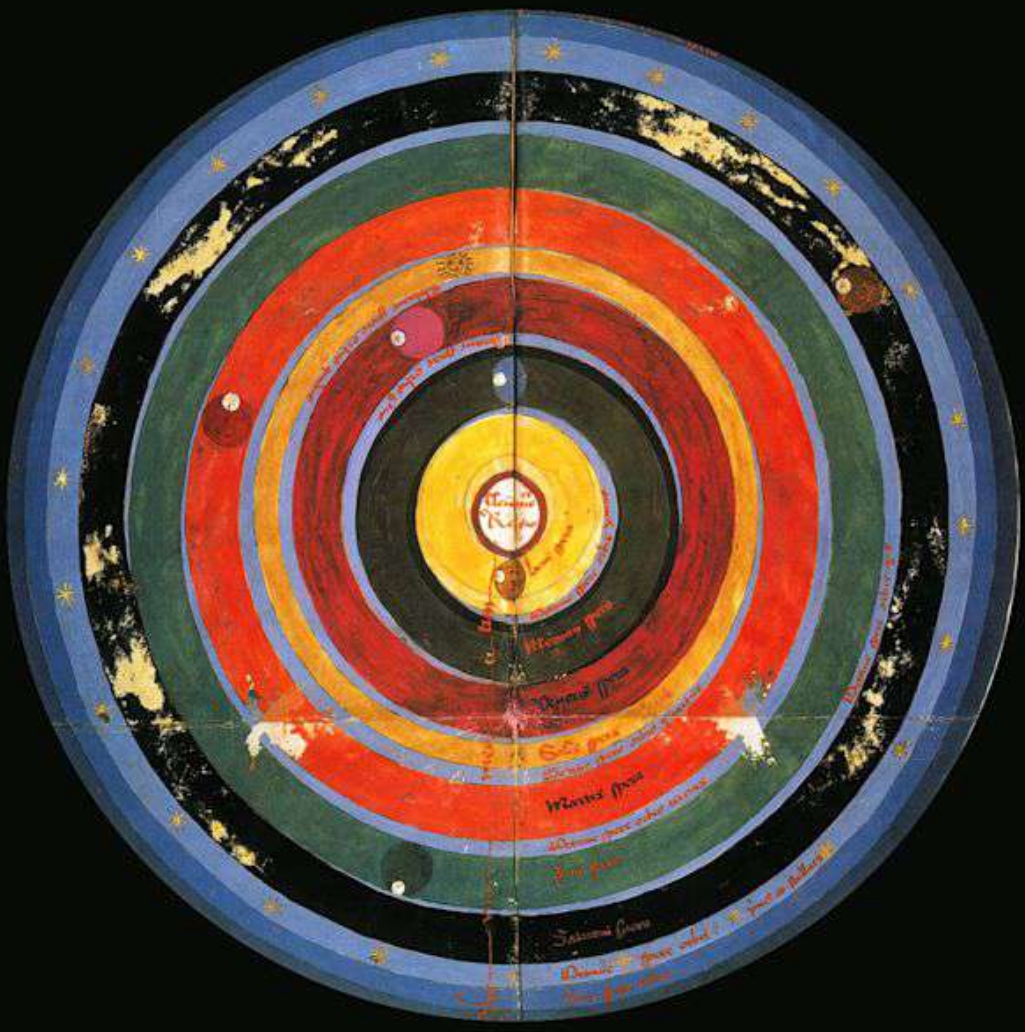
BLOOMSBURY STUDIES IN THE ARISTOTELIAN TRADITION

The Reception of John Philoponus' Natural Philosophy

Aristotelian Science From Late Antiquity to the Renaissance



Edited by Emmanuele Vimercati

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Introduction

Between the eleventh and fifteenth centuries in Byzantium, the author John Philoponus was well-known among scholars and people of letters.[1] Like many other thinkers from late antiquity, he was the object of a major wave of renewed interest that took place in the second half of the eleventh century. Michael Psellos (1018–1078), who was actively engaged in re-establishing contact with the philosophical tradition of late ancient and early Byzantine centuries, made a significant contribution to this process.[2] In his *Chronographia* (completed in 1063, but revised thereafter), Psellos famously maintained that he had single-handedly resuscitated philosophy after centuries of its stagnation.[3] While this statement seems to do little justice to the philosophical enquiry of the preceding phases of Byzantine history, it is true that in Psellos we find an unprecedented tension between conformity to Orthodoxy and experimentation with pagan (especially Aristotelian and late Platonic) philosophy.[4] In the *Chronographia*, Psellos also pays tribute to the Greek commentators, acknowledging their role in guiding his interpretation of both Plato and Aristotle.[5] Psellos' works inaugurated a new and fertile phase in the intellectual history of Byzantium, one in which scholars would often engage in discussion with classical authors through the filter of late ancient thinkers and test their doctrines against the standard of the *orthē doxa*.

