.G.: 162, line 31) ἔνεστιν ἄρα ἐν τῇ ὁμοιομερείαι καὶ σὰρξ καὶ ὀστοῦν καὶ αἷμα κτλ. The word in the singular is found in a similar meaning in *In Phys.*, C.A.G.: 172, line 24. But these do not look like parallels for Lucretius' use in anything other than that the word is used in the singular: Simplicius seems to understand the word in a sense closer to meaning (a) than to meaning (b), just as he does when using the plural in *In Phys.* C.A.G.: 27 line 27. In *In De caelo* (C.A.G.: 532, line 24, and 535, line 15) Simplicius uses the singular in a meaning similar to ἰσορροπία.

from such a tradition at one remove at least (unless one wishes to assume that Lucretius decided to alter the meaning he found in his source). It seems likely that the singular *ὁμοιομέρεια*, perhaps in the formulation *ὁμοιομέρεια ἐκάστου πράγματος*, was at some stage before Lucretius used in an abstract sense to conveniently refer to Anaxagoras' theory. Lucretius' formulation may be a development of meaning (b) which led to use of the noun to refer to Anaxagoras' theory itself. One cannot rule out that Lucretius' usage derives from a root different from Peripatetic doxography.

1.2.2 The choice of Heraclitus as representative monist

Lucretius presents Heraclitus as the leader of all the Ionian monists: by attacking Heraclitus he attacks the entire category.¹²⁵ Lines 635 and 638 make clear that the refutation extends to other fire monists, and lines 707-711 that it extends to other forms of monism too.¹²⁶ This may be reflected in the fact that all the arguments in the refutation of Heraclitus, except perhaps the argument in lines 690-700, could apply *mutatis*

¹²⁵ The decision of naming just one exemplary representative could be down to Lucretius, who would be working from a text which listed earlier *δόξαι* more comprehensively. But one would perhaps expect Lucretius to draw the distinction between the different theories considered more clearly, or at least make clear when the theories did not apply to the named three, if he was himself selecting the theories from more comprehensive list of *δόξαι*.

¹²⁶ Note how neatly the final argument against Heraclitus introduces the possibility, and inconsistency, of other forms of monism.

mutandis to other forms of physical monism.

The choice of Heraclitus as the exemplary Ionian monist is surprising. It cannot, as far as I can see, be down to the doxographical tradition, although such a tradition determined the inclusion of Heraclitus among the Ionian monists in the first place. Hippasus and Heraclitus are considered after Thales in Theophrastus FHS&G 225, by virtue of the fact that their principle is single and limited. In Aëtius, however, Heraclitus comes last of all the monists (above page 42).

The only surviving text which is, to some extent, comparable to Lucretius in this respect is the inscription by — once again — Diogenes of Oenoanda.¹²⁷ Diogenes criticised Heraclitus first among the monists, although he did, as far as we can tell, go on to refute in detail other monists too.¹²⁸ The most economical explanation of the parallel

¹²⁷ Mansfeld (1990: 3156-3157) notes that Diogenes does not mention earth-monism and that he adds the Stoics and Democritus, who comes last because his view is most similar to Epicurus'. A further remarkable coincidence between Lucretius and Diogenes is that they both omit Plato (below pages 78-79). A further noticeable difference, as we have seen above (note 97) is that Diogenes has a 'preliminary' listing of all the targets and their views, and then a (now lost) confutation of (presumably) each opponent. Diogenes certainly shares in the doxographical tradition, whether directly or through an Epicurean intermediary. Mansfeld highlights (a) the implicit sequence of the Presocratics, cogently arguing that the Stoic dualists have been appended last to maintain some sort of chronological order, (b) the appearance of the name of the city of origin of the Presocratics which also links Diogenes with the doxographic tradition (and Theophrastus), and (c) the theory which Diogenes attributes to the Stoics, which is the one which attributed to Zeno in Aëtius I. 3. 25.

¹²⁸ Unfortunately Diogenes' counter-arguments do not survive, except small fragments of the arguments against Heraclitus and the Stoics.

between Diogenes and Lucretius is to suppose that there was a text about views on the elements produced within the Epicurean school,¹²⁹ a text which made Heraclitus the primary representative of monism. This seems preferable to supposing that both Lucretius and Diogenes of Oenoanda each independently formed the idea of making Heraclitus, in the one case the only representative of monism, in the other the primary representative, or that Lucretius influenced Diogenes.¹³⁰

It seems likely that either Lucretius or Diogenes is (or both are) separated from their common Epicurean source by at least one intermediary source. To suppose that Diogenes and Lucretius both directly used the same source text would involve a considerable amount of editing and reworking on Lucretius' part.¹³¹ It may be that the

¹²⁹ Capasso (1987: 100) notes how both Lucretius and Diogenes of Oenoanda open with Heraclitus and underline the fact that he was the first to enter the battle against the Epicureans. According to Capasso the choice of Heraclitus as first anti-Epicurean goes back to the Epicurean school, and perhaps to Epicurus himself. On whether the choice of Heraclitus is a clue that Lucretius' source was a later than Epicurus, below pages 264-266.

¹³⁰ Bailey (1947: 711) finds two reasons behind Lucretius' choice of Heraclitus as representative: (1) Heraclitus "was the last of the Ionian Monists and his theory was in many respects the culmination of their views"; (2) "...the theory of Heraclitus had been adopted by the Stoics, the natural enemies of the Epicureans, as the foundation of their physical theory". That Heraclitus' στοιχειόν-theory was the "culmination" of the views of the Ionian monists is far from certain, although the Peripatetic tradition presented it as such (above pages 36-37). Bailey seems to assume that the decision to single out Heraclitus was Lucretius' own; but Lucretius may well have been following his source.

¹³¹ It seems less likely that Lucretius followed the same source as Diogenes, and worked out a list of arguments against quadruplism which would include criticism of the 'transformationists' (below pages 72-77).

person who elaborated the arguments singled out Heraclitus because the Stoics considered him their forerunner,¹³² whether or not the author of the arguments explicitly referred to the Stoics.¹³³

I am not convinced, however, that the arguments we find in Lucretius' confutation of Heraclitus and fire monism are aimed at the Stoic theories. The case for of an attack against the philosophical ideas of the Stoics here is built by Munro,¹³⁴ Giussani, Ernout-Robin, Bailey, Kleve and Pizzani. In the other camp Furley and Sedley, following occasional remarks by Bignone, argue that the Stoics are not referred to here or in *DRN* generally (for the most contentious case, Lucretius' refutation of geocentric cosmology, see above pages 27-30). The arguments *in the critique* can, and should, be read as confutation of Heraclitus, as he was presented by the doxographical tradition, and of fire monism generally. Less certain is whether the Stoics should be seen as part of the fire monists who follow Heraclitus.

¹³² See *S.V.F.* I. 11, I. 98 (quoted below page 66) and I. 141. For Chrysippus following Heraclitus (or at least agreeing with Heraclitus) see e.g. *S.V.F.* II. 446, II 576 and II 764.

¹³³ See above (page 49 and note 95) on how the Epicureans at times criticised the authorities contemporary thinkers relied on rather than their contemporary opponents.

¹³⁴ Munro (1886b: 83) thought that with the plurals from line 645 to 689 Lucretius refers to the Stoics. He points to lines 465 ff. as a parallel.

1.2.2.1 The Stoics as fire monists?

In post-Chrysippus doxography fire was not the Stoics' *materies rerum*: god and matter were the Stoics' two ἀρχαί (principles), and the four Empedoclean elements were their στοιχεῖα (physical elements). Fire however had special importance for the early Stoics, who distinguished between πῦρ τεχνικόν, fire as the eternal active principle, and πῦρ ἄτεχνον, one of the four elements generated by the creative fire in its association with the eternal passive principle, ὕλη. The importance of πῦρ τεχνικόν is well exemplified by *S.V.F.* II. 1027 (*Aëtius* I. 7. 33).

It seems unlikely that Lucretius, or his source, confused “having as its matter” (στοιχεῖον) with “having its origin in” (ἀρχή), and had in mind the Stoics' πῦρ τεχνικόν (active principle).¹³⁵ All the arguments in the *critique* focus on the material element, none on the formal cause. Moreover a reference to the Stoics' πῦρ τεχνικόν would naturally bring with a reference to the phenomenon of conflagration, which is strikingly absent from the *critique*, and *DRN* as a whole (Furley 1966: 16).¹³⁶

But reports about Zeno and Cleanthes seem to suggest that they called fire

¹³⁵ This is a familiar problem in (mis-)interpretation of the Presocratics, going back at least to Aristotle (see Stokes 1971). The idea is that from which things come originally is to be equated with their persistent matter.

¹³⁶ The Stoics attributed a theory of conflagration to Heraclitus (*S.V.F.* II. 421 and *S.V.F.* II. 603). Again, this seems mistaken; see KRS: 200, note 1

στοιχεῖον, rather than adopting, like Chrysippus, four στοιχεῖα. Aristocles of Messene (*S.V.F.* I. 98) reports that Zeno στοιχεῖον εἶναι φασὶ τῶν ὄντων τὸ πῦρ, καθάπερ Ἡράκλειτος, τούτου δ' ἀρχὰς ὕλην καὶ θεόν, ὡς Πλάτων . . . This might indicate that from the time of Zeno and Cleanthes down to the time of Chrysippus, there was a tendency to identify the στοιχεῖον in fire rather than in the four Empedoclean elements.¹³⁷ And in *S.V.F.* II. 413 (Stobaeus) it is said that Chrysippus used στοιχεῖον in three senses, in one sense it is fire, in another the four elements. The third sense is apparently lost in a lacuna.

In spite of these testimonies I am not convinced that the person who elaborated arguments thought he was attacking the Stoics by attacking fire-monism. Diogenes of Oenoanda is good evidence that *matter* and *god* were the Stoics' elements according to 'Epicurean doxography',¹³⁸ as they were in doxography generally. The Stoic emphasis on two principles speaks against thinking that the *qui* and the *quorum* refer specifically to the Stoics.

It is very hard to disprove altogether that the Stoics may be included in the

¹³⁷ Stobaeus in *S.V.F.* II. 413 speaks of four στοιχεῖα, but then of πῦρ κατ' ἐξοχὴν στοιχεῖον, Simplicius in *S.V.F.* II. 603 reports that the Stoics follow Heraclitus in thinking that all things derive ἐκ πυρὸς πεπερασμένου and are dissolved back into fire.

¹³⁸ Fragment 6. II, lines 7-9 (Smith 1992b: 156). Smith (2000: 135 and 2003: 118) also reconstructs convincingly fragment 100 (from the part of the inscription reporting maxims), which also seems to deal with the Stoics' theory of matter: οὐ[τ' ἐστὶ τὰ στοιχεῖ-] | α τῶν π[άντων θεὸς καὶ ὕλη | ν (κα[κῶς γὰρ | οἱ Στωικ[οὶ ταῦθ' ἡγοῦ|νται . . .

reference. Even if they are there can be little doubt that the reference in the *qui* and the *quorum* is wider; it extends to all who believed in fire as primary element. That Lucretius' source may be attacking the Stoics by attacking their precursor is entirely possible, but there is no compelling reason to hold that whoever elaborated the arguments idiosyncratically interpreted the Stoics as fire-monists. That *Lucretius* thought that the arguments actually dispelled Stoic theories is certainly conceivable (see further below page 70).

1.2.2.2 The Stoic denial of void in the world?

I doubt that the argument in lines 655-664 is aimed at the Stoic theory of void. The expressions *admixtum rebus inane* in line 655, *in rebus relinquere inane purum* in line 658 and *exempto rebus inani* in 660 have been taken to refer to the fact that the Stoics allowed for void *extra res*, for which see e.g. *S.V.F.* I. 95 and I. 96. The fact that Diogenes of Oenoanda, in his 'doxographical' review, attacked the Stoics for their ideas on void may appear to support this suggestion. Smith (1992b: 444) points out how the precise argument of the first column of fragment 7, which deals with the Stoics, is uncertain, but it is clear that void is mentioned. Lines 3-14 of column I read (Smith 1992b: 157):

ενα προσ
ς τουτο του

ἐ]στὶ μηδὲν
 τ]ὸ κενὸν
]Ι παθεῖν,ε
]πάσχειν καὶ
 τ]ὸ ἄπειρον προ
]τω μηδὲν
]ος ἐποικο-
 δομ - - - -]ΣΙ το . δου
]ουτος προ
 [ειν οὐ δύ-

It seems very likely that the target here are the Stoics.¹³⁹ Yet it is not clear that the argument was about void rather than simply mentioning void.

But even assuming that Diogenes was criticising the Stoics on void, one cannot be sure that by repeating *res* in lines 655, 658 and 560 Lucretius was implying that “they actually recognise void, but in the wrong place for the argument”. Lucretius, or perhaps rather Lucretius’ source, is concerned here with the fact that the denial of void would hamper the theory of condensation and rarefaction, and it seems quite natural that he

¹³⁹ Fragment 7 of Diogenes’ inscription has not been rediscovered, but there are French and Austrian squeezes of it. The argument in column I cannot be directed against Democritus, as is shown by καὶ Δημόκριτος in II.4. Smith convincingly argues that the criticism of Democritus begins in II.2 and that opponents in column I are the Stoics, who come immediately ahead of Democritus in Diogenes’ initial list.

should emphasise the absence of void “from things”.

Pizzani (1983: 465–466), in his attempt at showing that the target are the Stoics, notes that Lucretius in lines 661 and 662 echoes the theory of world as *continuum*. But, although Lucretius occasionally presents an opponent’s theory as his own objection, would it not be strange to say *nec cernunt* (line 659) of what was in fact a fundamental and distinctive Stoic theory? One gets the impression the argument was elaborated before the Stoics. We have seen above (page 43) how Heraclitus, like other Presocratic monists did not assert or require void, and how doxography reported that they denied the existence of void. When one considers that the existence of void is one of the main claims that sets atomism apart from other theories, it is not at all surprising that the Epicureans should attack *Heraclitus* on this point.

None of the arguments in the *critique* of Heraclitus are aimed specifically at Stoic theories. Whether *Lucretius* thought the Stoics were included when writing *qui* in line 635 and *quorum* in line 638 cannot be determined. He could perhaps have had in mind Hippasus of Metapontum, a name often associated with Heraclitus in the doxographical tradition, and to the followers of Heraclitus mentioned by Plato in *Theaetetus* 179D and in Diogenes Laertius IX. 6 (Rösler 1973: 53, note 5), or indeed generally to anyone who believed in fire monism. I will argue in chapter 4, however, that the Stoics should be identified with the *inanes Graii* of line 640 and *stolidi* of 641. It is perhaps not inconceivable that the *qui* and *quorum* are a different group of people from the *inanes Graii* and *stolidi*, but it is more natural to think that the latter group is included in the former. If the *stolidi* are among the fire monists of lines 635 and 638, Lucretius thought

it fit to include the Stoics as fire monists, but yet reflected closely the arguments of a source unconcerned with Stoic theories.

1.2.3 Lucretius' arguments against the limited pluralists

Just as he takes Heraclitus as the representative of monism, so Lucretius takes Empedocles as the representative of finite pluralism, and explicitly says so in lines 714-716 and 734. Not all the arguments in the section are aimed at Empedocles: the argument in lines 782-802, as we shall see, is specifically not against Empedocles. Scholars have thought that other arguments are not aimed at Empedocles, or show misunderstanding of Empedocles' theories, but this seems unwarranted by the evidence.

1.2.3.1 Lines 753-781

The third argument against Empedocles, in lines 753-758, according to Bailey (1947: 729),¹⁴⁰ shows misunderstanding of Empedocles, who thought that the elements were imperishable, exactly as the atomists did.¹⁴¹ But Lucretius', or rather Lucretius' source's, point is rather that the four elements *cannot* be unperishable, because the senses tell us

¹⁴⁰ Bailey is followed by Lenaghan (1967: 232, note 37).

¹⁴¹ Bailey also points out that Empedocles would probably have denied that subdivision without a *minimum* meant the reduction of things to nothing. Indeed it seems a typically Epicurean approach to equate atoms with the only alternative to infinite divisibility.

that they are *mortali cum corpore funditus*.

I also doubt that lines 763-781 show Lucretius, or his source, misunderstanding Empedocles' theory. Commentators find an inconsistency in the fact that 763-768 attack a theory which involves an alteration in the nature of the four elements, because Empedocles did not hold such a theory. This is easily explained when one takes into account the fact that the argument is aimed at quadruple pluralism generally, rather than Empedocles specifically. Lines 763-781 are a dilemma, which is meant to rule out every form of quadruple pluralism.¹⁴² Either the elements change their nature (lines 763-769), in which case they cannot be elements,¹⁴³ or they do not (lines 770-781), as Empedocles actually thought, in which case the elements would reveal their unchangeable nature in compounds.

The way of proceeding in lines 763 is directly comparable to that in the *critique* of Heraclitus, where both condensation-rarefaction and other means of transformation are considered. The *sin ita forte putas* of 770 has a similar function to *quod si forte* of 665: no form of either monism or limited pluralism can be satisfactory. Whoever elaborated the arguments found in Lucretius' *critique* constructed hypotheses so as to leave his opponents no escape-route, by considering every variant form of the theory.

¹⁴² The dilemma arises naturally from the argument in lines 759-762 where the point is that the four elements do not mix.

¹⁴³ It cannot be settled with certainty whether lines 763-769 envisage spontaneous change of the elements, or change as a result of *concilium*. Change resulting from combination is perhaps more likely in view of line 773.

The line of argument represents a philosopher's actual theory as his attempt to escape from a difficulty.¹⁴⁴

1.2.3.2 Lines 782-802

Under scrutiny in lines 782-802 is a theory according to which fire cyclically turns into air,¹⁴⁵ air into water, and water into earth, and then back again in exactly the reverse order, never ceasing to do so. This is often referred to as a 'transformationist' theory, which seems distinct from that of Empedocles, according to which the elements never changed their nature.¹⁴⁶ Lines 782-802 are puzzling.¹⁴⁷

¹⁴⁴ Similarly in the refutation of Anaxagoras, his own theory of *ἐν παντὶ παντὸς μοῖρα* is presented as an unsuccessful attempt to sidestep a difficulty in line 875, only after having appeared in a previous dilemma (below pages 82-83). We shall see in chapter 4 (pages 341-342) how Lucretius' presentation emphasises this aspect especially in the case of Anaxagoras.

¹⁴⁵ Hippolytos, who to some extent shares in the doxographical tradition, reports in DK B31 (= *D.G.* 558) that Empedocles *τὴν τοῦ παντὸς ἀρχὴν νεῖκος καὶ φιλίαν ἔφη καὶ τὸ τῆς μονάδος νοερὸν πῦρ τὸν θεὸν καὶ συνεστάναι ἐκ πυρὸς τὰ πάντα καὶ εἰς πῦρ ἀναλυθήσεσθαι*. In spite of this testimony I doubt that the person who elaborated the arguments thought that he was refuting Empedocles with the argument reflected in lines 782-802.

¹⁴⁶ Giussani (1896: 87) remarks that lines 782-802 are aimed at "i trasformisti più radicali e più logici; quelli che estendevano il trasformismo anche nel campo dei quattro elementi tra loro".

¹⁴⁷ I adopt, as editors invariably do, Marullus' reconstruction of the text. This involves the scribe, or scribes, misreading *imber* as *ignis* twice (with one possibly being corrected to match the other) and altering *in terram* to *a terra* in the space of two lines.

The first point to note is that the argument in 782-802 has a cosmogonical ring. Although Empedocles spoke of a cycle of the elements which started from fire,¹⁴⁸ it seems unlikely that a distorted version of his theory is being reported in lines 782-802. The terms *se vertere* and *mutare* involve a change of nature, assuming that Lucretius was not being careless with his terminology here. It seems reasonable to gather that Lucretius, or rather his source, was criticising a theory different from Empedocles', although it may have been derived from it.

Lucretius is not explicit about the fact that the argument in lines 782-802 is not aimed at Empedocles. The *repetunt* in line 782, and *faciunt* in 783, are not a clear indication, seeing how loosely Lucretius seems to have used plurals both in this section (lines 742, 747 and 755) and in the confutation of Heraclitus (lines 656 and 665). Moreover the expression *quin etiam* suggests something like "but they". This is somewhat surprising since the argument in 782-802 is aimed at the thinkers which are included in the first horn of the dilemma of 763-781, that is those in lines 763-769, rather

¹⁴⁸ Empedocles certainly envisaged a progressive separation of the four elements in his cosmogony, starting from the sun, and therefore presumably fire. In DK B38, which looks like the introduction of Empedocles' cosmogony of the present world, ἥλιος, and other heavenly bodies, are said to come first, then γαῖα is mentioned, then πόντος, then ἀήρ and finally αἰθήρ, περὶ κύκλον. In Aëtius II. 6. 3 it is αἰθήρ, πῦρ, γῆ, ὕδωρ, ἀήρ, and οὐρανός from αἰθήρ, ἥλιος from πῦρ. Earth certainly does not seem to come last in Empedocles' cosmogony. The Strasbourg papyrus provides fresh evidence for Empedocles' cosmogonical theory. Trépanier (2004: 255) re-edits the text of *esemble* a of the Strasbourg papyrus of Empedocles (Martin-Primavesi 1998: 130-140). But we have no evidence for the sequence in Empedocles being the same as in Lucretius.

than those in lines 770-781.

The inclusion of the transformationist theory suggests that Lucretius was following a source which set out to attack the category of quadruple pluralists, and is at odds with supposing that Lucretius was following a doxographical report of Empedocles' view. It may be that Lucretius' source placed less emphasis on Empedocles himself than Lucretius does. Lucretius' praise of Empedocles and description of Sicily sets the attention firmly on Empedocles, despite Lucretius' explicit statement that the criticism extends to other quadruplists as well.

The argument in lines 782-802 could be aimed at the Stoics' elaboration of Heraclitus' μεταβολή (ἄνω καὶ κάτω ὁδός).¹⁴⁹ The report about Heraclitus in Diogenes Laertius IX. 9 speaks, like Heraclitus DK B31, of three elements only (fire, water and earth), but Maximus of Tyre mentions a version with 4 elements: . . . ζῆι πῦρ τὸν γῆς θάνατον, καὶ ἀήρ ζῆι τὸν πυρὸς θάνατον, ὕδωρ ζῆι τὸν ἀέρος θάνατον γῆ τὸν ὕδατος.¹⁵⁰ The Stoics are connected with a similar theory in Cicero *De natura deorum* II. 84 (*nam ex terra aqua ex aqua oritur aer ex aere aether, deinde retrorsum vicissim ex aethere aer, inde aqua, ex aqua terra infima*) and III. 31, Plutarch *De Stoic. rep.* 41. 1053A, Diogenes Laertius VII. 142, and *S.V.F.* II. 579, 580 and 581 (Chrysippus). Aëtius I. 3. 11 speaks of transformation of fire into earth, into water, into air in connection with Heraclitus (quoted above page 39). The existence of such a theory, which the Stoics seem to have extracted, probably unduly, from Heraclitus complicates

¹⁴⁹ Ernout-Robin 1924: 155.

¹⁵⁰ Giussani 1898: 104.

the issue. One cannot rule out that Lucretius' source (or Lucretius himself) introduced an argument against the Stoics in its refutation of quadruple pluralism.

Furley (1966: 78) notes that Aristotle "has surely at least as good a claim as" the Stoics to be the target of lines 782-802. Giussani (1898: 88, note 1) had already suggested Aristotle as a possible target here.¹⁵¹ And the mutual interchange of the elements appears in Theophrastus' argument for the eternity of the world (184 FHS&G, §144, line 166). According to Sedley (1998: 174) Lucretius takes over the sequence earth - water - air - fire, which described the layered structure of the world, from Theophrastus.

It may be that Lucretius' source criticised the transformationists *en passant* while performing a confutation of Empedocles' theory,¹⁵² but the relative emphasis and space the argument against the transformationists receives in *DRN* suggests that the argument against the transformationists featured prominently in Lucretius' source, rather than being an *en passant* mention. If the criticism is aimed — as is perhaps likely — at Aristotle, this rules out that Lucretius depended on a Peripatetic source for his arguments.¹⁵³

¹⁵¹ "Oppure . . . Lucrezio (cioè il suo fonte epicureo) pensa ad Aristotele, che faceva minerali piante e animali composti dei quattro elementi, e insieme faceva questi trasformabili l'uno nell'altro per rarefazione e condensazione . . .".

¹⁵² We shall see (below pages 122-126) that Epicurus mentioning *en passant* other quadruple pluralists while criticising Plato in column XXXIV of ΠΦ XIV.

¹⁵³ It seems very un-economical to suppose that Lucretius drew the confutation of the three Presocratics from more than one source, and that the information for his criticism of finite pluralism (only) did not come to him through Peripatetic sources.

I doubt that Lucretius himself formulated the idea of structuring his account by referring to the three categories. Supposing that Lucretius did this is at odds with the fact that he does not mention that Anaxagoras is the representative of infinite pluralism (above page 42). It is easier to suppose that an Epicurean source took the threefold structure according to the number of principles from its (Peripatetic) source,¹⁵⁴ but had perhaps removed the references to and separate consideration of individuals by name.¹⁵⁵ Alternatively it was Lucretius who removed the doxographical material. The arguments in the *critique* are aimed to dispel the possibility of any form of finite pluralism, just as the arguments against Heraclitus dispel any form of fire-monism, and monism more generally.

1.2.4 The Epicurean angle

The counter-arguments in the *critique* come from a distinctly Epicurean standpoint. Lucretius often deals with the Presocratics in Epicurean terms, which makes the

¹⁵⁴ It may well be that the division into categories was more complex in the source of Lucretius' source (cf. the subdivisions in Aristotle's *Physics* A. 2. 184b15 - A. 7. 191a22), and that Lucretius' source reduced all theories to the three categories without further separations.

¹⁵⁵ It is also possible that Lucretius' source started the process of removing the doxographical elements, and Lucretius took it further. Tatum (1984: 178) writes "our poet's innovations in this rather standard feature of Epicurean writing [Epicurean doxography] help explain the loose connection between the Presocratics he names and the criticisms he presents".

argument seem unfair.¹⁵⁶ The Epicurean standpoint is apparent in the fact that only the material στοιχεῖον is considered. Theophrastus in FHS&G 227A, influenced by Aristotle *Metaphysics* A 3 984a8, says that love and strife should be added to the four bodily elements, so Empedocles' elements were in fact six,¹⁵⁷ and Aëtius I. 3. 20 similarly mentions the two power-principles for Empedocles. *DRN* however only mentions the four elements. Similarly in FHS&G 228 Theophrastus considered the possibility of reading Anaxagoras as a dualist, but this is ignored in Lucretius' *critique* (and in Aëtius). No mention is made in the *critique* of Anaxagoras' Νοῦς, but only of his material theory.¹⁵⁸ Concentrating exclusively on the material element is a typically Epicurean approach, since for the Epicureans no other principle existed but the material one.

Such an exclusive concern with the physical στοιχεῖον may explain the puzzling fact that Plato's theory is omitted in Lucretius' account. The omission is surprising when one considers that Epicurus attacked that theory at length in book XIV of ΠΦ (columns XXXIV-XXXIX Leone). It is perhaps conceivable that Lucretius omitted Plato's theory because of the difficulty in adapting the terminology to hexameters, but the fact that Diogenes of Oenoanda's list also omits Plato (above note 127) suggests perhaps that

¹⁵⁶ Lenaghan 1967: 227.

¹⁵⁷ See further McDiarmid (1953: 107-108) on how Aristotle and Theophrastus emphasised Love and Strife in discussing Empedocles' elements and discussed whether they were material elements for him.

¹⁵⁸ Giussani 1898: 85.

Lucretius' source left Plato out, and Lucretius followed suit.¹⁵⁹

There is no evidence for the distinction between Presocratics and thinkers later than Socrates in antiquity, but Aristotle (in *Metaphysics* A. 4. 985b23 and A. 5. 987a29) sees the Pythagoreans, Socrates and Plato as concentrating on the formal cause whereas the Presocratics — as we call them — concentrated on the material cause, with Empedocles anticipating the formal cause. Both Aristotle and Theophrastus discuss nonetheless Plato's physical theories in specific contexts. It may be that the author of Lucretius' source (or, less probably, Lucretius himself) considered Plato's theory not to be a form of quadruple pluralism, because he followed Theophrastus in ascribing to Plato the 'god and matter' theory considered in Simplicius, which is also itself based on the *Timaeus*.¹⁶⁰

It is striking that the statements of Epicurean doctrine in the *critique* lay considerable emphasis on the movements and combination of atoms. Since Lucretius has not explained such atomic phenomena so far in the poem, the references to atomic combinations and motions in lines 677, 685, 800-801, 819-822 and 909-910 are beyond the reader, if he is new to Epicureanism.¹⁶¹

¹⁵⁹ It is also possible that Plato was treated separately from the Presocratics in Lucretius' source-text, and this induced Lucretius to leave Plato out.

¹⁶⁰ The fact that Epicurus criticised Plato's theory of shapes may involve that he considered Plato a quadruple pluralist, but this cannot perhaps be taken as granted. There is no specific remark to that effect in ΠΦ XIV.

¹⁶¹ One should perhaps note that *concilium* is mentioned in line 484 and lines 515-516.

This remarkable anticipation led Giussani to postulate a lacuna ahead of line 635,¹⁶² where Lucretius would have introduced such phenomena. This is unnecessary. The anticipation can be explained in two ways: either Lucretius got carried away in elaborating his own Epicurean argument and made an anticipation, or the anticipation is due to Lucretius' source. We may note however that if the references to combinations and movements of the atoms go back to Lucretius' source,¹⁶³ this is a certain clue that he was following an Epicurean text.

Let us now turn to the argument in lines 690-700, the second argument against Heraclitus,¹⁶⁴ which Bailey (1947: 713) describes as coming from a "characteristically

¹⁶² I wonder whether Asmis' (1989: 61-62) suggestion that Lucretius uses a rhetorical strategy of "anticipation" elsewhere in his poem can explain these anticipations in the *critique*. Asmis seems to overlook the anticipation of the *motus* in the *critique*.

¹⁶³ Below pages 236-238.

¹⁶⁴ I would argue that the arguments against Heraclitus are only three. The first, in lines 645-689, is physical: creation of things from fire is impossible either by condensation and rarefaction — which is at any rate excluded by denial of void — or by other means. The second argument, in lines 690-700, is the epistemological. As for the third argument (lines 701-704), Munro (1886b: 88) remarks that it is usual for Lucretius "to finish by some short argument appealing simply to the common sense of men, or to what they see going on before their eyes: see 759-762; 915-920; 984 (998)- 987 (1001)". Bailey (1947: 713) goes further: "the last argument . . . seems scarcely serious: 'why choose fire; anything else will do'. Perhaps he wished to call attention to the variety of ultimate substances selected by the different Monists". But the last argument, as suggested to me by Professor Sharples, is (whether or not Lucretius realised it) important: it stresses that it is arbitrary to select just one sensible substance, and we will see that it is arbitrary to select just four (Empedocles). What is distinctive about the atomists is that they select *none* (below note 175).

Epicurean point of view”.¹⁶⁵ Heraclitus is criticised for saying that the senses recognise fire truly, but they do not recognise all other things which are in truth fire.¹⁶⁶ It is clear that the arguments come from a standpoint which takes the senses as the ultimate guide for judgement.

Edwards (1989: 115) thinks that the criticism is unfair, given Heraclitus’ words in DK B55 (ἴσων ὄψις ἀκοῇ μάθησις, ταῦτα ἐγὼ προτιμέω), and that the caricature of Heraclitus may derive from a misreading of DK B107 (κακοὶ μάρτυρες ἀνθρώποισιν ὀφθαλμοὶ καὶ ὠτα βαρβάρους ψυχᾶς ἐχόντων). But DK B55 and DK B107 taken together suggest that Heraclitus distinguished ‘mere sensation’ from ‘intelligent interpretation’,¹⁶⁷ which is itself derived from the senses. KRS (188, note 2) point out that observation must be checked by νοῦς or φρόνησις, and compare

¹⁶⁵ It seems significant that the idea of movement of particles is applied to Heraclitus’ own theory in lines 680 and 681.

¹⁶⁶ Bailey 1947: 721.

¹⁶⁷ The fact that Colotes does not include Heraclitus among his targets perhaps indicates that the Epicureans did not disagree with him on the issue of how the evidence from senses should be used. It certainly suggests that he did not discredit the senses altogether. Munro (1886b: 87-88) refers to Aristotle *Metaphysics* A. 6. 987a32 . . . ταῖς Ἡρακλειτεῖσι δόξαις, ὡς ἀπάντων τῶν αἰσθητῶν ἀεὶ ρεόντων καὶ ἐπιστήμης περὶ αὐτῶν οὐκ οὔσης . . . to show that Heraclitus thought that the senses could not truly discern things. But this does not necessarily imply that the senses had no value for Heraclitus. Aristotle by “relying on the senses” sometimes means no more than “not doing Platonic-style metaphysics”.

Democritus.¹⁶⁸ There is no need to think that the argument in Lucretius derives from misunderstanding of statements regarding the senses specifically, or that it is a reaction against an “empiricist” reading of Heraclitus, as Robin suggests.¹⁶⁹ The argument exploits an apparent inconsistency in Heraclitus’ theory, apparent because Heraclitus would probably not have subscribed to the statement that *sensus ignem cognoscere vere* without qualification.¹⁷⁰ Heraclitus thought that anyone who did not realise that fire was also its opposite did not know what fire was (KRS: 190). If one assumes that the person who elaborated this argument knew of Heraclitus’ view on sensation, the presentation is tendentious.

¹⁶⁸ Democritus, Epicurus’ precursor, similarly to Heraclitus had reservations about how far evidence from the senses should be accepted (KRS: 413).

¹⁶⁹ Ernout-Robin 1924: 136. Robin suggests that the idea that Heraclitus ‘started from the senses’ is due to a Stoic (empiricist) interpretation of Heraclitus who in fact distrusted sensation, that Lucretius speaks of Heraclitus “à travers la doxographie péripatéticienne et surtout stoïcienne”. Even assuming that Heraclitus is interpreted as an empiricist in Lucretius, I doubt that there are grounds to suppose this is due to the influence of a Stoic reading.

¹⁷⁰ In line 699 Lucretius refers to the fact that judgement should be based on the senses. The principle has already been expressed *en passant* in lines 422-425. It is interesting that there is in *DRN* I a double anticipation of what is explained in book IV, see especially *DRN* IV 478-499 (although in these lines the argument is aimed at the Sceptics, rather than against someone whose reliance on the senses is selective). These anticipations are probably due to the fact that Lucretius’ source had explained knowledge through senses at the outset (or took it for granted).

Anaxagoras' views too are presented tendentiously in the *critique*.¹⁷¹ Lines 859, 860 and the lost line(s) ahead of 861 introduce ἐν παντὶ παντὸς μοῖρα as one horn of a dilemma with which Anaxagoras is confronted, and therefore as Anaxagoras' only way out of the difficulties his *homoeomeria* encounters. It is only in line 875 that Anaxagoras is credited with ἐν παντὶ παντὸς μοῖρα and the predominance rule, as a response to Lucretius' objection. But ἐν παντὶ παντὸς μοῖρα was an integral part of Anaxagoras' doctrine. Claiming one's opponent's argument as one's own helpful suggestion, before demolishing it, is not untypical. One may wonder whether Lucretius himself would have taken the liberty of modifying the doxographical information so drastically, had he been directly dependent on it.¹⁷²

The argument in lines 859-874 is also unfair, in that Lucretius presents the problem of nutrition as an independent objection, while Anaxagoras had addressed precisely that problem, as is shown by *De generatione animalium* A. 18. 723a11.¹⁷³ Aristotle's and Theophrastus' reports emphasised the importance of observations from nutrition in Anaxagoras' system. These reports influenced the commentators on Aristotle, and may have led Aëtius (I. 3. 5) to derive ἐν παντὶ παντὸς μοῖρα from considerations

¹⁷¹ Lucretius' *critique* ignores the no creation-no destruction aspect of Anaxagoras. The reason is that Anaxagoras' principles are "weak", and so perishable according to Lucretius.

¹⁷² It is clear from Aëtius I. 3. 5 that ἐν παντὶ παντὸς μοῖρα was an important part of Anaxagoras' doctrine.

¹⁷³ Brown 1983: 156.

concerning nutrition.¹⁷⁴

Given that Peripatetic and doxographical sources emphasised nutrition as an issue prompting Anaxagoras' theory of matter, it is remarkable that Lucretius presents nutrition as an independent objection in lines 859-866. One perhaps cannot rule out that Lucretius himself, working directly from a doxographical source himself, turned into an argument against Anaxagoras what the source text presented as Anaxagoras' starting point. But it may well be that an Epicurean author decided to confront Anaxagoras on what was thought to be his starting point, perhaps acknowledging that Anaxagoras had discussed it (and Lucretius obscured that element).

The argument relating to infinite divisibility in lines 746-752 against the quadruple pluralists and in line 844 against Anaxagoras — assuming that Lucretius did not introduce it himself — is likely to derive from an Epicurean and not from a Peripatetic source, or any other philosophical source. Aristotle's view was that matter and space are infinitely divisible in potentiality, meaning that actual divisions can be made anywhere, not that the infinite can be realised by making divisions everywhere. The arguments against infinite divisibility in the *critique* cannot derive from a Peripatetic source.

It also seems worth pointing out in this context that, although both Aristotle and the Epicureans are opposed to Anaxagoras, Lucretius' arguments against Anaxagoras show no similarity to Aristotle's. Cherniss (1964: 3-4) points out that Aristotle's

¹⁷⁴ Whether, as Jaeger thought, Anaxagoras derived his theory of matter from biological phenomena of growth and nourishment is perhaps open to question (Schofield 1975: 1-2 and 24), but Anaxagoras was certainly particularly interested in nutrition (KRS: 375).

objections to Anaxagoras' theory are that (a) an elemental component must be a simple body irresolvable into specifically different parts; (b) it is an error to make components unlimited in number, when we can achieve the same result by having a limited number of elements; (c) since a material body is said to be other than another in consequence of its proper differentiae and these are limited in number, it is evident that the elements are limited (*De caelo* Γ. 4. 302b30-303a3). There is no trace of criticism on any of these points in Lucretius.

Lucretius' arguments place little emphasis on the theory of juxtaposition of immutable elements, a distinctive aspect of Empedocles' theory. Aristotle, on the other hand, attacks Empedocles on that point in *De generatione et corruptione* A. 8. 325b20-25 (where Aristotle distinguishes between Empedocles and the Atomists, whereas previously he has been assimilating them). It seems likely that there is no criticism of Empedocles' specific theory of mixtures in the *critique* because Lucretius' Epicurean source accepted the importance of mixtures to create things in our experience.¹⁷⁵

¹⁷⁵ An Epicurean (or any atomist) *could* however have argued that since atoms are unlike *any* sensible substance in our experience, their juxtaposition can explain all sensible substances — something Aristotle would not himself accept —, whereas putting together bits of familiar stuffs such as fire and earth will just give one something which is partly fire and partly earth (Mourelatos 1973: 16-48). Why Lucretius, or his source, did not go down that route is unclear.

Conclusion

Assuming that an Epicurean text reviewing and criticising earlier theories of matter, comparable to the text on which Cicero based the list of δόξαι of the gods in *De natura deorum*, was available, is it more reasonable to suppose that Lucretius (a) chose himself the representatives for each category and picked the arguments which served the purpose of ruling out any form of monism, limited pluralism and unlimited pluralism from such a source, or to suppose that (b) some earlier Epicurean had done so?

Artistic constraints would have encouraged Lucretius to avoid a ‘doxographical list’, but the idea that Lucretius picked the three representatives from a source listing (and presumably criticising) many other δόξαι seems at odds with the kind of arguments we find in the section on Empedocles. It would require Lucretius to look up the δόξα of a ‘transformationist’ (lines 782-802) — which was presumably attached to a name label other than Empedocles’ — and include such a view in his confutation without making it clear that this argument did not touch Empedocles at all.

I consider it more likely, therefore, that an Epicurean author earlier than Lucretius had composed a text which refuted fire monism (and with it monism generally), limited pluralism and unlimited pluralism. The word ὑπόμνημα, as Obbink (1996: 81) remarks, can be used to describe the discussion of a philosophical topic under various heads and by way of discursive paraphrase of the work or thought of one or more thinkers: “thus the author follows a characteristic method of composition by compilation enumerating

as many *exempla* as possible, while elaborating only a select few”.¹⁷⁶

I am not sure one has to think, with Rösler (1973: 62), of a “doxographische Zusammenstellung” as Lucretius’ source. This depends on how loosely Rösler intended that expression. I doubt that an Epicurean text listing ‘all’ (or at least many of) the views on the fundamental nature of matter is more likely to have been the source than an Epicurean ‘polemical’ text which criticised the views of the categories of monism, finite pluralism, and infinite pluralism (which would save going into details of the δόξα of each thinker). It is perhaps likely, although it cannot be proved, that the source named Heraclitus and Empedocles within those categories,¹⁷⁷ although it may have named other thinkers too. Even if Lucretius’ source text did single out and name just the three Presocratics, it seem likely that the source would have distinguished the criticism of Empedocles from that of other forms of limited pluralism more clearly than Lucretius does.¹⁷⁸ The author of the source certainly drew at least some of his information, either directly or indirectly, from Peripatetic doxography. The next question, which I consider in chapter 2, is whether books XIV and XV of Epicurus’ ΠΦ were Lucretius’ source.

¹⁷⁶ Obbink (1996: 81, note 3) notes that “the method of suggesting the many while elaborating only one or two instances” is found in Cicero’s philosophical prose.

¹⁷⁷ Anaxagoras is clearly the focus of the section on unlimited pluralism; there can be little doubt that he was named in the source.

¹⁷⁸ It is unlikely that such a text would have been a whole, dedicated work. It seems easier to think in terms of a section of a work the aim of which was to succinctly yet comprehensively rule out earlier physical theories on the fundamental nature of matter, presumably while expounding atomism.

Chapter 2. Books XIV and XV of Epicurus' ΠΦ.

Sedley argues that Lucretius used books XIV and XV of ΠΦ specifically¹⁷⁹ as the source for his *critique* of earlier theories of matter.¹⁸⁰ He maintains (1984: 384) that books XIV and XV contained “the original systematic refutation of rival theories of the elements” on which Lucretius drew and (1998: 125) that “our assumption of thematic unity for books XIV-XV suggests that the surviving sections formed part of a more extended critique, filling most of the book (albeit, no doubt, after some methodological preliminaries)”.¹⁸¹ Sedley’s theory is attractive because it implies that Lucretius used Epicurus’ ΠΦ as his source throughout his poem, but it requires that Lucretius drastically altered the order of topics he would have found in Epicurus’s ΠΦ, an alteration which Sedley explains as the result of the supposed wholesale ‘second-phase

¹⁷⁹ Giussani, who also thought that ΠΦ was Lucretius’ source, did not speculate on which book, below page 220.

¹⁸⁰ Philippson (1937: 473) had already suggested that book XIV was Lucretius’ source, either directly (as Sedley thinks) or indirectly: “Danach ist es wahrscheinlich, daß Lukrez für diese Elementenkritik unmittelbar oder mittelbar die unsres Buches benutzt hat”. Leone (1984: 34) refers to Philippson’s article, and it is surprising that he is not mentioned in Sedley 1998.

¹⁸¹ Leone (1984: 35) endorses Sedley’s theory that the criticism of Plato is part of a systematic criticism of all rival theories.

revision' of *DRN*.¹⁸² In this chapter I shall give my reasons for thinking that books XIV and XV of the ΠΦ were not Lucretius' source.¹⁸³

2.1 The content of Books XIV and XV

Analysis of the remains of ΠΦ XIV and XV suggests that: (2.1.1) ΠΦ XIV was not dedicated to 'systematic polemic'; (2.1.2) Epicurus did not choose Heraclitus as the only representative of physical monist theories in ΠΦ XIV, and perhaps did not consider him at all; (2.1.3) Epicurus did not confute Empedocles in book XIV, instead he criticised Plato, who does not appear in Lucretius' *critique*, at length; (2.1.4) ΠΦ XV was not dedicated to criticism of Anaxagoras' theory of matter: the use of ὁμοιομερ-forms — specifically the noun ὁμοιομέρεια and the adjective ὁμοιομερής — proves little, because Epicurus used the word to refer to concepts relating to his own theory. Even if Anaxagoras' theory is referred to (which seems possible in only one of the occurrences), this was to set Anaxagoras' use of ὁμοιομέρεια against Epicurus' own use. These four points indicate that Lucretius did not use ΠΦ XIV and XV as direct source for his *critique*.

¹⁸² Below Appendix (a), pages 389-391.

¹⁸³ On the characteristics of Lucretius' source text, see above pages 78-79. ΠΦ XIV and XV, according to Sedley, contained a longer and more comprehensive list of thinkers, although he does not stress how selective and cavalier in the use of his Greek source Lucretius would have been had that been the case.

2.1.1 Book XIV was not dedicated to polemic.

It is not inconceivable that Epicurus, who had a polemical attitude,¹⁸⁴ dedicated two books of his physical treatise to systematic refutation of earlier thinkers' theories of matter. He may have followed Aristotle's and Theophrastus' example by emphasising consideration of earlier thinkers' views. But there is no certain evidence that Epicurus was in the habit of composing systematic reviews of opponents' δόξαι on particular topics. The titles *Περὶ παθῶν δόξαι πρὸς Τιμοκράτην* and *Περὶ νόσων δόξαι πρὸς Μίθρην* (Diogenes Laertius X. 28) may well have been collections of Epicurus' own δόξαι, just like the *Κύρια δοξαι* (Diogenes Laertius X.27), assuming these are the *Κύρια δοξαι* which Diogenes lists in X. 139-154. Epicurus' lost 'Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς *may* have contained systematic criticism in a list such as Sedley envisages for books XIV and XV.¹⁸⁵ The evidence from the rolls suggests that books XIV and XV were not dedicated to systematic refutation of theories of matter.

2.1.1.1 Evidence from the format of *PHerc.* 1148

The remains of *PHerc.* 1148, the roll 'preserving' ΠΦ book XIV, are kept in 11 frames.

¹⁸⁴ Above pages 48-49.

¹⁸⁵ On whether Epicurus' lost 'Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς was a summary of ΠΦ XIV and XV, below page 194. On whether it was the source of Lucretius' *critique*, below page 254.

All the fragments come from the upper part of the *midollo* ('marrow'), that is, the innermost layers of the papyrus roll. The fragments come from the concluding columns of book XIV. Of these columns only the top lines are preserved. In some of these columns Epicurus refutes the monist theory according to which all things can derive from a single φύσις through process of condensation and rarefaction. Epicurus then proceeds to refute Plato's σχήματα-theory, according to which a particular regular polyhedra (composed of triangular planes) corresponds to each of the elements.

Columns XXIV- XL¹⁸⁵ of Leone's edition all either introduce polemic or actually attack other thinkers' theories. Since these make up the overwhelming majority of those columns the content of which can be determined with reasonable confidence, the evidence seems *prima facie* to speak in favour of Sedley's thesis. But 27 columns constitute only a very limited portion of the whole roll. It seems clear that the whole of book XIV occupied between 175-214 columns, as is argued in Appendix (b).

The 27 columns attacking opponents, including, as we shall see, a lengthy introduction and justification of such polemic, and re-statements of Epicurus' own doctrine, made up at the very most about a sixth of the whole book. It seems dangerous to make assumptions about the overall content of the book judging from such a small section of it.

¹⁸⁵ Columns XXXIX(end)-XLIII are also in some sense polemical, but are 'defensive'. Epicurus is defending himself from a charge of being unoriginal (probably on the grounds that he used terms, such as perhaps στοιχείον, borrowed from other thinkers; below note 245).

2.1.1.2 Columns I-XXII

A striking feature of *PHerc.* 1148 is the frequency with which the terms σύγκρισις and σχῆμα occur in the extremely fragmentary columns I-XXII,¹⁸⁶ the earliest columns of those preserved. The two words are used in conjunction with terms such as αὐξῆς παράλλαγματα (column II), διάθεσις (fragment 19, and probably to be restored to column XVI), περιφερεία and περιπλοκή (column *a*), διαφόρους φύσεις (fragment 18), μεταβάσεις (column III and VIII), ζεύγυσθαι (column XI), ἀναλύσεις (fragments 21 and 43), περιλήψεις (fragment 19) and ἄθροισμα (fragment 52). This evidence, taken in conjunction with the scholium to *Ad Herodotum* 40,¹⁸⁷ suggests that the ‘main’ topic of books XIV and XV is how atoms came together to produce aggregates.

¹⁸⁶ See columns VI, XIII, XV, XXII; fragments 16, 19, 30, 39 and 52; τὰς συ[γκρίσεις should also perhaps be restored to line 3 of column XX. I doubt that the appearance of the verb ἐφλεγε in line 2 of fragment 37 is an indication that Epicurus was considering Heraclitus’ fire monism here. Epicurus may well have explained how flames came about according to his theory of aggregates, anticipating his discussion of flames when dealing with Plato’ theory (below pages 139-141). More suggestive are perhaps στοι]χεία[in fragment 24 and ἀρχὴν in column XIX, but these are isolated words, without context.

¹⁸⁷ Καὶ μὴν καὶ τῶν [τοῦτο καὶ ἐν τῇ πρώτῃ Περὶ φύσεως <φησι> καὶ τῇ ιδ’ καὶ ιε’ καὶ ἐν τῇ Μεγάλῃ ἐπιτομῇ] σωμάτων τὰ μὲν ἐστὶν συγκρίσεις, τὰ δ’ ἐξ ὧν αἱ συγκρίσεις πεποίηνται. It is reasonable to suppose that Diogenes Laertius, or, perhaps, his copyist, reproduced the *scholia* he found in the text of Epicurus he was copying, rather than these being annotations on Diogenes.

Sedley (1998: 123), on the contrary, proposes that the συγκρίσεις were introduced as a part of the systematic confutation of earlier thinkers which the book allegedly contained. Epicurus, while criticizing others on how matter was formed, would have decided to show how his theory is superior to rival ones, as Lucretius does a number of times in his *critique*. Presumably this incidental discussion of aggregates would have arisen out of his confutation of other monists, which preceded the confutation of monism we read in the fragments of *cornici* 7 and 8.

It is unlikely, however, that Epicurus embarked on an extended and detailed digression about his own theory of aggregates in two successive books, just to show where others went astray and that his theory was superior to theirs. It seems improbable that it is just by chance that fragments of such digressions survive. One may also wonder whether Epicurus would have introduced two extensive digressions on aggregates if, as Sedley argues, he had already given a full account of aggregates in the early books of ΠΦ.¹⁸⁸ Sedley's reading of the evidence is by no means more probable or economical than the alternative reading, according to which books XIV and XV contained the main account of atomic aggregation, and of how such a process of aggregation could explain

¹⁸⁸ This is on the basis of text [36. 24] Arrighetti, where Epicurus refers back to his treatment of τὰ[ς] πρὸ[ς] ἀλλήλας κρούσεις in book I. One might also wonder whether there would have been enough space in ΠΦ I for a *full* account of aggregates since many topics are attributed to that book (below pages 222-227). In ΠΦ I Epicurus presumably presented only preliminary remarks on aggregates, and came back to the topic in far greater detail in books XIV and XV.

things in our experience.¹⁸⁹

Probably what happened in ΠΦ XIV is that when explaining how atoms combine to produce things in our experience, Epicurus decided to make clear, first, that the monist theory according to which air produces all things through condensation and rarefaction was unacceptable and, second, that another alternative to his theory of aggregates, Plato's regular polyhedra, could not satisfactorily explain how things are formed either.¹⁹⁰ Epicurus was not set upon producing a 'comprehensive' refutation of earlier theories on the στοιχείον proper.¹⁹¹ I will now consider the columns in *cornice* 6 of *PHerc.* 1148, which provide evidence for the structure of the book and support, in my view, the suggestion that the attack against the monists and Plato was incidental.¹⁹²

¹⁸⁹ One may wonder whether the συγκρίσεις could have been the only topic of both XIV and XV. Presumably an account of aggregates could have filled both books, if a number of digressions were included.

¹⁹⁰ Longo Auricchio (1992: 110) remarks: "Epicurus' polemic against Plato's doctrine of the elements in the *Timaeus* outlines the discussion of a basic subject, viz. the shape of aggregates resulting from the inconceivably large number of atomic shapes of which they are composed". I would suggest that the theme of the latter part of the book ran roughly as follows: 'look at how easily aggregates of atoms can produce all the different shapes of objects in our experience! And compare this with condensation and rarefaction as used by the monists, or Plato's triangular shapes!'

¹⁹¹ This would explain very well why Epicurus deals only with the part of Plato's theory which considers the triangles.

¹⁹² Philippson (1937: 469) and Leone (1984: 32) hold that in book XIV a theoretical section was followed by a polemical section. Arrighetti (1975: 49) argues that book II, book XI and *PHerc.* 1420 (which as Laursen (1995) has established is part of ΠΦ XXV). did the same. Indeed in the case of the latter we can follow the transition from the theoretical section (20 B and 20 C (1) in Long-Sedley) to the polemical section

2.1.1.3 Columns XXIII and XXIV

Leone rediscovered column XXIV, believed lost by Vogliano, Philippson and Arrighetti, in *pezzo* II of *cornice* VI.¹⁹³ This fragment reads:

ἀ-]||

γαπητ[ὸ]ν καὶ τοῦτ[ο], τὸ 1
δὴ πάντα τὸν συνε[χό]με-
νον [ταῖς] τοιαύταις περι-
εργ[ε]ίαις ἔχειν οἷονι φάρ-
μα[κ]ον, δι' οὐ καταστάσεις 5
απλ[.]ν[.]ν ἐν τῇι περὶ φύ-
σε[ως θεωρί]αι ἀπαλλαγῆ-
σε[σ]θαι τῆς συμφύτου ἔαυ-
τα[ῖς ταραχ]ῆς ἢ καὶ ὅστε-
ρον [. . . .] . η ποτ' [έ]ν τῇι 10

(20 C (2) - 20 C (14)). Similarly columns V- XXI of ΠΦ XXXIV (*PHerc.* 1431) are polemic (see especially column XIV; Leone 2002: 58); unfortunately we do not know what came ahead of them. It is interesting that XXII-XXV seem to have had, with a pattern very similar to that of book XIV, discussion of methodological issues and a formal close (Leone 2002: 38-39). For polemic in other books ΠΦ, above note 92.

¹⁹³ But this does not, in my view, guarantee that it came immediately after column XXIII.

ἀ|γαπητ[ὸ]ν Arrighetti 1-5 Leone 6 ἀπλ[ᾶς ἔστι]ν Leone sed spatio longius 7 Leone 8
σε[σθαι τῆς σ]υμφύτου Leone 9 Leone 10 ρον [. . .] ηπο . . . σιτ . . Leone

It looks as though Epicurus was introducing his polemic in this column, by pointing out that his theory was the φάρμακον which cured the anxiety produced by philosophical speculation on how matter was formed, although it is not immediately evident how air-monism and Plato's theory of σχήματα should produce anxiety.¹⁹⁴ Epicurus' agenda is, explicitly, to provide a remedy against theories by others which may cause ταραχή in his pupils.

The introduction of the polemic, however, had started earlier than column XXIV. The mention of ἰατρεία in line 3 and εὐ]ετηρίας in line 7 of column XXIII should most probably also be explained in relation to Epicurus' theory of aggregates as a remedy for false views, views which may disturb our tranquillity. Column XXI appears to be the start of a new topic:

δε [μ]έχρι δὲ πα[.
των οὐ προσδ[εόμεθα τῶν πα-
ρὰ τοῦ πέλας [δοξαζόμενων·

¹⁹⁴ Perhaps the fact that Anaximenes thought air was divine, and the role of the Demiurge in Plato is what Epicurus had in mind.

ἀ[λ]λὰ ταῦτα [σαφῶς εἶρηκα·

βαδιστέον δ[ὲ νῦν εἰς τὸ 5

ὄλως ἀπ[ο]φαι[ίνεσθαι. . .

] ἐτέκθη α[

1 legi; [μ]έχρι δὲ πα[Leone 2-6 Leone 7 legi; ε . ηκενα Leone

Even if one wishes to be sceptical about Leone's restorations, the term βαδιστέον suggests that we have a transition here from one section to another.

One would be tempted to conclude that XXI introduced the polemical section of the book, but columns XI and XII,¹⁹⁵ which come from *cornice* 3, may suggest Epicurus was already considering other thinkers' views. Column XI reads:

. .]ομένην ὑπ' αὐτῆς φα[ντα-

σί]αν ἰσχυρῶς . . [.] καὶ λα[. . -

. .]ν· οὐ πρὸς ἐπιδείξιν [. . .

¹⁹⁵ Where columns XI and XII came on the roll is uncertain. The way in which they appear in the *cornice* suggests they were not successive columns. It is at least conceivable that the two columns come from two different layers of the roll.

. .] . ως τοῦ λαχεῖν ἢ τῶ[ν . . .

. . .]δικῶν λόγων ἔκθ[εσιν 5

. .] . ο ἀλλὰ πρὸς] κη[

. .]τρόπων δ . [

] . . ητησιν [

There are traces consistent with a large π in the upper margin 2 η is inserted above the line in the gap just before καὶ 4 λαχεῖν the traces would allow, slightly less comfortably, for καλεῖν

1-2 supplevi 2 legi; ---]ν· ισχυρο α [.] μ Leone 4 legi; ---]ως τοῦ [. . .]εῖν ἢ τῶ[ν --- Leone 5 supplevi; εἰ]δικῶν λόγων ἔκ[Leone (εἰ]δικῶν proposuit Gigante) 6 Leone 7 legi; ---]ρ [τ]ῶνδ[ε --- Leone 8 fortasse ζ]ήτησιν

If we restore, as seems possible, ἀ]δικῶν in place of Leone's εἰ]δικῶν in line 5, Epicurus would seem to be already introducing polemic in this column. The verb λαχεῖν in line 4 would support such a suggestion. The reading however is not certain, see *appartus*. Assuming that λαχεῖν is right οὐ πρὸς in line 3 indicates that Epicurus was not proceeding to (or aiming at) an ἐπιδείξις . . . τοῦ λαχεῖν, but to another topic (ἀλλὰ πρὸς of line 6).

Column XII may also have mentioned criticism of the views of others:

.] . ητι ού πρ [.] . .
] . αὐτῶι η . . αι μ .
] . ις πρὸς ἐκάστας τῶ[ν]
 [κενῶν] ἐπιφορῶν καὶ τάρρα-
 χὸν δια]σκευαζουσῶν πρ . - 5
]ίζηται ἀλ-
 λ]τωι· ἔκθεσιν
 καὶ ἐπι]δείξιιν ἀν πρά-
]ταιῶι ἀ καθε[
] . . . α τηρησ[. .] . 10
 . . .]οι βου[λ]ομένων υ . [
 . . . θ]αυμα[

1]σητι ού πρ[. Leone 2 legi; . . . τῶ]ν αὐτῶν [. . .] μ[. . Leone 3]ης
 πρὸς ἐκάστας τῶ[ν] Leone 4 Leone 5 χὸν παρα]σκευαζουσῶν· [. . . Leone sed spatio longius
 6]ητα[. . . Leone 7 ---]ων· ἔκθεσιν Leone 8 legi et supplevi; ---] . ναν πρα Leone 9 legi; ια
 καθ' ὧ[ν Leone 10 legi; ---]ηρησ[. . Leone 11 legi;]ομένωι [. . . Leone 12 legi

The remains in *cornice* 3 are so full of *sottoposti* and *sovrapposti*, and the *sezioni*¹⁹⁶ are so unclear, that one cannot be certain what layer of the roll we are reading at this point. Probably they belong four or five columns before column XXI, where, as we have seen, Epicurus moved on to treat a fresh topic.

It is uncertain however precisely how Epicurus used ἐπιφορά. Proposed translations are “riferimento” or “conclusionone” (Arrighetti), “proposition” (Millot), “conclusionone di un ragionamento” or “modo di ragionare” (Leone). Epicurus uses ἐπιφορά later on in the book in connection with other thinkers. In column XLI Epicurus uses ἐπιφορά thus: “whenever someone praises τὸ τοῦδέ τινος ἐπιφορᾶς ὀρθῆς εἶδος (the appearance of someone else’s correct proposal) and then that made by someone else, . . .”. And in column XLII Epicurus writes . . . λελυμασμένους καὶ τὸ ἀπὸ τύχης τ[ῆ]ς φύσ[ε]ως αὐτῶν ὀρθὸν ἐπιφορᾶς εἶδος. . .¹⁹⁷ He may have been thinking in terms of other thinkers’ δόξαι by ἕκαστας τῶν ἐπιφορῶν in column XII, but we have no clue as to what topic such ἐπιφοραί regarded.¹⁹⁸

¹⁹⁶ The *sezioni* are the vertical marks (grooves) which were made on both sides of the rolls by the compression under ashes/lava. Measuring the *sezioni* enables us to establish the order of the fragments and to determine whether columns are lost between one frame and another.

¹⁹⁷ On Epicurus’ use of ἐπιφορά see further below, pages 179-181.

¹⁹⁸ Making the polemical section start as early as column XII does not seem satisfactory, since the evidence suggests that the preceding and following columns dealt with aggregates (Leone 1984: 72-73). It may be that Epicurus did start a section dedicated to polemic in column XXI. It is also possible that something has again gone wrong with the disposition of the fragments in the frames.

2.1.1.4 Evidence from the *sezioni*

The size of the *sezioni* on *PHerc.* 1148 indicates that the fragments conserved in *cornice* 8, that is, columns XXX to XXXIII in Leone's edition, originally came ahead of those in *cornice* 7, namely columns XXVII to XXIX.¹⁹⁹ Thus the original order of the columns was XXVI, XXX, XXXI, "XXXIII", "XXXII", XXVII, XXVIII, XXIX, XXXIV. Column XXX, which was previously thought, because of its position, to be part of the criticism of air monism, is in fact part of the previous section, in which Epicurus introduced his polemic against earlier thinkers.²⁰⁰

And it looks as though the section introducing the polemic spread throughout columns XXIII - XXIV-XXVI-XXX. Column XXX reads:

νες ἄνδρες πρᾶτ[τουσιν, ἀλ-
λὰ καὶ τῶν προσα[γ]ορευομ[έ-

¹⁹⁹ The first *sezione* of *cornice* 8 is 37.00 mm and it looks as though the second was just as wide, although the *sezione*-break cannot be seen clearly. The following circumference (two *sezioni*) is *circa* 72 mm wide. The next circumference comes after 81.50 mm., which does not make sense, but fragments are only joined by a thin layer of *pelle* (so the way in which they were glued down might explain the oddity). The final stretch of fabric in *cornice* 8 measures *circa* 66 mm but this may not be a complete circumference. The *sezioni* in *cornice* 7 are even less clear. No *sezione* mark can be seen in the first 55.00 mm, but the following two circumferences measure 70 mm. and *circa* 68.00 mm.

²⁰⁰ On this section see below 2.1.3.

νων ἰφιλοσόφων, οὓς, ναὶ μὰ τό[ν] ἔλπ[ο-
 μαι, εἰ δεῖ, καὶ Δημόκριτο[ν],
 ὧς ὀνομάσαι · ἄρ' ἂν ἐ[π]εσταί- 5
 μεν πρὸς πᾶσι τ[αῖς] ἐν το[ῖς]
 μετεώροις καὶ ν[. . . .] εἰσιν
 ἐπινόαις καὶ θ[. . . .] του-
 τὸ [κ]ατὰ λέξι[
 αν ἀπολαβεῖν τ[10
 δὲ τῆς ἀδ[υ]νά[της -
 μεν οὐδ' αὐτῶν [

3 ἰφιλοσόφων' is added above the line, seemingly by the same hand; one cannot perhaps be certain it was part of the original text 5 the traces of the sigma of ὀνομάσαι are not clear, ὀνομά<σ>θαί may be the correct reading; ἰστῆ[π]σαί: ἰ rather than τ, but ἰ gives no sense

0-1 τι|νες Hayter: βελτίο|νες Gigante 1-4 Leone 5-6 ἐ[νι]στ[αι]-|μεν Leone 6 dubitanter supplevi
 ; μεν πρὸς πᾶσ . . τ[. .] ἐν το[ῖς] Leone; το[ῖς] πᾶσιν . . . [.] ἐν το[ῖς] Arrighetti 7 μετεώροις
 κα[. . . .] εἰσιν Leone 8 ἐπινόαις κα[ἰ τ]οῦ- Leone 9 τὸ [κ]ατα [.] ἐξ [- - - Leone
 11 legi; δὲ τῆς . . να Leone [- - - 12 legi; μένου [.] αὐτῶ[- - - Leone

This column seems best understood as part of an introduction of the philosophical opponents Epicurus is about to attack, rather than as coming in the middle of the confutation of air-monism. Epicurus thus dedicated more space to his justification of polemic than to his criticism of air-monism. It is unlikely that, if the whole of book XIV were dedicated to ‘systematic polemic’, Epicurus would include such an extended introductory section on why other thinkers’ views should be dispelled, and how his theory could dispel them, so late in the book.

Leone’s translation “ma anche dei cosiddetti filosofi, che per il dio, io spero che anche Democrito abbia denominato così, se proprio è necessario dare loro un nome” gives a rather awkward sense. It is not clear who Democritus meant by “philosophers” (Plato being later than him), and why Epicurus should have hoped that he had called them thus. Perhaps the sense of the fragment was something like: “I am not sure whether one should call [not only these thinkers but] even Democritus a philosopher”. But such a meaning, and construction, is not attested for ἐλπίζω / ἔλπομαι.²⁰¹

In column XXXI, which immediately followed column XXX, Epicurus seems to have gone back to an aspect of his own theory, perhaps to explain some phenomenon in our experience. He then introduced the theory according to which a single φύσις undergoes changes of nature:

²⁰¹ This problem is so puzzling that I would not rule out that some of the letters come from a different layer of the roll.

κατὰ μι-]	
κρὸν πολλοὺς ὄγκ[ους δε -	1
ξομένης· καὶ ἄλλ[ων συγ-	
κρίσεων· εἰς το [.]αἰ	
τῶν τὸ καθόλ[ου . . . συνι]σ-	
ταμένων κ[. οὐ]ρα-	5
νοῦ[·] γε [.]αν	
τα . α . [. κ]αἰ	
ἄραι[ώ]σει [.]ε μία[
δε ἀρχὴν ποιει[
ἐπιφέρου το [. μετα-	10
βολὰς δεχομέν[. -	
ρισε . [
ὁ γὰρ[ρ] καὶ [
. κοι· το . [
δύνα[15
τὴν αἴσ[θησιν	
καὶ ση[μει	
οιοντ . [
τοῦ ἀέρ[ο]ς [
. ατ	20

There seems to be ink in the top margin, perhaps a large letter 3 the letters]αφα[after τὸ [.] are perhaps from a different layer 4 the letters]υ απ[after καθόλ are probably from a different layer 6 the letters]αγωμ . ν[after . ελ[are perhaps from a different layer 7 the letters . θαι after . α . [. are probably from a different layer 8 άραι[ώσ]ει the omega must have been written small for the two letters to fit in the gap

0-1 Gigante Leone 1-2 Gigante Leone 4-5 συνι]σ|ταμένων Gigante Leone 5-6 ού]ρα|νοῦ Gigante Leone 7 legi τα π[. . . .]αι πυ[. . .]αμεν Leone 8 άραι[ώσ]ει Leone dubitanter scripsi; si recte resituatur πυκνώσει κ]αὶ in linea septima legendum sit 9 legi [.]ε άρχήν πε[Leone 10-11 μετα|βολὰς δεχομεν[- - - Leone; έπι|βολὰς δεῖν κο[Arrighetti 16 supplevi; τήν .[Leone 17 legi; καὶ σ . τ [- -] Leone

Epicurus was talking about compounds here. The idea seems to be that one compound gradually takes in many ὄγκοι. It looks as though Epicurus used ὄγκοι to refer to groups of atoms which preserved the characteristics of the whole compound, although he also used it to refer to “physical parts” generally.²⁰² It is used for minimal parts (*Ad Herodotum* 54, 56 and 57), and for parts of earth which move in earthquakes (*Ad Pythoclem* 105). The occurrence in ΠΦ XXV Laursen 3.2.1 (1995: 104) is indecisive,

²⁰² According to Furley (1967: 12) ὄγκος refers to anything with three dimensions (“quantities” or “quanta”), although he translates “parts” for convenience.

although it could refer to *nuclei* of atoms.²⁰³ In *Ad Herodotum* 69 ὄγκοι is used to refer to parts of a compound, parts which can vary in size from the smallest parts to parts just inferior to the whole compound. Epicurus similarly uses ὄγκοι for parts of a “stream” which are presumably groupings of atoms (*Ad Herodotum* 52 and 53; below page 142). And in Arrighetti text [21] [3] we read that Epicurus προστίθησι δὲ ὅτι πολλάκις οὐδ’ ἦλθεν εἰς τὸ σῶμα θερμαντικὴν ἐπιφέρων ἢ ψυκτικὴν δύναμιν ὁ οἶνος,²⁰⁴ ἀλλὰ κινήεντος τοῦ ὄγκου καὶ γενομένης τῶν σωμάτων μεταστάσεως αἱ ποιούσαι τὸ θερμὸν ἄτομοι νῦν μὲν συνήλθον εἰς τὸ αὐτὸ καὶ παρέσχον ὑπὸ πλήθους θερμότητα καὶ πύρωσιν τῷ σώματι, νῦν δ’ ἐκπεσοῦσαι κατέψυχαν. It seems likely that by ὄγκοι in column XXXI Lucretius was referring to a compound taking in molecules.²⁰⁵ Giussani (1896: 78-84) argues that

²⁰³ Epicurus writes: ἐξ ὄγκων [ων] εἶναι σω|ματικῶν πεποιημέ|νον, εἶτα τὸ κοινὸν ἐαυ|τῆς ἐπεθεώρησε [ν] πά|θος ὡς οὐδὲ διανοηθῆ|ναι ἀλλὰ δύναται παρ|[ἐ]κ τούτων, ἂν τε σώ|ματα [+ 3/4] . ν ἂν τε κα[ῖ]| τὸν τρό[π]ον πρὸς ἀνα-|λογία[ν . .] καὶ γὰρ |. . . Unfortunately it is unclear what πεποιημέ|νον refers to; Diano thought the fourth element of the soul, Laursen suggests a πάθος, a φάτασμα or an ἀπογεγεννημένον. Laursen (1995: 59) does not rule out that ὄγκοι here refers to atoms; I find this very unlikely. According to Usener and Arrighetti (1973: 330) the subject of ἐπεθεώρησε was ψυχή, but Laursen (1995: 59) prefers δίανοια. Laursen’s κα[ῖ]| τὸν τρό[π]ον does not seem very convincing, κα[τά] is perhaps preferable.

²⁰⁴ Note how Epicurus seems to have *Timaeus* 60A in mind, and to be correcting Plato.

²⁰⁵ Further evidence may come from *Ad Pythoclem* 109: κρύσταλλος συντελεῖται καὶ κατ’ ἐκθλίψιν μὲν τοῦ περιφεροῦς σχηματισμοῦ ἐκ τοῦ ὕδατος, σύνωσιν δὲ τῶν σκαληνῶν καὶ ὄξυγωνίων τῶν ἐν τῇ ὕδατι ὑπαρχόντων, καὶ κατὰ ἐξωθεν δὲ τῶν τοιούτων πρόσκρισιν, ἃ συνελασθέντα πῆξιν τῷ ὕδατι παρεσκεύασε, ποσὰ τῶν περιφερῶν ἐκθλίψαντα. It may be that

Epicurus' ὄγκοι (Lucretius' *cacumina*) are the minimal parts of a substance which still have the properties of that substance, and that therefore Epicurus had a theory of molecules.

Giussani argues that (a) in the argument which *DRN* II 391-397 reproduce Epicurus' point was not that the *foramina* of a *colum* are too small for atoms, but that they are too small for the molecules,²⁰⁶ that (b) in lines 451-455 — where he (unnecessarily) places line 454 before 453 — the *glomeramina* are ὄγκοι of the liquids (referring also to *DRN* II 686), that (c) that in *DRN* IV 108-124 Lucretius' use of *primordia* in line 118 is careless, since the reference in the source could not have been to atoms, but to molecules (1896: 82). The problem with (a) is that both the size of the molecules of oil, and the fineness of the images themselves may depend on the size of the atoms which made up the compound (as well as, presumably, the number of atoms in the compound). It is not inconceivable that Epicurus was commenting on the size and shape of the atoms in the passages Lucretius reproduces, but in the context of the difference the size and shape of the atoms makes when they are joined in a molecule. In passage (b) the expression *nec retinentur enim inter se glomeramina quaeque* of line

Lucretius is referring to atoms here by τοῦ περιφεροῦς σχηματισμοῦ and τῶν σκαληνῶν καὶ ὄξυγωνίων. But it is certainly possible that he is referring to molecules which had that shape. One may indeed wonder whether Epicurus would have wanted to be so specific about the shape the atoms had. *Ad Pythoclem* 110 similarly suggests as a possible explanation of the rainbow that the aggregate of atoms assumes a round shape (περιφέρεια). This seems to suggest specific shapes for a compound, although it is referred to in a possible (rather than certain) explanation, and the rainbow may be a very special case.

²⁰⁶ Bailey (1947: 866) agrees with Giussani that in (a) Lucretius is misunderstanding Epicurus.

