PSEUDO-JUSTIN ON ARISTOTELIAN COSMOLOGY: A BYZANTINE PHILOSOPHER SEARCHING FOR A NEW PICTURE OF THE WORLD (*)

1. Introduction

Nowadays it would be unpersuasive to suggest that the genuine task of a philosopher is commenting on a text of an author of the past, regardless of the fact that his or her comment constitutes a truly accurate or faithful exegesis of what the commented text stands for. It is likely that any philosopher is more interested in examining which aspects are helpful for his or her own account of a philosophical problem. All the great philosophers have had and have their interpreters. Certainly, Aristotle is not an exception; on the contrary, he is, along with Plato, the first Greek philosopher about whom vast philosophical commentaries were written already in antiquity, some of them of an excellent philosophical quality. No matter how paradoxical this may be, the works of the Greek commentators on Aristotle (Alexander of Aphrodisias, Simplicius, Philoponus, Themistius, Dositheus, and so forth) are not just 'commentaries' in the sense of merely reproducing what the commented text maintains. In fact, as observed by Richard Sorabji, a manner of doing philosophy between 200 and 600 AD was, precisely, writing commentaries on the works of the great philosophers (1), but those commentaries were not limited to repeating a particular thesis in other words. It is true that sometimes this is the case, but in attempting to account for a specific passage, some commentators usually introduce

(*) I would like to thank both the anonymous referees for their remarks and Peter Van Deur for his formal correction and improvements.
other conceptual ingredients, pose new problems, and display new argumentative strategies to try to solve the issues they are dealing with.

This paper aims to show the relevance of Pseudo Justin, an almost unknown Aristotelian writer (probably fifth century AD), as a commentator on Aristotle, and his eventual importance in the history of Aristotelianism. I hope to show in what follows that, as an effect of Pseudo Justin’s objections to Aristotle’s cosmological doctrines, an entirely new view of the natural world bursts in, a picture of the cosmos where there are no entities (like the heavenly ones) having ontological pre-eminences in virtue of their elemental component (ether) and thereby a cosmos where there are no significant differences between the heavenly and the terrestrial realms. This fact alone, I submit, would be important enough both to devote some effort to study this author and to take his objections to Aristotle’s cosmological model seriously; in fact, if my suggestion in this paper is right, Pseudo Justin would have put forward and advanced for the first time some aspects of the physical model which turned out to be dominant from Modernity onwards several centuries before the new approach to nature starting in the XVIIIth century. To be sure, his theses are not ‘scientific’ in terms of an empirical physical model, and it is pretty obvious that he draws his conclusions speculatively and as a result of his criticisms to Aristotle’s viewpoints. Furthermore, it could be objected that his conclusions are, to some extent, a chance outcome, since his interests were not particularly ‘scientific’, but probably philosophical or even theological. He was keenly interested in refuting some Aristotelian assertions that were against his own Christian view (e.g. the Aristotelian tenet that the world is eternal). However, one could argue that almost every cosmological theory in antiquity started as a philosophical problem – not as a ‘scientific’ one – since, as a matter of fact, philosophy was science. At any rate, the fact that Pseudo Justin finally removes ether from the physical landscape (and, along with ether, the Prime Mover as the ultimate cause of the motions of the world) clearly presents a serious problem to a basic assumption of Aristotle’s physical model: there is not a significant difference between heaven and earth; besides, the heavenly entities have no ontological privilege and the accounts explaining the terrestrial motions should be equally explicable for the heavenly ones.

Pseudo Justin writes in Greek and undoubtedly knows quite well Aristotle’s works; although he does not belong to the distinguished group of the ‘official’ commentators on Aristotle, what I have just sug-

a 'fifth element' as the material constituent of celestial bodies, whose fundamental characteristic was the circular motion and being eternal) was already seen as highly problematic (9). Philippe Hoffmann has remarked that John Philoponus had attacked the Aristotelian doctrine that the heavens are made of ether and that the world is eternal, denying before Copernicus that there was any substantial difference between the heavens and the sublunar world (10). If Philoponus' life extended from around 490 to 570 AD (11), and Pseudo Justin's time of life can be dated towards the second half of the fifth century AD, we should conclude that the one who denied for the first time that there was any substantial difference between the heavens and the sublunar world was Pseudo Justin, not Philoponus, and that he did so almost one hundred years earlier.

2. Some remarks on the authorship
and the general structure of Pseudo Justin's treatise

The authorship of Conf. and other treatises is a matter of controversy. Towards the end of the 19th century and the beginning of the 20th century...

(5) See John Philoponus, quoted by Simplicius, In Aristotelis De Caelo Commentaria, p. 370, 29 – p. 371, 4 (ed. J. L. Heiberg, Berlin, 1894). See also Philoponus, Against Aristotle on the Eternity of the World, now reconstructed and translated into English by Wildberg, Philoponus, especially hrs. 71-72 (ed. Wildberg – Simplicius, In Aristotelis De Caelo Commentaria, p. 134, 9-28 and p. 135, 21 – p. 136, 1, respectively), where Philoponus suggests that the same prime mover ( sporos ska) must belong both to heaven and earth. It is certain that Philoponus' objections are motivated by his Christian approach, which assumes that the world has had a beginning (see R. Sorabji, The contra Aristotelis, in Wildberg, Philoponus, p. 19). But indirectly he posits the unification of heaven and earth. Theophrastus, the head of the Lyceum after Aristotle's death, also is pretty certain of certain Aristotelian stances concerning the natural world: for instance, he observes that since bodies moving in circles (cũwv anw) are many and their motions of locomotion (kōvov) are in a certain way opposed, and such motions are endless (avvpyvov), the issue concerning the impulse or tendency (epiv) of their motion toward an end turns out to be obscure. In fact, Theophrastus goes on to say, if the moving principle is one, it is absurd that it does not move all the bodies with the same type of motion (Metaphysics Sa5-18; see also 5b19-6a5). Apparently, Theophrastus himself was not very persuaded about the drastic separation between heaven and earth, either (4).


Adolf K. G. von Harnack advanced some arguments designed to prove that the author of Conf. and the other treatises attributed to Pseudo Justin (Quaestiones et responsiones ad orthodoxos ad gentiles; Quaestiones christianorum ad gentiles; Quaestiones gentilium ad christianos) should belong to Diodorus of Tarsus (death around 390 AD) (6). In his 1896 article J. P. Martin suggested that Theodoretus of Cyrus (probably death around 466 AD) could be the author hidden behind Pseudo Justin. Recently he has retracted his earlier statement and now considers that the difference of language and concerns show that the author of this and the other treatises, labelled by the editors under the name 'Pseudo Justin', cannot be Diodorus of Tarsus (as suggested by von Harnack) and that he cannot be Theodoretus of Cyrus (12). Martin's analysis of Quaestiones christianorum ad gentiles, where there is a polemic dialogue between a Christian and an anonymous adversary defending doctrines that can be attributed to the Neoplatonic Proclus, indicates that this writing cannot be dated before the last quarter of the fifth century AD. Disappointingly, he suggests continuing to consider the author anonymous (6). Given that I have no new arguments to improve the discussion regarding the identity of the author hidden behind Pseudo Justin, I shall follow Martin's suggestion (6).
The literary form of the *Conf.* depicts the structure of a school treatise designed to struggle with an opponent: that opponent is Aristotle. Its structure is that of a *lectio*, where (i) a passage of Aristotle is cited in full, (ii) the basic thesis is paraphrased, and (iii) Pseudo Justin proceeds to try to refute the thesis at stake through a *reductio ad absurdum* method. The procedure Pseudo Justin is following is the one of the so-called 'indirect proof', which works by assuming first the contradictory of the thesis that should be proved; then such thesis is refuted by deducing the contradictory or some pair of contradictory propositions, or some other proposition which is taken to be false. The indirect proof (or proof *per impossibile*) is characterised by Aristotle as a proof (or demonstration; ἀναγκώς) that poses that which it should be removed by making a reduction to a proposition that has been regarded as being false (10). Pseudo Justin demonstrates to know this procedure pretty well and he uses it throughout the *Conf.* against the very Aristotelian positions. He also knows Aristotle's technical terminology quite well, of which he takes advantage to promote his own view (11). In some cases he makes cross-references and conflates Aristotle's assertions taken from distinct treatises (he sometimes does so by paraphrasing a passage without citing it textually); after that he sometimes shows the absurd consequences that, in his view, follow from some of Aristotle's theses. So, Pseudo Justin no only applies the Aristotelian procedures to Aristotle himself, but also makes use of some crucial Aristotelian premises as the starting points of his arguments against Aristotle.

