

Lucretius and Doxography

1. Let us commence this brief investigation with a typically Lucretian passage, book V, lines 1204-1240.¹ True piety, the poet has just said (1203), is to contemplate the world with a mind at peace. But where then does mankind's awful reverence for and fear of the gods come from? When we gaze at the star-studded heavens and the motions of the sun and moon, we start to wonder whether these movements are not caused by the immense power of the gods, and so add yet another care to our already burdened souls. The poverty of our thought (*egestas rationis*) brings our minds to doubt. Did the world have an origin, and will it have an end, or will divinity endow it with everlasting safety, defying the vast powers of time? Turning to earthly phenomena, Lucretius powerfully evokes the terror of the mind when confronted with thunderbolts, hurricanes and earthquakes. Is it any wonder that mankind, in order to account for these phenomena, resorts to belief in the wondrous powers of divine beings who govern all that takes place?

The poet, we observe, does not dwell on the invention or discovery of philosophy as part of the advance of civilization. In Plato's *Timaeus*, contemplation of the heavens had led to the practice of philosophy, the greatest gift of the gods to mankind.² For Lucretius observation of the heavenly phenomena has a quite different result. It leads to fear and superstition, exactly that mind-set which Epicurus' philosophy and his own poem will be able to placate and remove.

My theme is Lucretius and doxography. In that perspective I certainly am not going to contend that the text I have just paraphrased is a doxographical passage. What I will argue is that its formulation has been demonstrably influenced by Lucretius' knowledge of the doxographical tradition. This is not the time or place to give a full treatment of the rather large subject indicated by my title. What I aim to do is give some pointers. These will hopefully be useful for scholars who are investigating the thought, structure and sources of Lucretius' poem.

2. But first it is necessary to say something more about doxography itself. For many years doxography has been an indispensable but troublesome concept in the study of ancient philosophy. Diels, who introduced the term in his celebrated *Doxographi Graeci* without any ancient antecedents,³ did not define it adequately, and since then,

¹ The theme is prepared in V.76-84, where the aspect of wonder is expressed more explicitly (83: *mirantur qua ratione*), and taken up again in the *laus Epicuri* at the beginning of book VI.

² *Tim.* 47a-c, a *topos* by Lucretius' day; cf. Runia (1986) 271.

³ Diels (1879).

through the gradual development of scholarly usage, it has come to have a broad spectrum of meaning.⁴ In this paper I am going to take the term in the narrowest possible sense, i.e. as referring to a tradition of writings called the *Placita*. This term, together with its Greek equivalent τὰ ἀρέσκοντα and the parallel terms δόξαι and *opiniones*, does have an ancient pedigree, and can be reasonably strictly defined. In order to do so, we need to understand how a long tradition developed. *Cognoscenti* will recognize that I here draw above all on the wide-ranging research of Jaap Mansfeld, as well as on some of my own findings.⁵

Grosso modo we can say that it all began with Aristotle's dialectical method. Before dealing with any particular problem (πρόβλημα, *quaestio*) it is sound practice to collect and analyse the views of predecessors, for these can provide positive and negative indications on how to proceed. Analysis of this material results in the organisation of representative opinions on a wide range of subjects, but especially in the area of physics (taken in the broad sense). The Peripatetic school, and especially it seems Theophrastus, took the lead in this,⁶ but it is clear that the practice of assembling *doxai* became widespread. It is possible to trace — with varying degrees of precision — diverse collections which were exploited by schools and individual philosophers in differing ways. For example, Academics and sceptics not surprisingly stressed the disagreements of the philosophers that the *doxai* reveal.⁷

What chiefly remains to us today are the *Placita* of Aëtius, an imperfectly preserved but extensive collection to be dated to the 1st century AD.⁸ I mention now three features of this work that are typical for the genre as a whole. (1) The work is divided into books and chapters, which represent a systematically organized whole. (2) Individual chapters are almost always structured by means of *diaereses*, whether as disjunctions or in the form of lists. (3) To each opinion a name-label is attached, i.e. the philosopher who represents the view, but the views take priority over the names. For this reason historical and chronological aspects play but a minor role. To put it crudely, doxography is more systematic than historical in orientation. To this extent it remains true to its Aristotelian heritage.