454 is interesting. Bailey (1947: 876-878) agrees with Giussani that *glomeramina* here refers to the round *nuclei* of water, although he is not happy with giving *glomeramen* the technical sense of molecule. Even if *glomeramina* does not refer to molecules but to atoms, a point is still being made about the way in which the atoms come together (*inter se*) as a result of their qualities rather than to the qualities of the atoms themselves. As far as (c) is concerned in *Ad Herodotum* 48 Epicurus comments on the fineness of the images themselves, not of their component atoms, which seems to support Giussani. The evidence from *DRN* is perhaps not enough by itself to attribute a theory of molecules to Epicurus, but when one adds the references which Epicurus makes to molecules, or at least the importance of the shape of the aggregates, it is tempting to credit him with such a theory.

There is one piece of evidence that seems to suggest that the difference of the atoms themselves, and not of the compounds, is important for determining whether a thought is taken in by the πόροι, presumably of our mind. ΠΦ XXV *PHerc.* 1191 fragment 6.2.2.3 and *PHerc.* 1420 fragment 2.2.1 join at this point (Laursen 1995: 91):

-τοις μ]εμ μάλ-

λον, τοις δ'

ήττον, τοις δ' ὄλωσ ἐπὶ βρα[χύ]

τι καὶ οὐκ ἐντυπῶν πάλιν

τινων καὶ πρὸς τὴν διανο-

ητικὴν σύγκρισιν (ὁμοιοσχη-
 μόνων τοῖς πρὸς τὰδε τὰ αἰσ- 5
 θητήρια) παρεμπιπτόν-
 των ἐκ τοῦ [ἐ]κείθεν προοδο-
 ποιη[[η]θῆναι τὰ γε δὴ πολ-
 λά, ἐχούσης μὲν καὶ αὐ-
 τῆς τῆς συστάσεως τῆς 10
 διὰ τῶν στοιχείων αἰ-
 τίας παρὰ τὴν τῶν
 ἀτ[ό]μων διαφορὰν
 καὶ τῶν προὔπαρχόν-
 των πόρων· ** οὐ μὴν 15
 ἀ]λλ[ὰ] καὶ τοῦ ἀπογεγε[νη-
 μέν[ου] νοηθέντο[ς]

Arrighetti (1973: 640) thought that Epicurus was talking about the composition of the soul here and that he used στοιχεῖα “nell’ accezione presocratica di elementi (aria e fuoco)” which we know from *DRN* III 231-257 made up the soul. Laursen (1995: 52-53) stresses that ἐντυπῶν in line 2 is the text of the papyrus, but one cannot exclude a scribal error, since the scribe of *PHerc.* 1420 was very careless. If one reads, with

Arrighetti, ἐ[κ] τύπων in line 2 the syntax of the sentence is much clearer.²⁰⁷ However this may be the reference in lines 12-15 seems to suggest that whether the πόροι take in the compounds depends on the differences of the single atoms, rather than molecules of atoms.

Epicurus, in column XXXI of ΠΦ XIV, mentioned how a compound could gradually take in many parts, which were themselves presumably molecules. He went on to describe the formation of other compounds, presumably of a similar nature, in lines 3-5. If, as is possible, οὐ]ρα|νοῦ should be restored in lines 5-6 he was speaking here of compounds which formed in the sky. The reference could have been to the formation of clouds, in the context of how a substance can be produced out of another. In lines 8 and following Epicurus apparently sets against his own theory one according to which a single primary substance — assuming μία[of line 8 and ἀρχὴν of line 9 should be taken together — can undergo (δέχεται) changes in nature. It is worth noting that the verb used to introduce such a theory is a third person singular in the optative, ἐπιφέρωι, in line 10. The subject may have been a generic τις.²⁰⁸ It looks as though Epicurus introduced here the monists who used condensation and rarefaction as means of transformation of one substance into another. The mention of air in line 19 perhaps indicates that he had proponents of air monism in mind.

²⁰⁷ Laursen toys with the idea of reading αἰ|τίαν in lines 11-12; but if one needs to alter the text, a change of τῆς of line 10 into τὰς seems preferable. Arrighetti reads ἐκούσης in line 9.

²⁰⁸ Compare fragment 5 of *PHerc.* 1151, below pages 149-151.

In the following column, numbered “XXXIII” by Leone,²⁰⁹ Epicurus is pointing out how condensation and rarefaction cannot explain our world:

οὐ γὰρ]	0
παρὰ [τούτ]ου πύκνωσιν	
ἢ ἀρα[ί]ωσιν τὰ πράγματα	
γεννᾶται ἀλλὰ παρὰ σχη-	
ματ[ω]ν διαφορᾶς τὸ ἰσχυ-	
ρὸν [τῶ]ν παραλ[λ]αγῶν	5
[ἐκγί]νεται· τὸ δὲ [ἀ]ντιλ[ε	
.] τουτ[. -	
.] α[. . .]σ[. -	
ονως ἀ[. . .]αυτη[. . . -	
σα πα[ρὰ τῆ]ν πύκν[ωσιν	10
. ον [
.]αι [οὐ]κ ἐστὶ[ν ἰσ]χυ[ρ . .	
οὐ τοῦ π . . [
τ . . .	

²⁰⁹ It is not clear to me why Leone (1984: 59 and 85) thinks this column is a *sottoposto*, and inverts the order and the numbering of the columns accordingly at this point. She is following Arrighetti, who argues (1973: 605) or rather states that the column comes from a different layer, although he edits the fragments in the order in which they appear in Π, the correct order (see Plate on page 447).

δ[. .] μ [. .] θαι . α[.] - 15

θηι τ[.] υ-

δωρ πεπο[ιεμένον

. . .]εμπ[. . .]νδ[

. . .]μ . . . [

. . .]ρος . [20

. . .]ν υδωρ [

13 the traces after π suggest a straight vertical, but this blends into ink resembling υ (which may be from a different layer); if the left oblique bar of υ was broken and displaced, and all the ink is from the same layer, πυρ[ός] should be restored

0-1 Philippon 1-5 Leone 6 legi, [έκγί]νεται τὸ δὲ[Leone 7-8 Leone 10 Leone 11 ὄσον Gigante (Leone) 12 .]αῖ [οὐ]κ ἐστὶ[ν ἰσ]χυρ --- Leone 13 οὐ τοῦ π . ρ[Leone 15 Leone 17 legi; υδ]ωρ γε[Leone 20 supplevi 21 legi

It is interesting that, although their target is completely different, Epicurus and Lucretius criticise monism in a similar way, by showing that condensation and rarefaction are inadequate explanatory principles. A striking difference, however, is that while Epicurus explains the differences in things we experience by referring exclusively to the differences in σχήματα, Lucretius emphasises the motus. Leone's translation assumes that

σχήματα refers to the shape of the atoms. This is possible, but given the content of column XXXI, it is at least possible that it refers instead to the shape of the compounds (below pages 133-140). It is perhaps less likely that it is a generic reference to both.

Column “XXXII”, the final column of *cornice* 8, reads:

ταξῆα . . [
έν τῆι φύ[σ]ει [. κα-
τά τὴν έν τῶ[ι
χουσαν ποτε [.
. .] . σ ἀτμίζειν[. ὕ- 5
δωρ γε[γ]ο[ν]ω[ς] . . .
αὐτῶν ἀπαν[.
τῶν χον[δρῶν.
δικε[.

1/2 paragraphos 6/7 perhaps paragraphos, but it may be displaced ink 8 according to Leone the two letters after τῶν are a sovrapposto, I disagree

1 legi 2 φύ[σ]ει Arrighetti φύ[σ]ει Leone 2-3 κα-|τά Arrighetti Leone 3-4 περιέ-|χουσαν Arrighetti Leone 5-6 ὕ-|δωρ Leone 7 αὐτῶν ἀπαν[Leone

It is unclear whether Epicurus is refuting an argument by the air- or water-monists. The evaporation of water, producing vapour and smoke, would be an argument presented in favour of one substance becoming another. And *if* the reference in τῶν χοῦν[δρῶν is to grains of salt, this was further proof that a φύσις, presumably water, can turn into something else when it evaporates. It is perhaps possible, though, that τῶν χοῦν[δρῶν is a reference to particles of water forming through condensation. Epicurus presumably went on to give his own explanation of such phenomena.

The argument could also have been used by air-monists, if they were presenting an argument for the reverse process of water turning back into air, considered as the primary substance. But perhaps Epicurus was not targeting earth-monists or water-monists exclusively or specifically, but rather showing more generally that one substance cannot, or does not really, become another substance by condensation and rarefaction, and therefore one φύσις cannot explain the variety of things that we experience.

My conclusion is that Epicurus' criticism of monist theories based on condensation and rarefaction started in column XXXI, where it was set against Epicurus' own theory, and continued in columns XXXIII, XXXII, and XXVII, the first column of *cornice 7*. Column XXVII confutes the monists' additional argument that rain comes from clouds:

πρὸς τ[ο]ῦς ἐ[κ] τῶν νεφῶν
φ]ασκόντας πυκνουμέ-

ν]ων τὴν τοῦ ὕδατος φύ-
 σιν ἀποτελεῖσθαι, καὶ νο-
 μίζοντας καὶ τοῦτο σημει- 5
 ον εἶ]ναι ὡς ἐ[κ] μιᾶς φύσε-
 ως ἄ]παντα γίνεται πυ-
 κνώ]σει καὶ ἀ[ρ]αιώ]σει παρ-
 ἀλλα]ττούσης τ[. .]ερα
 . .] .γα[.] .μεν
 . . οὐ]κ ἐκόντε[ς .]κε 10

1 Leone; ἐκ τῶν νεφῶν Usener 2-8 Leone 7-8 παρ[ε-]|ξἀλλα]ττούσης Leone, sed spatio longius
 10 τὸν [ἀέ]ρα Leone 9 fortasse γάρ 10 legi

The καὶ in line 5 is easy to understand if it follows a consideration of a previous argument by the monists (or even if he was summing up his response to their using argument). It seems harder to explain the καὶ if column XXVII is taken to be the first one attacking monistic theories.

In column XXVIII Epicurus introduces the concept of shapes, presumably to explain how, according to his own theory, rain is formed out of clouds:

κᾶν [.]αι τούτων
 τῶ[ν ὕδ]ωρ συνί[στα-]
 ται· κ[.] σχημά-
 των [.]εν κα-
 ταλαμβανομ[ένων] 5
 το περὶ [.] ἐξ ὧν ὕ-
 δ[ω]ρ. [. ὕ-
 दातो[ς] ο[.]
 ἀποτ[ε]λείσ[θαι] οὐθ -
 ρω[ν] ἢ ὄθεν[.] 10
 μεν . εθη . . [.]
 ν . . γὰρ πρ[.]

3 the letters ις which Leone reads in this line are probably from a different layer 4 the letters -οτητος
 τῶ[ν] are probably from a different layer 5/6 in left intercolumnium sign made up of three dots placed
 as to form a triangle

1 legi; κᾶν [. . .]αι το[ιού-] Leone 2-3 Leone 4 4-5 κα-|ταλαμβανομένων Leone,
 quae ita κα-|ταλαμβανομν·εων emendavit, sed litterae ν·ε . in supraposito leguntur 6 legi; . . .
 .] . ερι [Leone 8 Leone 9 ἀποτ[ε]λείσ[θαι] --- Leone 11 με[ν α]ἰσθητά Leone

In column XXIX, a column so full of *sovrapposti* and *sottoposti* that it defied transcription before Leone supplied an edition, we read:

δ . α[.]ν κ[ατὰ]
τὰς ὁμοίας [φά]ντασ[ί]ας [αύ-]
τοὺς παραλο[γί]ζονται
[. . .]ς δ' ὅτ[ι] ἐκ[εῖνο]υ τοῦ[.
[. . .]κτη[.] 5
ἡ αἰ]σθήσεις τοῦτ[ο
. .] μαρτυρεῖ [.
. . .]αιρει ἔ'αυτ[.]ν[
. . .]δινω[.
. . .]ομενα[.] 10
. . . γ]ὰρ πρὸς ο[
.] τ . μα[
.]το ἐξ . [
.]φος [
ζη[τ]εῖν το[.] 15
ἡ [αἰσθ]ήσεις φ[
[.]ενοι θελ[
παρα]λογ[ί]ζον[τ

1 . . . τ . . . [. . .] [παρὰ] Leone 2 Leone, sed dubitanter [φά]ντασ[ί]ας scripsi, quod fortasse
spatio longius 4 legi 16 αἰσθησεις φ[Leone

I think that in this column Epicurus was introducing Plato's view. The expression τὰς ὁμοίας [φά]ντασ[ί]ας, if that is the correct reading, may indicate mental representations similar to those of the monists who believe that condensation and rarefaction explain the differences between things. Although φαντασία is usually a technical term in Epicurus (in a number of various meanings), Leone (1984: 82) aptly quotes column XXXVII of book XIV where Epicurus says, in reference to Plato's theory, ἀλλὰ γὰρ καὶ τοῦτο γελοίως ἐκ τῆς φαντασίας ἀναλελόγισται. We shall see how Epicurus concedes in ΠΦ XIV that the πάθη produced by the στοιχεῖα do correspond to the shapes Plato attributed to them.²¹⁰ Epicurus seems to be saying here that sensation, far from supporting other theories such as Plato's, in fact supports Epicurus' theory that it is the shape of the συγκρίσεις, rather than the shape of the elements themselves, that produces the diversity of things we experience with our senses. It is Epicurus' own theory, not Plato's that is supported by sensation.

Epicurus' criticism of the monists' system of condensation and rarefaction, and of the examples given to support such a theory, seemingly occupied, then, at most five columns (XXXI, XXXII, XXXIII, XXVII, XXVIII) of our roll. To these should be

²¹⁰ Page 136.

added six or seven columns of polemic against Plato (XXXIV, XXXV, XXXVI, XXXVII, XXXVIII and the column or columns lost ahead of column XXXIV, below note 219). The columns actually attacking earlier thinkers' δόξαι amounted to approximately 11 or 12 columns, a very small proportion of the whole book. These columns were not, in my view, part of (a) a systematic and comprehensive elimination of earlier views, as found in Lucretius, and presumably his source, but rather (b) polemic against opponents which was incidental to Epicurus' own exposition.

2.1.2 Epicurus did not discuss Heraclitus' theory in detail in ΠΦ XIV

We have seen above that, although it is possible that Lucretius singled out Heraclitus as a typical physical monist, it seems more likely that Lucretius' source had already singled out Heraclitus' fire monism as the monist theory to be attacked.²¹⁵

Epicurus did not single out fire monism as the exemplary form of monism to attack in detail. He attacks the monist use of condensation and rarefaction, but the examples he uses suggest that he has in mind thinkers who proposed water or air as their primary substances. There is no mention of Heraclitus' theory in Epicurus' confutation of monism in ΠΦ XIV.²¹⁶

²¹⁵ Above pages 63-65.

²¹⁶ Anaximenes is not mentioned by name in the text. It is perhaps more likely that Epicurus had Anaximenes in mind here rather than Diogenes of Apollonia. It is conceivable that he was thinking of both, and perhaps others.

A further point seems worth making in this context. Lucretius' arguments against Heraclitus do not resemble at all Aristotle's arguments against fire-monism in *De caelo* Γ. 5. 305b28 - Γ. 8. 307b24,²¹⁷ but Epicurus' refutation of Plato in ΠΦ XIV makes extensive use of the arguments in Aristotle's *De caelo* (below pages 208-212). It would be strange for Epicurus to disregard the remarks on fire-monism in *De caelo* and then borrow extensively from the remarks against Plato, which immediately follow the refutation of fire-monism.

It is unlikely that Heraclitus' theory had been discussed earlier in the book, before Epicurus' introduction, or justification, of his polemic.²¹⁸ It is also unlikely that Epicurus would have attacked Heraclitus on condensation and rarefaction, as Lucretius does in *DRN* 645-664, and then the general theory of condensation and rarefaction in monism, in the very same book.

2.1.3 Epicurus did not confute Empedocles' theory in ΠΦ XIV

It implausible, in my view, that Epicurus confuted Empedocles in book XIV. Measurement of the *sezioni* indicates that there was no space for a full discussion of Empedocles' theory between the columns dealing with air-monism and those dealing

²¹⁷ The situation is similar with Aristotle's arguments against Empedocles in *De caelo*, which are not paralleled in Lucretius.

²¹⁸ Capasso (1987: 68) seems inclined to think Heraclitus was criticised in book XIV, although his "a partire dal libro XIV" is not very clear and could imply the criticism came in any book later than XIV.

with Plato. It looks as though one column of the ‘preserved’ section of *PHerc.* 1148 is lost between column XXIX and column XXXIV, the first column dealing with Plato.²¹⁹ In the lost column Epicurus probably introduced his criticism of Plato’s doctrine. Even if the lost column did introduce Empedocles, there was certainly not enough space to contain a refutation of Empedocles comparable in scale to Epicurus’ refutation of monism and Plato, or indeed to Lucretius’ confutation of Empedocles in *DRN*.

Sedley’s argument (1984: 385, note 12) that in ΠΦ XIV Epicurus *ended* his criticism of the limited pluralists with Plato is suspect. Plato’s theory was the *only* form of limited pluralism refuted by Epicurus — although others were alluded to — in ΠΦ XIV, unless we are to suppose that Epicurus criticised other limited pluralists before he dealt with the monists. That Epicurus criticised Empedocles after Plato is highly unlikely, given that Plato was chronologically later and held a theory which was an elaboration of Empedocles’. Any sources that Epicurus might have consulted, and particularly Theophrastus,²²⁰ would have considered Plato after Empedocles.

In column XXXIV Epicurus makes reference to, and criticises *en passant*, other limited pluralists. Arrighetti argues that Empedocles is Epicurus’ target here, and finds

²¹⁹ Probably one column is lost, possibly two. The first clear *sezione*-break in *cornice* 9 comes after *circa* 28.50 mm (but there is a stretch of fabric ahead of it, so that the first *sezione* of the *cornice* may have been wider), while the last *sezione* in *cornice* 7 measures *circa* 33.5 mm). Column XXVIII in *cornice* 7 is unsurprisingly covered by a big *sovrapposto*. This is almost certainly from the lost column (or one of the lost columns).

²²⁰ See below 2.3.

a verbal parallel between Epicurus' text and Lucretius' *critique* at this point:

τοὺς]
ὀρίζοντας σχῆμα π[υρ]ῶς ἰ-
διον ἢ γῆς ἢ ὕδατος ἢ ἀέρος,
ὅτι γελοιότεροί εἰσι τῶν οὐκ ὀ-
ριζόντων μὲν, κατὰ δὲ τὰς
παραθέσεις ὁμολογησάν- 5
των ἂν ἢ ἐκουσίως ἢ ἀκου-
σίως γινεσθαί τινα σχημά-
των ἴδια εἶδη καθ' ἑκάστην
οὐ]σιώδη ῥηθεῖσαν ἂν σύγ- 10
κρ]ισιν· οἱ μὲν γὰρ τοῖς μὲν
στ]οιχείο[ι]ς ἀμαρτάνουσιν,
ἀ]κόλουθον δέ τι τούτοις
μ]ᾶλλον, οὕτω λέγοντες,
λέ]γοιεν ἂν καὶ ὅλως δὲ τὴν
τα]ῖς μείξεσι[ν] παραλλαγῆν 15
οὐ]δὲ πρὸς τ[.] . . τι δι-
ἄ σχη]μάτων η[. . .

5 ὁμολογησαν- α is deleted and o inserted above the line by another hand since the shape of o is different (Leone)

0-1 πρὸς τοὺς] Leone 1-15 Arrighetti Leone 16 supplevi; [οἱ] δὲ πρὸς τὴν . . . σ . [. .] Leone:
[οὐ]δὲ Hayter Gomperz: [οἱ] δὲ Usener: [οἱ] δὲ Arrighetti 16-17 διὰ Jensen (apud Schmid) 17
Leone

Epicurus criticises heavily those who attribute an ἴδιον σχῆμα to the four elements, i.e. Plato, and at the same time, but to a lesser extent, those “who allow whether intentionally or not, that there are in mechanical mixtures certain specific kinds of forms corresponding to each compound that would be called essential.²²¹ For οἱ μὲν get it wrong about the elements, but by saying this [that there are specific shapes for such compounds] they would be saying something which is in line with the elements”. The sense is clear up to this point: οἱ μὲν of line 10 refers to the second group of thinkers. The interpretation of what follows is difficult, especially if one takes, as editors do, [λέ]γοιεν as governing τὴν [τα]ῖς μείξεσι[ν] παραλλαγῆν, with the meaning “would be endorsing the difference according to mixture”. I doubt that one should have

²²¹ This seems preferable to taking the two occurrences of κατά and accusative as explaining one another: “. . . there are certain specific kinds of forms for juxtapositions (παραθέσεις), for each compound that would be called essential (οὐσιώδης σύγκρισις)”.

a full stop at the end of line 15. It seems more likely that the verb governing παραλλαγῆν came in the remainder of the column, after line 16.

It makes a considerable difference whether one restores [οὐ]δέ, with Hayter and Gomperz, or [οἰ] δέ, with Arrighetti and Leone, to line 16. If one reads [οἰ] δέ a stop should probably be placed after ἄν in line 14, and with [οἰ] δέ in line 16 Epicurus would be returning those who “assign a shape to fire or earth or water or air”. But if one reads [οὐ]δέ, as the space on the papyrus perhaps suggests, the remainder of the sentence still dealt with those who think that there are shapes for each [οὐ]σιώδης ῥηθείσα ἄν σύγ[κρ]ισις. Perhaps the meaning was something like “and they would endorse the difference [in shape] because of mixture and would not try to explain the world through the shapes [of the four στοιχεῖα]”. The point Epicurus is making against Plato is perhaps that it is ridiculous to assign shapes *only* to the four elements (as shown by the fact that these take up different shapes under different conditions); other quadruple pluralists saw the advantages of giving a specific shape to compounds (presumably of the four elements) which are ‘elemental’

The term παράθεσις in line 5 of column XXXIV suggests a mechanical mixture of elements in which they do not lose their peculiar characteristics, although they mingle together (Arrighetti 1973: 605). Arrighetti refers to Empedocles DK B8, and DK A28, A34, A43, A44 for Empedocles’ view that the elements do not change when coming together,²²² and notes that *DRN* I 740 “ricalca pari pari” lines 10 and 11 of column

²²² Schmid (1936: 18) proposes that Epicurus had Aristotle in mind, on the grounds that οὐσιώδης σύγκρισις is the same as Aristotle’s οὐσία σύνθετος. This suggestion is unconvincing because there is no

XXXIV.

It would be helpful for determining whether Empedocles was Epicurus' target in this part of column XXXIV to establish the meaning of οὐσιώδης σύγκρισις here.²²³ Long (1977: 78) suggests that Epicurus uses οὐσιώδης σύγκρισις to refer specifically to a class of compounds which are "elemental", and that such compounds are the same as the 'cosmic seeds' which make up the world and as the συστροφαί of *Ad Herodotum* 73, with which he compares *DRN* II 154. Long thinks that the basic material from which the world grows are atomic *nuclei*,²²⁴ referring to *DRN* V 429-431 as showing that the *exordia* are aggregates (*convenient convecta* in 429), and not atoms. That Epicurus adopted a theory of molecules seems likely,²²⁵ but I wonder whether the term οὐσιώδης σύγκρισις could have been a technical term to refer to a specific class of elemental compounds in his own theory. The expression ῥηθεῖσα ἄν does not point in this direction.²²⁶

It is not clear what οὐσιώδης σύγκρισις could denote in Empedocles' own

hint that it is the combination of form and matter that is at issue here.

²²³ It is also worth noting that in column XL of book XIV Epicurus mentions Empedocles in the context of a thinker aspects of whose theory one might borrow (Leone 1984: 63). See further below pages 331-337.

²²⁴ According to Bailey (1947: 628 and 631) *semina* means nuclei of atoms, rather than atoms themselves, in *DRN* I 160 and 176.

²²⁵ Above pages 105-110.

²²⁶ Fragment 18 of ΠΦ XV (below pages 169-170), where the same expression should probably be restored, also suggests that Epicurus is reproducing the terminology of other thinkers.

theory. And there seems to be a problem with attributing a theory involving specific shapes to Empedocles.²²⁷ There is no evidence to show that σχήματα had a role to play in Empedocles' theory, although Epicurus' ἢ ἔκουσίως ἢ ἀκουσίως may mean that he is inferring.²²⁸ The basis for seeing Empedocles as Epicurus' target (along with Plato) in column XXXIV is not altogether solid.

Even assuming that in column XXXIV Epicurus is referring to Empedocles, the verbal similarity between Epicurus and Lucretius does not extend to the wider context,²²⁹ since the former is emphasising that such thinkers had a positive contribution to make to the problem of how matter is formed, while the latter praises Empedocles, as we shall see in chapter 4.4 below, for completely different reasons.

To return to the order of opponents in Epicurus' treatment, the fact that Plato is considered almost immediately after air-monism, comes close to ruling out the possibility that Epicurus had, or intended to have, a comprehensive list of theories on the στοιχεῖα, arranged according to the number of principles. It also comes very close to

²²⁷ Arrighetti tries to solve the difficulty by taking ἴδιον εἶδος as "carattere particolare" rather than form, but, as Professor Sharples points out to me, since they are σχημάτων ἴδια εἶδη, that does not really help.

²²⁸ Aëtius I. 13 (quoted above, note 117) speaks of θραύσματα "fragments" in relation to Empedocles, but still there is no suggestion he assigned specific shapes to elements or mixtures. There is also DK B73 (quoted below, note 644), where Kypris/Aphrodite is presented as εἶδεα ποιπνύουσα but this does not seem enough to assume that Empedocles had a theory of specific shapes.

²²⁹ If this expression by Epicurus, or a similar one elsewhere in his works, inspired Lucretius' line, it is interesting to note how he rendered ἀμαρτάνουσιν with *facere ruinas*.

ruling out that Epicurus set out a category of limited pluralists. Even admitting that Epicurus singled out Plato as representative for the limited pluralists category,²³⁰ the space dedicated to limited pluralism would be disproportionately small,²³¹ not much more than 8 columns, if we assume that criticism occupied the whole of book XIV. It is conceivable that Epicurus attacked Plato in book XIV simply because of the popularity of the account of the elements in *Timaeus*,²³² without referring to the limited pluralists as a specific category. The fact that Epicurus did not set out a category of limited

²³⁰ This would be problematic in that it would make Plato a representative physicist, which he clearly was not (above pages 78-79).

²³¹ Simplicius' list in *In Phys.* is worth comparing, although it is not clear how closely he reproduced Theophrastus. In *C.A.G.* pages 24-29, excluding the clearly non-Theophrastean material, the monists occupy about 25 lines, the limited pluralists 22 lines of which however 6 are quotation of Empedocles, and therefore considerably shorter (excluding Plato and the Pythagoreans who take up 26 lines and bring the total up to 48), the unlimited pluralists receive 32 lines (excluding the atomists who take up 28 lines and make the total for the category 60 lines).

²³² Plato in *Timaeus* 55A-56C assigns shapes to the four elements. Epicurus was entering a debate with Plato. Sedley (1998: 106, note 38) thinks Epicurus' criticism in column XXXVII of book XIV is more likely to be of *Timaeus* 31B-31C, than (as Leone thinks following Schmid) of 56E on "elemental intertransformation". Schmid's interpretation seems preferable. *Timaeus* 60A is interesting τὰ δὲ δὴ πλείστα ὑδάτων εἶδη μεμειγμένα ἀλλήλοις — σύμπαν μὲν τὸ γένος, διὰ τῶν ἐκ γῆς φυτῶν ἠθεμένα, χυμοὶ λεγόμενοι — διὰ δὲ τὰς μεῖζεις ἀνομοιότητα ἕκαστοι σχόντες τὰ μὲν ἄλλα πολλὰ ἀνώνυμα γένη παρέσχοντο, τέτταρα δέ, ὅσα ἔμπυρα εἶδη . . . Epicurus would have argued instead that the molecules had a specific shape.

pluralists makes it unlikely that Epicurus reproduced the ‘standard’ Aristotelian²³³-Theophrastean division into three categories (monism, limited pluralism, unlimited pluralism), the division adopted in Theophrastus’ $\Phi\Delta$ and in Lucretius’ *critique*.

2.1.4. Book XV was not dedicated to criticism of Anaxagoras

Sedley suggests that $\Pi\Phi$ XV was dedicated chiefly, if not completely, to Anaxagoras’ theory. A preliminary objection to this suggestion, one which Sedley mentions, is that the amount of space reserved for criticism of Anaxagoras’ theory seems disproportionate. We have seen above how in book XIV Epicurus’ criticism of Plato’s theory only took up six or seven columns of book XIV, and criticism of the (air-)monists approximately five columns.²³⁴

Let us now consider the format of *PHerc.* 1151, which contains the remains of $\Pi\Phi$ XV. The total number of columns for this roll would have been between 150 and 190.²³⁵ It is very difficult to determine the exact number of columns of the ‘preserved’ portion of *PHerc.* 1151, because of the uncertainty concerning the layers we are reading from. Letters, and groups of letters, from the same column are often attached to a layer

²³³ Although Aristotle does not set Empedocles (limited pluralist) and Anaxagoras (unlimited pluralist) sharply apart in the *Physics* he does recognise a category of unlimited pluralists with principles differing in kind (184b21-22) and it is hard to imagine that these are not Anaxagoras and Archelaus.

²³⁴ Above pages 118-119.

²³⁵ See Appendix (b), pages 403-404.

of the roll different from the one they belong to. A reasonable guess, judging from the decline in size of the *sezioni* in *PHerc.* 1151, is that we are reading the remains of 34-38 columns.²³⁶

Sedley (1998: 126) gives the two following alternative topics to fill up the preceding, lost, parts of ΠΦ XV, which occupied well over 100 columns of text: (a) continuation of the ‘methodological issues’ with which ΠΦ XIV concludes; and (b) discussion of Pythagorean physics, which was taken to be a species of infinite pluralism. Suggestion (a) is unlikely because it seems natural to read the conclusion of book XIV (column XLIII . . . παντελῶς ἡσυχίαν ἐχέτωσαν) as the last word on the matter. As for (b), it is improbable that the Pythagoreans’ theory would have been considered a species of unlimited pluralism. Simplicius in his commentary on Aristotle’s *Physics* lists the Pythagoreans as limited pluralists.²³⁷

²³⁶ Circumferences can be measured in *cornice* 2 at roughly 118 mm and 116 mm. In *PHerc.* 1148 (ΠΦ XV) a circumference of 98 mm can be seen in *cornice* 4: 27 columns of text followed. Leone (2002: 12, note 36) reports that in *PHerc.* 1431 25 columns fitted in a decline in *sezioni* of 27.5 mm. However one should take into consideration that the width of the columns in *PHerc.* 1431 is only 4 cm, one of the lowest in papyri from Herculaneum (Leone 2002: 22).

²³⁷ Sedley (1998: 126, note 87) cites Sextus Πυρρώνειοι Ὑποτυπώσεις III.32. The position of the Pythagoreans in Sextus’ list suggests that he took them to be unlimited pluralists. Assuming that Epicurus would have considered the Pythagoreans limited and not unlimited pluralists, they could still have occupied the earlier part of book XV (since they postulated more elements than Plato), but the division between book XIV and book XV would not then have corresponded to a major division in the classification between limited and unlimited pluralists. On whether the Pythagoreans would be considered ‘physicists’ at all, below page 207.

The fragments suggest that ΠΦ XV, or at least the final part of it, treated atomic compounds,²³⁸ and in particular the creation of animate beings.²³⁹ In this context Epicurus seems to have ruled out divine intervention. He seems then to have proceeded in the closing section of the book (*cornici* 7-8) specific aspects of human behaviour, some of which related to their understanding of the soul and of the gods. It cannot be positively ruled out, given the nature of the evidence, that Epicurus brought in Anaxagoras in book XV, but there seems to be a more likely reading of at least some of the fragments which have been interpreted as references to Anaxagoras.

2.1.4.1 *Cornice* 2

Fragments 5-9, which are preserved in *cornice* 2, are as far as one can tell, the ‘readable’ fragments which came earliest in *PHerc.* 1151. Let us start from fragment 7, which has been read as a report of Anaxagoras’ theory because it contains a form from the ὁμοιομερ- root.

Words from the same root appear again in book XV, in fragments 23 and 25. Sedley (1998: 124) seems certain that all the occurrences of such forms in our book refer to Anaxagoras. Rösler, on the other hand, thought that Epicurus used the word without

²³⁸ This confirms the report in the *scholium* to *Ad Herodotum* 40; above note 187.

²³⁹ Millot 1977: 14.

connection to Anaxagoras,²⁴⁰ and Schrijvers (1999: 49-50) takes a similar line. Neither Rösler nor Schrijvers give reasons for their inference, but they may be right that Epicurus did not use the ὁμοιομερει-forms in connection with Anaxagoras. Epicurus certainly employed the terms ὁμοιομερής/ὁμοιομέρεια in his own theory, as part of his theory of aggregates.²⁴¹

My reading of fragment 7 is as follows:

. . . ἐκ] τῶν περὶ τὰς . [. . -
. . . .]σεις ὑπαρχόντων
σχημάτων αἱ διάφοροι συγ[-
κρίσεις] γίνονται· τὸ δὲ μὴ
.]εῖν ὁμοιομερεῖς
ὄγκους λέγειν εἰς [ἄ]λλ[η-

5

²⁴⁰ Rösler (1973: 58): “Von *homoioimerês* ist das Substantivum *homoiomereia* abgeleitet, das erstmals bei Epikur belegt ist, und zwar im singular *und ohne Verbindung mit Anaxagoras*” (Italics mine).

²⁴¹ An objection to this suggestion is that if Epicurus used ὁμοιομέρεια of his *own* theory and Lucretius knew that he had, it seems odd that he would have presented the term as an outlandish one in line 830. It seems unlikely that Lucretius, assuming he knew ΠΦ, did not know of Epicurus’ usage. And the same would probably hold true for Lucretius’ source. It is conceivable, however, that Lucretius was aware that Epicurus used the term of his own theory, but did not consider this an obstacle to treating the term as outlandish in the context of Anaxagoras. It is possible, as we shall see, that Epicurus used the term *also* in connection with Anaxagoras in fragment 25, where he seems to be distinguishing two kinds of ὁμοιομέρεια (below pages 177-179).

λους . . .] . ς τῆς ε[

1 it is impossible to decide between π and γ because only the left part of the letter survives 4 there may be traces of ink following μη, if that is the case one should probably read μηδ[έ|νους 5] . . ν,]ειν with the lower part of the letters rubbed off; traces may suggest ω but are inconsistent with ω because ω is never written higher up in space than ν, the vertical of the supposed ω would slope to the right and too little space is left for the following ν.

0-1 ποικίλων | σχημάτων? Arrighetti in apparatu 1 γ[Millot 1-2 π[ρώ|τας φύ]σεις Arrighetti fortasse recte: γ[ενέ|σ]εις Vogliano 3 καὶ ἐξ] ὧν Arrighetti 3-4 συγ|[κρίσεις] Arrighetti; συγ[κρίσεις] Vogliano Millot 4-5 supplevi μι[κρ Vogliano 5 . . . τῶ]ν ὁμοιομερει[ῶν Vogliano: παρέχειν τῆ]ν ὁμοιομέρει[αν] Arrighetti sed η cum Π non congruit:]ν ὁμοιομερει[Millot 6 supplevi 7 legi

Arrighetti (1973: 279 and 611) tentatively suggests ποικίλων | σχημάτων at the start of the fragment — in line 1 and the line ahead of it, which came in the previous column — as subject of ὑπαρχόντων. He is probably right to restore “shapes” to the passage, and his καὶ ἐξ ὧν in line 3 is possible, but it is perhaps easier to restore σχημάτων to line 3.

Arrighetti (1973: 611) thought that Epicurus mentioned the shapes of the atoms (rather than of compounds) as one of the reasons which made the aggregates different,

referring to four passages in support of his interpretation: (1) *Ad Herodotum* 42, (2) Aëtius I. 3. 18, (3) Cicero *De natura deorum* I. 66,²⁴² and (4) and *DRN* II 333–477. Passage (1) certainly says that there could not be such a great difference in compounds as there is, were the atoms not different from one another in shapes (in a language not dissimilar to that of fragment 7 of book XV). In (4) Lucretius refers, it would seem, to only four shapes (*hamata, levia et rotunda, angellis paulo prostrantibus* and *acuta*), although he seems to allow for variation in degree between these. The shapes referred are probably just by way of example, since the number of shapes is beyond reckoning. Lucretius (and presumably Epicurus) did not set out to give a full account of the shapes of the atoms, since the atoms are beyond the kernel of the senses. The discussion is driven by phenomena.²⁴³ The shape of the atoms themselves clearly goes some way in

²⁴² *Ista enim flagitia Democriti sive etiam ante Leucippi, esse corpuscula quaedam levia, alia aspera, rutunda alia, partim autem angulata et hamata, curvata quaedam et quasi adunca, ex his effectum esse caelum atque terram nulla cogente natura sed concursu quodam fortuito — hanc tu opinionem, C. Vellei, usque ad hanc aetatem perduxisti, priusque te quis de omni vitae statu quam de ista autoritate deiecerit* (Plasberg 1933: 25). Plasberg prints “et hamata”, which is his own conjecture, following Marsus 1507 “hamata” and Diels’ “vel hamata”. A G¹ P¹ read “firmata”; D G^c H “foramata” Pc “firmata”; N “ipiramta”; O “piramata”; *om.* B. It is also noteworthy that A C N and P omit “curvata”. Mayor prints *partim autem angulata <et> pyr<amidata>, hamata quaedam et quasi adunca . . .*

²⁴³ From *DRN* II 398–407 it appears that different fluids are made up of different atoms: fluids which taste pleasant are made up of *levia* and *rutunda*, those which taste rough *magis hamatis inter se nexa teneri* (405). It looks as though the shape of the atoms is here connected to the way they are joined to one another (*inter se*). It seems clear, however, the shape of the atoms is connected to the sensation they produce in us.

explaining the nature of compounds. Text (3) only helps in that it is a parallel for the shapes given in Lucretius, it does not link the differences in atomic shapes to the characteristics of the compound. I find text (2) puzzling: εἶναι δὲ τὰ σχήματα τῶν ἀτόμων ἀπερίληπτα, οὐκ ἄπειρα. μὴ γὰρ εἶναι μήτ' ἀγκιστορειδεῖς, μήτε τριαινοειδεῖς, μήτε κρικοειδεῖς. ταῦτα γὰρ τὰ σχήματα εὐθραυστά ἐστίν, αἱ δὲ ἄτομοι ἀπαθεῖς, ἴδια δὲ ἔχειν σχήματα λόγῳ θεωρητά. This, if correct, would rule out that Epicurus was referring to the shape of the atoms in e.g. *Ad Pythoclem* 109,²⁴⁴ indeed it would show that Cicero's and to some extent Lucretius' account are inaccurate.

It is possible that Epicurus was thinking of the shape of atoms rather than of that of compounds in fragment 7, and that πρώτας φύσεις should be supplied in lines 1 and 2. Support comes from μέ]χρι τῶ[ν πρ]ώτων φύσ[εω]ν] . . . (Arrighetti [34] [22] lines 11-12), and especially Arrighetti [26] [24] lines 2-5: ἀλλὰ τῆς καὶ περὶ τὰ[ς] πρώτας φύσε[ις] δυναμένης ἂν ὑπάρχειν. . .²⁴⁵ But one cannot rule out altogether that Epicurus wrote something else, conceivably πάσας φύσεις or πάσας

Lines 408-443 similarly indicate that as far as sound, smell and colour are concerned, round atoms please the senses, hooked ones cause pain (there are also atoms which are neither hooked nor round, but have projecting angles (*angellis paulo prostrantibus*)). In lines 444-477 Lucretius reports things which exhibit a hard texture are made up of *hamata et quasi ramosa*, while things which are liquid of *levibus atque rutundis*, and all things which you see disappear in an instant (such as smoke, clouds and flames) are *non e preplexis sed acutis elementis*.

²⁴⁴ Above note 205.

²⁴⁵ From *PHerc.* 687-1056-1191 (ΠΦ XXV).

γενέσεις.²⁴⁶

What seems indisputable is that Epicurus in fragment 7 used ὁμοιομερει-²⁴⁷ in the context of what determined different compounds. The δῆ in line 4 suggests that the sentence starting in that line confirmed what was said in the previous sentence. As for the next word in the line, it seems unlikely that this could be μή[ν] since it has a similar meaning to δῆ.

According to Arrighetti Epicurus used ὁμοιομέρεια to refer specifically to ‘similarity of parts’, i.e. similarity in shape, between atoms and compounds. I think Millot is probably right to reject this. It seems unlikely that Epicurus would want to emphasise the similarity between shape of the atoms and *shape* of the compound, although, assuming Lucretius represents him accurately, he certainly allowed for a relation between the shape of the atoms, and the effect produced on the senses by the compound (above note 243). There seems to be no evidence for Epicurus, or Lucretius, expressly stating “similar parts” for the visible compounds and atoms that go up to make it. Visible compounds do not always have the same *shape* as their constituent atoms: fluids are not always round in shape (*DRN* II 398–407), though their drops sometimes are.

²⁴⁶ In column XI of ΠΦ XXXIV (Leone 2002: 56) Epicurus writes ὥστε καὶ | [π]ά[σας φ]ύσεις
τὰς | ἐκ [τῶν ἐπι]βολῶν | [τῶν ἐπὶ τ]ὸ ἀόρατον | ἥδη βαδ]ιζουσῶν ὁ[ψ]όμεθ’ ἂν εἰς
ὁμοιό[τ]ητα[ς] ἰδῶμεν ἄς . . .

²⁴⁷ It is uncertain, as Millot (1977: 27, note 17) notes, whether the word ὁμοιομερει- in line 5 was a plural or a singular.

Arrighetti based his interpretation of ὁμοιομέρεια in fragment 7 of ΠΦ XV on column XXXIX of ΠΦ XIV:

. . . . οὐ πάντως ἀλλότρι-]
ον τ[οῖς] πάθεσιν ἐστὶν τοῖς
ὑπὸ τῶν τεττάρων τοῦ-
των στοιχείων γινομέ-
νοις ὁ ἀποδίδωσιν σχῆμα,
μάλιστα μὲν καὶ τὸ πρῶτον 5
ἐκάτερον, εἰ δὲ μή, τὸ γε ἤ-
δη τὴν ὁμοιομέρειαν τῶι
φαινομένῳ κεκτημέ-
νον. ἀλλὰ γὰρ ταῦτα μὲν
αὐτοῦ κατεστρέφθω. 10

0-1 οὐ πάντως ἀλλότρι|ον Arrighetti: ὅμοι|ον Sudhaus Leone: ἴδι|ον Hayter: ἀλλὰ καὶ
ἀλλότρι|ον Philippson

Epicurus concludes his criticism of Plato by granting that the shapes Plato attributes to the four elements do in fact correspond to the πάθη which the elements produce on

us.²⁴⁸ It seems correct to assume that the first word, ending -ον, was οὐ πάντως ἀλλότριον, or the like, and to translate: “the shape which he [Plato] attributes to the four elements is not wholly dissimilar from the sensations produced by these elements,²⁴⁹ especially the first two, or if not, that which has already acquired similarity of parts to what appears to us”.

Epicurus thought that the correspondence between the σχῆμα Plato attributed to the elements and the πάθος the elements produced was particularly evident in the case of pyramid (fire) and cube (earth).²⁵⁰ According to Arrighetti (1973: 609) πρῶτον ἐκάτερον in lines 5-6 refers to the first two elements in the list of four in column XXXIV, a list which reproduced the one in *Timaeus* 55D.²⁵¹ It is perhaps more natural to take τὸ πρῶτον as part of a pleonastic “μάλιστα . . . καὶ τὸ πρῶτον”. The meaning “each of the first two” can be extracted from ἐκάτερον alone. This is forced,

²⁴⁸ This supports Sedley’s suggestion that Epicurus’ attitude to his predecessors was not as negative as later sources lead us to believe (above page 49).

²⁴⁹ The term στοιχεῖον is important in this section of the book. Wigodsky is probably right in suggesting that in the following section Epicurus is ‘justifying’ his borrowing of the term στοιχεῖον from Plato. The different way of using στοιχεῖον provides a neat connection to columns XXXIX(end)-XLIII (where Epicurus to discuss his borrowing of terms used by earlier thinkers).

²⁵⁰ This might help in the reconstruction of Epicurus’ discussion of the earth and the cube, of which only the beginning is preserved, and in a very fragmentary state.

²⁵¹ This is the order in Plato’s initial list, although Plato changes the order in the subsequent discussion. It may also show that Epicurus had in mind 31b-32c where Plato makes Timaeus argue that fire and earth must exist, and then produce an argument that if these exist the other two ‘elements’ must do so as well (see FHS&G 161 A-C).

but none more so than taking τὸ πρῶτον ἐκάτερον together.

It looks as though Epicurus was thinking in terms of a σχῆμα γε ἤδη τὴν ὁμοιομέρειαν τῷ φαινομένῳ κεκτημένον. According to Arrighetti this is the pyramidal shape, which possesses “similarity of parts” to fire as it presents itself to us (τῷ φαινομένῳ). He (1973: 609) points out that in column XXXVI Epicurus had already implied that a pyramidal shape is the shape fire assumes under certain conditions (although it can take up different shapes under different conditions):

σ]χημάτω[ν] τ[οῖς] λοιποῖς
στοιχείοις κατὰ τὰ φαινό-
μενα αὐτῶν εἶδη ταυτεῖ· ἀλ-
λ’ οὐχὶ μόνον, εἰ ἄρα, ἐπὶ τοῦ πυ-
ρὸς ἂν τοιαύτην τις φαντα- 5
σία σχήματος οἶαν ἐκεῖνος
ἀποδίδωσίν ποτε δόξαι
γίνεσθαι, οὐδ’ αὐτῆ αἰεῖ,
οὐδὲ περὶ πᾶσαν φύσιν πυρός,
ἀλλὰ περὶ τὴν αὐτῆς [φ]λ[ο]- 10
γός, κα[ὶ] ταύτην ἐμ ποιᾶι τ[ι]-
νι τοῦ [π]εριέ[χοντο]ς κατα-
στάσει. ἐπὶ [δ’ ε]ἶδη ταυτ[ῆ]
φερόμενος, [ἐν]ίστε ἔοικε[ν]

ante lineam primam: συγχωρῶμεν δὲ τό γε νῦν τῶι πυρὶ τὴν πυραμίδα ὑπάρχειν καὶ ἄλλα
τινὰ ἐκείνων τῶν Philippson 12 [περιέχοντο]ς Hayter 16 [διάφορον κ]αὶ dubitanter Gigante

There seems to be no indication that atoms that go to make up fire are themselves pyramidal in shape: this does not appear to be what Epicurus had in mind, since it seems likely that the atoms making up fire would have the same shape whether fire was a flame or not. Epicurus would not want to emphasise similarity in *shape* between atom and compound, so that the appearance of one could resemble that of the other. The whole emphasis of the atomic theory is on the fact that atoms do not themselves have all the properties that they cause compounds to have. The treatment of fire-particles in *DRN* II 381-387 suggests that they come in different sizes, but is silent about any difference in their shape.

In column XXXVI of ΠΦ XIV Epicurus is doing no more than granting, perhaps for the sake of argument, that flames have a triangular shape. It looks as though with the expression φαντασία σχήματος Epicurus is here referring to the shape of the aggregate, and not the atoms themselves. It is the arrangement of atoms which determines the pyramidal shape of the flame.

It is not easy to see how a σχῆμα could have *already acquired* “similarity of parts” to τὸν φαινόμενον. Millot (1977: 28) rejects Arrighetti’s suggestion that ὁμοιομέρεια refers to the identity between the elementary form of the atoms and that of the compound, but has “son sens habituel, conforme à son emploi aristotélicien et anaxagoréen: *ce qui a déjà la même composition que ce qui apparaît c’est-à-dire ce qui est déjà la corps constitué, l’aggregat, et non plus la série d’atomes*”. This explains adequately the presence of ἤδη, but seems to require taking the expression to be referring to στοιχεῖον rather than σχῆμα. This only seems possible if we have an accusative of respect: “especially as far as the first two elements are concerned, or if not, at least as far as every element which has acquired τὴν ὁμοιομέρειαν τῷ φαινομένῳ”.

The σχῆμα could be that of a molecule which has acquired the shape of the whole aggregate. Epicurus is probably referring to the level at which individual atoms turn to a compound-resembling molecule. The ἤδη seems to imply a contrast between the primary, basic, particles, and a later stage, when the atoms have acquired similarity to the element as it appears to us.

There are other occurrences of ὁμοιομέρ- words in Epicurus to be discussed at this point, before coming back to the interpretation of ὁμοιομέρ- in fragment 7 of book XV. The noun ὁμοιομέρεια occurs in ΠΦ Π²⁵² (Arrighetti [24] [33] lines 2-3).²⁵³

²⁵² *PHerc.* 1149/993.

²⁵³ Compare *Ad Herodotum* 56 (quoted above, page 142).

οναιεϋσι . . . ρος [.] [
τὴν α]ὐτὴν [ὁ]μοιο[μέ-
ρε]ϊαν τοῦ [στερεμνίου]
[δ]ιασώζου[σιν] ω[. . .
. . .

Reading αὐτὴν in line 2 would give the sense “the same *homoiomereia*” which sounds redundant and perhaps objectionable. Alternatives are δῆπο]υ τὴν, or possibly ο]ὐ τὴν. Epicurus is discussing how the εἶδωλα have the same characteristics as the solid body they come from.²⁵⁴ The topic is treated elsewhere in the book, in fragments 11 and 19, and in Lucretius *DRN* IV 46-52.²⁵⁵ It looks as though ὁμοιομέρεια in fragment 33 explains how the εἶδωλα reproduced the qualities of the bodies they come from (“having the same parts, same structure” as those). In particular the word seems to refer here to having the same parts, meaning a shape recognisable to the eyes. It looks as though in Epicurus, contrary to what Democritus had thought,²⁵⁶ images had secondary qualities, so that they could reproduce the compound they come from; images certainly

²⁵⁴ “Proprietà dei simulacri di riprodurre le stesse caratteristiche del corpo solido da cui provengono”.

²⁵⁵ Arrighetti 1973: 581.

²⁵⁶ Presumably because whereas Epicurus holds all sensation is true, Democritus based his scepticism in part on the idea that sensation was the result of an *interaction* between the images and our eyes (Avotins 1980: 453).

appear to have the same colour as the bodies they come from in *Ad Herodotum* 49.²⁵⁷

In *Ad Herodotum* 52 the adjective ὁμοιομερεῖς describes the ὄγκοι into which sound streams dissipate: τὸ ῥεῦμα τοῦτο (the sound-stream coming from person or object which produces hearing) εἰς ὁμοιομερεῖς ὄγκους διασπείρεται, ἅμα τινὰ διασώζοντας σύμπάθειαν πρὸς ἀλλήλους καὶ ἐνότητα ἰδιότροπον, διατείνουσιν πρὸς τὸ ἀποστεῖλαν καὶ τὴν ἐπαίσθησιν τὴν ἐπ' ἐκείνου ὡς τὰ πολλὰ ποιούσαν, εἰ δὲ μή γε, τὸ ἐξῶθεν μόνον ἔνδηλον παρασκευάζουσιν.

. . . . The idea could be either (a) that each ὄγκος contains only one sort of atom and they are therefore internally uniform or (b) that ὄγκοι reproduce each other (“have same parts as”) each other, or (c) that the ὄγκοι have ὁμοιομέρεια, in the sense that they reproduce the characteristics of their source. Interpretation (c) is the most attractive, since it is comparable to the use in ΠΦ II, and (b) might be implied in the idea of (c). The clause starting ἅμα seems evidence of (b) and (c) together.

That Epicurus used the word ὁμοιομέρεια in his own theory is also suggested by Aëtius I. 7. 34: Ἐπίκουρος ἀνθρωποειδεῖς μὲν τοὺς θεοὺς, λόγῳ δὲ πάντας θεωρητοὺς διὰ τὴν λεπτομέρειαν τῆς τῶν εἰδῶν φύσεως. ὁ δ' αὐτὸς ἄλλως τέτταρας φύσεις κατὰ γένος ἀφθάρτους τάσδε, τὰ ἄτομα τὸ κενὸν τὸ ἄπειρον τὰς ὁμοιότητας· αὐταὶ δὲ λέγονται ὁμοιομέρεια καὶ στοιχεῖα. In the second sentence (fourth word) I tentatively read, with Gassendi, ἄλλως in place of Diels' ἄλλας. Obbink (1996: 331), who himself reads ἄλλως, reports that the “codd.”

²⁵⁷ This seems less obvious in the case of sound than of vision, but Epicurus thinks of the senses as alike, and one can compare *DRN* 553-556, especially 556 (*vox servat enim formaturam servatque figuram*).

have ἄλλας. But it is clear from the *apparatus* in Diels that ἄλλως has manuscript authority.²⁵⁸

The passage seems to indicate that Epicurus used ὁμοιότητες and ὁμοιομέρειαι in the context of unperishable existences. It is not completely clear what the αὐταί in the final sentence refers to. It probably refers just to ὁμοιότητες,²⁵⁹ rather than to all four of Epicurus' everlasting φύσεις.

Obbink (1996: 331) suggests that the final sentence is a gloss by an exegete who misunderstood the theory, and that ὁμοιότητες “may be an abbreviated expression for συγκρίσεις ἢ ἐνότητες ἐξ ὁμοίων”, as opposed to ἐνότητες ἐκ τῶν αὐτῶν.²⁶⁰ He

²⁵⁸ See Scott 1883: 231 (misprinted “1883, 321-332” in Obbink) and Giussani 1896: 261.

²⁵⁹ The word ὁμοιότης is also attested in *Ad Herodotum* 51; again in the context of discussion of vision. And ὁμοιότητες also occurs in ΠΦ XXV (Laursen 1995: 103):

[μηχαν]ῆ ἀνο[
νη[ι]] ἔπειποιμη[έ]νω[ν
τῶν ὁμοιοτή[των καὶ ἀνομοιο-
τήτων. Ἐν πλείοσι καὶ δια-
φόροις.
καὶ [έ]πὶ τοῦ παντὸς ἢ ἐπ[ι-
λόγ[ισ]ις [ου] ε . . .

Assuming that the text is right, it looks as though τῶν ὁμοιοτή[των is something which can be formed. This makes me suspicious of Vogliano's, Attighetti' and Laursen's view that [των καὶ ἀνομοιο- should be read in line 3.

²⁶⁰ Such a concept is known from lines 209-219 (Obbink 1996: 120), and 347-375 (Obbink 1996: 131), where the expression refers to the gods. The distinction Obbink operates between unities made up of

thinks that Aëtius has garbled the theory since not all ὁμοιότητες are everlasting, but only some which are called gods.

There is evidence for four everlasting existences in *DRN* III 806-827. In these lines Lucretius describes immortal existences the atoms (Epicurus' ἄτομα) in 806-810, void (Epicurus' κενόν) in 811-813, the infinite (Epicurus' ἄπειρον) in 814-818. Lucretius goes on to describe a fourth possible everlasting existence. Giussani (1896: 220-225 and 239-240) plausibly suggests that the gods were referred to in this passage starting with line 819, the specific reference being lost in the lacuna after 823. It seems unlikely that the lacuna simply mentioned that the possibility of a further undefined everlasting existence: it would be a rather long-winded way of making the point.²⁶¹

The alternative suggestions for the role of Epicurus' further everlasting existence are unconvincing. Robin (Ernout-Robin 1925: 161 and 1928: 47-49), who thinks the ἄλλως shows that the redactor (perhaps Posidonius) was trying to expose an inconsistency in the Epicurean theory, reckons that the last item in the passage means "l'immuable identité spécifique, en un nombre infini d'exemplaires, de chaque figure

similar, and unities made up of the same particles seems to depend on his restorations in lines 210-219: ἀλλὰ κ[αὶ | κα]τὰ συντέλε[ιαν] | ἕ[ν] καὶ ταυ[τὸν συν]|εχώ[ρ]ς ὑπάρχον καθ' ὁ|μειλ[ίαν ἐνοτήτας | προσαγορεύε[σθαι] | τὰς μὲν ἐκ [τῶν ὄντων] | τῶν α<ὐ>τῶ[ν ἀποτε]|λεισθαι, τὰς δ' ἐκ τῶν | ὁμοίων . . .

²⁶¹ In *DRN* V 351-363 (which are repeated with a few adjustments from *DRN* III 806-818) on the other hand Lucretius speaks only of three everlasting existences: atoms void and the infinite.

atomique” referring to Aëtius IV. 9. 9,²⁶² and to Epiphanius.²⁶³ But it seems very unlikely that Epicurus would think of shapes as an existence. Epicurus remarks explicitly in *Ad Herodotum* 68b-69 that τὰ σχήματα are not καθ’ ἑαυτὰς φύσεις.

It is equally difficult to think that the reference is to the way in which the atoms came together and were kept together. There would be “similar parts” because the atoms tended to come together in a similar manner. This however seems dangerously close to saying that the shape of molecules is everlasting, which is open to the same objection as Ernout’s suggestion above. What is more Epicurus might not want to overemphasise the similarity between the structure of, say, every lump of earth given the constant influx and efflux of atoms, although he certainly stressed that there is sufficient similarity in compounds to give them the same overall character. And the use of στοιχεῖα, assuming it is not part of an erroneous gloss, hardly seems appropriate to refer to the way in which atoms combine.

All one can say is that the Aëtius passage shows that Epicurus used ὁμοιότητες, and perhaps ὁμοιομέρειαι, in his own theory, perhaps in the context of his fourth

²⁶² D.G.: 397, lines 19-25: οἱ τὰ ἄτομα καὶ τὰ ὁμοιομερῆ καὶ οἱ τὰ ἀμερῆ καὶ τὰ ἐλάχιστα πάντ’ ἐν πᾶσι τὰ αἰσθητὰ ἀναμεμῖχθαι καὶ μηδὲν αὐτῶν εἰλικρινὲς ὑπάρχειν, παρὰ δὲ τὰς ἐπικρατείας ὀνομάζεσθαι τοῖον ἢ τοῖον καὶ παρὰ τὴν πολυαύγειαν. This passage is confusing: it is unclear whether Aëtius is here referring to the atomists, or to Anaxagoras, or to both.

²⁶³ D.G.: 588, lines 1-3. Epiphanius (sometimes an unreliable source) writes: Ἐπικούρειοι ἄτομα καὶ ἀμερῆ σώματα ὁμοιομερῆ τε καὶ ἀπειρα τὴν ἀρχὴν εἶναι τῶν πάντων ὑπεστήσαντο, καὶ τέλος εἶναι εὐδαιμονίας τὴν ἡδονὴν ἐδογματίσαν, καὶ μήτε θεὸν μήτε πρόνοιαν τὰ πράγματα διοικεῖν.

everlasting existence, the gods,²⁶⁴ which were themselves compounds of a special kind (Giussani 1896: 240-241).

Let us now come back to fragment 7 of ΠΦ XV,²⁶⁵ having established that Epicurus used words from the ὁμοιομέρ-root often in his works, as part of his own theory. The context in which fragment 7 does not suggest that Epicurus was criticising Anaxagoras' theory of matter. The column of fragment 6 did not intervene between columns of fragment 5 and that of fragment 7.²⁶⁶ Fragment 6 is from a different layer of

²⁶⁴ Wigodsky (2004: 215-216), following Giussani (1896: 245-259), argues that Epicurus' gods were everlasting physical existences, rather than mere mental images referring to *De natura deorum* I. 50 and 109. In Cicero the gods' eternal existence is connected with the principle of ἰσονομία. It is thanks to the παλμοί (i.e. motions capable of creating or maintaining particular kinds of compounds) that the gods preserve their equilibrium indefinitely. It seems at least possible that the notion of ὁμοιομέρεια had a part to play in the description of self preservation of the gods, with the idea that the parts were never altered: having similar parts the gods did not suffer degradation.

²⁶⁵ Millot (1977: 28) considers the possibility that ὁμοιομέρεια is here an Epicurean term meaning that up to a point division of bodies does not modify their constitution, as in book XIV (above page 140), but prefers to explain this occurrence by supposing that the column was part of a criticism “de la doctrine des homéomères d'Anaxagoras: la très grande diversité des corps sensibles interdit de penser que tous puissent avoir la même composition”. It looks as though Millot envisages Epicurus to have criticised Anaxagoras on the claim (a) everything is made up of portions of the same thing (all things, or at least all stuffs, are equally fundamental), disregarding the claim that (b) ἐν παντὶ παντὸς μοῖρα. Anaxagoras' theory was as successful as any other in explaining different natures, given its ἐν παντὶ παντὸς μοῖρα aspect.

²⁶⁶ Numbered as fragment 4 of the papyrus in the *cornice*. I shall use the word 'section' to refer to the physical stretches of fabric in the *cornici*. This section of *PHerc.* 1151 measures 25 x 7 cm *circa*.

the roll. It is perhaps a (single) *sottoposto*, and therefore came from one circumference earlier in the roll than its present position indicates:

]νων ῥηθέντ . [
 τ]οιοῦτος ἐστιν [
]λην ὄψιν ἔχων [
 . . εἰς ἀγ]ωνιστικὸν χα[ρα-
 κτηρα ἄν] πέσηι ἢ ὡς μεν[5
]αι ο κ . [.]ρος καὶ [
 ἀγ]ωνιστ[ικο]ύς

1 . [, ω is possible, only a dot on the bottom of the line can be seen

1 ῥηθέντ[ων Millot 2 τοιοῦτος Arrighetti: οὔτος Vogliano: ος [ὁ] αὐτός Millot 3 ἄλλ]λην Arrighetti: ὄ]λην Vogliano 4 ἀγ]ωνιστικὸν Vogliano Arrighetti Millot 7 supplevi

Perhaps ὄψις here means “point of view”, or “perspective”. The context cannot be determined. It may be that Epicurus was describing someone who had a contentious attitude because of divergences of thought. It could be that Epicurus is describing an individual who let contentious emotions get the better of her because of divergences of

view (and presumably explaining how atomic combinations in compounds could explain the particular behaviour or character of living beings). It is also conceivable however, that Epicurus is describing the kind of activity the gods do not partake in.

It may well be that the original position of fragment 6 was ahead of fragment 4:

να ἀποτελ . τα[ι

οτροπους [.]ν φ[.

..]ς κεκτη[μέν]α[ς

— — — — —

]ου πάσι[

5

. . ού]δ' ὡς ἐξ ὧν [

. . .]η πε . ικε . [

. . .]ν· η περατ .

1 να ἀπο Vogliano Arrighetti Millot 2 ὁμοι]οτρόπους Vogliano]ο τρόπους Arrighetti Millot 3]κεκτη[μ Vogliano:]κεκτη Arrighetti:] . κεκτη Millot 5 legi 6]ὡς ἐξ ὧν[Millot 7] . . ηκει[Millot 8 ν·ηπω Millot

The order of the fragments on the next section of the roll was 5, 7, 8 and 9.²⁶⁷ Fragment

5 reads:

εἰ] μὲν οὖν τις φιλοσοφῶν
πρά]γματα ἑαυτῶι παρέχο[ι
ἀεὶ ἐ]ξ ἧς εἶρηκα ιδέας· προ-
ιόν]τος δὲ χρόνου εἶπερ τι τῶ[ν
ἐν]δεόντων πράττοι· λη[5
..]αν [. . .]ο . αἰας · ἀποθεω[
ινα

1 εἰ] Vogliano 2 παρέχο[ι Vogliano 3 Arrighetti; ἐ]ξ ἧς Vogliano sed spatio brevius: ἐστίν ἐ]ξ
Bollack Millot sed spatio longius 4 Millot; ιόν]τος δὲ χρόνου, [δ]περ τι τῶν Arrighetti 5 Millot
6 ἀποθεω[ρ Millot: ἀποθεωρ[Vogliano: αποθεο Arrighetti

The expression ἑαυτῶι παρέχειν πράγματα suggests that someone is making life

²⁶⁷ The final two *sezioni* of this fragment measure 53 mm, the two previous ones *circa* 54.50 mm, so that not much (one column, or less?) was lost between the previous section (section 3), ending with fragment 4 (a *sezione* there measured *circa* 58 mm).

difficult for himself.²⁶⁸ Millot (1977: 27) is probably right in reading φιλοσοφῶν as the participle of the verb,²⁶⁹ agreeing with τις, rather than as a genitive plural. Her reading is supported by the absence of the article.

Epicurus is describing, in fragment 5, different phases in someone’s philosophical development.²⁷⁰ Millot takes the first sentence to refer to a novice Epicurean (“néophyte”). It looks as though the ἰδέα which causes the person problems might derive from un-Epicurean beliefs (these may be down to an earlier thinker, or simply popular beliefs). It seems a safe inference that in the preceding section of the book Epicurus had been describing this troubling ἰδέα. Millot (1977: 27) understands ἰδέα “la forme, l’espèce”, meaning life-conduct,²⁷¹ rejecting Arrighetti’s suggestion that ἰδέα

²⁶⁸ Millot (1977: 26) quotes Diogenes of Oenoanda 34. I. 8 (= fragment 42 column III, lines 8-10; Smith 1992b: 223): τί μ[άλιστα] α̅αυτῶι παρέχεις πρά]γματα; The context is a reproach to Empedocles and Pythagoras. To judge from Diogenes’ use, the expression seems more likely to refer to problems in philosophical argument.

²⁶⁹ Millot (1977: 26) is not persuaded by Arrighetti’s proposal that φιλοσοφία-rooted words carry a negative connotation in Epicurus. Arrighetti refers to texts [29] [18] (line 3) and [37] [1] (line 9) as evidence, but Millot rightly remarks that in both cases it is the context that determines the negative connotation. She points to *Ad Menoeceum* 122, where φιλοσοφεῖν is applied to Epicurus’ own philosophy.

²⁷⁰ The expression προιόντος δὲ χρόνου (lines 3-4) no doubt indicates a later phase in the development of thought of the unspecified person.

²⁷¹ Millot refers to a citation of Epicurus by Philodemus in Arrighetti text [81] τὰς μ[ὴ πρὸς] ε]ὐδ[αίμων]α βίον [συ]ντεινούσας ἰδέας τοῦ βίου.

means “forme di ragionamento”.²⁷² “Form of reasoning” perhaps suits the tone of the fragment better, but there seems to be no need to sharply distinguish between the two, since reasoning would affect behaviour. A comparable theme comes up, as we shall see, in the fragments of *cornice* 8, where beliefs about the gods are discussed.

Millot is convinced that the apodosis to the initial εἰ came before the high stop in line 3, and adopts Bollack’s suggestion ἐστὶν ἐ]ξ to supply the apodosis. But the space on Π does not allow such a reading. It seems unlikely that the apodosis preceded the protasis, and it seems reasonable to think that it came after line 5. The apodosis perhaps ran “he will forget the ἰδέα that has been troubling him” if λη[in line 5 should be restored as λή[θην.²⁷³

Fragment 5, then, which immediately preceded fragment 7, sounds like part of a methodological discussion on how a particular ἰδέα might affect a person’s life, and how the person ought to reject it, while developing his philosophical thought. Fragment 8, which comes from the column which immediately followed that of fragment 7, reads:

ν]ομιζούσα τ[ο]υ[.
] . λα . νει περιελ[.

²⁷² Arrighetti refers to the meaning in ΠΦ XXVIII (text [31] [16], line 8). Millot adds [21] [15]. In both fragments the term seems to refer to forms of reasoning.

²⁷³ The use would be paralleled in ΠΦ XXV εἰ μὴ λήθη τις ἐπὶ τῶν ἔργων τῆς δόξης ἐνεγείνεται, συνεχῶς ἂν ἑαυτὸν ταραττοντα (Laursen 1998: 43-44). Yet one cannot rule out that Epicurus used a word such as λήρος, which would give the opposite sense.

ἄτομαι καθε . [.

[.]σον τᾶ[. .]ον[.

τούτου . . [. .] . 5

τὸ φ[

ον[

1-5 the letters on the right hand side of the column come from a different layer 7 the traces are also consistent with ομ

1 legi; ν]ομίζεσθαι Vogliano Arrighetti: ν]ομίζουσι Millot 2 ολα . νο περιει[Millot 3 legi;]τ[-
-]θει Millot 4]οντ[]ον[Millot 5]ουτ[Millot

There is no implication here that, as Millot's incorrect reading ν]ομίζουσι may have suggested, Epicurus is reporting the thought of others. It is not easy to think of a feminine subject that could have preceded the participle, but it is striking that fragment 9, which came immediately after fragment 8 on the papyrus, presents two participles in the feminine plural:

ἔμ]ψυχον θεωροῦ[σαι καὶ δη-

μιουργοῦσαι· εὔ μ[ῆν τῆν

ἔννοιαν δεῖ τ[αύταις -

ρός τούτου γίνεσ[θαι

καὶ μνήμη[ν

5

. . . .]εις

ζω[

2 empty space after ν , with corresponding paragraphos between lines 2 and 3

1 ἔμ]ψυχον Arrighetti 1-2 θεωροῦ[σαι καὶ δη]μιουργοῦσαι Vogliano Arrighetti Millot 3
supplevi; ἔννοιαν δεῖ[Vogliano Millot: ἔννοιαν δεῖ τῆ[ν] υ . . . Arrighetti 3-4 μέ|ρος Vogliano
4 Vogliano Arrighetti; γ[ί]γ[νεσθαι] Millot sed cum Π non congruit

The two antithetical participles in lines 1 and 2 must have had a common subject. Millot (1977: 28) tentatively proposes θεῖαι φύσεις, referring to *Ad Pythoclem* 97, where Epicurus uses the expression, in the singular. She thinks the verb δημιουργεῖν here²⁷⁴ evokes “le pouvoir créateur et orgainsateur du monde du démiourge du Platon”,²⁷⁵ and that Epicurus is ruling out, in the context of the discussion of the formation of bodies,

²⁷⁴ The verb δημιουργεῖν could be used of skilled practical work (so Aristotle and Plato).

²⁷⁵ There certainly is similarity of vocabulary with *Timaeus* 30B 6-9: οὕτως οὖν δὴ κατὰ λόγον τὸν εἰκότα δεῖ λέγειν τόνδε τὸν κόσμον ζῶιον ἔμψυχον τε τῆι ἀληθείαι διὰ τὴν τοῦ θεοῦ γενέσθαι πρόνοιαν.

divine intervention²⁷⁶ in the creation of animate beings.²⁷⁷

Millot's reading οὐ μὴν in line 2 is not consistent with the traces on the papyrus. But εὐ μὲν could have introduced Epicurus's refutation: one must not think that for the creation of an animate being there must be "une idée préalable",²⁷⁸ a meaning which does not seem to be the usual one for ἔννοια in Epicurus,²⁷⁹ but one for which Millot finds

²⁷⁶ There is evidence that in ΠΦ XIII Epicurus had already broached the theme of the gods (below page 195).

²⁷⁷ Santoro (2000: 91) restores ἔνψυχον twice, in very fragmentary contexts. Neither is absolutely certain (ἔν)ψυχ[ο]ν in column I line 5, and ἔνψυχ[ον] in column II line 3). The word is used in Plato *Timaeus* 30B, 38E, 74E, 91A and 91B.

²⁷⁸ *DRN* V181-186 seems comparable: *exemplum porro gignendis rebus et ipsa / notities divis hominum unde est insita primum, / quid valiant facere ut scirent animoque viderent, / quove modost umquam vis cognita principiorum / quidque inter sese permutato ordine possent, / si non ipsa dedit specimen natura creandi?*

²⁷⁹ In *Ad Herodotum* 69 Epicurus ἔννοια need not mean "notion that is there already" (as προλήψις does), and the same can be said about the occurrence at *Ad Herodotum* 57 (where it is used about τὸ ἄπειρον). In *Ad Herodotum* 77 the meaning of ἔννοια is close to 'notion which is there already': ἀλλὰ <δει> πᾶν τὸ σέμνωμα τηρεῖν κατὰ πάντα ὀνόματα φερόμενα ἐπὶ τὰς τοιαύτας ἐννοίας, ἵνα μηδὲν ὑπεναντίον ἐξ αὐτῶν τῷ σεμνώματι δόξῃ Diogenes Laertius X. 33 may be relevant, although not a direct quotation of Epicurus: τὴν δὲ πρόληψιν λέγουσιν οἰονεὶ κατὰληψιν ἢ δόξαν ὀρθὴν ἢ ἔννοιαν ἢ καθολικὴν νόησιν ἐναποκειμένην, τουτέστι μνήμην τοῦ πολλακίς ἐξῶθεν φανέντος, οἷον τὸ τοιοῦτόν ἐστιν ἄνθρωπος. D'Angelo (2001: 328) restores ἔννοια to column 11 of *PHerc.* 1413: Οὐ γὰρ τοιού[τοις τισὶν] | ἐγχειρήμασι π[ρὸς ἐν]νοϊαν λόγοι γίνοντ[αι] | ἀλλ' ὅταν τό[δε] τι | προειλημμένον δει|κνύῃ τις κατὰ τὸ «ἴδιον» | τὸ ὄνομα, «εἶτα» ἐξ ἀποστή|[μ]ατος κατηγοροῦμεν δντο[ς] | τοῦτο μεν[---.

a parallel in Κύριαι δόξαι 24:²⁸⁰ εἰ δὲ βεβαιώσεις καὶ τὸ προσμένον ἅπαν ἐν ταῖς δοξαστικαῖς ἐννοίαις καὶ τὸ μὴ τὴν ἐπιμαρτύρησιν <ἔχον> οὐκ ἐκλείψεις τὸ διεψευσμένον, ὡς τετηρηκῶς ἔσθι πάσαν ἀμφισβήτησιν κατὰ πάσαν κρίσιν τοῦ ὀρθῶς ἢ μὴ ὀρθῶς. The use of ἔννοια, although not exactly the same as Millot proposes for this fragment, seems to support the suggestion that ἔννοια can be used in the sense that is more usually that of πρόληψις. It should be noted however that it is qualified by δοξαστικαῖς.