As I have suggested above, although Pseudo Justin does not argue *explicitly* from his own assumptions related to his Christian faith, his final goal appears to be to offer a sort of rational confirmation of the revealed truth by the prophets in order to show that such truth is possible both from the revelation – something that is not acknowledged by the Greeks, who distrusted the words transmitted by the prophets (Conf. 112 A) – and from reason's viewpoint, the only one recognized by the Greek philosophers. In the more philosophical section of the treatise, which in fact is the longest and most important part of it (Conf. 112 B-159 B), there are few clues of Pseudo Justin's Christian view, even though the few passages where those clues are evident are certainly significant. The most important is the one concerned with the thesis – incomprehensible for a Greek philosopher – that God is able to produce what is impossible. The argument runs as follows: (i) God cannot be limited since He has produced the limit; and (ii) If He is not limited (insofar as he is not 'impeded' by the necessity of the limit) and hence is not limited to producing what He wishes, then, (iii) He is free to produce the limit from what underlies (12). To be sure, the implicit contention is that God, in virtue of His omnipotence, is able to produce any thing, including the limit that eventually would prevent Him from producing what is impossible. In this line of thought Pseudo Justin

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(10) 'Demonstration *per impossibile* differs from probative demonstration in that it posits what it wishes to refute by reduction to a statement admitted to be false whereas probative demonstration starts from admitted positions. Both, indeed, take two propositions that are admitted, but the latter takes the premises from which the deduction starts, while the former takes one of these, along with the contradictory of the conclusion. Also in the probative case it is not necessary that the conclusion should be familiar, nor that one should suppose beforehand that it is true or not; in the other it is necessary to suppose beforehand that it is not true. It makes no difference whether the conclusion is affirmative or negative; the method is similar in both cases' (Prior Analytics, 62 B 29-38; transl. A. E. Taylor, in J. Barnes (ed.), The Complete Works of Aristotle. The Revised Oxford Translation, Princeton [New Jersey, 1984].

(11) Cf. *Conf.* 115 C4-5; 116 D 1-2; E 1-2, where Pseudo Justin makes use of the ambiguity 'to be-to-exist' of the Greek eidos. In 116 D 1-2 E 2, for instance, the participle ἐν could be translated both by 'being' and by 'exist'. Of course, I am aware that this ambiguity is common in Aristotle and in other Greek philosophers as well, but what is important here is that Pseudo Justin takes advantage of such ambiguity to undermine an Aristotelian tenet. For a very complete survey of the use of ἔνων in Greek philosophy see L. Brown, *The verb 'to be' in Greek philosophy: some remarks*, in S. Everson (ed.), Language (Companions to Ancient Thought, 3), Cambridge, 1994, pp. 212-236, especially at pp. 238-236 where some specific cases focused on the sophists, Plato, and Aristotle are analysed.

(12) *Conf.* 113 E 4-114 A 4: 'That God has established this limit by nature and by art is evident. However, if God does not depend upon the limit (ὑπὸ τοῦ ὑμνου τοῦ κοινοῦ), but produces what is by chance out of what is by chance, without being prevented by the necessity of the limit from producing what He wishes (τῇ ὑπὸ τοῦ ὑμνου μὴ κοινοῦ τοῦ κοινοῦ θαυμάζεται), how is it possible that He has not been free to necessarily produce the limit from the underlying things?' (κώς ὑμνον ἣλενθέρον κατὰ τοῦ ὑμνου τοῦ ποιήν έκ τοῦ ὑπομείνου τοῦ ἀνάγνωσμα).
maintains that if God has the same power as His will in everything (Conf. 145 C 6-7: ἐὰν δέ τινα τῇ βούλῃσθαι ἔχῃ τὴν ἐγγυόν ἐν πάσιν), it does follow that He is the artificer or maker (κτιστής) of matter (9). With this argument Pseudo Justin believes to have refuted Aristotle's tenet that matter is everlasting (and above all its character of ungenerated principle) and thereby to have shown that matter also has an artificer; he also believes to have undermined the thesis of the eternity of the world, both terrestrial and heavenly. Of course, there are several points in this account that Aristotle would have not accepted: On the one hand, Aristotle might argue, Pseudo Justin should demonstrate that God has will. If he could do that, he should also demonstrate that God's power and will are one and the same thing. As is obvious, Pseudo Justin introduces an ingredient that is alien to Aristotle's assumptions insofar as it is arguable that Aristotle does not think in terms of will as a faculty different from reason. In Aristotelian technical contexts βούλησθαι does not mean 'will' but a certain kind of desire; 'rational desire'. According to Aristotle, it is a strictly human form of desire in which there are rational and volitional ingredients involved (10). Furthermore, we never find in Aristotle’s discussion of god that he has will, or that his will can be identified with his power. Aristotle’s god is rather pure thinking and it is pretty obvious that god is not preoccupied with human affairs: the only thing Aristotle’s god is doing is to think about himself (11). This is one of the few cases where Pseudo Justin argues on the grounds of Christian assumptions that were unknown to Aristotle and that would probably have been unacceptable to him. To sum up, Pseudo Justin’s two more important Christian premises are (i) that God is not limited to producing what He wishes (in fact, the necessity of the limit cannot be a hindrance for Him insofar as God is the cause of the limit, which in Pseudo Justin’s argument implies that God, in virtue of His omnipotence, is able to produce whatever He wants, even what is impossible; Conf. 113 E), and (ii) that God’s power and will will coincide (Conf. 145 C). The detailed knowledge that Pseudo Justin depicts of Aristotelian texts, though, makes me think that, in formulating his criticisms, he must have been aware of the fact that Aristotle would not have been willing to admit his own assumptions with regard to God and that, consequently, his criticism would not have been feasible, both from the Aristotelian viewpoint and from a perspective analyzing the feasibility of those presuppositions.

There is another interesting point which is worth mentioning: the exhortative introduction of Pseudo Justin’s Conf., is characterised by an attitude common to Christian authors of the first centuries: the distinction between (a) ‘those who admitted the teaching coming from

(13) To some extent, Pseudo Justin is paraphrasing Plato’s Timaeus 28 C 3-4 (41 A 7-8 B 7), a passage that other Christian authors found attractive as well: insofar as Plato introduces the picture of a ‘creator’ of the world (cf. Aristotle, Logica, 6.2, 8, 3-2).

(14) It is true that there are some Aristotelian passages where one is sometimes compelled to translate βούλησθαι as ‘will’ (cf. Nicomachean Ethics 1136 B 7; we also should translate like this in Conf. 145 C 6, where the basic sense seems to be that), but as it is shown by Aristotle himself βούλησθαι is a peculiar type of desire (θετειωμένη κατὰ τὸν λογικόν) rational desire. See De anima 414 B 2 and specially 432 B 5-6 and 433 A 26-27, where it is plain that, when desire is associated with the rational part of the soul it is βούλησθαι whereas when it is associated with the irrational part it is appetite (επιθυμία) or rage (θυμός). Aristotle is willing to argue that the object of βούλησθαι is the good (see Rhetoric 1369d2-3 with M.C. Nussbaum’s comments in her Aristotle’s De motu animalium [Text with Translation, Commentary and Interpretative Essays], Princeton, 1985, pp. 334-336. See also Eudemian Ethics 1223 A 26-27 and De motu animalium 700 b 23). Finally, it should be recalled that Aristotle never uses the word θέησθαι, a term that, among Greek philosophers, appears rather late (cf. Plutarch, 6.8 13, 26-37; 6.8 16 et passim).

(15) Moreover, Aristotle has another argument to show that his god is not interested in human affairs. The question is: what is god thinking? For god cannot think of nothing, since if that were the case, it would be hard to know what his dignity consists of. Now if he thinks, but in order to think he requires another thing (in the case that his substance were potentiality), then he will not be the best substance. It follows that either he thinks of himself or of another thing; but he should think of himself, for otherwise god would degrade in his dignity. Therefore, his only object of thinking must be himself: he thinks of the most divine and valuable, and he does not undergo any change since change would be for the worse (Metaphysics 1074 B 15-27). For the Platonic antecedent of this view see Plato, Republic 381 B, where it is emphasized that in god change is always for the worse insofar as god is the most perfect. The emphasis Aristotle makes in Metaphysics on the fact that god or the first mover is actuality (ἐνέπειδος) is not present in Phys. 8, where the first mover is never called 'god' or 'actuality'. This fact can be easily explained, for in Phys. the first mover is not regarded as being an intellecctual substance; it is not called 'what is object of desire', 'what is object of thought' (Metaphysics 1072 A 25), or 'what is loved' (Metaphysics 1072 B 2-3), either.
God Himself", and (b) "those who distrusted the words transmitted by the prophets and fostered the finding of God's knowledge through their own arguments" (Conf. 111 A-B). This is a strong contrast between trust in divine revelation for knowledge of God, on the one hand, and a strictly scientific procedure, on the other hand, for the same end. What can be envisaged here is a dispute between Christian thinkers and pagan thinkers, as well as Pseudo Justin's efforts to show that revealed truth suffices for the true knowledge of God (14). The other interesting point to take into account is the fact that his arguments addressed against Aristotle's views follow patterns that are characteristic of the Greek thinkers and, in particular, of Aristotle, although sometimes one can note some backgrounds proper of a Christian underlying ontology. As suggested above, there are some hallmarks that Pseudo Justin's concern is to show the rational viability of the Christian doctrine before the traditional Greek thought. In this vein, it turns out to be intriguing that, even though Pseudo Justin ideologically adheres to position (a), the development of his treatise depicts an amazing skill to elucidate the discussed issues following the procedures used by the followers of stance (b). As we shall see in the next section of this essay, the author of Conf., both in his assumptions and in his manner of arguing, exhibits some Aristotelian features and evidences a solid knowledge of Greek philosophy and of its methods of analysis.