3. We now turn back to the protagonist of this conference. It may seem at first sight that the genre of doxography as just outlined is of little relevance for the study of Lucretius' poem. Firstly it has to be admitted that there is very little dialectic in the

⁴ See now Mansfeld & Runia (1996), with copious bibliography; on the term itself *ibid.* 101 f. and useful remarks at Mejer (1978) 81 ff.

⁵ In addition to the work just cited, see also Mansfeld (1990a), (1992a); Runia (1989), (1992).

⁶ Esp. in his Φυσικαὶ δόξαι, but also elsewhere; cf. Mansfeld (1989b) n. 49, (1990a) 3057 f.

⁷ On the importance of the διαφωνία for an understanding of the *Placita* and their philosophical pedigree see Mansfeld (1989a) 314 and *passim*, Runia (1989) 269.

⁸ For a detailed account of how the lost original is to be reconstructed, see now Mansfeld & Runia (1996). The main sources are Ps.Plutarch *Placita philosophorum*, Stobaeus *Eclogae* book I, Theodoret of Cyrrhus *Curatio affectionum Graecarum*. The double columns of Diels' reconstruction, (1879), should be used with caution. Aëtius' compendium makes extensive use of anterior traditions, some of which Diels was able to trace in Cicero and other sources, and which he labelled the *Vetusta placita*, dating them to the first half of the 1st century AD. Even older traditions, i.e. *Vetustissima placita*, have been identified in Chrysippus; see Mansfeld (1989a). Ultimately, however, the method and some material goes back to Aristotle and Theophrastus.

sense outlined above. Lucretius does not canvas views and analyse them before determining his own position. He states the doctrine of Epicurus, supports it with arguments, and then often reinforces his position by attacking other views. It is true that his tone is generally rather adversarial, and he quite often adduces imaginary opponents in a rather vague way.⁹ But direct mention of the names of such philosophical opponents is rare indeed. There are only four cases. In the second half of book I we find the long discussions of the Presocratic theories of first principles, in which the names of Heraclitus, Empedocles and Anaxagoras are squeezed into hexameter verse.¹⁰ The other philosopher is Democritus. Twice Lucretius uses the same hexameter,¹¹ *Democriti quod sancta viri sententia ponit*, indicating by means of the word *sancta* that the views of the atomist are to be respected, if not followed in every respect. The term *sententia*, used elsewhere only once,¹² surely translates the Greek *doxa*, the only case of specifically doxographical terminology I have found in Lucretius. A fifth name-label might be suspected at V.727, where we read the *Babylonica Chaldaeum doctrina*.¹³ I will be returning to this text below. It is instructive to compare Lucretius with a fellow-sectarian who also writes for a general audience. On his wall Diogenes of Oenoanda names no less than eighteen philosophers, including Plato, Aristotle and Zeno the Stoic.¹⁴

It will be agreed, therefore, that the general way in which Lucretius presents the *ratio speciesque* of nature from an Epicurean perspective is rather different from the doxographical method as we have outlined it above. To phrase the matter succinctly, Lucretius' method is dogmatic and refutatory, not dialectical and doxographical.

4. But it would obviously be quite wrong to leave matters at this. Allow me first to return to the passage with which I began. We note the example that Lucretius gives of the poverty of human thought: is the cosmos generated and destined to perish, or will it remain in existence forever, sustained by divine maintenance (V.1213-1217)? This disjunctive *diaeresis* is one of the stock questions that finds its way in countless dialectical and doxographical texts, beginning with Aristotle, but even having a precedent in Plato's *Timaeus*.¹⁵ Particularly apposite examples are found in Lucretius' contemporaries Varro and Cicero.¹⁶ It is a standard example used by the sceptics to show the futility of dogmatism.¹⁷ Perhaps there is a reminder of this in the

⁹ According to Kleve (1978) 41 about a sixth of the work is devoted to criticism of rival views. But Kleve does not distinguish between polemics and doxography, e.g. his statement on p. 49 about Epicurus' 'doxographical method'.

¹⁰ I.635-920. Names at I.638, 716, 876.

¹¹ III.371; V.622.

¹² IV.561.

¹³ It is difficult to be sure which Greek term *doctrina* covers here: it may represent *δόξα* or *δόγμα* or even *διδασκαλία*.

¹⁴ See Smith (1993b) 137.