Millot's general interpretation of fragment 9 is supported by the reading ζω[ωι . .] in line 6. Millot reasonably suggests that μνήμην “peut être soit sur le même plan que ἔννοιαν, soit sujet d'une deuxième infinitive dépendant de δεῖ”. It seems possible that believing in such an ἔννοια and μνήμη on the part of the gods is the ἰδέα Epicurus mentioned in fragment 5.²⁸¹ Millot (1977: 28) suggests that]ροϛ in line 4 might have been ἀνδ] | ρός.²⁸² But such a word-division (as opposed to ἀν | δρός) would be very

²⁸⁰ Πρόληψις is also used in *Ad Herodotum* 72, Κύριαι δόξαι 37 and Κύριαι δόξαι 38. Sandbach (1971: 23-25) argues against the generally accepted identity of κοινὴ ἔννοια and πρόληψις. According to Sandbach (1971: 30-31) Epicurus invented the word προλήψις (as Cicero reports in *De natura deorum* I. 44). He suggests that in Epicurus' view πρόληψις was caused by memory (coincidence of several presentations of the same object), while the Stoics allowed for other ways of forming προλήψεις (analogy etc.).

²⁸¹ It is perhaps relevant that the word μνήμη, or some cognate form, appears in the earlier parts of the roll, in fragment 2b, where]μνημ[can be read in line 4.

²⁸² Millot refers to Bollack (1976: 357), where Diogenes of Oenoanda fragment 12 Chilton (= fragment 15. III Smith) is quoted πάντες ἄνθρωποι ἢ λ | πῖ | σ | α | ν [] υ [] [] φάσματα | [] ον ἀ[μή]χανοι. ἀν γὰρ [. . . .] | φάσματα ἐναργῆ τυ[ν] | χάνη, πῶς δὲ γείνε | ται ταῦτα εὐρίσκειν

odd, as Professor Römer indicates to me.

Millot's interpretation of column 9 seems convincing, and I wonder how the fact that fragment 9, and, probably, fragment 8, ruled out divine intervention in the creation of animate beings can square with her suggestion that Epicurus criticised Anaxagoras' elements theory in fragment 7. It seems more likely that Epicurus was considering here divine nature, and whether it was involved in the process of creation. And it seems possible that he used ὁμοιομέρεια and cognate forms while putting forward his explanation of living creatures through aggregation of atoms, and setting it against some other thinkers' suggestion, which implied divine agency.

Anaxagoras certainly had a theory of the origin of living beings (KRS texts 505 and 506), and he might have included Νοῦς in his explanation. But Anaxagoras'

μη δύνωνται, | εἰκότως οἶμαι, εἰς ὑποψίαν περικυκλείονται, ποτὲ δὲ | καὶ πίστιν δημιουργ[γόν
τινα εἶναι ἔχουσι]. Millot and Laks object to Smith's reading of φάσματα ἐναργῆ as images of the gods:
"comme la méconnaissance dont il est question ne porte cependant pas, dans l'hypothèse, sur un propriété
des dieux (leur oisiveté, en l'occurrence), mais sur la nature du mécanisme physique lui-même (voir πῶς . .
. δύνονται), on ne voit pas du tout comment elle pourrait conduire à poser l'existence d'un démiourge, c'est-à-
dire un dieu *créateur*. Le terme δημιουργός implique en effet l'idée d'une organisation de l'univers par une
intelligence supérieure. Les images, quelles qu'elles soient, sont donc plutôt celles de phénomènes
indiscutables, mais dont la raison d'être n'apparaît pas et auxquels on attribue une origine surnaturelle (voir
par ex. la *Lettre à Pythoclès* 86)". I think Smith's interpretation that we are dealing with visions of the gods
(Smith 1992b: 456) is perhaps preferable. The word occurs again, in Diogenes of Oenoanda fragment 19. I
lines 10-11 (Smith 1992b: 178-179), where the behaviour Homer attributes to the gods is criticised. And the
verb δημιουργεῖν is used, again in a context dealing with the gods, in fragment 20 Smith, where Diogenes
criticises the view that the gods created the world as an habitation for themselves (Smith 1992b: 180-181).

reference to Νοῦς was notoriously not followed up in practice,²⁸³ and certainly his theory was not one where divine intervention played a considerable role in creation.

Plato's theory in the *Timaeus* would provide a more suitable context for a discussion of this kind. Epicurus' point against Plato would be that the mechanical process, i.e. the shapes the atoms form in colliding is *sufficient in itself*. As Professor Sharples suggests to me there might be a connection with the principle of "like to like". Democritus (KRS text 570) and Plato (*Timaeus* 63E, in context) assert this principle and derive it from underlying mechanical reasons.²⁸⁴

It seems at least conceivable that Epicurus criticised Plato in book XV,²⁸⁵ and that the references to those who have developed physical systems in the book are references to the system Plato elaborated in the *Timaeus*, a work which Epicurus would

²⁸³ If we are to believe Plato (*Phaedo* 97B) and Aristotle (*Metaphysics* A. 4. 985a18-22) that Anaxagoras' accounts were actually pretty materialistic and mechanistic, Epicurus would have been on slightly unsafe grounds in dealing with Anaxagoras' account of the origin of animate beings, since Anaxagoras' theory might seem rather like his own, and thus his own theory liable to similar difficulties to Anaxagoras' (although Anaxagoras *could* appeal to Νοῦς). For what it is worth, given the state of the evidence, there is no reference in Anaxagoras to any specific examples of demiurgic activity of Νοῦς, although his general statements do imply that it organises everything (KRS text 476).

²⁸⁴ It may be that in *this* context at least the ὁμοιομέρεια might be the similar particles (atoms or molecules) which tend to come together?

²⁸⁵ Arrighetti had suggested a relation to the *Timaeus* for the final columns of book XV (those from *cornice* 8), which are discussed below, but Millot failed to pick up on this.

have studied under his teacher Pamphilus.²⁸⁶

To sum up regarding the use of ὁμοιομέρεια in fragment 7 of ΠΦ XV: lines 3 and 4, and what came ahead of them discussed, or at least mentioned, how the διάφοροι συγκρίσεις come into being. Epicurus is certainly discussing, or putting forward, a theory of atomic compounds here. I take it that the δὴ in line 4 is used as a particle of emphasis.²⁸⁷ The τὸ δὴ μὴ in line 4 almost certainly introduced an infinitive.

2.1.4.2 Cornice 3

The two better preserved fragments of *cornice* 3 are 11 and 12. Epicurus' use of a word from the ὁμοιομερ-root in fragment 11 has lead scholars to read the fragment as a report of Anaxagoras' theory of 'predominance'. I think that fragment 11 can, and should, be explained in the context of an account of Epicurean aggregates.²⁸⁸

[διὰ . . .

.]ιν συνέτ[α]κε [·] καθὸ γὰρ

²⁸⁶ Criticism of Plato seems to have been a recurrent feature in this section of the ΠΦ. In column XXXVIII of ΠΦ XIV, while criticising Plato for his choice of shape, Epicurus announces further discussion of Plato's theories: ἀλλὰ γὰρ αὐθίς που ταῦτα μηκυνθήσεται. The reference there seems to be to a discussion of infinite divisibility.

²⁸⁷ Denniston (1950: 203-204) gives "clearly" as its primary meaning.

²⁸⁸ Millot 1977: 29 and Sedley 1998: 124. 'Predominance' is explicit in the last sentence of Anaxagoras DK B12.

πρ]οσαγορεύεται ὃ τι δῆπ-
 οθ' ε]ῖναι, κατ' ἐκε[ῖ]νο ἐκ τῶν
 π]λείστων τῶνδὲ τινων
 πε]ποιοη[μ]ένη ἐξ [ὀ]μοιομε- 5
 ρῶν ἔ'αυτ]ῆς [ῖστατ]αι οὐκ ἐκ
 . . . α . μ τῶν ἢ σύ[γκ-
 ρισις] . . ησει τ[ο]ῦ ἐκείνου
] . . ζετα[ι
]νατ[10

1 underneath ετ[α]κ a long horizontal stroke can be seen below the line, its significance is unclear 2
 ink can be seen underneath the ρ, it may be displaced ink; δῆπ- only the left vertical of π can be seen.

1 supplevi; . .]ν συνε. . . κ . καθὸ γὰρ Millot 2 σ[.]α[. .] . ρ . ὑεται ὅτι δῆπ[οτε Vogliano (quod
 per errorem ad lineam septimam ab editoribus refertum): πρ]ο[σ]α[γ]ορεύεται οὐκ [έ]πι Arrighetti:
 π]οσαγορεύεται ὅτι δῆ[λον Millot sed cum Π non congruit 6 supplevi; ὀμοιομε|[ρῶν Millot:
 ὀμοιομε|[ρείας Arrighetti 7 legi et supplevi 8 legi et supplevi; ἐκείνου Millot 9-10 legi

The verb προσαγορεύεται in line 2 seems to refer to the fact that each body reveals
 itself as a particular nature, to which we can apply a name; ὃ τι means “whichever thing”
 (Millot) and is the subject of προσαγορεύεται.

Millot suggests that the subject of πε]ποιη[μ]ένη in line 5 could be φύσις or, more probably, σύγκρισις.²⁸⁹ My restoration of lines 7-8 confirms that σύγκρισις was the subject of πεποιημένη. This does not fit easily with thinking that we have a report of Anaxagoras' theory. Anaxagoras did not use σύγκρισις as a physical entity, but rather as a process.²⁹⁰

It looks as though ἐκ τῶν πλείστων τῶνδέ τινων should be taken as a whole, meaning "made up, for the most part, of these", i.e. "the greatest portion being made up of these" (Millot). The ἐκ τῶν πλείστων τῶνδέ τινων was taken up (and explained) by ἐξ ὁμοιομε- and by οὐκ ἐκ, which presumably gave an incorrect alternative explanation.²⁹¹ According to Millot (1977: 29) Epicurus used the adjective ὁμοιομερῶν, referring to a noun such as σωμάτων. The traces of ink on the papyrus however do not allow for σωμάτων, or even for a shorter alternative, such as ὄγκων. Arrighetti's ὁμοιομέρειας seems too long to fit the space. And certainly too long is the plural ὁμοιομερειῶν, which is not safely attested anywhere else in Epicurus anyway. All one can say is that the term seems to refer to what provided the name to a compound/substance, and therefore presumably provided its characteristic features.

²⁸⁹ For a parallel expression, above note 203 and perhaps line 17 of column "XXXIII" (above page 112).

²⁹⁰ Anaxagoras used σύγκρισις in the singular to refer to the process of coming together (as opposed to separation), not in the sense of agglomerates of atoms making up things in our experience, as in ΠΦ XIV and XV.

²⁹¹ One may wonder whether Epicurus would introduce an 'incorrect' explanation to emphasise the point, if he was reporting Anaxagoras' theory.

It looks as though the predominance issue figured in Epicurus' own theory. *Ad Pythoclem* 109 (quoted above note 205), implies a principle of predominance: ice is formed when the angular shapes expel "round configuration" from the compound. In *Ad Herodotum* 63 Epicurus says that the soul is a σῶμα λεπτομερές spread all over the body very similar to πνεύματι θερμοῦ τινα κράσιν ἔχοντι καὶ πῆι μὲν τούτῳ προσεμφερές, πῆι δὲ τούτῳ. Lucretius in *DRN* III 288-306 similarly says that souls are made up of certain ingredients, and the character of the soul is determined by which ingredient predominates,²⁹² although he does not say that the fact that it is a soul rather than something else depends on predominance in this way. Aëtius IV. 3. 11 similarly reports that Epicurus κράμα ἐκ τεττάρων, ἐκ ποιοῦ πυρώδους, ἐκ ποιοῦ ἀερώδους, ἐκ ποιοῦ πνευματικοῦ, ἐκ τετάρτου τινὸς ἀκατονομάστου, ὃ ἦν αὐτῷ αἰσθητικόν. One should perhaps assume that these ingredients themselves are compounds of atoms, since they display characteristics which require secondary qualities. So it may be that the principle of predominance applied to the level of molecules rather than at that of atoms.²⁹³

Fragment 12, which comes from the column immediately following that of fragment 11, reads:

²⁹² Arrighetti though this theory was referred to in ΠΦ XXV, above note 203.

²⁹³ Alexander of Aphrodisias in Usener text 315 reports that according to the Epicureans the soul is a σύνθετος ἐκ πλειόνων τινῶν καὶ διαφερόντων σωμάτων. This could, presumably, refer to aggregates of atoms.

κειμένων συν . [. . . .] α [.]
 τήν τε κατὰ τὸ . [. . . .] . ἦ
 φαντασίαν τοιαυτ[η]νὶ ἦ
 τοιαυτηνὶ ποθεν ῥηθή[σον-
 ται [ἔ]χειν αἰ συ[γκρί]σεις· ἦδ[ε] 5
 γὰρ μὴν ἐν ἀθρ[ο]ί[σ]μασι
 . . θ[.] ἐστὶν ἀλλ[

1 συν . all that can be seen on Π now is a vertical, which could as well be ι, but both Vogliano and Arrighetti have un-dotted η, it may be that a piece of fabric was lost 2 τὸ . [γ perhaps more likely than π 3 ε is added above the line giving the spelling τοιαυτην `ε`ί 5 τοιαυτην `ε`ί as in line 3 5 empty space before ἦδ[ε], the traces of the corresponding paragraphos are very faint

0-1 ὑπο||κειμένων συνη[Arrighetti: κειμένων συνη[Vogliano; fortasse συνι[σταν]α[ι] legendum
 2 suppleni; τη [. .] κατὰ τὸ σ[ύστημα] Arrighetti: τήν τε κατὰ τὸ[Millot 4 ῥηθή[σον- Millot
 5 συ[γκρί]σεις Arrighetti Millot 6 ἐν ἀθρ[ο]ί[σ]μασι Arrighetti 7 legi

Epicurus was considering in fragment 12 “from where” the compounds acquire such or such a specific φαντασία.²⁹⁴ By φαντασία he presumably referred to the appearance

²⁹⁴ This may have been a question. Epicurus would be asking how this could be explained on any other theory, or he could be giving his own explanation: “this shows from where . . .”.

of the compound. It is perhaps possible that the reference here is more specific, and regards the configuration or shape of the compound. We have seen above (pages 138-139) Epicurus using *τοιαύτη φαντασία σχήματος* to refer to the compound fire, although he was reporting Plato. But while in book XIV Epicurus mentions *σχῆμα* explicitly, he does not in fragment 11 of book XV, unless such a mention was lost in the earlier part of the sentence and just assumed in the latter parts.

This reading of fragments 11 and 12 suggests that ‘aggregation of atoms explains the creation of everything that exists’ was the ‘unifying’ theme of ΠΦ XIV and XV.²⁹⁵ The words from the *ὁμοιομέρ-* root were important in this context.

Only a few letters can be seen from the column immediately following that of fragment 12, numbered inappropriately as fragment 12 A in Millot: the first word of the line is *σύ]γκρισι[ς*. The evidence suggests that Epicurus had been dealing with aggregates throughout columns 11, 12 and 12A.

Fragments 12B, 12C, 13a and 13b come from different layers of the roll. It looks as though 12B and 13b are *sovrapposti* and therefore came from columns which belong to a later part of the roll. An interesting reading is *ἰσχυροῖ γέν[* in line 1 of fragment 12 C. This is a term which Epicurus uses to refer to “the strength” in difference of the compounds (e.g. in lines 4 and 5 of column XIII of ΠΦ XIV). Fragment 13a has the word *δεδήλωται* in line 3 and *τὰς ὁμοίας ε[* in line 4, but there is not enough context to see what the similarity in question might be.²⁹⁶ The use of such vocabulary is certainly

²⁹⁵ On Sedley’s assumption of “thematic unity” for ΠΦ XIV and XV, below page 193.

²⁹⁶ Fragment 13b is probably part of a *sovrapposto*.

consistent with a discussion of how the compounds exhibit a specific nature.

Let us now turn to fragment 14,²⁹⁷ which according to Sedley (1998: 124) is reminiscent of Lucretius' argument against Anaxagoras in *DRN* I 897-914, i.e. the argument that *multa semina ardoris* (i.e. atoms of the kind that mix to produce fire) when they come together create fires in trees, which counters Anaxagoras' claim that there is fire itself in wood. Fragment 14 reads:

ὕπηρχε`ν', εἴ τις τὴν πα[ραλ-
λ]αγὴν τῶν ἀ[τ]όμων [καὶ]
τ]ὴν ἀπ[λ]ὴν ἀπειρίαν [αὐτῶν]
. . .]τάττοιτο καθάπερ [πολ-
λάκις ἐν] ταύτ[η]ι βίβλω[ι] εἰ[ῖ-
ρηκαμε]ν ὦ[. .] . . [

5

1 ὕπηρχε`ν' Arrighetti Millot 1-2 τὴν πα[ραλ|λ]αγὴν τῶν ἀτόμων[Millot 2 supplevi 3
supplevi;]ην εἰ[ς τ]ὴ[ν ἀπε]ρίαν Arrighetti:] . ην . . [τ]ὴ[ν ἀπε]ρίαν Millot 4 fortasse
δια]τάττοιτο; καθάπερ Millot 5-6 legi et supplevi; [ἐν τ]ῆι αὐ[τῆι β]ύβλωι εἰ[ῖ|ρηκα . .]ν
Arrighetti:] ταύτ[α] . ιβλο Millot

²⁹⁷ Fragment 14 came two, or possibly three, columns later than fragment 11.

Arrighetti (1973: 611) thought the fragment dealt with infinite divisibility, in view of ἀπειρίαν in line 4. But this does not seem necessary. The reference could be to the infinite number of compounds resulting from the coming together of Epicurus' atoms. The expression παραλλαγή τῶν ἀτόμων in lines 2-3 may refer to the difference in shape of the atoms, or possibly to the difference brought about by changes in position of the atoms.

It seems worth mentioning that παραλλαγή and ἀπειρία appear together in a column of ΠΦ XI:

]ας ἐπὶ π[
] . . . ας καὶ λαμ[βα-
 . . . ν παραλλαγήν
 δ]ι' ἀπειρίαν, εἰ πρὸς
 ἐ]κεῖνο πε . . . μυριά[κις 5
 . . .

Arrighetti-Gigante (1977: 5) find a problem with connecting the fragments, which they think deal with infinity and movement of atoms within it, with the final part of the book, where the position of the earth in the cosmos and the impossibility of observations about heavenly bodies are considered. Epicurus certainly used ἀπειρία in contexts other than infinite divisibility, but since the word is used with παραλλαγή it may rather refer to

atoms in this context.²⁹⁸

There is no indication in this fragment that Epicurus in fragment 14 of book XV was explaining the phenomenon of wood-combustion specifically. Epicurus seems to be considering the possibility that someone (τις) should hold a particular view, in a tone similar to that of fragment 5 (above pages 149-150). The way of proceeding seems very different from Lucretius' direct attacks on Anaxagoras in his *critique*.

2.1.4.3 Cornice 4

Fragments 15 and 16 are, it would seem, the two fragments among those preserved in *cornice 4* which came earliest in the roll. It looks as though Epicurus was discussing here how to interpret the evidence from the sensation:

. . . .]ως δὲ λέγειν τοτ[

. . . .]εις ἢ ἀνάγκην π[α]-

σαις] φύσεσιν προστιθέ . -

. . .]ς ἄλλου ἀπειργ[. . -

. . . .]υ καὶ μὴ μὰ Δί[α 5

τοῦτο] αἰ αἰσθή[σε]ις ἀντι-

. . . .]τῆς φύ[σεως] ζώντω[ν]

²⁹⁸ The word ἀπειρία seems to refer to the infinite supply of images in Arrighetti text [26] [35] lines 6-7, which is also from book XI.

2 π[α]- the following traces are probably from a different layer 3 θέ . traces from more than one layer
make this letter undistinguishable 7 the loop of φ must have been considerably smaller than elsewhere

1]ος Millot; τοτ[ε Millot 2-3 legi et supplevi 3-4 προστιθέ[ναι] aut προστιθε[μέ|ναι]ς:
προστιθέν|τες Arrighetti 4 fortasse ἀπείργον|τος; ἀπείργ[ουσι Arrighetti 5 supplevi;]καὶ μὴ
μα[Millot 6 supplevi;]αἰσθή[σε]ις ἀντι[Millot 7 legi et supplevi

The reference in προστίθημι here is probably to the addition of atoms to a compound,
and ἀπείργω, if the form in line 4 is from that verb, can be interpreted in the same
context, as referring to being excluded from a compound. Fragment 16, which came in
the column immediately following that of fragment 15, reads:

τέον· τί ἀντ[. . . .

ἐκεῖ προστιθέ[μενα ἐνταῦ-

θα οὐ θεωρεῖται ὑπα[

τὸ γ[ὰρ ἐνταῦθα θεῖ . [. . .

]ζητεῖ . κα . [5

ε]περμ[

5]ζητεῖ ., it is very hard to see what letter or letters followed, either the ink from more than one layer is showing, or the letter was (or letters were) deleted, and a substitute was added above the line; κα .
[, traces are consistent with κ or ν

1 Millot 2 supplevi 4 supplevi 5 legi;]η . ει . κακ[Millot 6 legi; fortasse σ]περμ[ατ

A possible interpretation of this fragment is that by ἐκεῖ and ἐνταῦθα Epicurus is referring to what is, and what is not apprehensible with our senses. This again would be comprehensible in the context of the process of addition of the atoms to a compound.

Epicurus refers to the senses twice in fragment 17 which reads:

αἰσθησιν ἀνάγο[ντα]ς· ἀλ-

λ' ἐπιβλέπει πό[σας ο]ὔτω[ς

ἤδε ἡ κατηγορ[ί]α περιλα[μ-

βά[ν]ει τῶν ἐν ταῖς αἰσθή-

σ[εσιν] αἰ προστ[. . . .]τ . . . ις

5

1 ἀνάγοντας Arrighetti; ἀνάγω[ν] . . . ς Vogliano Millot 2 supplevi; πόσα Vogliano Arrighetti:

πό[σα ο]ὔτω[ς Millot sed brevius spatium 4-5 αἰσ[θη-][σ[εσιν] Vogliano αἰσ[θη-][σ[εσιν κ]αἰ

Millot sed spatium longius

Millot translates κατηγορία as (French) “affirmation”. It seems to mean “account” in Epicurus’ letters. But the alternative meaning “attribute”, “quality” seems possible here. It is not clear what the feminine plurals in this passage refer to, possibilities are φύσεις and συγκρίσεις.

Fragments 18, which is from the column which immediately followed that of fragment 17, reads:

. .]ται διὰ τοῦ μὴ κατ[ὰ] τὰς
. . . . δεις π[ροσα]γορευο-
μέν`α`ς πρὸς τιν[ω]ν [ε]ύ-
θὺς ὀρθῶς ἔχειν τοῦτ[ο] συ[v-
τ[εκ]μαίρεσθαι δὴ ὅτι καὶ 5
καθ’ αὐτ[. .] τα[. . .] . λλα . [.]ν

3 μέν `α`ς is corrected from μένους, with ου deleted by a stroke and α added above the line; θ very uncertain, could be ν or ι

1 κα[τὰ] Vogliano 2 [ούσιώ]δεις Arrighetti fortasse recte; π[ροσα]γορευο- Arrighetti Millot 3
supplevi 3-4 ε]ύ|θὺς Vogliano 5 Millot 6 legi] ἀλλά [Millot

It looks ὀρθῶς ἔχειν is the infinitive introduced by διὰ τοῦ μὴ in line 1, πρὸς τινῶν presumably refers to other thinkers.

Fragments 19 and 20 confirm that Epicurus was dealing with aggregates:

ἐπισπάται καὶ τὸ τὰ[ς] ἀτ[ό-
μ[ους] μῆδὲν ἦττον μ[η-
δὲν ἐλάττους τὰς τοιάσ-
δε ἢ τοιάσδ[ε λ]έγειν εἶναι. [αἰ
μὲ]γ γὰρ ἐν ταῖς ὑπὲρ ἐκείν- 5
ων] ρ[. . . .]ν' περιλαμ[βαν-
]εις οὐ δικα[

1-3 Millot 4 supplevi; δε ἢ τοιάσδ[ε λ]έγειν εἶναι Millot 5 supplevi; . . . γὰρ ἐν . . . ὑπερεκει[
Millot 6 fortasse ῥ[ευμασι]ν aut ῥ[ήξεσι]ν; περιλαμ[βαν Millot 7 fortasse συγκρίσ]εις;]ε[
]ου[]κ[Millot

It is perhaps likely that the verb ἐπισπᾶσθαι means “induce” an opinion, as it does in ΠΦ XXV.²⁹⁹ The opinion into question seems to be saying there are no less atoms (presumably in a compound), or that there are no less atoms of this or that specific kind,

²⁹⁹ Laursen 1998: 46 (*PHerc.* 1056 fragment 8. 2 line 17 etc.). This seems preferable to taking it as referring to a compound incorporating new atoms.

assuming that ἐλάττους does not refer to the size of the atoms. It is perhaps likely, in view of what Epicurus said in fragment 11, that he was criticising this position. It seems likely that μηδὲν ἦττον in line 2 is adverbial (as in Arrighetti text [31] [3] line 1).

Fragment 20 mentions, it would seem, the ejection of atoms, presumably from compounds:

. . . .]τῶν ἀτόμων ἐκβο-
 λή]ν ποιείσθαι· τὸ γὰρ τοι-
 οὔ]τοῖν ἤδη ἔνδηλον ποι-
 εἶ ὅ]τι οὐκ ἂν ὑπῆρχεν εἰ ἐνε-
 .]ε ποσαὶ ἕτεραι τ[. . .]ης 5
]δι . . . ε[.] προσλ[. . .]ν καὶ
] . ν . [. . .]πάντα . ν

2 empty space after ποιείσθαι· 5 the letters ε ποσ perhaps from a different layer 6 ε and the traces ahead of it probably from a different layer 7 λη and preceding traces from a different layer

1-2 ἐκβο|λήν Vogliano Millot ἐνβο|λήν Usener Arrighetti 3-4 supplevi; πο|ιεί τι ὅ]ν κἂν Arrighetti Millot 4 ὑπῆρχεν εἰ ἐνε- Millot 5 . .]επό . αὶ ἕτεραι τ . . . Millot 6 supplevi; νη πρὸς ἀ]να]γκαι- Arrighetti 7 supplevi; . . αντ Arrighetti: εν . . . σαν[]ον Millot

The impression that Epicurus was dealing with compounds and how they retained and lost particles is reinforced by the expression τοῖς ἰσαμοῖς which I think, following Arrighetti, should be restored to fragment 21:

-
μειν τοῖς ἰσα[σ]μοῖς οὕτω[ς
ὑφηγεῖσθαι· ὄπερ τε δὴ
ἐξ ἀρχῆ[ς] προε]ιλόμεθα
οἰκονομεῖται [ἡ]μῖν, φη-
μι· καὶ ἤτι[ς]λλο . . . 5
[ε]ῖναι ἐτοι[μ]γειρον
]. . υκα[

2 ὑφηγεῖσθαι followed by high dot, empty space and corresponding paragraphos in the margin

1 ἰσαμοῖς Usener Arrighetti: ἰσα[ρίθ]μοις Vogliano: ἰσ . . . μοις Millot 3 Vogliano 4 Millot
5 supplevi; μί· καὶ η[]μο . . φι Millot 6 legi;] ν [.]ς τὸ α[Arrighetti

Fragment 21 carries an implication that the book had a unifying theme. The punctuation on the papyrus suggests we have here the close a of major section of the book (see

apparatus). And Epicurus' phrasing suggests that from the start the book (ἐξ ἀρχῆς) he had set out a topic which he had discussed all the way through. When he came to fragment 21 Epicurus thought he had treated the topic adequately. Given the evidence from the previous columns it is hard not to conclude that this topic was aggregates.

Fragment 22 suggests that the new topic Epicurus turned to still involved discussion of aggregates:

πα-]

ρ]αλέχ[θ]αι [ἄμ]α αὐτοῖς ἃ ὀχρή-
 σ]ει καὶ στεγά[σ]ει αὐτά, καὶ
 α]ὐτ[ἂ ὑ]π' ἐκείνων διασω-
 θήσεται καθάπερ καὶ αἱ παρ
 ημει[. σ]υγκρίσεις· ὅσ[α] ἰ'[κα]θ' ἑ' αυ- 5
 τὰς μὲν οὐδ' . [.]ται [ε]ῖναι

0-1 supplevi 1 [λε]λέχ[θ]αι . . . α αὐτοῖς ἃ ὀχρή- Millot 4-5 fortasse παρ' | ἡμ{ε}ῖν potius quam
 παρη|μεῖν legendum? 5 supplevi ἡμε[τερ]]υ[]θ' ἑ' αυτ Millot 6 legi . ασι[]δ[]ιε
 Arrighetti . ασμε []ν'τατε Millot

2.1.4.4 Cornice 5

Cornice 5 preserves the remains of 9 columns of text. The fragments appear in three separate sections, and are, as far as one can tell, continuous columns. Very few letters can be read in fragment 22A , but the expression μικρομερών ὄγκων suggest aggregates were again under discussion, and seems to support the view that ὄγκοι could refer to molecules which preserve the characteristics of the larger compound.³⁰⁰

Fragment 22B reads:

ἀ-]

ναγκ[αίον] ἅπαντα συμπε-

[ρο]ιλέχθα[ι ὤ]στ' αἰ . ε . σακ[.]ι

]ηγη . ου . γε[

]αὐτήν[-

σίων ἀπὸ γελοῖ[] 5

]κε[ι] το[

[.] . τὴν ζά[λ]η . η

³⁰⁰ Above pages 104-110.

1 legi et supplevi; α[] ἅπαντα συμπε Millot 3-7 legi

Let us come to fragment 23:

ἢ τὸ ὅλον τῆς δόξης τ[ῆν

ἀρίστην ἔκθεσιν· [εἰ] μὲγ γὰρ

ἔοικεν οὐ ταῖς κατ[ὰ] τῆν

σχημάτισιν ποιότησ[ι] τῶ[ν

συγκρίσεων ὁμοιοιμ[ερ]εῖς 5

φαίνειν . . [

φύσε[ις] ζών[των

]ε[

]ισκ[

1 ἢ] τὸ ὅλον τῆς δόξης τ[ῆν Vogliano: . . . ο ὅλον τῆς δό[ξ]ης τ[ῆν Millot 2 ἀρίστην ἔκθεσιν.

[εἰ] μὲγ [γὰρ] Arrighetti, sed [εἰ] dubitanter scripsi, quod fortasse spatio longius: ἀρίστην ἔκθεσιν

[.]σ μεγ Vogliano: ἀρίστην ἔκθεσιν . . μεγ[Millot 5 supplevi; ὁμοιο εις Millot: [ὁ]μοιο[

Arrighetti 6 φαίνειν[Millot 7 supplevi; φύσε[Millot

The adjective is used here in the context of the configuration of the aggregates. It is

ante lineam primam τοὺς περὶ φύ-] Arrighetti 4 supplevi; αἱ οὐκ ὀρθαί, . . . ς γε δὴ αὐτοὶ Millot
4-5 fortasse δι᾿ αὐτῶν ἐν 5 supplevi; . . . γου . ᾿ν ἔν τοῖς πρὸς του[Millot 6 legi; φυ[
]φυσικῶν Millot 7 legi; σε[]ο . . . δεε Millot

It is difficult to determine what Epicurus' line of thought is here. It may be that Epicurus wrote: "not only criticise those who have developed physical systems, but also to tell apart the δόξαι ἀρχῶν which are right and which are wrong".³⁰² It seems probable that book XV contained evaluation of earlier views on ἀρχαί, although it is not clear how many such δόξαι were taken into account, and whether they were considered earlier in the book or this column introduced the evaluation of such δόξαι.³⁰³ The way in which evaluation of δόξαι is mentioned here is very different from the angle which Epicurus gives to his polemic in column XXIV book XIV (above pages 95-96).

In fragment 25 Epicurus writes:

ταύτ[η]ν τὴν δόξα[ν]. ἢ
μὲν [γ]ὰρ κατὰ τὰς ποιότη-
τα[ς κα]ὶ μὴ κατὰ μορφ[ὴ]ν
ὁμ[οιο]μέρεια προάγετ[αι]

³⁰² I am not completely satisfied that this adequately explains the "but also".

³⁰³ But one cannot exclude that the remark was more general, referring to Epicurus' method, rather to book XV specifically.

. [.]ηκα τὰ συνε . ε[. 5

τα . των

3 κα]ι, ν perhaps better, but seems to give no sense 5 συνε . , χ or κ

2 μὲν legi; με . . [γ]ὰρ Millot 3 τα[ς κα]ι μὴ Arrighetti: τα[ς τὰς] μὴ Millot sed cum Π non congruit
4-5 supplevi 6 legi

It is not certain whether the δόξα mentioned in line 1 is **(a)** Epicurus' own view, which fits in better with fragment 23 where Epicurus was apparently looking for the best exposition of (presumably) his own theory or **(b)** a δόξα held by someone else, as fragment 24 may suggest. Option **(b)** is perhaps more likely. Epicurus in fragment 25 is describing a ὁμοιομέρεια “regarding the qualities” and not “regarding shape”.³⁰⁴ He seems to be referring to ὁμοιομέρεια in the Aristotelian sense, i.e. that smaller parts

³⁰⁴ Millot (1977: 35) thought that the difference between the two kinds of qualities referred to in fragments 23 and 25 is reflected in the use of the two different terms σχημάτισις (referring to the shape of the atoms) and μορφή (referring to the shape of compound bodies (such as is preserved by the images). In *Ad Herodotum* 42 Epicurus uses σχημάτισις to refer to the shape of the atoms. Such a distinction was suggested to Millot by her reading τὰς ποιότητα[ς τὰς] μὴ κατὰ μορφ[ήν], which is not allowed by the traces in Π. That σχημάτισις was Epicurus' way of referring to the shape of individual atoms is possible, but the evidence seems far from conclusive. See above note 205 on how Epicurus may have used σχηματισμός in reference to compounds rather than atoms.

of a substance preserved the same qualities as the substance itself. The kind of *ὁμοιομέρεια* described may apply to Anaxagoras' theory,³⁰⁵ and it may be that Epicurus is here distinguishing the *ὁμοιομέρεια* regarding the qualities in Anaxagoras' theory from his own use of *ὁμοιομέρεια*. But given how fragmentary the context is, it is difficult to give an exact explanation.

Fragments 26 and 27 seem to deal with processes of mental apprehension.

Fragment 26 reads:

κα-]

θὸ ἐκάστη ἐπιφορά ἐφ' ὅτι 1

δήποτε γί[ν]εται, τὸ ἐν τῷ

λόγῳ ἐκ τῆς καταφορᾶς συμ-

περιλαμβα[νό]μενον, καὶ

ἐπ[ε]ιδ]ῆ ταῖς μ[ὲν] ἐπιφοραῖς 5

. κια πρ[ὸς ἀ]λλήλ . . .

νον θ . μενα[.] τω .

0-1 κα|θὸ Vogliano Arrighetti Millot 1-4 Vogliano Arrighetti Millot 5 Millot 6 . εια πρ

³⁰⁵ Millot (1977: 35) that *ὁμοιομέρεια* occurs in this fragment, and a form from the same root in fragment 23, because Epicurus is considering “dans la theorie d’ Anaxagore, le case des qualites qui ne sont pas liées à la forme”.

And fragment 27 reads:

τῆς καταφορᾶς ἐμπ[ερει-
λημμένον ἐνδ[ε]ικνύ[σα-
σθαι [τῶ]ν οὐκ οἰκ[ε]ίων[ἐν τῇ]
πρώτῃ ἐπιφορ[ᾶ]ι π[

]ναμ[

5

1 Vogliano Arrighetti Millot 2 Arrighetti Millot; ἐνδ[ε]ικνύ[σ . Vogliano 3 Millot; σ]θαι τῶν οὐκ
οἰκε[ί]ων Vogliano: σ]θα[ι τῶ]ν οὐκ οἰκε[ί]ων Arrighetti 4 Millot; πρώται Vogliano 5 Millot

Arrighetti (1973: 612) dismisses LSJ “impact” (“urto”) for ἐπιφορά here, and translates it as “riferimento” (1973: 288). He thinks καταφορά cannot mean “motion downwards” (LSJ), and translates it as “deduzione”. Millot (1977: 36) similarly takes the terms to refer to logic: “proposition” for ἐπιφορά (movement forwards), and “deduction” for καταφορά. It looks as though in these two columns Epicurus introduced some remarks on logic and processes of mental apprehension specifically.

Since we are here roughly nine columns from the end of the book, I assume that Epicurus' remarks on logic introduced the concluding section of the book.

Fragment 28 reads:

. των ἡμῖν τοῖς δόγμασιν·
ἀναγκαῖον [δ]ὲ τοῦτ' ἔστ[ι]ν
πράττειν δι[ὰ π]ολλὰ[ς] αἰτί-
ας ἅς πολλαχοῦ εἰρήκα-
μεν[5
πε[]εἰα
το βα[]οιγ[]κα[

2 [δ]έ supplevi: [δὴ] Arrighetti: [ο]ύ Vogliano Millot 3 Vogliano ἀναγκαῖον Arrighetti 4 legi;
α[.]α[. . .] πολ[λάκι]ς εἶρηκα Vogliano 4-5 εἰρήκα|[με]ν[Millot

It seems certain that in this section of the work Epicurus is taking up a point he had already made repeatedly in his work. The reference could be to our understanding of the divine, since books XII and XIII of ΠΦ considered the gods, and their conception by humans (below page 195).

The column of fragment 29 followed immediately after that of fragment 28:

κ[αὶ] πα[υ]σάμενοι λόγους

ο[ὕκ] ἦττον πρὸς τ . ἀνόη-

το]ν τῶν ψυχῶν πεπτω-

κό]τας ἢ τοῦτ' οὐ τὸ πράγ-

μ]α δοκοῦντες τῶν ἢ [. .

5

. .]θρων περα . νοῦ . [ἐ]πετρε-

ψ . . .] . ιν κα[.] . πο . . μ[]ηγ-

1 supplevi; κ . . π . . σαμενο . λόγους Millot: π[οιη]σάμενον Arrighetti 2 dubitanter supplevi, fortasse ὡ[ς] ἦττον;]τ . ον τανο[Millot 3-4 supplevi 4 πραγ- Vogliano Arrighetti: πρατ|τ Millot 5]δ[]υν . . τω . . η Millot 6 fortasse ἐχ]θρῶν

The use of the verb πῖπτειν seems surprising here in reference to λόγοι; perhaps *Ad Herodotum* 78 can be compared.³⁰⁶ It may be that Epicurus was describing here popular beliefs on the gods, which would explain the plurals in the passage.

³⁰⁶ Καὶ μὴν καὶ τὴν ὑπὲρ τῶν κυρίωτατων αἰτίαν ἐξακριβῶσαι φυσιολογίας ἔργον εἶναι δεῖ νομίζειν, καὶ τὸ μακαρίον ἐν τῇ περὶ μετεώρων γνώσει πεπτωκέναι.

2.1.4.4 Cornici 6 and 7

The best preserved fragment of those in *cornice* 6 is fragment 30:

-
ναντων δ' ἐκ τούτου
τοῦ μέρο[υς·] οὐ μὴν ἀλλ[ᾶ]
καὶ με[. . .]αίνα[.]ουμεν [. . . -
πως καὶ ἐπ[ι] τὴν ἐξα[. . . .]
ἐπιβολὴν οὕτως ἐκ τ[. . .] 5
.. τῶ[ν] δ[η]μαγωγ[. -
.. .]αν ἀκράτου κ[.

1-3 the letters seen at the right margin of these lines are probably from a different layer of the roll 2
empty space after μέρο[υς] 6 there are traces of ink underneath the [η] and α, I assume these come
from a different layer

0-1 κρι| |νάντων Vogliano Arrighetti 1-2 Vogliano Arrighetti; τοῦ μ[Millot 3 .]αί με[. . . .]μνα[
.]ουμεν [τ]δ α- Vogliano, [κ]αὶ με[. μ]να [.] ουμεν . . Arrighetti; . . αιμε . . . ιν . . . ουμε[Millot
4 supplevi; πως καὶ ἐπ . τη . . ἐξα Millot 5 supplevi;]βολὴν οὕτως ἐ . . . ε Millot 6 supplevi;]δ
. μ . γω[Millot 7 legi;]αν ἀκράτου κ[Millot

It looks as though ἐπιβολή in line 5 does not refer to the movement of the atoms towards the compound,³⁰⁷ but to a process of mental apprehension. In *Ad Herodotum* 35 and 36 ἐπιβολή means “apprehension”, “act of understanding”. The word ἀκράτου in line 7, which seems certain,³⁰⁸ means “unmixed” but could be used rather in its transferred meaning “untempered, violent”. The idea of “pleasing the people” in δημαγωγ- is perhaps better interpreted as a reference to the human world, than as a description of the kind of activity the gods do not partake in. Epicurus may well be describing, with δημαγωγ-, the behaviour of someone who is striving to achieve political status.

The fragment from the next column, 30 A offers very few letters, the longest sequence of which is πολ[λοῦ] ἔφερον[.] . υ in line 2.

Fragment 30 B³⁰⁹ reads:

γὰρ ἕκαστας νομ[. . . .] . α [.
τ . ν[.]δρον[.] δυσ-
χερῶ . [. . .]ο . α τινᾶ[. .] . η .
το . ἀεικὲς] ὅ τι διε . κη[

³⁰⁷ Compare fragment 20 above, lines 1-2]τῶν ἀτόμων ἐκβο|[λή]ν ποιείσθαι.

³⁰⁸ Epicurus is not known to have used ἀνά. *G.E. (sub voce)*: “nusquam legi in Epicureis neque Epicureorum reliquiis”.

³⁰⁹ Again Millot’s numbering seems misleading here. Fragments 30, 30A and 30B are from separate (and continuous) columns.

πολλάκις ἐμφάιν[ε]ι ἑ[ν] . . . -

5

τάτ[ου] λόγου ἀπὸ φιλ[ο]δο-

ξίας [καὶ ο]ὐκ ἀγνοή[σει]ς π[ε]ρ[ι] .

1 legi et supplevi; γὰρ εἰ . . . τ[ι] Millot 2 legi;]ο[]δ Millot 3 . ρω[] Millot 4 . . α[]κ[] 5 legi et
supplevi; . . . λακ[] Millot 6 supplevi; τατ[]]γου[] Millot 6-7 legi

Unfortunately the context is, once again, hard to determine. The term ἐμφάιν[ε]ι- of line 5 may suggest that Epicurus was still describing the person who was acting as a demagogue in fragment 30. The use of φιλ[ο]δο|ξίας fits well such a context.

The fragments of *cornice 7*, which are probably from four continuous columns of text (30C, 31, 31A, 32), are in a very poor condition.³¹⁰ The few words surviving in fragment 31 are:

³¹⁰ It is unclear whether fragments J, K, L, and M are from the lower part of the same columns. Millot (1977: 11) has it that the upper and lower section of fabric in *cornice 7* are not the same length “et il est impossible de faire coïncider à la fois les pliures du papyrus et les marges des colonnes”. Even if the top and bottom sections do not match exactly, it seems reasonable to assume that the lower section came roughly from the same part of the roll. It is interesting that in fragment M Epicurus seems to have used the expressions]περὶ φύσ[εως μνη]μονευ[- (lines 1-2) and μάλι[σ]τα [. . .] συμφέρον (line 5). This suggests that Epicurus was putting forward an important principle (which could be connected with the theme of fragment 28).

. γ]γελλε`ν` ου
]άνθρωπωι
]τὴν ψυ-
χὴν] αὐτὰ[]γα . υ
]δρα . ις
]κα 5

1]γελλε`α`ου Millot 2-5 Millot

The vocabulary is very similar to that of fragment 29 (pages 181-182): it seems likely that Epicurus, in the columns of *cornici* 6 and 7, was discussing views which either regarded the human soul, or human understanding and way of life.

Fragment 32 reads:

. .]το τοῦτο ἐκ μέρ[. . .
]ου φυσικοῦ χα[
]υφ[]ητο[
]λαός ως . α . ν αυτ[
ἐ]τρέφετ[ο] διὰ φι[λο]δ[ο]- 5

ξίαν

1-2 Millot 2-3 fortasse χαρα|κτῆρ- 3]λαος ως . α . ναυτ[Millot 5 supplevi; τρεφει . δια φι
.. δ[Millot

Epicurus seems to have been dealing with aspects of human life in this column too, and it is interesting that the theme of φιλοδοξία is continued here.

2.1.4.5 Cornice 8

Let us now turn to the ‘final’ cornice of *PHerc.* 1151,³¹¹ cornice 8. It looks as though

³¹¹ The two *sezioni* coming about 120 mm from the end of the fabric measure *circa* 13 mm (circumference 26 mm *circa*). Judging from the size of the *sezioni* this *pezzo* came immediately ahead of the fragment bearing the end-title, which is conserved in the first (!) cornice. It seems likely that this was the last or penultimate column of the book.

avoid running into trouble.

Let us now turn to fragments 33 and P:

. ου . . οντι . α λόγων
πολλά γε ού ηκου .
πρ . ειλαν . ο εω . .
διαγωγών []συντελ[ώ]ν
. τών πρόσω[ν]ρω[5
]τω[

* * *

]ους[]ο[
έ]κείνου[]α[
τὴν ἀποτέ[λεσιν ἦν] ἐζή-
τει ποι[ε]ῖσθαι χρω[. . .] κε . ου- 10
σιν· ο . . . εων τε[
ριτο νεισε . οδια . . μα .
αὐτοὺς καθιστ[ά]ναι· ω . . δε
. . ος . . . ημ . . . ν . οστων-
. . . ιτοι[]η[15

The word διαγωγῶν in line 4 suggests Epicurus was referring to somebody's way of spending his time. It looks as though συντελ[ῶ]ν in the same line is the participle of the verb ("carrying out"). The third person singular ἐζήτει in lines 9-10 indicates that Epicurus is describing somebody's conduct. It seems likely that Epicurus has taken someone (perhaps τις as elsewhere) as example for his pupil. Epicurus was probably describing the conduct of life. There is nothing in these fragments which recalls specifically Anaxagoras.³¹⁴

Fragment 34, and its continuation Q, read:

ὑπὸ ἀλόγου ὑπο-]

λήψεω[ς] π[ε]ρὶ τῆς τοῦ [δα]ι- 1

[μ]ονίου φύσεως γινόμενοι

³¹⁴ I doubt that the reference in χρω of line 10 is to colour, in connection with Anaxagoras. *D.G.*: 314 (περὶ χρωμάτων) indicates that Anaxagoras thought that his particles had secondary qualities: οἱ μὲν ἄλλοι τὰ στοιχεῖα κεχρώσθαι φυσικῶς, οἱ δὲ τὰ ὁμοιομερῆ ποιότητος μετέχειν τὰ πρῶτα, οἱ δὲ τὰ ἅτομα πάντα συλλήβδην ἀχροα, ἐξ ἀποίων δὲ τῶν λόγῳ θεωρητῶν τὰς αἰσθητὰς ἀποφαίνονται γίνεσθαι ποιότητος. Presumably the second clause refers to Anaxagoras, although he is not mentioned elsewhere in this chapter. It may well be that the word we are dealing with is a subjunctive form of χράομαι or perhaps χρόνου.

περ[ι]αιρεθήσεσθαι ἡμελ-
 λον [. . . μ]ηδὲ ἄμείαντος πε-
 ρὶ τῶν ὁσ[ι]ωτάτω[ν ἐ]πινο- 5
 [ή]σεσθα[ι]επι
 * * *
 ηκο[]φα[
 τα[.]ε[πρ]ὸς [τοὺς πε-]
 ρὶ φύ[σε]ως πραγματ[ε]υομέ-
 νους οὐ τόδε τὸ ὄν οὐδὲ 10
 τόδε [ἐ]ξετάζοντας· ἀλ-
 [.] λὰ [τοῦ]ς τὸ ὄν τινι κο[ι-
 νότ[η]τι . . . ε . . η . . μ[
 τη . . τῆς κ[ατηγ]ορία[ς
 . ξ [. . .]ται[. . . . ἐ]φ' ἐ'αυ[τ- 15
 ο]ῦς
 φαντα[σίαν] κεκ[τη]μέ-
 [ν]ο[υ]ς

0-1 supplevi; ὑπολήψεως Gomperz Arrighetti 1-11 Millot 12 [.] λὰ [τοῦ]ς τὸ ὄν τινι κο[ι-
 Millot 14 κ[ατηγ]ορία[ς supplevi 17-18 Gomperz

Sedley tentatively suggests that this is an allusion to the charge of impiety brought against Anaxagoras for denying that the sun was a god.³¹⁵ This suggestion requires Epicurus to have been confident enough about his own piety that he could refer to the prosecution of Anaxagoras for impiety. This does not seem a foregone conclusion. Moreover Epicurus agreed with Anaxagoras that the sun was not a god, and it is perhaps unlikely that he would criticise Anaxagoras for this view.

The topic of fragments 34 and Q is certainly comparable to that of fragments 33 and N. Epicurus is now considering how one should behave as far as the gods, and religious rites are concerned. This fits in nicely with the idea that Epicurus in the immediately preceding part of ΠΦ XV had excluded divine activity from the creation of the various natures of compounds we experience. Divine nature could not be concerned with the human world if it were to be everlasting. Those who are about to free themselves of the wrong idea about the gods, by disregarding the demiurgic implications in Plato's *Timaeus*, are able to have a true conception of the gods, and thus be truly pious.

2.2 Other considerations intrinsic to Epicurus' work

Sedley presents three further considerations to support the claim that ΠΦ XIV and XV

³¹⁵ Sedley 1998: 124, note 81. My restoration τῆς κ[ατηγ]ορί[α]ς to line 14 may *prima facie* seem to support this, but Epicurus seems to use the word customarily to mean either “predicate” or “account”, rather than “charge”.

were dedicated to criticism: (a) Epicurus' 'Επιτομή τῶν πρὸς τοὺς φυσικούς was presumably based on books XIV and XV (Sedley 1984: 384);³¹⁶ (b) systematic polemic was the 'unifying theme' of books XIV and XV (1998: 125); and (c) it was "entirely proper for Epicurus to test the explanatory power of his own atomistic theory over the entire range of natural phenomena" in ΠΦ I-XIII before favourable comparison with other theories (1984: 384).

It may well be that (b) the two books treated a common, or at least related, topic. But the only external indication that the two books had a common theme comes from the *scholium* to *Ad Herodotum* 40,³¹⁷ which suggests that both books considered, or at least mentioned, aggregates.³¹⁸ The remark by the scholiast is certainly consistent, as we have seen, with the fragmentary remains from books XIV and XV.

As for (a), there are not enough grounds to establish a connection between the 'Επιτομή τῶν πρὸς τοὺς φυσικούς and ΠΦ XIV and XV.³¹⁹ Since, as I argue below in Appendix (c), it cannot be proved that either of the surviving physical ἐπιτομαί by

³¹⁶ On whether the 'Επιτομή τῶν πρὸς τοὺς φυσικούς could have been the source of the *critique*, below page 254.

³¹⁷ Sedley bases his argument for such 'thematic unity' on the close catalogue number of the two papyri. I am not sure this bears scrutiny. The numbering may suggest that the books were found near to each other, but the argument seems to depend on a —unwarranted as far as I know — claim that books of ΠΦ were 'shelved' by subject matter, rather than in numerical sequence.

³¹⁸ Above note 187.

³¹⁹ Erler (1994: 96) is confident enough about Sedley's proposal to insert it in his comparative chart for topics of Epicurus' letters *ad Pythoclem* and *ad Menoeceum*, his ΠΦ, and Lucretius' *DRN*.

Epicurus,³²⁰ the letters *ad Herodotum* and *ad Pythoclem*,³²¹ reproduces throughout a number of successive books of ΠΦ, and indeed there are indications of divergences, there is no reason to assume that the 'Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς had to be a digest of continuous books of ΠΦ. The τῶν in the title could well mean 'arguments' rather than books; and the criticism which the 'Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς presumably summarised may have been scattered throughout ΠΦ and other works. Even if one takes it for granted that the τῶν in the title refers to 'books', and these were books of ΠΦ, there are not enough grounds to connect the 'Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς with books XIV and XV of ΠΦ, since, as we have seen above, the two books were not dedicated — as the 'Ἐπιτομὴ τῶν πρὸς τοὺς φυσικούς presumably was — to systematic criticism of a wide range of philosophical theories.

³²⁰ The term ἐπιτομή customarily means summary of a work (such as the one Aristotle compiled of the theories in Plato's *Timaeus* according to Diogenes Laertius V. 25 [Τὰ ἐκ τοῦ Τιμαίου καὶ τῶν Ἀρχυτείων]), but it can also be a summary of the content of a number of different and unrelated texts (see FHS&G 231: Galen uses the word twice, in the singular and in the plural, to refer to Theophrastus' ΦΔ). See Baltussen (2000: 130) for the use of the word in Aristotle and Theophrastus.

³²¹ Zeno of Sidon (Angeli 1998: 176-177) had doubts about the authenticity of the letter. Usener and Diels, among others, argued that it is not genuine. I refer to Arrighetti (1973: 691-705) and Mansfeld (1994: 29, note 2) for arguments in favour of its genuineness. Mansfeld (1994: 47) considers it unremarkable that στοιχεῖα means "physical elements" only in *Ad Pythoclem*: Epicurus is in this letter reproducing Peripatetic terminology. Even if *Ad Pythoclem* were not genuine, there are reasons to believe it was somebody's digest of a text by Epicurus (Sedley 1998: 119, note 65), which is all that is needed for many of the arguments regarding its relation to ΠΦ.

Let us consider now Sedley's argument (c), that just after book XIII, the book which according to Sedley included Epicurus' account of celestial and terrestrial phenomena, was the most appropriate position for systematic criticism of opponents. A problem with this argument is that the only reports directly concerning book XIII mention the gods: Philodemus in *Περὶ εὐσεβείας* 1050-1054 (Obbink 1996: 178) οἰκειότης and ἀλλοτριότης that ὁ θεός has towards some men,³²² and *PHerc.* 1111 fragment 44, lines 1-8 attributes to both books XII and XIII of ΠΦ a theme which was also in [Epicurus'] *Περὶ ὁσιότητος*.³²³ Sedley (1998: 122-123) tentatively suggests that Epicurus considered the correct attitude to divinity in book XIII, since it followed on from origin of civilisation in book XII, before discussing atmospheric and terrestrial phenomena.

It seems likely that the account of cosmology and astronomy in ΠΦ XI, and the first part of ΠΦ XII,³²⁴ was the main account in ΠΦ. Assuming that this is the case, one would assume that the account of atmospheric and terrestrial phenomena (the material of *Ad Pythoclem* 88-110) could not have come much later, and certainly that it came

³²² Assuming Gomperz's [πρός] τινος in lines 1052-1053 is right and Philodemus could not have written [παρά] τινος. If one were to adopt the latter supplement the verb ἔχ[ει] in line 1053 should probably be altered to the optative.

³²³ Obbink 1996: 300-301.

³²⁴ The closing sentence of ΠΦ XI runs ἐν δὲ τοῖς ἔχο[μέ]νοις ἔ[τ]ι περὶ τῶν [με]τεώρων τουτωνε[ί] τι προσεκκα[θ]αροῦμεν (Arrighetti text [26] [45] lines 10-12). It is by no means certain that ἐν τοῖς ἔχο[μέ]νοις should refer to more than one book. Usener text 83 confirms that astronomical phenomena such as the eclipses of sun and moon were treated in ΠΦ XII.

before books XIV and XV. This would leave as options for the material of *ad Pythoclem* 88-110 books XII, XIII and conceivably — I find this unlikely — the first, lost, part of book XIV. It seems likely that Epicurus completed his account of astronomical phenomena in the first part of book XII. *Περὶ εὐσεβείας* 523-534 shows that Epicurus criticised the atheists (Prodicus, Diagoras, Critias and others) in book XII.³²⁵ It is conceivable that after treating astronomical and meteorological matters and excluding the gods from the picture in *ΠΦ* XII Epicurus felt the need to make clear that the atheists are wrong and that the gods do exist, and that in book XIII he went on to discuss the aspects of divinity according to his own theory. It may be that the account of atmospheric and terrestrial phenomena came in the central part of book XII,³²⁶ and that therefore it preceded the discussion of divinity (rather than following it).

A problem with thinking that books XIV and XV specifically were dedicated to polemic is that Epicurus' way of proceeding in *ΠΦ* seems to have been to attack opponents on a topic incidentally,³²⁷ as part of his exposition. We have seen how most

³²⁵ Obbink 1996: 142.

³²⁶ The positioning of Lucretius' *excursus* in *DRN* VI 378-422 may point in this direction.

³²⁷ Aristotle considers rival theories together (so that they at times form lists), while defining the boundaries of the question and the discussion to which he then proceeds, but Epicurus had less, or no, need to do so, since he did not think an overview of earlier thinkers could help in any way. Theophrastus may have taken Aristotle's practice further and composed 'doxographical' lists, but it seems doubtful whether Epicurus had any reason to follow Theophrastus' precedent and compile a list of opponents' theories of matter. We shall see below (pages 199-204) how Epicurus followed Theophrastus on meteorology, but that was a topic where Epicurus allowed for all possible explanations.

of the ‘preserved’ books of ΠΦ contain polemic of some kind,³²⁸ usually against unnamed opponents. It seems unlikely that, when producing a written version of his ‘series of lectures’,³²⁹ Epicurus would refrain from showing how his theory of matter was superior to that of any earlier thinker in the first thirteen books of ΠΦ.³³⁰ Ultimately argument (c), like all arguments of its kind, as well as being, to some extent, subjective, is not evidence for Epicurus criticising previous theories of matter in books XIV and XV. All it shows is that if Epicurus had done so he would have had good reason for doing so.

2.3 Are ΠΦ XIV and XV dependent on Theophrastus’ ΦΔ?

I am not convinced by Sedley’s claim that Epicurus in ΠΦ XV and XV divided earlier philosophers into three categories, i.e. monists, limited pluralists and unlimited pluralists, just as Theophrastus had done in his ΦΔ. Sedley takes this as an indication that Epicurus was using Theophrastus’ ΦΔ as source for his criticism of predecessors in ΠΦ XV and

³²⁸ Above notes 92 and 192.

³²⁹ Sedley 1998: 104.

³³⁰ Sedley (1998: 190): “. . . Lucretius held over his critique of rival theories of the elements until he had completed his own physical and cosmological exposition in books I-XIII of *On Nature*. . .” For pertinent criticism of the view that Epicurus did not consider physics and epistemology in the books following XV, and of the distinction of ‘polemical books’ from the books containing exposition see Arrighetti 1975: 48-49.

XV. It seems extremely likely, although it cannot be proved,³³¹ that Theophrastus, following Aristotle,³³² adopted such a threefold division in the $\Phi\Delta$. But, as I have argued above (page 127), Epicurus in XIV and XV did not organise his discussion according

³³¹ There are no reports explicitly claimed to be from Theophrastus' $\Phi\Delta$ under that title, apart from the brief fragment FHS&G 241 A and B. All one has to go on is a section of Simplicius' commentary on Aristotle's *Physics* (22-28). Simplicius may be following Theophrastus since he names him seven times in the passage (FHS&G 224, 225, 226A, 226B, 228 A, 228 B, 230). It is likely, therefore, that Simplicius' categorisation reproduced Theophrastus' (although it cannot be ruled out that Simplicius rearranged the Theophrastean material on the basis of a categorisation elaborated by subsequent commentators on Aristotle's *Physics*; Mansfeld 1989: 138-148). Whether Simplicius was using the $\Phi\Delta$, or some other text by Theophrastus, is debatable, since Simplicius never quotes the Theophrastean text he was using by the title $\Phi\Delta$. Simplicius names no work by Theophrastus in the passage, but has referred to Book I of Theophrastus' $\Phi\upsilon\sigma\iota\kappa\acute{\alpha}$ in 9.7 picked up without title at 21.9 and 20.20. It is possible that Diels was right in thinking that Simplicius made a mistake in 9.7 and was in fact using the $\Phi\Delta$. The amount of historical detail in Simplicius may speak in favour of Diels' view. There might be further evidence in favour of Diels' hypothesis. FHS&G 228 A, which is part of the passage 22-28, and FHS&G 228 B quote an almost identical discussion by Theophrastus of Anaxagoras' view on primary elements. In FHS&G 228 B Simplicius refers to Theophrastus' $\Phi\upsilon\sigma\iota\kappa\acute{\eta}$ $\iota\sigma\tau\omicron\rho\iota\acute{\alpha}$ (there are a number of references to this work in Simplicius' text: e.g. FHS&G 137 5a and 5c and FHS&G 234). It has been suggested that Simplicius knew the $\Phi\Delta$ under the name $\Phi\upsilon\sigma\iota\kappa\acute{\eta}$ $\iota\sigma\tau\omicron\rho\iota\acute{\alpha}$. The $\Phi\Delta$ may well have been the source of 228 B. If this is accepted, one has to think either that (a) Theophrastus discussed Anaxagoras' view in almost identical terms in two different works or that (b) 22-28 reproduced the $\Phi\Delta$ on Anaxagoras, and therefore probably on the discussion of other philosophers too. I tentatively assume that Theophrastus' $\Phi\Delta$ was the text Simplicius followed, or that he used the $\Phi\upsilon\sigma\iota\kappa\acute{\alpha}$ and the $\Phi\Delta$ had the same division into categories.

³³² *Physics* 184b14; and the 'threefold division' is also implied in *Metaphysics* A. 2. 983a24 - A. 8. 990a33.

to the 'threefold division'. The way in which earlier thinkers are divided into categories does not link the two texts.

I shall now consider whether Epicurus relied on Theophrastus for his polemics against air-monism and Plato. For the issue has a more general relevance to the question about the source of *DRN* I 635-920. Determining whether Epicurus was dependent on Theophrastus might provide an indication of whether Epicurus was the source of Lucretius' *critique*. Given that the information in Lucretius' *critique* is ultimately dependent on Theophrastus,³³³ if Epicurus' polemics in book XIV were found to be dependent on Theophrastus, it would be more likely that a work by Epicurus other than $\Pi\Phi$ XIV and XV was the source for Lucretius' *critique*. On the other hand, if Epicurus could be shown to be independent of the information in Theophrastus, the case for a work by a 'later' Epicurean writer would grow somewhat stronger.³³⁴

It is certain that Epicurus followed Theophrastus closely on some topics. The occasional close correspondence of *DRN* VI 48-736 to the Arabic text of Theophrastus' *Metarsiologica* published by Bergsträsser in 1918 led Reitzenstein to suggest that Epicurus, Lucretius' source, depended on Theophrastus' $\Phi\Delta$. The publication of a fuller Arabic version of the *Metarsiologica* edited by Daiber has confirmed Reitzenstein's

³³³ Above pages 36-39.

³³⁴ This reasoning can provide no more than an indication, since Epicurus might have ignored the $\Phi\Delta$ for his criticism in XIV and XV but used the $\Phi\Delta$ elsewhere in his writings.

claim that Lucretius is ultimately dependent on Theophrastus.³³⁵ Mansfeld (1992a: 326-327) and Sedley (1998: 180-181) point to the signs of Theophrastean influence in Lucretius' treatment of thunderbolts: the explanation of why thunderbolts occur most frequently in the spring reproduces point by point the material we find in *Metarsiologica* [6].³³⁶ Mansfeld (1992a: 326-327) claims further, followed by Sedley, that in *DRN* VI 379-422 Lucretius "repeats virtually all the arguments marshalled by Theophrastus at *Metars.* [14], though not in the same order".

Van Raalte (2003) has challenged the belief that Theophrastus is the author of the *excursus* in *Metarsiologica* [14], because it distinguishes two kinds of causation (divine causation as opposed to natural causation).³³⁷ She grants (2003: 340-341), however, that Theophrastus inserted in the text of the *Metarsiologica* a reminder that

³³⁵ Reitzenstein's further claim that the *Metarsiologica* was part of $\Phi\Delta$ seems open to debate, see further below note 340.

³³⁶ Daiber (1992: 274-275) lists the parallels between Theophrastus' account of thunderbolts and *DRN* VI. According to Mansfeld (1992a: 326) "Lucretius, at least for his section dealing with thunderbolts, did not use the letter [*Ad Pythoclem*], and we may surmise that a much longer epitome of Epicurus' views on cosmology and meteorology was available to him (assuming he did not consult the difficult *Physics*)". Sedley (1998: 157-159) argues that Lucretius in his treatment of thunderbolts, and in *DRN* VI generally, depends directly on $\Pi\Phi$ XIII. Both views are tenable.

³³⁷ Van Raalte (2003: 314) points out that the *excursus* is apparently transmitted only in Ibn al-Khammār's translation; it comes somewhat unexpectedly. She (2003: 341) argues that Theophrastus conceived of both order and disorder as indispensable ingredients of the cosmos: in the *excursus* god is set apart in a way which is not Theophrastean. Someone in the Greek-Syriac-Arabic tradition was inspired to insert his own objections.

thunderbolts are not the instrument of divine vengeance, and that he “may even have” elaborated the dialectical arguments against thunderbolts being instruments of god. Van Raalte (2003: 341, note 92) thinks such a reminder or argument by Theophrastus might have triggered Epicurus’ reflections on the theme (although Epicurus’ motives were different from Theophrastus’).

I consider it most likely that *the dialectical arguments* are Theophrastus’. It remains uncertain whether they had the same position in the *Metarsiologica* as in *DRN VI*.³³⁸ It seems conceivable, despite Mansfeld’s arguments to the contrary, that the *excursus* was meant to appear after the section on thunderbolts. However this may be, there can be little doubt that there is a shared body of argument between the *excursus* in *Metarsiologica* and the one in *DRN VI*.³³⁹ It should be stressed, however, that Lucretius has more points than Theophrastus.

Lucretius presents six arguments: **(1)** why should the gods hit good people (390-395)? **(2)** why hit uninhabited places (396-399)? **(3)** why never hit with a clear sky, does Zeus need clouds as transport? **(4)** why does he warn us (406-410)? **(5)** how can he cast many thunderbolts at once (411-416)? **(6)** why does he hit temples, why mostly places on high peaks (417-420)?

Theophrastus’ arguments read: “. . . if thunderbolts originate in God, why do

³³⁸ In the *Metarsiologica* in its present form the *excursus* comes after halo of the moon, before causes of earthquakes and different kinds of earthquakes. Daiber (1992: 280) thinks this was probably a digression in Theophrastus’ lecture belonging with the chapters on ἀστραπαί, Εὐρος and πρηστῆρ.

³³⁹ Sedley 1998: 180-181.

they mostly occur **(1a)** during spring and **(1b)** in high places, but not during winter or summer or in low places? In addition **(2)**: why do thunderbolts fall on uninhabited mountains, on seas, on trees and on irrational living beings? God is not angry with those! Further **(3)**, more astonishing would be the fact that thunderbolts can strike the best people and those who fear God, but not those who act unjustly and propagate evil . . .”

All three of Theophrastus’ points are reproduced in Lucretius, although **(1b)** is only partly reproduced in lines 421-422. It is also worth noting that any reference to the seasons is omitted in Lucretius’ *excursus* (the seasons are mentioned earlier on in lines 357-378). I assume that Epicurus, in the work Lucretius used as source, was elaborating on the content of his Theophrastean source; this seems preferable to thinking that Lucretius added some arguments, or that Epicurus was using a Theophrastean work which had a fuller list of arguments.

Sedley (1998: 182) suspects that the material of the *Metarsiologica* appeared in the ΦΔ in a slightly different form:³⁴⁰ this would explain the differences between the two texts, and explain why πρηστήρ has its ‘doxographical’ position — i.e. after thunderbolts, before clouds — in Lucretius (*DRN* VI 423-450),³⁴¹ but a much later

³⁴⁰ Sedley’s is an elaboration of Reitzenstein’s claim that the *Metarsiologica* was part of ΦΔ. This presumably means that Sedley no longer believes that Theophrastus’ ΦΔ appeared around 300 B.C. and inspired Epicurus to write ΠΦ XIV (below page 215), since book XI at least was written before 307-306 B.C. (*ibid.*).

³⁴¹ In *Ad Pythoclem* πρηστήρ is treated in 104, after κεραυνός, before earthquakes. Clouds are treated earlier in 99 (below Appendix (c) page 409).

position in the sequence of Theophrastus' *Metarsiologica*.

The correspondence between the order of topics in Aëtius³⁴² (III. 1 - IV. 1) and *DRN* VI may support the inference that the information also appeared, in similar form and order, in the $\Phi\Delta$. Sedley's suggestion seems to envisage Epicurus as following Theophrastus mechanically point by point, *and* Lucretius similarly following Epicurus to the letter. Very little room is left for Epicurus' intervention in the Theophrastean material he was using. This is perhaps preferable to thinking that the (slight) variations in order were down to Epicurus, and Aëtius ultimately depends on Epicurus.³⁴³

DRN V also appears to present material which Lucretius derived, through Epicurus, from Theophrastus. Theophrastus' rebuttal of the proponents of the world's impermanence, reported by Philo in 184 FHS&G, was the source on the basis of which

³⁴² Runia (1997: 97) compares the order of topics of *DRN* VI and Aëtius III, and concludes that "the parallelism is virtually complete and cannot be a matter of coincidence". Slight differences are that Lucretius does not distinguish waterspouts from typhoons, and the position of the rainbow is different. This however does not seem to affect Runia's general argument. Runia (1997: 97) notes that the parallels between *DRN* V and Aëtius II are not as close.

³⁴³ The comparison however depends on how abridged Theophrastus' *Metarsiologica* is. Mansfeld (1992a: 315) argues against Daiber that it is not the whole treatise, because some important meteorological phenomena are omitted: according to Mansfeld entire sections were left out, but there is no reason to think that the chapters we have are abridged. According to Mansfeld (1992a: 316-317) the *excursus* was the closing chapter of the second book of Theophrastus' *Metarsiologica* and chapter [15] is all that remains of the second book which will have dealt with the so called terrestrial phenomena. This is perhaps plausible, but the *excursus* would be very at home after the treatment of thunderbolts.

Epicurus elaborated the sequence of four counterarguments we find in Lucretius *DRN* V 235-350 (Sedley 1998: 166-176). It may well be that Epicurus used Theophrastus as a source on cosmogony generally, and not only in the argument for impermanence of the world.³⁴⁴

Epicurus' use of Theophrastus on celestial and terrestrial phenomena and cosmogony increases the likelihood that he used Theophrastus elsewhere in his work. One should keep in mind, however, that cosmogony, meteorology, astrology and the like are topics on which, according to Epicurus' *Canonica*, all explanations which are not at variance with the facts are equally true and applicable, at least in worlds different from our own (Bailey 1947: 25). In such cases Theophrastus' comprehensive recording of earlier opinions and explanations would have been almost indispensable as a guide. Use of Theophrastus on these topics, however, does not necessarily entail that Epicurus would turn to the $\Phi\Delta$, when he criticised, in $\Pi\Phi$ XIV, air-monism and Plato's theory of shapes.³⁴⁵ That $\Pi\Phi$ XIV and XV are based on Theophrastus has to be shown on internal evidence.

Sedley presents four arguments for thinking that the criticism in books XIV and

³⁴⁴ What is more the arguments in *DRN* V 156-234 may be evidence for further comments on Plato's *Timaeus* which Epicurus derived from Theophrastus. Sedley (1998: 76) argues that *DRN* V 156-234 are Lucretius' rendering of Epicurus' confutation of the theory of *Timaeus* 32c, that the world was created but will not be destroyed (arguing that the specific point that the world was created for the sake of mankind was a later reading of *Timaeus* by Polemo, who led his pupil, the Stoic Zeno, to develop such a theory).

³⁴⁵ Referring all information in Epicurus to Theophrastus would effectively be an application of *Einquellenforschung*, a method which has been often questioned.

XV depends on the ΦΔ (1984: 385, note 12). His argument that the “*homoiomereie* reading of Anaxagoras” indicates derivation from Theophrastus need not concern us here.³⁴⁶ It is not certain that Epicurus used ὁμοιομέρεια in reference to Anaxagoras, and even if he did (in fragment 25) it is in a morphological form and in sense which is different from the one Aristotle and presumably Theophrastus used it in. There remain three arguments: (2.3.1) both Theophrastus and Epicurus ended their criticism of the finite pluralists with Plato; (2.3.2) the detail in the argument against Plato suggests dependence on Theophrastus (2.3.3), the ΦΔ appeared shortly before ΠΦ XIV and XV were composed. I do not find any of these arguments entirely persuasive

2.3.1 Was Plato the last of the limited pluralists in Theophrastus’ ΦΔ?

Sedley (1998: 183) remarks that ΠΦ XIV: “. . . seems to end the critique of the finite pluralists with Plato; this may reflect the apparent fact that Theophrastus took his doxography down only as far as Plato, and omitted his contemporaries, including Aristotle himself”. I have argued above, in 2.1.3, that there was no category of limited pluralists in ΠΦ XIV. Plato was the only limited pluralist treated there. I shall now

³⁴⁶ Sedley (1984: 385, note 12) thinks that Epicurus in ΠΦ XIV and XV was following Theophrastus because he “adopted the *homoimerē* reading of Anaxagoras, which . . . I believe to be unhistorical but to have started with Aristotle and to have been transmitted with Theophrastus”. Presumably Sedley’s expression indicates just (a) the application of the term (as in Aristotle) and its use to indicate a specific theory, but not that (b) Theophrastus used the term to identify Anaxagoras’ portions. The latter claim seems hard to maintain.

consider briefly the problem regarding the position of Plato in Theophrastus' account.