Although Pseudo Justin's declared intentions at the beginning of the treatise are 'to devote himself to make better the human beings as long as it is possible' [...] and 'to make a modest selection of the Greek doctrines on God and his creatures' (Conf. 110 D), his clear intention is to prove that, even though the Greeks (and especially Aristotle) contend that in their investigations they proceed 'following the demonstrative science' (καθα υποστηνη ἐπιστήμην), they did not compose their works following such a demonstrative science. Thus he appears to mean that the Greek philosophers are clearly incoherent for, in spite of declaring to be conducting a demonstrative scientific method, in fact they do not do so. The point Pseudo Justin stresses is that their supposed demonstrations contain a great amount of inconsistencies or rather "dissensions" (κολλή διαφωνία; Conf. 112 A 2-3) (17). In this vein, he intends to make evident that, more than proceeding demonstratively, the Greeks in general and Aristotle in particular look into 'what appears' (τὸ δοκοῦν) by means of a conjecture (ἐκοιμοῖο) (18). The word ἐκοιμοῖο has no technical meaning in Aristotle and, as a matter of fact, it does not appear in the whole Corpus Aristotelicum. Maybe Pseudo Justin is relating the methodological procedure of conjecture (which he attributes to Aristotle) to the cognitive state whose objects are images (ἐικονεύεις), the objects fitting with the second section of the inferior region in the paradigm of the line in Plato's Republic (Republic 511 D-E), that is to say, the cognitive state of mere conjecture (ἐκοιμαία). If this is, in fact, the case, the contrast that Pseudo Justin would be intent on establishing is that Aristotle, the great Greek philosopher who has vigorously insisted on demonstrative accurate procedures of argumentation, examines what appears to him through mere conjectures, statements which appear likely to be true, but have not been formally proven to be true under the requirements of demonstrative knowledge.

Beyond the clearly polemical intentions Pseudo Justin is advancing, it is worth pointing out his remark that Aristotle does not apply his model of knowledge in the strict sense (i.e., demonstrative knowledge, such as it is presented in Posterior Analytics) to the whole field of knowledge, and in this particular case to physics. This is a topic that, contemporarily and mutatis mutandis, has been emphasised in the Aristotelian scholari-

(17) As pointed out by Rosza, Festuqûre Revisited, p. 18, this feature made manifest to the Christian thinkers how the Greek philosophers, due to all their fruitless wrangling, could not hit on the truth revealed to the prophets. This contention is also present in the Conf.; it is plain, though, that Pseudo Justin is willing to challenge Greek philosophy in its own terrain, i.e., by arguing against Aristotle making use of the same argumentative weapons.

(18) Cf. Conf. 110 E; the same assertion can be found in Conf. 117 D-E where, when commenting on Aristotle, Phys. 191 A 24-33, Pseudo Justin observes, once more, that the Greek philosophers did not produce their arguments on the existent things in accordance with the demonstrative science. Actually, his commentary in this section is arbitrary and inaccurate; to be sure, Aristotle's text just reflects the first part of the problem at stake, i.e., the part concerned with the dialectical discussion of the problem where the views of the physicists are presented. Later on Aristotle tries to refute these views. On the other hand, Aristotle's own position starts in the lines posterior to the passage quoted by Pseudo Justin.
ship by J.-M. Le Blond and, more recently, by J. Barnes (*). The method that Aristotle follows in his treatises and the method that he prescribes as a model of knowledge in *Posterior Analytics* (i.e. the deductive model of science) sometimes are quite different. According to the well-known model of scientific knowledge Aristotle posits in *Posterior Analytics*, science is composed of a set of propositions guided by definitions and postulates (*). If this is so, and if there are reasons to think that physics counts as a science (as it does), it should be possible to isolate in a more or less clear manner the set of propositions which yields the science of physics and, among those propositions, the definitions and postulates proper of physics. A fundamental postulate of physics is that there is motion (in fact, Aristotle assumes that such a postulate cannot be proven, for, as a matter of fact, there are many things that are in motion and changing all the time (*); a crucial definition in the domain of physics, then, would be that of motion: ‘the actuality of what is in potentiality, as such, is motion’ (Phys. 201 A 10-11; my translation). And this is so, Aristotle contends, because without motion there is no physics. The thesis that some or all natural things are changing or in motion constitutes the basic postulate of the science of nature (Phys. 185 A 12-13; cf. 192 B 20-22; 200 B 12-15). However, Aristotle’s physics cannot be understood as a set of propositions where certain theorems are deductively derived and follow syllogistically from the postulate ‘there is motion’. In fact, Aristotelian physics (like other scientific disciplines such as ethics, rhetoric or politics) is not a science as geometry, where such a deductive proceeding makes sense insofar as its object is necessary and, therefore, can be constituted as a set of necessary truths. The object of physics is ‘what occurs for the most part’ (ὡς ἐν τῷ πάλιν)


(20) See *Prior Analytics*, 25 B 30-31; 41 B 1-5. *Posterior Analytics* 71 B 18-22; 72 A 14-29; 75 B 30-32; 90 B 24-25. Cf. *De Anima*, 402 B 25-26. This model is, of course, that of demonstrative science, i.e., that knowledge whose object cannot be otherwise (i.e. it is necessary; *Posterior Analytics* 73 A 21-24). Such a science is characterised as a deductive system axiomatised comprising a finite set of apodictic or demonstrations (Barnes, *Aristotle’s Theory*, p. 65).

(21) For Aristotle’s definition of ‘postulate’ (ἀφροτικός) see *Posterior Analytics* 76 B 32-34.

and, hence, what is contingent (*). This being so, it appears that one should conclude that, given that physics does not fulfil the requisite of having the proper object of science (i.e. an object which is necessary; ἀνάλογον), it is not a scientific knowledge. Nevertheless, Aristotle, probably having this objection in mind, reminds us that science is concerned not only with what is necessary, but also with ‘what occurs for the most part’ (*). Consequently, physics can be understood as a science whose objects are not necessary, but contingent (*).

I am pretty sure that Pseudo Justin was thinking of the ‘strong sense’ of scientific knowledge (ἐνότον) when addressing his criticism against the fact that the Greeks in general and Aristotle in particular do not do their philosophical research ‘following demonstrative science’. His remark, once again, seems to have a clear polemical intention; but his observation is also interesting in the sense already pointed out above: Aristotle does not apply the model of scientific knowledge he prescribes in *Posterior Analytics* to his own discussions and treatises. As far as I can see, in Pseudo Justin’s other works there is not a clue that he is quoting or paraphrasing a specific passage of Aristotle’s *Posterior Analytics* (*).

(22) That ‘what occurs for the most part’ is straightforwardly related to what is contingent (ἀνάλογον) is explicitly acknowledged by Aristotle (Prior Analytics 25 B 14-15; 32 B 4-8).

(23) See *Metaphysics* 1027 A 19-24, where he clearly states that, in a wide sense, scientific knowledge can be of ‘what always is’ (i.e., what is necessary) or of what is ‘what occurs for the most part’ (i.e. what is contingent). See also *Posterior Analytics* 87 B 19-25; 96 A 8-19.

(24) On the other hand, as remarked by Barnes, Aristotle’s notion of necessity is not restricted to logical necessity, but encompasses ‘natural’ necessity too. So, the contingent truths of a science like biology can be included within ‘science’ or ‘scientific knowledge’ (ἐνότον). See J. Barnes, *Aristotle. Posterior Analytics*, Oxford, 1994, p. 92.

(25) Although the word ἀνάλογον appears a number of times in Pseudo Justin’s works, it never is discussed in the technical sense of ‘scientific demonstration’, i.e. in terms of a knowledge that proceeds from items which are true, primary, immediate, more knowable, prior, and causes of the conclusion (see Aristotle, *Posterior Analytics* 71 B 19-22). There is a passage, though, where ἀνάλογον is briefly discussed in a more or less epistemological context: ‘For every demonstration (ἀνάλογος) is more powerful and trustworthy than that which is demonstrated; since what is previously distrusted, until [one] arrives at a demonstration, attains a trust when [such demonstration] is conducted, and it appeared such as it was said to be. But nothing is either more powerful
or more trustworthy than the truth; so that the one who requires a demonstration about the truth is like the one who wishes to demonstrate why the things that appear to the perceptions (αισθηταί) do appear. For the discernment (καταδεικνύω) of those things, which are received through an argument, is perception; but of perception itself there is no criterion beyond itself. Therefore, such as we bring to perception those things which are pursued through an argument, and we discern (καταδεικνύω) by perception what kind of things they are, whether the things spoken to be true or false, and then we judge trusting perception no longer, so too, we refer all the arguments regarding men and the world to the truth, and by it we judge whether it is worthless or not. But the arguments of truth we judge by no other mean, trusting the truth (Pseudo Justin, On resurrection, 588 B 1 C 6; my translation). However, in the following sections of the text he identifies the truth with God, so the whole discussion becomes an entirely theological one. I am aware that the attribution of Pseudo Justin's De resurrectione has been a matter of intense dispute: M. Hengel argued that the text belonged to Athenagoras of Athens (Pseudo Justin: Über die Auferstehung [Patristische Texte und Studien, 54]. Berlin, 2001, pp. 75-94, and passim). More recently A. Whaley has discussed Hengel's book and argued that the likely authorship of Pseudo Justin's De resurrectione is Hippolytus of Rome (see Pseudo Justin's De resurrectione: Athenagoras or Hippolytus? , in Vigiliae Christianae, 60 (2006), pp. 420-430, at pp. 422-427). I cannot engage in this discussion here; for the sake of brevity I shall assume that one could attribute the treatise to a 'very general' Pseudo Justin.

(26) Aristotle distinguishes (i) to know 'the fact' (διδομένα) from (ii) to know 'the reason why' (δικάτω). Knowledge of the fact occurs in two ways: (a) When the deductive argument (συνάρτησις) does not proceed through 'immediate items' and 'the prime causal explanation' (τὸ πρῶτον αφίκοντα) is not assumed. (b) It also occurs when the deductive argument proceeds through 'immediate items', and it does proceed through the causal explanation, but through the more knowledgeable among the converting terms (see Posterior Analytics 78 A 22-28).