¹⁵ Arist. *Top.* 104b8, 105a24; Pl. *Tim.* 27c4-5.

¹⁶ Varro *ap. Serv. Comm. in Georg.* II.336; Cic. *Ac.* II.118-119 (combined with *doxai* on *archai*); *N.D.* I.18-19.

¹⁷ Cf. the sceptically influenced passage Philo, *Quis heres* 246 (where we note the connection with the question of providence). Philo devotes an entire treatise to the question of the eternity of the cosmos, *De*

poet's phrase that 'the poverty of human thought brings the mind to doubt' (V.1211). Lucretius, however, is convinced that he has the answer. The world had a beginning and a single day will wipe it out (V.95).

The same theme recurs at the end of book II, but is here placed in a wider physical context. Lucretius argues the case for the following doctrines:

- The universe is infinite in all directions (1047-1066).
- Worlds different than ours are infinite in number (1067-1089).
- Nature is free and there is no divine providence (1090-1104).
- The cosmos is born, reaches its acme through sustenance by food, and will reach a terminal age (1105-1174).

The subjects and their sequence of treatment remind us strongly of the first chapters of book II of Aëtius' doxographical compendium:¹⁸

- α' Περὶ κόσμου
- β' Περὶ σχήματος κόσμου
- γ' Εἰ ἔμψυχος ὁ κόσμος καὶ προνοία διοικούμενος
- δ' Εἰ ἀφθαρτος ὁ κόσμος
- ε' Πόθεν τρέφεται ὁ κόσμος.

The resemblance is stronger if we bear in mind that in II.1 Aëtius deals with the question whether there is one cosmos or an infinite number, and specifically points out the distinction between cosmos and universe. In II.4 he also deals with the question of whether the cosmos is generated or not, and what the connection is with the theme of providence discussed in the previous chapter. We note that Lucretius does not actually mention the question of the shape of the various worlds, but it is, I think, implicit in his assertion that there are 'other worlds in other regions' (II.1075).

Tucked away in Jaap Mansfeld's magisterial 1990 *Aufstieg* article on doxography and dialectic is a brief section on Lucretius.¹⁹ He demonstrated beyond all possible doubt that the introductory section raising the question of the nature of the soul in book I and the full discussion of the subject in book III reveal influence of the standard schemata of doxography, especially as seen in the use of question-types.²⁰ Also the discussion of the principles in book I is organized by means of a standard procedure, starting with various monists including Heraclitus (635-704), following with dualists (712) and proponents of four elements (714), foremost among whom is Empedocles (716-829), and ending with the infinitist Anaxagoras (830-920). He concurs with the view of Rösler that the material on the Presocratics is also not

aeternitate mundi. On the initial doxography in paragraphs 7-19 see Pépin (1964) 263 ff.; Runia (1981). Other Philonic texts referring to this question are *Ebr.* 199; *Opif.* 54; *Abr.* 162-163. See further Quint. *Inst.* VII.2.2; Gal. *De propr. plac.* 2; Lactantius *Div. Inst.* II.10.17-25, VII.1.6-10; Marius Victorinus in *Cic. Rhet.* 235.27; Ambr. *Exam.* I.1.4; August. *Acad.* III.23 etc.

¹⁸ The chapters of Aëtius' original work are in all likelihood almost perfectly preserved in Ps. Plutarch *Placita philosophorum*. See the texts of Mau (1971); Lachenaud (1993). I intend to offer a full reconstruction of Book II of Aëtius in *Aetiana* vol. II.

¹⁹ Mansfeld (1990a) 3143-3154.

²⁰ I.e. standard questions on essence or nature, size, quality etc., loosely related to the Aristotelian categories.

drawn from direct reading, but is derived from doxographic traditions.²¹ Mansfeld concludes as follows:²² ‘just as Cicero and others, Lucretius avails himself of the doxographic material to discuss problems in philosophy better.’ I could not agree more. Doxography is used for the purpose of *organizing* philosophical material. By outlining various systematic options in the areas of principles, cosmology and psychology, Lucretius makes the answers fixed once and for all by Epicurus stand out in higher relief.