The evidence comes from Simplicius fragment 230 FHS&G, lines 3-7: . . . ὁ μέντοι Θεόφραστος τοὺς ἄλλους προιστορήσας “τούτοις” φησὶν, “ἐπιγενόμενος Πλάτων, τῆι μὲν δόξει καὶ τῆι δυνάμει πρότερος τοῖς δὲ χρόνοις ὕστερος καὶ τὴν πλείστην πραγματείαν περὶ τῆς πρώτης φιλοσοφίας ποιησάμενος . . . The decisive question is whether Simplicius' τοὺς ἄλλους and Theophrastus' τούτοις refer to **(a)** the limited pluralists or **(b)** the Presocratic philosophers generally.³⁴⁷ *If (b)* were the case, Plato came after all the Presocratics in Theophrastus, rather than last of the limited pluralists.

Theophrastus' reference to Plato as coming later might seem to have more point if he treated Plato after *all* the Presocratics than if he just compared him with the other limited pluralists, but it seems more natural, given that Simplicius' discussion of the *unlimited* pluralists has yet to come at this point in his treatment, to take Simplicius' τοὺς ἄλλους as meaning “limited pluralists”.³⁴⁸ So, if Theophrastus treated Plato after all the Presocratics and not as the last of the limited pluralists, Simplicius either misunderstood Theophrastus' τούτοις and quoted Theophrastus carelessly, or meant “all the Presocratics” by τοὺς ἄλλους and thereby expressed himself carelessly.

Simplicius has the Pythagoreans, rather than Plato, last in his list of limited

³⁴⁷ It seems beyond doubt that the two are intended by Simplicius to refer to the same group of people.

³⁴⁸ It is perhaps worth pointing out that in Theophrastus' *De sensibus* Plato is treated as one member of a wider category, i.e. those who believe in perception of like by like. Plato is treated, in what Baltussen labels part one of the treatise, ahead of Empedocles and Alcmaeon (Baltussen 2000: 15).

pluralists. But this does not necessarily entail that Theophrastus had done the same. It is perhaps easier to suppose that Simplicius added the Pythagoreans at the end of *his* list of the limited pluralists because, being a Platonist, he had a special interest in Pythagorean theories.³⁴⁹ The brevity of Simplicius' report on the Pythagoreans encourages this inference. The fact that the Pythagoreans are considered in Aristotle's *Metaphysics* A. 4. 985b23-986b9 and A. 5. 987a13-987a28,³⁵⁰ but not in Aristotle's *Physics* might suggest they would not be included in Theophrastus' discussion of physical theories of matter.³⁵¹

Although this matter cannot be settled with certainty, it seems likely that (a) Theophrastus *did* treat Plato at the end of the limited pluralists. But since Epicurus in ΠΦ XIV did not discuss a category of limited pluralists as such, there is no indication

³⁴⁹ Simplicius adds non-Theoprastean material elsewhere (e.g. the end of fr. 224 FHS&G, where he introduces reports by Nicolaus of Damascus and Alexander of Aphrodisias). And Simplicius could introduce non-Theoprastean material without saying so. This is shown by comparing FHS&G 224 with FHS&G 229. Xenophanes of Colophon is referred to as holding that reality is limited in 229 (which is primarily concerned with atoms); this contradicts the interpretation of Xenophanes which is explicitly attributed to Theophrastus in 224 (where Xenophanes is referred to as holding that reality is neither limited nor unlimited. It cannot be the case that the whole of 224 and 229 represent Theophrastus.

³⁵⁰ The system of Plato is considered just after the Pythagoreans.

³⁵¹ Whether Theophrastus could have added the Pythagoreans in his *Physics* for the sake of completeness is uncertain. We know that Theophrastus filled out the details in Aristotle's work, but introducing material from other discussions is quite another matter. The strong objection to Theophrastus having included the Pythagoreans, is that their principles certainly are not 'physical'.

here that Epicurus was following Theophrastus in book XIV.

2.3.2 The detail of the arguments against Plato and air-monism.

It is well known that Epicurus in columns XXXIV-XL of book XIV, his attack against Plato's theory of *σχήματα*, reproduced the arguments which Aristotle had formulated against Plato's theory in his *De caelo*.³⁵² Sedley holds that Epicurus drew the arguments not from the *De caelo* itself, but from Theophrastus' $\Phi\Delta$, where Theophrastus had redeployed Aristotle's criticism of Plato.³⁵³ He puts forward two points to show that Aristotle's arguments come to Epicurus through Theophrastus.³⁵⁴ First, he remarks that while Theophrastus' influence can be clearly detected in Epicurus, there is no such clear cut case for Aristotle's influence in Epicurus' works (notwithstanding the fact that far more survives of Aristotle's works than of Theophrastus' works). Second (1998: 184), he points to the fact that Epicurus wrote a *Πρὸς Θεόφραστον* (above page 48), but that there are no comparable titles for Epicurus disagreeing with Aristotle.

However the testimony of *PHerc.* 1005 is problematic for such a theory. Sedley (1998: 183, note 54) has to play down, following Sandbach (1985: 4-6), the importance

³⁵² Arrighetti (1973: 603) emphasises Epicurus' dependence on the arguments in *De caelo* Aristotle.

³⁵³ Sedley 1984: 385, note 12 and 1998: 183-184.

³⁵⁴ Sedley is unconvinced by scholars' attempts to establish a relation between Aristotle and Epicurus.

Bignone had thought that Aristotle's lost 'exoteric' works *only* were used by Epicurus, Gigante argues that Epicurus knew of Aristotle's school treatises as well.

of PHerc. 1005 (Philodemus' Πρὸς τοὺς [ἐταίρους]) fragment 111 which is part of a letter. The context,³⁵⁵ although fragmentary, suggests that this was a letter by Epicurus:

πρ]οσέ[τ]αζα

]ον ὑμῖν

] . . κτα[. .

περιέστα[ι]

] . α . [. . 5

. . . . τὸ περ]ῖ [Σω]κράτ[ους

τοῦ 'Αρι]στίππου [κ]αὶ Σπευ-

[σίππου το]ῦ Πλάτωνος

[ἐγκώμιον] καὶ 'Αριστοτέ-

[λους τὰ] 'Αναλυτικὰ καὶ 10

[τὰ Περὶ] φύσεως, ὅσαπερ

ἐ[νεκρίν]ομεν". ἐπὶ Εὐβού-

λου

³⁵⁵ In fragment 38 Epicurus quotes a letter from Epicurus to Leonteus. Fragment 114 (Angeli 1988: 168) also appears to be from a letter by Epicurus; the same fragment preserves the opening of another letter: ἐπ' 'Ισαίου [δὲ | τοῖ]ς Μενοικέως υἱοῖ[ς] . . . Fragment 116 (Angeli 1988: 169) is almost certainly a letter by Epicurus in which he describes his experience as a student of Nausiphanes.

Sandbach (1985: 5) thinks Epicurus is not referring to Aristotle's *Physics*. First (a), there is no space for the supplement [τὰ περὶ] φύσεως in line 11 if one reads with Sbordone (1947: 75) -|λους τ]ἀναλυτικα in the similar gap in line. Angeli (whose text I print) gets round the difficulty by following Usener in thinking that there was no crasis; a viable alternative is, as Sandbach himself (1985: 5) points out, reading τὰ τ' Ἀναλυτικὰ with Croenert.

Sandbach's further objections are that (b), although Aristotle several times refers to the *Physics* by the words τὰ περὶ φύσεως, he also uses the phrase to refer to *De caelo* (*Metaphysics* A. 8. 989a24),³⁵⁶ and (c), one might supplement ἐ[γράφ]ομεν, rather than ἐ[κλέγομε]ν. I exclude this because it would be odd for Epicurus to mention in the same breath Aristotle's *Analytics* and his own ΠΦ, and because the imperfect tense is slightly odd. Various other restorations are possible for line 9: Angeli adopts Usener and Croenert's ἐ[νεκρίν]ομεν, Sbordone and Arrighetti have proposed ἐ[κλέγ]ομεν, and Diano ἐ[φεύρ]ομεν. All of these however involve knowledge of the existence of such works by Aristotle, and Epicurus' intention of reading these works.

One cannot perhaps be certain that fragment 111 is evidence for Epicurus having read Aristotle's *Physics* specifically,³⁵⁷ but it seems beyond doubt that the letter proves

³⁵⁶ And in any case even if Aristotle did not, Epicurus might have. Compare the situation with Theophrastus' *De caelo* which was also known as Φυσικὰ III (below note 362).

³⁵⁷ Sedley (1998: 183, note 54) has it that even if the reference is to Aristotle's *Physics* "there is no indication whether he has read it, or if he has, at what date (the immediately following letter is dated 280/279 B.C., which would be too late to play a part in our story)". Yet there is nothing in the text to indicate that the

that Epicurus knew of Aristotle's *Analytics*, and another physical work by Aristotle.³⁵⁸

The view that Epicurus did not consult Aristotle's works seems hardly tenable in view of this testimony. It seems risky, then, to discount the possibility that Epicurus got the arguments directly from Aristotle because he did not know Aristotle's (school-)works.³⁵⁹

The arguments in ΠΦ XIV correspond to those in *De caelo* so closely that it is tempting to think that Epicurus had Aristotle's arguments in front of him (or well impressed in his memory) when he composed book XIV. Unfortunately it is unclear how Theophrastus interacted with Aristotle's text, both generally in his works, and specifically in the sections criticising earlier thinkers. It is perhaps conceivable that at times he simply 'copied' Aristotle's arguments.³⁶⁰ Whether he did this habitually, or just occasionally,

two letters were close in date; they may be quoted together because they touched on a similar theme, perhaps Epicurus' education.

³⁵⁸ Mansfeld (1994: 32-33) endorses this view. He argues that the reference is to the *Analytica Posteriora*, since Epicurus rejected formal logic.

³⁵⁹ Sedley himself (1976b: 126-127), in rejecting Bignone's view that Epicurus knew only Aristotle's early works, writes: "that Epicurus knew at least some of Aristotle's school treatises is virtually proved by Epicurus or by one of his contemporary followers, in which Aristotle's *Analytics* are specifically named". It seems interesting that Epicurus knew personal details about Aristotle's life (Sedley 1976b: 125-126).

³⁶⁰ Determining this is problematic because the works in which Theophrastus is most likely to have 'copied' Aristotle survive only in second-hand reports, which tend to emphasise disagreements with Aristotle rather than agreements. Baltussen (2000: 130 and 236) argues that in the case of the criticism in *De sensibus* Theophrastus produced his own arguments either from the *Timaeus* directly or from an ἐπιτομή that he himself had made of the passages of the *Timaeus* which regarded sensation, and did not reproduce Aristotle's arguments.

cannot be determined.

It seems worth pointing out that the reports on Plato in Simplicius' commentary³⁶¹ do not resemble the details of the criticism in Aristotle's *De caelo* and ΠΦ XIV. And the surprisingly brief entry for Plato in Aëtius (I. 3. 21), which speaks of three ἀρχαί, certainly shows no resemblance at all to the criticism in *De caelo* and ΠΦ XIV. This may suggest that the ΦΔ did not include, in the entry for Plato, the arguments Aristotle had used in the *De caelo*. What is more, book three of Theophrastus' Φυσικὰ was also known under the title Περὶ οὐρανοῦ,³⁶² which may suggest that Theophrastus' Φυσικὰ, rather than the ΦΔ, would include the arguments Aristotle had used in the *De caelo*.

Theophrastus' report and criticism of earlier theories in *De sensibus* is relevant in this context. It would fit Sedley's theory nicely if Theophrastus' treatment of sensation

³⁶¹ Text 230 FHS&G reports that Theophrastus wrote that Plato had two principles: τὸ μὲν ὑποκείμενον ὡς ὄλην δὲ προσαγορεύει 'πανδεχέξ', τὸ δὲ ὡς αἴτιον καὶ κινουόν δὲ περιάπτει τῆι καὶ τῆι ἀγαθοῦ δυνάμει. This does not however mean that Theophrastus could not have discussed the shapes of the *Timaeus* in the text Simplicius was using, and Simplicius left this out. As Professor Sharples points out to me discussion of Plato's triangular shapes would probably only have been included if Theophrastus had a very full treatment of all aspects of each theory (rather like Theophrastus' *DS*). The scale of the work would then have been massive (and if the work in question is the Φυσικὰ we know that Theophrastus had moved on from physics in the narrow sense to psychology by book IV, and to issues about οὐρανός by book III).

³⁶² Text 176 FHS&G lines 1 and 2 "Theophrastus in the third (book) of the *Physics*, or *On Heaven*, divides . . .".

appeared, in similar form, in the $\Phi\Delta$. But it is unclear what the relation is — if there is one — between *De sensibus* and the Theophrastean material in Simplicius' *Physics* commentary, which is thought to ultimately reproduce the $\Phi\Delta$.

Diels (*D.G.* 114 and 222-224), following Usener, argued that *De sensibus* was originally part of the $\Phi\Delta$.³⁶³ But Baltussen (2000: 239-240) thinks that Diels “considerably exaggerates the significance” of the similarities between the *De sensibus* and Aëtius IV 8-23 in the way of comparing thinkers and grouping them together on some points: Diels ignores the considerable differences between the two texts. In the case of Anaxagoras, Democritus, Parmenides and Plato, the parallels are fewer than the unrelated entries.³⁶⁴ Baltussen is unable to decide whether the *De sensibus* was part of the $\Phi\Delta$.³⁶⁵

I conclude that, in spite of clear indications that Theophrastus influenced Epicurus generally, there are no reasons to suppose that Epicurus drew Aristotle's arguments against Plato's theory of $\sigma\chi\eta\mu\alpha\tau\alpha$ from Theophrastus' $\Phi\Delta$, rather than from

³⁶³ Diels considered the discussion is too detailed to be appropriate as a prelude to an exposition of Theophrastus' own doctrine in the psychological section of his *Physics* (above note 361). The point is taken up by Gottschalk (1967: 20). Baltussen (2000: 240) may be right that the objection is not decisive.

³⁶⁴ For Plato Baltussen has just one possible parallel out of six entries.

³⁶⁵ Baltussen (2000: 243) is unconvinced by Steinmetz's proposal that the *DS* was one of a series of monographs which were grouped under the title $\Phi\Delta$. Baltussen's conclusion (2000: 244) is that the *DS* was a *hypomnematic* work, intended to map out all relevant views about perception (from a physiological point of view). Baltussen concludes that the “work may well have been a *preparation for (but not necessarily a prologue to) the exposition of Theophrastus' own doctrine.*”

Aristotle himself.

Let us now consider Epicurus' criticism of air monism. Leone (1984: 34-35) thinks that Epicurus' treatment of 'Anaximenes' corresponds to that of Theophrastus,³⁶⁶ but does not go into details, except for saying that Theophrastus attributed condensation-rarefaction to Anaximenes. The fact that Theophrastus credited Anaximenes with a theory of condensation and rarefaction is not enough to show Epicurus depended on Theophrastus.³⁶⁷ There is no indication that Theophrastus considered specifically the problem of whether air could turn into water and of evaporation, as Epicurus does in book XIV. The heavily critical report of Anaximenes' theory on the fundamental nature of matter in Aëtius (I. 3. 4), which according to Diels (*D.G.*: 180) is Peripatetic, seems to have nothing in common with the criticism in ΠΦ XIV.³⁶⁸

³⁶⁶ Philippon (1937: 471-473) on the other hand thought Epicurus' precedent was Aristotle's *Physics* 1.2.

³⁶⁷ I have myself used the attribution of condensation and rarefaction to Heraclitus in the *critique* to argue that *Lucretius* did depend on Theophrastus (above pages 38-39). The difference is that Anaximenes might have mentioned condensation and rarefaction in his work, Heraclitus — it would appear — did not.

³⁶⁸ The fact that Epicurus wrote a monograph on Anaximenes (Diogenes Laertius X. 28) may, but does not necessarily, suggest that Epicurus did independent research on the Presocratics. He could have drawn the information for his monograph from Theophrastus, who had written one book *On the doctrines of Anaximenes* himself (FHS&G 137, 27).

2.3.3 The dating of ΠΦ XIV and of Theophrastus' ΦΔ

Sedley (1976a: 44-45, note 73) suggests that Epicurus wrote books I-XIII of ΠΦ before 307 or 306 B.C., but only started work on ΠΦ again in 300, when he composed book XIV. It was the appearance of Theophrastus' ΦΔ — Sedley has it — that encouraged Epicurus, after five years, to resume work on ΠΦ. This may have been the case, but the evidence is far from compelling.

I agree with Sedley (1976a: 35-36) that Epicurus wrote ΠΦ XI while still in Lampsacus. The geographical descriptions in fragment I column III (Vogliano) of ΠΦ XI (*PHerc.* 1042), are appropriate to the landscape of Lampsacus, but not to that of Athens. Epicurus would not have expressed himself in this way if he was writing in Athens. Book XI was written by 307 or 306 B.C.

The final *subscriptio* to *PHerc.* 1148, the roll of ΠΦ XIV, carries the name of Clearchus, who was ἀρχων in 301/300 B.C.³⁶⁹ Sedley (1998: 128, note 95) and Obbink (1996: 351-352) disagree on whether, as the former thinks, the date of the *subscriptio* is the date of Epicurus' original composition of the books ΠΦ,³⁷⁰ or the date is that of

³⁶⁹ It should be noted that traces of ink which have not been noticed before appear quite clearly in the multispectral images of the papyrus, below the name of the ἀρχων. Unfortunately I was not able to decipher them.

³⁷⁰ Clay (1998: 42-43) explains the fact that only books XIV-XXXVII have the name of the ἀρχων in the *subscriptio* because after settling in Athens Epicurus decided to preserve his writings in a way similar

a later copying or redaction by a scribe or διορθωτής (possibly for publication, after Epicurus had carried out revision on them). Obbink bases his theory on reading ἐκ] τῶν ἀρχαίων, following the book number, in the *subscriptio* to ΠΦ XXVIII (*PHerc.1479/1417*), but Sedley suggests rather περὶ] τῶν ἀρχαίων and that τὰ ἀρχαία are Epicurus' *iuvenilia*. The issue cannot be settled on the available evidence, but Sedley's view that the *subscriptio* gives the date of composition is perhaps more reasonable.³⁷¹ I assume for the sake of argument that the date of the *subscriptio* of the papyri ΠΦ refers to the date of composition, reserving judgement on the specific case of *PHerc.1479/1417*, where I find ἐκ] τῶν ἀρχαίων more convincing.³⁷²

It seems likely that at least six years intervened between ΠΦ XI and XIV. But I cannot see sufficient grounds for thinking that Epicurus had written ΠΦ XII and XIII before returning to Athens. This contention rests on the supposition that *Ad Pythoclem*,

to the laws and decrees, the δημοσία γράμματα, of the state of Athens by depositing them in the Metroon. Epicurus would have been the first and only individual to have done this. This would explain the name of the Athenian ἀρχων in the *subscriptio*. However it would appear from Leone (2003) that the final *subscriptio* to book XXXIV did not include the name of the ἀρχων (as it did not include a total reckoning of the στίχοι).

³⁷¹ Whether the texts which ended up in Herculaneum were ever prepared for 'publishing' is perhaps questionable, since they were always copied within the Epicurean school (note Epicurus bequeathing his library to Metrodorus in Diogenes Laertius X. 21).

³⁷² One need not assume that if the date here is that of an official revision this entails the same even also for those papyri where nothing is said about the old copies.

which according to Sedley epitomised those books, was written around 306 B.C.³⁷³ Sedley argues that Pythocles must have requested a summary of meteorological theories when he was still young, since he was an exceptional student. But Sedley's inference (1976a: 45) that Pythocles was born in 324 is far from certain.³⁷⁴ Even if he was, is it really inconceivable that Pythocles asked for such an epitome when he was 22 years old (and that Epicurus wrote books XII and XIII while he was in Athens), especially if Pythocles was living in Lampsacus and exposed to the theories of the Eudoxans? And is it indeed not more likely that Pythocles needed guidance because having been left behind in Lampsacus could not attend the lectures which lead to the composition of books XII and XIII (assuming that *Ad Pythoclem* summarises the content of both these books in addition to XI, below Appendix (c) pages 408-410)?

A further obstacle to Sedley's theory is that there is extremely little evidence

³⁷³ The dating of *Ad Pythoclem* is also relevant to the dating of *Ad Herodotum*, since the latter was written before the former. Indeed the cross reference might indicate that the two were written in short succession. According to Sedley Epicurus wrote *Ad Herodotum* near the time of his move to Athens, when he had already written ΠΦ XII and XIII.

³⁷⁴ A letter preserved in Philodemus Πραγματεῖαι XX and addressed to Cronius, in all likelihood written by Metrodorus after 306 B.C., shows that Pythocles was with Cronius in Athens at the time of the letter (“παρ[ᾶ] σοῦ”) and was looking after Cronius' sons. It is unclear whether Pythocles was doing so in Lampsacus (and Pythocles was on a short visit to Athens at the time of the letter) or in Athens (Sedley 1976a: 31). Pythocles did not die at the age of eighteen (Sedley 1976a: 45). Pythocles was Metrodorus' pupil; since Metrodorus was born in *circa* 331 B.C. he would have been only 7 years older than his pupil.

about the date of Theophrastus' works, and ΦΔ in particular.³⁷⁵ Some works by Theophrastus were much earlier. Gaiser (1985: 28-35 and 47-50) argues that Περὶ πυρὸς was written in the early years in Assos (347-345 B.C.), although this depends on Gaiser's taking of the expression ἐν κύκλῳ as "in the neighbourhood", which is not certain (Sharples 1998: 719, note 518). There seems to be no positive reason to think that ΦΔ was made available to copy around 300 B.C. It is even conceivable that Epicurus had ΦΔ available to him throughout his 'working-life'.

2.4 Conclusion

The details regarding the opponents criticised leave me in no doubt that books XIV and XV were not Lucretius' source in lines 635-920 of book I. Lucretius' and Epicurus' criticism shows two notable differences in the method. The distinction into categories, on which Lucretius' account is based, was not, it would seem, Epicurus' starting-point. And while Epicurus seems to limit himself to specific points relating to how what we experience is created, Lucretius accumulates arguments against the physical theories of opponents, on various aspects of their theory.

The two texts are not ultimately comparable, since in Epicurus the polemic was secondary, while it was Lucretius' primary concern. Yet it is perhaps worth pointing out

³⁷⁵ Pliny the Elder (*Naturalis Historia* 19. 32 etc.) gives 314 B.C. as the date for the work he was using, which is taken to be Theophrastus' *Historia Plantarum* from correspondences of the citations (Sharples 1995: 154-155).

two methodological points of contact between Lucretius' and Epicurus' criticism. The first is the fusing together of report and criticism, which results in the fact that opponents' theories are very sketchily reported. A second shared aspect might be the reticence to name opponents, and in particular including a further category of opponents by a generic "those who . . .". Neither aspect is at all peculiar. Both seems to have been trademarks of 'Epicurean doxography'.³⁷⁶

Given that ΠΦ XIV and XV could not have been Lucretius' source, I shall now turn to considering whether Lucretius in the *critique* used the same 'philosophical' source he had used thus far in *DRN* I or whether there are indications that, as commentators have suggested, he used a different source.

³⁷⁶ And one can compare Theophrastus' reticence to name opponents in at least *some* of his works, e.g. the *Metarsiologica*. Similarly Anaximander is not named in Aristotle's references to him collected in KRS: 113-114.

Chapter 3. Lucretius' use of sources in *DRN I*

Scholars have suggested that for lines 635-920 of book I Lucretius abandoned the primary source-text he had used thus far in the book, and turned to a different source. According to Giussani (1898: 85) Lucretius went looking for the criticism of Heraclitus',³⁷⁷ Empedocles' and Anaxagoras' theories of matter in ΠΦ. Sedley, who shares in the view that Lucretius switched to a different source to introduce the *critique*, relies on his claim that ΠΦ XIV and XV were the newly adopted source to show that Lucretius switched sources at this point.

In the first part of this chapter (3.1-3.5) I consider how Lucretius used his philosophical sources in *DRN I*, and what rhetorical and artistic concerns his use of sources reveals. In the second part of the chapter (3.6 and 3.7) I discuss whether Lucretius' source for the *critique* is more likely to have been a text by Epicurus, or a work by a later Epicurean.

3.1 The source of *DRN I* 156-598 and 951-1107

Before dealing with the source of the *critique* specifically, we should consider what text

³⁷⁷ "È andato a cercare".

was the source of the remaining lines of *DRN I*, leaving out for the moment lines 598-634 which are considered below.³⁷⁸ Lines 156-598 of *DRN I* deal with three philosophical themes: (a) ‘nothing comes into being out of nothing’ and ‘nothing is reduced to nothing’ (lines 156-264), (b) ‘only atoms and void exist’ (lines 265-482) and (c) the main characteristics of the atoms, showing that they are simple, solid, eternal (lines 483-598).³⁷⁹ Section (b) is in turn divided into three subsections: lines 265-328 prove (b1) the ‘existence of the invisible atoms’, lines 329-397 show (b2) the ‘existence of void’, and lines 430-482 prove (b3) that ‘nothing else apart from atoms and void exists’.³⁸⁰

DRN I 156-598, with the exclusion of lines 430-482 (b3), correspond closely to Epicurus’ *Ad Herodotum* 38-41 (see further below note 872). *DRN I* and *Ad Herodotum* are connected: it looks as though both are based on a work by Epicurus more detailed than *Ad Herodotum*.³⁸¹ Lucretius inherited the order of topics, as well as much of the content, from such a lost continuous work by Epicurus. Giussani suggested that

³⁷⁸ Pages 228-235.

³⁷⁹ Lines 398-417, which are not philosophical, but concerned with reflections on Lucretius’ own contribution, are, in all likelihood, independent of sources.

³⁸⁰ Sedley’s (1998: 187) suggestion that lines 418-429 are a separate section ‘the all consists of body and void’ is not completely convincing. Lines 418-429 sound like a resumptive passage, summarising the proofs so far. Lines 430-482 show that the other candidates for the role of independent existences, namely *eventa*, *coniuncta* and *tempus*, are not in fact independent existences.

³⁸¹ On how *Ad Herodotum* and the $\Pi\Phi$ are related, below Appendix (c) pages 405-408.

Lucretius' 'main' source was Epicurus' Μεγάλη Ἐπιτομή,³⁸² while Sedley (1998: 186-187) argues that *DRNI* was derived from the ΠΦ, from book I and part of book II.

It is likely that ΠΦ, and the Μεγάλη ἐπιτομή, would have started the treatment of physics with the sequence of topics (a) - (b) - (c). The *scholium* to *Ad Herodotum* 39 gives (b) τὸ πᾶν ἐστὶ σῶματα καὶ κενόν as a contention of ΠΦ I.³⁸³ It seems safe to assume that (b) followed the opening dogma (a) οὐδὲν γίνεταί ἐκ τοῦ μὴ ὄντος,³⁸⁴ the basis of the whole Epicurean physical system. And there are indications that Epicurus made some preliminary comments on how atoms came together in book I, so that it seems reasonable to assume that (c) the preliminary description of the solidity, simplicity and eternity of the atoms too came in book I of ΠΦ.³⁸⁵ Talk of

³⁸² Giussani 1896: 10. Giussani thinks, however, that Lucretius at times turned to Epicurus' ΠΦ and *Ad Herodotum*.

³⁸³ According to Sedley (1998: 200) Epicurus' ΠΦ did not have (b1) and (b2) as early as Lucretius does, because this material comes from the lowest level of analysis. He (1998: 201) speculates that the statement in *DRNI* 417, where Lucretius says that he has many more arguments apart from the one he presents, shows that he is abandoning the source he had used for (b1) and (b2). According to Sedley Lucretius signals in line 418 that he is taking up again the order of topics in ΠΦ I. Sedley does not suggest in what book of ΠΦ (b1) and (b2) would have come. Presumably he thinks book II, but this seems to attribute too much material to that book (see below page 225). I can see no reason for doubting that (b1) and (b2) could have been in ΠΦ I. Line 417 may show no more that Lucretius is leaving out some of the arguments he found in his source.

³⁸⁴ This came, probably, after methodological remarks, below Appendix (c) note 872.

³⁸⁵ ταῦτα δὲ ἐστὶν ἄτομα καὶ ἀμετάβλητα, εἴπερ μὴ μέλλει πάντα εἰς τὸ μὴ ὄν φθαρῆσθαι, ἀλλ' ἰσχύοντα ὑπομενεῖν ἐν ταῖς διαλύσεσι τῶν συγκρίσεων πλήρη τὴν φύσιν ὄντα καὶ οὐκ ἔχοντα ὀπηρὴ ὅπως διαλυθῆσεται. The point is reiterated in *Ad Herodotum* 42 τὰ ἄτομα

συγκρίσεις³⁸⁶ is attributed to book I by the *scholium* to *Ad Herodotum* 40. And in column XXIII of ΠΦ XXXIV (Leone 2002: 64-65), Epicurus writes ἀ[να]γκαῖον αὐταῖς | ὑπάρχειν κατὰ τὰς | πρὸς ἀλλήλας κρούσεις, ὡς ἐν τῇ πρώτῃ γραφῇ εἴρηται, οὐθὲν ἥττον | παρὰ τὰς [ἐξ] ἡμῶν| τ[ις] σ[υμ]μετρ[ία] αὐταῖς γίγνεσθαι . . .³⁸⁷ A comparable preliminary definition of the atoms appears, in a much summarised form,³⁸⁸ in *Ad Herodotum* 41, immediately after (a) and (b). It is certainly conceivable that the preliminary description of the atoms followed the proof of their existence in ΠΦ I.

Sedley, on the other hand, argues that (b3) and (c) came in ΠΦ book II.³⁸⁹ His

τῶν σωμάτων καὶ μεστὰ.

³⁸⁶ The συγκρίσεις are mentioned *en passant* in *Ad Herodotum* 40, perhaps reflecting ΠΦ I. Lucretius' mention of the συγκρίσεις in *DRN* I 483-484 is close to the mention in *Ad Herodotum*. Lucretius' account of aggregates in *DRN* II shows no resemblance to the 'fuller' (in fact very limited in scope) account of aggregates of *Ad Herodotum* 62.

³⁸⁷ Leone (2002: 129-130) thinks that the subject of the sentence is στερεότης. She seems right to reject Sedley's suggestion (1998: 113, note 51) that this is not a reference to the first book of ΠΦ. According to Leone the material of *Ad Herodotum* 43-44 was in ΠΦ I, and that of 45-46 was in ΠΦ II.

³⁸⁸ The correspondences are not as close as with the previous topics. I doubt that the fact that *Ad Herodotum* is not as close to *DRN* I here suggests that lines 483-598 come from a different source from the one used for lines 155-482. Bailey (1947: 25), who is inclined to think that the Μεγάλη Ἐπιτομή was Lucretius' 'primary' source, thinks of 483-598 as a passage that could have come from the ΠΦ.

³⁸⁹ It seems certain that Epicurus treated topic (c) before he treated the εἶδωλα in ΠΦ II, since the εἶδωλα themselves are atomic aggregates of a special kind. Indeed it seems reasonable to assume that the detailed treatment of atomic shapes and motions (the material Lucretius reproduces, whether directly or

suggestion depends on the testimony of the scholium to *Ad Herodotum* 73 according to which χρόνος was a topic of book II of ΠΦ. According to Sedley (1998: 114) Epicurus considered time in ΠΦ II as part of (b), as Lucretius does: he would have simply mentioned that time is only an ‘accident’ of things, ahead of his main account of χρόνος, which came later on in ΠΦ, in book X.³⁹⁰ The main account of the συμπτώματα and συμβεβηκότα would be reproduced in *Ad Herodotum* 68-73, and would have been omitted by Lucretius. But it is not clear why the scholiast should only refer to the ‘lesser’ of Epicurus’ two accounts of χρόνος. It is possible that Epicurus mentioned time as part of (b) in book I, and then provided a fuller explanation of time at some point of book II.³⁹¹

If one accepts that Lucretius’ account of time in *DRN* I 459-482 must be taken as reproducing the one in ΠΦ II, one has to assume that the mention of time came right

indirectly, in *DRN* II), would have been presented in ΠΦ II, before the εἰδῶλα were treated. Sedley places discussion of the minimal parts in ΠΦ book V, but it is certainly conceivable, if not likely, that Epicurus would have used the minimal parts in the context of the discussion of the shape of the atoms, if not earlier in the context of the impossibility of infinite divisibility.

³⁹⁰ ΠΦ IX according to Sedley’s 1984 article.

³⁹¹ The accounts of *Ad Herodotum* and *DRN* do not match exactly, although both treat time last. Sedley thinks the treatment in *Ad Herodotum* reproduced the fuller account of ΠΦ. We have in *PHerc.* 1413 a book seemingly from Epicurus’ ΠΦ (although the dialogue-format may suggest otherwise), which dealt mostly with time. Arrighetti (1973: 650) seems right that *PHerc.* 1413 was not part of book II. Epicurus argues against three objections to his theory of time, which suggests this response came after he had set out his theory of time in ΠΦ. It may be that *PHerc.* 1413 was the third time Epicurus discussed time in ΠΦ, but I do not see the grounds to exclude that *PHerc.* 1413 is a different work by Epicurus, perhaps a monograph on time.

at the start of book II, and that topic (b) was split between books I and II of the ΠΦ, the latter being perhaps unlikely. A further objection to supposing that (c) came from ΠΦ book II is that this would entail that ΠΦ I contained very little physical theory,³⁹² but ΠΦ II a very great deal of it: the material of *DRN* 430-598, 951-1113 (or at least 951-1051), and all of the material of *DRN* II *in addition to* the treatment of the images.³⁹³

Alternatively one can think that Epicurus only introduced (b3) the συμπτώματα and συμβεβηκότα in ΠΦ II, after having discussed (c), in book I. This would mean that Lucretius — if he was following the ΠΦ — introduced himself (b3) in connection with (b).

The problem regarding the position of χρόνος in ΠΦ does not hamper, in my view, the theory that ΠΦ was Lucretius' main source. Leone (1993: 308) reports of two columns from ΠΦ II (*PHerc.* 1149 from the earlier part of the roll) which deal with the ἀπειρία of worlds (through the infinite number of atoms), just ahead of the treatment of the images (as in *Ad Herodotum*). Given the parallel with *DRN* II 1048-1089 and the correspondence between the treatment of images in ΠΦ II and *DRN* IV (which probably followed *DRN* II in Lucretius' original plan of his poem),³⁹⁴ it seems reasonable to

³⁹² One would have to assume that ΠΦ I was made up mostly of methodological remarks, which sounds unlikely.

³⁹³ Arrighetti (1973: 580) is inclined to discount the testimony of the *scholium*, thinking that the number is corrupt. This seems somewhat arbitrary. Since the number is written out in full (ἐν τῆι δευτέραι), the corruption would not have been easy (unless one wants to appeal to the possibility that the corruption occurred at an earlier stage of transmission, when numerals were used).

³⁹⁴ Below Appendix (a).

assume that Lucretius was following $\Pi\Phi$, although this would imply that he introduced the material of the final part of book II from a different source. It is very difficult to rule out however that Lucretius followed an intermediary text, which reproduced the order of $\Pi\Phi$.

The question of where we should place topic (c) in $\Pi\Phi$ determines whether topics (d) ‘the all is infinite’ (*DRN* I 951-1051)³⁹⁵ and (e) the refutation of geocentric cosmology (lines 1052-1113)³⁹⁶ came from book I or book II of $\Pi\Phi$, assuming that Lucretius did not derive (e) from a different source. It is likely in my view that Lucretius derived the treatment of (d) and (e) from the same source he had been using up to line 598. Topic (d) comes immediately after (c) in *Ad Herodotum*. Sedley has it that (e) came from a source different from (d), but there seems to be no compelling reason for this: (e) is closely connected to (d), both dealing with characteristics of the ‘all’.

It seems conceivable that topics (a) - (b) - (c) - (d) - (e) could have fitted in $\Pi\Phi$

³⁹⁵ Woltjer (1877: 33-35) notes that Lucretius’ line of argument in 984-1001 is different from the one in *Ad Herodotum* 42, which presents a dilemma: are (1) bodies and void both infinite, (2) bodies finite and void infinite, or *vice versa*, (3) bodies and void both finite? Woltjer thinks Lucretius did not reproduce Epicurus’ line of argument accurately “sive quod in referendis argumentis suam iniit viam, sive quod in aliis libris Epicurus aliter rem exposuit”. Woltjer (1877: 35) notes that Lucretius leaves out Epicurus’ argument that “if space/void were finite, the infinite bodies would not have anywhere to go”. It may be that the argument appeared in the $\Pi\Phi$ but Lucretius left it out, which may explain line 417 (above note 383).

³⁹⁶ The refutation of geocentric cosmology follows from the previous arguments about how elements behave in the universe, although Lucretius does not spell out the connection. On whether the Stoics are the target of the refutation, above pages 27-30.

I, although this depends on how much space the introductory methodological remarks took up (above note 384), and whether ΠΦ treated topics in more detail (i.e. offered more arguments) than Lucretius does in *DRNI*. The only objection to this theory is that it implies that Epicurus was already returning to time in ΠΦ II, if he had introduced time together with the συμπτώματα and συμβεβηκότα in ΠΦ I, in connection with (b).

As for Epicurus' Μεγάλη ἐπιτομή, the scholium to *Ad Herodotum* 39 states that (b) τὸ πᾶν ἐστὶ σώματα καὶ κενόν was treated κατ' ἀρχὴν in the Μεγάλη ἐπιτομή.³⁹⁷ It may well be that the order of topics at the start of the Μεγάλη ἐπιτομή was the same as that of ΠΦ. ΠΦ is perhaps preferable to the Μεγάλη ἐπιτομή for the role of primary source-text³⁹⁸ of *DRNI* because there seems to be a question concerning whether the account in any general ἐπιτομή could have been detailed enough to provide Lucretius with all the philosophical points we find in *DRNI*.³⁹⁹ Moreover while we know that ΠΦ was available in Italy in Lucretius' time (in Philodemus' library); that the Μεγάλη ἐπιτομή was also available is perhaps likely but not proven.

³⁹⁷ I assume this expression does not mean it was the very first topic treated.

³⁹⁸ Leone (2002: 34, note 278) endorses Sedley's view that the ΠΦ was the direct source.

³⁹⁹ Presumably a single book would have been the norm, although there seems to be evidence that an ἐπιτομή could be in more than one book. Diogenes Laertius in FHS&G 137, 7a reports that Theophrastus' Περὶ φυσικῶν ἐπιτομή was in two books. There is a similar title in FHS&G 137, 7b, which is reported to be in one book.

3.2 Did Lucretius change source after line 598 of *DRN I*?

Lucretius considers the theory of minimal parts (ἐλάχιστα) in lines 599-634 of book I, which conclude (c), the preliminary description of the atoms. The position of the topic is odd, since in *Ad Herodotum* the ἐλάχιστα are discussed in a completely different context, i.e. after the proof that atoms cannot have πᾶν μέγεθος which leads Epicurus to consider — as the reverse of the process of atoms being so large that they can be seen — how τομῆ εἰς ἄπειρον ἐπὶ τοῦλαττον is unacceptable and so is μετάβασις εἰς ἄπειρον ἐπὶ τοῦλαττον. In 57 Epicurus says that therefore, if there were an infinite number of parts in anything (ἐν τινι), that thing will become infinitely large. In 58 Epicurus introduces the ἐλάχιστον of things in our experience. In 59 he uses the analogy from the field of sensory objects to that of atoms to show the existence of the ἐλάχιστον of the atoms.⁴⁰⁰

We do not know in which book, or books, of ΠΦ Epicurus treated the ἐλάχιστα. Epicurus may, as Leone (1984: 68-70) suggests, have mentioned the ἐλάχιστα in ΠΦ XIV, ahead of his criticism of air-monism, since the word μετάβασις (which is found in *Ad Herodotum* 56 and 58) occurs in column III, and in column VIII in conjunction with ἐλαχισ[. It is not clear whether Leone thinks columns III-VIII dealt with the ἐλάχιστα, or the ἐλάχιστα were only mentioned incidentally. It is certainly possible that Epicurus mentioned the topic in book XIV, although the

⁴⁰⁰ The argument in *DRN I* 628-634 is comparable to the last sentence of *Ad Herodotum* 59.

evidence is weakened by the fact that ἐλάχισ[ι] could have been the adverb. Even if Epicurus treated the ἐλάχιστα in book XIV, this does not entail that he could not have already treated the topic in earlier books of ΠΦ.⁴⁰¹ Sedley (1998: 133) suggests that the ἐλάχιστα were treated in ΠΦ V, where Epicurus would have given his full description of the atoms. His evidence for assigning the full description of the atoms to book V is the order of *Ad Herodotum*, and *DRN* II.⁴⁰² It would not be surprising, though, if Epicurus had mentioned the ἐλάχιστα earlier on in ΠΦ, whether in the context of the preliminary description of atoms, or of infinite divisibility.

Furley argues that Lucretius himself introduced the doctrine of the *minima* as part of (c) in line 598, by turning to different sources.⁴⁰³ Lucretius thought that he had better make clear immediately that the theory of minimal parts can be reconciled with the

⁴⁰¹ According to Bailey (1947: 701) it is likely that Lucretius used a work other than the *Ad Herodotum*, “probably the Μεγάλη ἐπιτομή, in which the doctrine occurred in a context like that here”. But could the treatment in the Μεγάλη ἐπιτομή can have been detailed enough to contain the treatment of the *minima* Lucretius drew from? A further conceivable candidate is perhaps Epicurus’ Περὶ τῆς ἐν τῇ ἀτόμῳ γωνίας (Diogenes Laertius X. 28).

⁴⁰² The shape size and weight of the atoms is treated in *DRN* II. Lucretius mentions the *minimae partes* in a similar context in *DRN* II 485, where he is proving that atoms can only have a limited number of shapes (lines 478-521).

⁴⁰³ Furley (1967: 41) considers *DRN* I 599-634 “neither a set of coordinate, independent arguments nor a single articulated unit of reasoning”, suggesting that Lucretius drew the arguments “from a variety of sources” without organising them in a coherent order. Furley thinks that the theory of the *minima* was not originally part of the argument for the existence of the atoms. Long and Sedley (1987: 41) similarly think that Lucretius’ use of the theory of the *minima* is “methodologically questionable”.

indivisibility of the atoms. And indeed part of Lucretius' rhetorical technique is presenting the reader with examples which *prima facie* oppose his arguments, rather than keeping silent about them.⁴⁰⁴ But if Lucretius was worried that the *minima* seemed a stumbling block for atomism, it is hard to understand why he did not make the point explicit.

Lucretius presents the existence of the *minima* as a further argument to show that atoms exist, and that they are solid, eternal and simple.⁴⁰⁵ Line 609 *sunt igitur* shows that the existence of the *minima* is presented as a proof of the existence of the atoms: since minimal parts exist which are inseparable from one another, atoms which are solid and eternal can and do exist. It is because atoms can be divided, in thought,⁴⁰⁶ into smaller parts (the ἐλάχιστα) that they can be solid, have a shape, be physical entities

⁴⁰⁴ Lucretius has already presented observations which are *prima facie* contrary to his theory, in *DRN* I 487-496. The tone of *DRN* I 370-397 is also perhaps comparable.

⁴⁰⁵ *Tum porro* (line 599) is one of the expressions by which Lucretius introduces new arguments (cf. line 520), although he does not use it invariably in that way. It introduces here the last argument in Lucretius' list of nine. It is questionable whether *praeterea* of line 615 (introducing the argument 'if minimal parts did not exist large and small could not be differentiated') and *denique* of 628 (introducing the argument 'if minimal parts did not exist nature could not re-create the world') should be considered separate arguments in addition to the preceding series, as proposed by Bailey (1947: 700) and Sedley (1998: 199). The purpose of these lines is proving the existence of the *minima*, rather than the existence of atoms.

⁴⁰⁶ Lucretius was probably aware of the distinction divisible in thought / divisible in practice. Although he does not state that the division is made in thought, he repeatedly states that the *minima* cannot exist as separate physical entities: at 603-604, 608, 611 and 628-634. If Epicurus made the point explicit in ΠΦ, Lucretius (assuming he was using ΠΦ) decided to leave the detail out here.

and therefore have the movements necessary for creation (differently from the ἐλάχιστα themselves which are not separable in practice). Lucretius only mentions the reason why the *minima* are needed for the atoms to be solid and eternal at 608-614 and 623-627.⁴⁰⁷ It may well be that what was originally considered as a requisite for the existence of the atoms is here presented incorrectly as a proof of their existence.

One cannot exclude that the source text Lucretius was using for the main body of *DRNI* introduced the doctrine of the ἐλάχιστα as part of the preliminary description of atoms, as Giussani (1896: 73-75) thought. It is conceivable that Epicurus first mentioned the ἐλάχιστα in his preliminary description of the atoms, which presumably came in either book I or, perhaps less probably, book II of ΠΦ.⁴⁰⁸ He may have felt the need to stress in his exposition, which probably reflected his actual teaching, that the doctrine of theoretical divisibility of the atoms is not in conflict with the physical indivisibility of the atoms,⁴⁰⁹ possibly turning to his own advantage an opponent's objection that what does not have parts cannot be a physical existence, nor have shapes and movement. There is a logical connection between line 598 and 599, although Lucretius does not make that connection clear at the outset of the passage, by implying

⁴⁰⁷ It is puzzling that in 623-627, where Lucretius draws a conclusion after the proofs, the reference to atoms in 626 (*illa quoque*) is rather unclear. It is presumably meant to pick up the mention of the *primordia* in line 609.

⁴⁰⁸ Above pages 222-225.

⁴⁰⁹ Furley (1967: 41) remarks that theory of minimal parts is a "stumbling block" rather than supporting argument for the theory of elements. He concludes that Lucretius unsuccessfully introduced the *minima* at this point.

that the *minima* are an argument for the existence of the atoms.

The question of how line 599 is connected to what precedes it is affected by the problem of whether lines were lost after line 599. The general consensus of recent editors is to retain the text of the manuscripts. Munro's lacuna does not even appear in the *apparatus* in the latest edition of Lucretius (Flores 2002), nor does Kenney raise the point in reviewing Flores' edition (*Classical Review* 2004: 366-370). Munro (1886a: 59) suggested that the text ran thus:

Tum porro quoniam est extremum quodque cacumen

Corporibus, quod iam nobis minimum esse videtur, (599a)

debet item ratione pari minimum esse cacumen (599b)

corporis illius quod nostri cernere sensus

iam nequeunt: id nimirum sine partibus extat.

Munro (1886b: 79-80) notes that (1) lines 749 -752 support his suggestion,⁴¹⁰ the similarity between the two passages being characteristic of Lucretius,⁴¹¹ that (2) the emended text makes it possible to explain the *iam*,⁴¹² which is redundant if one keeps the text of the MSS, and that (3) Epicurus uses exactly the same analogy in *Ad Herodotum*

⁴¹⁰ Ernout (1924: 130) objects to Munro that the *quodque* is not comparable to *cuiusque* of *DRN* I 749, suggesting that the *quaeque* of *DRN* I 578 is closer.

⁴¹¹ On Lucretius' use of repetition below pages 367-368.

⁴¹² Munro explains that Lucretius' *iam* implies "that when you arrive at the atom, it is already far below the ken of sense", comparing *DRN* II 312.

58-59.⁴¹³ Furley (1967: 31-33) adds that (4) the effectiveness of the argument is much improved if one postulates a lacuna at this point.⁴¹⁴ The transmitted text takes for granted, without proof, the existence of indivisible *minima* in the atoms. It is only if one accepts the lacuna and supplement that the existence of *minima* has a proof, through analogy, and in turn the solidity of atoms with shapes is possible. Lucretius, or his source, is saying: “we see there are visible *minima* in all⁴¹⁵ things [as for example the corner of a table], so there must be visible *minima* in what is beyond our senses, and these will themselves be without parts”. It may be that the analogy extends also to “just as the corner cannot be detached from the table so the *minima* cannot be detached from the atom either”.

Three considerations may be added in favour of supposing a lacuna here. First (5), it is odd, if not misguided, for Lucretius to have used the analogy in its full force only in lines 749-752, the later of the two passages. Second (6), the use of the long periphrasis in line 600 to mean “atom” is much easier to understand with the text as proposed by Munro. Third (7), the textual corruption would have been encouraged not only by homoeoteleuton on *cacumen* (Furley 1967: 32), but also by the fact that both

⁴¹³ Above page 228.

⁴¹⁴ Furley thinks Munro’s restoration is “on the right lines, though I should prefer something which stated explicitly that the first *corpora* are visible”.

⁴¹⁵ The *quodque* of line 599 has troubled editors. According to Bailey (1947: 705) it means “in each case”, although it could possibly imply “a series of extreme points” anticipating 605. Giancotti (1994: 432) follows Bailey and takes *quodque* as “‘in ogni caso’ (cioè ‘sempre’)” although he grants there is a difficulty here.

line 599a, and 600 started with *corpor-*. A further point may be that (8) Lucretius' expression *naturam corporis* is a rather odd way of referring to the atom, but easier to understand if he meant to refer to an object in our experience.

There are two possible objections to Munro's restoration. First, line 601 comes to have a rather odd rhythm. There would be a strong break in the line with *id* effectively starting a new sentence. The emphasis would fall totally on the *caesura* in the second foot, with no emphasis on the *caesura* in the fourth. A second possible objection is that we have no evidence that *Epicurus* used the analogy to prove the existence of the ἐλάχιστα rather than the possibility of their existence.⁴¹⁶ But in *Ad Herodotum* — the only available evidence for his theory of the ἐλάχιστα — Epicurus had no reason for elaborating the physical argument, as Furley (1967: 30) remarks. It is conceivable that Epicurus used the analogy to show that the *minima* actually exist elsewhere. Neither objection is decisive against Munro's proposal.

If one accepts Munro's lacuna, the connection between line 598 and 599 is somewhat more satisfactory, although it remains unclear why Lucretius did not indicate at the outset of the section that the minimal parts are required for the existence of atoms which have the *varios conexus pondera plagas concursus motus*. It is difficult to decide on the present evidence whether Lucretius abandoned his main source at line 598 or at line 634 (or at both line 598 and 634). The theory of the ἐλάχιστα may have been connected with the existence of solid and aeternal atoms in Epicurus. Much depends on what one makes of the anticipation in lines 633-634 (see below pages 236-237 and 240),

⁴¹⁶ Long and Sedley 1987: 42.

and the idea of aggregation implied in line 611. If one assumes that these anticipations are due to the fact that Lucretius had changed source by introducing the *minima*, then it is possible, if not likely, that both the section on the *minima* and the *critique* come from the same source, given that the *critique* presupposes at many stages in the argument aggregation and motion of the atoms. The hypothetical source would have stressed how the *minima* made it possible for the atoms to have movements and collide, and then emphasised that it is because of the variety of the aggregations and movements of the atoms that Epicurean theory was superior to that of the monists, of the limited pluralists and of Anaxagoras.

3.3 The *critique* does not derive from the same source as 155 ff.

Lucretius introduces the *critique* of rival theories of matter *immediately* after proving that (c) the *primordia*, being indestructible and eternal, are the στοιχεῖα of the universe.⁴¹⁷ Yet it is unlikely that Epicurus would have had a *critique* of the same kind in the same position in ΠΦ. We have seen above (pages 222-227) how we have many topics attributed to the first two books of ΠΦ. And it seems improbable that Epicurus would have interrupted the sequence of arguments, which leads naturally to (d) τὸ πᾶν ἄπειρον ἐστὶ after (b) τὸ πᾶν ἐστὶ σώματα καὶ κενόν and its corollary (c)

⁴¹⁷ *Ad Pythoclem* 86 suggests, and Aëtius states (I. 3. 14-18), that Epicurus did not think of τὸ κενόν, Lucretius' *inane*, as an 'element' itself. See Sedley (1982: 175-177) for how Epicurus differed in this from the earlier atomists.

preliminary description of the σώματα,⁴¹⁸ and introduced systematic criticism of the Presocratics' theories of matter, before he had explained how atoms can themselves 'produce' stuff in our experience (the material which Lucretius presents in *DRN* II). A further point is that, since Epicurus attacks the monists' use for condensation and rarefaction and Plato's theory of shapes in ΠΦ XIV, it seems unlikely that there was a systematic and comprehensive refutation of earlier thinkers' theories on the στοιχείον in ΠΦ I, or ΠΦ II.⁴¹⁹

We have seen in chapter 1 how the insistence on disposition and movement of the atoms in the *critique* is striking,⁴²⁰ since such phenomena are only explained in *DRN* II. It seems odd that Lucretius should introduce this important doctrine in the context of rival theories, rather than as part of his positive exposition of Epicurean theory. The anticipation should perhaps be explained by supposing that Lucretius imported the references to aggregation and motion of the atoms from his source, which may have criticised the Presocratics in the context of the combinations and motions of the atoms.

Such phenomena are first mentioned in lines 633-634, just ahead of the *critique*: *varios conexus pondera plagas concursus motus*. The reference here however is

⁴¹⁸ Compare Lucretius' transition 951-957, where it is implied that the next step after having shown the existence of the atoms is to consider whether the all is infinite. This may indicate that (d) followed (e) in his 'main' source.

⁴¹⁹ As to the lost Μεγάλη Ἐπιτομή one can only guess that, being an epitome of the whole treatise ΠΦ (or at least of a considerable part of it), it would not have had enough space to include systematic criticism of theories of matter in list-form.

⁴²⁰ Pages 79-80.

generally to what is needed for parts to come together and join in an aggregate, rather than to the actual behaviour of the atoms themselves. It may be that this anticipation suggests that the section of the *minima* was introduced by Lucretius at this point of the treatment, but it is not inconceivable that Epicurus himself, in a discussion of the minimal parts in either book I or book II of ΠΦ, had pointed out that anything which can combine and move must have parts.

The first reference to the *motus* in the *critique* (line 677), on the other hand, is specifically to atoms being added or subtracted to compounds, and to the change of position of the atoms in relation to one another within a compound (*abitu aut aditu mutatoque ordine mutant*). The point is reiterated in the conclusion of the argument against fire monism: *conkursus motus ordo positura figurae* in line 685 and *mutato ordine* in 686. The combinations and motions of the atoms appear first as a premise to the confutation of fire-monism (lines 675-679), and then as part of the restatement of the Epicurean view as a consequence of the discussion (lines 684-689). The re-statement of Epicurean theory in lines 798-802 again refers to the combinations and motions of the atoms, with line 801 implying not only a change of relative position within the compound but also a variation of their motion within it (*ordine mutato et motu*).

In lines 818 and 819 we have three phenomena, the identity of the atoms in the compound (*cum quibus*), the arrangement of atoms both in terms of pattern and in terms of orientation within it (*positura*),⁴²¹ and the invisible perpetual motions of the atoms

⁴²¹ On the reference of *positura*, below pages 358-359.

(*motus*),⁴²² which presumably can differ from one to another. Line 822 seems to support this: *alioque modo* there refers to both aspects included in *positura*, and *moventur* indicates the motion within compounds (which Lucretius only describes in *DRN* II 100-104). And in lines 907-912 Lucretius not only mentions again such phenomena, but cross-refers to his remarks to that effect earlier in the *critique*.

The insistence on the disposition and motion of the atoms could be explained in two ways, either by saying that (1) it is taken over from Lucretius' source-text, which perhaps introduced systematic confutation in the context of proving the importance of disposition and motion of the atoms, or by supposing that (2) Lucretius decided to foreshadow concepts which he was going to explain in book II. Explanation (1) is perhaps preferable.⁴²³

It is somewhat surprising, given Lucretius' extensive use of cross-references in the *critique*,⁴²⁴ that he presents the argument for the existence of void in 660-665 after

⁴²² Giussani 1896: 93. Giussani considers this the first clear mention of the motions internal to the compounds, anticipated only by the vague references in *motus* of line 634, and in *motu* of line 801. He argues that the *prolexis* is a reason for considering the passage a later addition, arguing that in *DRN* II 762 (= 819) the expression *quos motus inter se dent atque accipiant* is, contrary to what happens in our line, easily understandable and indeed necessary, since it refers to a basic moment in the explanation of colours. But the mention of line 801 seems to refer to the same phenomenon. On the suggestion that lines 803-829 are a later addition, below pages 371-372.

⁴²³ On whether Lucretius changed source at line 598 see above pages 231 and 234-235.

⁴²⁴ Below pages 249-250, on Lucretius' use of cross-references, which suggest that he saw how placing the *critique* at the centre of book I would serve to reinforce, by repeating them, concepts expressed earlier in the book.

he has dedicated lines 329-397 to proving the existence of void. This may be an indication that the source of the *critique* was a text which had not just proved that void exists.

Although it cannot be proved that Lucretius was not reproducing the order of topics of a text where Epicurus embarked on a *critique* of the Presocratics' theories of matter after the preliminary description of the atoms, the considerations made above regarding the source text suggest, I think, that *Lucretius* decided to introduce the *critique* at this point of his poem, just after he had proved the existence of the *primordia* and a preliminary description of them.⁴²⁵ The choice of distancing himself from his source would have no doubt laid emphasis on the new section which unexpectedly, especially for the reader who was familiar with Lucretius' 'main' source, came from a different text.

3.4 The connection between lines 634 and 635.

Let us consider the connection between lines 634 and 635. The exact reference of the *quapropter* in line 635 is not wholly clear. Munro (1886b: 84) thinks it refers to lines 632-634: fire cannot have the necessary *conexus pondera plagas concursus motus*. Giussani (1898: 85) objects that there is no reason to deny such properties "a dei supposti del fuoco, o al fuoco (all' acqua etc.) in genere". Furley (1967: 40) defends

⁴²⁵ That Lucretius was using a source later than Epicurus which reproduced the contents of ΠΦ I-(II) and then embarked on criticism of the Presocratics sounds, I think, extremely unlikely.

Munro's view that *quapropter* refers to what immediately precedes, by suggesting that the *quapropter* picks up the *propterea quia* of 631 and that Lucretius is emphasising *varios* in line 633: the minimal parts lack the *variety* of *conexus pondera plagas concursus motus*, and so does fire, "wherefore . . .". This reading is ingenious, and seems to answer Giussani's objection: fire cannot have the necessary variety. Yet I wonder whether this is what Lucretius had in mind when he wrote *quapropter*.

Bailey (1947: 714) explains the *quapropter* as referring to the entire preceding argument establishing the existence and characteristics of the atoms, or as merely resumptive, meaning "and so" as in *DRN* I 334. I doubt that the *quapropter* in line 635 is simply resumptive, and that it means "and so" without any specific reference to what precedes. *Quapropter* in line 334 does not look like a parallel for such a resumptive use. As Professor Sharples points out to me there is a connection between 334 and what immediately precedes it. *Quapropter* takes up, after 331-333, what was said in 329-330: "things are not all massed together, therefore — I am telling you — there is void". The reference of *quapropter* here is in fact 'limited'. In lines 557 and 794 the reference in *quapropter* is again 'limited' just to the preceding lines.⁴²⁶

But there are a number of parallels for Lucretius using *quapropter* with an 'extended' reference. In line 127 *quapropter* does not refer to the immediately preceding section on the soul and Ennius, but to the contention earlier in the paragraph that scientific knowledge is needed to lead a trouble-free life (lines 101-116). *Quapropter* in line 398 also has an extended reference, to all the arguments proving the existence of

⁴²⁶ In *DRN* VI 998 *quapropter* is resumptive and not that far from *igitur* in meaning.

void.⁴²⁷ However line 398 is resumptive, re-stating the point made in the immediately preceding section; line 635 is different in this respect because it introduces, rather suddenly, a new point and indeed a major new section in the poem. The *quapropter* in 705 does not refer to the immediately preceding lines, but to the whole refutation of Heraclitus.⁴²⁸

The connection between lines 634 and 635 is perhaps more satisfactory if *quapropter* logically refers not only to the immediate preceding lines, but to the entire section defining the *primordia*. That fire is not *aeternus solidus* and *simplex* is perhaps a more immediate inference than that fire does not have the necessary *varios conexus pondera* etc. I am inclined to think that the primary reference of *quapropter* is an ‘extended’ one, although this does not mean that *quapropter* cannot be read as also picking up lines 631-634.⁴²⁹ A reference to lines 631-634, which highlight a core feature of the atoms is not incongruous in itself. The thought is: “nature needs a στοιχείον made of up of inseparable *minima*, and therefore solid and eternal colliding atoms, so (*quapropter*) those who said that . . .”. If on the other hand one thinks with Furley that the *quapropter* in line 635 is specific and refers to the variety of movements, I would not

⁴²⁷ It is perhaps possible that the *quapropter* which reflect logical connections in Lucretius’ Greek philosophical source are limited and specific, while those where the connections were introduced by Lucretius are vaguer and more general.

⁴²⁸ Bailey 1947: 714.

⁴²⁹ It seems worth noting that if one accepts the interpretation above — that Lucretius took it for granted that fire could not be thought of as *aeternus, solidus, simplex* — the *quapropter* of line 635 would follow on well after 598.

rule out, given the number of references to such phenomena in the *critique*, that the criticism of the Presocratics came in connection with what the *minima* made it possible for the atoms to do, namely have different shapes and movements (above page 235), and Lucretius somewhat obscured the connection.

Whether the reference in *quapropter* is extended or limited, it seems a fair remark that it involves a fair amount of work on the reader's part, since he has to work out for himself why fire cannot have the necessary qualities. This might have a bearing on determining whether Lucretius changed source at this point. Sedley (1998: 193) argues that Lucretius was much readier to abandon logical rigorousness for rhetorical effect, referring for example to Lucretius' allusions to atoms in *DRN* I long before they have been demonstrated.⁴³⁰ If there is a logical incongruity in the *quapropter* it is perhaps more likely to derive from Lucretius than from Epicurus.

It might be that the vague reference in the *quapropter* provides a further (above pages 235-239) clue that Lucretius changed sources at this point and established himself the connection between the preliminary description of the atoms and the *critique* of earlier theories of matter, which forms the centre-piece of book I, culminating in lines 921-950. The fact that the reference in *quapropter* of line 705, one that Lucretius

⁴³⁰ *DRN* I 221 would presumably be an example of this. Yet Professor Sharples draws my attention to the fact that there might not be an illegitimate anticipation in *DRN* I 221, but rather an argument here for everlasting "seeds". We are again presented with a dilemma: either (1) things can perish into nothing, or (2) the fact that they do should be explained by everlasting seeds. This depends on the assumption that there is no other way to avoid the first horn of the dilemma; but this still is a less blatant assumption of the atomic theory than simply assuming the existence of atoms.

probably worked out himself, is similarly vague might be a clue that line 634 was the point at which Lucretius decided to change source.⁴³¹

The evidence suggests that Lucretius, when he introduced the *critique* at the centre of book I,⁴³² added material derived from a source-text different from the one he had used earlier in book I, although a question mark remains over whether he had changed source for the section on the *minima* in lines 599-634. It seems worth speculating on the reasons which prompted Lucretius to interrupt the sequence he found in Epicurus.

3.5 Why did Lucretius have the *critique* at the centre of book I?

Lucretius had the long-lasting discussion on the ἀρχαί/στοιχεῖα in mind when composing his introductory syllabus to his poem. In *DRNI* 55-61 the fundamental nature of matter receives considerable attention:

⁴³¹ The possibility should perhaps be considered that Lucretius introduced a temporary, and not wholly satisfactory connection which he would have tidied up at a later stage (sign of *DRNI* being 'unrevised'). This solution is not that far from Giussani's lacuna.

⁴³² Sedley (1998: 190) rightly points out that the *critique* comes surprisingly early in the poem: since the way in which atoms make up things by combining with one another is only treated later in the poem, in *DRN* II, Lucretius could not fully exploit the incapacity of rival theories to explain phenomena as well as Epicurean atomism. It should be noted, however, that Lucretius has no problem with referring more than once, in the *critique*, to combinations and movements of atoms, which he has not yet treated.

Nam tibi de summa caeli ratione deumque
disserere incipiam et rerum primordia pandam, 55
unde omnis natura creet res auctet alatque
quove eadem rursus natura perempta resolvat,
quae nos materiem et genitalia corpora rebus
reddunda in ratione vocare et semina rerum
appellare suemus et haec eadem usurpare 60
corpora prima, quod ex illis sunt omnia primis.

There seems to be a reminiscence, in lines 55-57, of Aristotle's formulation at *Metaphysics* A. 3. 983b6ff.: τῶν δὴ πρῶτον φιλοσοφησάντων οἱ πλείστοι τὰς ἐν ὕλης εἶδει μόνας ὠιήθησαν ἀρχὰς εἶναι πάντων· ἐξ οὗ γὰρ ἔστιν ἅπαντα τὰ ὄντα καὶ ἐξ οὗ γίγνεται πρῶτου καὶ εἰς ὃ φθείρεται τελευταῖον, τῆς μὲν οὐσίας ὑπομενούσης τοῖς δὲ πάθεσι μεταβαλλούσης, τοῦτο στοιχεῖον καὶ ταύτην ἀρχὴν φασιν εἶναι τῶν ὄντων . . .⁴³³ Lucretius may well have derived the formulation from Epicurus, who had in turn taken over Aristotle's. Given the emphasis the *rerum primordia* receive in the syllabus it is not surprising that Lucretius decides to have 'systematic criticism' of the views of named, and unnamed, philosophers on this

⁴³³ Note that the pairing of coming to be and passing away is present at *DRN* I 159-214 (on 'how things are created') and 215-264 (dedicated to 'what things are destroyed down to'), and at *Ad Herodotum* 38-39.

topic.⁴³⁴

It also seems relevant that just before introducing the Epicurean *primordia* in *DRN* I 498-502, and giving the eleven proofs of their solidity, indestructibility, and eternity, Lucretius dedicates lines 489-497 to examples opposing his theory that there are *primordia* which are ever-triumphant thanks to their *solidum corpus* (485-486). This could be either a rhetorical device to make the reader trust him or, as Giussani (1898: 67) holds, a sign that Lucretius was worried by the fact that his own examples in lines 346-357 seemed to show absence of *soliditas* in things. It seems clear from lines 483-502 that Lucretius recognised the fact that experience does not, *prima facie*, confirm his theory of *primordia solido corpore*.⁴³⁵ It may well be that Lucretius felt the need to support his claim by disproving other theories on the ultimate constituent of matter immediately after the preliminary description of the atoms, because he thought that he lacked the necessary support from sense-experience. When considering something as far removed from the senses as the atoms are, opponents' theories needed to be argued against and shown to be less appropriate. This preoccupation perhaps explains why Lucretius took the unusual step of including a 'doxographical' polemic section in his

⁴³⁴ The tone of the discussion of opinions on the soul in *DRN* III is different, with no opponent named. On the Epicureans' reticence to name opponents, below pages 268-269.

⁴³⁵ The striking *hendiadys ratio naturaue rerum*, which presumably means "the correct understanding of nature" may indicate again that *ratio*, in this case, must overcome the impression given by the senses.

didactic poem.⁴³⁶

Such a preoccupation however does not explain why Lucretius decided to include the *critique* at the centre of his first book, rather than elsewhere in his work. Sedley suggests that there are three reasons behind Lucretius' decision to have the *critique* in the centre of book I. First by introducing the *critique* at this point Lucretius can "broach the theme of how philosophy can best be written". Discussion of how philosophy should be written had to come early in the poem for Lucretius' own statement in lines 921-950 to have full impact on the reader. This is in my view the main reason behind Lucretius' decision to introduce the *critique* at this point of book I. We shall see in chapter 4 how Lucretius goes out of his way to focus on Heraclitus' and Empedocles' style of writing. Lucretius' claim for his poetry in lines 921-950 gains emphasis by being set against the two illustrious precedents in philosophical writings. From the harsh criticism of Heraclitus' style, to the high praise of Empedocles', to the grand description of Lucretius' own style, there is a development leading to the superiority of Lucretius' poem.

Sedley's second reason (1998: 191) regards the use of the analogy from letters of the alphabet. "Atomism's explanatory *economy*" is highlighted by being compared with the physical theories of rival thinkers.⁴³⁷ If one assumes that (a) the analogy from

⁴³⁶ Although polemic may have been included in earlier didactic poetry, including systematic polemic against earlier thinkers in a poem in hexameters was certainly a bold step. The Alexandrians Nicander and Aratus had tried to revive the didactic *genre*, but in a way very different from Lucretius.

⁴³⁷ Sedley (*ibidem*) argues that Lucretius makes the *critique* come earlier in his treatment than Epicurus had done: the sense of urgency shows that Lucretius intended "to maximise the persuasive impact

letters of the alphabet appeared in Lucretius' source-text,⁴³⁸ the positioning of the *critique* at the centre of book I may be due to Lucretius wishing to make the analogy figure prominently early on in his treatment of atoms.⁴³⁹ Thus the analogy would serve as a further, and final, proof that indivisible atoms exist. If, on the other hand, (b) the analogy was not in his source, then Lucretius might have introduced the *critique* at this point because it would provide the perfect platform to use the analogy. Yet thinking that Lucretius switched to the source for the *critique* in order to introduce the letters analogy himself seems somehow tortuous.

Sedley's third (1998: 146) reason is that the introduction of the *critique* at this point creates a major structural feature of Lucretius' poem: the end of *DRN* I and II mirror one another. By introducing the *critique* at the centre of *DRN* I Lucretius postpones until the end of the book the treatment of whether the universe is infinite, and the refutation of the "inward-looking" view that our world gathers around an absolute centre. The end of *DRN* II presents a similarly "horizon-expanding" topic: the existence of other worlds and the limited temporal existence of our own world.⁴⁴⁰ The matching

of his argument in its early stages". He points out that while Epicurus addressed an already committed philosophical audience, Lucretius is aware that his reader may give up (*DRN* I 943-945).

⁴³⁸ On whether Lucretius' source exploited the analogy as fully as Lucretius see below pages 356-357 and 366-367.

⁴³⁹ The analogy has already been introduced, in *DRN* I 196-198 (below pages 276 and 358), to reinforce the argument in favour of the existence of atoms.

⁴⁴⁰ Sedley (1998: 146) argues that this aspect of the argument is not brought out in *Ad Herodotum*. He thinks this is because of condensation.

closures of books I and II provide what was promised at I 62-79, a journey beyond the limits of our world, to the infinite universe beyond. It seems likely that Lucretius saw that introducing the *critique* at this point would present him with the opportunity of having the argument for the infinity of the universe as conclusion to the first book, although a digression on any other topic, rather than the *critique*, would have achieved the same result.

Sedley argues that the introduction of the *critique* was part of a rewriting by Lucretius of a first draft of the poem,⁴⁴¹ a re-writing which Lucretius only carried out up to book III, or the early part of book IV. None of the reasons given above has to imply a wholesale re-writing of a first draft of the poem.⁴⁴² Lucretius could have seen the attractions of having the *critique* just ahead of the description of his own work at 921-950 while working at his first, and only, draft of the poem (assuming he was planning far enough ahead). Similarly it seems entirely possible that Lucretius decided to introduce the *critique* so that he could end the first book on a “horizon expanding motif” as he had promised in the prologue, and only later saw the attractions of making the second book conclude on a similarly ‘open’ topic. The theory that the *critique* was a later addition seems unfounded, although it is not easy to disprove it. A difficulty with thinking that the *critique* was only a ‘second-draft’ addition is that Lucretius would have produced

⁴⁴¹ The *critique* would be, according to Sedley, an addition comparable to those Lucretius would have made, according to Sedley, in *DRN* IV, on ghosts, and in book VI, by explaining the moral lesson to be learnt from the plague.

⁴⁴² On the question of revision of *DRN*, below Appendix (a) pages 389-391.

an extremely short first draft of book I,⁴⁴³ or did not mind disposing of a considerable number of hexameters he had already composed (see further below Appendix (a) page 390).

It might be that rhetorical concerns encouraged Lucretius to add the *critique* at this point. It looks as though rhetorical practice would have prescribed refutation of opponents only once one has set out the issue and one's own case (which, arguably, Lucretius has done sufficiently by this point).⁴⁴⁴ Lucretius may have noticed how the arguments against the Presocratics gained by coming soon after the arguments in favour of the existence of void and against infinite divisibility (two points which figure heavily in the *critique*). Knowing that the criticism of the Presocratics in a text at his disposal emphasised repeatedly how they went wrong on void and infinite divisibility, Lucretius would have seen the attractions of inserting such a passage in the centre of book I, immediately after these two topics had been treated. This strategy adds to the strength of the confutation and in turn reinforces the points made earlier in the book.⁴⁴⁵

⁴⁴³ One would have to assume the supposed first draft to have been already divided into books, since books five and six have prologues (see further below Appendix (a), note 820).