The criticism to Aristotle's theory of principles

3.1. The criticism to Aristotle's theory of principles

In Phys. 1.4-5 Aristotle presents his theory of the principles of physical change. His arguments are mostly simple and clear, and, as usual, he develops his doctrine facing the earlier philosophical tradition. To put it roughly, Aristotle's treatment of the principles of change is as follows: the arguments the physicists make use of are of two kinds. Some posit an underlying single body and derive the multiplicity from other things by rarefaction and condensation. By positing the multiplicity they use the contraries, which are nothing but modalities of the excess and defect. Plato speaks of 'Great and Small', postulating these as matter, and the one as form. The physicists, on their part, posit a single substratum as matter, and the contraries as form or 'principle of differentiation'. Other physicists (like Anaximander, Empedocles, and Anaxagoras) contend that the contrarieties contained in the unity emerge from it by segregation, and they derive the other things from mixture. Although all these philosophers share a common ground, they differ on account of the fact that while one of them (Empedocles) posits periodical mixtures, the other (Anaxagoras) puts forward a single series of mixtures. Besides, Aristotle adds, while Anaxagoras establishes his infinite homogeneous substances and contraries, Empedocles just posits the so-called 'elements' (Phys. 187 A 12-26). In what follows, Aristotle concentrates on a systematic criticism of his predecessors' stances on the principles, which extends toward the end of Phys. 1.6 (187 A 25 - 189 B 29).

Now, in Phys. 1.7 Aristotle develops the positive part of his doctrine of principles and in passage 191 A 6-7 he asserts that 'it will suffice that one of the contraries produces the change by its absence and presence'; I cite this assertion because it is crucial for Pseudo Justin's objection to the theory of principles. Let me quote in full the bulk of the argument where such objection is made:
If the form informs the matter by its own presence and produces what is formless (νοστή ἀνείβον) by its own absence, and if principles are two—the form and what is formless—and if the privation also produces these same things by its own presence and by its own absence, then principles will generate and destroy each other, i.e., they will not be everlasting (ἄνφλο). For the everlasting does not require any presence or absence for existing (παρά τοῦ ἐξελεύν). If the change of principles is generated by the presence and the absence of the contraries, it is obvious that change is produced because of the fact that they are principles in themselves. How, then, can principles persist if they have withheld to be principles? If a principle containing a principle is not a principle, how can the matter—which contains the form as a principle of its being, and the privation as a principle of its not being—be a principle? (Conf. 116 B 1-6).

Following Aristotle, Pseudo Justin accepts that by its presence form endues matter with form (ὅμως), and by its absence it produces what is formless, that is to say, if form is not present, matter remains formless, indeterminate. Now, if the principles are matter and form—in this passage Pseudo Justin calls matter ‘formless’, something perfectly legitimate insofar as Aristotle admits that matter lacking form is indeterminate—(ὅμως), it follows that the principles will generate and destroy each other. In other words, the principles will not be everlasting and, more importantly, the assumed principles will not be principles in the strict sense insomuch as they are derived (ὅμως). Pseudo Justin’s argument could be formulated this way: Aristotle has admitted that for something x to be a principle, such something x should not derive from another thing, but the other things from it (cf. Phys. 188 A 27-28; in the example, x can be both the form and the matter, since for Aristotle both items are principles). Let us call this first thesis T1: for every thing x, x is a principle if and only if it does not derive from another thing. But Aristotle also admits a second thesis: the form (φύσις) informs matter (μάττα) by its presence, and by its absence it produces what lacks form (this is T2). In addition to that, Aristotle also maintains that the privation (ἀπορρίματα) is which is an item that by itself is not, unlike matter, which is an item that incidentally is not (ὅμως) is capable of producing these things by its presence and its absence as well (this is T3). However, from the conjunction of T1, T2, and T3, it does follow – T3—since by the presence of F the existence of M follows, and by the absence of F the inexistence of M follows. That is, M that had been posited as a principle derives from F and for this reason it will not be a primary principle, which as such must be stable and not derived (cf. Phys. 189 A 19-20). What is eternal, like Aristotle himself admits (see DC 279 B 18-24), does not require the presence or absence of another thing for being what it is; if something is effectively everlasting, it cannot depend upon the existence of some other thing for, in that case, it would be something derived, not primary, or like Pseudo Justin in a very Aristotelian manner concludes, ‘a principle having a principle

(27) According to Aristotle, matter is, among other things, possibility of being or not being something (cf. Metaphysics 1032 A 20-22; On generation and corruption 335 A 32-335 B 5), whereas what determines what the object is in each case and that in view of which it changes is its form (Metaphysics 1028 A3-5; 1032 A 24-25; 1070 A 1-2; Phys. 191 A 8-12 and, especially, On generation of animals 729 A 10-11, where it is quite clear that the active principle which sets matter in motion is form). This thing also is at work within Aristotle’s model of scientific knowledge. In fact in Posterior Analytics 76a31-32 he argues that a principle is an item that cannot be proved or demonstrated that it is the case (ὅτι μὴ ἐνδέχεται δεῖξη). Since demonstration is understood as a ‘scientific deduction’ (αἰτιολογία ἀρχαιολογική), the notion of demonstration (ἦν ἀκόμη γενέται τά δεῖ ὅτι) must be demonstrated within Posterior Analytics 76a 31-32 is matter of debate. Some interpreters have argued that what Aristotle has in mind is that principles are not demonstrable within the particular sciences (ὡς ἀκόμη γενέται τά δεῖ) where they are principles (see P. Pelagru, Aristotle, Second Analytics, Organon IV, Paris, 2005, p. 360). At any rate, although this is the case at stake here, it is at least arguable that Aristotle is concerned with showing—both within the ontological and logical domains—that a principle is what properly is first; see Posterior Analytics 72a 6-7; ‘for I call ‘first’ (πρῶτον) and ‘principle’ (ἀρχή) the same thing’. Besides, as stated in Posterior Analytics 71b 21 (see also 86 b 1-4, 27-30), it is pretty clear that the principles have an epistemological priority with regard to what follows from them.

(30) Phys. 192 A 4-6.
is not a principle' (Conf. 128 B 5-6: ἡ ἀρχή ἢ ἁρχὴν ἔχουσα σώκ ἐστιν ἀρχή). Therefore, if principles derive neither from other things nor they derive each other, and if the privation derives from the absence of form, and the form derives from the absence of privation, form and privation derive each other. But this is in flagrant contradiction with Aristotle’s starting point: if something is principle in the strict sense, it cannot derive from another thing (cf. Conf. 116 D 2-6). This is a clear example of the way in which Pseudo Justin draws a conclusion completely contrary to an Aristotelian viewpoint out of the same Aristotelian assumptions.

3.2. The criticisms to Aristotle’s theory of time, the eternity of heaven, and ether

The other important attack Pseudo Justin addresses against Aristotelian cosmology is his criticism to the theory of ether, the elemental component of heavenly bodies, and the tenet that time is eternal. If it is possible to demonstrate that there is no ether, it will become clear that there is no eternal body in the universe and thereby that the heavenly realm is not eternal, either. In Pseudo Justin’s Conf. a number of arguments against the Aristotelian doctrine of ether can be found; such arguments attempt to show (i) the non-ether of ether, (ii) that ether, and in general the heavenly bodies, can perform motions contrary to nature (which would contradict Aristotle’s assumption that circular motion has no contrary and, on account of that, is everlasting), (iii) that stars, due to the fact that they cannot move themselves, do not have an eternal motion in accordance with nature and, finally, (iv) that earth, in being an element with a similar nature to the other terrestrial elements, cannot be coeternal and co-generated with heaven. The attempt to rebut the ether’s eternity is preceded by the attempt to demonstrate that time is not eternal. To be sure, if time is demonstrated to have a beginning (and, therefore, the motion will have a beginning as well, insofar as time is the number of motion), the impossibility that a body moving continuously exists will follow. There are different arguments in Conf. trying to show that time had a beginning. In what follows I shall present and comment on some of them critically.

In Phys. 3.7 Aristotle continues to deal with the notion of infinity. He takes to be reasonable that whereas in the case of number there is a smallest number – which limits its decrease – and yet, in increasing, it constantly goes beyond every quantity, in the case of magnitudes the opposite happens: magnitudes go beyond any determinate magnitude when such a magnitude is decreasing, but when it is increasing, there cannot be an infinite magnitude. When a magnitude is increasing, a larger number always can be conceived of, since it can be divided into halves many times; this is a potential infinite, not an actual one, but it is always possible, Aristotle goes on to argue, to take more than any determined quantity. However,

“this number is not separable [from the dichotomy] (9), and the infinity does not persist but is in process of generation” (Phys. 207 B 13-14, my translation; this is the passage Pseudo Justin comments on in what follows).

Aristotle accepts the infinite divisibility of magnitudes, but refuses the possibility of overcoming every magnitude that is defined by means of an infinite process of addition. In other words, there is no infinity in actuality: any magnitude that can exist potentially can exist in actuality as well. But given that there is not an infinite perceptible magnitude, therefore the existence of a magnitude which exceeds a determined magnitude is impossible (this also proves that there can be no infinite in actuality; Phys. 207 B 17-21).