At the broader level of macro-organization there are further parallels between Lucretius’ poem and the *Placita* in Aëtius. In the following table the sequence of subjects on metarsiology as presented in *De rerum natura* VI and Aëtius book III are placed side-by-side.²³

Lucretius Book VI

96-159: Thunder
 160-218: Lightning
 219-422: Thunderbolts
 423-450: Hurricanes / waterspouts (πρηστήρες)
 451-494: Clouds
 495-523: Rain
 524-526: Rainbow
 527-534: Snow, wind, hail, frost
 535-607: Earthquakes
 608-638: Why the sea does not get bigger
 639-711: Volcanoes
 712-737: The River Nile

Aëtius Book III

γ’. Περι βροντῶν, ἀστραπῶν, κεραυνῶν, πρηστήρων τε καὶ τυφῶνων
 δ’. Περι νεφῶν, ὑετῶν, χιόνων, χαλαζῶν
 ε’. Περι ἴριδος
 ζ’. Περι ἀνέμων
 η’. Περι χειμῶνος καὶ θέρους
 ιε’. Περι σεισμῶν γῆς
 ις’. Περι θαλάττης, πῶς συνέστη καὶ πῶς ἔστι πικρά
 α’. Περι Νεῖλου ἀναβάσεως (Book IV)

The parallelism is virtually complete, and cannot be a matter of coincidence. We note too that in the passage from book V that we quoted at the outset Lucretius retains the same sequence of problems: thunderbolts, hurricanes, earthquakes (1218-1240). There are also parallels between the presentation of the heavenly phenomena in book V and book II of Aëtius, but they are not as close. In one respect, however, there is a significant difference between the macro-organization of the *Placita* tradition and Lucretius’ poem. The *Placita* move from the subject of principles to the macrocosm and finally to the microcosm, i.e. man (and other terrestrial animals). Lucretius chooses to deal with the subjects of the soul, sensation and sex in the middle books before he treats cosmology and meteorology in the final two. At the outset of the poem (I.127-135) he had announced the reverse order, i.e. that used in the *Placita* (which basically goes back to Plato’s *Timaeus* and Aristotle’s school works). Many scholars have argued that this indicates an alteration of plan on the poet’s part.²⁴ But the fact that Epicurus in his *Letter to Herodotus* had also dealt with sensation and the soul before moving to cosmology makes such a far-reaching conclusion far from compelling.²⁵

²¹ *Ibid.* 3153, with reference to Rösler (1973).

²² *Ibid.* 3154.

²³ See also the tables set out by Reitzenstein (1924).

²⁴ See Townend (1979) and Sedley in this volume 15.

²⁵ In resolving this question we are handicapped by the fact that we are not certain what the position of psychology was in Epicurus’ *De natura*; cf. Erler (1994) 95-96.

We turn now to Lucretius' second major use of doxographic material. As has long been noted and examined in considerable detail by Bailey, there are substantial parallels between the Aëtian *Placita* and numerous explanations of celestial and terrestrial phenomena presented by Lucretius in Books V and VI. In the *Placita* a vast array of differing views on and explanations of such phenomena is presented, each associated with a different philosopher (i.e. given a specific name-label).²⁶ Lucretius exploits these views, but drops the name-labels (except in the cases mentioned above of the *sententia Democriti* and the *Chaldaeum doctrina*). Most often no single explanation of these phenomena can be given on account of the limitations of human perception.²⁷ Usually called Lucretius' doctrine of a 'plurality of causes',²⁸ in reality the name is somewhat of a misnomer.²⁹ For each phenomenon there is a single operative cause, but if there is a lack of evidence (ἐπιμαρτύρησις or ἀντιμαρτύρησις in the terminology of Epicurus' epistemology), then it cannot be determined which of the various alternatives it actually is.³⁰ The substantial parallels between Lucretius' explanations and the material collected in Aëtius encourages the conclusion that the poet has drawn on the doxographical tradition as a fertile source of theories on the various phenomena he wished to discuss. What is remarkable is that he should thereby turn to many antiquated or even antiquarian views, instead of using what was available in contemporary scientific manuals.³¹

5. But it may well be that by now I am making excessive demands on the patience of the reader. Should I not be taking into consideration Lucretius' dependence on the writings of Epicurus? After all he explicitly claims to be culling all his doctrine from the writings of the master, the *inventor rerum* (III.9-11)? Does it make sense to explore the subject of Lucretius and doxography without taking into account the relation that his guide Epicurus himself had to that same doxographical tradition?