⁴⁴⁴ Asmis (1983: 45): "Cicero notes only that a "thesis" and "hypothesis" alike should have four main parts, a proem, narration, proof, and epilogue; the proof was to be divided in turn into confirmation and refutation". Lucretius' thesis 'atoms exist' would similarly have had refutation after the series of proofs.

⁴⁴⁵ Lucretius' strategy of having criticism immediately after proving that atoms exist should perhaps be read as being more boldly and directly polemical than Epicurus', who criticised air-monism and Plato's shapes in the fourteenth book of his treatise, long after the proof that atoms exist in $\Pi\Phi$ I. This is perhaps more satisfactory than reading his strategy as defensive, showing an anxiety to do away with rival theories straightaway, part of the so called 'anxiety' critics have found in *DRN*. It seems reasonable to hold that the

It looks as though Lucretius' use of cross-references supports this inference. There are five cross-references in the *critique*; two in the confutation of Empedocles (lines 758 and 794) and three in the confutation of Anaxagoras (lines 846 and 858-859). Two of the cross references,⁴⁴⁶ those in lines 758 and 858-859 point back to the philosophical material presented earlier in book I. Both line 758 and lines 858-859 refer to the dogma that the universe cannot be reduced to nothing and that the store of things can be replenished out of nothing.⁴⁴⁷ These are two connected points with which Lucretius, following Epicurus, has opened the treatment of Epicurean doctrine in *DRN* 155-264. The cross-references are meant to hammer home the essential point that things cannot derive from nothing, which in turn is a proof of the existence of the *primordia*.

3.6 Was Epicurus the source of the *critique*?

Considerations about what work by Epicurus might have been Lucretius' source for the

'anxiety' is at least in part the inevitable result of Lucretius' rhetorical concerns, which are highlighted by Classen (1968).

⁴⁴⁶ The remaining three cross-references in lines 794-795, line 846 and line 907, on the other hand, are references 'internal' to the *critique*. Line 794-795 refer back to the description of the four elements coming together in lines 782-788. As for line 846, this is a reference back to those who denied the existence of void (Heraclitus in lines 655-664, and the quadruple pluralists in 742-745), and believed in infinite divisibility (the quadruple pluralists in lines 746-752). On the cross-reference in line 907, above page 238.

⁴⁴⁷ This seems easier than thinking that one of the references in *utrumque* is rather to the fact that *primordia* cannot be *mollia* and *mortali corpore*.

critique are highly speculative, since most of Epicurus' production is lost, and also lost are most of the titles of Epicurus' 300 κύλινδροι (Diogenes Laertius X. 26).⁴⁴⁸ Nonetheless it seems worth considering whether any text by Epicurus of which we know would fit the profile.

I have suggested above (pages 235-236) that it is perhaps unlikely that Epicurus' ΠΦ was the source of the *critique*, unless one assumes, with Giussani, that Lucretius went through ΠΦ looking for criticism of those three philosophers, and worked out himself the division monism-finite pluralism-infinite pluralism, each with its representatives. That Epicurus had a criticism of monism comparable to Lucretius' criticism of Heraclitus in ΠΦ as well as the criticism of air-monism in ΠΦ XIV seems unlikely.

It is perhaps conceivable that Epicurus' Μεγάλη 'Επιτομή included the systematic criticism which Lucretius reproduced in the *critique*. Sedley (1998: 142) doubts that a Μεγάλη 'Επιτομή ever existed, since it is not cited by any ancient source except the scholiast on Epicurus' letters. There is no reference to the Μεγάλη ἐπιτομή in Diogenes Laertius' list of Epicurus' works. But it seems significant that Diogenes does not include *Ad Herodotum* in his catalogue either, although being a letter it may be amongst ἐπιστολαί, the final item in Diogenes' list. One cannot be sure whether Diogenes derived the list of Epicurus' works from the same source as the

⁴⁴⁸ It seems worth noting that there is no example of 'composition by compilation' in surviving portions of ΠΦ (book XIV is the one that comes closest), nor in Epicurus himself generally.

letters.⁴⁴⁹ It may be that the person who compiled the list did not think it fit to include either of the epitomes in a list which is presented as a list of Epicurus' *best* works. The only epitome included in the list is the 'Ἐπιτομή τῶν πρὸς τοὺς φυσικούς, as high up as fourth in the list.

The existence of a Μεγάλη ἐπιτομή may be implied by Epicurus' words in *Ad Pythoclem* 85, where he refers to ἡ μικρὰ ἐπιτομή πρὸς Ἡρόδοτον. The adjective could be simply describing the work, but it may be setting this text apart from a larger epitome. Similarly a Μικρὰ ἐπιτομή is referred to in Diogenes Laertius X. 135: μαντικὴν δ' ἅπασαν ἐν ἄλλοις ἀναιρεῖ ὡς ἐν τῇ Μικρᾷ ἐπιτομῇ· καὶ φησί· “Μαντικὴ οὐσα ἀνύπαρκτος, εἰ καὶ ὑπαρκτή, οὐδὲν παρ' ἡμᾶς ἡγητέα γινόμενα”. Usener considers this a *scholium* attached to the end of *Ad Menoeceum*, but it is perhaps more likely that it was an integral part of Diogenes' text. The problem is that Μικρὰ ἐπιτομή in Diogenes Laertius X. 135 cannot be a reference to *Ad Herodotum*, as the reference in *Ad Pythoclem* 85 explicitly is (unless one wishes to think that a portion of *Ad Herodotum* where Epicurus discussed μαντικὴ was lost in transmission). However this may be it seems likely that by referring to Μικρὰ ἐπιτομή Epicurus, and whoever wrote Diogenes Laertius X. 135, were implying the existence of

⁴⁴⁹ Gigante (2002: 101-102) suggests that Diogenes Laertius used a roll which contained “i 3 grandi compendi, le quaranta massime capitali e una serie di doxai”, and considers the question of who edited together the letters and the Κύρια δόξαι, which were originally intended as separate works. Gigante suggests that Philodemus might have compiled such a roll. The exemplar which Diogenes Laertius used — probably in Rome — could have originated in Philodemus' library and be found in a public library. Gigante however also considers the possibility that Philodemus had found such a roll together with the rolls of ΠΦ.

a larger ἐπιτομή on physics.

Giussani (1898: 85) is perhaps right in remarking that there is too much detail in Lucretius' *critique* for it to be derived from the Μεγάλη Ἐπιτομή.⁴⁵⁰ Giussani suggests that the Μεγάλη Ἐπιτομή had, on theories of the elements, the kind of 'unnamed' criticism we find for theories of the soul in *DRN* III.⁴⁵¹ It cannot be positively ruled out, however, that the Μεγάλη Ἐπιτομή contained criticism of the 3 categories with the same kind of detail we find in Lucretius. One could argue that the abridgement in three categories with one representative for each category would fit well a work which only devoted limited space to the refutation of earlier views on the elements. It would be more likely that the Μεγάλη Ἐπιτομή included systematic criticism of opponents on their theories of matter if the work was in more than one book. But the formulation in the *scholia* to *Ad Herodotum*, by not providing a book-reference, seems to suggest

⁴⁵⁰ Giussani is probably right that the detail of arguments such we find in *DRN* III to prove the mortality of the soul could not have been in any ἐπιτομή, and that they therefore came from ΠΦ. Assuming that all of the arguments in *DRN* III derive from a book of ΠΦ (or conceivably a monograph on the soul), there is no reason why the material in *DRN* III 98-135 could not derive from the same source. Giussani's theory seems unconvincing because, in *DRN* III, Lucretius would have hopped from the Μεγάλη Ἐπιτομή (critical review of theories on the soul: lines 98-135) to ΠΦ (the 29 arguments for the mortality of the soul). There is no proof, however, that ΠΦ was the source for the list of arguments in *DRN* III, as compiling lists with series of proofs seems to have been common in antiquity: many such lists made their way into Alexander of Aphrodisias' *mantissa* (see Sharples, R. 'The sufficiency of virtue for happiness: not so easily overturned?' in *Proceedings of the Cambridge Philological Society* 2000: 121-139: 122).

⁴⁵¹ Mansfeld (3148-3149), on the other hand, thinks that the criticism in *DRN* III 119-129 is derived from doxography.

that the Μεγάλη Ἐπιτομή was in just one book.

Ernout-Robin (1924: 135) suggests that Epicurus' Ἐπιτομή τῶν πρὸς τοὺς φυσικούς was Lucretius' source for the *critique*.⁴⁵² The Ἐπιτομή τῶν πρὸς τοὺς φυσικούς would, presumably, have been convenient for looking up Epicurus' criticism of Presocratic theories of matter. One may wonder whether an abridgement with one representative for each category would be necessary, or desirable, in the Ἐπιτομή τῶν πρὸς τοὺς φυσικούς, and whether such a work would not have considered Thales' and Anaximenes' monistic theories separately rather than in a general confutation of monism. On the other hand abridgement may have been needed in the Ἐπιτομή τῶν πρὸς τοὺς φυσικούς depending on the number of topics treated in it.⁴⁵³

To sum up, there is no evidence that any of Epicurus' known works would have criticised the three Presocratics in a list similar to the one in Lucretius' *critique*. The paucity of the evidence leaves open the possibility that Epicurus had produced such a text, and one cannot exclude that this text was the Ἐπιτομή τῶν πρὸς τοὺς φυσικούς.

⁴⁵² Robin thought that the work was “d'ailleurs un traité distinct ou un chapitre plus ou moins développé soit du π. φύσεως, soit des diverses ἐπιτομαί”. See above page 194.

⁴⁵³ One may wonder whether the Ἐπιτομή τῶν πρὸς τοὺς φυσικούς would have left out Plato's theory of matter, when Theophrastus' Πρὸς τοὺς φυσικούς (FHS&G 137 8) included criticism of Plato (see FHS&G 245). Plato might have been treated separately, but it is not easy to see why he should have been omitted from the category of limited pluralists. On the omission of Plato in Lucretius' and Diogenes of Oenoanda's lists, above pages 78-79.

3.7 Was Lucretius' source a later Epicurean text?

We have seen above (pages 27-30) how the evidence for Lucretius having used philosophical sources later than Epicurus is not conclusive: if he did so he certainly did so very sparingly. But this does not exclude the possibility that he could have made use of a later Epicurean source in the *critique*, since it probably does not derive from the same source as the rest of book I.

Both the *καθηγεμόνες* (especially Hermarchus judging from the list of titles in Diogenes Laertius X. 25) and later Epicureans certainly wrote works which were polemical in nature.⁴⁵⁴ Colotes, Zeno, and Phaedrus are all possible candidates (although polemical texts on the elements are not known to have been part of their repertoire). Rösler (1973: 63-64) tentatively suggests a 'middle' Epicurean source, putting forward the name of Phaedrus. Given that a critical doxography of earlier views on the gods is found in his *Περὶ εὐσεβείας*, it is not inconceivable that Philodemus had a systematic criticism of *δόξαι* on matter in one of his works. Dorandi (1982: 350-352) suggests that the source of Lucretius' *critique* was Philodemus' *Συντάξις τῶν φιλοσοφῶν*.⁴⁵⁵ He thinks (1982: 351) that parts of that work were doxographical, rather than biographical. Sedley (2003: 31-33) similarly argues, inconclusively in my view, that sections of

⁴⁵⁴ Obbink 1996: 285.

⁴⁵⁵ Dorandi's suggestion seems to convince Vidale (2000: 55, note 95). Longo Auricchio (1990: 115) similarly considers the possibility that Philodemus was Lucretius' source.

Philodemus *Συντάξις τῶν φιλοσοφῶν* were doxographic. I am not convinced by the suggestion that the *Συντάξις τῶν φιλοσοφῶν* was the source of the *critique* because it presumably would have treated the Presocratics separately, and it would have not included other forms of quadruple pluralism in its discussion of Empedocles. It therefore encounters the same objections (and perhaps more) as postulating that Lucretius used a comprehensive doxographical list as source: it would require Lucretius to have done a lot of work and research, and work out the division into categories himself. Another text by Philodemus however may have been Lucretius' source for the *critique*.

The presence of *DRN* in the library at Herculaneum leads Kleve, followed by Flores (2002: 19), to suppose personal contact between Philodemus and Lucretius, and that Philodemus read Lucretius' poem. Capasso (2003: 85-90) has demolished Kleve's claim that lines of *DRN* V are found in *PHerc.* 1829, and that lines of *DRN* III are found in *PHerc.* 1830. Capasso also makes the important discovery that these two papyri, along with *PHerc.* 1831 and the three other *frustoli* in *cassetto* CXIV, are the *scorze* to *PHerc.* 395.⁴⁵⁶ But by a remarkable coincidence Capasso's findings corroborate the point he was arguing against, namely that the roll of which *PHerc.* 395 is the *midollo* was in fact a copy of Lucretius, assuming the results of Kleve's latest work can be trusted.⁴⁵⁷

⁴⁵⁶ This invalidates the reconstruction of the rolls of *DRN* in Suerbaum 1992: 163-164 and Suerbaum 1994.

⁴⁵⁷ Delattre warrants the ending of the lines 1081-1083 and the letters CE . M in preceding line, but not the further letters Kleve reads. I am not sure where this leaves Kleve's claim that *PHerc.* 1831 fragment H preserves *DRN* I 874, 873 and a lost line, the most important contribution of Kleve's findings to the textual tradition of Lucretius. Capasso (2003: 90-91) does not, in this specific case, object to Kleve's readings nor to

Kleve has found, in the parts of *PHerc.* 395 which come from near the end of the roll, remains of *DRN* II 1078-1089 (Delattre 2003: 112-113 and 116). Lucretius' poem, it seems, was in the Herculaneum library.

Kleve suggests (1997: 50-51) that the copy of *DRN* from Herculaneum was acquired before Philodemus' death, because the writing is of the very oldest Latin type. But this does not show personal contact, since we do not know when the roll became part of the library (Wigodsky 1995: 58) and paleography allows for a date as late as the end of the first century B.C. (Sider 1997: 24).⁴⁵⁸ Contact between Lucretius and Philodemus can only be proved by internal evidence from their writings.

Kleve (1997: 56) connects Philodemus' and Lucretius' atomistic view of poetry. Philodemus thought the order of elements cannot be changed without consequences to understanding, a theory referred to as the 'impossibility of metathesis'. Given Philodemus' remarks about *word* arrangement, it seems reasonable to assume that he

his telling apart of *sottoposti* and *sovrapposti*. This suggests to me that unless a fitting sequence of letters can be found for *DRN* II, it is problematic to conclude that the roll contained only *DRN* II. Delattre (2003: 114-115) takes it that the roll had 59 columns with an average of 20 lines each and was 8.85 meters long (excluding front and end titles). Delattre (2003: 114) is very cautious about Kleve's restoration of lines other than those of *DRN* II 1078-1089 (in *cornice* 4, for Kleve's findings to be correct, we should have *sottoposti* and *sovrapposti* from columns which were 20 layers of the roll apart). Delattre (2003: 115) finds it "bien improbable" that the roll was an anthology of Lucretius. But would supposing that we have *DRN* I and II in the same roll not solve some problems? And would thinking in terms of an anthology of books I and II not solve most problems?

⁴⁵⁸ Even if Kleve is right in suggesting that the large size of the writing indicates that the roll was used for reading aloud in the Epicurean *contubernium*, one cannot be sure that it was used before Philodemus' death (presumably an Epicurean 'community' continued at the villa after Philodemus' death).

also thought letter arrangement should be judged by reason, and that it too had an impact on the thought, although in what survives Philodemus never explicitly states — as Democritus did — that the transposition of letters affects the meaning and the whole (Armstrong 1995: 221). Perhaps Philodemus gave the latter contention as granted.

Comparing letters to atoms has a long pedigree in Greek philosophical writings. Since Aristotle in *Metaphysics* A. 4. 985b12-19 uses the letters of the alphabet as examples to illustrate Leucippus' and Democritus' differences in shape (τροπή = θέσις), arrangement (σχῆμα = ῥυσμὸς) and position (διαθιγή = τάξις), it seems reasonable to assume that the early atomists used such an illustration themselves. And in *De generatione et corruptione* A. 2. 315b6-15, Aristotle reports that Leucippus and Democritus said that just as the same atoms differently arranged can produce different compounds so the letters of the alphabet can make up genres as diverse as comedy and tragedy: ἐκ τῶν αὐτῶν γὰρ τραγωιδία καὶ κωμωιδία γίνεται γραμμάτων.

Armstrong (1995: 224) suggests that it was Zeno of Sidon who picked up Democritus' hints about poetry⁴⁵⁹ — hints which Epicurus had overlooked because of his reservations regarding poetry — and introduced the atomist poetics in outline. It may well be that the connection between Lucretius and atomistic poetics should be pushed further back; comparison between Philodemus and Lucretius is still valid, but now in

⁴⁵⁹ Armstrong (1995: 213-214) must be right in finding an analogy between construction of a poem and construction of the κόσμος in Democritus DK B21: Ὁμηρος φύσεως λαχῶν θεαζούσης ἐπέων κόσμον ἐτεκτῆνατο παντοίων. In this passage Democritus seems to imply that the *words*, rather than the letters, corresponded to his *ιδέαι*.

terms of a common source.⁴⁶⁰ Whether Epicurus himself could have used the analogy in a context where poetry was not involved (and that Lucretius took it over from there) is unclear. We shall come back, in pages 355-357 and 366-367, to Lucretius' use of the analogy and whether it derives from his source. Philodemus however is certainly not the only candidate.

Lucretius' extensive use of metaphor and imagery is compatible with Philodemus' views. Wigodsky (1995: 62-63) argues convincingly that Philodemus approved of metaphor. He refers to *Περὶ ῥητορικῆς* IV column XV,⁴⁶¹ and column XXI, where Philodemus' statements show endorsement of the use of metaphor.⁴⁶² Wigodsky also suggests that there is no indication that Epicurus condemned metaphor in *ΠΦ* XXVIII. But *Ad Herodotum* 38 certainly shows that Epicurus had reservation about it: ἀνάγκη γὰρ τὸ πρῶτον ἐννόημα καθ' ἕκαστον φθόγγον βλέπεσθαι καὶ μηθὲν ἀποδείξεως προσδεῖσθαι, εἴπερ ἔξομεν τὸ ζητούμενον ἢ

⁴⁶⁰ Kleve (1997: 54) himself, when connecting Philodemus' views on rhetoric with Lucretius' use of rhetoric, points out that in this respect Philodemus was following Zeno. On the use of rhetoric linking Lucretius with Philodemus see also Gigante (2003: 20), where he points out, however, that σαφήνεια is not one of the things Philodemus required in poetry. The fact that rhetoric certainly figures prominently in Lucretius' poem hardly seems a trait specific enough to show contact between two authors. The rhetoric may well derive from Lucretius' education.

⁴⁶¹ Lines 15-18 (Sudhaus 1892: 175) καὶ πᾶσα τέχνη φων[ῆ]ν οὐ δύναται προ[ί]εσθαι στερε[η]θείσα τῆς ἐκ τῶν μεταφορῶν εὐχρησ[τ]ίας.

⁴⁶² Lines 8-15 (Sudhaus 1892: 180): καὶ ἐπεσκεφθαι φιλοσο[φ]ήσαν[τι] ποιη[τῆ] ἀν[αν]καῖον, π[ῶ]ς καὶ π[ῶ]θεν [τ]ροπικῆ ἅμα λέξις καὶ κ[α]τὰ [τ]ιν[α] τρόπον ἴσταντ[αι] φυσικοὶ [λόγοι, ἢ] μάταιον δ[ὲ] θεωρ[ε]ῖν, [πῶς] τὸ μ[ε]ν ἐκλέγηται[ι] τ[ὸ] δ' ἐκ[κ]λείνη.

ἀπορούμενον καὶ δοξαζόμενον ἐφ’ ὃ ἀνάξομεν.⁴⁶³

It is not clear how far Philodemus, himself a poet, was innovating by his approval of metaphor, but it is possible that he was, once again, following the example of his teacher Zeno. There is affinity between Philodemus’ views on metaphor and Lucretius’ use of metaphors, but this does not seem enough to prove contact between the two.

Schroeder (2004: 140) argues that Lucretius drew from Philodemus his use of Epicurean therapy, which involves envisioning an image, and then dismissing it, because of its foreseen consequences. Philodemus sets forward this principle, which Schroeder calls “*avocatio* and envisioning” in Περὶ ὀργῆς. Schroeder (2004: 142) has it that the technique of visualisation is not derived from Epicurus. It is not clear to me why the useful way of avoiding a dangerous πάθος cannot have been in Epicurus, or any other Epicurean earlier than Philodemus.

The best known parallels between Philodemus and Lucretius are between Περὶ ὀργῆς and *DRN* III, and Περὶ θανάτου and *DRN* III.⁴⁶⁴ Schroeder (2004: 142) has it that Philodemus’ Περὶ θανάτου (*PHerc.* 1050) influenced Lucretius: “to the potential objection that Lucretius was not dependent upon Philodemus because they might have had the same source or sources, it can only be replied that the close parallels between Philodemus’ *De Morte* and Lucretius argue strongly for a direct dependence”.⁴⁶⁵ He

⁴⁶³ And Epicurus’ emphasis on σαφήνεια (below page 284) is not easy to square with approval of metaphor.

⁴⁶⁴ Kleve 1997: 59.

⁴⁶⁵ Kleve (1997: 60), however, has it that Philodemus wrote Περὶ θανάτου after the lifetime of Lucretius, without supporting argument for such a dating.

suggests that *DRN* III 870-893 mirror XXX Fr. 18. O. Kuiper (where the person is worried about what will happen to the body if left unburied, forgetting that burial involves just as much corruption of our body), and that *DRN* III 894 ff. reflect XXII Fr. 12. O. Kuiper lines 30-33 (where children are mentioned).⁴⁶⁶ There is no reason why both of these themes should not have been treated by Epicurus in his discussion of death. Schroeder (2004: 143) considers it especially telling that Philodemus, like Lucretius, imagines a soliloquy by a man who fears death in column XXXVII, to the effect “I’d die happily had I seen this done” and “I die even though I could enjoy my comfortable situation, but he who has nothing lives on”. Lucretius similarly mentions the comfortable situation of the man about to die in line 899.⁴⁶⁷ The topic of the actual soliloquy is very different. It would not be surprising if Philodemus’ presentation reflected the way Epicurus (or some other Epicurean), had dealt with the fear of death. It looks as though there is a shared body of argument between Philodemus and Lucretius, but Philodemus was not Lucretius’ source.

Statements by Philodemus have been thought to limit the extent to which the two could have been in contact. Wigodsky (1995: 58) refers to column XIV (Jensen) of *Περὶ ποιημάτων* V lines 11-24, which I quote as edited by Mangoni: τ[ί] δὲ τὸ λέγειν ἀστεία τὰ καὶ τὴν σύν[θεσ]ιν ἀστείαν ἔχοντα [κ]αὶ τὴν δίανοιαν [σπουδαίαν, τί δὲ δι]άνοια[ν σπο]υδαίαν [τὸ πλεῖ]ον ὄτα[ν ἀπο]φ[ί]νωνται

⁴⁶⁶ . . . οὐκ ὅτι γίνεται [οὐδεμία] τοῖς [μη]κέτ’ οὖσιν ἐπαίσθησ[ις] [καὶ τέ]κνα [φί]λα μὲν γεν[ό]μενα ταῦτ’ [οὐκ] ἀ[μύν]ει· καὶ περὶ τ[ὸ] ἕτερον οὐδ’ ἐ[άν τὰ]λλ’ ἀπ[ο]βή<ι> μὴ φίλ[α].

⁴⁶⁷ Gigante (1983: 165 and 189) implies that there is a relationship between the two texts and quotes III 898-899, but never states that the influence was direct.

διανοίας ἀστείας καὶ π[ράξ]εις ἢ τῶν εἰς παιδ[εῖ]α[ν ἐν]τεινόντων, οὐ γε γραφότος τινὸς τῶν ποιητῶν τ[οι]αύτας περιέ[χοντ]α [ποι]ήματα διανοίας οὐτ' ἂν γραψάντος;⁴⁶⁸ The last clause of the passage led Jensen (1923: 123) to ask himself whether Philodemus could have known of Lucretius' poem when he wrote *Περὶ ποιημάτων V*.⁴⁶⁹

Philodemus attacks the view that identifies good poetry with that which is morally or didactically useful at many places in *Περὶ ποιημάτων V*. In column XXV lines 30-34 he states that a πόημα φυσικὸν does not provide ὠφέλημα οὔτε λέξεως οὔτε δ[ιανο]ήματος.⁴⁷⁰ In column XXXVIII Mangoni, lines 22-26, Philodemus states that τὸ πρέπον κατὰ σοφίαν is an ἀρετή which is ἀγένητον καὶ ἀμήχανον to poetry. In columns IV and V Philodemus excludes that poetry can have a value similar to medicine or other sciences,⁴⁷¹ and attacks the view that the virtue of poetry should be

⁴⁶⁸ Mangoni 1993: 145. Her text seems superior to Jensen's, since by reading [ἀπο]φ[α]τ[ί]ν[ων]ται in lines 16 and 17 (in place of Jensen's [τῶν ἐμ]φ[α]τ[ί]ν[ων]τ[ων]) it respects the reading of the apographs N and O.

⁴⁶⁹ Armstrong (1995: 218) points to the fact that Philodemus thought that "the poetic version of any subject" is not precise and accurate enough for "professional students of philosophy and other topics", but remarks that there is no reason to think Lucretius claimed technical perfection in his treatment of philosophy in *DRN*.

⁴⁷⁰ Mangoni 1993: 153.

⁴⁷¹ It may be relevant that Philodemus, in column II 25-26 of *Περὶ ποιημάτων V* (Mangoni 1993: 131), while arguing against the view that the value of poetry lies in παιδεία (educational value), names Empedocles. The text is extremely damaged, but seeing that Empedocles was a didactic poet it may well be that he came in for criticism. Lucretius, on the other hand, used Empedocles as his chief literary model.

identified in its usefulness.⁴⁷² Further criticism of usefulness as a criterion for judgement is found in column XXXII, lines 19-22:⁴⁷³ δι[ότι] τὸ μάλιστα ὠφελοῦν ἄριστον ἐροῦσιν, οὐκ ἐσόμενον ἂν ἰατρικῶς ἐκφέρηται.⁴⁷⁴

The remarks in book V come close to ruling out that Philodemus knew of Lucretius' poem when he wrote *Περὶ ποιημάτων* (unless he profoundly disapproved of it).⁴⁷⁵ It is not known when Philodemus wrote this book (it may have been written before he moved to Italy). Even if *Περὶ ποιημάτων V* was written late in Philodemus'

⁴⁷² Mangoni 1993: 132-133.

⁴⁷³ It seems significant that Philodemus insists that usefulness is not the criterion, since as Asmis (1992b: 148) points out "following Plato, the Stoics identified "fine" poems with useful "poems"". This looks like further proof that Philodemus' polemic was geared against Stoic ideas.

⁴⁷⁴ I do not see the point of the addition in square brackets in Armstrong's translation (1995: 267) ". . . because they will say that the most useful is the best poem, though it will *not* be the best poem if it is [a medical poem] expressed [in the] medically [best way]". I would translate: "they will say that the most useful is the best composition, but that it will not be ἄριστον if it is written in the style of a work of medicine": i.e. they are inconsistent because why should one not include medical works, if utility is taken into account in judging a ποίημα? This is presumably what Mangoni (1993: 179) had in mind ("e perchè si dirà che è ottimo quel componimento che è massimamente utile, mentre non lo sarà, nel caso sia espresso alla maniera dei medici") although in her translation οὐκ ἐσόμενον ἂν ἰατρικῶς ἐκφέρηται could be taken to represent Philodemus' view (rather than the one he attributes to others). It would be clearer to say "ma che non lo sarà, nel caso . . .".

⁴⁷⁵ Kleve (1997: 65-66) deals with the difficulty by saying that Lucretius' poem is an aid for memory (ἐπιτομή) and therefore Philodemus' criticism would not apply (as it did not deter Vergil or Horace from composing didactic poems).

life, this does not rule out that Lucretius was Philodemus' pupil.⁴⁷⁶ And even if there was no personal contact between the two, Lucretius could have read Philodemus' works. It is not clear what kind of diffusion Philodemus' prose works had (above note 106). Assuming that they had little diffusion, it is still conceivable that Lucretius was in contact with some of Philodemus', or Siro's, pupils and learned of Philodemus' views through them. There is no reason however why Philodemus should be considered more likely than earlier Epicurean authors to have been the source of the *critique*, apart from the fact that he was living in Italy and he was contemporary with Lucretius.

3.7.1 The choice of Heraclitus

One argument in favour of thinking that Lucretius used a source later than Epicurus turns on what one makes of the choice of Heraclitus as the representative of monism. We have seen in chapter 1 that such a choice was probably not Lucretius' own decision, in

⁴⁷⁶ Capasso (2003: 100) thinks Philodemus was in Italy from *circa* 80. Philodemus had already taken residence in Italy in 70 B.C., since he dedicated his *Περὶ ῥητορικῆς* to C. Vibius Pansa Caetronianus (Sider 1997:7-9). Sider dates Philodemus' arrival in Italy to 74-73. If the date of Philodemus' move to Italy was 74-73, Lucretius, who was younger than Philodemus by about 16 years, was about 20 years old when Philodemus moved to Italy. If Philodemus moved to Italy as early as 80 B.C., Lucretius was only 15 at the time. It is perhaps unlikely that the idea of writing his physical poem was suggested to Lucretius by Philodemus, but there is no reason to exclude that contact with Philodemus inspired Lucretius to Epicureanism and consequently to write his poem. *DRN*, however, was not written under Philodemus' supervision (unless Philodemus drastically changed his views regarding didactic poetry). It even seems conceivable that *DRN* was a reaction to Philodemus' ideas.

view of the coincidence with Diogenes of Oenoanda. Diogenes and Lucretius probably derived this feature from an earlier text.

The Stoics' admiration for Heraclitus sounds like the most satisfactory explanation of the choice of Heraclitus. Chronology suggests that a later Epicurean would be more likely to pick Heraclitus than Epicurus himself, since presumably the rivalry between the Stoics and the Epicureans grew more intense with time.⁴⁷⁷ Although there is evidence that the early Stoics Zeno and Cleanthes were influenced by Heraclitus,⁴⁷⁸ it is perhaps far-fetched to think that Epicurus singled out Heraclitus to react against early Stoic ideas circulating in Athens.⁴⁷⁹

It is not altogether inconceivable, however, that Epicurus singled out Heraclitus, or fire-monism, independently of any connection between the Stoics and Heraclitus. We have seen above (note 130) according to Bailey the fact that Heraclitus was chronologically last of the Ionian monists may have encouraged the choice. And fire-monism was the form of monism which Aristotle considered most reasonable and

⁴⁷⁷ Indeed Bignone (1973: 182-183) thought that the early Stoics and Epicureans were allies against Aristotle and Theophrastus.

⁴⁷⁸ According to Long (1996: 35) the only piece of evidence that associates Zeno with Heraclitus is *S.V.F.* I. 11 where Numenius reports that Zeno μετέσχε τῶν λόγων τῶν Ἡρακλειτείων. Long is uncertain about the biographical accuracy of this information, but argues that Cleanthes "was well acquainted with Heraclitus". Long (1996: 38-39) thinks that the early Stoics had access to Heraclitus' 'book', and did not depend on Theophrastus for their information. See further below page 299-300.

⁴⁷⁹ Epicurus knew of Zeno, Diogenes Laertius VII. 5 and 9. That Epicurus was in touch with the views of contemporary schools and willing to engage in polemic with them is shown by his polemic against a contemporary school of mathematicians in Cyzicus (Sedley 1976a).

attacked in *De caelo*. Since there seems to be little doubt that Epicurus knew the *De caelo*, Aristotle's focus on fire-monism might have led Epicurus to single out Heraclitus.

3.7.2: Lucretius' use of *homoeomeria*

We have seen how Lucretius uses *homoeomeria* in line 830 and *rerum homoeomeria* line 834,⁴⁸⁰ in a distinctive abstract sense,⁴⁸¹ to refer to Anaxagoras' theory. It seems unlikely that Lucretius forged his own meaning for a Greek word which he uncustomarily decides to transliterate into Latin,⁴⁸² and equally unlikely that he misunderstood the meaning the term had in his Greek source.

The word occurs in the singular in ΠΦ XIV and XV, but it is far from certain that Epicurus used it in connection with Anaxagoras, and certainly there is no indication that he used it to refer to Anaxagoras' theory itself in a sense similar to Lucretius (above 2.1.4). This does not exclude altogether that Epicurus used ὁμοιομέρεια in a different sense elsewhere, but seems to make it less likely.

The parallels between Lucretius and Diogenes of Oenoanda strongly suggest that the two texts are connected; however one cannot be certain that they both depend on a text by Epicurus. According to Mansfeld (1990: 3154-3155) both depend on a Epicurean

⁴⁸⁰ Above pages 55 and 60-62.

⁴⁸¹ Munro (1886b: 98): "Lucr. seems to denote by the term the relation which existed between the things in being and the particles like in kind, of which they were composed".

⁴⁸² On the transliteration, below pages 343-344.

exegetic and scholastic tradition which is in turn dependent on the *Placita*.⁴⁸³ Lucretius' omission of the Stoics' theory of elements needs explaining if he was using a later Epicurean source. *If* the text Mansfeld has in mind included the Stoics — that is if the Stoics were not added by a later intermediary,⁴⁸⁴ or by Diogenes himself — it remains unexplained why Lucretius opted to leave them out. It may be that Lucretius' source considered the Stoics separately from criticism of the Presocratics (as Diogenes does, above note 127), and this encouraged Lucretius to leave out the Stoics. In that case Lucretius would have decided to omit criticism of the Stoics on elements, and to criticise them only on their affiliation to Heraclitus.⁴⁸⁵ This sounds unlikely.

To suppose that Lucretius' source did not consider the Stoics looks like the more probable hypothesis, because it involves a less complicated approach on Lucretius' part to the Stoics than alluding to the them and then leaving out their theory. This supposition however is less economical in that it implies the existence of more texts: one behind Lucretius, and a different one behind Diogenes (unless Diogenes added the Stoics himself). The absence of the Stoics from Lucretius' *arguments* seems easier to explain if he was following a text by Epicurus himself, in which case chronology would explain why the Stoics are not considered. The similarities between Lucretius and Diogenes

⁴⁸³ Above note 70.

⁴⁸⁴ That the Stoics were appended later may be shown by the fact that they are not placed in the list according to the number of their elements.

⁴⁸⁵ Possible reasons for this are: (a) that the Stoics would disrupt an account which focuses on the Presocratics or (b) the including the Stoics would involve taking account of the involvement of divinity in their theory, an aspect in which Lucretius was not interested, or both.

should then be explained by saying that Diogenes too used Epicurus and introduced the Stoics himself (or used an intermediary source which reflected Epicurus and included the Stoics).

A complication is presented by the fact that, as Kleve (1978: 65) notes, it was usual in Epicurean polemics not to mention contemporary rivals by name.⁴⁸⁶ Obbink (1996: 285) comments on how most of the *καθηγεμόνες* declined to name the opponents in their polemic, to avoid putting them in the spotlight. Obbink also points out (2001: 206-207) that Philodemus in *Περὶ εὐσεβείας* II criticises the views of the poets because the Stoics adapted these to their theories through *συνοικείωσις* (*accomodatio*), and (2001: 210) that Philodemus presents the Presocratics in a way which recalls his polemic against the Stoics. It is very difficult to rule out that whoever elaborated the arguments reproduced by Lucretius in the *critique* had a similar intention, but we have seen in chapter 1 how the series of arguments in the *critique* as a whole is a comprehensive attack on rival theories rather than one concerned with the Stoics' antecedents in particular.

⁴⁸⁶ Kleve (1978: 49) thinks that Colotes did not mention by name the contemporary philosophers he attacks (*Adversus Coloten* 1120C), because “everybody must have known who his targets were, a feature already observed in Epicurus”. Edwards (1989: 105) thinks that in the same passage Plutarch reports that Colotes criticised theories which his actual targets did not hold, and “can only explain the shadow fighting by proposing modern names as the hidden referents of the old (*Adv. Coloten* 1120 c)”. But Plutarch is simply saying in the passage that after naming often the earlier thinkers, when Colotes turned to contemporary theories (the Cyrenaics and the Academy of Arcesilaus), he avoided naming them.

3.8 Conclusion

Epicurus is *a priori* the likeliest candidate for being the source of the *critique*, because of Lucretius' veneration for Epicurus, because of his attested use of Epicurus elsewhere, and because he rarely used later Epicurean, or un-Epicurean, texts as his philosophical source (above page 30). There are however two difficulties with supposing that Lucretius drew the *critique* from a text by Epicurus, who in turn drew from Theophrastus. First, Lucretius' use of *homoeomeria*. There is no evidence that Epicurus used the word in the singular to describe Anaxagoras' *theory*, even though he might have distinguished the way in which ὁμοιομέρεια was present in Anaxagoras' theory from the way in which it was present in his own, in ΠΦ XV fragment 25. In view of Diogenes of Oenoanda's use of the term (above page 61) it is conceivable that the meaning *homoeomeria* has in Lucretius was a development later than Epicurus himself, a development influenced perhaps by the doxographical tradition. Second, the emphasis on Heraclitus is easier to explain if one thinks that Lucretius' source was getting at the Stoics by picking Heraclitus as the representative of monism. Appealing to the possibility that Epicurus was responding to early Stoic ideas circulating in Athens at the time seems far-fetched.

Chapter 4: Lucretius in the *critique*

It seems clear that Lucretius departed from the content of his Greek source in some sections of the *critique*. He often considerably elaborated the material he found in his source by using poetical and rhetorical devices. He may have introduced some of the arguments himself. The emphasis of this chapter will be on how and to what extent Lucretius himself contributed, on the passages he added *ex novo*, and on his use of literary tools to embellish the philosophical material he drew from his Epicurean source.

4.1 Heraclitus as a general

Lucretius opens the *critique* by pointing out, in lines 635-638, that those who hold that fire is the *materies rerum* badly lose their way. He then proceeds to introduce their leader, Heraclitus, by using a metaphor from the battlefield: *Heraclitus init quorum dux proelia primus / clarus . . .*

It seems probable that Lucretius himself introduced the metaphor. Imagery from the battlefield which recalls epic will appear again, at the start of the confutation of Empedocles and the quadruple pluralists: . . . *facere ruinas / et graviter magni magno*

cecidere ibi casu.⁴⁸⁷ The first use of the metaphor presents the general of a misguided opposing army, the second use portrays Empedocles as a half-divine hero who suffers a great fall, as if in a chronological development.⁴⁸⁸

It is relevant in this context that in *DRN V* Epicurus' philosophical activity is compared to and greatly surpasses the battles Hercules faced to perform his tasks.⁴⁸⁹ Lucretius was fond of presenting philosophy as analogous to battle. The portrayal of philosophical discussion in such terms should be compared with Lucretius' portrayal of philosophy as journeying.⁴⁹⁰ The metaphor from the battlefield describes a different aspect of philosophical enquiry, namely philosophy as debate out of which a winner will arise. The use of military imagery in the *critique* has been carefully thought out: it is important for the structure of the book. Once the opponents have been cleared from the battlefield, all that is left is Lucretius' presentation of Epicurus' message, in lines 921-

⁴⁸⁷ The expression is an example of 'theme and variation' with the second element adding an aspect (the greatness of the fall). Such a use of theme and variation seems customary in Lucretius. It appears again in lines 635-636 (with second formulation stressing the aspect that fire *alone* is the element), and in lines 643-644 (below note 527). Bailey (1947: 145-146) discusses Lucretius' use of synonyms and his tendency to add a fuller explanation of the original concept.

⁴⁸⁸ And it is perhaps not too far fetched to think that the image from the battlefield continues throughout the *critique*. Anaxagoras represents the enemy defeated and routed trying, unsuccessfully, to escape or hide. The use of *latet* in reference to Anaxagoras in line 875 (below pages 341-342) might suggest this. In the confutation of Anaxagoras the *primordia*, rather than Anaxagoras himself, end up dying (below pages 347-349).

⁴⁸⁹ West 1969: 28.

⁴⁹⁰ Line 636: . . . *lapsi a vera ratione vagantur*. On the theme of the path, below pages 309 -311.

950, the passage which immediately follows the *critique*.⁴⁹¹

There is pointed irony in Lucretius' use of *primus*.⁴⁹² The word recalls, and is supposed to be contrasted with, the primacy of Epicurus' generalship in ridding earth of *religio*. Epicurus is *primus*⁴⁹³ in *DRN* I 66 and 71. I would add that there is further sharp irony in the portrayal of Heraclitus as *dux* of those who lose their way.⁴⁹⁴ The role of Heraclitus as *dux* is meant to be set against the presentation of Epicurus as a general in the prologue. The imagery in *DRN* I 62-79 is a report of a triumphant military campaign.⁴⁹⁵ Lucretius presents, right at the start of his poem, Epicurus as *the* military leader. Lucretius' language in his introduction of Heraclitus is derisory. His use of elevated epic style should be read as an example of mock-epic.⁴⁹⁶

Irony is accompanied by parody of Heraclitus' own words.⁴⁹⁷ Heraclitus is reported as stating that (DK B80) εἰδέναι δὲ χρὴ τὸν πόλεμον ἔόντα ζυνόν, καὶ

⁴⁹¹ Note that the *quod superest* in 921 may have implications of "what is left" once the other philosophers' *primordia* have died.

⁴⁹² Brown 1983: 146, note 5, tentatively.

⁴⁹³ Brown notes how the *primus* motif is used for Ennius in *DRN* I 117 and for Lucretius himself in *DRN* I 926-927 and in *DRN* V 336-337.

⁴⁹⁴ On the identification of Heraclitus' followers, above page 70.

⁴⁹⁵ West 1969: 57-60.

⁴⁹⁶ See West (1969: 53) on how Lucretius can parody the style of epic.

⁴⁹⁷ West (1969: 26-27) points out that Lucretius regularly mimics the style of the speech of his targets.

I would add that the mockery of Heraclitus and conventional oracles come to be one and the same thing, once Heraclitus is identified with the Pythia (below note 505).

δίκην ἔριν, καὶ γινόμενα πάντα κατ' ἔριν, καὶ χρεῶν, and that πόλεμος πάντων μὲν πατήρ ἐστι, πάντων δὲ βασιλεύς, καὶ τοὺς μὲν θεοὺς ἔδειξε τοὺς δὲ ἄνθρωπους, τοὺς μὲν δούλους ἐποίησε τοὺς δὲ ἐλευθέρους.⁴⁹⁸ It looks as though Lucretius is parodying Heraclitus' use of military language.⁴⁹⁹

The mimicking of Heraclitus' style continues in lines 636-644. In these lines, which introduce Heraclitus and his admirers, Lucretius is certainly playing with words more than he usually does. Lucretius emphasises particularly with the idea of opposites: *clarus ob obscuram linguam* in 639 (*oxymoron*), *inanes Graios . . . graves Graios* in 639-640, *vera constituunt quae latitantia cernunt* in 642-643. Insistence on opposites, and the use of *oxymoron*, were prominent features of Heraclitus' style.⁵⁰⁰ The expressions *tangere auris* in 644-645 and *fucata sonore* in 645 also seem relevant,⁵⁰¹ although the former is no doubt also meant to foreshadow the Epicurean theory of hearing, and sensation generally. It may also be that Lucretius' use of *obscura lingua* in line 639 and of *latitantia* in line 641 parodies Heraclitus DK B123: φύσις κρύπτεσθαι φιλεῖ.

Lucretius uses alliteration⁵⁰² in the introduction to the confutation of Heraclitus

⁴⁹⁸ Kollmann 1971: 82.

⁴⁹⁹ Brown 1983: 146. For the importance of war in Heraclitus' thought see also note 582 below.

⁵⁰⁰ Below note 570.

⁵⁰¹ West (1969: 26) suggests that the tactile visual and aural synaesthesia recall the tortuosity of Heraclitus' style.

⁵⁰² Lucretius uses alliteration, assonance and *onomatopoeia* extensively (Bailey 1947: 119-120 and 146-152). Lucretius would have considered sound-effects part of the charm of his poem, although, as we shall

(lines 635-644): *proelia primus* (where it may have an onomatopoeic aspect, representing the clashing of arms at the start battle), *gravis Graios*, and in *magis admirantur amantque*. The overall effect of this alliteration is to produce an (unjustified) impression of grandeur, as to emphasise the sharp irony and the parody of Heraclitus in the passage.

Kollmann (1971: 85) suggests that Lucretius' parody extends to reproducing Heraclitus' "aggressiveness" and "sharp criticism": the aggressive tone of the passage (and of the refutation of Heraclitus in general) should be explained in part as imitation of Heraclitus' own style. There is no evidence that such a tone towards Heraclitus was customary in the Epicurean school.⁵⁰³ It may be that Lucretius' aggressiveness is partly imitation of Heraclitus, but it looks as though the harsh tone of the polemic, harsher than anything against Empedocles and Anaxagoras, is actually aimed at Heraclitus' admirers, whom Lucretius presents as *stolidi* and *inanes*.

4.2 Heraclitus' army

We have seen in chapter 1 (pages 65-70) that whoever formulated the arguments against

see, he condemns *εὐφωμία per se*. Lucretius' uses of sound-effects are classified by West (1969: 115).

⁵⁰³ Capasso (1987: 101) finds no evidence of aprioristic polemic or sarcasm by Epicurus and his followers, pointing out that (a) there is no mention of Heraclitus in Metrodorus, Hermarchus, and especially Colotes, and (b) that even Philodemus, in spite of his polemical vein, hardly seems harsh towards Heraclitus (Philodemus refers to Heraclitus being either in doxographical contexts or as part of his discussion of Stoic theories).

Heraclitus did not single him out as the exemplary monist so that the Stoic theories could be refuted. None of the arguments in the confutation of Heraclitus can be shown to be aimed at Stoic doctrines. However it cannot be excluded that Lucretius' source singled out Heraclitus as the exemplary monist because the Stoics considered Heraclitus an eminent authority. I shall argue that, whether or not Lucretius' source explicitly mentioned the Heraclitus-Stoics connection, Lucretius had the Stoics' veneration of Heraclitus in mind when composing line 635-644. Lucretius referred to the Stoics, implicitly,⁵⁰⁴ but recognisably, through his expressions *inanes Graii* and *stolidi*,⁵⁰⁵ and through his description of the admirers of Heraclitus' style.

4.2.1 *Stolidi* and *inanes Graii*

I think that the pun which Snyder (1980: 118), following earlier commentators, sees on *stolidi* - *Stoici* is a further example of Lucretius' pointed use of *paronomasia*, for which

⁵⁰⁴ The fact that Lucretius avoids naming the Stoics may well carry an implication that they are not even worth being mentioned by name.

⁵⁰⁵ It seems beyond doubt that *stolidi* in line 641 are the same people as the *inanis Graios* in 639, since the *enim* . . . explains the *clarus inter inanis*. The fact that, as Sedley (1998: 13-14) suggests, Heraclitus is probably to be identified with the Pythia in line 739, where the Pythia's way of speaking (*profatur*) is unfavourably compared to Empedocles' clarity, suggests that Lucretius is thinking in terms of two factions. On the one side oracles, and their admirers such as Heraclitus, and on the other Empedocles who refused conventional prophecy.

Friedländer aptly coined the term ‘atomology’.⁵⁰⁶ The fact that two words expressing concepts connected with one another may share the same letters has important implications for Lucretius. It shows that (1) there are many *elementa* common to many things, as there are many *elementa* common to many words. This is how Lucretius first introduces the analogy from letters of the alphabet, in *DRN* I 196-198. It also illustrates that (2) the same or similar atoms could make up different things through rearrangement. This is expressed in lines 823-826. When two words expressing concepts connected with one another shared many of their *elementa*, the analogy very aptly illustrated that (3) the two things shared the same atoms (*elementa*), just as the words shared the same letters (*elementa*). Lucretius makes this point in lines 911-914: *ignis* and *lignum* share the same letters (atoms), therefore the atoms (letters) needed to make up fire are included in wood. The analogy from the letters of the alphabet appears five times in his poem.⁵⁰⁷

Given this background it seems not unreasonable to hold that Lucretius expected his reader to pay attention to words made up by similar letters.⁵⁰⁸ Lucretius associates,

⁵⁰⁶ In particular Friedländer (1941), Snyder (1978 and 1980) and Ferguson (1987). See also Dionigi 1988: 66-70.

⁵⁰⁷ The illustration is repeated again in *DRN* II 688-699 and 1013-1022. And West (1969: 97) must be right that *ex alienigenis quae lignis exoriuntur* in *DRN* I 874 is playing with the same idea as *ignes* and *lignum* (“from dissimilars which arise out of timbers”). All the *elementa* of *lignis* are included in *alienigenis*.

⁵⁰⁸ The fact that Lucretius has not yet exemplified ‘atomologising’ at this point is not necessarily an argument against the supposition of ‘atomology’ here. It seems reasonable to assume that *DRN* was meant to be read more than once, as a compendium of Epicureanism. There are examples of wordplay earlier in book I (e.g. 117-118).

or even identifies, *umor* with *amor* (Friedländer 1941: 18).⁵⁰⁹ This etymological play on words is hinted at throughout *DRN* IV 1045-1057. Lucretius spells out the connection in 1058,⁵¹⁰ but intentionally avoids using the word *umor* in that sentence, going instead for *gutta* in 1060.⁵¹¹ The word play is emphatically taken up once again in lines 1065-1066. Water images appear sporadically in the final section of book IV,⁵¹² but water is greatly emphasised, in an apparently unrelated context, in the last two lines of the book 1287-1288 . . . *guttas cadentis umoris* . . . (note the ring-composition on *gutta* from

⁵⁰⁹ Brown (1987: 202) endorses Friedländer's explanation but with caution, and thinks that irony might be involved (rather than serious etymology). I doubt irony comes into play here.

⁵¹⁰ *Haec* (i.e. *umor*) *Venus* (i.e. *amor*) *est nobis; hinc autemst nomen amoris*. For the Venus-Amor-Cupid association see *DRN* V 737-738 *it Ver et Venus et Veneris prarnuntius / pennatus graditur*, . . . (where incidentally atomology seems to be at play). It is conceivable that Lucretius is here engaging in polemic with love-poetry, by stressing that *umor*, the opposite of *ignis*, *ardor* and *flamma* as known from love poetry, is the essence of *Amor* (*Venus*). This would be consistent with his criticism of romantic love at the end of *DRN* IV.

⁵¹¹ West (1969: 94) has endorsed the point. I think there may be further 'atomologising' on *umor* in . . . *Veneris sudorem exercita potat*. It might be worth thinking whether there could be precedents in Greek for such etymologising word-play; as Professor Sharples points out to me, a possibility is *paronomasia* on ἄφροϋ and Ἄφροδίτη (see Plato *Cratylus* 406D). Aphrodite is associated with water in Euripides fragment 898 Nauck (Pascal 1904: 34-35). This may have encouraged Lucretius' play on *umor* and *amor*. Snyder (1980: 114) on the other hand points out that in Euripides *Trojan Women* 990 Aphrodite causes ἀφροσύνη. Snyder interestingly points to the word-play on *venus venenum* and *amare amarum*: *DRN* IV 634 *amarumst*, 637 *venenum*, 640 *venenum*, 658 *amarum*. For the possibility that Lucretius is playing on Empedocles' Φιλία, below, pages 323-324.

⁵¹² Line 1194: . . . *umectans oscula* . . . ; line 1271 *atque exossato ciet omni pectore fluctus*.

1060).⁵¹³ This reminds the reader of the significant etymology. Brown (1987: 379) fails to mention the ring composition on *gutta* and is undecided on whether to see an echo of the etymology. I think there can be no doubt that Lucretius associated *umor* with *amor* because the words shared three out of four *elementa*.

Friedländer (1941: 20) points to *Ennius . . . perenni* in *DRN* I 117-118 (Ennius is made up of atoms/letters which make up an eternal poet), and *DRN* VI 93-94 *callida Calliope* (the atoms which make up skill through experience).⁵¹⁴ *Mater . . . terra* share a similar nature and similar letters (*DRN* II 993).⁵¹⁵ A further interesting example is *DRN* II 643 . . . *praesidioque parent decorique parentibus esse*. Lucretius had the etymology Κούρητες from κούροι in mind, with the implication that “preparedness for their parents is the essence of the Curetes” (Friedländer 1941: 21).⁵¹⁶ He (1941: 18-19) also draws attention to *flamen flumen* in *DRN* I 291-292, *culmine fulmen* in *DRN* VI 295 ff. and the hint at *superstitio* in *DRN* I 65 *horribili super aspectu mortalibus instans*. Further examples are *canis Hyrcano de semine* in *DRN* III 750, and to paronomasia in *Epicurus . . . decurso* in *DRN* III 1042-1044 (Snyder 1980: 180).

There seems to be similar word-play in connection with the Greek names of Heraclitus and Empedocles, as Snyder (1978: 228-229) notes. Lucretius is scornful in

⁵¹³ Note also *amoris* in 1283 (Brown 1987: 379).

⁵¹⁴ And note, in this context, Lucretius’ use of 5 words starting with the letters ca- in lines 92-95.

⁵¹⁵ Snyder (1980: 135-136) also draws attention to *terra-materies-mater* in *DRN* II 248-251 and II 991-1003. See further below note 594.

⁵¹⁶ West (1969: 96) notes that etymologising word play is used with onomatopoeic force in *DRN* II 257, IV 504, IV 431, II 310, III 387. West also (1969: 97-99) points to etymological play in *DRN* III 978-1023.

calling Heraclitus *clarus*, the Latin equivalent of the last half of Heraclitus' name κλειτός: Heraclitus, as the reader is to find out unexpectedly, is only *clarus* (κλειτός) through his obscurity. As for Empedocles, Lucretius portrays him as truly ἔμπεδος, as far as his standing as a poet is concerned, but he is one of those thinkers who . . . *fecere ruinas / et graviter magni magno cecidere ibi casu*. Apart from the irony, the principle that letters are analogous to atoms appears to hold true: Heraclitus was indeed famous, and Empedocles could be said to stand fast in his rank as a didactic poet. The term ἔμπεδος can mean “lasting, continual”, with which one can compare Lucretius' *carmina vociferantur* (see further below note 668). It seems at least possible that Lucretius was etymologising in Greek as well as Latin.⁵¹⁷ It is hard to rule out, however, that Lucretius was reworking puns already used by the Greeks before him.

Scholars have challenged ‘atomology’. West (1981: 26) criticises Snyder for thinking of natural relationships between names and their referents.⁵¹⁸ West (1981: 27) grants that Lucretius was partial to etymology (the relationship between word and word), but is “not convinced that his Epicureanism embraces an onomatopoeic theory of the origins of language (a relationship between thing and word). The best evidence would be 2. 398–407 but it is not enough”.⁵¹⁹ Dalzell (1987: 19–20) similarly grants that

⁵¹⁷ Ferguson (1987: 104) suggests that in *DRN* V 740–741 Lucretius seems to be alluding to the derivation of Avernus from the Greek ἄ-ορνος.

⁵¹⁸ Ferguson (1987: 105), as Snyder, endorses the idea that this reflects the natural relationship between language and its referents, first hinted at by Friedländer (1947: 21).

⁵¹⁹ The expression *mellis lactisque liquores* presumably represents the round atoms (*iucunde tangere*), and *contra taetra absinti natura / ferique centauri* the angular atoms (*introituque suo perrumpere*

word-play is widespread in Lucretius' poem, but argues that Friedländer's approach is improbable because **(a)** it attributes to the Epicureans what was a Stoic practice, and **(b)** the point which Lucretius stresses more often "is that a rearrangement of the same or similar elements produces something *qualitatively different*".

As for **(a)** it looks as though Epicurus thought that φύσις played a part in the development of language.⁵²⁰ It seems clear from *Ad Herodotum* 75(b) that names came about not by θέσις but by φύσις, as a response to πάθη and φαντάσματα humans are faced with; it is only in stage two that λογισμός appears: people established (τεθῆναι) their own names (Snyder 1980: 13). *DRN* 1028-1029 confirms this: *at varios linguae sonitus natura subegit / mittere et utilitas expressit nomina rerum . . .* Both West and Dalzell seem to equate a natural relationship between language and referents with *onomatopoeia*, but this is not necessarily the case. Both West and Dalzell also seem to understate the importance of Lucretius' example *ignis-lignum*, and not to take sufficient account of the implication of *umor = amor*. In both these cases the concepts are connected.

In answer to Dalzell's objection **(b)**, that Lucretius stresses the difference rather than the similarity of the components when using the analogy from letters of the alphabet is due to the fact that it is self-evident from the examples, e.g. *ignis-lignum*, that the words share many *primordia* and are therefore connected (as is shown by the fact that

corpus).

⁵²⁰ As Campbell (2003: 17) puts it "... things themselves, by their physical interaction with the sense organs of the mind, provide a word, which gives a true notion of the nature of the thing".

ignis comes from *lignum*). This obvious point does not need stressing: it is the difference which just small changes in composition, and in order, can make which Lucretius wants to demonstrate. The two compounds have similar names because they are connected on the atomic level. Etymology reflects the natural relationship between compounds and their names.

Let us now come back to Lucretius' *stolidi*. I think that there is atomology⁵²¹ on the Stoics' name.⁵²² The Stoics are in fact *stolidi*,⁵²³ since they are made up of letters/elements which go to make up foolish people,⁵²⁴ atoms which are represented by the letters *sto-i-i*. Ferguson (1987: 102) implies this by commenting "the *Stoici* are

⁵²¹ These lines, where word-play is widespread (above page 273), seem an appropriate place for 'atomology'. Even the repetition in *ob obscuram* might be intended. And perhaps *Gravis Graios* (where Lucretius may have had in mind his use of *Graius (homo)* for Epicurus in *DRN* I 66) would make the paronomasia in *stolidi-Stoici* easier to spot.

⁵²² Holtsmark (1968: 260-261) finds a metrical echo of *inane* in *inanes* and similarly a punning echo of *solidum* in *stolidi*. Snyder (1980: 119) seems to think Holtsmark's view is at odds with her interpretation, but the two suggestions do not seem mutually exclusive.

⁵²³ Snyder (1980: 119) refers to the fact that the only other occurrence of *stolidus* in *DRN* is in line 1068 of book I, in reference to those who endorse the geocentric theory. It may be that Lucretius had the Stoics in mind in the later passage too, although it seems unlikely that the argument was originally aimed at the Stoics in his source (above pages 27-30).

⁵²⁴ It may be objected that this would imply, oddly, that foolish people are made up of (some) different sorts of atoms to wise ones. *DRN* III 302-306 shows that placid creatures have more air in their souls. The same objection could apply to every example of *paronomasia* on proper names of people, such as Ennius, Heraclitus and Empedocles.

naturally *stolidi* (as most editors have seen)”. The *paronomasia* on the Stoics’ name might have been encouraged by the Stoics’ own emphasis on etymology.⁵²⁵ And Lucretius may be exploiting a further point in referring implicitly to the Stoics as ‘foolish people’, considering how the Stoics insisted on the ‘Stoic wise man’.

As for the expression *inanes Graii*, that these should be identified with the Stoics is suggested by Lucretius’ *gravis Graios qui . . . requirunt*. I take it that the *gravis Graios* are the Epicureans, who are at present seeking the truth by investigating Epicurus’ own writing. A more general reference to all the earlier Greeks who sought the truth would require a past tense. And if the identification of the *gravis Graios* with the Epicureans is accepted, the polar opposite would almost certainly have to be their contemporary arch-rivals, the Stoics.

4.2.2 Sound and truth

A second argument for thinking the admirers of Heraclitus are the Stoics emerges from lines 639-644. The *inanes Graii* appreciate the use of *obscura lingua*. For, being foolish, they (a) “admire and love especially all those concepts which they see hidden underneath *inversa verba*” and (b) “make out to be true those words which can touch the ears

⁵²⁵ Schenkeveld and Barnes (1999: 182) point out that the term *ἐτυμολογικά* is not found before Chrysippus, and that the Stoics probably coined the term *ἐτυμολογία*. The interest in etymology is especially apparent in the later Stoic Cornutus (first century A.D.).

*belle*⁵²⁶ and which are dyed⁵²⁷ with sounds that charm”. The antithesis of 639 is analogous to that of 933-934:⁵²⁸ *quod obscura de re tam lucida pango / carmina musaeo contingens omnia lepore*.⁵²⁹ The intention, however, is opposite.⁵³⁰ The similarity in phrasing is intended to show the reader that he should connect the two passages, and draw the necessary inferences.⁵³¹ Obscurity was the opposite of what

⁵²⁶ The un-poetic adverb *belle* is an *hapax* in Lucretius. The adjective from the same root occurs only once: *et, si bello animo est et non odiosa DRN IV 1190*. Milanese (1989: 134) observes that the unusual *belle* evokes “una ‘grazia’ *urbana* e lontanissima dall’impegno filosofico”. There seems to be implicit condemnation here. And the adjective *lepidus* is also an *hapax* (although the noun *lepos* plays an important role in the poem, below note 538). West (1969: 26) points to Catullus 78 for “the potential malice” of the two terms.

⁵²⁷ Lewis and Short note that Cicero frequently uses *fucata* in the sense of “counterfeit, fake”, and make a connection with cosmetics, which is one of counterfeit arts, like rhetoric, in Plato *Gorgias* 465. Lucretius’ addition *et lepidu quae sunt fucata sonore* is a further (above note 487) example of theme and variation, where the second formulation has the added motif of trying to make things appear to be different from what they actually are. It seems worth referring to Philodemus *Περὶ ποιημάτων* I 175: “But as for his [Andromenides’] saying “τὰ κοσμοῦ[ν]τα καὶ παρακ[όπτ]οντα τὰ[ς ἀ]κοῆς” it is obvious even to the average person that it means nothing to the ear, and does not move the soul irrationally but rationally by artistic means” (Janko 2000: 394-395).

⁵²⁸ Ernout also refers to *DRN III 1* for the antithesis.

⁵²⁹ Ernout 1924: 137. On *lepos*, below note 538.

⁵³⁰ Lenaghan (1967: 229), who independently connects 639-642 with 933-934.

⁵³¹ Milanese (1989: 133) seems right in suggesting that the remark applies to literary texts generally, not only poetry. I doubt there is a problem with Lucretius comparing his poetry to Heraclitus’ prose. Heraclitus wrote prose of a poetic sort. And the remarks about *σαφήνεια* regarded language generally. I have endorsed

Lucretius and all Epicureans strived to achieve with language.⁵³² Epicurus considered clarity, σαφήνεια,⁵³³ the only *virtus* in language.⁵³⁴ Lucretius takes pride in the fact that his *carmina* are *lucida*, i.e. the opposite of Heraclitus' *obscura lingua*. By emphasising the polarity between *clarus* and *obscurus*, Lucretius is making a philosophical point, as well as a poetical one. He uses Heraclitus' style as a polar opposite against which to set his own Epicurean practice of using clear language.

But Lucretius did not introduce lines 639-644 just to set up, and demolish, a view of language opposite to Epicurean σαφήνεια; a simple reference to Heraclitus' obscurity would have sufficed for that purpose. Lucretius goes out of his way to give details of what the admirers of Heraclitus appreciate and what they fabricate to be true (*vera constituunt*).

in chapter 3 Sedley's suggestion that the *critique* was introduced at this point as a platform for Lucretius' programmatic statement in line 921-950; the detail of the phrasing supports the suggestion.

⁵³² Tatum (1984: 188); Milanese (1989: 125). The treatment of philosophy in *DRN* I opens (lines 143-145) and closes (lines 1114-1117) on images of light out of darkness; this should be connected with the idea of σαφήνεια. Lenaghan (1967: 223) draws attention to the stress Lucretius lays on the clarity of his own poem with *clarius audi* in *DRN* I 921 (taken up by *perspicis* in 949), *quae . . . faciemus aperta* in *DRN* II 182, *claranda* in *DRN* III 36; *clarandum* and *plane* in *DRN* IV 778; . . . *in primo quoque carmine claret* in *DRN* VI 937. Images from light in Lucretius are analyzed in West 1969: 79-93.

⁵³³ For σαφήνεια see Περὶ ποιημάτων V column XXXI Mangoni (1993: 158), line 27-32, where Philodemus says it cannot always be achieved by poets.

⁵³⁴ Milanese (1989: 108) points out that *lucidus*, or rather *dilucidus* is a rhetorical term. Milanese (1989: 85) argues that Philodemus accepts ἑλληνισμός along with σαφήνεια (an unusual divergence from Epicurus).

Lucretius felt the need to elucidate what the admirers appreciated in Heraclitus' language and style, and in language and style more generally. Lines 639-644 are a description of a critical method (Milanese 1989: 144), not simply of Heraclitus' style. The admirers are expressly said to appreciate *all texts (omnia)* written in such a style, and not just Heraclitus' text. Milanese (1989: 125) thinks that lines 639-644 are a criticism of Stoic views on language and epistemology,⁵³⁵ and specifically of the Stoics' approval of εὐφωνία and ἀλληγορία.

There can be no doubt that Lucretius is criticising those who emphasised hearing and sound in language with *belle tangere aures* and *lepido fucata sonore*.⁵³⁶ An objection appears to arise in relation to Lucretius' sound-vilifying statement.⁵³⁷ It may look as though the condemnation of the foolish people tricked by the dye of sounds is at odds with the emphasis which Lucretius' programmatic statements⁵³⁸ place on

⁵³⁵ Lenaghan (1967: 229) had already connected the passage with the Stoics' love of obscurity.

⁵³⁶ According to Janko (2000: 173) the ultimate origin of the euphonic theory is to be found in musicology and atomism (Pythagoras and Democritus), such views were transmitted to the Stoics by Xenocrates and Heraclides of Pontus". See Gentinetta (1961: 27-35) on Democritus, who refers (1961: 31) to Leucippus DK A6, and (1961: 34) to the titles in DK B18 a (Περὶ καλλοῦνης ἐπέων) and B18b Περὶ εὐφώνων καὶ δυσφώνων γραμμᾶτων. If this is right the Epicureans were criticising a theory which has its ultimate origin in atomism. Gentinetta (1961: 193-218) discusses the Stoics' theory of φωνή.

⁵³⁷ Schrijvers 1970: 46.

⁵³⁸ Lucretius' request to Venus in the proem (DRN I 28) is for *aeternus lepos*; and Venus appeared as provider of *lepos* already in line 14. The pleasure induced by sound is certainly part of the idea. Lines 921-950 suggest that introducing *musaeus lepos* is an important part of Lucretius' contribution, and that *lepos* has some importance in spreading the truth of the Epicurean message.

lepos,⁵³⁹ with his own poetical practice, his extensive use of alliteration, assonance and repeated sounds.⁵⁴⁰ But there is no inconsistency here. Lucretius is not condemning *lepidus sonorus* overall in lines 639-644: he is protesting that pleasant sound is not to be equated with the truth of the message.⁵⁴¹ Lucretius approved of using ear-pleasing sounds only in conjunction with truthfulness of content. The union of the two is what Lucretius signals as his own contribution in lines 921-950. The fact that Lucretius, as Lenaghan (1967: 229) notes, “. . . feels compelled to justify his application of *lepos* by the medical simile” shows that Lucretius thought *lepos* was only to be praised when applied to truthful content (i.e. the Epicurean message).

Later Epicureans rejected theories about language and poetry which prioritised sound. Demetrius Laco, in *Περὶ ποιημάτων* I column XIV-XV (Romeo 1988: 97),⁵⁴² discussed a view, or views, according to which ἀκοή played a part in κρίσις ποιημάτων, apparently in conjunction with δίανοια. Andromenides is named in the fragmentary text.

Philodemus also discussed theories which emphasised ἀκοή in κρίσις

⁵³⁹ It seems somehow artificial to say that *lepos* refers generally to the charm of the poem, while *lepidus sonorus* refers only to the idea of sound.

⁵⁴⁰ Bailey 1947: 146.

⁵⁴¹ Lucretius seems to be considering here whether *inversa verba* and pleasantness of sound make content true or rather are the right *medium* to convey truth, rather than judging the literary merits of poetry (κρίσις ποιημάτων), but he may be conflating the two issues.

⁵⁴² The text printed in Milanese for XIV, is different from that in Romeo's 1988 edition, but his general point seems valid.

ποιημάτων. His *Περὶ ποιημάτων* I summarises a lost work by the critic Crates of Mallos,⁵⁴³ in which Crates presented a series of critics who — Crates thought — ascribed the judgement of poetry to ἀκοή (Janko 2000: 134). Such critics are referred to by Philodemus, probably following Crates, as κριτικοί,⁵⁴⁴ we hear of Andromenides, Heracleodorus, and Pausimachus of Miletus (the most radical of the euphonists).⁵⁴⁵ Philodemus proceeded to refute such views in *Περὶ ποιημάτων* II.⁵⁴⁶

In Lucretius' day theories emphasising ἀκοή for judging the value of poetry were connected with the Stoic school. The Stoics, who like the Epicureans believed that

⁵⁴³ Asmis (1992b: 139-140) thinks that Crates cannot be called a "Stoic", because there is no evidence he was a professional philosopher (as well as grammarian and κριτικός). However he certainly shared some of the Stoics' doctrines: Varro in *De lingua Latina* IX. 1 reports that Crates endorsed Chrysippus' ἀνωμαλία against Aristarchus' ἀναλογία. Broggiato (2001: lxiii-lxv) thinks that it cannot be settled whether Crates was himself a Stoic, despite points of contact with Stoic methodology. Most scholars have thought that exegesis of poetical texts makes a clear connection between Crates and the Stoic school. J. Porter however has argued ('Hermeneutic Lines and Circles: Aristarchus and Crates on the Exegesis of Homer' in R. Lamberton and J. Keaney *Homer's Ancient Readers*, 1992) that it is fortuitous that Crates' theories coincide with Stoic theories.

⁵⁴⁴ Janko (2000: 125) argues that the κριτικοί were not, as previously thought, a 'school' as such: Philodemus used the term as a "convenient way to denote theorists whom he believed to share certain views about euphony", suggesting (2000: 127) that Chrysippus' work *Πρὸς τοὺς κριτικούς* probably meant 'Against the literary critics', generally speaking.

⁵⁴⁵ Janko (2000: 188): Pausimachus thought good poets "had a natural ability to hit upon sound that pleases the many and reflect the real nature of things, because it reflects the primal language of the name maker who designed speech to embody their physical properties; this exalts *ingenium* and expels *ars* from poetry". Pausimachus gave no importance to content, genre and word choice.

⁵⁴⁶ Janko 2000: 123-124.

language developed by φύσις, seem to have built their theory exclusively on sound. Diogenes of Babylon's definition of φωνή is very similar to Pausimachus' theory given at Περὶ ποιημάτων I 100 and 114-115 (Janko 2000: 181).⁵⁴⁷ It seems conceivable that the Stoics' theories encouraged the view that ἀκοή conveyed the message of words, and therefore of poetry, directly through the ear.

The Stoics thought that sound and reality are naturally linked; at least in the case of the early words the sounds were attempts to imitate their referents.⁵⁴⁸ The Stoics built their etymological theory exclusively on sound;⁵⁴⁹ they held that a direct relationship exists between the sound of the first words and their referent, as illustrated by onomatopoeic words.⁵⁵⁰ The Stoics' views on etymology resemble the views Plato

⁵⁴⁷ See Matthews (1990: 44-45) on Stoic φωνή, i.e. the air in motion serving as signifier, one of the two branches of Stoic dialectic (the other branch dealing with the thing signified, an incorporeal entity). On Diogenes of Babylon, who wrote a work Περὶ φωνῆς (Diogenes Laertius VII. 57b), see Matthews 1994: 11-12.

⁵⁴⁸ Janko (2000: 177) quotes a passage from Augustine's *De dialectica* 6 = 644 K. Hüsler, *Die Fragmente zur Dialektik der Stoiker* (Stuttgart and Bad Cannsat 1987): *haec quasi cunabula verborum esse crediderunt* (sc. the Stoics), *ubi sensus rerum cum sonorum sensu concordarent*. The importance of φωνή for the Stoics is reflected in the fact that Philo summarises the grammatical curriculum as πᾶσα ἡ περὶ φωνῆς καὶ στοιχείων καὶ τῶν τοῦ λόγου μερῶν ἰδέα (Janko 2000: 178). Given that Stoic ideas were very influential in teaching in (late) antiquity, Lucretius would have had more reason to react against them.

⁵⁴⁹ Milanese 1989: 136 and Janko 2000: 179.

⁵⁵⁰ Algra (1999: 181): "as one text has it 'according to the Stoics the first sounds are imitations of the things (*pragmata*) of which the names are said'".

attributes to Cratylus.⁵⁵¹

The Stoics thought that the first human words were imitative of the things they described and all later words were derived from them. A passage from Origen seems instructive about how the Stoics' view of language differed from the Epicureans' : . . .
ὡς νομίζουσι οἱ ἀπὸ τῆς Στοᾶς, φύσει, μιμουμένων τῶν πρώτων φωνῶν τὰ πράγματα, καθ' ὧν τὰ ὀνόματα καθὸ καὶ στοιχεῖά τινα τῆς ἔτυμολογίας εἰσάγουσιν, ἢ, ὡς διδάσκει Ἐπίκουρος ἐτέρως ἢ ὡς οἴονται οἱ ἀπὸ τῆς Στοᾶς, φύσει ἐστὶ τὰ ὀνόματα ἀπορρηξάντων τῶν πρώτων ἀνθρώπων τινὰς φωνὰς κατὰ τῶν πραγμάτων (Snyder 1980: 29).⁵⁵² For the Epicureans the names of things were a reaction to their referents,⁵⁵³ while for the Stoics the names were direct phonic imitation of the referent.⁵⁵⁴

⁵⁵¹ O'Hara 1996: 19 and Janko 2000: 174.