Now Pseudo Justin is worried about demonstrating that time (as well as motion) has an origin; indeed, the background of his arguments, as usual in Christian authors of this age, is that the world has been created, and if time and motion are everlasting creation is not understandable. So he will try to prove that time had a beginning and, along with it, that motion started to exist and is not eternal. If this can be proven, then the world cannot be eternal, either. However, he does not make use of the creationist argument, but argues as a philosopher in order to try to show that it is false that both time and motion are everlasting. Pseudo Justin argues for his position taking as his starting point Aristotle’s assertion that the infinity does not persist but is in process of generation (γενεσις), such as time and the number of time (Phys. 207 B 14-15). Let me quote in full Pseudo Justin’s argument:

“If infinity (καινεμα) does not persist (οτι μενει) but is in processes of generation (γενεσις) – such as both time and the number of time – then, nothing infinite is ungenerated (δην εσται). But if whatever is infinite is generated, then, all the other things (the expression) ‘infinite’ is spoken of, are generated, too (σα τα λαλα πανεα ἐν σες ληγουται ελευς το ἀπεριον). If that

(31) On της διχοτομις see note 32 below.
which happens to the infinite (τὸ ὄντος καὶ ἐπικράτουσα) also necessarily happens to those things in which infinity is, and if the fact of having been generated (τὸ γενότομον) and of having a beginning (τὸ εὐθὺς ἀρχή) happens to what is infinite, then, time is generated, that is to say, has a beginning. The same thing happens to motion as well, of which time is number (Conf. 131 A 3 B 4).

The objection is focussed on the very notion of ‘infinity’, such as it is presented by Aristotle in the passage Pseudo Justin is commenting on (Phys. 207 B 10-15). He starts by taking advantage of Aristotle’s assumption that the number that is gotten in the processes of division (or subdivision) of a magnitude is not ‘definable’ (32); he also exploits Aristotle’s assertion that infinity does not persist, but is in a processes of coming into being. In Pseudo Justin’s view, it seems to follow that nothing which is infinite is ungenerated (since, according to Aristotle, what is ungenerated persists all the time), and if whatever is infinite is generated, the same thing will occur to that which exists in the domain of what is infinite. Therefore, if being generated and having generation happen to what is infinite, time will be generated and will have generation. If time is generated, motion will also be generated, insofar as time is, by definition (Phys. 219 B 1-2), the number of motion. Pseudo Justin’s objection is again suggestive, but the phrase in occasion of which the criticism is addressed should be carefully examined: ‘this number is not definable and its infinity does not persist, but it is in process of generation’. In the Aristotelian passage it is clear that the numeric infinitude depends upon the activity of subdividing a determined magnitude, and of continuing to count beyond any amount attained (Phys. 207 B 11-13), which implies that it has in itself a crucial temporal ingredient that, nonetheless, cannot be reduced to a mere mathematical succession.

This accounts for the fact that Aristotle points out that in this case it is not an infinite that persists, but an infinite that is in a continuous process of coming into being. The fact that it is an infinity that does not persist, but is coming into being, does not necessarily imply that there has been a moment in which there was no time. It is true that Aristotle says that infinity does not persist, but is being generated; nevertheless, if the passage is placed within its context, it is more or less clear that what Aristotle is implying is not that time is generated, but it is being generated all the time. For Aristotle time as whole is not generated. Now the fact that there is no infinite in actuality does not mean that it can be denied any kind of existence to the infinite. The negation of infinite in a strict sense would imply some inconvenient consequences: (1) there will be a certain beginning and end of time, (2) magnitudes will not be divisible into magnitudes, (3) number will not be infinite (Phys. 206 A 9-12). These consequences are obviously unacceptable for Aristotle. By contrast, Pseudo Justin endeavours to argue against the Aristotelian thesis of the impossibility of actual infinite; his argument runs thus:

‘But if one part of the infinite is in actuality, and the other in potentiality, and if it is impossible that what is now in actuality is not in potentiality prior to what is infinite, then, it is impossible that what is infinite is always in a sense in actuality and in another sense in potentiality, but if it is prior in potentiality, it is posterior in actuality. If, such as time lacks an end in the future (κατὰ τὸ μέλλον ἀνελεύθερος ὁ χρόνος), so too it lacks a beginning in the past (κατὰ τὸ παρελθόνθων ἀνάρχον), then, time will be both ungenerated in the future and in the past. But if it is impossible that this is ungenerated in the future – according to which it had not been generated yet – and that it has been generated in the past, therefore, time does not lack a beginning. For there is no generation of that which lacks beginning, but there is generation of time. If nothing can be infinite in actuality, therefore, the already taken divisions of magnitude are not infinite; and the already taken number is not [infinite], either. For both are in actuality; but if they are not infinite, they are, then, finite. And if they are finite, it follows that they have a beginning; the one of being divided, the other of being numbered’ (Conf. 129 C 4 C 6).

It is clear that Pseudo Justin is sceptical about Aristotle’s account of the existence of infinite as being an infinite in potentiality (and the Aristotelian denial of actual infinite), a crucial thesis for Aristotle’s argument concerning the eternity of movement. According to Pseudo Justin interpretation, if infinite in actuality does not exist, everything (including time) which is in actuality is always finite (cf. also Conf. 130 C).
But that which is finite necessarily has a beginning, and if it has a beginning, it is necessarily generated, and ultimately, if it is generated, there was a time in which it did not exist. Pseudo Justin’s first objection to Aristotle’s doctrine of infinite turns out to be a little feeble, since it does not take into account the fact that Aristotle’s definitive stance is that there must be no infinity in actuality. Pseudo Justin probably argues in the way he does at the beginning of the text (‘if one part of the infinite is in actuality, and the other in potentiality’) because, even though Aristotle denies the possibility of the existence of an infinite in actuality and maintains that infinite just can exist potentially (Phys. 207 B 10-12; 209 B 12-13), he anyway admits that infinite can also exist in actuality. Certainly, Aristotle admits this in a very restricted sense: in fact, in Phys. 206 B 13-14 he says that infinity ‘also can exist in actuality (ἐντελεχείας), such as we say that a day and a context exist’. What Aristotle is really stressing is that, strictly, there is no infinitude in actuality, although we must recognize that the actual existence takes place in successive series (such as the day and the context) that are partially actualized with the actual existence of each one of their phases (Phys. 206 A 23-25). It seems to me that this important restriction could not pass unnoticed to Pseudo Justin; however, for the sake of his own argument, it turned out to be very useful to show that the conclusion (absurd for Aristotle) that if infinite is prior in potentiality it is posterior in actuality could be drawn (Conf. 129 D 1-2) (33).

The second objection turns again to the issue of time and concentrates on the fact that, if it is admitted that time has neither an end in the future nor a beginning in the past, it does follow that it will be both ungenerated in the future and in the past. However, if time cannot be in the future – for the future does not exist yet – and if it is not possible that the past has already been, then, it should be admitted that time has a beginning. For just what has no beginning has no generation, either. But, as has been seen, time has a beginning, that is, the beginning of the future time, which does not exist yet. This last objection intends to exploit the Aristotelian thesis regarding the impossibility of the existence of infinity in actuality; the implicit interest is to conclude in an opposite direction to that of Aristotle, which, once more, would imply the generation of time: if an infinity in actuality is not possible (as Aristotle asserts), it follows that the divisions of magnitude cannot be infinite, either. For a magnitude is a determined quantity, but, as Aristotle maintains, there is no infinite perceptible magnitude (cf. Phys. 207 B 19; cf. 206 A 16). In other words, what Pseudo Justin is worried about stating is that both magnitude and the concrete number are in actuality, but they are finite and if they are finite, they must have a beginning. Thus, as mentioned above, he is sceptical about Aristotle’s account of the existence of infinite as an infinite in potentiality. According to Pseudo Justin’s interpretation, if infinite in actuality does not exist, whatever is in actuality is always finite. But that which is finite necessarily has a beginning, and if it has a beginning, it is necessarily generated, which is the same thing as saying that there was a time in which it did not exist. Furthermore, time, Pseudo Justin contends, is contrary to what Aristotle states, generated. For there is generation of the future time (for it does not exist yet) and there is also generation of the past time since for a fact x to exist in it, such a fact should have started at any time (Conf. 129 D). And if whatever is generated did not exist prior to generating itself, it follows that time is not eternal and does not lack a beginning. This being so, the motion will not be eternal either; his argument runs thus:

‘For if the future part of time does not exist yet, and the past part of time (τὸ γενόμενο μέρος τοῦ ἐξουσίου) is prior to that which will be, then, [this part] existed when the past part of time did not exist. And if infinite must lack a beginning (ἐναρμότητον), it follows that time is not infinite, for it has the change of the future as the beginning of its existence (ἀρχή τοῦ εἴλοτος). And if the past part of time is in actuality, and the future is in potentiality, and [if] actuality and potentiality take place within the sphere of the existing things, then, time—which consists of the past and the future—does not consist of non-existing things’ (Conf. 134 D 1-2).

This comment is focused on Aristotle’s Phys. 217 B 32-218 A 8, where he puts forward an argument based on the unreality of the ‘parts’ of time: the past and the future. One of Aristotle’s conclusions in this puz-
zling argument was precisely that time seems to be constituted from "non existent things", "not beings" (ἔκ μη δεινών), since both the past and the future do not exist (the former has already been and the latter is going to be). Pseudo Justin opposes to this in holding that if the past is time in actuality and the future is time in potentiality, then, time does not consist of non-existent things. It is worth noting here that Aristotle does not assume as a definitive position that time is a composite of non-existent parts. To sum up Pseudo Justin's point, given that Aristotle admits, expressis verbis, that one part of time has existed and that it does not exist now anymore (the past), and that another part will exist and it does not exist yet (the future), then, time is generated. If time is a wholeness, whose parts are always in process of coming into being, it must follow that time is generated as well.