The significant parallels between Epicurus' three surviving letters and the tradition of the *Placita* are indeed obvious. In terms of *content* Usener pointed out many of these connections in the valuable appendix to his *Epicurea*, including many additional references to passages in Lucretius.³² Bergsträsser's Meteorological Fragment,³³ now published in a superior version by Hans Daiber,³⁴ shows an undeniable connection between Theophrastus, Epicurus, and Lucretius. It is striking that not only does

²⁶ Partial exceptions are long accounts on the rainbow (III.6) and halo (III.18) with almost no name-labels.

²⁷ See for example V.620-638.

²⁸ E.g. Bailey (1947) 1398 etc.

²⁹ Epicurus at *Ep.Pyth.* 95 calls it the πλεοναχὸς τρόπος.

³⁰ At V.620 (*non simplex causa*) Lucretius is himself not so clear, but at VI.703-711 he leaves no room for doubt.

³¹ On Lucretius' failure to engage with current philosophical views, see Furley (1978) 1 ff.

³² *Subsidium interpretationis* presented at Usener (1887) 374-398. Usener could make use of the hypothesis on the doxographical tradition put forward by Diels in his *Doxographi Graeci*, even though the latter only makes a brief reference to the *Ep. Pyth.* on p. 225 (*tamquam ex doxographis nominibus philosophorum omissis raptim corrassa*), noting that it is of doubtful authenticity.

³³ Bergsträsser (1918), English translation in Bailey (1947) 1745 ff.

³⁴ Daiber (1992), which in my view puts the Theophrastean origin beyond doubt. Cf. Mansfeld (1992b) 316, who regards it as an abridged *Metarsiology*.

Theophrastus leave out all name-labels, but he also admits a multiplicity of explanations and refers copiously to analogies from our own experience. In terms of *method* an important contribution was made by Jaap Mansfeld very recently in an article entitled 'Epicurus Peripateticus'.³⁵ He shows convincingly by careful examination of passages in the *Letter to Pythocles* that Epicurus was acquainted with the dialectical method of Aristotle and Theophrastus, which he adapts for his own use, taking over not only terminology, but also techniques such as the *diaeresis*. For example the passage on what a cosmos is contains *diaereses* on shape and movement very similar in method to what we find in the first chapters of Aëtius, book II.³⁶ In setting out an unresolved variety of views Epicurus is not trying to sift out the opinions of previous philosophers, nor is his intention sceptical in the proper sense, i.e. in order to show that the true state of affairs is inaccessible to the human mind. He wishes his followers to accept that there are true states of affairs or reasons for cosmological and meteorological phenomena, but that it is not always possible to determine these precisely when the evidence of sense-perception is inadequate.

This having been said, it must immediately be added that the subject of Epicurus' relation to the doxographical tradition remains fraught with difficulties, which are certainly not lessened when the further question of the relation to the material in Lucretius is added as well. Theophrastus, Epicurus' *Letters*, Lucretius and the *Placita* are four separate bodies of writing which do not allow simple reduction to each other.³⁷ There are many unknown or unclear factors that have to be taken into account. Is the *Letter to Pythocles* authentic (I think the answer to this is yes)? Which works of Theophrastus did Epicurus exploit? Which works of Epicurus did Lucretius draw on? Did he also consult works of so-called younger Epicureans? Did he turn to sources outside the Epicurean tradition?

Two things at least, I believe, can be said. Firstly, for all Lucretius' devotion to the master, there is not need to assume that he wrote in quarantine, cut off from outside sources of information. Doxography was an important way of doing philosophy in his time. He learnt about the method in part from the master, perhaps also via other Epicurean works. But other sources of access will also have been available to him. Secondly it will be clear that a rigorous examination of the question of the relations between the four above-mentioned bodies of writing, with all due allowance for the uncertainties noted above, remains a real *desideratum*. It is not something that can be tackled in an article. It requires a full-length study. In the present context I shall do no more than set out one particular example, which will illustrate the interest and the difficulties of the task.

6. The example I have chosen is the question of the illumination of the moon. In Aëtius, as one of seven chapters devoted to the moon (II.25-31), we find a chapter

³⁵ Mansfeld (1994).