Two areas of Philoponus' body of work seem to have proved particularly successful in the Byzantine Middle Ages, that is, logic and natural philosophy. On the one hand, his commentaries on Aristotle's *Organon* found a considerable audience in Byzantium, given the prominent role played by logic in general education (the ἐγκύκλιος παιδεία) and as a topic of scientific enquiry.[6] Moreover, logic was studied not only for its own sake but also within the curriculum of rhetoric, a thriving field in Byzantine intellectual life.[7] On the other hand, Philoponus' works of natural philosophy (both commentaries on Aristotle and genuine writings) also enjoyed wide scholarly reception.[8] This chapter

focuses on this area of Philoponus' output. It focuses on two specific branches of this output – psychology and cosmology – to survey the influence of Philoponus' natural philosophy in the late-medieval Byzantine world (*c.* 1100–1400). First, it examines the impact of Philoponus' 'double entelechy' doctrine on a number of thinkers who discussed the nature of the human soul and its relation to the body. Secondly, it examines the relative success his arguments against Aristotle's theory of the fifth element enjoyed within medieval Greek cosmological debates. The chapter shows that Philoponus' Christianizing reading of controversial tenets of Aristotle's philosophy supported the agenda of the Greek Orthodox intellectual elites. In particular, Byzantine writers found in Philoponus a wealth of arguments with which to question the foundations of Aristotle's views on the mortality of the soul and the eternity of the world.

Philoponus' doctrine of 'double entelechy'

From as early as the sixth century, Byzantine scholars showed themselves to be aware of the ambiguity of Aristotle's account of the soul and did not miss the chance to openly criticize him. The poet Agathias Scholasticus (536/7–582), for instance, composed a satirical epigram on the topic (11.354), arguing that after reading the *De anima* one is left all the more doubtful about whether Aristotle considered the soul to be mortal or immortal. Only when you have passed over Acheron, Agathias goes on, will you learn the precise truth on the matter. Before that, he suggests, you'd be better off leaving Aristotle aside, for no clear answer could possibly be found in his writings.[9] Later on, both John Italos (1025–1112) and Nikephoros Gregoras (1295–1360) made the argument that although Aristotle had criticized his predecessors' doctrines as unsound, at the end he produced a theory that was not at all dissimilar from those.[10] Criticism against Aristotle's views on the soul spanned through the centuries (one would find traces of it, for instance, in such different authors as Theodore Metochites, Constantine Acropolites, George Gemistos Pletho) and was still alive in Bessarion's time.[11] In his *In calumniatorem Platonis* (1469), Bessarion (d. 1472) mentions a plethora of contrasting opinions on Aristotle's psychology developed since antiquity, his aim being to show how obscure and controversial his views on the topic were.[12]

The problem originated in two sections of the *De anima* where Aristotle appeared to be holding two contradictory theories. At the beginning of Book 2, he famously defined the soul as 'the first actuality of a natural body potentially possessing life' ('ψυχή ἐστιν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ δυνάμει ζωὴν ἔχοντος').[13] By making the soul the form of the body, Aristotle developed a theory according to which, as he himself states, 'neither the soul nor certain parts of it, if it has parts, can be separated from the body' (II, 2, 413a4–6).[14] On this account, it is clear that in no way can the soul survive the death of the body, since the two are part of one and the same hylomorphic, body-soul composite. At the same time, however, just a few lines later Aristotle admits the possibility that some parts of the soul could be separable on account of them not being the entelechy of any material body (ibid., 413a7–8). The argument is further developed in Book 3, where he provides his famous account of the active, or productive intellect (νοῦς ποιητικός), which he deems not only separable from the body but altogether

immortal and eternal (ibid., III, 5, 430a25). Later interpreters of these passages took pains to make sense of Aristotle's words, and they strove to fit Aristotle's notion of the active intellect into the framework of his strictly hylomorphic understanding of the body-soul compound.

Philoponus, a Christian thinker, elaborated an interpretation that presented clear advantages from a theological standpoint and was therefore welcomed by a number of Greek Orthodox writers in the Middle Ages. In commenting on the aforementioned sections from *De anima*, Philoponus provides a reading that aligns with Aristotle's intentions but at the same time introduces elements of a clear Neoplatonic flavour. Unlike, for instance, pseudo-Simplicius, who did not even consider the possibility of the rational soul being inseparable, Philoponus is prepared to discuss this possibility.[15] He begins by saying that Aristotle's definition of the soul as entelechy of the body (ibid., II, 1, 412a22) applies to the soul in its entirety and not, as most interpreters would have it, to the vegetative soul only.[16] This, he claims, is a simplistic and inaccurate interpretation given by those who wanted Aristotle to explicitly say that the rational soul is immortal.[17] To be sure, Philoponus does ascribe this view to Aristotle, but he thinks that the passages where the Philosopher claimed as much should be searched for elsewhere in the text, and that these passages require much more careful scrutiny than they had usually received in the past. In order to do so, Philoponus goes on to unpack the definition of entelechy Aristotle gives at 412a23–24. He argues:

> For in saying that the soul is actuality (ἐντελέχεια), Aristotle added 'the first'. For of actualities, one [sort] is first and another is second; the first, he says, is as knowledge, the other as contemplating. He is saying, then, that [the soul] is actuality as knowledge, not as contemplating.[18]

The term 'actuality' may give two different meanings. On the first meaning, it is equal to the possession of knowledge, where knowledge is the 'actualization' of a state of potency (i.e. ignorance). On the other hand, according to the second meaning, actuality consists of the actual performance of an activity, for example, contemplating as opposed to a state of non-contemplation. As Philoponus effectively puts it, a sleeping geometer is an actuality in the first sense (because he has 'actualized knowledge' of the science of geometry), but he is not in the second sense (since he is not actually performing geometry – in Philoponus' own words, 'he is not geometrising').[19] By departing from most previous interpreters, Philoponus claims that the first sense of entelechy applies to the vegetative soul and the sensitive soul only, for these are the parts that 'attend all soul always'.[20] They stand in relation to the whole soul in the same way in which the knowledge of the science of geometry stands in relation to the geometer himself, that is, it is always attached to, and inseparable from him. By contrast, the rational soul (i.e. intellect) is actuality in the second sense. It is entelechy as activity, and this activity – just like the geometer's geometrizing – is intermittent (i.e. it is not in act all the time). Since intellectual activity falls within this second kind of actuality, Philoponus goes on, it is clear that the intellect may be separated from the body. Indeed, if the non-rational soul performs functions which are always in action and are necessarily linked to the body, this is not the case with the rational part, whose operations shift

between phases of activity and inactivity and can be purely incorporeal. While the disposition or substance (first entelechy) must always be present, the act of thinking (second entelechy) must not. It is at this point that Philoponus concludes his argument:

> The non-rational soul and the vegetative, having their substance inseparable from the subject and not being able to act separately from the subject, have their substance itself perfective of it. The rational soul, on the other hand, perfects the animal not by its substance, but by its activity alone. For by its own wish it moves it in this way or that, using the non-rational soul as an instrument.[21]

Philoponus makes the most out of Aristotle's notion of 'first entelechy'. His reading departs dramatically, for instance, from the one given by pseudo-Simplicius, whose comment on the same passage had completely ignored the word 'first' ('ἡ πρώτη') that qualifies entelechy in Aristotle's definition.[22] Philoponus develops this particular point of Aristotle's argument in a significant and original way, eventually producing a reading that goes beyond Aristotle's own words. In his *De intellectu* (i.e. Philoponus' commentary on *De anima* III, 4–8 which was translated into Latin by William of Moerbeke during the thirteenth century), Philoponus argues that whereas the vegetative and the non-rational souls are attached, respectively, to the solid body and to the *pneuma*, the rational soul transcends all body.[23] For a Christian interpreter of Aristotle, Philoponus' account of double entelechy presents a twofold advantage. On the one hand, it provides a sound explanation of Aristotle's otherwise obscure notion of 'first entelechy'. On the other, 'it maximises the soul's separateness from the body', by taking *entelecheia* as referring to activity rather than just to provision of form.[24]

In the medieval Byzantine world, Philoponus' notion of double entelechy provided a safe theory for all scholars and people of letters who were committed to meaningfully expounding on Aristotle's works, while sticking at the same time to the *orthē doxa*. In the eleventh century, Philoponus' commentary on *De anima* was read and relied upon by such scholars. The work was excerpted by Michael Psellos (1018–1078), who summarized its contents in one of his philosophical *opuscula*, entitled Συλλογαὶ διάφοροι καὶ ποικίλαι. Psellos discusses the notion of double entelechy at length in his work, stressing in particular Philoponus' identification of the second entelechy with the intellectual soul. He argues:

> Actuality is twofold: one is the form inseparable from the body, whereas the other is separable, like the sailor on a ship. In fact, whenever he speaks of entelechy with regard to the non-rational and vegetative soul, he means the inseparable form, whereas when [he speaks of it with regard to] the rational [soul], [he means] the separable one.[25]

The image of the sailor on the ship comes directly from Aristotle (*De anima* II, 2, 413a9), but Philoponus uses it in a decisively different manner. The simile appears in a passage from *De anima* II where Aristotle raises a doubt about the precise relationship between soul and body.[26] Directly after arguing that there seems to be nothing that prevents some parts of the soul being separated, he adds: 'it is also uncertain (ἄδηλον)

whether the soul as an actuality bears the same relation to the body as the sailor to the ship'.[27] Philoponus appropriates the image, but he turns it into a positive, affirmative statement. By doing this, he manipulates Aristotle's terminology in order to solve Aristotle's own doubt, thus giving rise to an interpretation that eventually goes beyond Aristotle himself.