Before turning to the arguments addressed against the Aristotelian doctrine of ether, let me refer to and comment on two last arguments offered by Pseudo Justin against the eternity of time and the world. The first argument can be found in Conf., chapter 41, where he cites Phys. 251 B 19-28. There Aristotle argues this way: (i) if time cannot either exist or is impossible to think about it without the now, and (ii) if the now is a kind of middle-point having both a beginning and an end (beginning of the future time, and end of the past time), (iii) it follows that time must be eternal. For the extremity of time, which is taken as being final must be a now, since, apart from the now, nothing can be conceived of. Consequently, given that the now is both beginning and end, time must exist on both sides of it. (iv) But if there must be time on both sides of the now, there must also be motion (or change; κίνησις), since time is an affection of motion. This is, roughly presented, Aristotle's argument attempting to show the necessity of the eternal existence of time and motion. As shown earlier by Aristotle, what is prior and posterior presupposes the existence of time, and time that of motion or change. In fact, if one admits that time is subject to generation, one is assuming that before time's generation there was no time; but the word 'prior' is already presupposing time (cf. Metaphysics 1071 B 7–9).

Aristotle had already proved that motion and change constitute necessary conditions for time (cf. Phys. IV); but they are also sufficient conditions, for it is enough to corroborate a motion of any kind in order to be aware that time has elapsed. Inversely, it suffices that some time has elapsed in order that some sort of motion can be noticed as well (Phys. 219 A 30 ff.). Now if time is everlasting (as it is in Aristotle's view), motion must be everlasting too, since time is the number of motion or a kind of motion. But for motion to be eternal time should always have existed, and it is impossible to think about time without the now. The now is understood as a mid-point, being at once beginning and end: beginning for the motion following the mid-point, and end for the motion preceding it (Phys. 262 A 17–25). As is obvious from the above, this is applied to the now, the past, and the future time: insofar as it is a mid-point, the now is principle of the future time and end of the past time. It follows then that time is eternal, since 'the now' always contains time on each side.

Now this is the background underlying the Aristotelian passage quoted by Pseudo Justin in Conf., chapter 41. Interestingly he starts his objection to Aristotle by noting that this argument implies that heaven is everlasting (Conf. 138 B1-2). The bulk of his argument runs thus:

"If time is everlasting, motion – of which time is number – is by necessity everlasting as well. And if motion is everlasting, the moving body (τὸ κίνημα) (诚) is also by necessity everlasting. However, [Aristotle] has absolutely established this coeternity (κοίνωνία) (between motion and time), and [his thesis] will be refuted in this manner: in fact, such as the future time will be generated, so too the past time has been generated. But the time that will be generated, such as it contains a future generation (τὸ μελλόν τῆς γενεσίας), so too it contains a beginning. And such as nothing of the past is in the future, so too nothing of the future is in the present. But if the now is an existent (δεδομένος) and is present (ἐπίκειται), and the future is neither an existent nor is present yet, therefore, the present now is not a beginning of the future time, but that now which is going to be is a beginning of the future, and such a now is neither a middle point of some kind having time on both sides (but it refers to another thing, i.e. to the same now), nor is a beginning and an end. That same now corresponds to one and another time; for instance, beginning of the future and end of the past. But one now is beginning, and the other one is end, but of the same time. In other words, if it is impossible that the now is a now – i.e. if it is not before a future, that is, a non-existent (οὐκ ἔστι) –, therefore, it is impossible that the now is coeternal. For, if everything which is prior is non-existent but posterior, this is generated; and the now also is of such a sort. Thus the now is generated. But if the now is generated, the whole time – of which the now is beginning and end – is by necessity also [generated]. And if time [is generated], motion – of which time is number – is by necessity also [generated]."
And if motion [is generated], the moving body is by necessity also generated (Conf. 138 84-E6).

I think that Pseudo Justin is right in suggesting that Aristotle's main interest in the DC passage quoted at the beginning of Conf. chapter 41 is to reinforce, once again, the tenet that time is eternal in order to endorse the view that heaven (οὐρανός) is eternal as well. As Pseudo Justin rightly remarks, from the premise that the now is a mid-point always containing time on both sides, it follows that time is eternal (Conf. 138 B 2-4). Moreover, if time is eternal, movement should be eternal too; and if movement is eternal, the moving body must also be eternal, i.e., ether, which is heaven's elemental component and endows heaven with eternity. To be sure, this is Aristotle's rationale, and this is also why Pseudo Justin concentrates his attack on the account of the now as being a beginning and mid-point (between past and future) having time on both sides of it. A significant part of his argument heavily depends upon the fact (already discussed in chapter 31) that if time as a whole is composed of generated parts, then time should be generated, too. Pseudo Justin intends to prove that the coeternity established by Aristotle between time and movement is not reasonable; in order to do that he discusses the way in which the now is both beginning and end of time (beginning of the future and end of the past time), and stresses the generated character of the future as well as of the past time, thus undermining the supposed eternity of time as a whole.

The steps of Pseudo Justin's argument are as follows:

1. Aristotle states that if time is eternal (as he does), motion is eternal too (since he has proved that time is a kind of number; Phys. 219 B3).
2. If motion is eternal, the 'moving body' is also eternal.
3. Now, the time-motion coeternity is absurd because
   3.1: such as the future will be generated, so too the past has been generated,
   3.2: and the time that will be generated, insofar as it will begin to exist, clearly involves a beginning.
   3.3: Therefore, time is not eternal, since its parts are subject to generation, i.e., the future will be and the past has been generated (this is a first conclusion implicit in the first part of the argument. The other implicit conclusion is that if time is not eternal, movement cannot be eternal either, since time is number of movement).
4. Secondly, the argument focuses on attempting to prove that the now is generated. In fact, if it can be shown that the now is subject to generation, then, the whole time will be generated by necessity as well. The first premise is that nothing of the past time is in the future time and nothing of the future time is in the present.
4.1: If the now is an existent and is present while the future time is neither an existent nor is present yet (οὐκ ὤν), it follows that the now (which is present) is not a beginning of the future time, but the now which is going to be is the beginning of the future. But a now of this sort is neither a mid-point (having time on both sides) nor a beginning or an end.
4.2: So, if it is impossible that a now is a now (if it is not before a future, which is something non existent yet), hence it is impossible that the now is coeternal.
4.3: Therefore, if what is prior is non existent, it follows that it is generated, and if the now is generated, the whole time must be generated too; the same applies to motion (inasmuch as time is a number of motion). And if motion is subject to generation, the 'moving body' should be subject to generation as well.

In proceeding this way Pseudo Justin believes to have proved that the now is not the beginning of the future, but a future that, at the very moment when it is actually being, is the (future) now of a future. Moreover, the future that some time will be a now regarding another future is not a mid-point containing time on both sides of itself; this being so, it is not a beginning or an end in the sense pointed out by Aristotle. What Pseudo Justin thinks to have demonstrated, then, is that the now is not a now if it is not before a future; but if the future is a non-existent item, it does follow that the now cannot be coeternal with movement, for the now should always be a 'future now'. In other words, the now is generated and, along with it, the whole time. Aristotle's tenet that time is everlasting has been rebutted, Pseudo Justin contends, with the effect that the movement is generated and hence the moving body is generated as well (Quod erat demonstrandum).

After having proved the non-eternity of time, Pseudo Justin turns now to the criticism of ether. In chapter 14 (Conf. 127 D-E) he cites Aristotle's DC 270 A 20-22:

'It seems correct that nature rules out the contraries to what is going to be (τὸ μέλλον ἑσθοθα) ungenerated and indestructible, since generation and destruction take place among the contraries' (my translation).

Within the context, Aristotle's argument is the following: given that the generation of objects in the terrestrial domain is explained as the
motion from a contrary to another contrary, and since there is no contrary to ether (since the circular motion which essentially belongs to it has no contrary, and if there were a contrary, it should be assumed that ether is generated), what is ungenerated and indestructible must be ruled out of the contraries or, rather, of the explicative scheme that accounts for generation and destruction as the motion from a contrary to another one. I have highlighted 'what is going to be' in the quotation of Aristotle's DC 270a20-22 because Pseudo Justin tries to exploit that expression to address his criticism. In fact, he rightly understands that with that expression Aristotle refers to ether. Now, if it is said that ether is 'what is going to be' (τὸ μέλλον ἔσεθαι), it is because it is something that is not yet. But if this, in fact, is the case, ether cannot be ungenerated (and, therefore, it is not indestructible either), for what is eternal and ungenerated cannot be in the domain of what is possible, which can either be or not be. What can either be or not be must be something alien to what always is, and it can never be liable to a process of coming into being. Pseudo Justin’s argument does not remove without qualification the existence of ether, but rather the thesis that ether is ungenerated, indestructible, and everlasting. Consequently, it also undermines the idea that those things whose elemental component is ether (the heavenly bodies) are eternal and ungenerated. In this chapter a serious objection to the Aristotelian tenet regarding the pre-eminence of the celestial realm (with regard to the terrestrial one) is introduced for the first time. No matter that the argument posits some doubts at the purely theoretical level; the upshot at the physical level is that the distinction between two substantially different realms is seriously questioned and, implicitly, it puts forward the unification of both domains.

To conclude this section, and before turning to the concluding remarks, I would like to briefly consider some further arguments concerned with both Pseudo Justin’s objection to the eternity of heaven and ether, ‘the fifth element’. His attack focuses on a DC passage where Aristotle intends to prove that, since there is no circular movement contrary to another circular movement, it should be investigated why there are many locative motions (πολλά; DC 286 A8-12). The problem raised by Aristotle is why these movements are not like the whole body of heaven, i.e. why the movements that are placed under the sphere of the moon are not eternal (DC 286 A10-13).