³⁶ See *ibid.* 38-41 with reference to *Ep. Pyth.* 88-90 (Usener's exclusions are shown to be quite unnecessary). On p. 42 he notes that the *diaeresis* on the motions of the heavens in *Ep. Pyth.* 92-93 is paralleled at *Lucr.* V.509-525.

³⁷ As attempted by Reitzenstein (1924).

entitled *περὶ φωτισμῶν σελήνης* (II.28). Naturally this particular question cannot be answered in isolation from other questions such as the substance of the moon, its eclipses and its so-called face. It is part of the job of the *Placita* tradition to introduce clarity into the organization of the discussion, although in this particular case it is rather imperfectly done. Outside Aëtius there is a large body of similar *Placita* material utilized by other authors. These questions were of course standard fare in scientific discussions.³⁸ As the elder Pliny informs us, the moon's transformations rack the wits of her observers and it shames them that the nearest star should be the one they know least about (*Nat.* II.41).

Of particular interest in our context is a striking text found in Philo of Alexandria, which gives a sceptical account of our knowledge of the nature of the heavens and the soul/mind (*De somniis* I.21-32). In order to illustrate the disagreements of the philosophers, Philo presents a large number of conflicting *doxai* which are parallel to what we find in Aëtius, but for chronological reasons cannot be derived from him. Parallels with Cicero suggest that Philo is drawing on an older collection of *doxai* (perhaps to be identified with the *Vetusta Placita*) which was roughly contemporary with Lucretius.³⁹

In book V Lucretius three times refers to the question of the illuminations of the moon. At V.575-578, in discussing the moon's size, which is as it appears to be, he adds a parenthetical remark about the source of its light:

lunaque sive *notho* fertur *loca lumine* lustrans,
sive suam *proprio* iactat *de corpore* lucem,
quidquid id est, nihilo fertur maiore figura
quam, nostris oculis qua cernimus, esse videtur.

At 705-750 a sequence of four explanations is given for the illumination and regular phases of the moon. It is possible (1) that she shines with the reflected light of the sun and that the reflection varies in accordance with her position in relation to the sun (705-714), or (2) that she revolves with her own light (*proprio cum lumine*) and is obscured by the passing of another body (715-719), or (3) that she is like a globe with one half bright and the other half dark which take their turns in facing towards us — the doctrine with which the Babylonian Chaldeans try to refute the science of the astronomers⁴⁰ (720-730) —, or (4) that new moons are created every day in a fixed succession of phases (730-750).⁴¹ Finally at 768-770 in discussing the phenomenon of lunar eclipses, he again alludes to the possibility that the moon has its own source of light (*suo ... fulget ... nitore*) which may grow faint in a particular area of the heavens hostile to her radiance (*loca luminibus propriis inimica*). On these texts I would briefly make the following four comments.

³⁸ A nice example is given at Cicero *Div.* II.10 in order to illustrate the separation of science and non-science.

³⁹ See Wendland (1897), Mansfeld (1990a) 3117-3121, both comparing *Tusc.* I.18 ff. On the *Vetusta placita* see above n. 8. The passage was wholly overlooked by Diels in his *Doxographi Graeci*.

⁴⁰ On V.727 and the *Babylonica doctrina Chaldaeorum* see above at n. 13.

⁴¹ This fourth reason, adducing the views of the early Presocratics Xenophanes and Heraclitus, illustrates perfectly the point we made about Lucretius' antiquarianism above at n. 31.

(1) In all doxographic texts the basic *diaeresis* between the moon as recipient of light from elsewhere and source of its own light is very clear. Lucretius shows his awareness of this and uses it to organize his discussion. In this respect his treatment is superior to that of Epicurus in the Second Letter. Epicurus states the *diaeresis* in paragraph 94, but he does not integrate it with the questions of the moon's transformations (earlier in *Ep. Pyth.* 94) and its eclipse (*Ep. Pyth.* 96) as Lucretius does. The Letter is clearly not Lucretius' only source. In comparing him with Epicurus we have to take into account our ignorance about other Epicurean discussions of this question (whether of Epicurus himself or his followers).⁴²