Philoponus' interpretation was relied upon by a number of Byzantine scholars after Psellos. A good case in point is the twelfth-century theologian and Metropolitan of Ephesus, George Tornikès (d. 1156). In his funeral oration to Anna Comnena (1083–1153), George praises Anna's intellectual virtues, paying special attention to her interests in ancient philosophy. However, he goes on, as much as she was passionate – and knowledgeable – about the subject, Anna never allowed pagan thinkers to lead her astray by their teachings. She resolutely denied, for instance, that the world be eternal, on the grounds that such a conception would leave no room whatsoever for divine guidance and providence. She countered this conception with the account provided by *Genesis*, which appeared to her to be much more reasonable and consistent with the nature of the whole universe.[28] The other question that tormented Anna, Tornikès goes on, was the immortality of the soul. He writes:

> On the problem of the immortal nature of the soul and its incorruptible essence, she was so afraid of being shaken by reasons that might prove the opposite, that she was forced, with regard to Aristotle's entelechy (which gives rise to the suspicion that the soul is inseparable from the body and hence caducous and mortal like it) to set it apart by admitting the notion of double entelechy. In it, there was much talk of the lyre-player and the pilot, which are rightly called entelechies of the lyre and the vessel, respectively, and yet can always be detached and separated.[29]

Tornikès' passage proves interesting for a number of reasons. First of all, it provides a full and clear account of double entelechy (ἐντελέχεια διττή), demonstrating that by the time he composed the oration in *c*. 1153, this notion had become current in the philosophical discourse. It is also interesting to observe that, because of the encomiastic nature of the work, Tornikès attributes to Comnena herself the formulation of the 'double entelechy' theory. Finally, and most crucially, Tornikès' account shows very clearly that Byzantine scholars would resort to Philoponus' theory in order to preserve the notion of an immortal individual soul, while remaining faithful at the same time to Aristotle's word.

This emerges very clearly from the writings of a leading intellectual figure of the Palaiologan age, namely, Theodore Metochites (1270–1332). In one of his *Sēmeiōseis gnōmikai*, Metochites discusses the issue of the immortality of the soul. He reiterates the allegation that Aristotle's opacity on this matter has given rise to multiple contrasting opinions. In particular, Aristotle was not clear enough about whether he considered the soul to be part of the body. Two main interpretations stemmed from this, one positing the soul to be detached (at least in part) from the body, the other holding that it is not separable from it. The latter opinion, Metochites argues, 'implies that when the body is dissolved, the soul, being mortal, is necessarily dissolved with it,

and has nothing left.'[30] Metochites proposes a solution of his own, one which betrays a significant degree of dependence on Philoponus' reading. He claims:

> And he [Aristotle] compares the mind in the body to the example of the ship and the pilot and sailor, [. . .] showing that the mind on the one hand carries the body like a master, on the other hand is carried along by it, but, nevertheless, has a separate being in itself.[31]

Metochites relies on Philoponus also in his commentary on *De anima*. He sides with him in arguing that, following Aristotle, one should think of the soul in its entirety as 'the first kind of actuality, the one which is conceived of as a competence, or knowledge.' For if one were to 'suppose that the soul is the second kind of actuality, the one conceived of as activity, then the ensouled creatures would not be ensouled when they are not active or awake, and this would be absurd.'[32] Metochites' close reading of Aristotle's text clearly leads him to the conclusion that since the soul is the actuality of a body, it is inseparable from it. It is at this point that, following Philoponus, Metochites explains that when Aristotle wrote that some parts of the soul might be separable by not being the entelechy of a body (*De anima* II, 2, 413a7–8), he was actually referring to specific 'capacities' (δυνάμεις) of the soul. He claims:

> Some capacities of the soul are, however, separated from the bodily parts, namely, those which are not actualities of any bodily parts either, such as the intellect. For of which bodily part would the intellect be an actuality? In which is it contained? In absolutely none (this was also determined above), unless someone would maintain, he says, that such parts of the soul as are not inseparably bound up with the bodily parts are also actualities in the sense in which a sailor is said to be that of a ship: in himself he is undeniably separable from the ship, but in his capacity as sailor he is inseparable from it. For a sailor is the actuality of a ship: for it is impossible for the ship to be a ship in active operation without a sailor.[33]

As Börje Bydén has shown, on the issue of the immortality of the human soul Byzantine authors appeared to be following Neoplatonic philosophers rather than their own brothers in faith. Among the former, the question was not whether Aristotle had held any part of the individual soul to be immortal, but rather whether he thought any other part than the rational soul to be. The standard view, which became dominant in the medieval Byzantine world, was that Aristotle ascribed immortality to the rational part of the soul only.[34] Philoponus' 'double entelechy' doctrine contributed significantly to the construction of this view. His commentary on *De anima* II develops precisely this reading.[35] By doing so, it provided Greek medieval scholars with an exegetical framework which must have appeared to them to be both philosophically rigorous and theologically acceptable. It safeguarded the Christian principle of the soul's immortality while, at the same time, proposing an explanation that even Aristotle himself would have probably agreed with.