Conf. Chapter 52 opens with a quotation of the just mentioned DC passage (286 A 8-12). Aristotle’s argument runs thus:

'Each thing of which there is a function (ἐργαζομαι) is for the sake of its function. The activity of god is immortality, that is, eternal life. Hence the movement of the divine must be eternal. Since heaven is of that sort (for it is a kind of divine body), for this reason it has a circular body (ἐγκύκλιον σώματος) which is always moving by nature in circle’ (my translation).

Once again, Pseudo Justin is intent on attacking the hypothesis that heaven is eternally moving, i.e., that the world is eternal. His first objection contends that if there is not a cause of what is ungenerated and eternal, and if things having a function are for the sake of such a function (ἐνεργεῖται τοῦ ἐργαζομαι), it follows that the causes of the existence of things having a function cannot be eternal. In other words, what is eternal or ungenerated cannot have a cause, for if it had it, there would be a cause or an explicative principle different from itself, i.e., a causal account from which what is eternal and ungenerated would derive, which is absurd (according to Aristotle’s own indications regarding what is eternal and what is a causal account). That is, the function is the cause of a thing insofar as such a thing is what is for the sake of that function (Conf. 146 E1-3). But clearly this cannot be the case of heaven or god for, if it were, heaven and god would be neither ungenerated nor eternal.

The next objection by Pseudo Justin is worth citing in full:

'If actualising only by the presence activities according to nature belongs to the inanimate things, and actualising by the will (will) belongs to rational beings, how is heaven - which does not actualise its immortality by its will, but by its movement and change of its own parts - a god? (Conf. 146 E 3-147 A 1)’.

This objection concentrates on an assumption that, even though it is not explicit in Aristotle, it is at least implicit: the actualisation of heaven’s movements depends upon heaven itself (this is interpreted by

(35) Further on Pseudo Justin offers new arguments against the existence of ether (see chapters 46-49, 53-55 and 62).

(36) The Greek is ἔσεθαι, on which see footnote 14 above. I translate 'will' because Pseudo Justin is clearly thinking of 'will', not of 'desire'.

(37) This criticism is repeated further on (cf. Conf. 147 B 4-6).
Pseudo Justin by saying that heaven, which is labelled by Aristotle as a divine being and thereby as a rational being, should actualise its activities by its own will). Pseudo Justin takes advantage of a point that is not very clear in Aristotle: it is arguably hard to find an entirely coherent view in DC regarding the reason why heaven moves like it does. In DC 1.2 Aristotle argues that the rotation of the heavenly element (i.e. the ether, the elemental component of heaven and, in general, of heavenly bodies) is due to its own nature (269 A5-7). However, in DC 2.2 Aristotle states that heaven is animate (i.e., it is endowed with a soul: ἔμψυχος) and possesses a principle of movement (285 A29-30). On the other hand, Aristotle also reminds us of the fact that there can be more powerful (κρεῖττον) that is capable of setting heaven in motion, for if there were something like that, it would be more divine (DC 279 A33-34).

The next objection intends to prove the ‘dependant feature’ of heaven, an entity assumingly eternal and ungenerated that, by definition, should not depend upon another one. So Pseudo Justin wonders how it is possible that heaven needs earth (around which it moves) in order to be moving; in fact, heaven’s motion is circular and, according to Aristotle, it moves around earth, which is the centre (cf. DC 296 B21-297 A2; 286 A13-18). The argument runs thus:

‘If what is ungenerated needs no cooperation of a thing or other things external either for existing or for acting, how is it possible that heaven – which needs earth, around which it moves, for being moving, and of the sun, the moon, and all the other celestial bodies (ἀστέρα) for acting – is ungenerated? If there is not a form (Λόγος) of what is ungenerated in what is active (ἐν τῷ ζωικόντι), and if heaven is ungenerated, how does it have an immaterial form (Λόγος ἔνοικος) in what is active and a material form (Λόγος ἐνοικός) in matter, a form in virtue of which ‘being heaven’ (τὸ θεραπεύον εἶναι) is different from ‘being heaven like a this’ (τῇ τούτῳ θεραπεύον εἶναι)? [...] If what is constituted out of matter cannot be co-ungenerated with matter (οὐκενεγένεννον τῇ ἔλεοι), how is it possible that heaven, which is constituted out of matter, is ungenerated? If what is constituted out of both things (e.g. matter and form) is posterior to these two things, how is heaven, which is constituted out of matter and form, coeternal to both of them?’ (Conf. 147 A1-B 4; 174C 5-8).

If the movement of heaven is circular, but in order to move in circle it needs a centre around which it moves, and if that centre is earth, a body that belongs to the corruptible domain in accordance with Aristotle, it is not clear how heaven, an assumingly eternal and hence ungenerated item, can depend on earth, which is a destructible item. The next argument focuses on the fact that heaven is a composite, and it endeavours to exploit the (negative) consequences of the hylomorphic model when applied to the account of heaven. Pseudo Justin returns to an issue he had put forward in chapter 50: one thing is the form by itself and another is the form in matter or in combination with matter. Namely, heaven is, as any other composite, the result of the combination of matter and form. But, like any other composite, it is not a true unity (insofar as it depends on the persistence of form and on its remote matter). Therefore, it appears to be doubtful that the composite is a true substance. But the fact that the composite is a true substratum of change legitimates the fact that it can be understood as a substance. The distinction mentioned by Pseudo Justin with regard to ‘form by itself’ (or ‘immaterial form’: Λόγος ἔνοικος), on the one hand, and ‘material form’, on the other hand, refers to Aristotle’s DC (277 B 32-33) (38). The idea underlying this distinction is that the essence of something singular (‘this house’) is ‘the form in matter or a material form’, i.e. a singular (cf. DC 278 A 9-10). Aristotle refers to the same singular essence as a composite and as a singular form, since it is both a ‘material form’ and a ‘formal composite’. The passage of DC 278 A 23-28 (quoted and commented on in Conf. 144 E-145 A) can be compared to Aristotle’s Metaphysics 1037 A29-33, where he describes the way in which it can be said that the composite of matter and form is substance (οὐσία):

‘Substance is the indwelling form (τὸ ἐνδοτο τὸ ἐνδότω), from which along with matter the so-called “composite substance”’ (ὁ σύνολος οὐσίας) is derived; e.g. concavity is a form of this sort, for from this and the nose arise “snub nose” and “snubness” (transl. D.W. Ross, slightly modified).

So in the substance understood as a composite matter will be present as well, and given that for Aristotle to be a real entity – i.e. not a mere

(38) Aristotle speaks of ‘form by itself’ (καὶ ἐκατην ἂν πορρη) and of ‘form mixed with matter’ (μεσαὶ γὰρ τῆς ὑλῆς), respectively, but the idea is the same (cf. DC 277 B 32-33). To be sure, he never uses the expression Λόγος ἔνοικος to refer to the immaterial form, although he does use λόγοι ἐνοικοί to state that emotions or affective states are ‘material structures or forms’ (see De anima, 403a25), and to stress that psychic states cannot be separated from body where they are realized (on this point see the still valuable comment by G. Romen, Aristote. Traité de l’âme. Commentaire, Paris, 1990, pp. 34-35). See also Metaphysics 1037A5, where Aristotle favours the idea that ‘the bronze circle contains matter in its form or structure’.
heap; σωφρός: Metaphysics 1040 B8-9 – is a distinctive feature of substance, and the material composite is not a real substance in its own (as long as it depends on the persistence of form and its remote matter), then the genuine character of substance said of composite can be liable to certain restrictions. Nevertheless, since the composite is a substratum of change, it can be substance to some extent. The Aristotelian theory of substance applied to the case Pseudo Justin is concerned with in this chapter can be seen in what follows: although the wholeness of matter available to make a nose has been employed to make a particular nose, 'being a nose' would not be the same as 'being this nose'. Similarly, if all the matter available is used to make heaven, 'being heaven' is not the same as 'being this heaven', and there would not exist or could not exist another heaven.

Now, if a material form (the one present in the composite) is distinguished from an immaterial form (the form by itself, independently of the composite), Pseudo Justin goes on to argue in Conf. 145 A-3, it should be admitted that the former is posterior to the latter. And if this is so, it cannot be understood how it is possible that heaven, which is a composite and hence posterior, is ungenerated. Now having this in mind, let us return to chapter 52. As we mentioned above, heaven, like any other composite, is a combination of matter and form. On this ground Pseudo Justin argues that if in what is active there is no form (logos) and if it is asserted that heaven is ungenerated, it is not understandable how heaven has an immaterial form in what acts upon and a material form in matter. According to this argument, 'being heaven' and 'being this heaven' are different; the success of Pseudo Justin's objection depends, to some degree, upon the fact that the conditional 'if there is no form of that which is ungenerated in what is active' (it is true to me that the truth of the conditional would be plausible even for Aristotle, for what by definition is ungenerated does not require to presuppose any form accounting for its generation). The criticism is clearly based on the fact that the explicative scheme of matter and form mainly applies to what is generated, not to the ungenerated. As a matter of fact, Aristotle maintains that heaven is ungenerated; in spite of this, he applies the hylomorphic model of generation to heaven. Pseudo Justin's contention at this point is that, if heaven were actually ungenerated, it would not be feasible to apply the distinction 'being heaven' and 'being this heaven' to it. To be sure, Aristotle might reply by arguing that, no matter how persuasive this objection looks like, he has stressed the fact that the type of matter heaven consists of is a kind of matter essentially different from the one proper of the terrestrial realm. But, of course, Pseudo Justin might respond that there is not a conclusive proof to show that both kinds of matter are really different.