⁵⁵² *Contra Celsum* 1.24, p. 18 Hoesch.

⁵⁵³ Adorno (1990: 28) notes how in *Ad Herodotum* 75-76 it is stated that many worlds and therefore many languages are possible. Adorno suggests that the stage of θεοίς explains differences between languages, and concludes (1990: 31) that the Stoic view of language is 'closed' (preserving global order divinity of the cosmos), while the Epicurean view is 'open' (leaving more to chance, preserving man, and his world).

⁵⁵⁴ According Asmis (1992a: 401) the Stoics "sharply repudiated" the δόξα according to which a poem is good "whenever there is composition that delights the hearing or moves along beautifully and expresses the thought powerfully" (Mangoni XXIX 24-30; Asmis 1992a: 397), because they considered content important. This looks like Asmis' unwarranted inference, since Philodemus does not say anything about the Stoics in the passage. There is indeed evidence that *some* Stoics placed emphasis on content: Philodemus writes in *Περὶ ποιημάτων* V (*PHerc.* 403 fragment 4; see Angeli 1988: 94-65 and Ioppolo 2003: 132, note 9): λέγω μὴ μόνον ἀπαιδεύτους ἐσχάτως εἶναι καὶ παρὰ τὸν βίον ζῶντας, εἴ τινές εἰσιν

There is evidence that Cleanthes even thought that particular sound-effects could increase the truthfulness of the content. Philodemus in *Περὶ μουσικῆς* (*S.V.F.* 486) reports that Crates thought that τὰ μέτρα καὶ τὰ μέλη καὶ τοὺς ῥυθμοὺς ὡς μάλιστα προσκινεῖσθαι πρὸς τὴν ἀλήθειαν τῆς τῶν θείων θεωρίας, even though the language of philosophy can express them ἱκανῶς. Cleanthes thought that sound could increase the truthfulness of the content.⁵⁵⁵

Further evidence linking the Stoics with theories of εὐφωνία comes from *Περὶ ποιημάτων* V. In columns XVI 28 - XXIV 22 Philodemus attacks an unidentified⁵⁵⁶ critic, to whom he refers as ἀντεχόμενος τῶν Στωικῶν δοξῶν, or the like.⁵⁵⁷ This critic identified ἀκοή as the basis for judging poetic σύνθεσις and valued εὐφωνία

τῶν νεωτέρων, ὡς ἐνίους ἤκουσα καὶ τῶν πάνυ Στωικῶν, οἱ φήσαντες πῶμα καλὸν εἶναι τὸ [σ]οφὴν διάνοιαν περι[έ]χ[ο]ν καὶ ποητὴν ἀ[γαθὸν] τὸν το[ι]οῦτον. But there is no evidence against thinking that even these Stoics, who considered content important, disregarded the importance of sound. It is perhaps unlikely that the Stoics would have sharply distinguished content from sound.

⁵⁵⁵ Asmis (1990: 147) suggests the critic ἀντεχόμενος τῶν Στωικῶν δοξῶν drew on general Stoic doctrine “to formulate a new view of poetry”. He divided poems into two components διάνοια and σύνθεσις (Asmis 1990: 152). She argues (1990: 195-196) that the division thought/linguistic structure “shows that, like Cleanthes, he held that there is a contribution toward moral goodness from two sides: the intellectual appreciation of the thought, and the perception of the sound pattern. In this combination, the latter enhances the former, so that we may indeed, as Cleanthes said, approach more closely to god”.

⁵⁵⁶ Janko (2000: 125) argues that he is not Ariston of Chios (pupil of Zeno). Ioppolo defends the identification with Aristo of Chios, on grounds of content.

⁵⁵⁷ Wigodsky’s supplement (Ioppolo 2003: 132 note 4). Janko (2000: 125, note 3) reads an uncertain κ in place of Armstrong’s ξ.

(Mangoni 1993: 65-66).⁵⁵⁸

In columns XXIII 21 -XXIV 12 Philodemus says that it is ridiculous to hold that not λόγος but τριβὴ κατὰ τὴν ἀκοήν recognises σπουδαία σύνθεσις. It is unfortunate to bring in the concept that the euphony which shews forth from σύνθεσις τῶν λέξεων and to make the τριβὴ τῆς ἀκοῆς judge this; and even more unfortunate to ascribe this σύνθεσις τῶν λέξεων to the ἀλόγοι ἀκοαί. Philodemus refutes at many points in columns XXI to XXIX the view that the value of poetry lies in the acoustic pleasure produced by σύνθεσις, the disposition of words and sound in the verse.

Crates also considered ἀκοή important in κρίσις ποιημάτων. Crates' method involved judging by ear the λογικὰ θεωρήματα (rational principles) inherent in the verse.⁵⁵⁹ The critic is aware of content when he evaluates the form, although he does not judge the content itself. Crates assigned special importance to systematic study of the individual letter-sounds or στοιχεῖα.⁵⁶⁰

The importance of hearing in Crates' theory is clear from column XXVII lines 19-21 . . . καὶ διὰ τὸ φάσκειν δι[α]γινώσκεσθαι τὴν ὑπάρχουσαν ἐν τοῖς ποιή[μ]ασ[ι]ν φυσικὴν διαφορὰν τῆι ἀκοῆι. Crates diverged from the euphonists

⁵⁵⁸ Mangoni (1993: 263) suggests that Philodemus tendentiously implied that the critic considered σύνθεσις more important than διάνοια, while in fact the critic ἀντεχόμενος τῶν Στωικῶν δοξῶν considered them equally important.

⁵⁵⁹ Janko 2000: 121.

⁵⁶⁰ Asmis 1992b: 141.

because he claimed that form cannot be judged without reference to content, and therefore saw himself as doing justice to both content and the formal and-or aural properties⁵⁶¹ of verse (Janko 2000: 127).⁵⁶² Crates' view that the ears themselves are aware of the content when forming their judgement on poetry looks like a reworking, or elaboration, of the more radical euphonic views held by other critics.⁵⁶³ Crates' position is perhaps closer to a theory where **(a)** sound conveys sense than to one where **(b)** only sound, not sense, matters.

⁵⁶¹ Mangoni (1993: 70) Philodemus declares in XXIX 7-18 that a basic aspect of Crates' aesthetics, τὰ περὶ τῶν στοιχείων, ἐν οἷς εἶναι φήσι τῶν σπουδ[δ]α[ί]ων ποιημάτων, and the acoustic pleasure their sound produces, had been discussed in the second book. Crates gave ἡγεμονία to words, using ἡθεσιν (or πάθεισιν) as allies. Asmis (1992: 141) argues that poetic goodness in Crates' view consists of pleasing arrangement of elementary sounds.

⁵⁶² According to Asmis (2004: 7) Crates avoided distinguishing the linguistic construct from the thought : “he identified the upper level as “the vocal sound that is displayed by composition” (τὴν ἐπιφαινομένην [α]ύτῃ φωνή[ν]). Sound is at the surface; underlying it are thoughts, νοούμενα. Since a verbal composition is nothing but a certain kind of sound, Crates' formulation is compatible with the basic distinction; but his focus on sound as a surface property of language makes his position unique”. But the general consensus is that Philodemus is reporting, in the fragment from which Asmis is presumably quoting, that Crates misunderstands the views of Heracleodorus and those who share them, since *they* οὐ γὰρ τὴν σύνθεισιν, ἀλλὰ τὴν ἐπιφαινομένην [α]ύτῃ φωνῇ ἐπ[αι]ν[οῦσι] (Janko 2000: 167). Asmis should at least mention the possibility since Delattre' s emendation is given in Janko' s book, of which she is somewhat dismissive.

⁵⁶³ Asmis (1992b: 152) points out that while some critics held that the thought of a poem can be judged through experienced hearing together with sound Crates suspended judgement of the thought, because the thought cannot be judged praiseworthy “on the basis of the experienced hearing”.

It is not clear what specific version of the euphonist theory Lucretius is arguing against. The expression *vera constituunt* may suggest that Lucretius is arguing not just against the claim that the excellence of a literary text is determined by its phonic qualities,⁵⁶⁴ but also, and perhaps mainly, against the view that sounds are important as conveyors of the content inherent in them (and that the ears themselves judge such a content). Lucretius had in mind the connection of sound and content which the Stoic school elaborated, influenced perhaps by Pythagorean views.

Lucretius' *tangere aures* is paralleled in Philodemus.⁵⁶⁵ The expression τὴν ἀκοὴν γαργαλίζειν is a *locus communis* in Philodemus' writings, as Sbordone (1972) first noticed. A better understanding of Philodemus' work Περὶ ποιημάτων shows that the expression τὴν ἀκοὴν γαργαλίζειν was a technical term, popular with Hellenistic literary critics.

In Περὶ ποιημάτων II (fragment 19 of *PHerc.* 994) Philodemus insists, arguing against Pausimachus, that it is inadmissible to hold that hearing (ἀκοή) can judge whether a line has good rhythm or not. Philodemus concedes that rhythm and μέτρα "titillate" the ear, seemingly implying that this effect on the hearing does not, or should not, affect our judgement of the rhythm of the line: ὠϊόμεθα γὰρ δῆπου καὶ ὑπὸ

⁵⁶⁴ Milanese (1989: 134) comments on the "precisione, si vorrebbe dire il tecnicismo" in Lucretius' choice of words. It is hard to see why he takes *vera constituunt* to refer to judgement of poetic composition.

⁵⁶⁵ Milanese 1989: 134-135. Yet it is worth noting that Lucretius also had a precedent in Ennius, who uses *tetigit aures* in *Sc.* 230 (Ernout 1925: 137).

ρύθμων καὶ ὑπὸ μέτρων⁵⁶⁶ αὐτὴν γαργαλίζεσθαι, τὰ δ' ἀπὸ τούτ[ο]υ φανερώς οὐ φιλακρ[ι]βεῖν ν[ο]μίζομεν.

The expression also occurs in Janko 160. 14 - 161. 1, where Philodemus is arguing against Andromenides (Janko 2000: 371), and has been restored by Janko in 208. 14-16 (διάνοια [. τῆι] συνθέσει φω[νη] . . . τῆς ἀ[κ]οῆς γαρ[γαλιζομένης] ἐπιφαίνουσα).⁵⁶⁷ A further occurrence of the verb is in *PHerc.* 446,⁵⁶⁸ which is also part of *Περὶ ποιημάτων* I. Philodemus uses the verb γαργαλίζεσθαι in 49. 1-10 while considering the views of Pausimachus (Janko 2000: 238). The verb γαργαλίζεσθαι was part of the vocabulary of the euphonists. There is no *need* to assume that Lucretius got his expression *tetigit aures* directly from Philodemus.⁵⁶⁹ Since sound was central to Stoic theories about language and poetry it seems very likely that Lucretius had the Stoics in mind when he wrote *belle tangere aures* and *lepidο fucata sonore*.

⁵⁶⁶ And note the reference to ἀπλή φωνή in the lacunose context at the end of fragment 20 of *PHerc.* 994.

⁵⁶⁷ Philodemus' expressions (*PHerc.* 994 fragment 18; Sbordone 1972: 51) ἀποδιδόναι [τ]ῆς ἠδείας φωνῆς, and γενναίως [τινὰ τ]έρψιν ἀκούσεως ἀνίστησιν can be quoted as parallels for Lucretius' *lepidο sonore*.

⁵⁶⁸ Sbordone 1972: 54-55.

⁵⁶⁹ Janko (2000: 9) thinks that Lucretius may have been familiar with Demetrius' and Philodemus' polemics.

4.2.3 *Inversis sub verbis*

Let us now turn to the suggestion that ἀλληγορία is the primary reference in Lucretius' *inversis sub verbis* (Milanese 1989: 143). Other scholars reach different conclusions.⁵⁷⁰

Schrijvers (1970: 45) thinks that *inversa verba* has a general sense, which includes all those figures of speech whereby an expression assumes a sense different from its own,

⁵⁷⁰ Bailey (1947: 714) thought the reference in *inversa verba* was wider than allegory and included forced antitheses. Ernout (1925: 137) quotes ἀθάνατοι θνητοί, θνητοὶ ἀθάνατοι ζῶντες τὸν ἐκείνων θάνατον, τὸν δὲ ἐκείνων βίον τεθνεώτες (DK B62), ὁδὸς ἄνω κάτω μία καὶ ὡστὴ (DK B60), and συνάψεις δλα καὶ οὐχ δλα, συμφερόμενον διαφερόμενον, συναῖδον διαῖδον, καὶ ἐκ παντῶν ἐν καὶ ἐξ ἐνὸς πάντα (DK B10 lines 10-12). *Inversa verba* could refer to such forced antitheses in Heraclitus' style, but such a meaning is not attested elsewhere. However such forced antitheses may well be the cause of ambiguity. Schrijvers (1970: 43-44) has it that Lucretius is not referring to (a) the syntax or order of words (ἀναστροφή), but to (b) the semantics of language, the relationship between words and their referent: "l'anastrophe n'a ni dans les écrits d'Héraclite ni dans aucun autre oeuvre littéraire le rayonnement extraordinaire auquel les vers 641/645 de Lucrèce font allusion". This seems in line with his view that we have an "illustration du contenu" (1970: 44). But where does this line of reasoning leave Schrijvers' theory that irony is included? Irony was not a feature of Heraclitus' text. I think it is certainly conceivable that word order produced (perhaps intentional) ambiguity in Heraclitus' text. One of the meanings Quintilian gives to *inversio* is a simple reference to inverted word-order (*inversionis vitium ἀναστροφήν vocant* I. 5.40). Kleve (1997: 55) connects Lucretius' criticism of *inversa verba* with Philodemus' criticism in *Περὶ ῥητορικῆς* I of the use of *hyperbata* to conceal a lack of thought. I am not sure one can exclude a syntactical reference in *inversa verba*.

such as metaphor (*DRN* I 638 and 644),⁵⁷¹ irony (639) and ambiguity (641).⁵⁷² I agree with Schrijvers that the reference is not specifically to allegory, indeed it is perhaps unlikely that Lucretius is referring to allegory, and especially to metonymy, in these lines.

The evidence for the meaning of *inversa verba* is scanty. There are two parallels for *inversio verborum*,⁵⁷³ and one for *inversa verba*. The only text mentioning allegory is Quintilian VIII. 6. 44: ἀλληγορία, *quam inversionem interpretantur* (Giussani 1898: 88).⁵⁷⁴ But one perhaps cannot be certain that *inversio* was used in that sense in Lucretius' time. In Cicero *De oratore* II. 261 the speaker, Caesar, gives an account of the *genera quae risum maxime moveant* (248), and says: *in verbis etiam illa sunt, quae aut (a) ex immutata oratione ducuntur, aut (b) ex unius verbi translatione, aut (c) ex inversione verborum*.⁵⁷⁵ Caesar's example for (c) is: 'Audiamus' inquit 'pulchellum

⁵⁷¹ Yet Schrijvers objects to rendering *inversa verba* "sous expressions allégoriques" because Lucretius speaks about the relation between *res* and *verba* in II 655-657 (below page 303). Schrijvers thinks that although Lucretius' examples in *DRN* II 655-657 are strictly speaking occurrences of metonymy and "catachrèses" (according to the definition in rhetorical manuals), Lucretius' remarks extend to mythological expressions in general. I am not sure one can assume this.

⁵⁷² Gale (1994: 32-33) thinks *inversis sub verbis* "is probably intentionally obscure . . .", but considers it probable that Lucretius is referring to allegory as well as other stylistic features.

⁵⁷³ *Ad Herennium* I. 10 does not give a description of what is meant: *si defessi erint audiendo, ab aliqua re, quae risum movere possit, ab apologo, fabula verei simili, imitatione depravat<a>, inversione, ambiguo, suspicione, inrisione, stultitia . . .*

⁵⁷⁴ For Quintilian using *inversio* for word-order above, note 570.

⁵⁷⁵ According to May-Wisse (2001: 195, note 241) (a) *immutata oratio*, which may have been a technical term, means "from altered speech" concerning more than one word (comparing *permutatio* in *Ad*

puerum' Crassus. *Cum esset arrisum, 'Non potui mihi' inquit Lamia, 'formam ipse fingere; ingenium potui'. Tum hic, 'Audiamus', inquit, 'disertum'*. Cicero's usage suggests picking on the words of an opponent so as to create irony. It looks as though (c) has nothing to do with allegory, which is rather referred to in (a).

Giussani appears to take *inversa verba* in Terence *Hautontimoroumenos* 372 as a reference to allegory, since he refers to this use as support for his interpretation.⁵⁷⁶ The context in Terence is that the best way to be successful in deceiving someone is to avoid double meanings,⁵⁷⁷ since these may reveal the hidden agenda.

Given the exact parallel from Terence above I am inclined to think that ambiguity and double meanings were the main reference in *sub inversis verbis*. The use of *inversio verborum* in Cicero seems consistent with such a reading. Lucretius is criticising ambiguous language, and he may well have had double meanings and riddles of oracular responses in mind at this point. Ambiguity was characteristic of oracles. Lucretius, by

Herennium IV. 46), (b) means "from the transfer of one word", and (c) "from the inversion of words". Leeman (1989: 285) who comments on *ex immutatione*: "nur h. l. synonym mit allegoria (letztgenannter Terminus u. a. Orat. 94; Quint. 9.2.46; Demetr. Eloc. 151.)". In *De oratore* III. 166-167, where Cicero is speaking of allegory as prolonged use of metaphors, the verb used is *transferre* rather than *invertere*.

⁵⁷⁶ Seneca (*Epistulae morales* 100. 5) comments on the style of the orator Fabianus: . . . *electa verba sunt, non captata nec huius saeculi more contra naturam suam posita et inversa* . . . Presumably *inversa* means the same as *contra naturam suam posita* (which presumably refers to meaning). Seneca probably used the latter term for rhetorical *variatio*.

⁵⁷⁷ Schrijvers (1970: 44) points out that the scholiast to Terence gives *verba devia, ambigua, figurata* as synonyms of *inversa verba*.

using *inversa verba*, is equating Heraclitus' language to the language of the Pythia, and anticipates his mention of the Pythia in the refutation of Empedocles.⁵⁷⁸

DK B92 shows that Heraclitus commented on the style of the pronouncements of the Delphic oracle. Sarapion says in this passage from Plutarch's *De Pythiae oraculis* (397A): "οὐκ ὀράις . . . ὄσην χάριν ἔχει τὰ Σαπφικὰ μέλη κηλοῦντα καὶ καταθέλγοντα τοὺς ἀκροωμένους; "Σίβυλλα δὲ μαινομένωι στόματι" καθ' Ἡράκλειτον "ἀγέλαστα καὶ ἀκαλλῶπιστα καὶ ἀμύρσιτα φθεγγομένη χιλίων ἐτῶν ἐξικνεῖται τῇ φωνῇ" διὰ τὸν θεόν" (Schröder 1990: 85). And in DK B93 (*De Pythiae oraculis* 404D) Theon says: "οἶμαι δὲ <σε> γινώσκειν τὸ καθ' Ἡρακλείτωι λεγόμενον ὡς "ὁ ἄναξ, οὐ τὸ μαντεῖόν ἐστι τὸ ἐν Δελφοῖς, οὔτε λέγει οὔτε κρύπτει ἀλλὰ σημαίνει"" (Schröder 1990: 98).⁵⁷⁹

Pronouncements by oracles could be understood in more than one way, and often in opposite ways, depending on interpretation. Timon of Phlius called Heraclitus αἰνικτής (Diogenes Laertius IX. 6). Heraclitus' style, in particular his use of *oxymoron*, is liable to have opposite interpretations. *Inversa verba* refers, I think, to Heraclitus' use of expressions which can have more than one meaning, and one cannot rule out that at least on occasions the meaning was ambiguous because words are taken where they do not belong. Syntax and word order may be involved, contrary to what Schrijvers thinks

⁵⁷⁸ Above note 505.

⁵⁷⁹ Further evidence comes from Heraclitus DK A20 (Lenaghan 1967: 231). If the testimony is genuine, Heraclitus commented on the epistemological/psychological theory behind oracles, and that he endorsed oracles. It may be significant that Chrysippus wrote a work *Περὶ χρησμών* (*S.V.F.* I. 481).

(above note 570).

It is interesting that the Stoics devoted special attention to ambiguity, ἀμφιβολία. They defined ἀμφιβολία as a linguistic phenomenon (Atherton 1993: 1). One and the same linguistic item can mean or signify two or more different things. Chrysippus was particularly interested in ἀμφιβολία, since there are 7 titles on this topic attributed to him in the list in Diogenes Laertius VII. 193.⁵⁸⁰ Aulus Gellius XI. 12.1 and August. *Dial.* 9 reports that Chrysippus asserts that ‘every word is ambiguous *by nature*, since two or more meanings can be extracted from it’.⁵⁸¹

The Stoics may well have engaged in interpretation of the ‘riddles’ posed by their enigmatic forerunner Heraclitus. It would make sense for them to try to make clear what Heraclitus, whom they considered an authority,⁵⁸² meant to say. Cleanthes wrote τῶν Ἡρακλείτου ἐξηγήσεων τέσσαρα (Diogenes Laertius VII. 174),⁵⁸³ a work which

⁵⁸⁰ Snyder (1980: 61) interprets ἀμφιβολία in Aristotle as the possibility of double interpretation due to syntactical uncertainties.

⁵⁸¹ Algra 1999: 181.

⁵⁸² Further evidence for the connection between Heraclitus and the Stoics comes from Philodemus’ *Περὶ ἐυσεβείας*. *PHerc.* 1428 VII. 12 (Obbink 2000: 212): τὰ παραπλήσια δὲ κἀν τοῖς *Περὶ φύσεως* γράφει μεθ’ ὧν εἶπαμεν καὶ τοῖς Ἡρακλείτου συνοικειῶν. . . . καὶ τὸν πόλεμον καὶ τὸν Δία τὸν αὐτὸν εἶναι, καθάπερ καὶ τὸν Ἡρακλείτον λέγειν.

⁵⁸³ Could some have been textual criticism, as Zeno and Chrysippus seem to have practiced on Homer’s text? Long points out (1996: 65–66) that all we know about Zeno’s five books on Homer is that they discussed textual *crucēs*, and that the eight examples of Chrysippus’ work on Homer are all emendations or grammatical explanations.

Long thinks was based on Heraclides' earlier work in four books.⁵⁸⁴ *S.V.F.* I. 620 reports that Sphaerus wrote five books on Heraclitus (Περὶ Ἡρακλείτου πέντε διατριβῶν). And in Plutarch's *De defectu oraculorum* 415F Cleombrotos says: "ἀκούω ταῦτα πολλῶν καὶ ὁρῶ τὴν Στωικὴν ἐκπύρωσιν ὡσπερ τὰ Ἡρακλείτου καὶ τὰ Ὀρφέως ἐπινεμονένην ἔπη οὕτω καὶ Ἡσιόδου καὶ συνεξάπτουσιν".⁵⁸⁵

Epicurus himself had discussed ἀμφιβολία. Arrighetti text 31. 14 (1973: 307) reads: . . . ἀλ|λ' ο[ὐ μόνον διὰ] μεταφορᾶς | ποιᾶς, ἄς [ἐπήγο]ν ἐπὶ τὰ ἄγνω|[στ' α]ὐ[τῶν ἀπ' ἀ]γνώστων, ἀλ|λὰ διὰ [τ]ᾶς αὐ[τ]ῶμ πλᾶνας, | ἄς λέ[γο]μεν ἐν τοῖς Περὶ ἀμ|φιβολίας ἡμῖν ἀναγεγραμ|μένοις . . . Sedley (1976b: 146-147) notes that Diodorus Cronus, the leading member of the Megarians (the so-called διαλεκτικοί) was teacher of Zeno the Stoic: meaning of word is nothing more than that uttered by speaker. Sedley argues that Diodorus was the reason why Epicurus was "busily revising and tightening up his epistemological doctrines". Chrysippus presumably had a reply to Epicurus' views since he wrote widely on the topic. If later Epicureans defended Epicurus' position against the Stoics, this may be how Lucretius became familiar with the issue.

Lucretius may not have drawn a sharp distinction between ambiguous 'riddles'

⁵⁸⁴ Heraclides of Pontus is said to have written four books of ἐξηγήσεις on Heraclitus in Diogenes Laertius V. 88. Diogenes Laertius IX. 15 reports that Heraclides' work was preceded by a commentary on Heraclitus' σύγγραμμα by Antisthenes.

⁵⁸⁵ Rescigno 1995: 134.

and allegorical interpretation, since the two were not sharply separated in antiquity. Enigma, proverb and irony are subdivisions of allegory; irony is included because it is the expression of a meaning opposite to what is said (Innes 2003: 20, note 22). Quintilian VIII. 6. 52 considers riddles as allegory taken to excess and made obscure.⁵⁸⁶

The Stoics were certainly interested in metonymy, in connection with their reading of myths.⁵⁸⁷ Chrysippus' interest in metonymy is well documented in Cicero *De*

⁵⁸⁶ Innes indicates that the influence was Aristotle who had classed proverb and enigma under 'saying what is not said' and linked them with metaphor. Aristotle *Poetics* 22. 1458a25-26 connects αἰνιγμα with excessive use of μεταφοραί.

⁵⁸⁷ Whether the Stoics earlier than the first century A.D. (the time of the allegorist Heraclitus) ever practiced allegory in the sense attested in rhetorical texts is doubtful (Boys-Stones 2003: 215). Boys-Stones (2003: 2) has it that the word ἀλληγορία is not attested before the first century B.C., and that the earliest attestations, by rhetoricians, indicate that allegory was understood as sustained use of metaphors. Cicero in *Orator* 94 says that the Greeks used the term in such a way. As for the first occurrence of ἀλληγορία, it seems at least possible that this is in Demetrius Laco Περὶ ποιημάτων II, column LI (Romeo 1988: 118): τ[αὐτα μετὰ] τρόπ[ων καὶ ἀλλη]γοριῶν καὶ τ[όνων λέ]γεται ποι[ή]ματα δι[ὰ] τὴν κατὰ νόμον ἐντροχάζου[σαν κοινό]τητα· πρ[ὶ]τ[ον μὲν γὰρ] λέγ[ο]μεν [τι] ποιήμα[τος] βία[ν ἔχ]ειν. Demetrius Laco was probably contemporary with Zeno of Sidon, who lived from 150 B.C. to circa 75 B.C. (Puglia 1988a: 39-41).

natura deorum 40.⁵⁸⁸ Crates' interest in metonymy is also well known,⁵⁸⁹ whether or not he represents orthodox Stoic practice.⁵⁹⁰ There is evidence in Strabo III. 4. 4 that Crates tried to show that Homer knew that the earth and the entire world are spherical, by using allegory and etymology.⁵⁹¹

There is also internal evidence from *DRN* which suggests that metonymy is not the sole, or main, reference in *inversis sub verbis*. Lucretius uses metonymy himself. Venus in the prologue⁵⁹² is clearly not the goddess, but stands for *amor* (= *umor*), as the final section of *DRN* IV reveals. Woltjer (1887: 178) had already seen how Lucretius often explains his metonymies, referring to the end of book IV as explanation of the metonymy of Venus. Thury (1987: 271) rightly highlights the importance of the expression *naturae species ratioque* in Lucretius' poem. Lucretius gives a description

⁵⁸⁸ And Cicero *De natura deorum* 41 shows that Chrysippus explained the names, and possibly the myths, transmitted by Homer and other poets. Long (1996: 66-67) however argues that Philodemus, Cicero's source, shows Chrysippus did not take Homer to be a crypto-Stoics (Cicero is tendentiously misrepresenting). Long (1996: 59-61) argues that the Stoics were not practising allegory on Homer, and (1996: 73) that the later Stoic Cornutus too considered Homer and Hesiod transmitters of myths (rather than crypto-Stoics).

⁵⁸⁹ Janko (2000: 123, note 4) points out that "for Crates, Homer presented the truth only by presenting the λογικὰ θεωρήματα whereby the truth about the world is indirectly conveyed through allegory". It may be that Crates saw the allegorical message as the content the ear was aware of when judging poetry (above page 292).

⁵⁹⁰ Broggiato 2001: lxi, referring to her F3, F12, F26 F59, F 131. See also Mangoni 1993: 72, note 211.

⁵⁹¹ Broggiato 2001: lxiv.

⁵⁹² Note in this context the words *amore* and *cupide* in *DRN* I 19-20.

of the *species* of Venus in the prologue, but the poem must infuse *ratio* as well: after the aspects assigned to Venus in the prologue are reevaluated, in the final section of book IV Venus “is as much a generative force as she was at the end of the first *proemium*, but the significance of such generation is diminished in the new context of the full scientific explanation of the workings of the universe”.⁵⁹³ Lucretius locates Venus in a accurate picture of reality.

By revealing the real nature of Venus at the end of *DRN IV*, Lucretius follows to the letter the practice he concedes is, only just, acceptable for a poet to follow in *DRN II* 655-659. In *DRN II* 655-659 Lucretius spells out that one should get rid of any possible religious implications when using metonymies, such as Cybele to mean earth, or Neptune to mean sea, or Ceres to mean corn, or Bacchus to mean wine.

West (1969: 104) has it that “Lucretius does not believe in this allegory, and he makes this explicit by stating several times that in this passage (612, 616, 641), that these allegories are what was meant by the *poets*”. But Lucretius after saying *concedamus ut . . . dictitet*, as long as one does not make undue assumptions about *religio* (which means taking such myths *literally*), goes on to use the *terra mater* image at *DRN II* 991-998 and often elsewhere.⁵⁹⁴ Lucretius’ discussion implies condemnation of metonymy

⁵⁹³ Thury 1987: 289.

⁵⁹⁴ See *DRN I* 251 (*matris terrai*), *DRN II* 598-599 (*quare magna deum mater materque ferarum / et nostri genatrix haec dicta est corporis una*), *II* 998 (*maternum nomen adeptam est*), *V* 795 (*Mater terra*), *V* 821-822 (. . . *maternum nomen adeptam / terra tenet merito . . .*) and *V* 1402 (*Mater terra*). Other uses of metonymy by Lucretius are *DRN II* 472 (*Neptuni corpus acerbum*), *III* 221 (*Bacchi flos*), *V* 742 (*pulverulenta Ceres*) and *VI* 1076 (*Neptuni fectu*). According to Gale (1994: 31-32) Lucretius practices a kind of allegorism,

when it is used with unclear references. Lucretius in the Cybele passage was making clear where he stood on the issue, and how the reader should take Venus. Since Lucretius expresses in detail his views on metonymy in the Cybele passage,⁵⁹⁵ I doubt that he is refuting metonymy or metaphorical language generally outright when condemning the meaning the *stolidi* found *sub inversis verbis*.⁵⁹⁶

There is evidence that members of the Stoic school engaged in interpretation of whole myths, following Chrysippus' example.⁵⁹⁷ One may think that Lucretius was distancing himself only from allegorical interpretations of entire myths, although this means extracting a considerable amount from *sub inversis verbis*. But again, Lucretius' poem presents whole mythical stories to be interpreted, e.g. the myths from the underworld in *DRN* III 978-1023, Tantalus, Tityos, Sisyphus etc.⁵⁹⁸ West (1969: 103)

but rejects the complicated paraphernalia of *DRN* II 600-643, substituting a much simpler kind of exegesis.

⁵⁹⁵ Gigandet (1998: 13) thinks that in 655-660 Lucretius is speaking of his own practice, and is not concerned with the Stoics' allegoresis (above note 49). It is not clear to me why one should exclude the other.

⁵⁹⁶ A further point against thinking that Lucretius was referring to allegorical, or metaphorical, language with *sub inversis verbis* is that such a criticism would apply much more readily to Empedocles, whose use of metaphorical language is well documented, and criticised by Aristotle.

⁵⁹⁷ Long (1996: 75-76) points out that the only cosmological allegory Chrysippus is known to have proposed was that of a painting in Argos depicting Hera fellating Zeus (*S.V.F.* II. 1071-1074), where he interpreted the story as a representation of the interaction between Zeus/god and Hera/matter (contrary to the standard Stoic etymology, Hera/aer).

⁵⁹⁸ Cumont (1920: 229-230) thinks *DRN* III 978-1023 derives from a source different from the one used for the end of *DRN* III. He thinks that the source was the Pythagorean Ennius. Boyancé (1941: 147), on the other hand, connects *DRN* III 978-1023 with Stoic allegorical interpretations. But can one be sure that

remarks that Lucretius did not believe such myths, but thought that they correspond to events of human life. He emphasises that while the Stoics save the myths and make them conform to their ideology, Lucretius rejects them. West thinks Lucretius is not providing an allegorical interpretation, but only arguing that men conceive all manners of false fears and foolish desires, and invent an underworld where these are endlessly punished. However Lucretius makes clear that such inventions are an accurate reflection of the human life of the non-Epicurean (. . . *in vita sunt omnia nobis* of line 979). I side with Gale (1994: 74) who holds that “mythical imagery is acceptable provided it is used to illustrate *vera ratio*, not as means of discovering it”. Lucretius reduces stories about the underworld to our human world, to take out any possible religious implication, but still provides an interpretation of those myths by giving corresponding examples from human life.⁵⁹⁹

Lucretius was not condemning allegorical interpretation of entire myths. Even if the Stoics are Lucretius’ real target here, it seems easier, given the Heraclitean context, to suppose a reference to some analysis or interpretation by the Stoics on Heraclitus’ text.⁶⁰⁰ It seems unlikely that anything in the book of Heraclitus, which was made up of brief statements, would have offered itself to similar interpretation. It is more

Lucretius was not in fact using an Epicurean source, which put the myths into context?

⁵⁹⁹ Lucretius’ attitude in the case of the myth of Phaethon, which he presents in *DRN* V 396-415, is completely destructive.

⁶⁰⁰ Schrijvers (above note 570) assumes that the criticism is an illustration of the content of Heraclitus’ book.

likely that the reference is to ambiguous language and riddles provoked by the unusual syntax and the constant use of *oxymoron* in Heraclitus' sayings.

It is far from certain that Lucretius was criticising the Stoics' own rhetorical precepts, i.e. the way in which they themselves wrote, as Milanese seems to imply. Lines 641-644 refer to the attitude of the *stolidi* to the works of *others*. Lucretius may well simply be attacking the Stoics' interest in, and appreciation of, the ambiguous language in Heraclitus' work and similar texts. Atherton (1988: 394) notes how the Stoics overlooked contemporary stylistic precepts and reverted to earlier rhetorical models of discourse, placing emphasis on clarity, plainness and conciseness.⁶⁰¹

Plutarch *Moralia* XIII 1047B reports remarks in the first book of Chrysippus' *Περὶ ῥητορικῆς*. Chrysippus is accused of being inconsistent because he thought disposition and delivery of a speech important, but allowed for obscurities and solecism (Cherniss 1976: 385-386). One should disregard — Chrysippus is reported to have said — not only hiatus, but also ἀσάφεια, ἐλλείψεις and even σολοικισμοί which others found appalling. This passage suggests, against the testimony of Diogenes Laertius VII. 59, that Chrysippus did not require ἐλλητισμός and σαφήνεια. *S.V.F.* I. 81, as Cherniss points out, indicates that by defending solecisms Chrysippus was following Zeno's example. If Plutarch's testimony is trustworthy, it is hard to see how

⁶⁰¹ Atherton's conclusion (1988: 425-426) is that, if one understands rhetoric as a study of ways to persuade there is no such thing as Stoic rhetoric.

clarity could have been paramount for Chrysippus.⁶⁰² It looks as though different members of the Stoic school saw the matter differently.

Lucretius' criticism of Heraclitus' ambiguous riddles and the people who considered them true certainly fits well with thinking that the *stolidi* and *inanes Graii* are the Stoics. I conclude that Lucretius is referring to the Stoics in lines 639-642,⁶⁰³ and intentionally avoids naming them. It is easier to put down such a way of proceeding to Lucretius, than to his source: allusion is a device more appropriate to poetry than to Epicurean philosophical prose (although opponents often are not named in Epicurean polemics). What is more, as Pizzani (1981: 472) rightly points out, the *paronomasia* in *stolidi* only works in Latin. It was Lucretius' idea to introduce this reference.

Further indication that Lucretius is here independent of his Greek source comes from the way in which he speaks of 'the Greeks' from a distinctly Roman point of view,

⁶⁰² Seneca *Epistulae morales* 108. 10, referred to by Asmis (1992a: 400), is not easy to square with the Stoics rating clarity above all else: "*Nam*" *ut dicebat Cleanthes* "*quemadmodum spiritus noster clariorem sonum reddit, cum illum tuba per longi canalis angustias tractum patientiore novissime exitu effudit, sic sensus nostros clariores carminis arta necessitas efficit*". *Eadem neglegentius audiuntur minusque percutiunt, quamdiu soluta oratione dicuntur; ubi accessere numeri et egregium sensum adstrinxere certi pedes, eadem illa sententia velut lacerto excussiore torquetur.*

⁶⁰³ The coincidence of terminology between Lucretius and Philodemus leads Milanese (1989: 138) to discount the possibility that lines 639-644 derive from the polemic of early Epicureanism against the Sophists. I am not sure one has to assume that Lucretius was following a Greek source text at this point. As for the possibility that the target should be identified with the Sophists, who certainly placed much importance on effects of sound and style, I find this unlikely because there is no reason to link the Sophists to Heraclitus.

in lines 639-640. When one adds these considerations to the extensive use of the metaphor, and the parody of Heraclitus it is tempting to conclude that Lucretius elaborated *ex novo* the section introducing Heraclitus and his admirers, a section which serves also as introduction to the whole *critique*. We shall see below how the passage which introduces Empedocles similarly seems to be Lucretius' 'original' contribution.⁶⁰⁴

4.3 The theme of the path, and the search for truth

Brown has it that the personal flavour of the introductory vignettes of Heraclitus as a "pretentious impostor" does not carry on in the following philosophical criticisms.⁶⁰⁵ He is right that the personal character of the introductory portrayal of Heraclitus is not sustained throughout the series of arguments which makes up the confutation. But Lucretius does occasionally pick up on the topics of the introduction. This is apparent in lines 657-659 and 690-700.

⁶⁰⁴ Anaxagoras' personality, on the other hand, receives no introduction; see below pages 340-341 on how this should be explained.

⁶⁰⁵ Brown 1983: 149. Brown seems to intend "personal" with reference to (a) the attack being on an individual personality, or style of writing rather than (b) the fact the arguments apply to a specific version of monism, or pluralism. The fact that arguments against Anaxagoras are personal in sense (b) is surely due to the fact that, as pointed out above (note 111), Anaxagoras was the only representative of unlimited pluralism.

4.3.1 Lines 657-659

I have mentioned above (note 490) how Lucretius introduces the metaphor from travelling in line 636. *Lapsi a vera ratione videntur* suggests travellers losing their sense of direction.⁶⁰⁶ The image is taken up and expanded upon by the more explicit metaphor of line 657-659⁶⁰⁷ *cernunt contraria . . . ardua dum metuunt amittunt vera vias*. Those who follow Heraclitus as their *dux* lose the right footpath because they are too scared to face obstacles they create for themselves.⁶⁰⁸ The image from journeying figures in a negative way.⁶⁰⁹ And it is interesting that Lucretius takes up the image from journeying in *derrasse* of line 711 in relation to the limited pluralists.⁶¹⁰

⁶⁰⁶ Compare *DRN* II 82 *avius a vera longe ratione vagaris*.

⁶⁰⁷ The verb *fugitant* may also be connected to the imagery of the introduction: Heraclitus's troops run away in fear of obstacles or the enemy.

⁶⁰⁸ The simile in line 663 *aestifer ignis uti lumen iacit atque vaporem* also calls for comment. Lucretius is perhaps being ironic in pointing out that Heraclitus' fire itself shows the existence of void, which Heraclitus, in Lucretius' presentation, stubbornly denied. This in turn makes the reader think back to the problem of condensation and rarefaction and how far it can alter fire: fire and void can only make up things the nature of which is 'fire-like' such as *lumen* and *vapor*.

⁶⁰⁹ West (1969: 93) remarks that: ". . . anybody would be justified in feeling that this is a pure coincidence that *contraria* [in the sense of obstacles] can refer to journeying . . .". I think the image from journeying is at work, here and indeed this is part of the irony in the reference of *dux*.

⁶¹⁰ Lines 920-951, for which, as we have seen, the *critique* is, in a sense, a platform, draw from images applied to poetry. No doubt *avia Pieridum . . . loca* refers mainly to poetical achievements. But in *avia*

The ‘theme of the path’ has a long pedigree in Greek literature. It goes back to Hesiod *Works and Days* 287-292, and is most celebrated in Prodicus’ story of Heracles at the cross-roads.⁶¹¹ The image of *poetry* as path appears in Pindar. The ‘theme of the path’ was central to Parmenides (DK B1), who may have been the first to apply it to philosophical development.⁶¹² It also appears in Empedocles DK B2 line 6 (παντοσ’ ἐλαυνόμενοι) and line 8 (ἐλίσσθης), and DK B35 line 1 (αὐτὰρ ἐγὼ παλίνορος ἐλεύσομαι ἐς πόρον ὕμνων . . .).

Lenaghan has it that the majority of occurrences regard losing the way (*erro, avius, vagor*) and suggests that Lucretius altered the conventional philosophical image to suit his purposes. Lines *DRN* IV 508-510, where the person who does not believe in the senses cannot avoid cliffs, are a very good example of such use.⁶¹³ It is certainly true that in Lucretius the image often appears ‘reversed’ but it is also used in a positive

loca there might also be a reference to the Epicurean philosophical path, which Lucretius follows despite the difficulties (the *avia Pieridum loca* are likely to be *ardua*), doing the opposite of what the followers of Heraclitus did.

⁶¹¹ Lenaghan 1967: 227-228, note 26.

⁶¹² Lenaghan makes the point that Lucretius’ use of the image is exclusively philosophical except for lines 926-927, despite granting that the literary and philosophical aspects of the image are difficult to distinguish. Indeed *DRN* I 402 describes the arguments of his poem as tracks which indicate the right philosophical path (Thury 1989: 277): philosophical and poetic path are fused into one.

⁶¹³ West 1969: 72.

way,⁶¹⁴ in *DRN* VI 27-28 Epicurus' route is a short run on a straight path to supreme good, and in *DRN* V 102-103 the sense of touch is equated with "the shortest well-built road of belief into the breast of man, the site of his intelligence". Once again there seems to be an implicit comparison between Heraclitus, who gets his followers lost, and Epicurus, who leads straight to the truth, and consequently happiness.

4.3.2 Lines 690-700

It looks as though lines 690-700 in particular, where Lucretius attacks Heraclitus for claiming that fire is all things and only fire exists, take up themes from the introductory characterisation of Heraclitus. The argument in lines 690-700 is personal in the sense that these lines refer specifically to a belief of Heraclitus.⁶¹⁵ Lucretius' *hic idem* in line 692, which is striking after his use of 'generic' plurals, points in this direction. The expression draws attention to Heraclitus' *persona*. The reader is thus encouraged to think of Lucretius' earlier depiction of Heraclitus'. The *perdelirum* of line 692 is taken up and expanded in *tum vanum cum delirum* of 698. The argument is framed by ring-composition on madness. Both *delirum* and *vanum*, although here applied to theories, could well be taking up the characterisation of the admirers (the *delirum* is perhaps

⁶¹⁴ . . . nisi credere sensibus ausis / praecipitesque locos vitare et cetera quae sint / in genere hoc fugienda, sequi contraria quae sint ("and to make for the ones which are opposite (i.e. safe)").

⁶¹⁵ On this argument, above pages 80-82.

comparable to *stolidi*, the *vanum* recalls *inanes*).⁶¹⁶

The rhetorical questions in 699-700, where Lucretius and the reader (*nobis*) are faced with distinguishing what is true from what is false reflects the themes of the introduction of Heraclitus:

*quo referemus enim? quid nobis certius ipsis
sensibus esse potest, qui vera ac falsa notemus?*

The phrasing recalls the unsuccessful search for the truth of lines 635-644. According to Lenaghan (1967: 230) *nilo clara minus* of line 697 recalls line 642 and is a further play on Heraclitus' obscurity. It is perhaps rather line 639 that line 697 picks up. Lucretius is going back to the themes from the introduction of Heraclitus to round off the section by taking up in these lines the characterisation of Heraclitus as pretentious impostor, who claims there is truth in what is beyond the senses. The opposition *contra sensus ab sensibus* in 693 should be mentioned in this context,⁶¹⁷ since it takes up the use of *oxymoron* in the introductory passage. It seems reasonable to think that the colouring was added by Lucretius, assuming that the argument appeared in the source at all.

⁶¹⁶ It could also be that Lucretius' onomatopoeic alliteration *adiectu tangere tactus* in line 689, meant to illustrate the sense of touch, takes up the use of *tangere* in 643.

⁶¹⁷ It seems very likely that a metaphor from construction is at work in *labefactat . . . pendent*, compare *DRN IV* 513-519.

4.4 Empedocles and Sicily

In lines 716-741 Lucretius grandiloquently praises Empedocles, and Empedocles' land, Sicily, before announcing that both Empedocles and other quadruple pluralists got it badly wrong on the elements. It seems almost inconceivable that Lucretius imported such a profuse praise of Empedocles, and the extensive description of Sicily, from his philosophical source. Lucretius intentionally mixed unrelated material with the philosophical discussion. He may have composed lines 716-741 *ex novo*,⁶¹⁸ although it is difficult to rule out that a closer model for these lines was provided by a (now lost) description of Sicily by an earlier author.⁶¹⁹

I very much doubt that the inclusion of lines 716-741 should be explained simply

⁶¹⁸ Edwards (1989: 108) claims that Empedocles DK B112 (quoted below page 315) was Lucretius' "prototype" for lines 716-733, which would be an example of allusion with variation: Lucretius' insistence on *videtur* would be mocking Empedocles' ὡσπερ ξοικα. Edwards explains that "those to whom Empedocles is a god are told that it *seems* so; those to whom Sicily *seems* to have produced no greater wonder than Empedocles are the few who see the prophet with his own eyes". Play on the sense of *videtur* is perhaps possible in view of Lucretius' tendency to parody opponents, but the implication Edwards sees behind Lucretius' use of *videtur* seems rather elaborate. The form *videtur* often means no more than "is seen" in *DRN*. There are not enough points of contact between the two texts to hold that DK B112 was Lucretius' model *for* 716-733 unless one understands 'model' very loosely. It is only for lines 729-733 that there is a strong case for thinking that Lucretius is picking up on Empedocles' words, and perhaps DK B112 specifically. *If* DK B112 was his only source, Lucretius can be said to have composed lines 716-733 *ex novo*.

⁶¹⁹ On why this author was probably not Empedocles, above note 48.

as respite from philosophical arguments.⁶²⁰ Lucretius abandoned the *signa pressa*, and introduced lines 716-741 to make a number of important points. These lines are essential for understanding Lucretius' own views and methods, therefore similar in this respect to the introduction of Heraclitus and the programmatic passages throughout *DRN*.

4.4.1 Empedoclean style and language

Lucretius made the most of the opportunity to refer to his predecessor's writings and style, as he had done when introducing Heraclitus. In the case of Empedocles, however, the tone is remarkably different, not surprisingly given that he was Lucretius' poetic model. In lines 716-748 Lucretius imitates Empedocles' own style, which was 'Homeric' and 'metaphorical' in Aristotle's eyes.⁶²¹ The imitation is apparent in Lucretius' use of

⁶²⁰ Lines 716-733 are the second-longest break from series of arguments so far in *DRN I*, lines 398-417 being the longest. Lucretius might in some sense be preparing the reader for the lengthy list of arguments against Empedocles, but I agree with Snyder (1972: 217) that "Lucretius is not given to mere travelogues" and one should look for the underlying purpose of the passage.

⁶²¹ Brown 1983: 148. Aristotle *Poetics* 1447b 17-20, on the other hand, indicates that Homer and Empedocles have nothing in common but the metre, διὸ τὸν μὲν (Homer) ποιητὴν δίκαιον καλεῖν, τὸν δὲ (Empedocles) φυσιολόγον μᾶλλον ἢ ποιητὴν. Aristotle seems to comment on the inconsistency of defining everything in metre as poetry, or perhaps, as Obbink (1993: 51, note 4) suggests, on the inconsistency of thinking of both as dramatic poets.

metaphors,⁶²² his echoes of Homer,⁶²³ and his use of religious and oracular imagery.⁶²⁴

The deployment of religious and oracular imagery is what strikes me the most.⁶²⁵

Lucretius intentionally focused on this topic to emphasise Empedocles' mysticism. That Empedocles saw himself as a god and an oracle is shown by DK B112:

ὦ φίλοι οἱ μέγα ἄστῳ κατὰ ξανθοῦ Ἰκράγαντος
ναίετ' ἄν' ἄκρα πόλεος, ἀγαθῶν μελεδήμονες ἔργων
ξείνων αἰδοῖοι λιμένες, κακότητος ἄπειροι,
χαίρετ'· ἐγὼ δ' ὑμῖν θεὸς ἄμβροτος, οὐκέτι θνητός
πωλεῦμαι μετὰ πᾶσι τετίμενος, ὥσπερ ἔοικα 5
ταινίαις τε περίστεπτος στέφειν τε θαλείοις·
<πᾶσι δὲ> τοῖς ἄν' ἴκωμαι ἐς ἄστεα τηλεθάοντα,
ἀνδράσιν ἠδὲ γυναιξί, σεβίζομαι, οἱ ἄμ' ἔπονται
οἱ μὲν μαντοσυνέων κεχρημένοι, οἱ δ' ἐπὶ νούσων
μύριοι, ἐρέοντες, ὅπηι πρὸς κέρδος ἀταρπός, 10
παντοίων ἐπύθοντο κλυεῖν εὐηκέα βάξιν,

⁶²² *Minantur* in line 722, *iras* in 723, *vomat* in 724 (assuming, as I think one should, that *vomat* is the right restoration of O Q G *omniat*, Bignone *Empedocle* 138-9 argues for *ciat*), *munita* in 728.

⁶²³ Ὀλοῆν . . . Χάρυβδιν *Odyssey* XII, 113, 428; κείτο μέγας μεγαλωστί *Iliad* XVI 776.

⁶²⁴ Brown thinks Lucretius reproduces the “overall quality of Empedocles’ verse” although the reference is not as specific as the earlier reference to Heraclitus’ style.

⁶²⁵ *Sanctum* in line 730; *divini pectoris* in 731, *vix humana . . . stirpe creatus* in 733, *divinitus* in 736, *ex adyto cordis* in 737, *sanctius profatur* in 739-740.

δηρὸν δὴ χαλεπήσι πεπαρμένοι <ἀμφ' ὀδύνησιν>.

And there are other references to oracles and prophecies in Empedocles. Lenaghan also refers to DK B3 lines 1-5; and B146 where Clement reports that Empedocles claimed that the souls of the wise are gods: εἰς δὲ τέλος μάντεις τε καὶ ὑμνόπολοι καὶ ἰητροί / καὶ πρόμοι ἀνθρώποισιν ἐπιχθονίοισι πέλονται / ἔνθεν ἀναβλαστοῦσι θεοὶ τιμῆσι φέριστοι. Empedocles DK B15 line 1 (οὐκ ἂν ἀνῆρ τοιαῦτα σοφὸς φρεσὶ μαντεύσαιτο / . . .) also suggests that in his view the wise man should take over the role of the oracle.⁶²⁶ And DK B147 speaks of sharing tables with the gods. It seems beyond doubt that Lucretius intentionally referred to the fact that Empedocles thought of himself as a god (*DRN* I 730-733), and as an oracle making revelations which are more divine than the Pythia's (*DRN* I 738-740).⁶²⁷

It is significant that Lucretius, as Kranz (1944: 69-70) remarks, uses the oracular image of lines 738 and 739 again, in lines 111-112 of book V, to describe his own poem. *DRN* V 110-121 make the readers think of Empedocles. Apart from the *verbatim* repetition, *solacia* in line 113 reminds us of Empedocles' role as a healer, which Lucretius is taking over. Moreover Empedocles held the theory Lucretius so

⁶²⁶ Kranz (1944: 103) compares this expression with *DRN* I 737.

⁶²⁷ Line 737 presents a bold metaphorical expression, although somehow softened by *tamquam: ex adyto tamquam cordis responsa dedere*. The idea is that *cor*, probably closer to "mind" than "heart" here, has an inner chamber from where oracles are delivered. Equating *cor* to a temple is certainly a daring image, and it seems part of Lucretius' intention of substituting religion with philosophy. It is philosophical understanding, and not oracles, that communicates divine truths.

emphatically rebuffs. The fact that *DRN* V 101-103 (Smith 1992a: 387, note c) strongly resemble Empedocles DK B133 has set the Empedoclean tone. Lucretius sets up a comparison between Empedocles and himself at the outset of his cosmology.⁶²⁸

It is interesting in this context that Lucretius could be following a trend detectable in the Epicurean school.⁶²⁹ Smith (1992a: 60-61, note b) gives evidence for use of oracular language within the Epicurean school, referring to Epicurus *Sententiae Vaticanae* 29 and Cicero *De finibus* II. 20 (*in alio vero libro, in quo breviter comprehensis gravissimis sententiis quasi oracula edidisse sapientiae dicitur*). Sedley (1998: 13-14, note 59) rightly points out that in many of the passages which mention oracles are ironical. There is irony in Philodemus' *Περὶ εὐσεβείας* 2044-2045 (Obbink 1996: 568-569). Diogenes Laertius X.135 (quoted above page 252) shows this as far as Epicurus is concerned. And in Plutarch's *De Pythiae oraculis* 397D Theon accuses Boethus, a *προφήτας τοῦ Ἐπικούρου*, of blaming the ancient *προφήτιδαι* because the poems they used were worthless, and of blaming the contemporary *προφήτιδαι* who give their oracles *καταλογάδην καὶ διὰ τῶν ἐπιτυχόντων ὀνομάτων*. Lucretius' scornful of conventional oracles of *DRN* VI 379-382: *Hoc est igniferi naturam fulminis ipsam / perspicere et qua vi faciat rem quamque videre / non*

⁶²⁸ Note also how Lucretius remodels *DRN* I 737 as *DRN* V 110. The version used for Empedocles in book I could not apply to Lucretius, who does not give his own pronouncement, but Epicurus'. It may well be significant that Lucretius reserved the expression *oracula* for a context where Epicurus' *ratio* (= pronouncements) has to guide the Epicurean, though based on the evidence of the senses.

⁶²⁹ B. Farrington (*The Faith of Epicurus*, 1961) suggests that Epicurus should be read as an anti-empiricist.

Tyrrhena retro volventem carmina frustra / indicia occultae divum perquirere mentis.

The Epicureans were heavily critical of *conventional* oracles, but at the same time they appropriated the imagery for themselves (Smith 1996: 130 and 130, note 75). The only oracle is Epicurus' atomistic theory is the only oracle. Lucretius used oracular imagery generally in a positive (as well as a negative way), to stress that philosophical poetry is the only truly oracular medium. The implication of the intertextuality is, in my view, that Empedocles' was a good attempt but not good enough.

Lucretius saw himself as following Empedocles in appropriating the role which formerly was that of oracles. And it may be significant in this context that there was a connection between the Pythia and the Muses (i.e. poetry). Plutarch in *De Pythiae oraculis* 397, where he discusses why the Pythia stopped using verses for responses, reports that in Delphi, there was a temple to the Muses. The Sybil had come from Helicon (or according to some ἐκ Μαλιέων) where she was fed by the Muses. The Pythia was connected with poetry. Transferring the powers of revelation of the Muses from religion to philosophical poetry is where Empedocles' excellence lies according to Lucretius.

The tone with which the prologue to *DRN* ends is that of someone making a revelation (*DRNI* 143-150). Lucretius' use of the oracular image in book V sets his own *carmina* up against Empedocles'. Only Lucretius is pronouncing *fata* which are *truly* divine, because they are not Lucretius' own, but they derive from the only god, Epicurus.

4.4.2 Lucretius' praise

The fact that Lucretius reveals in book V that he has surpassed Empedocles' achievement does not in my view mean that Lucretius is being underhand in his praise of Empedocles in the *critique*, that he was criticising rather than praising Empedocles, as Edwards (1989) suggests. Edwards has the merit of highlighting that Lucretius' poem hints repeatedly at the fact that he has surpassed Empedocles' work, but some of the sniping at Empedocles which he finds hidden in Lucretius' praise is unconvincing.

Edwards (1989: 106-107) argues that Empedocles' theories enjoyed popularity in his time, referring to the fact that the learned augur Nigidius Figulus, who inspired Cicero's interest in Plato's *Timaeus* (Cicero *Timaeus* I. 1), would have been interested in Empedocles' theories and that Sallust's *Empedoclea* derived its content from Empedocles.⁶³⁰ That Empedocles' theories were of any more than historical interest at Lucretius' time, and that Lucretius would have seen his theories as a serious contemporary threat, seems at the very least disputable.

Edwards argues that Lucretius (a) first outdoes Empedocles in his own style in

⁶³⁰ Edwards 1989: 106. Edwards (1989: 105) claims that Epicurus denied Plato originality by attributing the system of the four elements to Empedocles in book XIV (Arrighetti text [29] [28] = Leone column XL). But there is no evidence that Epicurus has the problem of the four elements in mind in this specific fragment. Epicurus is describing, hypothetically, how an undetermined thinker may borrow from another (referring to borrowings from Empedocles by way of example; above note 223).

the opening of the poem (*DRN* I 6-9), and **(b)** proceeds to criticise such a style, the poets' use of metonymy, in *DRN* II 655-659, where his target would be the Pythagoreans, who gave mythological names to common things. That **(a)** the opening of Lucretius' poem is modeled on Empedocles has long been suspected,⁶³¹ but whether one can extrapolate from a critical attitude on Lucretius' part towards Empedocles seems doubtful. This seems somewhat similar to saying that Vergil was critical of Homer. As for **(b)**, it seems possible that *DRN* II 655-659 refer to Empedocles' extensive use of metonymy. Later doxographers were struggling to make sense of Empedocles' equation of his four elements with gods in DK B6.⁶³² Lucretius may be referring to such disputes and criticising the fact that Empedocles' use of metonymy, contrary to his own (above pages 303-304), was not sufficiently clear. Lucretius was correcting Empedocles' use. This does not entail that Lucretius could not also have had the Stoics in mind in the Cybele passage, especially if they offered interpretations of Empedocles' metonymies.

I agree with Edwards' suggestion (1989: 111) that *DRN* I 921-934 imply that Lucretius has outdone both Heraclitus and Empedocles. There are indications that Lucretius is thinking especially of his relationship to Empedocles in book I. Lines 921-

⁶³¹ Below pages 323-325.

⁶³² Two different interpretations are attested, one in ps-Plutarch (878A = *D.G.* 287 lines 6-16) and one in Qosta ibn Luqa, (agreeing with Stobaeus *Ecl.* I. 10. 11a-b). It may be that these competing interpretations were in existence by the time of Lucretius, although Mansfeld (1995: 110-114) argues against Kingsley (1994: 236-237) that neither interpretation goes back to Theophrastus.

925 suggest poetic innovation and supremacy. The idea is expressed three times: untrodden (poetic) paths (926-927), pure springs (927), and untouched flowers (928).⁶³³ We have seen (above, pages 246) that one of the reasons, perhaps the main reason, why Lucretius introduced the *critique* is to set up a platform for lines 921-950.

Lucretius' relation to Empedocles is remarkably different from the veneration he shows for Epicurus. Lucretius goes out of his way to point out that he can do no more than follow the footsteps of the truly divine Epicurus: the emphatic double simile in *hirundo cygnis* and *equus haedi* in lines 5-6 of *DRN* III shows that there is no contest.⁶³⁴ But when it comes to Empedocles Lucretius implies he has challenged and surpassed him: he has composed *carmina* which are more divine and everlasting than Empedocles'.⁶³⁵ Lucretius' superiority is partly due to the fact that he is conveying the truly divine message of Epicurus (above page 318). But one also gets the impression that Empedocles had been outdone also as far as the poetry is concerned.

Despite Lucretius' hint at the fact that he has surpassed Empedocles, the influence Empedocles exerted on him is such that I find it difficult to think that the praise of Empedocles in the *critique* is not genuine. Kranz (1944) and Bartolini Niccolini

⁶³³ The language recalls that used in describing Ennius in *DRN* I 117-119, where Gale has detected a hidden reference to Empedocles (below pages 326-327).

⁶³⁴ See Cabisius 1979: 240.

⁶³⁵ One should note in this context how Lucretius drinks from *untouched* springs when describing his poetry (where his model is Empedocles). This is the opposite of following Epicurus' *vestigia* (*DRN* III 4).

(1955) point to a number of imports.⁶³⁶

One can also now compare from the Strasbourg papyrus lines 291-292 [Σπεύ]δε δ' ὅπως μὴ μόνον ἀν' οὐατα [μῦθος ἴκηται | [ἦδέ] μευ ἀμφὶς ἔόντα κλύων [ν]ημερτ[έα δέρκευ] and 299-300 ἐκ τῶν ἀψευδῆ κόμισαι φρενὶ δείγματα μ[ύθων·] | ὄψει γὰρ ξύνοδόν τε διάπτυξιν τε γενέθλη[ς] to Lucretius' addresses to Memmius.⁶³⁷ It seems agreed that Lucretius' direct addresses to Memmius (i.e. the internal addressee),⁶³⁸ and to divinities, imitate the very extensive use of such narrative devices in Empedocles.⁶³⁹

⁶³⁶ Kranz connects e.g. Empedocles DK B17, line 14 with *DRN* II 66; (comparing Hesiod *Erg.* 106-107 and Parmenides DK B2 line 1) DK 20, lines 6-7 and DK 21, lines 10-12 to *DRN* II 342-344 and *DRN* I, 161-163; DK 35 line 1 and *DRN* V 780 (1944: 86); DK B133 with in *DRN* V 101-103 (1944: 97); DK B131 with Lucretius' invocation of Calliope in *DRN* VI 92-95 (1944: 103), and DK B1 with *DRN* I 50 (1944: 103), referring also to Hesiod *Erg.* 27. Bartolini Niccolini (1955: 281-282) links DK B17, line 26 with *DRN* I 331-333; DK B23 line 9 with *DRN* I 370 and I 1052; DK B71 (εἰ δέ τί σοι περὶ τῶνδε λιπόξυλος ἔπλετο πίστις) with *DRN* I 267; DK B23, line 11 (ἀλλὰ τορῶς ταῦτ' ἴσθι, θεοῦ πάρα μῦθον ἀκούσας) and DK B110, line 4 with *DRN* 1115 and 1117.

⁶³⁷ This rules out, in my view, Woltjer's (1877: 181) assumption that Lucretius was not familiar with Empedocles' poem(s). Giaccotti (1959: 80) is willing to consider the possibility that Empedoclean influence on Lucretius was through Ennius (his *Epicharmus* being influenced by the *Καθαρμοί* and his *Euhemerus* by *Περὶ φύσεως*). It seems beyond doubt that Lucretius read Empedocles.

⁶³⁸ The role of Memmius in *DRN* certainly seems comparable to that of Pausanias in Empedocles' poem (Obbink 1993: 76). Obbink (1993: 74-75) questions whether Empedocles intended his audience to identify themselves with Pausanias. On Lucretius' relationship with Memmius, below pages 377-383.

⁶³⁹ Obbink 1993: 54-55.

Campbell (2003: 102) rightly draws attention to the fact that *DRN* II 1081-1083 almost translates Empedocles' τούτο μὲν [ἄν] θηρῶν ὀριπλάγτων ἀγ[ρότερ] εἶδη, | τούτο δ' ἄν ἀ[νθρώ]πων δίδυμον φύμα. [τούτο δ' ἄν ἀγρῶν] | ριζοφόρων γέννημα καὶ ἀμπελοβάμ[ονα βότρυν] (*Περὶ φύσεως* book I lines 296-298; Martin and Primavesi, 1998: 139).⁶⁴⁰ The remarkable coincidence of terminology between Lucretius and Empedocles makes it certain, in my view, that there is a deliberate allusion to Empedocles in these lines.⁶⁴¹

The opening of *DRN* shows immediately that Lucretius meant his poem to be read against Empedocles, through the mention of the four elements in the opening lines and the invocation of Venus.⁶⁴² The metonymy in Venus, and the explanation of it, is part of Lucretius' intertextuality with Empedocles. It seems significant that Aëtius I. 3. 20 defines Empedocles' Νῆστις and spring of mortals as sperm and water: this presumably reflects remarks to that effect in Empedocles' poem(s). This should perhaps be

⁶⁴⁰ Lucretius' modifications, though, suggest to Campbell that Lucretius is in fact translating a similar passage from Empedocles' zoogony, now lost, where Empedocles used the equivalents of Lucretius' *squamigerum pecudes* and *corpora . . . volantum* (*DRN* II 1083). It seems interesting, however, that there is no attested case of Lucretius directly translating from Empedocles. This may be coincidence, since much of Empedocles' production is lost, but it is also conceivable that it was a deliberate choice on Lucretius' part.

⁶⁴¹ Sedley (1998: 11) argues that Lucretius derived his use of the 'multiple-correspondence simile' (on which see West 1970: 272-274, considering *DRN* I 272-275), from Empedocles DK B84, where Empedocles describes the eyes' structure and function as that of the lantern.

⁶⁴² Bartolini Niccolini 1955: 284-285.

connected with Lucretius' identification of *amor* and *umor*.⁶⁴³ Lucretius may well have intentionally conflated Empedocles' Νῆστις and Φιλότης/Φιλία⁶⁴⁴ in his addressee, Venus.⁶⁴⁵ It looks as though Lucretius has reduced Empedocles' two divine natures to the most blunt physical terms, those of *umor*.⁶⁴⁶ Lucretius may well be picking up on line 3 of DK B6 (Νῆστις θ' ἢ δακρῦοις τέγγει κρούνωμα Βρότειον).⁶⁴⁷

And the similarity may extend beyond the opening lines of the poem. Martin and Primavesi (1998: 112-114) endorse Sedley's suggestion of a lengthy prologue to Empedocles' Περὶ φύσεως, which dealt with daimons and transmigration of souls, DK B115 being one of such fragments. They take it that some or even all of DK B118-B126, which are usually attributed to Empedocles' Καθαρμοί, come from the prologue of

⁶⁴³ Above pages 276-278.

⁶⁴⁴ See DK B17 lines 20-24: . . . καὶ Φιλότης ἐν τοῖσιν, ἴση μῆκός τε πλάτος τε / τὴν οὐ νόωι δέρκευ, μῆδ' ὄμμασιν ἴσο τεθεπῶς / ἦτις καὶ θνητοῖσι νομίζεται ἔμφυτος ἄρθροις, / τῆι τε φίλα φρονέουσι καὶ ἄρθρια ἔργα τελοῦσι, Γηθοσύνην καλέοντες ἐπώνυμον ἡδ' Ἐφροδίτην . . . And a connection between Aphrodite and water seems suggested by Empedocles DK B73: ὡς δὲ τότε χθόνα Κύπρις, ἐπεὶ τ' ἐδίηεν ἐν ὄμβρῳ, / εἶδεα ποιπνύουσα θοῶι πυρὶ δῶκε κρατῦναι.

⁶⁴⁵ Venus should perhaps also be identified with his *natura creatrix* of DRN I 629 and V 1362 and Calliope of DRN VI 92-95. Gale (1994: 67-68) suggests that Lucretius' *natura creatrix* of DRN I 629, DRN II 1117, DRN V 1362 is an alter ego of Venus, an "Epicurean counterpart" of Empedocles' Φιλία. Gale (1994: 68) also suggests that *Venus* also takes up role of the Muse (comparing Calliope in Empedocles DK B131).

⁶⁴⁶ One of the characteristics of Catullus' poetry is providing a further twist in a stock *genre* (shock tactics): Lucretius' use of portrayal of Venus shows a comparable attitude.

⁶⁴⁷ See also Martin and Primavesi (1998: 145), lines d3 and d4: . . . Φιλίην δὲ [καὶ Ε]ὐν[οίη]ν νῦν ἔχουσιν | [Ἄρ]πυιαι θανάτοιο πάλοισ [ἡμῖν παρέσ]ονται.

Περὶ φύσεως, and suggest that Empedocles may have given the transmigration of souls as the reason why he had special knowledge (the same function as Parmenides' ὁδὸς . . . δαίμονος).⁶⁴⁸ Sedley's further suggestion that Empedocles' Περὶ φύσεως itself opened with an invocation to Aphrodite is possible, but it seems risky to make such an assumption without any direct supporting evidence.⁶⁴⁹

Lucretius' praised, and imitated, Empedocles because Empedocles had in his view successfully fused philosophy and poetry. The poetic qualities of the section introducing Empedocles alert us to the combination of philosophy and poetry elsewhere in Lucretius' poem. Praising Empedocles' achievements as a poet writing philosophy was high on Lucretius' agenda, and perhaps his main reason for introducing lines 716-741. The description of Empedocles' *reperta* as *praeclara* suggests that poetry is an acceptable medium — or, perhaps, *the* medium — to communicate the truths of philosophy, a view with which Epicurus and Philodemus would have disagreed (see above pages 9-12, and 261-263).⁶⁵⁰

⁶⁴⁸ Above page 310.

⁶⁴⁹ Trépanier (2004: 39-40) is unconvinced.

⁶⁵⁰ Lucretius stresses the importance of his role as a poet for spreading Epicurus' message. He thought that power of poetry can confer eternal life on Epicurus' pronouncements (Gale 2001: 171). In lines 934 and 935 *musaeo contingens cuncta lepore / id quoque enim non ab nulla ratione videtur* Lucretius is stressing, in my view, that "there is much point". Line 925 sounds prosaic because Lucretius is implying that we should rethink our notion of poetry. Cabisius (1979: 242) makes a convincing case for thinking that in *DRN* Lucretius' and Epicurus' missions are presented as parallel, although they regard different fields (philosophy and poetry respectively), pointing in particular to *DRN V* 335-337. I think Cabisius' reading is shown to be correct by the

Lucretius was attracted to Empedocles' "concept of himself" and "use of poetry for revelation" (Lenaghan 1967: 231-232).⁶⁵¹ The 'divinity' of Empedocles (. . . *divini pectoris eius*) refers to the fact that Empedocles fused religion and philosophy, and in turn fused philosophy and poetry: the Muses were detached from their connection with conventional oracles in favour of philosophical poetry. Comparison with the mention of Ennius earlier on in book I,⁶⁵² leaves one in no doubt that Lucretius rated Empedocles highly as a model.

It is interesting that there seems to be etymological word play in *DRN* I 112-119, intended to make the shadow of Empedocles hang over Ennius. Gale (2001: 168-169) argues that *perenni fronde* (*DRN* I 118) and *quae clara chueret* (*DRN* I 119) taken together suggest the name of Empedocles, ἔμπεδος κλέος, referring to Empedocles' use of ἔμπεδόφυλλος and ἔμπεδόκρατος in DK B77. According to Gale (2001: 170) thinks that Lucretius uses etymological word play here to indicate a line of poetic succession leading from Homer, to Empedocles to Ennius and Lucretius himself.⁶⁵³ This

fact that he picks up the *arta claustra* which Epicurus smashes in *DRN* I 70-71 with *artis nodis* of *DRN* I 931-932.

⁶⁵¹ Lenaghan wonders at the omission of Empedocles' other idea, the philosopher as a healer, since Lucretius considers healer and religious intermediary closely related. But an introduction of the healing aspect in introducing Empedocles would have reduced the impact of the medical simile in *DRN* I 936-942.

⁶⁵² *DRN* I 117-126, with the praise in lines 117-119, coming in the context of exposing Ennius' inconsistency.

⁶⁵³ According to Gale the implication of the pun on Carus is that Empedocles is a Lucretian poet. Gale (2001: 172) seems inclined to believe that Lucretius inherited etymological word play from the

should perhaps be accepted, although it seems worth pointing out that Lucretius' presentation implies that Empedocles had surpassed by far Ennius and Homer, who are clearly presented as creating and propagating false belief. This seems tendentious since Empedocles held exactly the theory of reincarnation which Ennius gets criticised for holding. That Lucretius was being implicitly critical of Empedocles in this passage cannot be ruled out.

The tone Lucretius uses in reference to epic poets, is different from the one he uses when referring to philosophical poetry such as Empedocles'.⁶⁵⁴ Lucretius follows in the tradition of Parmenides'⁶⁵⁵ and Empedocles' appropriation of myth and poetical language for philosophy. Lucretius' rejection of conventional religious ideas goes further than theirs, by denying that the gods are involved with the world at all.

Given the extent to which Empedocles had pointed the way for Lucretius, it is not surprising that the structure and style of lines 716-741 indicates high praise. Lines 716-741 are one of the points where Lucretius' poem comes closest, in content and style, to encomium. Similar encomiastic passages are reserved for Epicurus, see especially the prologue to *DRN V*.

The encomium of Empedocles is expressed in a structure that resembles that of

Alexandrians. But is it perhaps more likely that it derives from atomist poetics, and Epicurean views on language?

⁶⁵⁴ Craca 2000: 14.