Philoponus' criticism of Aristotle's theory of the fifth element

Similar considerations can be made about Philoponus' arguments against Aristotle's account of the fifth element.[36] In this case, however, the resonance of his views was even greater. To a considerable extent, this was due to the fact that Aristotle's theory, as presented in his *De caelo,* was not without its own internal difficulties. As is known, Aristotle was forced to postulate the existence of a fifth element (i.e. aether) to account for the circular and perennial motion of celestial bodies, as opposed to the rectilinear one of the four Empedoclean elements (I, 2, 268b11–269b17). In addition, if nowhere in his dialogues did Plato provide an actual definition of the soul that could be contrasted with Aristotle's, this was not the case with the nature of the heavens. In his *Timaeus*, Plato discussed the elemental composition of celestial bodies, concluding that these are constituted of the same four elements as sublunary things are, with fire predominating on account of their brightness (39e10–40b8). Therefore, on the issue of the nature of the heavens, later interpreters of Greek philosophy possessed two competing accounts that they, quite naturally, were led to compare with one another. Indeed, Aristotle's theory had itself developed in open opposition to Plato's.

Neoplatonist philosophers discussed the topic extensively – and often fiercely – in their works. In the fifth century, Proclus laid out in his commentary on the *Timaeus* an interpretation that was meant to harmonize Plato with Aristotle. He famously argued that the heavens, too, are composed of the four elements, although in a different form. According to Proclus, the heavens are made of the 'summits' (ἀκρότητες), or celestial states, of the four elements, with light, the summit of fire, dominating the mixture.[37] So if, on the one hand, Proclus rejects the Aristotelian doctrine of the fifth element, on the other hand he adheres to Aristotle by making the celestial states of the heavens everlasting. This point in particular prompted the reaction of Philoponus, who while agreeing with Proclus that Aristotle's account was wrong, could never accept the Aristotelian notion of the eternity of the heavens.[38] In turn, Simplicius (*c.* 480–560) attacked Philoponus' view in his commentary on *De caelo*. Simplicius contended that Philoponus failed to appreciate the difference between celestial and terrestrial states of the elements. As a commentator on Aristotle, however, Simplicius also added that this difference is exactly what Aristotle had in mind in *De caelo*. By doing this, Simplicius reaffirms Proclus' interpretation of the *Timeaus*, while at the same time demonstrating even more decisively than Proclus had the fundamental agreement between Plato and Aristotle.

The debate over the nature of the heavens extended into, and possibly even increased in, the Byzantine world. In this context, it was not simply a quarrel between Aristotle, on the one hand, and the Christian dogma, on the other. Plato too was part of the equation. Byzantine writers were familiar with the contrasting opinions expressed by late ancient thinkers on the topic, as is shown by Michael Psellos in his *Opuscula Theologica*:

> This theory [i.e. Aristotle's theory of the fifth element] was first [expounded] by Alexander of Aphrodisias and then paraphrased by the philosopher Themistius; it was later praised and discussed by Simplicius, but it was also opposed by other

> philosophers. Proclus, who understood better than the others the nature [of things], questioned it with many convincing arguments, and the topic was also examined by the very diligent (φιλοπονώτατος) John and by the great Ammonius in many respects.[39]

Psellos' alignment with the anti-Aristotelian front is evident from these words, as is his admiration for Philoponus himself, whom he refers to by his nickname, written in the superlative form (ὁ φιλοπονώτατος Ἰωάννης). A few lines later, Psellos is even more explicit on the matter. He writes that many books were written which discuss the supposed existence of the fifth element.[40] Among them, the accounts given by Simplicius and Philoponus stand out as especially extensive. However, Psellos goes on, 'having examined both Simplicius and Philoponus, I found Philoponus to be far superior: because he came later in time among the philosophers, he acquired more strength against his predecessor.'[41]

Psellos' account reflects a view that would later become widespread among Byzantine writers. Unsurprisingly, Simplicius' contribution to the resonance of Philoponus' arguments against the five-elements theory was decisive, for ample sections of Philoponus' *Contra Aristotelem* were excerpted in Simplicius' commentary on *De caelo* (and, to a lesser extent, in the one on the *Physics* too). A good case in point is the account provided by the Byzantine scientist and translator Symeon Seth (*c.* 1035–1110). In his *Conspectus rerum naturalium*, Seth reproduces Philoponus' critique as reported by Simplicius. He writes:

> Aristotle posits that the heavens consist of a fifth body, which is different from the four elements. He shows this on the basis of their motion in the following way: if the motion of these bodies is different, so is their nature. The motion of the elements is different from the motion of the heavens, for the former move in a straight line, while the latter move in a circle, therefore they must be of a different kind (ἑτερόφυλος). John Philoponus objects to this view by saying: 'Oh Aristotle, [if it were true that] bodies with different motion also possessed a different nature, then [it would follow that] bodies with the same motion would also possess the same nature. However, we observe that the motion of the earth is downward, and so is [the motion] of water; therefore, they both [would have] the same nature. Similarly, both air and fire move upwards, but they are of a different nature.'[42]