The last argument addressed against the eternity of heaven questions in its very heart the feasibility of the hylomorphic model when applied to heaven. The bulk of the criticism is, to some extent, supported by Aristotle's assumptions concerned with matter and form as the basic principles of any composite: what is constituted out of matter and form is posterior to matter and form. So Pseudo Justin argues that, once it is taken for granted that what is constituted out of matter and form is posterior to matter and form, it follows that the composite must be posterior to its constitutive principles. Heaven is constituted out of matter and form, so it is a composite. Therefore, heaven cannot be ungenerated and thereby it cannot be co-eternal and co-ungenerated to matter and form, either.

4. Concluding Remarks

So far I have been exposing and explaining some of Pseudo Justin's criticisms to Aristotle's cosmology. It is time to assess their scope and to recall, once more, their background. As is obvious from the arguments I have given above, there are occasions in which Pseudo Justin seems to force Aristotle's text; sometimes he omits, probably consciously, some Aristotelian passage that eventually would raise a problem to his critical reading. But in general he does that within some reasonable limits, and such as any philosopher interested in conducting a critical analysis of an earlier thinker would do. This being the case, one could conclude that Pseudo Justin mostly proceeds like a philosopher: To be sure, the very title of his treatise prevents from considering his commentary as mere paraphrases of the Aristotelian passages under consideration. He always proceeds critically and his analysis is designed to prove his own position which, even though it is never explicitly formulated, is quite evident: (i) time and motion are not eternal; (ii) matter – both that belonging to the heavenly and to the terrestrial realms – is not eternal, either; and (iii) there is therefore no eternal elemental component (ether), from which it follows that the heavenly bodies cannot be eternal, either. Pseudo Justin limits himself to trying to refute Aristotle's arguments by attacking the negation of (i), (ii), and (iii), and according-
ly he rejects the basis of the Aristotelian cosmology as a whole. At the outset of this paper I suggested that from Pseudo Justin’s objections to Aristotle’s cosmological model a new approach to the cosmos emerges. The main assumption of such an approach is that there are no entities having ontological pre-eminences, and hence a picture of the cosmos arises where there are no significant differences between the heavenly and the terrestrial realms, either. Unfortunately, Pseudo Justin does not explicitly propose an alternative cosmology, inasmuch as he does not develop the foundations of his cosmology based on the rejection of Aristotle’s criticised tenets. This would show that his interest was merely polemical and dialectical, and not intended to clearly establish a new picture of the cosmos. Nevertheless, such a cosmology is implicitly suggested, and it advances a crucial aspect of the Modern science of nature: the laws ruling over changes and movements of the terrestrial world rule over the heavenly changes and movements as well. Actually, Pseudo Justin does not speak of ‘laws’ of change and movement (as neither does Aristotle); he rather suggests that the explicative principles of both domains are equally valid, and that from an explicative point of view such levels should be united, insofar as the principles of each domain are not qualitatively different, as the objects dwelling both realms are not distinct, either.

Doubtless Pseudo Justin takes the Christian viewpoint on the universe to be the correct one; he also clearly thinks that his own view surpasses Aristotle’s and helps to solve what he presents as true unsolvable difficulties in the Aristotelian cosmology in general and in the hylemorphic model in particular (especially when such a model is applied to account for heaven). His position, however, cannot be described as a reliance only on faith rather than on philosophical reasoning; in fact, Pseudo Justin does not dismiss Aristotle’s theses and arguments due to the fact that he takes his Christian faith to excel the Aristotelian explanations. To be sure, the Christian views the stance that God has created the universe frequently foster Pseudo Justin’s own viewpoints. The brief introduction to Conf. (110 D-112 D) makes it clear that its author thinks that the correct view is that of ‘those who admitted the teaching coming from God himself’ (111 A), that is, the teaching transmitted through the prophets, to whom God revealed his divine works and the truth. But one thing is to believe that the truth coming from God is the only legitimate truth and a different thing is, Pseudo Justin appears to suggest, to prove that such a revealed truth can be rationally justified in the same domain where Greek philosophy presents and analyses the issue.

It is true that Pseudo Justin’s position is polemic from the very beginning and that his goal is to show that Aristotle is simply wrong. In a typically conceited judgement proper to a philosopher who claims to have overcome a predecessor, Pseudo Justin maintains that ‘Aristotle says nothing true about the matters he intended to define’ (Conf. 11 A-B) (39). As a matter of fact, this is not what he really thinks, since he recognizes some of Aristotle’s relevant achievements that he apparently incorporates into his own thought: (a) what is ungenerated cannot be derived from what is generated (insofar as what is generated is corruptible) (40); (b) time is an attribute of that which is subject to becoming (41). What is particularly interesting at this point is that Pseudo Justin, even admitting (a) and (b) and some other Aristotelian stances, is able to show that from such stances some incompatibilities within the same Aristotelian system do follow, or that one can arrive at some conclusions different from Aristotle’s, undermining in this fashion some basic assumptions of the Aristotelian view of the world (42).

(39) Aristotle depicts a similar attitude with regard to his predecessors when he claims that the earliest philosophy is like one who lips (ϕιλόλογοι) on all matters (Metaphysics 993 A11-16).

(40) Cf. ARISTOTLE, DC 279 B 20-21.

(41) Even though time cannot be identified with movement (in fact, time and movement do not share all their properties), time does not exist without movement; so time and movement are inseparable (ARISTOTLE, PHYS. 218 B 9-220 A 26; cf. PSEUDO JUSTIN, CONF. 135 B-C).

(42) If my suggestion that Pseudo Justin, even rejecting some Aristotelian stances on the cosmos, continues to recognize some of Aristotle’s assumptions (like the ones just listed in a and b and that follow from some passages of Aristotle’s DC and Phys.) as reasonable, one should think that the Pseudo Justin of the Cohortatio ad gentiles is a different person. In fact, in stating that ‘Aristotle establishes in his treatise To the Macedonian Alexander a concise definition of his own philosophy’ (συνειδητόν τινα τῆς ἑαυτοῦ φιλοσοφίας ἐκτιθέμενος διόν; 6 B 2-4) he appears to be endorsing the physical theory of De mundo, a physical approach that differs in some points of detail from the DC and Phys. approach discussed by Pseudo Justin in his Conf. In spite of the Reale-Bos renewed efforts to persuade us that De mundo belongs to Aristotle (see G. Real and A. Bos, Il trattato sul cosmo per Alessandro attribuito ad Aristotele, Milano, 1995), one could have reasons for believing that the treatise is not Aristotle’s. In fact, as the sceptical approach has argued, De mundo is full of Stoic, Neoplatonic, and Biblical influences. Even if the accepted Reale’s suggestion that the supposedly Stoic pas-
pseudo-justin's claim that Aristotle has said nothing true is obviously exaggerated; indeed it is arguable that in some sections of his conf. he fails to refute Aristotle. one might also note that his partial selection of the quoted passages is contentious and that his selections sometimes do not take into account the general context in which Aristotle develops his arguments. at any rate, the general impression one has after studying his conf. is that its author does not attempt to completely remove Aristotle's account of the universe but rather to show that such an account is not valid without qualification, insofar as it is not able to account for certain phenomena or as long as certain inconsistencies follow from some basic Aristotelian principles. in the specific case of the movement of the celestial bodies it is plain that, even though pseudo justin's criticism ends up by implicitly positing the universal validity of the physical accounts for all the objects of the physical world (both the terrestrial and the celestial), his intention did not aim in that direction, but at rejecting the very possibility that the heavenly bodies are everlasting. on the other hand, he argues like a philosopher, making use of some Aristotelian metaphysical notions (such as actuality, potentiality, form, matter, privation, etc.), and none of his arguments or conclusions are supported by some form of experimental method able to give to his research a 'scientific character' in the sense of modern physical science. his remarks and procedures are 'scientific' in so far as they display

sage of De mundo 2, 397b9-11 was taken by clytius from De mundo (G. Reale, Aristotele. Trattato sul cosmo per Alessandro. Traduzione con testo greco a fronte, introduzione, commento e indice [Filosofi antichi], 5), Napoli, 1974, 118-127), Reale still would need to explain the mention of a 'cohesive cause' (κοινής καρά), referred to in De mundo, 6, 397b10, a typical Stoic way of causality that is entirely alien to Aristotle. Furthermore, the thesis that 'the divine by nature pervades the whole reality' does not sound very Aristotelian (De mundo 397b53: ἐν τω δὲ ἄνθρωπου κατάκτη τοῦ θεοῦ, a typical Stoic tenet that is alien to Aristotle as well. So, it seems to me that there are reasons to think that this treatise cannot be Aristotle's even on doctrinal grounds. for a fuller discussion of the Reale-Bos thesis see J. barnes' review of G. Reale, Aristotele. Trattato sul cosmo per Alessandro (cited above) in Classical Review, 27 (1977), pp. 40-43, and more recently J. P. Marrison, Sobre el autor del tratado De mundo en la historia del aristotelismo, in Méritos, 11 (1998), pp. 103-111. barnes thinks that the major objection to Reale's thesis is linguistic (see barnes, p. 40); in fact, there are at least ninety words that are not attested in other works by Aristotle. If I am right, there are also some systematic reasons to reject Reale's thesis.