⁶⁵⁵ Craca (2000: 20) thinks Parmenides is represented in Lucretius by the light-truth motif (above note 532), and by *DRN VI* 46 and the lines lost in the lacuna following it (the image of the chariot).

the Pindaric priamel.⁶⁵⁶ Empedocles is favourably compared with the marvels of Sicily (Charybdis and Aetna, which seem to be the reference of the allusion in 726-727), the richness of Sicily, and the strength of its men in defending it.⁶⁵⁷ That Lucretius should dedicate four lines to the description of Sicily is not surprising: Sicily would have suggested itself as a topic by being Empedocles' birthplace and home.⁶⁵⁸ But the emphasis on Sicily may be intended to evoke a positive response from the Roman reader, because customarily associated with production of grain for the capital.⁶⁵⁹ It was only during the empire that Africa and Egypt replaced Sicily as Italy's major supplier of corn. The terminology in line 728 suggests that Lucretius was thinking of Sicily in such terms.

The use of alliteration in the description of Sicily produces a genuine impression of grandeur,⁶⁶⁰ which supports the encomiastic tone of the passage. The rich alliterations in 726 (*magna modis multis miranda*) and 728 (*multa munita virum vi*) are perhaps intended to reproduce the wealth of Sicily.

⁶⁵⁶ Sedley (1998: 11) refers to this section as a "paean of praise". Giancotti (1959: 79) comments on the encomiastic τόπος of comparing thinkers with place of origin (Empedocles and Epicurus in VI).

⁶⁵⁷ It may be relevant that Empedocles is said to have broken up "an otherwise unknown organisation called the Thousand" (KRS: 282).

⁶⁵⁸ Cabisius (1979: 247) suggests, perhaps rightly, that Sicily (and Empedocles) are presented as "spiritual and geographical bridge" between Greece and Lucretius, pointing out how close Sicily is to Italy in the description of lines 720-721.

⁶⁵⁹ Cicero Verrines II. 2. 5: *Itaque ille M. Cato Sapiens cellam penariam rei publicae nostrae, nutricem plebis romanae Siciliam nominabat nutrix plebis Romanae.*

⁶⁶⁰ Contrast the use in the introduction of Heraclitus (above page 274).

4.4.3 Aetna

Lucretius' elaborate description of Aetna takes up three and half lines (722 latter half - 725). That Lucretius had a liking for describing the eruptions of Aetna is shown by *DRN* II 593 and *DRN* VI 669. He may even have known of the direct experiences of those who witnessed such an event. As West (1969: 7) points out an eruption of Aetna had destroyed Catana in 122 B.C.,⁶⁶¹ and Lucretius' *faucibus eruptos iterum vis ut vomat ignis / ad caelumque ferat flammai fulgura rursus* are "a precise and vivid description" of the rapid horizontal flashes of lightning, and electrical scintillations in borders of clouds, which accompany eruptions.⁶⁶² Lines 720-721 and 726 are a remarkable example of Lucretius' use of onomatopoeic alliteration. Line 721 reproduces the rumbling-sound of the volcano before the eruption: *minantur / murmura flammaram rursus* . . . Line 726 imitates the blazing of the flames with the insistence on the letter *f*: *ferat flammai fulgura*.⁶⁶³

In line 723 metaphorically presents the *murmura* of Aetna as "gathering up their anger" (*colligere iras*), so that the strength (of fire) once again vomits the flames which

⁶⁶¹ West 1969: 7.

⁶⁶² Compare the occurrences of 'theme and variation' mentioned in notes 487 and 527.

⁶⁶³ Compare the onomatopoeic alliteration *flammai flore fulserunt* in line 900, where the effect is emphasised even further by the repetition of the letters *fl*.

are burst forward from its jaws.⁶⁶⁴ Aetna is presented in terms similar to an angry creature/monster. It seems significant that there is no reference to any divine aspect of Aetna: explained in same terms as a mortal creature, again philosophy mixed in with the descriptive passage.

The elaborate, and impressive, description of Aetna seems pointed: Lucretius foreshadows lines 680-702 of *DRN VI*, where he explains what the marvel of Aetna really is.⁶⁶⁵ Once again there seems to be intertextuality here between two books of Lucretius' poem. The procedure is comparable to the explanation of the real identity of Venus known from the prologue in the final section of book IV. The fact that Aetna is juxtaposed to Charybdis might have suggested a reference to Hephaistos and his works with fire, therefore Lucretius comes back to the topic in book VI and dispels any implication of divine origin.

Sedley's (1998: 14, note 61) tentative suggestion that the imminent explosion of Aetna is a hint at the rebirth of Empedoclean poetry through Lucretius is possible, but there is nothing in the text to link Lucretius' poem with the eruption of Aetna. I am not sure what to make of Edwards' suggestion (1989: 109) that Lucretius is referring to the story of Empedocles' fatal leap into Aetna. It is certainly possible that Lucretius knew

⁶⁶⁴ This seems the sense of Bailey's text. The construction is strained, so much so that Brieger's *eructans* for *eruptos* seems attractive (it would make *ignis* a genitive dependent on *vis*). What is more Lambinus' *vomat* for MSS *omniat* is not certain; Bignone suggests *ciet*. Neither is entirely convincing palaeographically, although sense might have played a part in the corruption.

⁶⁶⁵ It might be that Lucretius added the reference to Aetna specifically to what in his source was the explanation of volcanoes in general.

of this report,⁶⁶⁶ but once again it is hard to subscribe to this theory when there is no reference or hint to Empedocles' death in the text.

4.4.4 Praise of Empedocles' theories?

The priamel comparing Empedocles to other wonders of Sicily produces a *crescendo* which leads to the emphatic praise at the end of the introductory passage, in lines 729-733. Empedocles is introduced one again, after the attention had shifted away from him, since the mention by name in 716 is by now distant. In lines 729-733 Empedocles is seen to be a divine marvel, because⁶⁶⁷ his *carmina* cry aloud, or are sung,⁶⁶⁸ and express

⁶⁶⁶ Wright (1995: 16) argues that this report was an invention by Heraclides Ponticus (fourth century B.C.). Lapini (2003: 114) also thinks it is a (later) fabrication: Empedocles was taken to be a melancholic. Horace *Ars poetica* 464-466 suggests, however, that the report would have been known to Lucretius.

⁶⁶⁷ Or perhaps "and indeed"? This is an example of the use of *quin* for corroboration. It is used "especially in reaching a climax or adding a stronger assertion of proof" (Lewis and Short). Compare the *quin etiam* in 782, where the repetition may be intentional.

⁶⁶⁸ Other occurrences of the portentous *vociferari* in *DRN* seem to be deponents. It is used in II 450 (*aeraque quae claustris restantia vociferantur*) and II 1050-1051 (. . . *uti docui, res ipsaque per se / vociferatur, et elucet natura profundi*). It could be that the verb is a deponent also in line 732. What seems significant is that it is used of Epicurus in III 14 (*nam simul ac ratio tua coepit vociferari / naturam rerum . . .*). The verb seems to imply a wide-resounding noise.

findings (*reperta*) which are *praeclara*.⁶⁶⁹ On the face of it this may look like a commendation for Empedocles' theories. But the fact that a doctrine is exceedingly famous should perhaps not be equated with its truthfulness. Indeed the implication may be that Empedocles' *reperta* have become *praeclara* because of their poetical qualities: further acknowledgment of Empedocles as poetic model.⁶⁷⁰

Praise of discoveries occurs again in line 736: *quamquam multa bene ac divinitus invenientes*. It is uncertain whether the *invenientes* refers specifically to Empedocles. Sedley (1998: 21), who holds against Furley that Lucretius' praise regards Empedocles' poetics, and not distinctive features of Empedocles' philosophy, explains line 736 by suggesting that Lucretius is expressing "qualified respect" for the Presocratic physicists generally, praising the fact that they sought physical, and not theological, explanations of cosmic phenomena.⁶⁷¹ Sedley's reading is more feasible if one reads *inferiores*, with Bailey, as referring to all the philosophers referred to in lines 705-711, since looking for physical explanations for these phenomena could be attributed to the earlier Presocratics generally, as much as the quadruplists.⁶⁷²

⁶⁶⁹ Contrast this with the customary association of *divina* with *reperta* in *DRN* V 13 and *DRN* VI 7 referring to Epicurus' 'findings'. For *divini pectoris*, however, compare *DRN* III 15 . . . *divina mente coortam*.

⁶⁷⁰ Lucretius may be playing on the meaning of *clarus* familiar from the introduction of Heraclitus here (above page 284).

⁶⁷¹ E.g. both Epicurus (*Ad Pythoclem* 101) and Lucretius (*DRN* VI 204-212) give as possible Empedocles' explanation of lightning that it is fire from the sun trapped in the clouds.

⁶⁷² Even though not all monists were 'pure physicists' (e.g. Anaximenes' air was divine), Lucretius would have thought of the monists as originators of "the tendency to seek physical explanations".

It is hard to rule out, however, that the praise of discoveries in 736 regards the quadruple pluralists, and in particular Empedocles. Indeed if the Pythia in 739 stands for Heraclitus it seems natural to take the polar comparison with Heraclitus' style as referring primarily to Empedocles. Since the subject of *invenientes* in 736, *dedere* in 737 and *facere* in 740 is the same it seems logical to read *invenientes* as referring primarily to Empedocles.⁶⁷³ It seems limiting to assume that the reference here is solely to Empedocles' clarity, his use of poetry for revelation, and his attitude towards conventional religion;⁶⁷⁴ it seems more likely that we have praise here of some of Empedocles' theory.

Sedley (1998: 142-143) suggests that Lucretius' mixture of praise and criticism

⁶⁷³ An objection to the theory that Lucretius praised Empedocles for being clearer than the Pythia/Heraclitus may derive from Aristotle's comments in *Rhetorica* 1407a31-39 on how to avoid obscurity. His third advice is τρίτον, μὴ ἀμφιβόλοις ταῦτα δέ, ἀν μὴ τάναντία προαιρήται. ὅπερ ποιούσιν, ὅταν μὴθὲν ἔχωσι λεγείν, προσποιῶνται δέ τι λέγειν. οἱ γὰρ τοιοῦτοι ἐν ποιήσει λέγουσι ταῦτα, οἷον Ἐμπεδοκλῆς· φενακίζει γὰρ τὸ κύκλωι πολὺ ὄν, καὶ πάσχουσι οἱ ἀκροαταὶ ὅπερ οἱ πολλοὶ παρὰ τοῖς μάντεσιν· ὅταν γὰρ λέγωσιν ἀμφίβολα, συμπαρανεύουσιν. . . If ambiguity was as noticeable a feature of Empedocles' writings as Aristotle makes out, could Lucretius' judgement have been so different from Aristotle's? But clarity admits of degrees, the fact that Empedocles was clearer than Heraclitus in Lucretius' view might be enough to justify Lucretius' presentation.

⁶⁷⁴ Wright (1995: 60) notes that Empedocles erases the dividing line between men and gods customary in epic tradition. Empedocles' condemnation of religious sacrifices was a further aspect of his attitude to religion which Epicurus and Lucretius approved of. Plutarch *On cessation of oracles* 420 c-e however provides evidence for the Epicureans criticising Empedocles' δαίμονες.

of Empedocles derives from Epicurus, because of two parallels from ΠΦ.⁶⁷⁵ Sedley re-edits Arrighetti text [34] [30], lines 7-15 (1973: 352-353), from ΠΦ XXV:

.. οἱ δ' αἰτιολο-
γήσαντες ἐξ ἀρχῆς ἰκανῶς
καὶ οὐ μόνον [τῶν] προ[τ]έ[ρ]ω[ν]
πολὺ διενέγκαντες ἀλλὰ καὶ τῶν 10
ὑστερον πολλαπλα[σ]ί[ως], ἔλαθ[ο]ν
ἑαυτούς, καίπερ ἐν πολλοῖς, με-
γαλα κουφίσαντες ἐ[ἰ]ς τὸ τ[ῆ]ν ἀ-
νάγκην καὶ ταυτόματ[ο]ν πάν-
τα α[ἰ]τιᾶσθαι 15

Sedley also refers to Arrighetti text [26] [44], lines 17-26 (1973: 250), from ΠΦ XI:

. [οἷ]ς ἄν [καὶ ἀ-
πὸ τύ[χ]ης ὀρθῶς ἐπ[ε]νε-
χθῶσιν, [οὐθ]ὲν δεῖ βελ-
τεῖους τούτων εἶναι
νομίζειν

⁶⁷⁵ Would Lucretius take the 'liberty' of praising Empedocles' (philosophical) discoveries if Epicurus himself had not?

τῶν ἀνδρῶν ἐν πολλοῖς, ἐν
πολλοῖς [δέ κ]αὶ μάλιστα
τῷ ὄλῳ τρόπῳ πολ-
λῷ βελτίους, τινὰς δ[ὲ]
καὶ παντελῶς ἄπλατ[ο]ν . [.

It may be that the mixture of praise and criticism of Empedocles derives from Epicurus, or a later Epicurean source. Furley (1970) argues that Empedocles was a precursor of Epicurean atomism. Empedocles and the atomists certainly shared the interpretation of coming-to-be as rearrangement of things which do not change (Pascal 1904: 11).⁶⁷⁶

It is perhaps conceivable that the *reperta* of line 736 are Empedocles' theories about zoogony, and that Lucretius (rather than Epicurus) decided to praise Empedocles on this point. Campbell (2003: 1) suggests that Lucretius borrowed from Empedocles in his zoogony, although he grants that Lucretius' 'main' source was probably Epicurus' ΠΦ (books XI and XII). Campbell (2003: 2) acknowledges that the mention of

⁶⁷⁶ Epicureans were certainly critical of many aspects of Empedocles' thought. Plutarch *Adversus Coloten* 28 (1123B) shows that some of Empedocles' theories were the object of Epicurean derision . . . ταῦτα μέντοι καὶ πολλὰ τούτων ἕτερα τραγικώτερα τοῖς Ἐμπεδοκλέους, such as the τεράσματα, were mocked by the Epicureans. Edwards (1989: 106) refers to Hermarchus' 22 books against Empedocles (above note 96), and to *Adversus Coloten* 1111F-1113E for the Epicurean school's critical attitude towards Empedocles. Cicero *De natura deorum* I. 93 reinforces the impression that Empedocles was criticised by the Epicureans: *non modo Epicurus et Metrodorus et Hermarchus contra Pythagoram, Platonem Empedoclemque dixerunt* . . .

Empedoclean and Democritean theories in Plato's *Timaeus* complicates the issue, but seems convinced that the intertextuality between Lucretius' zoogony and Empedocles reflects the fact that Lucretius considered Empedocles a model for his anti-teleological system.⁶⁷⁷ According to Campbell (2003: 102) it is unlikely that Epicurus would have incorporated the Empedoclean phrasing of *DRN V* line 839 (taking up DK B61 lines 3-4 and Aëtius V. 19. 5),⁶⁷⁸ line 842 (taking up DK B60), line 845, line 847 (taking up DK B71), and lines 864-866, where the terminology, especially the use of compound adjectives, recalls Empedocles. He considers 837-841 almost a paraphrase of DK B57. I am not convinced that there is conclusive evidence that Lucretius followed Empedocles, rather than Epicurus, as a source for content in his zoogony, although there is a strong case for Lucretius once again deliberately echoing Empedocles.

DRN I 567, *DRN V* 443-448, and *DRN V* 449-494 lead Giussani (1898: 77) to think that Epicurus considered the four elements as intermediary between atoms and compounds, believing that he thought they existed right from the start.⁶⁷⁹ Bailey (1947:

⁶⁷⁷ Campbell (2003: 101) notes how Plutarch *Adversus Coloten* 28. 1123B points to the closeness of Empedoclean and Epicurean theories, when he uses 'man-faced ox-creatures' to criticise the positivist theory of sense perception of the Epicurean Colotes.

⁶⁷⁸ That *DRN V* 839 ff. (and 502 ff.) derive from Empedocles had already been suggested by Giussani (1898: 97).

⁶⁷⁹ Giussani grants that the concept should not be taken too rigorously, since in *DRN V* 492-494 Lucretius implies that stones are formed right from the start. But, although rocks are referred to, it is not clear that they are different from earth. Lucretius is here discussing the physical shape of the surface of the earth rather than materials.

729) further refers to *DRN* V 235-239, and seems to accept (1947: 740) that in Epicurean atomism the four elements are “existences intermediate between the atoms and compound things”. But there is no evidence for *Epicurus* emphasising the role of the four Empedoclean elements in particular.

The references to the four elements in *DRN* V are the sort of thing Lucretius may well have added for poetic colour. Even if Lucretius imported these references from Epicurus it is conceivable that the emphasis on the four elements in the passages from book V derives from Theophrastus. Sedley (1998: 174) argues that it is from Theophrastus that Lucretius got the order earth-water-air-fire, which describes the cosmic *strata* outwards from the earth to the heavens (this order is used elsewhere in *DRN* only at V 449-459 and 495-498).⁶⁸⁰ I am not convinced Lucretius would have counted the four element as a philosophical discovery the Epicureans accepted. He may perhaps have thought that Empedocles was right in seeing that the four elements were important, but he certainly thought that Empedocles was wrong in regarding them as elements, since he says that the great fall of such thinkers was precisely *principiis in rerum* (*DRN* I 740).

4.4.5 The four elements

MacKay (1955: 210) detected a hidden portrayal of Empedocles’ four elements in lines

⁶⁸⁰ Sedley (1998: 174) contrasts the order in *DRN* I 567, 715, 744, *DRN* V 142-143, 248-249.

717-725,⁶⁸¹ the description of Sicily, which, he remarks, receives more notable praise than Lucretius' Italy, and Epicurus' Athens. Mackay thinks Lucretius' intention, in introducing the oblique reference, was to praise Empedocles because he derived his theory "ex conspectu rerum naturalium, id est de sensuum testimonio".⁶⁸² Sedley (1998: 14-15), similarly to Mackay, thinks that Lucretius is establishing a connection between Empedocles' thought and the landscape in which he lived.⁶⁸³ Reading a reference to Empedocles' air in line 725 (*ad caelum*) is certainly possible. Although in *DRN* I 9, in an Empedoclean context, *caelum* is connected with fire (assuming, with Furley, that we

⁶⁸¹ Snyder (1972: 217-218) independently finds a pictorial catalogue of Empedocles' four elements in these lines, pointing out that the pairing of "heavier" and "lighter" elements in Lucretius (water in 718-720, earth in 721, fire in 724, and air in 725) corresponds to the pairing of the elements in DK B115, the opposite of that in Empedocles' cosmogony. But certainly a case can be made for the main mention of earth in the passage being that in line 717 (which according to Snider "introduces the subject of the description, the *insula*"). This would make the order earth - water - fire - air.

⁶⁸² Lucretius certainly makes this point in line 762, and reinforced by poetic devices. The considerable length of line 762 conveys the impression of the elements flying apart from one another in a storm. And Lucretius' use of connectives results in *ventosque* sounding like an unexpected addition to *fulmina ... atque imbris*. What appears to be a fourth-foot caesura, after *imbris*, turns out not to mark a break in the sense. The syntax of lines 770-771 also calls for comment. The fact that *ignis* and *terrae* depend on the same noun, *corpus*, gives at first the impression of the elements coming together, but then pleonasm in *auras aeris* and *roremque liquoris*, conveys the idea that such combination of the elements is impossible. For the four elements fighting one another compare *DRN* V 380-395.

⁶⁸³ So too Brown 1983: 148 and 148, note 17.

have one element per line in 6-9), line 446 of *DRN V* provides a parallel⁶⁸⁴ for Lucretius using (*altum*) *caelum* to refer to the element air (compare also *nubila caeli* in *DRN I* 6).⁶⁸⁵ And Empedocles' uses οὐρανός to refer to his element air in DK B22 line 2 (Sedley 1998: 14-15).

There are two objections to detecting the theory of the four elements in these lines. First earth appears at two points in the list, in both line 717 and line 721 (note 682). Second, air receives comparatively very little space, the emphasis being on water and fire. While water receives four and a half lines (718-722),⁶⁸⁶ and fire similarly three and a half lines (722-725). *Caelum* is presented only as the direction where Aetna 'vomits' its flames in line 725, lessening the impact of the mention.⁶⁸⁷

⁶⁸⁴ Snyder (1972: 218, note 1) refers to *DRN VI* 50 and 61 to support the interpretation of *caelum* as the element air, rather than heavenly bodies. But in these lines *caelum* seems to refer to the seat of heavenly bodies.

⁶⁸⁵ It also seem worth noting that, as Professor Sharples points out to me, αἰθήρ usually means not simply air, but the clear upper air/sky as opposed to *aer* which is damp and misty lower air: this makes a link with *caelum* all the more easy. And Empedocles used αἰθήρ to refer to the element air, i.e. in DK B71 εἰ δὲ τί σοι περὶ τῶνδε λιπόξυλος ἔπετο πίστις, / πῶς ὕδατος γαίης τε καὶ αἰθέρος ἡελίου τε / κιννάμενων εἶδη τε γενοῖατο χροῖά τε θνητῶν / τόσσ', ὅσα νῦν γεγάσσι συμαρμιοσθέντ' Ἀφροδίτη . . . (see also DK B98).

⁶⁸⁶ The coastline of the straits of Messina, together with Aetna, is the most striking feature of Sicily, and therefore the most apt comparison for Empedocles' achievement.

⁶⁸⁷ Lucretius was partial to images from coastlines. West (1969: 11) refers to *DRN IV* 220-221 *frigus ut a fluviiis, calor ab sole, aestus ab undis, aequoris exesor litora circum* as an example of the "nicety of detail" of Lucretius' imagery. And there is the ubiquitous *luminis oras* (e.g. *DRN I* 22, 170, 179).

It cannot be excluded, however, that Lucretius was here intentionally referring to the four elements, rather than giving an exact catalogue of them, and setting up the theory so that he could knock it down later in the passage.⁶⁸⁸ In 740-741 Empedocles and other limited pluralists crash to the ground in the manner of Homeric heroes. Lucretius once again uses epic language ironically (see above pages 270 and 272). The fall of Empedocles and other pluralists is especially striking after the praise which Lucretius has bestowed on Empedocles thus far in the passage.

4.5 Lucretius' presentation of Anaxagoras' theory

The introduction of Anaxagoras stands apart from those of Heraclitus and Empedocles because Anaxagoras' personality and mode of expression do not receive explicit attention,⁶⁸⁹ while his theory immediately takes centre stage. Brown (1983: 150) thinks that Lucretius' introduction of Anaxagoras is abrupt and unadorned because **(a)** Lucretius did not feel a personal relationship, whether positive or negative, towards Anaxagoras, or perhaps because **(b)** Lucretius had no reason to praise or blame

⁶⁸⁸ It may be pointed that in Lucretius' description of Sicily the impression is that of violent phenomena in which the elements appear to clash against one another. This may well be intended to anticipate the remarkable simile of lines 760-761, where Lucretius points out that Empedocles' four elements would fly apart just as wind, thunder and rain fly apart when there is a storm (a simile which is, as often with Lucretius, integral part of the argument).

⁶⁸⁹ See below pages 345-347 on how Lucretius imitates Anaxagoras' style to parody it, just as he imitates the style of Heraclitus and Empedocles.

Anaxagoras' philosophical ideas, or (c) there were no exploits in popular tradition for Lucretius to refer to.

That Lucretius (b) had no reason to praise or blame Anaxagoras is doubtful: the fact that there were agreements hardly means that there would be no reason to criticise,⁶⁹⁰ and in fact Lucretius' presentation in the remainder of the confutation is heavily critical, in its use of parody and satire.⁶⁹¹ There is some truth in (c): Anaxagoras was less of a 'personality' than Heraclitus or Empedocles. The dramatic event in Anaxagoras' life, his being charged with impiety in Athens, is an aspect which Lucretius would rather not emphasise, since the role of opposing superstition (*religio*) in the poem was reserved for Epicurus,⁶⁹² and, through Epicurus, Lucretius himself. Expressing qualified praise of this aspect specifically would weaken the impact of the presentation of Epicurus as the hero defeating *religio*. Reasons (a) and (c) together explain why Lucretius' abstains from commenting on Anaxagoras' *persona*.

The lack of emphasis on Anaxagoras' *persona* should be connected with Lucretius' use of *latet* in reference to Anaxagoras in 875: he constantly tries to hide. Pinning Anaxagoras down proves impossible. There may well be implicit criticism here of the fact that there are issues which are unclear in Anaxagoras' theory, in particular the

⁶⁹⁰ Brown himself (1983: 150) points out that there was an "ambivalent relationship" between Epicureans and Anaxagoras, referring to Diogenes Laertius X. 12.

⁶⁹¹ Below pages 345-351.

⁶⁹² Above page 272.

nature of his *primordia*.⁶⁹³

Lucretius' *scrutemur* literally means "search amongst rags or trash". The verb implies a search beneath the surface, into the details: it is a "live poetic word" since according to Anaxagoras every substance is made up of particles of itself beneath the surface (West 1969: 125). The metaphor is well suited for examining thoroughly a theory on the level of elements.⁶⁹⁴ More importantly the use of *scrutemur* fits perfectly with the idea of Anaxagoras trying to hide of line 875.⁶⁹⁵

Anaxagoras' attempt to run away from scrutiny is unsuccessful. Although he himself hides, his portions cannot themselves hide, and when they are revealed, in the closing lines of the *critique*, the *primordia* die in a burst with immoderate laughter at realising their own state of mortality (below 4.6).⁶⁹⁶

⁶⁹³ While atomism constructs matter from definite and simple building-blocks (at least in theory), Anaxagoras does not. There does not seem to be direct evidence that Anaxagoras' theory was found as difficult in antiquity as it is today. There was certainly a difficulty in fitting his views into the standard classification: cf. Aristotle, *Metaphysics* A 8 989a30ff. and the parallels in Theophrastus FHS&G 228 AB. But that may say more about the classification than about Anaxagoras.

⁶⁹⁴ Brown (1983: 153) rightly adds that the verb produces a slightly grotesque effect when flanked by the Greek name and technical term (see below note 698 on the odd rhythm of the line).

⁶⁹⁵ The idea of Anaxagoras trying to hide from scrutiny may be reflected in Lucretius' positioning of words: the *hic* in line 836 and *putat* in 839 are hidden in the list of examples.

⁶⁹⁶ Indeed the fact that the *critique* ended with the *primordia* dying (*pereunt*) suggests that Anaxagoras is the climax of an argument that eliminates all non-atomist principles.

4.5.1 Lucretius' transliteration *homoeomeria*

Lucretius' use of *homoeomeria* (*rerum*) to refer to Anaxagoras' theory in lines 830 and 834 has attracted scholarly attention, since it is the only attested use of the noun, in the singular, in such a sense. We have seen above (page 55) how it is perhaps conceivable that Lucretius himself introduced such a use of the noun, but it is more likely that Lucretius inherited the usage from his Greek source. Even if the term was used in exactly the same sense in Lucretius' source, the implications of the use of a transliterated Greek term at this point are interesting.

Lucretius only transliterates two *philosophical* terms in *DRN*. Both are extraneous to Epicureanism: *homoeomeria* here, and *harmonia* in *DRN* III 98-135 (Sedley 1998: 48). Although Lucretius' use of *homoeomeria* was certainly at least in part dictated by the difficulty of finding a replacement,⁶⁹⁷ he had further reason for transliterating the Greek term, namely implying that Anaxagoras' theory is not worth

⁶⁹⁷ The complaint about the poverty of Latin language at 831-832 (. . . *nec nostra dicere lingua / concedit*), echoes a theme mentioned elsewhere in the poem. The second hemistich appears again at *DRN* III 260; compare also *propter egestatem linguae rerum novitatem* in *DRN* I 139. It is not inconceivable that by explicitly remarking on the power of the Latin language Lucretius is intentionally recalling the earlier passage. The tone of lines 831-832 is different from that of line 129. In lines 831-832 Lucretius points out that the idea is easy to explain, the problem is finding a single Latin term for it. The implication is that it is not worth the effort to translate technical words except Epicurus'.

translating or importing.⁶⁹⁸ Throughout the poem Lucretius uses Greek words in critical contexts; this carries a suggestion that the two Greek philosophical terms which Lucretius transliterates, *homoeomeria* and *harmonia*, should also be rejected.⁶⁹⁹ This is in stark contrast to the great care Lucretius takes to translate into Latin all of Epicurus' technical jargon, which *is* worth importing. Sedley (1998: 59) is exactly right in remarking that while the Greek world is alien (transliteration), Epicurus' philosophy transcends cultural barriers (fully translated). Lucretius' transliteration of *homoeomeria* is ironic in exactly the same way as *harmonia* in *DRN* III 117 and 131.⁷⁰⁰ The use of *res* to refer to Anaxagoras' theory may also be significant in this context. Lucretius is looking at what is the *res* behind the fancy name *homoeomeria*. Trying to find what is hidden seems to be the over-riding theme of the *critique* of Anaxagoras.

It seems worth pointing out that using the transliterated term provides Lucretius with the opportunity of engaging in a detailed description of the theory for which there is no name. Since there is no Latin equivalent for Anaxagoras' theory Lucretius feels justified to allot as many as 9 lines (834-842) to a description of it.

⁶⁹⁸ West (1969: 125) points to the unusual rhythm of line 830 produced by two Greek words. Sedley (1998: 48) suggests that line 830 is intentionally ungainly, to convey the point that just like the horrible word is not at home in the Latin language, so the underlying concept is unwelcome (as the rest of the passage shows).

⁶⁹⁹ When one looks at Lucretius' transliteration of Greek non-philosophical terms the implication is the same. Lucretius transliterates Greek non-philosophical terms extensively in passages where he is being critical. Transliterated Greek in Lucretius indicates what is foreign, and to be rejected or despised.

⁷⁰⁰ Brown 1983: 153.

4.5.2 Parody of Anaxagoras

The most striking feature of the explanation of Anaxagoras' theory is the amount of repetition. The repetitions certainly presented Lucretius with a chance to play on words, such as the *chiasmus* in 835-837 with *ossa* preceding *ossibus*, but *viscus* following *visceribus*. Yet the extent to which the passage is repetitive suggests that Brown (1983: 154-155) is right in thinking that the lines are obtrusive to the point of affectation, comparing the stiff and monotonous style of 835-842 to the flexible and varied style of lines 812-816,⁷⁰¹ where Lucretius describes the Epicurean *primordia*.⁷⁰² Brown concludes that Lucretius reproduced and parodied the style of Anaxagoras, or the style he found in his doxographical source.⁷⁰³

It seems questionable whether it would be reasonable for Lucretius to be parodying the style which he found in a doxographical source. A doxographical text is

⁷⁰¹ There is an issue about the text here. Bollack (1978: 249) in favour of retaining MSS *multimodis* in 814 (for Lambinus' *multa modis*), and QG' *multa* for O's *mixta* in 815. But this does not seem to seriously affect the argument.

⁷⁰² Lines 835-837 are an example of how the syntax of the Latin appears to reflect the concept expressed in Lucretius' verses: "the line about bone has the same sound and appearance as the line about flesh", because bone is made up of tiny pieces of bone and flesh is made up of tiny pieces of flesh, while in lines 814-816 the syntax reflects the fact that "many things have similar atoms in different combinations and the Latin has three similar elements in different relationships" (West 1969 : 118-119).

⁷⁰³ Brown 1983: 160.

perhaps unlikely to have reproduced Anaxagoras' language. The idea that Lucretius is parodying Anaxagoras' style tallies much better with Lucretius having first hand acquaintance with Anaxagoras' work. Whether Anaxagoras' text would have been available to Lucretius is uncertain (above note 83). Even if it was not, it is conceivable that Lucretius could read a work by another author which quoted Anaxagoras extensively. However Lucretius may have acquired familiarity with Anaxagoras' language, it seems likely that by introducing the long list of examples, he was reproducing and caricaturing Anaxagoras' long-winded, stiff and monotonous style,⁷⁰⁴ and thus silently condemning it.

4.6 The mortality of Anaxagoras' *primordia*

Lucretius presents the first two arguments against Anaxagoras very succinctly, in lines 843-846. He had used the same arguments before, in the confutation of Heraclitus and Empedocles, and he therefore cross-refers, in lines 845 and 846, to his earlier remarks to that effect. In the case of the third argument against Anaxagoras Lucretius proceeds

⁷⁰⁴ KRS (page 356) suggest that brevity was a quality of Anaxagoras' book (the surviving fragments could make up much more than an eighth of the whole); the book only cost 1 *drachma* (which suggests it could be copied in considerably less than one day). Whatever the length of Anaxagoras' book, the remaining fragments are rather repetitive and monotonous. Schofield (1980: 3) comments on Anaxagoras' dogmatism and ambiguity (perhaps what Lucretius had in mind in using *late!*). But this does not necessarily entail that Anaxagoras did not use repetition extensively. Lucretius could indeed be making the point that although Anaxagoras goes on at length in a tediously repetitive way, it *still* is not clear what he is getting at.

very differently. Although he had already used the same argument before, in lines 753-758, Lucretius decides to expand on the point, and dedicates 12 lines to it (847-858). Lucretius expanded on this argument because he saw how well it applied to Anaxagoras' elements. Since Anaxagoras considered fundamental, or at least could be interpreted as considering fundamental, many, or even all, different kinds of substance, his *primordia* displayed clear signs of their mortality.⁷⁰⁵ Lucretius' extended metaphor in lines 847-852, a metaphor which repeatedly portrays Anaxagoras' *primordia* as mortal creatures,⁷⁰⁶ has to be read in this context.

Lucretius says clearly that there is a problem with Anaxagoras' *primordia* being ultimately *res*.⁷⁰⁷ And he makes the point more vivid by using images of mortal creatures suffering and dying.⁷⁰⁸ The extended metaphor starts with *imbecilla* of 847 and with the verbs *laborant*, *pereunt* in lines 849-850,⁷⁰⁹ it carries on in the question of 850-852, and will come up again in the powerful climax of the confutation of Anaxagoras, and of the whole *critique*, in lines 918-920. It is significant that the two passages are linked by the

⁷⁰⁵ I find it hard to explain why Lucretius omitted the example of flesh in these lines, since flesh as an example would have fitted the argument well, being so obviously perishable.

⁷⁰⁶ Empedocles' principles resemble citizens in DK B17 line 27-29 (Trépanier 2003: 419).

⁷⁰⁷ Lines 848-849.

⁷⁰⁸ This seems to have the further point of being juxtaposed to language of creation (*gigni* and *creari* in line 837, *concrescere* in line 840) in the outline of Anaxagoras' theory.

⁷⁰⁹ These two verbs could refer to any other living being, but the image of 919 makes it likely that Lucretius was alluding to human beings here too.

ring composition in *pereunt* of (858 and 918),⁷¹⁰ which signals the death of *every* conceivable principle different from Epicurus' atoms. Since Anaxagoras made every substance fundamental, the material elements proposed by all other thinkers perish together with his own.

The language of lines 850-852 creates a mood of pain and suffering by 'personifying' death, or, more exactly, presenting death as a predator capable of a strong bite (*oppressu valido*), from whose jaws there is no escape. The bite of wild animals on the dead corpse in *DRN* III 888 seems worth comparing. West (1969: 55) mentions Lucretius' interest in animals. It is interesting to compare *DRN* V 1326-1327: *et validis socios caedebant dentibus apri / tela infracta suo tingentes sanguine saevi*.⁷¹¹ And lines 990-991 of book V provide a further parallel: *unus enim tum quisque magis deprensus eorum / pabula viva feris praebebat, dentibus haustus*. Lucretius was partial to images from biting (whether by humans or by wild animals). In *DRN* III 694 Lucretius, to prove the point that sensation, and with it the soul, extends throughout the whole body, points out that there is sensation in teeth: *morbus ut indicat et gelidai stringor aquai / et lapis oppressus subsit si frugibus asper*.⁷¹²

⁷¹⁰ The ring composition also signals the end of the *critique*; and perhaps the use of *perire* is significant in this respect. It is worth noting that the *critique* seems to lack a formal close just as it lacks a formal introduction (compare the ending of books of *DRN*).

⁷¹¹ Assuming this was how the text ran. Line 1328 *in se fracta suo tinguentes sanguine tela* looks like a variant for 1327.

⁷¹² The use in *DRN* IV 1080, in Lucretius' description of the lovers, is perhaps also worth comparing: . . . *et dentes inlidunt saepe labellis*.

The way in which Anaxagoras' *primordia* perish in the conclusion of lines 917-920 is remarkable: all that Anaxagoras' theory raises is the immoderate laughter, a *grotesque* effect. The implication here is, as mentioned above,⁷¹³ that Anaxagoras' particles laugh at their own state of utter mortality. The importance of causing laughter in rhetorical debate is apparent in Cicero *De oratore* II. 262: being laughed at seems to equate to blatant defeat in the argument.⁷¹⁴

A similar personification of the *primordia* occurs in *DRN* II 973-990, with lines 919-920 repeated in *DRN* II 976-977, with the slight variation *spargunt rorantibus* in line 977, for *salsis umectent* of 920. Giussani (1896: 94-95 and 1898: 118) argues that the lines were originally written in book II, where they fit perfectly with the argument that *primordia* do not have senses.⁷¹⁵ If one reads the use of the image in lines 917-920 in the context of the earlier metaphor in lines 847-856 where Anaxagoras' *primordia* are

⁷¹³ Page 342.

⁷¹⁴ Lenaghan (1967: 233) writes: "Anaxagoras is dismissed with laughter (915-20), an effective rhetorical device, if not logically compelling." This does not do justice to the ending, in my view.

⁷¹⁵ Giussani (1898: 116) argues that originally the conclusion of the *critique* was 893-896. When Lucretius allegedly added lines 897-914 (see below page 371), he would have thought that line 914 did not provide a fitting conclusion, and added lines 915-920 to provide one. I am not sure that 907-914 would provide less of a conclusion than 915-920 do. Giussani (1898: 117) thinks that 915-920 are directed against both *homoeomeria* and ἐν παντὶ παντὸς μοῖρα. The mistake is thinking that secondary qualities persist on the level of the elements (lines 916-917), which would make the *primordia* perishable. It is unclear why, on Giussani's theory, Lucretius would have omitted this important point, which ruled out both aspects of Anaxagoras' thought, in the 'first draft', especially if it appeared in his source.

presented as suffering and dying, the use of the image in line 917-920 is understandable. The implication of the image is that the *primordia* are laughing, as mortal creatures do, and moreover laughing at their own mortality. The use of the image in book II refers back to the *critique*, where the lines first appear, with the implication that the presence of feeling would involve the death of the (supposed) *primordia*, just as Anaxagoras' *primordia* could not escape the jaws of death. It is especially interesting in this context that in book two Lucretius carries the personification of the *primordia* to the point of presenting them as discussing *the problem of the elements* (*DRN* II 978-979).⁷¹⁶

Lucretius personifies the *primordia* again in *DRN* I 1021-1022: *nam certe neque consilio primordia rerum / ordine se suo quaeque sagaci mente locarunt*. He is making the point that particles *do not* behave in this way.⁷¹⁷ This seems comparable to the use in the *critique*. Lucretius repeatedly uses, with critical intent, the image of *primordia* being at the mercy of passions. In lines 792-794 of *DRN* IV it is the *simulacra* that are personified: *scilicet arte madent simulacra ac docta vagantur / nocturno facere ut possint in tempore ludos*. Lucretius is presenting the *simulacra* as actors in these lines.⁷¹⁸ These parallels support the inference that the personification of Anaxagoras' principles is Lucretius' own.

⁷¹⁶ It is not unlikely that, as Smith (1992a: 170, note a) suggests, Lucretius had Anaxagoras in mind when writing the passage in book II. Smith (1992a: 164-165, note a) similarly argues that the section 865-930 is aimed at Anaxagoras.

⁷¹⁷ It is perhaps worth comparing the presentation here to that of the Epicurean *minimae partes* as efficient soldiers in *DRN* I 606 *agmine condenseo*.

⁷¹⁸ Lucretius' use of *scilicet* here seems ironical, if not sarcastic (below page 381 and note 800).

Lucretius' depiction of the mortality of Anaxagoras' *primordia* in lines 847-856, and of their breaking into tears because of bursts of laughter in line 918-920 is part of a rhetorical technique which recalls satire. Brown (1983: 156-157) rightly draws attention to how line 848 ironically casts doubt on whether Anaxagoras' principles deserve to be called *primordia*, line 850 has the picturesque verb *refrenat*, and lines 851-853 formulate a series of belittling rhetorical questions. The use of *fingit* in line 847 can also be mentioned in this context. Lucretius considerably elaborated lines 847-858, poetically and rhetorically, through his ironical use of imagery.⁷¹⁹

4.7 Lucretius' strategy in 859-874

The style of lines 859-874, the fourth argument against Anaxagoras, is "an exaggerated and distorted version" of lines 835-838 (the description of Anaxagoras' *homoeomeria*), but while in 835-838 the repetition stressed the homogeneous composition of things, in the latter the same repeated words stress the opposite contention, namely that things must be made up of elements of a different nature (Brown 1983: 157). By using the same style he had used in the description of Anaxagoras' theory Lucretius implies that he is criticising Anaxagoras on his own terms.

⁷¹⁹ One may argue that lines 854-856 — Lucretius' answer to 'the rhetorical questions', with resulting impression of omniscience of the poet — and especially lines 857-858 sound rather prosaic, and somehow spoil the effect of the imagery. But it may be that Lucretius felt he should introduce the cross-reference to make the point stick in the reader's mind.

Lines 859- 875 present a series of dilemmas, although only of the first dilemma are both horns present in the text as we have it. First **(1)** either **(1a)** *venae sanguen ossa* [*nervi*] are made up of things of a different nature, i.e. of *cibus*⁷²⁰ (lines 859-860 and lacuna), or **(1b)** *cibus* has in it *venae* etc. (lines 861-866); second **(2b)** if the trees etc. do grow from *terra*, *terra* has to be made up of things alien in kind, i.e. of trees etc. (lines 867-869); and **(3b)** if *flamma fumus cinis* are hidden in *lignum*, *lignum* is made up of things alien in kind (lines 870-873). The use of a series of dilemmas conveys the impression of Anaxagoras being shut in a corner despite his attempt to flee from scrutiny. The impression resulting from the series of dilemmas is that of omniscience of the narrator, as typical in the didactic *genre*. The understanding of Lucretius' rhetoric here is hampered by the fact that the text suffered in transmission, but the passage seems intended for rhetorical effect.

Brown further points out (1983: 157) that, *if* line 874 is transposed to precede 873,⁷²¹ the text provides a fitting climax to the strategy: two lines where the “parallel structure and dense repetition” recall the description of *homoeomeria*, especially lines 835-836. He draws attention to the fact that the resulting sense of ‘ring composition’ is only formal. I would suggest that there is a further point of irony in Lucretius' choice of words. After the affected repetitiveness of the introduction, and of 859-875 the series of dilemmas repeats often the expression *ex alienigenis*. The repetition stresses genesis

⁷²⁰ It looks as though it is more likely that Lucretius' formulation would have been *ex alienigenis* or the like, rather than *ex cibo*, in view of the remainder of the paragraph.

⁷²¹ See above note 457.

from elements different in nature,⁷²² rebuffing the emphasis in Anaxagoras' long-winded repetitions, which stressed that the nature of elements and compounds is identical. This is part of Lucretius' strategy to demolish Anaxagoras' theory.

Lucretius' employment of parody in the fourth argument may be a rhetorical technique. We have seen how Anaxagoras himself had addressed the problem of nutrition, and it is perhaps conceivable that Lucretius is presenting as an independent objection what in the source would have been attributed to Anaxagoras.⁷²³ *If* the presentation in these terms is down to Lucretius,⁷²⁴ it should be connected with the portrayal of Anaxagoras as trying to hide (*latet*) from scrutiny, rather than disclosing his theory. The presentation here seems comparable to the one in lines 875-876 where 'in everything a portion of everything' is presented as though Lucretius thought of it first. The implication seems to be that although Anaxagoras tries to hide, Lucretius (Epicurus' spokesman) had thought in advance of his hiding place, so that Anaxagoras cannot escape scrutiny (*scrutemur* in line 830).

When one adds these remarks about lines 847-874 to the fact that lines 875-920 are, as critics have often pointed out, rhetorically very effective,⁷²⁵ one can see why Brown concludes that the philosophical arguments against Anaxagoras are on the whole

⁷²² As Anaxagoras himself apparently did, but the reader is not to find this out until later on in 875-896.

⁷²³ Above pages 82-83.

⁷²⁴ One cannot be certain that the 'unfair' slant was not already in Lucretius' source.

⁷²⁵ According to Brown (1983: 152) the word play and imagery in lines 875 to 920 "disguise the unfairness of Lucretius' criticism and present Anaxagoras' in a ridiculous light".

livelier and more flamboyant than the corresponding arguments against Heraclitus and Empedocles.⁷²⁶ This is to some extent true although it seems to disregard the considerable elaboration reserved for lines 782-829 in the confutation of Empedocles and the limited pluralists.

The reason for the elaboration of lines 782-829, and of the arguments against Anaxagoras, is that Lucretius was intentionally building up to a deliberate climax in lines 921-950, which are the “centre piece” of the first book. Lucretius is building a *crescendo* effect, which leads from the rhetorical question in lines 798-802,⁷²⁷ to the most emphatic statement of the correctness of the Epicurean doctrine in lines 823-829, after Anaxagoras’ *primordia* die in laughter in 917-920. Lucretius is thus building a platform stylistically for lines 921-950 where he will comment on his own work and its merits, just as he had built up a platform to its themes, by setting up Heraclitus and Empedocles comparison between his own message, and his way of expressing it.⁷²⁸

⁷²⁶ Above page 308.

⁷²⁷ There seems to be a structural pattern throughout the last three arguments against Empedocles. Lines 782-802 are neatly divided into three sections: 7 lines reporting the opposing theory, 5 lines refuting the opposing theory and 9 lines putting forward the Epicurean alternative. Similarly the dilemma in lines 763-781 ended by stressing that the Epicurean explanation is correct (lines 778-781). The positive Epicurean material is granted more space and more emphasis as the confutation proceeds, reaching its climax in the final argument (lines 814-829).

⁷²⁸ The repetition of these lines at the start of *DRNIV* 1-25 indicates that Lucretius was proud of them, and that he wanted them impressed in the hearer/reader’s mind. On the significance of the repetition, see Appendix (a) pages 388-389.

confutation of Empedocles hamper the *crescendo* effect. A possible answer is that it is for deliberate effect that Lucretius sandwiched repetitive and ‘prosaic’ sections parodying Anaxagoras between lines 803-829 and 875-920, where Lucretius’ tone, especially in his descriptions of the Epicurean alternative, is rather grand. The superiority of the Epicurean explanation is corroborated by the superior language and style. This appears more clearly by being set against Anaxagoras’ inconclusive prolixity.⁷²⁹

4.8 The analogy of letters and atoms.

Even considering Lucretius’ partiality for ‘atomologising’ and his fondness of repetition, it is striking that he uses twice, in the space of 90 lines, the analogy from letters of the alphabet to represent the atoms. The use of this analogy in an atomistic context may have been prompted by Epicurus’ or a later Epicurean’s use of it, which could have occurred either in the specific source text which Lucretius used for the *critique*, or in a different text. If the latter is the case, Lucretius imported the analogy to the *critique*.⁷³⁰

⁷²⁹ In the case of Heraclitus and Empedocles, as we have seen, Lucretius imitated the Presocratics in his introductory sections, and only occasionally took up the characterisation in the following arguments (whether by imitation of their language or by other means).

⁷³⁰ That Epicurus, or later Epicureans, used such an analogy may be shown by *De Pythiae oraculis* 399E: ἐπεὶ τί κωλύει λέγειν ἕτερον, ὡς οὐκ ἔγραψε τὰς Κυρίας ὑμῖν Ἐπίκουρος, ὦ Βόηθε, δόξας, ἀλλ’ ἀπὸ τύχης καὶ αὐτομάτως οὕτως πρὸς ἄλληλα τῶν γραμμάτων συνεμπεσόντων ἀπετελέσθη τὸ βιβλίον; According to Snyder (1980: 37) Plutarch probably imported the criticism from a source which ridiculed the Epicurean position, by taking over Democritus’ analogy and distorting it as evidence

The letters of the alphabet can produce an immense, though not infinite, variety of combinations, although the letters are limited as far as the number of shapes is concerned. This fits Epicurus' system perfectly since his atoms were limited in number of shapes, while those of the earlier atomists, Democritus and Leucippus, were not (Armstrong 1995: 225). Yet there is no direct evidence for Epicurus having himself used the illustration from the letters of the alphabet.

It has been doubted that Epicurus took over Plato's use of the term στοιχεῖον.⁷³¹ It is used to refer to atoms only in *Ad Pythoclem* 86.⁷³² Elsewhere in Epicurus it means simply "basic principles" or refers to Empedocles' four elements.⁷³³ Even in *Ad Pythoclem* 86 the meaning is no more than "basic principles are indivisible". There is no evidence that Epicurus used the word στοιχεῖον, by itself, to refer to atoms. This does not rule out that Epicurus himself used the analogy of letters and words to describe the additions and subtractions, and movements of the atoms in compounds, but the possibility that, *if* Epicurus was his source for the *critique*, Lucretius introduced the analogy himself, whether in just one case or in both, is a possibility worth

source which ridiculed the Epicurean position, by taking over Democritus' analogy and distorting it as evidence against atomism.

⁷³¹ The first attested uses of στοιχεῖον to indicate metaphorically the *minima* of matter are in Plato *Theaetetus* 201E, *Cratylus* 424D and *Cratylus* 424E-425A. That Epicurus felt the need to justify his borrowings from earlier thinkers immediately after using στοιχεῖον in ΠΦ XIV (above note 249) may suggest that he was not comfortable with using it.

⁷³² Snyder 1980: 33. On whether *Ad Pythoclem* is genuine, above note 321.

⁷³³ Epicurus uses the term in ΠΦ XIV (above pages 136 and 138), but not to refer to atoms.

considering.

A first point to note is that Lucretius may be innovating by using *elementum* to refer to Epicurean atoms. The word *elementum* is not attested before Lucretius and Cicero (*De oratore* I. 163). Cicero uses *elementa* metaphorically to refer to “rules” or “elements”, although he seems aware of the basic meaning: “letters of the alphabet” (Snyder 1980: 33-34).⁷³⁴ That Lucretius was the first Roman author to import the use of *elementum* to refer to Epicurean atoms is conceivable. How likely depends on the nature of Epicurean works earlier than Lucretius.⁷³⁵

4.8.1 Lines 823-829

Lucretius’ first use of the analogy in the *critique*, in lines 823-829,⁷³⁶ is part of the argument that the presence of *primordia* of many *res*, mixed in various ways, in *res* explains how different things are nourished by different things (lines 809-829).⁷³⁷ The

⁷³⁴ In Cicero *De natura deorum* II. 93 the analogy from the letters of the alphabet is used to rebuke the notion of chance collision of atoms creating the world (Snyder 1980: 35-36): the speaker comments on the absurdity of thinking that the letters of the alphabet may combine by chance to produce the whole of the *Annales* of Ennius.

⁷³⁵ Above page 13 and pages 16-18.

⁷³⁶ Although there is no “as” in the text, *tantum - plura* in 826-827 clearly implies a comparison, so that it seems correct to speak in term of analogy.

⁷³⁷ And note in this context the atomistic use of language in 813 (*certis ab rebus, certis aliae atque aliae res*) with elisions emphasising the effect, picked up in 816 (*ideo variis variae res rebus aluntur*).

fact that what does the nourishing is so different from what is nourished must be explained by realising how much impact *cum quibus*, *quali positura*, and *motus* have in determining the nature of compounds.⁷³⁸ Lucretius' use of the analogy here is much more explicitly stated than his very first use of it, in *DRNI* 196-198.⁷³⁹ Lucretius refers for the first time to the fact that examples of verbal atomism can be found in his own verses.

The point of the analogy in lines 823-829 is that just as the same 22 letters of the alphabet can make up compounds as different as the words, and lines, of Lucretius' poem, so the *primordia rerum* can produce compounds which are very different from other compounds the same *primordia* also combine to make. The analogy is accurate since it is clear from lines 826-827 that it illustrates only one aspect of the process, namely the difference *ordo* makes to the nature of the compound. On its literal and primary level the analogy plays on the fact that all the words of the poem are made up by the same 22 letters.

It is not altogether clear whether *ordo* should be read as including both *cum quibus* and *quali positura*. This depends on whether the exact reference of *positura* is **(a)** the position of the *elementa* in relation to one another i.e. exactly the same atoms (choice not being involved) can make two different words, or **(b)** the position of the *elementa* in relation to themselves.⁷⁴⁰ The analogy *could* extend to **(b)**, with Democritus'

⁷³⁸ On the anticipation, above pages 236-238.

⁷³⁹ Snyder 1980: 40.

⁷⁴⁰ Bailey (1947: 740) argues that *positura* in 818 and 685 means **(b)** τροπή, and not, as Giussani (1896: 92) suggests, **(a)** τάξις.

Z and N example, but there is no trace of this in Lucretius. Indeed it would be impossible to report such an idea in hexameters. I am inclined to believe Lucretius used *positura* in sense (a), see further below, pages 363-364. If by *ordo* Lucretius is referring to both choice and position the argument by analogy is sound, and understandable before reading book II. It is a case of *multa modis communia multis*, to take up Lucretius' formulation in line 814.

The difference *ordo* can make to the nature of the compound is also tacitly illustrated in my view by the fact that *versibus* of line 822 shares 6 of its 7 *elementa* with *verbis* of 823, although “words and verses are very different *et re et sonitu sonanti*”. The implication is that *ordo* can bring about a great difference in the resulting concept, as in the resulting word. It seems surprising that neither Friedländer nor Snyder considers whether *paronomasia* is at work here,⁷⁴¹ although it is used to illustrate that similar *elementa* can make up very different compounds through *ordo*.

The analogy has further implications. Just as the same set of letters of the alphabet, by mixing, can make up the whole of Lucretius' poem (*De rerum natura*)⁷⁴² so the *primordia rerum* can make up the whole natural world (cosmos), which is represented by Lucretius' *asyndeton* in lines 820 and 821. Lucretius was here taking up

⁷⁴¹ Snyder (1980: 41) makes the point that *permutato ordine* does not refer to permutations of letters within a single word, but slightly different selection to get different words: such as *versus* and *verba* (line 825) and *sonitu . . . sonanti* (line 826). She seems to overlook the fact that ultimately both words and verses are made up of the same *elementa* (i.e. the 22 letters of the alphabet).

⁷⁴² *Versus* is the term Lucretius conventionally uses to refer to his own poetry, *carmina* is rarer (Lenaghan 1967: 251).

the analogy which we have seen the early atomists had used (or perhaps even introduced) between poem and cosmos.⁷⁴³ Armstrong (1995: 225-226) comments on how Lucretius consciously considers the words of his verses “something like molecules made of separate atoms which are the letters of the alphabet”. According to Armstrong Lucretius alludes directly to the impossibility of *metathesis* in the same terms as Philodemus.

It is important that Lucretius draws attention to the words and verses of his own poem here. The structure of the poem on nature resembles nature itself. It is even conceivable that words represent molecules, and verses represent compounds. The same letters can make up the entirety of Lucretius’ poem (cosmos), as well as the verses (compounds) and the words (molecules) just as Epicurus’ atoms make up everything in our experience, from small compounds to the whole universe. Lucretius intended his poem to be an accurate image (*simulacrum*) of reality.⁷⁴⁴

There is a further sense in which the letters of the poem behave just like the atoms that make up the world. Schiesaro (1994: 83-85) seems right in interpreting the

⁷⁴³ Above page 258. Armstrong (1995: 215) thinks that for Lucretius, just like Democritus the essence of poetry, rather than being oral, or aural is “to be found in the play of letters, *elementa*, on the page”. It looks as though this is disputable, at least as far as Lucretius is concerned. The word *elementum* itself is more often associated with sound in the use by grammarians (*Thesaurus Linguae Latinae*), and Lucretius emphasises sound in most of the occurrences of the analogy.

⁷⁴⁴ Thury (1989: 271) notes that *DRN* “in its representation of reality . . . functions as a *simulacrum* of the *rerum natura* in the technical sense”, i.e. it presents images (word-pictures) of the real world that impinge on the reader and are susceptible to evaluation, just as the images sent around from objects.

repetition of sounds, formulae, passages and themes in an atomistic sense, as representing material bodies “ whose components constantly rearrange themselves in cyclical fashion without ever being reduced *in nihilum*. . . The *De rerum natura* renews itself as a didactic experience that the reader is programmatically enticed to repeat over and over again”. Formularity reinforces the atomistic message. The repetition of words, verses and passages also resembled the atomistic process of the formation of things. There seems to be a relationship between letters, words, verses, formulae and poem which is meant to symbolise the universe, from the smallest components to the whole universe. Part of the analogy is that just as the universe is created again, so is the poem.⁷⁴⁵

4.8.2 Intertextuality

Lucretius repeats lines 823-825 *verbatim* as part of his fourth deployment of the analogy (*DRN* II 688-690), and modifies line 826 to *confiteare alia ex aliis constare elementis* in *DRN* II 691. The modification is coherent and indeed required, since Lucretius is now showing that *dissimiles formae* come together to make a compound. He proceeds to expand on the formulation of *DRN* I 823-827 in *DRN* II 692-699: not because there are few letters which are shared or because no two words are made from the same letters, but because in most cases they do not share all their letters.

⁷⁴⁵ On the significance of the repetition of *DRN* I 926-950 at *DRN* IV 1-25 see below Appendix (a), pages 388-389.

The analogy refers again to the relationship between the 22 letters of the alphabet and the words of Lucretius' poem,⁷⁴⁶ but takes up a different aspect. In book II the point is that although there are many common *elementa* in many *verba* (and *versus*), one has to admit that different words (and different verses) are made up of different *elementa*, while in book I Lucretius' point is that, although there are many common *elementa* in *verba* (and *versus*), the end product is different in both physical appearance and in sound.⁷⁴⁷ In book I the possibility that words share all their letters is not mentioned, but it is not ruled out either. The analogy is probably also meant to illustrate that *res* are made up of *diversae figurae*, just as the letters of the alphabet have a limited number of different shapes. It is significant in this context that *DRN* II 692 is very similar to *DRN* II 336 and *DRN* II 694 repeats *DRN* II 337: Lucretius intentionally repeats from the passage where the *figurae* and *formae* are first introduced (*DRN* II 333-335). This is the point in which the analogy is especially appropriate to Epicurean atomism (above page 356).

Let us now turn to the fifth and final use of the analogy, in *DRN* II 1013-1022 where once again Lucretius repeats extensively from the *critique*.⁷⁴⁸ *DRN* II 1013 repeats line 824 with *passim* changed to *refert*, and *DRN* II 1015-1016 repeat lines 820-821 with

⁷⁴⁶ Snyder 1980: 43.

⁷⁴⁷ The association of the physical aspect to the sound of the letters seems to come appropriately in line 826 where it stresses that words are different from (other) words, and verses from (other) verses, and anticipates the reference to sound in *distincta voce notemus* of line 914.

⁷⁴⁸ Dionigi 1988: 18-19.

the change of *constituunt* to *significant* in 1015.⁷⁴⁹ Lucretius has again in mind how the letters of the alphabet can make up all the words of his poem, so the atoms make up the whole world.

Lucretius sets out with a reference to *cum quibus* and *quali ordine* in line 1014, he goes on to point out that most of the letters are similar in most cases, and concludes by saying that *res* (presumably the “things” of his poem, which fits in very well with Thury’s reading, above note 744) are different because of *positura*. Since the emphasis this time falls on the difference *positura* makes to the meaning of the poem, Lucretius changes *constituunt* to *significant*.⁷⁵⁰ The emphasis of the analogy falls temporarily on the poem, before going back to the physical world of *res* with lines 1019-1022. The fact that Lucretius gives more prominence to the phenomena of the world of the poem may well be meant to balance the fact that Lucretius has gradually shifted the meaning of *elementum* from the field of letters to the field of physical elements.⁷⁵¹ With his final use of the analogy he redresses the balance, and firmly establishes that there is no difference

⁷⁴⁹ Note also that *DRN* II 1008-1009 = *DRN* I 818-819. On the connection between the *critique* and the second part of *DRN* II see below pages 369-370.

⁷⁵⁰ Armstrong (1995: 227) draws attention to the change and notes that *DRN* II 1013-1021 is the occurrence of the analogy that most insists on the possibility of metathesis: this passage is parallel with Philodemus’ view that the rearrangement of words always modifies the thought. Although Lucretius seems to be concerned with arrangement of letters rather than words in our passage (Armstrong 1995: 225), it may be that he applied the concept to words.

⁷⁵¹ Snyder 1980: 46. All the occurrences in *DRN* I refer to letters, 2 out of six occurrences in *DRN* II to letters, all but one of the occurrences in the remaining books refer to physical elements.

between the field of the poem and that of the physical world.

The analogy from letters of the poem is used here to show that *positura* can make such a great difference that the *corpora prima* do not need everlasting secondary qualities to create the world (lines 1007-1012). Lucretius is saying here that the same (or almost exactly the same) *primordia* can make all things through *positura*. It is unclear whether this is the same point as in the third occurrence of the analogy. It may be that the third occurrence of the analogy refers to both the choice (*cum quibus*) and position in relation to one another (*positura*) of the *elementa*, while the final occurrence refers only to the position in relation to one another (cf. *DRN* II 693; see above pages 357-359). Such interpretations however may imply that Lucretius was more consistent in his use of terms than he actually was.

4.8.3 Lines 906-914

Lucretius' second use of the analogy in the *critique*, the third in the poem, comes in lines 912-914 in the context of his criticism of Anaxagoras' ἐν παντὶ παντὸς μοῖρα, where it is most effective, since Anaxagoras' theory would involve that every word contained every letter. Lucretius here *explicitly* provides an example of *paronomasia*,⁷⁵² in line 914.⁷⁵³ This has been foreshadowed in lines 891-892, where the two words *ignis* and

⁷⁵² Snyder 1980: 41.

⁷⁵³ Lucretius seems to have had the significant similarity *ignis lignum* in mind also in *DRN* II 386-387 (Friedländer 1941: 17), and *DRN* II 881-882 (Ferguson 1987: 100).

lignis share four *elementa*, again in line 901, where *ignis* and *lignis* appear in the same line, which, perhaps significantly, stresses that fire itself is not in wood.⁷⁵⁴

The analogy is intended to explain the physical process of how wood can produce fire. This is the third time Lucretius mentions the phenomenon of wood producing fire in the *critique*. He has already done so in lines 871- 873, where Lucretius uses *flamma* in place of *ignis*,⁷⁵⁵ and in lines 891-892. The emphasis of the passage in lines 896-914 is on the fact that there is no fire in wood.

In the case of lines 912-914 Lucretius decides to describe specifically the outbursts of fire in the forest, a phenomenon which captured his imagination. The phenomenon is portrayed in a more elaborate form in *DRN* V 1096-1110, and again in *DRN* V 1243-1249, although in book V the rubbing together of branches is not listed among the causes, perhaps for variety.

That wood can produce fire is explained by the fact that the corresponding words are *inter se paulo mutatis elementis*. This is reflected in the fact that *ignis* and *ligna*

⁷⁵⁴ The metaphor *flammai fulserunt flore coorto* of line 900, highlighted by (perhaps onomatopoeic) alliteration, deserves attention in this context. West (1969: 23) points out how the metaphor, which is imported from an alternative reading to Iliad IX 212 (from Plutarch's citation of it in *Moralia* 934 B and schol. Aeschylus *PV* 7) works together with the argument. Lucretius, who is arguing against the view that every substance contains particles of any other substance and that therefore wood contains fire, is aware of the implications of the image. There is certainly no *flamma* in *flos*, although, one may add, the two words share two of their letters as they probably do on the atomic level of the *primordia rerum*). And there is the further point that flowers grow from plants.

⁷⁵⁵ Ferguson 1987: 100.

share the letters *i*, *g* and *n*.⁷⁵⁶ Take the *elementa l* and *a* out of wood, add *s* and *i*, which is a basic component of it anyway, and you get fire. It is worth stressing that the elision in the line brings it about that the two words and *atque* become a single word, and the *a* of *ligna* would have effectively disappeared. The change would have sounded even smaller.

That the permutation is not exact but involves a small change fitted the Epicurean theory well, in fact it makes the analogy very accurate. Lucretius is set on showing the importance of (1) choice (2) positioning (3) movements of the atoms and that the same atoms make up fire and wood *paulo inter se mutata*. It looks as though Lucretius with this expression refers to all three points. The analogy would illustrate (1) with the introduction of new letters and (2) with the moving around of the letter *i*.

Given the widespread use of the analogy in philosophical texts (above page 258) it is certainly possible that Lucretius' source text used the analogy from letters of the alphabet as part of the criticism of both limited pluralism and Anaxagoras. However, given Lucretius' fascination with letters, and words, it is certainly possible that he introduced at least one occurrence, if not both.⁷⁵⁷ It seems likely, at any rate, that the specific example of *verbis / versibus*, with reference to the hexameters of his own poem is Lucretius' own contribution, and the same applies to the word play in *ignis lignum*.

⁷⁵⁶ One should probably read, with Bailey, *ignis* as the accusative plural in line 912 (rather than Martin's and Smith's *ignes*).

⁷⁵⁷ Above page 259. On whether Lucretius himself introduced lines 803-829 and 897-914 (or 897-920), below pages 371-372.

There is no clue that the significant word play on *ignis lignum* had been elaborated by earlier Latin authors.⁷⁵⁸

4.9 Repetitions

Throughout his poem Lucretius often repeats lines or portions of lines, adopting a device referred to as formularity. Recent scholarly opinion is inclined, rightly in my view, to explain the repetitions in *DRN* as a deliberate narrative strategy on Lucretius' part, and not as due to lack of revision, or to interpolation. The genuineness of repeated passages is usually signaled by minor variation in the phrasing of repeated passages.

Repetition was central to didactic poetry.⁷⁵⁹ Hesiod, who represented the canon of the *genre*, employed repetition extensively. There are indications that Empedocles did the same, although it is impossible to determine the exact amount of repetition, because we only have portions of his production.⁷⁶⁰ Repetition was probably one of the traits which made Aristotle describe Empedocles' style as Homeric.⁷⁶¹ By using formularity

⁷⁵⁸ Clay (1995: 13) refers to a parallel for *ignis lignum* in Pliny *Natural History* "1. 37. 42". This is perhaps a mistake. Pliny writes in XVI. 208 . . . *teritur ergo lignum ligno ignemque concipit adritu . . .*, but he could easily have taken this over from Lucretius.

⁷⁵⁹ Schiesaro 1994: 98.

⁷⁶⁰ Gale (1994: 63) draws attention to Empedocles DK B25 and DK B35 lines 1 and 2, where Empedocles offers a kind of apology for the use of repetition.

⁷⁶¹ Bollack's (1965: 322-323) comment on Empedocles' use of repetition suggest that Empedocles and Lucretius used repetition in a similar way. He points out that "les longs fragments (comme 31 = 37)

extensively Lucretius was following the tradition of earlier didactic poetry, the tradition in which he wrote.

Lucretius clearly saw how repetitions had a didactic value by nature, and that it was a useful tool for the poet to show that two passages are connected, to create intertextuality. We have already seen conclusive examples of this, e.g. the repetition of *DRN* I at 738-739 at *DRN* V 111-112, and in his repetition of the letters analogy.

Repetition is a device by which the poet can produce a ‘good’ didactic plot.⁷⁶² Schiesaro (1994: 99) shows that repetition of important tenets is a deliberate strategy on Lucretius’ part. He draws attention to how Lucretius repeats the methodological principle in *DRN* I 146-148 in exactly the same relative position, at the beginning of the first principal argument of the book (*DRN* II 59-61; *DRN* III 91-93 and *DRN* VI 39-41).

A similar strategy is at play with a pair of lines that Lucretius repeats in the *critique*, and elsewhere. By repeating lines 670-671 at 792-793 Lucretius reinforces a fundamental tenet,⁷⁶³ which rules out any kind of theory which involves transformation of the *primordia*. Given the importance of this point it is hardly surprising that the lines

montrent que ces répétitions se suivaient souvent de très près, rituelles et obsédantes”, thus they represent invariable laws, and the cycle of life. On Empedocles’ use of repetition see also Dionigi 1988: 106-107.

⁷⁶² Schiesaro 1994: 82.

⁷⁶³ Clay (1983: 192-193) comments on Lucretius’ repetition of lines 670-671 which he calls the ‘axiom of change’. He argues that the inclusion of this principle as part of the confutation of Heraclitus shows Lucretius mastered the fundamental theoretical principles (στοιχειώματα). It is surprising that this tenet does not appear in Epicurus’ letters, although the impossibility of change is mentioned in a somewhat different context in *Ad Herodotum* 39.

are repeated again in the poem, in *DRN* II 753-754 and *DRN* III lines 519-520.

Repeating the lines within the *critique* also creates the impression that both Heraclitus and Empedocles go astray on the same point of allowing transformation. The repetition of line 673 at 797 is probably intended to reinforce the impression that Heraclitus and Empedocles get it wrong on the same, elementary, point.

Line 635, the opening line of the *critique*, is repeated at 705,⁷⁶⁴ to produce ring-composition. Lucretius reinforces the structural signpost link by repeating line 637, with modifications, at 711. The repetition serves two purposes: it signals the end of the series of arguments against monism, and links the confutation of Heraclitus to that of other monists who are introduced in lines 707-710. The repetition of line 635 at 705 is an aid to Lucretius' didactic strategy. It induces the impression that all other monists commit the same mistakes as Heraclitus.

There is a considerable number of reminiscences of the *critique* in the final part of book II, many of which we have already noted: **(a)** 685 = *DRN* II 1021 (and nowhere else); **(b)** 789-793 (of which 792-793 = 670-671) = *DRN* II 750-754; **(c)** 673 (= 797) = *DRN* II 756 and 864 (and nowhere else); **(d)** 814-815 ≈ *DRN* II 695-696; **(e)** 817-819 (of which 819 = 909) = *DRN* II 760-762 (of which 761 = *DRN* II 1008 and nowhere else); **(f)** 823-825 = *DRN* II 688-690 (of which 688 ≈ *DRN* II 1021);⁷⁶⁵ **(g)** 919-920 ≈ II 976-977. Moreover **(h)** *DRN* I 790-797 ≈ *DRN* II 751-756, the passage in *DRN* II

⁷⁶⁴ *DRN* II 229 *avius a vera longe ratione recedit* should also perhaps be compared to line 637. Note the image from journeying.

⁷⁶⁵ And both 826 and *DRN* II 691 start with *confiteare*.

being shorter and, arguably, in a more specialised context. The amount of repetition is such that it cannot be explained simply as a consequence of the fact that both the *critique* and the latter part of book II refer to the motions and combinations of atoms. Lucretius is deliberately making a series of references back to the *critique*. The use of repetition serves a structural function. It betrays Lucretius' intention of presenting the first two books of his poem as mirroring each other (Sedley 1998: 192).⁷⁶⁶

4.10 The parallelism between lines 803-829 and 897-920

Lucretius intentionally made the two sets of lines 803-829 and 897-920 resemble one another, to convey an impression of parallelism. These two sets of lines are comparable in style, length, tone, and structural function.⁷⁶⁷ Both display the intervention of an imaginary objector, who introduces an example from sense-experience. In both passages the objector 'interrupts' the poet with *at*, and Lucretius picks up again with *scilicet*.⁷⁶⁸ And in both passages Lucretius' reply includes the analogy from how letters of the alphabet combine to make up words, to show the superiority of the Epicurean theory.⁷⁶⁹

⁷⁶⁶ It should also be noted that, as Schiesaro (1994: 100) notes, the number of repeated passages in *DRN* is higher in the first half of the poem than in the second, because the process of repetition and assimilation is especially important at the beginning. Lucretius certainly saw the didactic value of repetitions.

⁷⁶⁷ Giussani 1898: 116-117.

⁷⁶⁸ Giussani 1896: 94.

⁷⁶⁹ One significant difference is that in 897-920 we get two arguments (lines 915-920 being a new point), while lines 803-829 are the concluding argument against limited pluralism.

What is more *magni refert* of line 817 is picked up by *permagni referre* of 908 (with cross-reference in 907), lines 819-820 are repeated *verbatim* at 909-910, and line 918 is a remodeling of 818.⁷⁷⁰ Lucretius went out of his way to make the reader notice that the two passages are connected. The confutation of Empedocles ends with a description of the Epicurean *primordia* in all their strength (especially line 827 *tantum elementa queunt*), while the confutation of Anaxagoras ends with Anaxagoras' own *primordia* perishing by laughing so immoderately that they are reduced to tears.⁷⁷¹

The similarity of the two sections led Giussani to work out an elaborate composition-theory, according to which Lucretius added 803-829 and 897-920 only after having written a substantial part of *DRN* II. Bailey (1947: 739 and 755) considers this probable, and Dalzell (1987: 21) thinks "Giussani may be right". I have dealt with Giussani's (1896: 92-95) arguments at various points of the discussion.⁷⁷² I have not yet considered his (1896: 94) argument that lines 782-802 are aimed at both those who believed in transformation of the four elements into things, and those who believed in transformation of the four elements into one another: i.e. at the 'transformationist' principle generally.

According to Giussani lines 782-802 look like the conclusion of the argument

⁷⁷⁰ The similarity between lines 814-815 and lines 895-896, which immediately precede the intervention of the imaginary opponent defending Anaxagoras, is perhaps relevant in this context. Lucretius may be signaling in 895-896 the start of the parallelism.