Philoponus is also the source for Nikephoros Blemmydes' (1197–1272) arguments against the eternity of the heavens. In his *Epitome physica*, Blemmydes endorses Plato's Creationist view and openly rejects Aristotle's five-elements theory.[43] He lists three objections, which appear to be related to fragments 6–8 of Philoponus' *Contra Aristotelem* as collected by Christian Wildberg (all of which are reported by Simplicius).[44] The objections centre on Aristotle's correlation between simple bodies and simple motions on the one hand, and composite bodies and composite motions on the other. In particular, Philoponus objects that circular and rectilinear cosmological motions cannot be compared to one another, since the former refers to the movement of a whole, while the latter to the movements of parts.[45] Thus, for Philoponus, nothing

prevents the heavens from being composed (as Proclus had it) of the 'summits' of the elements, and therefore moving according to simple motion. Blemmydes argues:

> An objection has it that celestial bodies, even if they are composite, can nevertheless be considered simple, if we compare them with bodies that are more composite; the same holds for the elements, which we call simple bodies, insofar as we compare them with the things that are made of them. [. . .] The objection shows that even if the heavens are composite bodies, they still move according to simple motion, since fire is no doubt predominant [in them], and its motion is circular.[46]

Philoponus' arguments had some resonance also in the literary controversy between Nikephoros Choumnos (*c.* 1250–1327) and Theodore Metochites that took place in the 1320s. The topic was studied in detail by Ihor Ševčenko in his 1962 monograph and, more recently, by Börje Bydén in his book on Metochites' *Stoicheiōsis Astronomikē*.[47] I will therefore limit myself to those aspects of the debate that prove most relevant to the purpose of the present study. The quarrel between Choumnos and Metochites ran through a series of writings composed from both sides and involved as numerous and diverse matters as literary style (clarity in particular) and the rigorous use of authorities, and eventually extended as far as questioning the very competence of the two scholars in the fields of rhetoric, philosophy, and astronomy.[48] In his work entitled *Against those who resent refutations of rhetorical authors lacking clarity and craftmanship and astronomers who teach the contrary to what Plato taught and thought*, Choumnos attacks Aristotle's five-elements theory to which Metochites had subscribed, and he invites his adversary to refute him on this topic. He writes:

> Aristotle says that the body of the heavens is a fifth body which is primary and simple, because whereas all the other [bodies] move straight upwards or downwards, being heavy or light, this alone moves in a circle and rotates forever, the spherical and circular movement being an ever-moving thing. But I do not agree with this opinion, and I deny that there is any other [body] than the four primary and simple bodies, not indeed a fifth one; I counter and reject Aristotle's propositions, and at the same time I rebut his demonstrations [of them]. So why do you not yourself try to refute me in the same way?[49]

Choumnos' arguments against the five-elements doctrine are to be found in his *On the nature of the world*. The work is noteworthy not only because it bears witness to the circulation and vitality of Philoponus' doctrines on aether in fourteenth-century Byzantium, but also (and perhaps even more so) because it provides an example of an actual reworking of his views. Indeed, as Börje Bydén has shown, Choumnos advances two arguments against the theory, both of which appear to be a development of Philoponus' reading.[50] The first argument has it that the movements of bodies must be inferred from their nature, and not vice versa. For Choumnos, we must first establish what the nature of a given body is, and then explain its movements on the basis of its nature. However, this is not the method followed by Aristotle. On the contrary, Aristotle argues that since the heavens appear to be moving in a circle, they must be of a different

kind than the bodies moving in a straight line. In Choumnos' view, Aristotle fails because he posits that the movement of a body is the cause of its nature, whereas the exact opposite is in fact the case. As Bydén has convincingly argued, this criticism is valid only if we assume that 'Aristotle's definition in *De caelo* I.2 (268b26–269a2) only lays it down that all simple bodies have simple movements, whereas the proposition that all simple movements belong to simple bodies is never properly argued'.[51] If this is the case, then Choumnos' reading of *De caelo* I, 2 would represent an improvement on Philoponus' criticism of the same work (as reported mainly by Simplicius in his commentary on *De caelo*), which is flawed by a number of fallacious arguments, as Wildberg has shown.[52]

Choumnos' first argument against the five-elements theory may have incorporated and further developed material from Philoponus via Simplicius. This seems to also be apparent in the second argument; if so, however, this time 'the development has been for the worse.'[53] He argues:

> Moreover, if we admit a fifth body, and we admit that it is wholly sensible – for every body is sensible – then this body must also, in respect of the mode of sensation, be fifth, i.e. another than the four, or rather it will require another sense-faculty than the other bodies, granted that every sensible object is a sensible object for a sense-faculty. But it is clear that the heavens are visible, and that they are visible for the same faculty of vision as the other visible objects are, so the heavens are not another body over and above the four bodies, and a fifth one, as Aristotle says, nor another sensible object. For every sensation depends on the powers or primary bodies that we mentioned: vision will not take place without fire and air, but nor will hearing or smelling without air, nor touch or taste – which is itself a kind of touch – without dryness and moistness, and coldness and heat. [. . .] Thus, it is impossible to conceive of or to find another sensation than those of which we have already the capacity, or to conceive of a fifth body or sensible object. Well then, it has been proved that the heavens are a body, a limited body, that they fill the whole upper place, move in a circle, and are not a fifth body.[54]