(2) Lucretius' distinction between the moon's bastard (*nothus*) and own (*proprius*) light is intriguing. The equivalent of these terms does not occur in Epicurus. It is also not found in the doxographical compendium of Aëtius.⁴³ Exactly the same terms, however, are found in the important Philonic text which we mentioned above (*Somn.* I.23):⁴⁴

τί δέ; σελήνην πότερον γνήσιον ἢ νόθον ἐπιφέρεται φέγγος ἡλιακαῖς ἐπιλαμπόμενον ἀκτίσιν ἢ καθ' αὐτὸ μὲν ἰδίᾳ τούτων οὐδέτερον, τὸ δ' ἐξ ἀμφοῖν ὡς ἄν ἐξ οἰκείου καὶ ἀλλοτρίου πυρὸς κρᾶμα;

Another relevant text is found in Lucian's *Icaromenippus* (paragraph 20), where in an adaptation of doxographical material for satirical purposes, the moon is portrayed as complaining that according to the philosophers she takes her stolen and bastard light (τὸ φῶς κλοπιμαῖόν τε καὶ νόθον) from the sun. It is a plausible hypothesis, I would argue, that Lucretius drew his formulation not from Epicurus, but from the standard practice of doxographical texts. The fact that Catullus too speaks of the moon as having a 'bastard light' (*notho lumine*) is further evidence in favour of this view.⁴⁵

(3) Another distinctive feature of Lucretius' treatment of the moon is that he refers explicitly to the Babylonian doctrine of the moon as a rotating sphere, half of which is enflamed and so can be seen as it turns towards the earth. This of course is the well-known theory of Berossus, the author of the Βαβυλωνιακά, a work in three books which informed Hellenistic readers about the history and culture of Babylonia or Chaldea.⁴⁶ It is not certain that Berossus presented his astronomical theories in this work, but it may be agreed with Campos Daroca that this is a reasonable view.⁴⁷ In order to date Berossus and his work we have only two clues.⁴⁸ Firstly, in the preface to his work he presents himself as a contemporary of Alexander the Great, i.e. he

⁴² No relevant material is furnished in Diogenes of Oenoanda.

⁴³ At Ps.Plut. *Plac.* 2.27 the contrast is between ἴδιον φῶς and ὑπὸ τοῦ ἡλίου φωτίζεσθαι.

⁴⁴ 'What about this: does the moon bring forth her own genuine light, or a bastard light illumined by the rays of the sun, or neither of these in absolute terms on its own, but rather a mixture of both, as if from a fire that is partly its own and partly from a foreign source.'

⁴⁵ *Carmen* 34.14.

⁴⁶ Fragments are collected by Jacoby in FGH 680.

⁴⁷ See Campos Daroca (1994), esp. 96. Jacoby separated the astronomical fragments and attributed them to a Hellenistic Ps. Berossus. This theory, which Campos Daroca rejects, would only strengthen our hypothesis that Lucretius did not gain his information about Berossus via Theophrastus or Epicurus.

⁴⁸ *Ibid.* 97.

must have been born well before 323 BC, perhaps about 350 BC. Secondly we know that he dedicated his work to Antiochus I Soter, who was co-regent with Seleucus from 293 and sole ruler from 280 to 262. Combining these two pieces of evidence we might conclude that the work was composed between about 290 and 270. For chronological reasons, therefore, it is most unlikely to have been known to Theophrastus (who died in 287). It is also not so likely that Epicurus would have known it and it certainly was not available to him when he was writing the *Physics*.⁴⁹ Not surprisingly, therefore, Berosus' theory on the moon is absent from the *Letter to Pythocles*.⁵⁰ On the other hand it is prominently present in the *Placita*, as well as in overtly doxographical passages in Cleomedes and Vitruvius.⁵¹ We may conclude, therefore, that this view, which Lucretius exceptionally gives a name-label, in all likelihood represents a case where Lucretius did draw information from the doxographical tradition as it developed *after* Theophrastus. If his information came from an astronomical handbook, which is not impossible,⁵² then it must still be said that he has integrated it into a structure that is influenced by the doxographical method.