⁷⁷¹ Brown (1983: 152, note 42) refers to Perelli's (1969) view that Lucretius abandons the plane of logic for the extravagant and grotesque (coming close to surrealism).

⁷⁷² Above note 422 and note 715.

against the ‘quadruplists’, while the objection in lines 803-829 is not connected with lines 782-802. This would show that 803-829 are a later addition. The argument in 803-829 is that the four elements cannot explain nutrition of vegetation and humans as well as atomism does. Giussani seems to assume that the argument excludes the possibility of transformation of the four elements, but this is perhaps not necessary. Lucretius (or rather his source) similarly concludes the confutation of Heraclitus with an argument that applies to all forms of fire-monism (lines 701-704).⁷⁷³

It is unclear whether Giussani envisages a wholesale revision of *DRN I*, of the whole poem,⁷⁷⁴ or just an afterthought. Unless one thinks in terms of **(a)** or **(b)** one faces the problem of explaining how additions of 27 lines and 23 lines could have been made to Lucretius’ original copy, unless they were made on the back of the papyrus roll.⁷⁷⁵ Theories such as Giussani’s are ultimately very hard to disprove, but there is no compelling evidence that creating a formulaic effect of parallelism by having the two concluding passages mirror one another is the result of a later stage of composition. There is no reason to doubt that this was his strategy all along, rather than an afterthought. Lucretius on this occasion complements a direct cross-reference in line 907 with the mirroring structure and style for the two passages. The similarity of the two arguments could perhaps be taken as a clue that Lucretius was composing independently of his source in these two sections.

⁷⁷³ On this argument, above note 146.

⁷⁷⁴ Below Appendix (a), pages 389-391.

⁷⁷⁵ Below Appendix (a), note 811.

Munro (1886b: 102) explains the similarity between the two sets of lines by saying that Lucretius thought that the same objections applied to Anaxagoras' *primordia* and Empedocles' four elements, since both attributed to the elements "those secondary qualities which only belong to things in being". This is certainly true, but it is not only the rejection of the idea that elements have secondary qualities that links the two passages. Lucretius is emphasising the fact that in both cases even the phenomena which appear to support opposing theories are in fact better explained by Epicurus' teachings. These phenomena can be explained only thanks to the *positura* and *motus* of the atoms (above pages 236-238). This explains the cross-reference and the repetition of the lines. The similarity signals that again and again the Epicurean theory is infallible in providing a better explanation of the observed facts.

4.11 The *critique* as 'dialogue'

An imaginary objector intervenes in direct speech in lines 803-808 and 897-900, to provide examples which *prima facie* oppose the poet's view.⁷⁷⁶ The two sets of lines are

⁷⁷⁶ Introducing an example contrary to the Epicurean theory, to then explain it, is not untypical of Lucretius' rhetoric (see above page 245). The fact that an imaginary objector introduces the counter-examples makes the restatements of the Epicurean theory more emphatic. One should note how lines 803-829 are carefully structured so that they reinforce the demonstration of the existence of atoms. There are three sections: (a) the first 6 lines granted to the 'imaginary objector' (803-808), then (b) 5 lines where Lucretius recognises that the observed facts are as the objector says and introduces a further example (809-813), and finally (c) 16 lines of positive Epicurean doctrine in which Lucretius explains how atomism accounts perfectly for these facts

remarkable in that they are the first time in the poem that the voice of someone other than Lucretius is heard, a sudden shift in focalisation. The use of such devices is unusual in Lucretius, except in the final part of book III.⁷⁷⁷ The intervention by an imaginary objector in *DRN* III 356 is certainly comparable.⁷⁷⁸ And exactly the same device as in the *critique* is used in *DRN* VI 673 “*at nimis est ingens incendi turbidus ardor*”. What is more Lucretius picks up with *scilicet* in line 674, just as he does in the *critique* in lines 809 and 901, after the two interventions.

Scholars have doubted that the interventions in lines 803-808 and 897-900 are by the internal addressee, that is, Memmius, suggesting instead that the objector should be identified with a disciple of the two Presocratics.⁷⁷⁹ I can see no objection to thinking that the imaginary objector is in fact the internal addressee of the poem.

According to Bailey (1947: 738) lines 803-808 derive from Empedocles. This, if true, may be taken to suggest that the imaginary objector should be identified with Empedocles himself. Bailey refers to (a) Aristotle *De anima* B. 4. 415b28, (b) Plutarch

(814-829), introduced by a very emphatic *nimirum*.

⁷⁷⁷ Lines 894-899 report in direct speech the words of others (*aiunt* of 898), and lines 901 and 904-908 report, again in direct speech, additions which those people should make to their statement. Remarks by *homines* are again reported in direct speech in line 914-915. And in lines 933-949 and 955-962 Lucretius reports in direct speech nature’s reply. In lines 1025-1052 words are put by Lucretius in the mouth of the imaginary interlocutor, so that he may repeat them to himself.

⁷⁷⁸ In this case, as in *DRN* I 803, the objection follows a question by Lucretius.

⁷⁷⁹ See Leonard and Smith 1942: 280 and Lenaghan 1967: 232, note 39.

Quaestiones convivales VI. 2. 2. 6 688a⁷⁸⁰ and (c) Aëtius V. 26. 4.⁷⁸¹ Aristotle's point in passage (a) is that ψυχρή is needed as a principle to explain the growth of living things, and that Empedocles' explanation of the growth of plants by the opposed movements of earth and fire is inadequate. Lines 803-808, on the other hand, describe the contribution of all four elements to growth, and make no reference to the movements of earth and fire. In passage (b) the emphasis seems again to be on the importance of water for the process of growth, rather than on the contribution of all four the elements. Passage (c) is not a close parallel either: there is nothing in 803-808 as counter-intuitive as saying that plants are nourished by fire/heat from the earth or that fruits are made from fire.⁷⁸² The evidence that Lucretius was translating Empedocles in lines 803-808 is very slim, although there may be stylistic imitation as often elsewhere (above note 636).⁷⁸³

⁷⁸⁰ τηρείται δὲ (ἢ τροφή) τοῖς μὲν φυτοῖς ἀναισθητῶς ἐκ τοῦ περιέχοντος, ὡς φήσιν Ἐμπεδοκλῆς, ὑδρευομένοις τὸ πρόσφορον.

⁷⁸¹ Ἐμπεδοκλῆς πρῶτα τὰ δένδρα τῶν ζώων ἐκ γῆς ἀναφύναί φησι . . . αὔξεσθαι δὲ ὑπὸ τοῦ ἐν τῇ γῆι θερμοῦ διαιρόμενα ὥστε γῆς εἶναι μέρη . . . τοὺς δὲ καρποὺς περιττώματα εἶναι τοῦ ἐν τοῖς φυτοῖς ὕδατος καὶ πυρός.

⁷⁸² I owe this point to Professor Sharples.

⁷⁸³ The intervention in 803-808 presents elaborate poetic expressions *in auras aeris* (with *enjambement* of the second term), *tempestas indulget tempore fausto, tabe nimborum*, and the asyndeton *fruges arbusta animantes*. The poetic embellishment is either due to a deliberate decision on Lucretius' part to reproduce some actual lines of Empedocles' poem, or to Lucretius' intention of signaling that poetic language is no substitute for argument, or to both reasons. It is noteworthy that Lucretius' response displays fewer 'poetic' features, and is marked by the colloquial expressions such as the dismissive *scilicet, dubio*

As for the intervention in lines 897-900, Calder's (1984: 485-486) claim that the rubbing together of branches to produce fire comes from the text of Anaxagoras is unwarranted by the evidence. A description of this phenomenon is found in Thucydides II. 77. 4, a gloss which made its way into the transmitted text.⁷⁸⁴ Calder suggests that the gloss was introduced by Antyllos, a physician of the second century A.D.,⁷⁸⁵ who was influenced by Anaxagoras (Marcellinus, *Vita* 22. 6-8 Luschnat), and commented on Thucydides. However, since there is no evidence whatsoever for the 'rubbing of branches' being in Anaxagoras, except this passage from *DRN* there is no reason to assume that Lucretius is reproducing Anaxagoras' words in the intervention.

It seems conceivable that Lucretius elaborated the objections *ex novo*. One cannot rule out, however, that he derived the actual examples he puts in the mouth of the objector from his Greek source. Even if he did find the points raised by the imaginary objector in his source, Lucretius considerably reworked them through his description of the contribution of the four elements to growth (lines 803-808), and through his description of the violent storms which cause the top branches of trees to rub against one

procul, nimirum quia, picked up by *ideo*, and *quin etiam* reinforce the impression Lucretius is winning the argument by presenting the naked truth.

⁷⁸⁴ As Calder remarks χειροποίητον makes the addition redundant, the sentiment is suspect and the sense runs smoothly if the passage is excised. According to Hornblower (1991: 360) it "may well be a gloss".

⁷⁸⁵ It seems conceivable that the gloss was earlier and Lucretius got the image through a text of Thucydides, whom we know Lucretius read (above page 23).

another so forcefully that flames are sparked (lines 898-900).⁷⁸⁶

There seems to be no reason to doubt that the interventions are put by Lucretius in the mouth of the internal addressee, Memmius.⁷⁸⁷ Memmius has been addressed very often in the poem thus far: in the prologue in lines 50-55, 80-83, 102-106 and 140-145. And it seems reasonable to assume that the addresses in the second person in the following lines, such as 265-270, 327, 331-333, 347, 357, 370-372, 450-451 and 499-502, also refer to Memmius.⁷⁸⁸ He is certainly the addressee of lines 398-417 where he is named in the vocative in line 411.

The internal addressee has figured little in the first part of the *critique*. The second person singular is only used in line 673, followed by the imperative *adde* in line 712. But the use of the second person becomes much more frequent as the *critique* proceeds: *conicere ut possis ex hoc, quae cernere non quis* in line 751, *habebis* in 758, *sin ita forte putas* in 770 and *tibi* in 773, *constituas* in 799, *vides* in 824, *transfer* in 870, *iamne vides igitur . . . ?* in 907, *putas* in 916 and *fingas* in 917.

⁷⁸⁶ Above pages 355-356.

⁷⁸⁷ On Lucretius' addresses to Memmius see Keen 1985: 1.

⁷⁸⁸ Some addresses serve a clear structural function: for example those in lines 265-270, lines 331-333, lines 370-372 and lines 483-502, which introduce a new section or topic. Use of the second person signals the start of the 'second prologue' (*DRN* I 921) and the resumption of the main account from (951 ff.). It is also worth noting that the criticism of geocentric cosmology is introduced by an address to Memmius in which he is actually named in the vocative (*DRN* I 1052): this may support the inference that the 'imaginary objector' in the *critique* is Memmius (i.e. the internal addressee). Uses in *DRN* II confirm that addresses to Memmius serve a structural function: e.g. those in *DRN* II 60-66, 142-143 and 181-187.

The direct questions should be read as presented to Memmius.⁷⁸⁹ One such question may well have opened the series of arguments in *critique*. A case can be made for punctuating lines 645-646 as a direct question to the internal addressee:⁷⁹⁰ “how could things which are so varied exist if they are created by pure fire alone”? Everything in lines 647-689 unsuccessfully tries to answer this initial question.

Direct questions of a more or less rhetorical nature occur in lines 699-700 (two questions), 701-703,⁷⁹¹ 763-766,⁷⁹² 797-802, 852-853 (four questions) and 907-912.⁷⁹³ The interventions by the imaginary objector in 803-808 and in 897- 900, in conjunction with the widespread use of the second person and of direct questions, make the latter part of the *critique* closer to dialogue format.

The impression of dialogue is reinforced by the fact that both interventions occur

⁷⁸⁹ This would be contrary to the procedure of Diogenes of Oenoanda who addresses Heraclitus in the second person in his counter-argument (fragment 6 (III) lines 9-11; Smith 1992b: 157).

⁷⁹⁰ Lachmann, Diels, Giussani and Martin punctuate as a direct question. The imperfect subjunctive of the ‘mixed’ conditional clause in these lines is not easier to explain with *cur* depending on *requiro* than with *cur* introducing a direct question, and *requiro* being parenthetical. Vidale (2000: 101) seems right that through the use of the first person singular *requiro* “il poeta si mette personalmente in campo”.

⁷⁹¹ The second possibility in the question provides Lucretius with the opportunity of introducing the idea of a monistic theory based on another element, and to harshly rebuke such a possibility, as well as fire-monism, in line 704. This introduces very neatly the mention of other monists in 707-709.

⁷⁹² The tone is remarkably similar to that of the question in 701-703, signaling that the choice of elements is arbitrary

⁷⁹³ Editors mark the question mark after line 912. But a case can certainly be made for punctuating after 914. Certainly the comparison of *quo pacto* seems to be logically and syntactically part of the question.

after a restating of Epicurean theory, and, in the case of line 803, the objector is seemingly objecting that the answer to the forceful question put by Lucretius in 798-802 should be “no” because the senses indicate otherwise. But the poet is prompt in silencing the internal addressee: *scilicet* . . . And in the case of 897-900 the objection seems suggested to the objector by Lucretius himself in lines 891-892.⁷⁹⁴ Here too Lucretius promptly sets him right in 901-903.

These lines should be read in the context of the distinction Clay and Mitsis draw between the internal addressee of the poem, and the actual reader of the poem.⁷⁹⁵ The internal addressee is clearly detached from the reader himself in our passages, since the reader is actually reading Memmius’ own words. The interventions in the *critique* are one of the points of the poem where Lucretius’ therapeutic method with the internal addressee is most clear to see. In our lines a second voice speaks. There is a dialogue between teacher and pupil of which the reader of the poem is a spectator.

According to Mitsis (1993: 112 and 116-118) throughout *DRN* there is no cooperative interchange between the poet and the internal addressee: Lucretius’

⁷⁹⁴ Giussani 1898: 117.

⁷⁹⁵ Mitsis (1993 :122-123) endorses Clay’s (1983: 212) insight that the didactic addressee — “mock reader” in Clay’s terminology — mediates between the poet and his intended audience and helps control the reader’s individual responses to the message of the poem. The readers of *DRN* witness the process of instruction itself. It is surprising that Mitsis does not lay importance on the direct interventions in the *critique*. Presumably he thinks that they are not by the internal addressee.

condescending tone does not fit a conversation between equals.⁷⁹⁶ Mitsis (1993: 120-126) argues that the authoritarian and coercive method of teaching, which reproduced Epicurus' stance was problematic for "a poet attempting to win over unconverted readers", and suggests that Memmius, and not the reader, is the target of Lucretius' abuse, even when Memmius is not named. The reader of the poem does not identify with the internal addressee (Memmius), but with the confident narrator, thinking that they are more like the doctors than the sick.

The choice of Memmius is pointed, since he was an ambitious politician, an erotic poet, accomplished in Greek but scornful of Latin literature, extravagant in his sexual behaviour and demolished Epicurus' house in Athens, where he was in exile from 52 B.C. (Smith 1992a: xlvi-xlviii).⁷⁹⁷ If Lucretius could persuade Memmius he could persuade anyone.⁷⁹⁸

⁷⁹⁶ Mitsis draws attention to the passages describing children fearing the dark: *DRN* II 55-58, *DRN* III 87-90 and VI 35-38.

⁷⁹⁷ The people Memmius liked were love poets, such as Catullus and Cinna. It seems unlikely that he would have been Lucretius' patron. The use of *amicitia* in *DRN* I 141 may indicate that Memmius was Lucretius' patron, or at least intended patron, since *amicitia* is customarily used for the relationship between patron and poet (see White 1978 and Saller 1989). Smith (1992a: xlviii) takes *amicitia* to refer to Epicurean friendship because of *suavis* and *voluptas*, independently reaching the same conclusion as Perelli (1969: 6-7). It seems likely that Lucretius' inspiration is the desire to make Memmius a fellow Epicurean. There is a possibility, in my view, that Lucretius is being ironic in using the term which suggested patronage. What might be seen as patronage was in fact an attempt to draw Memmius into Lucretius' circle of Epicureans.

⁷⁹⁸ Mitsis (1993: 123, note 19) does not endorse Farrington's claim that Lucretius is trying to convert Memmius, the historical figure. I am not sure this can be excluded. Memmius, as Keen (1985: 8) points out,

Mitsis highlights in my view an important characteristic of Lucretius' poem. His reading seems correct for many of the addresses to the reader in *DRN*. Certainly the reader does not wish to be the child in the dark. But Lucretius' strategy in the poem is not uniform. There are times when the reader does identify with the internal addressee, and where the internal addressee's own contribution is worth something. Mitsis does not discuss *DRN* V 91-109, where Lucretius' attitude to Memmius is certainly far from antagonistic and patronising. The attitude towards the pupil required by the process of instruction can change. In *DRN* I 402-409 the image used by Lucretius to describe how Memmius should conduct himself as a pupil is that of a hunting-dog in the woods (Schiesaro 2003: 59-60), an image which suggests exploring new paths.⁷⁹⁹ Lucretius here presupposes some personal initiative on Memmius' part (although lines 398-417 as a whole suggest Memmius may not do what is required from him).

Let us come back to the interventions in the *critique*, to consider what kind of attitude towards the internal addressee we can trace in our lines. There is no doubt that Lucretius sets the objector right. The double use of *scilicet* seems sarcastic.⁸⁰⁰ The objector makes no telling contribution; he only provides examples so that Lucretius can

out, connects the poem with its historical context, and shows the kind of problems Lucretius is trying to address by composing *DRN*.

⁷⁹⁹ This implies a more interactive relationship than Lucretius has with his teacher Epicurus in whose *vestigia* he follows (above note 45).

⁸⁰⁰ Note *scilicet id falsa totum ratione receptumst* in *DRN* I 377; and see above note 718.

show that the Epicurean theory can explain such phenomena better.⁸⁰¹ The impression is that the (omniscient) poet has it covered all along. The objector is treated as a *νήπιος*.⁸⁰²

Significantly the objector's *manifesta palam res indicat* in line 803 is 'rebutted' by the poet later on in the *critique*, in line 893: *manifesta res docet*. The interlocutor thinks the facts themselves confirm his view, but the narrator makes sure he appropriates back the facts themselves for the Epicurean theory.⁸⁰³ The expression *manifesta res* has not appeared so far in the poem (though cf. *quorum nihil fieri manifestum est* . . . in line 188). Lucretius will use similar expressions again, to show how the Epicurean theory is confirmed by the facts themselves, at e.g. *DRN* III 690, *DRN* IV 396, *DRN* VI 139, *DRN* VI 249.⁸⁰⁴

And the fact that the 'Ennian' asyndeton *fruges arbusta animantes*,⁸⁰⁵ used by

⁸⁰¹ Lenaghan (1967: 234-235) notes that the objector tries in both cases to appeal to the senses in an Epicurean way but "must be set right, because he has not yet correctly understood that shifting atomic combinations account for different and changing phenomena".

⁸⁰² By treating the internal addressee as *νήπιος* Lucretius follows on in the tradition of Hesiod, Parmenides and Empedocles (Mitsis 1993: 114).

⁸⁰³ Kleve (1978: 58-59) tentatively suggests that Lucretius' use of dilemma and *concessio* (for which he refers to *DRN* I 803, I 897, II 541, IV 473) may be due to Carneades' influence on later Epicureans.

⁸⁰⁴ Ernout (1925: 157) refers to *DRN* III 690; *DRN* VI, 139, 249; *DRN* II 565. Lenaghan (1967: 232-233, note 40) also refers to similar expressions in *DRN* I 855; *DRN* II 149, 246, 707, 867; *DRN* III 30, 353; *DRN* IV 504.

⁸⁰⁵ Ernout (1925: 160) refers to Ennius *Annales* 543.

the interlocutor at 808 is used again at 821, by the poet, as part of his Epicurean response looks like another example of the same technique of silencing the objection by appropriating the expressions used by the objector. One should note, in this context, that the asyndeton in 821 completes the equally emphatic one at 820, giving the impression that the Epicurean theory can adequately and easily explain not only living and growing creatures, but the whole universe. Lucretius leaves his reader in no doubt that Epicurean doctrine explains phenomena more thoroughly.

Assuming that the objector is in fact Memmius, I wonder whether the actual reader of the poem thinks “look how useless Memmius is” in the case of the two interventions in the *critique*. The effect of Lucretius’ rhetoric at this point seems rather to be “you need guidance when interpreting the evidence of the senses”.

4.12 Conclusion

There can be no doubt that Lucretius intervened extensively on the material he found in his Greek source, when he composed the *critique* of earlier theories of matter. There is ample evidence that Lucretius added expression and imagery to his account not only in the introduction of the personalities of the Presocratics, but throughout the passage. In the *critique* there is a carefully thought-out connection of imagery and philosophical points, and imagery and climax: the passage is not simply a series of unconnected arguments episodes, but displays a carefully devised and artistically ingenious plan.

Appendix (a). Two stages of composition?

Mewaldt suggested in 1908 that lines 26-44 and 45-53 of *DRN IV* are mutually exclusive, two alternative versions of the 'summary and syllabus' section to be included in the prologue to IV.⁸⁰⁶ One redaction (26-44) is meant to follow on from book III, while the other redaction (45-53) works only if it follows on from book II. In other words, Lucretius changed his mind on whether book IV should follow book II or book III.

Not all scholars share this view. Gaiser rejected the 'doublet theory' (or rather modified it to reduce its impact) and Gale likewise (1994b: 4). Lines 45-53, they claim, were not a single set of lines, but two separate marginalia added by Lucretius in his original copy. Lines 45-48 were intended as an addition to go before 26, while 49-53 should have replaced 29-32. Emended like this, the text is faultless. Conte (1992: 158, note 9) similarly endorses Gaiser's explanation: "hence his manuscript was probably loaded with corrections and additions, second thoughts and improvements. The first editor of *De Rerum Natura* (perhaps Cicero), intervening in this text with an excessive conservatism, in a mechanical and not always critical manner, seems to have paved the way for many of the incongruities and errors of the tradition".

⁸⁰⁶ Sedley 1998: 137, note 5.

Gaiser (1961: 24) accounts for the transposition of the set of lines by saying that either the editor/publisher or the copyist⁸⁰⁷ inserted the two marginalia at the end of the section, after line 44.⁸⁰⁸ Admittedly the two hypothetical marginalia could have been close enough to be mistaken for a single block of lines, but Gaiser's explanation of how the lines ended up where they did seems far fetched. Would the editor — the person who distributed Lucretius' original written version of the text for copying — not have noticed how repetitive the passage became by inserting those lines at that point when he was looking through the text for the right place where to insert a marginal addition which, oddly, came 19 lines ahead of its intended place, and ended 10 lines ahead of it?⁸⁰⁹ Can a conservative attitude to textual criticism really explain this?

⁸⁰⁷ At this stage in transmission, when Lucretius' original version was being copied, the 'editor' presumably. The person who was entrusted with Lucretius' original, presumably exercised close oversight, if not physically do the copying himself. He would probably have been responsible for the diffusion for further copying. This person may have been Atticus, since we know from Cicero (*Ad Atticum* IV. 4a, XII. 6a, XII. 40, XIII. 21a, XIII. 23) that he had enough slaves to take care of copying and diffusing texts.

⁸⁰⁸ "Vielleicht darf angenommen werden, das ... bei der editorischen Redaktion vom Herausgeber oder auch seinem Kopisten einfach am Ende der ursprünglichen, in sich geschlossenen Überleitungspartie (25-44) eingefügt wurden". I take this is a misprint for "(26-44)".

⁸⁰⁹ This is after all the 'editor' who, according to Gaiser, was careful enough to see that *igitur* of line 41 cannot be detached from line 40 when inserting what he considered a single addition. On Mewaldt's theory too the 'editor' must have failed to notice the repetitiousness of the doublet, since it must have been written separately. Yet there is a difference, in this respect, between (a) inserting a set of lines where they were indicated to go on the 'autograph' and (b) having to read through the text looking for the right place for the lines. The doublet makes one suspect that the policy of the 'editor' was to preserve everything he found in Lucretius' original copy.

There appears to be a way out for Gaiser's view. It is conceivable that the editor introduced the lines where he did *mechanically*, if they were written in the intercolumnium of the roll. He added the marginal lines to the third rather than the second column of Lucretius' autograph. This would imply that Lucretius' autograph had about 20 lines per column, which is a rather low figure, but perhaps not impossible. It would also imply that the marginal additions were added, against convention, on the left of the column.

But some difficulties remain for Gaiser's theory: one has to assume that Lucretius' *notarius*, or Lucretius himself, did not take care to separate one set of lines from the other, and that he did not delete clearly lines 29-32 (or that the 'editor' missed or ignored such deletion). And, if lines 49-53 were a marginal correction of (i.e. an alternative to) lines 29-32, why did Lucretius repeat word by word lines 29 and 30 in the 'correction' as lines 49 and 50?⁸¹⁰ A further consideration, which makes me suspicious of Gaiser's explanation, is that it is a very lucky coincidence that lines 45-53 taken together make perfect sense, syntax and style.

The possibility of two alternative versions of the syllabus is certainly more economical. One faces the difficulty that the outdated version was never deleted, or the 'editor' missed the deletion. Another possibility is that Lucretius, still undecided, had not indicated which version should be deleted. Since each book of the *DRN* was almost certainly written on a separate roll, a switch in the order of books would have been a simple procedure.

⁸¹⁰ One possibility is perhaps that the repetition was a way of indicating that the lines were an addition, and where in the text they should be inserted. But one may wonder whether repeating one line (rather than two lines) would not have done for that purpose.

The ‘editor’ would have been presented with separate rolls for the different books, it was his decision whether III or IV should come first, although presumably the numbers of the books would have been indicated on the rolls. *If* Lucretius had not yet made up his mind, he probably would not have altered the numbers of the rolls.

It seems reasonable to assume that the second version of the syllabus was written either in the *intercolumnium* or on the back of the roll,⁸¹¹ unless the ‘editor’ recovered the text from the wax tablets Lucretius presumably used, which sounds rather far-fetched.⁸¹² It is surprising that the ‘editor’ kept both versions in the text, especially since one of them would have been written separately. Perhaps the ‘editor’, as Conte suggests,⁸¹³ avoided interfering with the text of the ‘autograph’, since he included such an obviously repetitive passage (see above note 809).

⁸¹¹ There is evidence for rolls *opisthographoi* from Herculaneum (Capasso 1991: 210). Writing on the back is additions by Philodemus to his own works. Examples are *PHerc.* 1670 (see Ferrario 1972), and *PHerc.* 1021 (Gallo 2002: 52-56). Dorandi (2001: 344) argues that *PHerc.* 1021 was Philodemus’ working copy (“copia di lavoro”) because of the disordered writing, the number of corrections, insertions and transpositions in the text. He seems to think that Philodemus had collected material on this roll from other sources, preparing for the composition of his work on Plato’s school.

⁸¹² Drafts would presumably have been made on re-usable wax tablets before committing the text to papyrus (which was expensive). It is reported (Diogenes Laertius III. 37) that Plato’s *Laws* were left on wax tablets, and that alternative orderings for the beginning of the *Republic* were found. Philodemus, however, seems to have worked his draft on papyrus in *PHerc.* 1021. Conventions may have been different for poetry (with poets committing their text to papyrus only when more wedded to it), but one cannot exclude that alterations other than the introduction of the ‘double syllabus’ had been made on the rolls Lucretius’ original copy.

⁸¹³ Above page 384.

The state of the text shows that the poem was not handed out for further copying by Lucretius himself.⁸¹⁴ Had Lucretius been the ‘editor’, the mistake would have not gone unnoticed. St. Jerome’s statement⁸¹⁵ that Lucretius’ poem was edited posthumously (. . . *cum aliquot libros . . . conscripsisset, quos postea*⁸¹⁶ *Cicero emendavit, . . .*), is corroborated by the state of the transmitted text.⁸¹⁷

The faulty condition of the text at the start of book IV does not make it more likely that the first twenty-five lines of *DRN* IV, which are repeated almost *verbatim* from *DRN* I 926-950, were introduced by Lucretius as a stopgap, or by the ‘editor’ (the book having no opening). Lucretius himself put these lines at the start of book IV because he wanted them there.⁸¹⁸

Schiesaro (1994: 101), following Conte, convincingly reads the repetition at the start of *DRN* IV as a ‘proem in the middle’, and comments on two features. First

⁸¹⁴ I can see no reason to believe that either set of line could be an interpolation, although Giancotti (1994: 492) suggests this for lines 45-53.

⁸¹⁵ In his entry in the *Chronicon* of Eusebius for 94 B.C., although a minority of MSS record the entry under the years 96 or 93 B.C. (Smith 1992a: x).

⁸¹⁶ That St. Jerome used this *postea* with the meaning *post obitum eius* is argued in Scarcia (1964: 104-6) on the parallel of the *lemma* for Varius and Tucca: *Varius et Tucca, Vergilii et Horatii contubernales, poetae habentur illustres, qui Aeneidos postea libros emendarunt sub lege ea ut nihil adderent*.

⁸¹⁷ This does not mean that material in St. Jerome’s entry derives from Suetonius’ *De viris illustribus*. That the poem had a posthumous editor might have been extrapolated from the state of the text or from the (probably fabricated) information on Lucretius’ *furor* and suicide (Giancotti 1994: xx). Since the *lemma* cannot be traced back to Suetonius, the statement that a certain Cicero was the editor must be treated with caution.

⁸¹⁸ It cannot be proved, however, that Lucretius would not have further reworked these lines.

there is no indication that this is in fact a second proem. Second, Lucretius' poem repeats almost *verbatim* a passage that the reader has already met in book I, a passage which he has met towards the end of the book, rather than at the beginning. Lucretius uses the repetition to signal that the poem is 'born again' (*palingenesis*).

Let us come back to the implications of the 'double redaction' in book IV. The condition of the text shows only that (a) Lucretius decided to alter the order of books III and IV, at some point after he had written the first syllabus to what is now book IV, not that (b) Lucretius switched books III and IV while he intervened extensively in the first draft by making additions in some places and transferring topics or that (c) Lucretius engaged in a wholesale and linear revision of the poem,⁸¹⁹ extensively re-writing the hexameters he had already produced in the first draft.

Sedley (1998: xvi-xvii) suggests that Lucretius worked his way through $\Pi\Phi$, following the sequence of topics there, although he omitted some topics and arguments. While writing this first draft, he saw how he should reorder the material in a six-book structure. This included the decision to reverse the material of books III and IV, an alteration to the order in Epicurus. Sedley suggests that "the fine detail of the restructuring" came in a second phase which Lucretius only carried out up to book III. According to Sedley the proems are the "latest stages" of his work; and the prologues of books V and VI (as well as IV) betray plans which Lucretius left unfulfilled.⁸²⁰

⁸¹⁹ One may wonder whether Lucretius needed to come to the end of his poem before going back and 'revising' what he had already written, even if it was already committed to papyrus.

⁸²⁰ This supposition seems to present some difficulties. Where did Lucretius physically write them? On the same roll as the first-draft version? When were the newly elaborated prologues to books V

It is not wholly clear whether Sedley envisages that (c) Lucretius wrote the poem at first following Epicurus closely, and then started going through it again, making extensive changes to the detail of his expression. It would appear from Sedley (1998: 160) that Lucretius' reworking of Thucydides' description of the Athenian Plague in *DRN* VI 1138-1286 would have involved considerable change.⁸²¹ This procedure seems implausible because it would involve constant change of detail.⁸²² Lucretius would have been producing a carefully versified first draft, knowing that he would be not just discarding some of it, but re-composing even the verses that were retained.⁸²³ This sounds unlikely.

But many of the changes Sedley argues Lucretius made between the first and the second draft of books I-III, but allegedly did not carry out in IV-VI, relate either to the transposition of material which might involve some adjustment at the new joins, but not extensive reworking of whole passages, or to additions (e.g. on

elaborated prologues to books V and VI written? Why did Lucretius decide to write them before he started work on the second version of those books? Did the editor replace the outdated versions of the prologue to books V and VI with the new version, or did Lucretius write the first draft without proems?

⁸²¹ On Sedley's theory (1998: 149) Lucretius would have added philosophical material on 'ghosts'. He does not explain why Lucretius would have not taken over the material on ghosts when drawing the material from his Epicurean source.

⁸²² The modifications of Epicurus' original which Sedley discusses in pages 193-198 (the introduction of specifically atomistic ideas earlier than the argument warrants) could have been present already in Lucretius' 'first' draft especially given that Sedley (1998: 201-202) attributes them also to the influence of Empedocles and so do not in themselves indicate extensive rewriting in a second draft.

⁸²³ Sedley (1998: 155) argues that the unrevised books are longer because Lucretius did some "trimming".

‘ghosts’, on the abodes of the gods and on the moral lesson of the plague 1998: 160). These would not themselves involve changing what had already been written. That Lucretius would have added a moral message to his description of the Athenian Plague is debatable in my view. If an account of ‘ghosts’ is missing from book IV (as the second version of the syllabus implies), it may be that the writing of the new syllabus — so that he could introduce book III between book II and book IV — was Lucretius’ last contribution to his poem: his idea of expanding the section on ‘ghosts’ was never carried out.⁸²⁴ The evidence for a wholesale extensive reworking of a first draft of the poem is far from compelling.

⁸²⁴ This however still leaves unexplained why the account of the *sedes* of the gods promised in *DRN* V 153-155 is not found in *DRN*.

Appendix (b). The format of *PHerc.* 1148 (ΠΦ XIV) and *PHerc.* 1151 (ΠΦ XV)

Editors of *PHerc.* 1148 after Ohly avoid speculating on a possible reconstruction of the roll, probably because of Cavallo's remarks on the futility of trying to reconstruct rolls when — as is the case with *PHerc.* 1148 (and *PHerc.* 1151) — the final stichometric is preserved but the overall height of columns is unknown.⁸²⁵ Cavallo is right to object that precise reconstruction of rolls in this condition, such as Ohly attempted, are little more than guesswork. Yet it seems worthwhile to try to determine a maximum and minimum conceivable number of columns for our roll.

It is almost⁸²⁶ certain that the final *subscriptio* of *PHerc.* 1148 gives 3,800 as the total number of στίχοι⁸²⁷ for book XIV. The reading of the preserved

⁸²⁵ Cavallo 1983: 9 and, especially, 21-22.

⁸²⁶ Leone (1984: 22, note 27) alerts us to the possibility of letters having been lost in a 15 mm gap after the final *eta*, but she rightly remarks that such a loss of letters seems rather improbable because it would spoil the symmetry of the *subscriptio*. Even if letters were lost, the difference is not enough to affect my overall argument. The highest conceivable total would be 3,910 with a further *delta* as well as an *eta*, but it seems very unlikely two stichometric letters could have disappeared in the 15 mm gap.

⁸²⁷ It is agreed that the stichometric at the end of most Herculaneum papyri (and Greek prose texts generally) does not refer the actual number of lines on the papyrus, but rather to the number of στίχοι, that is, lines thought to equate the length of an average hexameter.

stichometric letters as XXXIIHHHH = 3,800 is beyond doubt.⁸²⁸

It seems very likely that, if ‘Anonimo’ V (the scribe of *PHerc.* 1148 and, most probably, *PHerc.* 1151) counted the lines himself to work out the reckoning of the final stichometric, he would have taken 200 of his lines to correspond to 100 στίχοι.⁸²⁹ This would make the text of our roll 7,600 lines long, to the closest hundred. The uncertainty concerning whether marginal stichometric indicators⁸³⁰ appear in *PHerc.* 1148, however, makes one doubt whether ‘Anonimo V’ counted

⁸²⁸ Sedley (1973: 10) thought the stichometric of *PHerc.* 1148 was XXXIIHHHHI, and that the total number of lines was 3,600 (the stichometric being corrupt through a dittography of IIHH). Leone (1984: 64) is in no doubt that the stichometric is XXXIIHHHH. Her reading is certainly correct. Sedley, presumably convinced by Leone, changed his mind in 1998: 103 and takes 3,800 as the basis for his calculations about the length of book XIV (roughly 136,800 letters, i.e. 22,000 words long).

⁸²⁹ According to Cavallo (1983: 21) and Puglia 180 lines for 100 στίχοι was an alternative reckoning. Since the lines in *PHerc.* 1148 average 19-20 letters, which is slightly more than half an average hexameter, one might think our papyrus could have used the alternative reckoning. But there seems to be little evidence for the 180 lines reckoning — the only examples being *PHerc.* 1424 (Cavallo 1983: 14-16), and *PHerc.* 1414 according to Puglia (1997: 127) — while the 200 lines for 100 στίχοι reckoning, as well as appearing more practical, is widely attested in prose rolls from Herculaneum. 200 lines for 100 στίχοι seems to have been the norm in texts of Philodemus: e.g. *Περὶ εὐσεβείας* (Obbink 1996: 62-63) where the average line is ‘only’ 13-14 letters, and *Περὶ ποιημάτων* where the average is 17.7-19.5 letters per line (Janko2000: 118). The logical papyrus *P.Par* 2 = *P.Louvre Inv.* 2326, which is dated on the basis of a document on the back to the close of the third century B.C. (the postulated date of *PHerc.* 1148 and 1151), has stichometric dots every two hundred lines. Here the number of letters per lines varies between 10 and 22 (Donnini Macciò - Funghi 1985: 130). And Dionysius of Halicarnassus’ report (*Thucydides* X. 40) that Thucydides I. 1-88 (= 51 pages of OCT), which forms two-thirds of the book, is 2,000 στίχοι long seems at least consistent with a reckoning of 100 στίχοι for 200 lines.

⁸³⁰ See below note 855 for a possible indicator of the number of columns.

his lines. The final stichometric may well have been, as Sedley (1998: 103, note 27) suggests, part of the transmitted text.⁸³¹ It is conceivable, and perhaps likely, that the stichometric indicates the ‘real’ number of lines as written in the archetype of *PHerc.* 1148 (and *PHerc.* 1151), where the lines may have been written in units equivalent to the ‘hexameter-length’.⁸³²

Even if the stichometric reckoning does not refer to the actual roll of *PHerc.* 1148, but to an earlier roll, the accuracy of the total figure is not completely invalidated. Given that the average number of letters per line in *PHerc.* 1148 is 19,⁸³³ and that 36 letters seems the working hypothesis for the average length of one στίχος,⁸³⁴ the difference between the two reckonings cannot have been great. It is very likely that the roll of *PHerc.* 1148 contained about 7,600 lines, and certain that it included at least 7,000 lines.⁸³⁵

Ohly suggested that *PHerc.* 1148 had a total of 7,600 lines spread over 211

⁸³¹ The fact that the name of the ἀρχων is abbreviated in the *subscriptio* to *PHerc.* 1151, but not in that to 1148, strongly suggests that ‘Anonimo V’ copied the *subscriptio* exactly as it appeared in the exemplar, and that therefore the reckoning preserved is that of the exemplar.

⁸³² Van Sickle (1980: 7) refers to a copy of Plato’s *Phaedo* of the III B.C. (note 21 on page 32: P.Petrie 1.5-8, P. Lit. Lon. 145; Pack¹ 1083), with 24-32 letters per line. Is this an example of a prose text one line corresponded to one στίχος?

⁸³³ Leone 1984: 23 gives 19-20 as the average number of letters per line.

⁸³⁴ Graux proposed *circa* 34-38 letters; Diels *circa* 15-18 syllables, which are roughly equivalent to 34-38 letters.

⁸³⁵ Sedley (1998: 103, note 27) is right in pointing out that one should allow for margin of error in such calculations.

columns, each column containing 36 lines, in a roll 22.5-23 cm high.⁸³⁶ His starting point of 7,600 lines for the roll cannot be far off the mark. Let us now consider his suggestion that the roll was 22.5-23 cm high.⁸³⁷

The size of the extant fragments of *PHerc.* 1148 does not help in working out the height of the roll. The earliest surviving *inventaria* of the Herculaneum papyri, which probably date to 1781, give the height of *PHerc.* 1148 as 7 *once*.⁸³⁸ This corresponds exactly to the measurements of the papyrus as it survives today.⁸³⁹ The fabric of *PHerc.* 1148 reaches 14 cm in some of the fragments.⁸⁴⁰ It seems very likely the roll was found already broken, or broken during recovery.⁸⁴¹ Whether the lower

⁸³⁶ Ohly 1924: 211-212. Bassi (1909: 346) on the other hand had worked on the basis of 3,800 *prose* lines, which invalidates his reconstruction of the roll.

⁸³⁷ No marginal stichometric letters can be seen in *PHerc.* 1148. The only way to gather the approximate number of lines per column is by determining the height of the roll, and so the height of the columns and hence the number of lines per column.

⁸³⁸ Blank and Auricchio 2004: 89. *PHerc.* 1151 (ΠΦ XV) is recorded as being 6 “once” in height (1. 4/5 in width). Both rolls are described as “facile a sfogliarsi” which may suggest that no *scorzatura* was undertaken on them, but they went straight to Piaggio’s *macchina*. The outermost layers were perhaps reduced to ashes by the pyroclastic flow.

⁸³⁹ This rules out Casanova, who unrolled the papyrus in 1803, or Hayter, Casanova’s supervisor. It is perhaps still conceivable that Paderni, who worked on the Herculaneum rolls before Hayter’s times, decided to cut the roll horizontally at its centre. But I know of no parallel for such a procedure.

⁸⁴⁰ These columns have 23 lines (Leone 1984: 22). Since the margin is 2.5 cm, 23 lines were fitted into 11.5 cm, approximately 1 line every half cm.

⁸⁴¹ Arrighetti (1973: 577) has it that *PHerc.* 1149/993 (ΠΦ II) “fu spezzato in due parti”, implying this was done intentionally, but gives no supporting arguments for this. *PHerc.* 1149, the top portion of the roll, preserved about two thirds of the total length of the column. *PHerc.* 1479 (unrolled in

portion of the roll was ever retrieved, is amongst the unrolled *midolli* in the *Officina* or was destroyed in one of the attempts at opening the rolls which preceded Piaggio cannot be determined on the present evidence. One has to turn to the evidence from other rolls.

In rolls from Herculaneum a height of between 20 and 24 cm seems to be the norm. Bassi proposed 18-19 cm as the standard height,⁸⁴² but Cavallo suggests rather between 19 and 24 cm, usually 21.⁸⁴³ Cavallo points out that the format with a height over 24 cm is rather rare (“*assai raro*”) in Greek-Egyptian papyri before the late first century A.D. and that this larger format appears not to be attested in Greek rolls from Herculaneum. Capasso similarly concludes (1991: 205) that the Greek rolls from Herculaneum are between 19-20 and 23-24 cm high, usually 21-22 cm.

Given that Egyptian rolls taller than 24 cm are attested,⁸⁴⁴ I shall take it, for

1804) and *PHerc.* 1417 (unrolled in 1808) are the upper and lower parts of the same roll broken in two (Sedley 1973: 6). Sedley (1973: 10) also points out that the central lines of each column, perhaps 3 or 4 lines out of 32-33, are missing. Presumably the fabric containing the central four lines crumbled and was lost. For the situation with *PHerc.* 1431 (of which we have only the top half of the *midollo*; see Leone 2002: 12). It may be that only the parts of the rolls which stuck out of the solidified ashes were recovered, and that the lower parts are still waiting in the villa.

⁸⁴² *Papiri Ercolanesi inediti* (1908): 6.

⁸⁴³ Cavallo 1983: 47-48. Cavallo (1983: 15-16) gives as safely reconstructed rolls (all measurements are *circa*): *PHerc.* 1497: 10.5 meters x 23.5 cm; *PHerc.* 1050: 10 meters x 20 cm; *PHerc.* 1414: 9 metres x 19-22 cm; *PHerc.* 1424: 6.5 meters x 21 cm; *PHerc.* 1471: 11.5 meters x 21 cm.

⁸⁴⁴ Cavallo perhaps slightly underestimated the occurrence of rolls taller than 24 cm in Ptolemaic Egypt. He mentions, as an exception, *PTebt.* I (late second century B.C.), which is 30.5 cm high. Johnson (2004: 141-142) concludes that before the Roman era the standard for literary rolls was 19-25 cm (although in the Roman era papyri could surpass 33 cm). Out of 11 examples from Ptolemaic Egypt in his

the sake of argument — in my view the roll was not higher than 25 cm — that 28 cm was the height of the roll. My reason for taking a maximum height is that the number of columns is kept at a minimum and the surviving part is therefore a greater proportion of the whole book than it would be with a lesser height, and therefore the polemic represented a greater proportion of the whole book. A height of 28 cm would give a total of 175 columns for *PHerc.* 1148, with between 43 and 44 lines per page, and a roll 12.25 meters long.⁸⁴⁵ A height of 25 cm would make the total 200 columns, with 38 lines per page, and a roll *circa* 14 meters long.

The rolls from Herculaneum are only rarely over 10-11 meters in length, usually between 6 and 9 meters.⁸⁴⁶ The two longest safely attested rolls from Herculaneum are *PHerc.* 1426 and *PHerc.* 1425.⁸⁴⁷ *PHerc.* 1426 (Περὶ ῥητορικῆς III) had 205 columns, but the total length of the roll did not exceed 13 meters, according to Hammerstaedt (1992: 13). Janko calculated that *PHerc.* 1425 (Περὶ ποιημάτων V) had perhaps as many as 269 columns,⁸⁴⁸ which would result in a roll just under 14.5 meters, 14. 1 meters being the length of the written space.⁸⁴⁹ This

chart 3.6 (2004: 216) no papyrus reaches 30 cm, but three are in the 25 cm range, and 2 above it.

⁸⁴⁵ Taking a minimum total of 7,000 lines for the papyrus.

⁸⁴⁶ Cavallo 1983: 47; Capasso 1991: 205.

⁸⁴⁷ Obbink 1996: 70.

⁸⁴⁸ Janko 1991: 62, note 346. Both Janko and Mangoni propose alternative reconstructions, in which they adopt the 180 lines for 100 στίχοι standard. Del Mastro (2001: 379-380) has found stichometric dots every 20 lines on this papyrus, which suggests that the reckoning was 20 lines for 10 στίχοι. Del Mastro has also found three stichometric letters, but was unable to decipher them.

⁸⁴⁹ The columns in this papyrus are *circa* 4 cm wide and the *intercolumnium* is between 1 and 1.5 cm (Mangoni 1991: 67).

figure has been disputed by Mangoni (1992: 133 and 137, note 39), who calculates (from correspondence with the edition in *PHerc.* 1538) that the roll had 256 columns, i.e. that it was 13 meters long. Also of interest is *PHerc.* 1427 (Περὶ ῥητορικῆς I), which had XXXX (4,000) στίχοι. Puglia (1997: 124-125) corroborates Ohly's suggestion that the final *subscriptio* gave [σ]λζ (237) as the number of columns, and that the roll was 15.80 meters long. Yet Puglia does not rule out the possibility that the book was divided into two rolls.⁸⁵⁰ The roll of which *PHerc.* 1428 was the *midollo*, containing Philodemus' Περὶ εὐσεβείας, seems to have been one of two tomes (Obbink 1996: 70). In that case the reckoning of columns, and perhaps of lines,⁸⁵¹ continued from one roll to the other.

The total reckoning of Περὶ εὐσεβείας was in excess of 5,000 στίχοι (Puglia 1997: 124). That the counting of columns did continue throughout is shown by the numbers τι (310), τκ (320) found in the lower margins of *PHerc.* 1428, which record the number of columns (Obbink 1996: 69). Puglia (1997: 125) finds also a τξ (360), and shows that τ[ξ]ζ total number in the *subscriptio*. *If it was not* divided into

⁸⁵⁰ Obbink (1996: 72, note 2) reports that at the end of *PHerc.* 1423, the first roll of Περὶ ῥητορικῆς IV, we read τῶν εἰς δύο τὸ πρότερον, but in the roll containing the second part of the book, *PHerc.* 1007, there is no sign of any such indication in the *subscriptio* either on the papyrus, or in the *disegno*. *PHerc.* 1538, on the other hand, carries the following *subscriptio*: Φιλοδήμου | Περὶ ποιημάτων [το]ῦ ε' | [τῶ]ν εἰς δύο | [τ]ὸ β'.

⁸⁵¹ There is no way of determining with which stichometric letter the second roll started, but there is no reason to suppose that the scribe intentionally finished the first tome at ω and made the second tome longer.

two tomes *PHerc.* 1428 would have been an example of a roll 23 meters long.⁸⁵²

Parallels for rolls of such length are few and very uncertain. Johnson (2004: 146) suggests that *POxy.* 341 (Thucydides book VIII) and *POxy.* 2096+3374 (Herodotus book I) preserved the entire book, rather than parts of it. This would make the two rolls respectively 17.6 and 22.9 meters long. Johnson also refers, more tentatively, to *POxy.* 3156+3669, which according to his reconstruction would have been 25-26 meters long. He himself (2004: 146, note 58) mentions that these could have been two different rolls because of the different format of the writing in some of the fragments. The fragments may come from two different rolls presumably also in *POxy.* 2096+3374 so that conclusive evidence that rolls could stretch to more than 20 meters is still needed. This makes me very cautious about the possibility that *Περὶ εὐσεβείας* was in one *enormous* roll more than half of which was destroyed

⁸⁵² All the *scorze* which Obbink attributes to *Περὶ εὐσεβείας* could perhaps belong to a single roll, of which *PHerc.* 1428 is the *midollo*. According to Obbink (1996: 72-73) we have remains from two rolls; he thinks that *scorzatura totale* was undertaken on the roll containing the first part of the treatise (*PHerc.* 229, 247/242, 437/452, 1077, 1098, 1610 and 1788), but that only *scorzatura parziale* was undertaken on the second roll (*PHerc.* 243, 433, 1088, 1602, 1609 and 1648), the *midollo* of which (*PHerc.* 1428) was unrolled in 1802. I have not personally inspected the relevant papyri, but it sounds as though there is a possibility that we are only reading remains from the roll containing the second part of the treatise, which may or may not have been longer than the first. If as Obbink (1996: 72) assumes, the scribe started again from α in the roll containing the second part (irrespectively of the reckoning of the previous roll), the roll containing the second part of the treatise was longer. Remarks in Johnson (2004: 148, note 66) seem to imply that Obbink now adheres to the theory that the whole work was written in one roll. This would be based on a testimony of an *interprete* (one of the first scholars who worked on the papyri) who speaks of one roll. But one wonders what the *interprete* knew about the matter. Cavallo (1983: 37) had assigned the hand of *PHerc.* 242 and 247 to different groups.

before it underwent *scorzatura*.

Janko (2000: 109 and 118) reconstructs the roll containing book I of Philodemus' *Περὶ ποιημάτων*. It had at least 213 columns: the column to column width was 7.4-7.8 cm (2000: 72), so that the roll would have come to at least 16.4 meters, excluding blanks at the beginning and the end (2000: 109).⁸⁵³ The evidence from *PHerc.* 1428 though makes one consider the possibility that *Περὶ ποιημάτων* I too may have been divided into two tomes (and that some of the *scorze* which Janko groups together are from two different tomes). Scribes sometimes did not report that a roll was a second tome (above note 850). My objection to thinking that *Περὶ ποιημάτων* I was divided into two tomes is that the *midollo* of one of the two rolls would have gone missing.⁸⁵⁴

Although rolls which are longer than 15 meters, assuming they are safely reconstructed, are exceptions and were produced much later than *PHerc.* 1148 and 1151, one cannot rule out that *PHerc.* 1148 stretched to over 15 meters in length. It is perhaps conceivable that *PHerc.* 1148 had as many as 250 columns, with a roll 18 cm high and 17.50 meters long. Certainly the main objection to Ohly's reconstruction of *PHerc.* 1148, namely that the roll becomes too long, seems untenable. What is more, there is no proof that *ΠΦ* book XIV could not have been

⁸⁵³ Janko (2000: 115) finds the stichometric letters δ (400 στίχοι), θ (800) and μ (1,200), between short horizontal lines. He argues (2000: 118) that the scribe must have gone through the whole alphabet and then started again from α, since there are 213 extant columns. Del Mastro (2001: 380) points out that in *PHerc.* 1425 (*Περὶ ποιημάτων* V) there is no trace of final reckoning. *PHerc.* 1581 has a γ, and *PHerc.* 403 has an ε (which Janko read as τ and υ). Both *PHerc.* 1581 and 403 are *scorze* coming ahead of *midollo* (*PHerc.* 1425). The scribe was probably going through the alphabet a second time here.

⁸⁵⁴ Unless, that it, one of the rolls underwent *scorzatura totale*, but there is no evidence for it.

divided into two rolls.⁸⁵⁵

Further indication may come from the size of the top margin in our roll.⁸⁵⁶ The columns usually take up 3/4 or 4/5 of the total height of the roll (Cavallo 1983: 19).⁸⁵⁷ Given that the margin in *PHerc.* 1148 is roughly 2.5 cm and that therefore the two margins presumably added up to 5 cm,⁸⁵⁸ the evidence again suggests a roll 20-

⁸⁵⁵ The multispectral images of *PHerc.* 1148 reveal traces of ink in the margin above column XI. The traces seem consistent with a π (see above page 98). Assuming that the π was used as the number 80, it probably refers to the number of the columns of the roll so far. A figure of 80 columns at column XI, which would make the total of the roll something like 115 columns, is certainly impossible, unless Bassi was right and Ohly wrong, and we have the number of *prose lines* (above note 836). There are two further possibilities. One is that $\Pi\Phi$ XIV was divided into two tomes and the scribe started the reckoning afresh with the second tome. Indeed there is further illegible writing beneath the last line of the *subscriptio* which could have referred to a division into two tomes. A possible objection to this view is that the reckoning in Philodemus' $\Pi\epsilon\rho\iota\ \epsilon\upsilon\sigma\epsilon\beta\epsilon\iota\alpha\varsigma$ seems to have continued from one roll to the other (above note 852). $\Pi\epsilon\rho\iota\ \epsilon\upsilon\sigma\epsilon\beta\epsilon\iota\alpha\varsigma$ however was written much later so that conventions may have been different. A further possibility is to assume that a letter ρ (=100) preceded the π (which would still allow but not require that the book was divided into two tomes) but there is no trace of ink to confirm such a supposition.

⁸⁵⁶ None of the bottom margins of *PHerc.* 1148 survives. Johnson (2004: 134) argues that the upper margin was often smaller than the top one in literary texts, but only by a ratio of 4:5 or 6:7.

⁸⁵⁷ Capasso (1991: 208-209) cites *PHerc.* 994/1676, 1423, 1425, 1426, 1427, 1497 as examples of the 3/4 standard and *PHerc.* 1021, 1007/ 1673, 1050, 1065 as examples of the 4/5 standard. Capasso agrees with Cavallo that in some cases the margins do not survive complete. The examples in Johnson's (2004) chart 3.5d(2), pages 137-138 support Cavallo's view: out of twenty six examples of informally and unexceptionally written papyri from Oxyrhynchus only in one case is the height of the column below 60% of that of the whole roll.

⁸⁵⁸ Cavallo does not comment on whether the top and bottom margin are always the same height. Leone (1984: 23) is concerned that we do not know whether the bottom margin was the same height as

25 cm high. It is worth pointing out that *PHerc.* 1479/1417, which presents a top margin just over 2.5 cm, the bottom one being about 3 cm, had 32-33 lines per column (Sedley 1973: 10).⁸⁵⁹

Cavallo (1983: 49) notes that rolls from Herculaneum keep to the 1/3 ratio between width and height of the column. This would suggest a column 17-18 cm high, with a roll approximately 23 cm high and 15 meters long. If the roll was 28 cm high the ratio of the width of the column to its length would, unusually, have been as little as 1/4. One should not however place too much weight on such calculations, since we cannot be certain that the margin survives complete.

Evidence from the number of lines per column in other papyri⁸⁶⁰ cannot be of much help, because it depends on size of the letters and of the interlinear space in the particular copy. At any rate 40 lines per column, with a roll of 28 cm high and

the top one. But this is not a major obstacle to estimating approximately the number of lines per column. Even if the bottom margin was higher (say, about half a cm higher), we would be dealing with 1 line per column or thereabouts, which would not seriously affect the reckoning, especially considering that the number of lines per column would not be exactly the same for every column.

⁸⁵⁹ It is interesting that between the first and the second column of *cornice* 10, in correspondence to line 11, there is a sign made up of a circle with a horizontal bar above and one below. This was part of a *coronis* which probably extended to the further traces of ink above it in the margin; it very aptly marks the end of the criticism of Plato, and the switch to the section where Epicurus defends himself from charges of being un-original (the last four columns of *PHerc.* 1148). A comparable but more elaborate sign appears in correspondence of the last line of the book in *cornice* 11, to signal the end of the book.

⁸⁶⁰ Capasso (1991: 208) comments on how the number of lines per column is variable (as in Egyptian papyri): “la quantità minima è compresa tra le 25 e le 30 (*PHerc.* 994/1676, 1007/1673)), quella media oscilla tra le 30 e le 34 (*PHerc.* 1423, 1426, 1027), quella alta da 34 a 38 (*PHerc.* 1050, 1065, 1425, 1427), quella altissima arriva a 40 e va anche oltre (*PHerc.* 1021, 1424, 1497, 1672)”.

12.25 meters long, would be a very high figure.⁸⁶¹

Other rolls of Epicurus' ΠΦ from Herculaneum are not much help. Unfortunately *PHerc.* 1037 and 1158, allegedly by 'Anonimo V',⁸⁶² are not complete.⁸⁶³ *PHerc.* 1191 (ΠΦ XXV) seems worth comparing, since it is part of Cavallo's group A, which, although earlier than group D, is graphically similar. According to Laursen (1995: 9), the columns of *PHerc.* 1191 had "between 26 and 29 (possibly 30) lines of text". *PHerc.* 1149/993,⁸⁶⁴ which was very probably from the same edition as *PHerc.* 1191, had probably a very similar format.

To conclude, it looks as though the number of columns making up book XIV would probably have fallen between 214 columns (with a roll, or two rolls, 23 cm high and 15 meters long) and 175 columns (with a roll 28 cm high and 12.25 meters long).

Let us now consider *PHerc.* 1151, the roll containing ΠΦ XV. The final

⁸⁶¹ Especially when one considers the size of the letters on *PHerc.* 1148, which is above average for Herculaneum rolls.

⁸⁶² One cannot assume that the scribe would always use rolls of the same format, height being what interests us here especially. The Greek importers of papyrus very probably would have kept stocks of various sizes. Pliny, Book XIII, 23 (75), is evidence for paper being imported from Alexandria and (77) sheets being joined together in Egypt. But perhaps when a complete edition of ΠΦ was undertaken, a stock of 37 rolls would have been acquired, and one would assume that the rolls had the same format, especially the same height. A further relevant question appears to be whether higher rolls were used only for longer works, so that such works could be fitted in one roll. But the fact that Philodemus' Περὶ ὀργῆς ira had 'only' 124 columns of 40 lines seems to speak against this supposition. The size of book shelves would also have played a part.

⁸⁶³ No roll appears to be safely reconstructed among the papyri from ΠΦ in Cavallo's Group D.

⁸⁶⁴ See above note 841 on how this papyrus broke.

stichometric is XXXHH = 3,200.⁸⁶⁵ This means that if the roll was 28 cm high the whole book would have been made up of 151.5 columns, with 43–44 lines each, making up 10.6 meters, if the roll was 25 cm high the whole book would have spread over 159 columns, with roughly 39 lines each, that is a roll longer than 11.1 meters, and if the roll was 22 cm high its length would have been just above 13 meters long (with *circa* 189 columns containing 34 lines each).

⁸⁶⁵ Millot (1973: 26) warns that one or two letters may be lost at the end of the number. Sedley (1998: 102, note 25) assumes that Millot thought a digit might have been lost at the start, which would be much more problematic for reconstructing the roll. Although Millot is worried about the two horizontals before the first χ , she rightly understands them as number-indicators. Millot does not suggest that they could be traces of a stichometric letter, and, at any rate, there is no space for one on *PHerc.* 1151. As for the possibility of letters being lost at the end, the first of the Napoli *disegni* (N) does not show any gap in the fabric after the final *eta*, and gives the stichometric as XXXHH=3,200. N draws gaps in the fabric elsewhere in the page, though, admittedly, one cannot assume N was always accurate.

Appendix (c). Do Epicurus' *Ad Herodotum* and *Ad Pythoclem* reflect continuous books of ΠΦ?

The starting point for understanding how Epicurus redacted his ἐπιτομαί is the opening of *Ad Herodotum*, in particular sections 35 and 37. *Ad Herodotum* 35 — Sedley (1998: 109) argues — shows that Epicurus is reproducing the content of the books of ΠΦ he had composed by that time. It is certainly tempting to take ἕκαστα τῶν περὶ φύσεως ἀναγεγραμμένων and τὰς μείζους τῶν συντεταγμένων βίβλους as referring specifically to the books of ΠΦ,⁸⁶⁶ rather than to Epicurus' writings “about nature”, generally. The expression τῆς ὅλης πραγματείας in 35 can mean “treatise” and thus refer specifically to ΠΦ. The word is used for a lecture course in several books,⁸⁶⁷ such as Aristotle's *Physics*, and therefore could apply to

⁸⁶⁶ Sedley also proposes (1998: 99-100) that τὰς μείζους τῶν συντεταγμένων βίβλους refers to particular books of ΠΦ, namely I-II, XI-XV and XXV, which were especially treasured and studied. His reasons for holding that these were especially treasured, is that there are multiple copies of some of these books from Herculaneum, and that I-II and XI-XV are the only books referred to in the *scholia* to *Ad Herodotum* and *Ad Pythoclem*. There seems to be no compelling reason to think that some books of ΠΦ were considered more important than others. Epicurus' μείζους βίβλους may refer to “larger books” or “books containing a fuller treatment” (i.e. presumably those of ΠΦ as opposed to less detailed works), rather than “books which are doctrinally more important”.

⁸⁶⁷ On the development in meaning of the word πραγματεία see Untersteiner (1980: 41), who endorses Jaeger's view that the word originally referred to the way of carrying out research and the research itself, that from this sense derived the meaning ‘treatise’, and that the meaning extends to “field

ΠΦ.⁸⁶⁸ The references to ὀλοσχερωτάτων δοξῶν in 35 and to ὄλων δοξῶν in 37,⁸⁶⁹ on the other hand, suggest perhaps a comprehensive account of the δόξαι, rather than a text which reproduced step by step the order of the treatment in ΠΦ.

Sedley argues further that Epicurus intentionally left out of the account in *Ad Herodotum* the detailed explanation of cosmological, meteorological and astronomical phenomena given in ΠΦ XI, XII and sections of XIII, which — Sedley has it — Epicurus had written by the time he composed *Ad Herodotum*.⁸⁷⁰ An objection to this theory is that Epicurus would be stating that he has summarised ἡ ὄλη πραγματεία, when in fact he had left out most of the material from the three books he had written last.⁸⁷¹

of study” (e.g. ἡ φυσικὴ πραγματεία in *De caelo* IV 1. 308a1).

⁸⁶⁸ Epicurus’ usage in 86 (πολλὰ τῶν κατὰ μέρος ἑξακριβουμένων κατὰ τὴν ὄλην πραγματείαν ἡμῖν) is perhaps not inconsistent with this reading, although the fact itself that Epicurus says in the passage that the students should work this out themselves suggests that he was being selective.

⁸⁶⁹ Although Hicks (1931: 565 and 567) translates both terms with “whole”, according to LSJ ὀλοσχερής in this passage means “in rough (or general) outline”, their third meaning. Perhaps Epicurus having made the point that the summary has to be selective in 35 did not feel he needed to specify the point again at 37.

⁸⁷⁰ Sedley does not explain why Epicurus would have omitted these topics in *Ad Herodotum*. In fact some of the topics of ΠΦ XI and XII are mentioned in *Ad Herodotum* (origin and mortality of worlds in 73b, shape of worlds in 74, civilisation and language in 75-76a, astronomy in 76b-80). The fact that the scholiast in 74 notes that the treatment in ΠΦ XII is different from that in *Ad Herodotum* may suggest that *Ad Herodotum* was written before ΠΦ XII.

⁸⁷¹ On the relative chronology of *Ad Herodotum* and ΠΦ, above page 217 and note 377.

Analysis of the contents of *Ad Herodotum*⁸⁷² suggests that paragraphs 37-42 reproduced at many points the sequence of topics of ΠΦ I, and perhaps part of ΠΦ II (above page 224-226),⁸⁷³ but it is far from certain that *Ad Herodotum* 43-82 can be taken as reproducing the order of topics of the latter parts of ΠΦ II and the following books. Although all the topics of *DRN* II appear in *Ad Herodotum*, the sequence is different, as the chart in Bailey (1947: 23) shows. It is disputable in this case whether *Ad Herodotum* 43-82 or *DRN* II reflect the sequence of ΠΦ.

The treatment of images in the final part of ΠΦ II is divided into three

⁸⁷² Giussani (1923: 1-11) explained the ‘disorder’ he finds in *Ad Herodotum* as largely due to mishaps in transmission, whereby sections were lost and displaced. But Arrighetti (1973: 717-721) defends the structure of *Ad Herodotum*, arguing that the repetitions mirror the double treatment of some topics in ΠΦ (which suggests that *Ad Herodotum* reflected the sequence of ΠΦ).

⁸⁷³ Agreement of *Ad Herodotum* and *DRN* should probably be taken as representing the order of ΠΦ. *Ad Herodotum* and *DRN* I agree except for (1) the methodological remarks of *Ad Herodotum* 37(end)-38 (which are comparable to *Ad Pythoclem* 87), (2) τὸ πᾶν ἀεὶ τοιοῦτον ἦν οἶον νῦν ἐστὶ, καὶ ἀεὶ τοιοῦτον ἔσται which comes in 39 in *Ad Herodotum*, but is not treated until *DRN* II 294-307 by Lucretius, (3) the section on the *minima* in *DRN* I 599-634 (below 3.1.2). Woltjer (1877: 11) argues that Epicurus had (1) preliminary remarks on language and methods of interpreting the evidence of senses in ΠΦ I. He thinks Lucretius omitted the first part and inserted what he had to say about canonic in book IV: “quo rursus factum est, ut multa in tribus prioribus libris scripta quarto demum libro perlecto bene intellegi potest”. Sedley (1998: 113) independently makes the same point. It is possible, and perhaps likely, that methodological remarks similar to (1) those in *Ad Herodotum* were the opening topic of ΠΦ I. Sedley (1998: 193) thinks that Lucretius omitted (2) because he did not understand it. Yet the idea appears again in the argument for the eternity of the universe at *DRN* V 359-363. One cannot be certain perhaps that τὸ πᾶν ἀεὶ τοιοῦτον ἦν οἶον νῦν ἐστὶ, καὶ ἀεὶ τοιοῦτον ἔσται did not figure in ΠΦ I. On how *Ad Herodotum* and *DRN* are related, above note 34.

subsections:⁸⁷⁴ (a) existence, (b) speed of generation and (c) velocity of images. The sequence is inverted to (a), (c) and (b) in *Ad Herodotum*. Sedley (1998: 116) has to explain the discrepancy between the two texts by supposing that Epicurus worked from memory within each topic, although he had looked up the sequence of the topics in ΠΦ.⁸⁷⁵ Given the discrepancies between *Ad Herodotum* and *DRN* II, and the fact that *DRN* has been shown to be closer to ΠΦ than *Ad Herodotum* where the treatment of images is concerned, one cannot assume that *Ad Herodotum* always reproduced accurately the order of ΠΦ.⁸⁷⁶

Let us now consider *Ad Pythoclem*. The order of topics of *Ad Pythoclem* and that of *DRN* V and VI only corresponds at times.⁸⁷⁷ It seems clear that *Ad Pythoclem* 88-98 reproduced ΠΦ XI and a part of ΠΦ XII (Arrighetti 1975: 43). However the proof of the origin, shape and mortality of the world comes ahead of astronomy in *Ad Pythoclem*, but after it, as far as we can tell, in ΠΦ.⁸⁷⁸ *Ad Pythoclem* omits

⁸⁷⁴ Sedley (1998: 111-112) argues convincingly against Arrighetti (1973: 580) that the εἰδωλα took up only part of the book, finding support in the *scholium* to *Ad Herodotum* 73, according to which Epicurus defined χρόνος as ἴδιον τι σύμπτωμα in ΠΦ II (above pages 223-225).

⁸⁷⁵ It seems worth pointing out that, just as *Ad Herodotum* does not have a separate section proving the fineness of images, so Epicurus' summary of the account of images at the end of ΠΦ II does not mention fineness of images as a separate topic (Sedley 1998: 112).

⁸⁷⁶ According to Sedley *Ad Herodotum* reproduced ΠΦ up to book XIII (with the exclusion of XI, XII and parts of XIII).

⁸⁷⁷ The order of topics corresponds fairly well at the start of the letter (except for some understandable omissions): 88-90b~*DRN* V 91-508 / 91~omitted / 92-93~*DRN* V 509-533 / omitted~534-563 / 93~omitted / 94-98a~V 575-770. Arrighetti (1975: 42) explains the fact that *DRN* V 91-508 are not very close to the treatment in the letters by supposing that Lucretius altered the disposition he found in ΠΦ.

⁸⁷⁸ Arrighetti 1975: 39-41.

altogether the origin of civilisation and language, not surprisingly since the work is dedicated to μετέωρα.⁸⁷⁹ Especially striking is the fact that *Ad Pythoclem* treats clouds in chapter 99, before thunder, lightning and thunderbolts. It cannot be, therefore, that both *DRN* VI and *Ad Pythoclem* reproduce the sequence of topics found in ΠΦ on cosmology, astronomy and meteorology. Again it is certainly conceivable that *DRN*, rather than *Ad Pythoclem*, preserves the order of ΠΦ. The fact that *DRN* V 534-563 treats the μωνή of the earth, which is discussed in ΠΦ XI but is omitted in *Ad Pythoclem* may point in this direction.⁸⁸⁰

Arrighetti (1975: 41) notes that *Ad Herodotum* 73b and *DRN* V 91-508 agree in having an anti-Platonic focus against *Ad Pythoclem* 88b-90, where the polemic is geared rather against the early atomists. Arrighetti explains this by suggesting that the discussion in *Ad Pythoclem* 88b-90 reflects the fact that Epicurus came back to the topic in ΠΦ, with a different polemical intent. He thinks that the anti-Platonic sections of *Ad Pythoclem* and *Ad Herodotum* 73b depend on one of the early books of ΠΦ (perhaps ΠΦ I). This leads Arrighetti (1975: 43) to endorse Usener's insight that Epicurus similarly treated astronomy twice in ΠΦ, and that the 'double treatment' of astronomy in *Ad Pythoclem* (88-98 and 111-116) reflects this.⁸⁸¹ The second account considers not just the sun and the moon, but also the planets and the stars. Arrighetti (1975: 44-45) argues that the methodology in XI and *Ad Pythoclem* is different, which shows that such a methodology was developed when Epicurus 'came back' to astronomy in ΠΦ. This leads Arrighetti to tentatively date *Ad*

⁸⁷⁹ Arrighetti 1975: 42.

⁸⁸⁰ Arrighetti text [26] [42] line 5 and [26] [43] line 16.

⁸⁸¹ Arrighetti suggests that Epicurus came back to enquiries into astronomy a second time because of the influence Eudoxus' theories may have had on Pythocles.

Herodotum close to 290 B.C. Arrighetti's theory, *if* accepted,⁸⁸² would show that Epicurus was not simply summarising two or three continuous books of ΠΦ, but his remarks on the subject from the whole of the treatise (i.e. the books he had composed by that date).

Sedley sees it differently. To preserve the correspondence between *DRN* and ΠΦ, he argues that in *Ad Pythoclem* Epicurus only followed ΠΦ at times. Sedley (1998: 119-120) agrees with Arrighetti that Epicurus is epitomising ΠΦ XI in *Ad Pythoclem* 87 to 93,⁸⁸³ but reckons that he turned to a different source with chapter 94. Sedley tentatively suggests that with the plural ἐν ἄλλοις (*Ad Pythoclem* 84) Epicurus might be indicating that he drew the material for *Ad Pythoclem* from more than one source text.⁸⁸⁴ I find Sedley's theory less persuasive than Arrighetti's.

There is certainly at least a hint, in the case of *Ad Pythoclem*, as in that of *Ad Herodotum*, that Epicurus did not produce digests of specific sections of his ΠΦ (or other texts) which reflected *exactly* the order of topics in those works. Epicurus may have put together the material on a specific topic which was scattered throughout ΠΦ, omitted topics which were treated in the larger works, added topics from different sources and rearranged the order of the material.⁸⁸⁵

⁸⁸² I am not convinced by the theory, although it seems likely to me that Epicurus would have come back to some topics in his ΠΦ.

⁸⁸³ If one believes with Sedley that 'size of heavenly bodies' mentioned as a topic of ΠΦ XI in the *scholium* to *Ad Pythoclem* 91 came, as seems natural, just ahead of 'motions of heavenly bodies'.

⁸⁸⁴ Sedley (1998: 120, note 68) remarks that similar plurals are sometimes used for a precise citation of a single text.

⁸⁸⁵ I do not mean by this that the letters are not at all useful as a guide for reconstructing the sequence of topics in ΠΦ.

Abbreviations

C.A.G.: *Commentaria in Aristotelem Graeca* 1882-1909 (Berlin).

D.G.: Diels, H. 1879: *Doxographi Graeci* (Berlin).

DK: Diels, H. and Kranz, W. 1952: *Die Fragmente der Vorsokratiker*. 3 vols. 6th edition (Berlin).

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LSJ: Liddell, H. G. and Scott, R. 1925-1940: *A Greek-English Lexicon*. 9th edition. Revised by H. Stuart Jones and R. McKenzie.

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