Choumnos pushes Philoponus' argument much too far here. Indeed, Philoponus had only argued that positing the existence of a fifth body was an unnecessary hypothesis, since the heavens do not possess any particular sensible quality that cannot also be found in the sublunary world.[55] In contrast, Choumnos maintains that if the heavens were a different kind of body than the four sublunary bodies, they would require a different kind of sensation, hence a different sense-faculty altogether, to be perceived. In other words, Choumnos is linking each sense-faculty to one single object of perception, implicitly claiming that each sense-faculty can only perceive one single sensible object – a conclusion which is, of course, absurd.[56] Whether this resulted from a misreading of Philoponus or from the possibility that Choumnos was relying on a corrupt text is very hard to tell. Be that as it may, it is clear that Philoponus is in the background of Choumnos' discussion here. Like Philoponus', Choumnos' argument is centred on the correlation between sense-faculties and nature of the heavens, and is aimed at demonstrating the non-existence of the fifth element based on the sensible qualities of the celestial regions.

The quarrel between Metochites and Choumnos by no means marked the end of the debate over the fifth element among Byzantine scholars. The discussion was revived in the fifteenth century by George Gemistos Pletho (1355–1453) and Gennadios Scholarios (1400–1473), who contributed to its broader resonance in the Latin European world. This topic has been discussed in several authoritative studies, so little is to be achieved from rehashing it here.[57] It suffices to say that this debate was a very lively and enduring one in the Greek medieval world, and it involved many of the period's leading intellectuals. As these pages have attempted to show, while Philoponus was not the only authority that contributed to this debate, he was undoubtedly a central one.

Conclusion

The long shadow that Philoponus casts over the Byzantine intellectual landscape is greater than can be captured in these pages. A thorough assessment of the actual impact of his philosophical ideas remains to be conducted, although a number of studies have appeared in the recent past which attest to his significant influence.[58] This chapter has focused on two doctrines in particular, namely, Philoponus' conception of the human soul as 'double entelechy' and his rebuttal of Aristotle's quintessence theory. Byzantine scholars from the eleventh through the fifteenth centuries showed themselves to be familiar with both of these doctrines, and they often discussed them in their writings. In all cases, they relied on Philoponus because of his critical stance against Aristotle. The notion of 'double entelechy' and the theory of aether were connected, respectively, with the question of the immortality of the human soul and the problem of the world's eternity, two extremely controversial issues for any Christian reader of Aristotle. Byzantine writers found in Philoponus a ready-made storehouse of arguments with which to challenge Aristotle on both of these points. Philoponus' success among Greek Orthodox scholars of the Middle Ages lies precisely in his providing a compelling anti-Aristotelian weapon. In commenting on Aristotle's natural philosophy, not only did Philoponus reject most of his tenets, but in many cases he also proposed alternative and (in his view) more convincing explanations of the same phenomena (this holds for Aristotle's five-elements theory as well as for other notions, like for instance the concepts of place and void). Philoponus' Christianizing reading of Aristotle perfectly suited the agenda of Byzantine scholars and safely enabled them to conform to orthodoxy. At the same time, one would add, it also permitted them to explore, and experiment with, territories of pagan philosophy.

Notes

1 This chapter builds on the surveys of Byzantine philosophical sources provided in Bydén (2013) and Trizio (2017) (see final bibliography). I am indebted to these studies' comprehensive census of authors and texts, many of which are discussed here. I also wish to express my gratitude to Emmanuele Vimercati for inviting

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Unless otherwise noted, translations from Greek texts are mine.

2 See Duffy (2002: 154); Jenkins (2017).

3 The statement can be found in *Chronographia* VI, 37, quoted here by Duffy (2002: 155).

4 See Gutas and Siniossoglou (2017: 295). For an example of early Byzantine scholarship engaging with Philoponus, see Varlamova (2017).

5 See Duffy (2002: 154).

6 See Erismann (2017: 362); Ierodiakonou (2002: 157).

7 See Erismann (2017). On the prominent role of rhetoric, see Ierodiakonou and Bydén (2018). On the relation between rhetoric and philosophy in Byzantium, see Papaioannou (2012).

8 A survey of the influence of Philoponus' arguments against the eternity of the world in seventh- and eighth-century Byzantine authors is provided by Varlamova (2017).

9 Agathias Scholasticus, *Epigram* 11.354. Greek text with facing English translation in Patron (1918: 236–9): 'Εἴπερ ὅλως ἔστι ψυχῆς φύσις (οὐδὲ γὰρ οἶδα), / ἢ θνητὴ πάντως ἐστὶν ἢ ἀθάνατος, / στεγνοφυὴς ἢ ἄϋλος· ὅταν δ' Ἀχέροντα περήσῃς, / κεῖθι τὸ νημερτὲς γνώσεαι ὡς ὁ Πλάτων.' An edition of the Greek text of Agathias' epigrams along with an Italian translation and commentary was provided by Giovanni Viansino. See Viansino (1967: 152–3 and 189).