(4) In his commentary Bailey remarks that, when Lucretius gives multiple explanations for heavenly phenomena, he 'usually places the true explanation first, as though he really preferred it.'⁵³ It is true that in the case of the light and phases of the moon the theory of reflection, which offers the true explanation *is* placed first by Lucretius, which is not the case in Aëtius. Nevertheless I find Bailey's remark not very helpful. What does he mean by 'as though'? There is not a single indication that Lucretius, contrary to the teachings of Epicurus, wishes to introduce a criterion of greater or lesser plausibility of causes given. What is important is that there is one true cause, even if it may not even be found among those which he presents. In order to make this doctrine attractive, it helps if the causes given are at least persuasive, and have been suggested by experts in such matters.⁵⁴ Hence the value of turning to accepted opinions as collected in doxography.

7. By way of conclusion we make the briefest of returns to the passage in book V with which this paper began. Of course it is not a doxographical passage. Although it uses a very common doxographical *diaeresis* in order to illustrate the poverty of

⁴⁹ Epicurus wrote book XI of his *Physics* dealing with the heavenly bodies just before 300 BC; see Erler (1994) 94. Reitzenstein's protestations (1924) 38-39 are totally unconvincing.

⁵⁰ At *Ep. Pyth.* 94 Epicurus states that the waxing and waning of the moon may be explained κατὰ στροφὴν τοῦ σώματος τοῦτου. This of course bears a resemblance to Berosus' theory but lacks its distinctive feature, i.e. that the moon is ἡμιπύρωτος. Usener's view ((1887) 384) that Epicurus is thinking of Berosus, *as shown by Lucretius*, is to be rejected for chronological reasons. Lucretius has substituted a slightly more modern view for what he found in Epicurus.

⁵¹ *Doxai* in Aëtius at Ps.Plut. *Plac.* II.25, II.28, II.29 (including extra material from Stobaeus *Eclogae* I.26); Cleomedes 180-182 Ziegler, cf. Goulet (1980) 156 ff.; Vitruvius IX.2.1-2.

⁵² I am thinking of a book similar to that of Cleomedes. Strictly speaking, however, this is not an astronomical handbook but a philosophical handbook dealing with a subject belonging to physics, i.e. the heavens.

⁵³ Bailey (1947) 1394, cf. 58.

⁵⁴ It is most interesting that the Stoic 'mixed view', referred to by Philo in the passage cited above at n. 44, is not introduced. The reason may be that he finds it confusing to introduce a double explanation: the phases of the moon are explained by the reflection of the sun's rays, while the moon's own light explains why it is still visible during an eclipse and has a face.

human thought, its concern is not to set up a framework of answers to philosophical questions. Rather it explains how it happens that men get wrong ideas, attributing celestial and terrestrial phenomena to divine intervention. Nevertheless this passage does in my view shed extra light on why Lucretius found the doxographical tradition attractive. Not only did this tradition supply various alternatives as suitable explanations for these phenomena. It is no less important to realize that these are exactly the *right kind* of answers that the poet (and the philosopher before him) were looking for. Right from its origin in the writings of Aristotle and Theophrastus the doxographical tradition was a body of doctrine with pronounced ‘secular’ features (to use a somewhat anachronistic term).⁵⁵ Of course it contained a few theological chapters, such as ones on ‘who is God’ (as principle) and on providence.⁵⁶ Such chapters were grist for the Lucretian mill, because he could use their *diaereses* to make the right answers quite clear. But in the many chapters on puzzling physical phenomena God or the gods do not appear. And that is, in the perception of our poet, exactly how it should be.

⁵⁵ Theophrastus makes this clear in an excursus on the causes of thunderbolts which is part of the recently discovered fuller text of his *Metarsiology* (see above n. 31), paragraph 14.14 ff.: ‘neither the thunderbolt nor anything that has been mentioned has its origin in God. For it is not correct to say that God should be the cause of disorder in this world...’ See further the analysis in Mansfeld (1992b), who at 324-326 dwells on the relations between Theophrastus, Epicurus and Lucretius.

⁵⁶ *Aëtius* I.7; II.3. The title of chap. II.6, as given by Ps.Plut., ἀπὸ ποίου πρώτου στοιχείου ἤρξατο κοσμοποιεῖν ὁ θεός is a clear exception. The theological bias of this title is probably a late intervention under the influence of Middle Platonism. Originally the title may have been something like πῶθεν ἄρχεται ὁ κόσμος καὶ ἐκ ποίων στοιχείων (this title is actually recorded as a variant in one ms. of Ps.Plut.).