10 John Italos, *Quaestiones quodlibetales (ΑΠΟΡΙΑΙ ΚΑΙ ΛΥΣΕΙΣ)*, 50, in Joannou (1956: 64): 'Εἰ μὲν οὖν τὰ ὑπὸ τοῦ Πλάτωνος ἐν τούτοις εἰρημένα, ἀγενές μοι δοκεῖ καὶ φιλοσοφίας ἀλλότριον, ἀλλ' οὐδὲ Πλάτωνος ὅλως. [. . .] Εἰ δ' ἔστι τι παρὰ τὰ εἰρημένα, ὡς δοκεῖ, ἀληθές, οὐδὲν Ἀριστοτέλης ἐκείνων ἀνασκευάζων φαίνεται. [. . .] Οὕτω μὲν οὖν ὁ Σταγειρίτης οὐ μόνον Πλάτωνα, ἀλλὰ καὶ τὴν ἄλλην πληθὺν πρὸ τοῦ Πλάτωνος φιλοσόφων ἀνασκευάζειν πειρᾶται, τοῦτο μὲν τῷ μηδὲν ἐν τῷ μετέπειτα παραδίδοσθαι τοιοῦτον, αφ' ὧν προσγενήσεται πλάνη, τοῦτο δὲ καὶ δόξαν ἑαυτῷ οὐ μικρὰν ἐν φιλοσοφίᾳ προσποιήσασθαι' [If, therefore, what Plato says in these matters seems to me to be totally unsound and foreign to philosophy, it is not entirely Plato's fault. [. . .] However, if there is something true beyond what has been said, as it seems there is, Aristotle too does not appear to distance himself from those claims. [. . .] The Stagirite attempts to criticise not only Plato, but also the entire crowd of philosophers who came before him. He does so by delivering a doctrine from which misinterpretations will arise and he believes he has gained significant reputation in philosophy because of this]. Nikephoros Gregoras, *Florentios, or On Wisdom*, in Leone (1975: 119): 'ἐν δὲ τοῖς Περὶ ψυχῆς λόγοις ἀντιλέγων τοῖς ἁρμονίαν τοῦ σώματος λέγουσιν εἶναι τὴν ψυχήν, 'ἐντελέχειαν' αὐτὸς εἶναι ταύτην ὁρίζεται "σώματος φυσικοῦ ὀργανικοῦ δυνάμει ζωὴν ἔχοντος". μικρὰ γοῦν ἢ οὐδὲν ἁρμονίας ἀπεοικέναι μοι φαίνεται ἐντελέχεια κατὰ τόνδε τὸν τόπον· ὥσπερ γὰρ συμβεβηκὸς καὶ ὑστερογενὴς ἡ ἁρμονία τοῦ σώματος, οὕτως οὐδὲν ἧττον καὶ ἐντελέχεια' ['In the books *On the Soul*, Aristotle rejects the opinion of those who claim the soul to be the harmony of the body; instead he defines the soul as the 'entelechy' of a living organism which potentially possesses life.' Based on this, [Aristotle's] entelechy does not seem to me to differ in any way from the concept of harmony: in fact, just as harmony is

an accident of the body which comes after [the body], so is entelechy']. On Gregoras' criticism of Aristotle, see Bydén (2012).

11 See Bydén (2013: 164, nn. 71 and 72), where all relevant texts are mentioned.

12 Bessarion, *In calumniatorem Platonis* III, 22, 5, in Del Soldato (2014: 153).

13 Aristotle, *De anima* II, 1, 412a28–9, in Hett (1957: 68–9). For a reconsideration of Aristotle's definition of the soul, see Bos (2003).

14 Aristotle, *De anima* II, 1, 413a4–6, in Hett (1957: 72–3).

15 Blumenthal (1996: 97).

16 On this point, see Papachristou (2019: 163–4).

17 Philoponus, *in De anima*, 203.10–19, in Charlton (2005: 3): 'He sets out at the beginning the common definition, as it were, of the soul, saying that it is actuality of a natural organised body that has life in potentiality. [. . .] In reality this definition is given by him for all soul.'

18 Philoponus, *in De anima*, 203.19–21, in Charlton (2005: 3).

19 Philoponus, *in De anima*, 205.1, in Charlton (2005: 4).

20 Philoponus, *in De anima*, 204.32, in Charlton (2005: 4).

21 Philoponus, *in De anima*, 206.25–30, in Charlton (2005: 6). On Philoponus' views of the human soul, see Edwards (2019: 160–5), as well as his contribution to this volume.

22 Blumenthal (1996: 96).

23 Philoponus, *De intellectu*, in Charlton and Bossier (1991: 13); Ierodiakonou and Bydén (2018). For a detailed discussion of Ammonius Hermeiou's account of 'pneumatic body' as relayed by Philoponus in the preface of his commentary on *De anima*, see Papachristou (2019).

24 Blumenthal (1996: 96).

25 Michael Psellos, *Opuscula*, 44.22–5, in O'Meara (1989: 44):

> Ἡ ἐντελέχεια διττὴ· τὸ τοῦ σώματος ἀχώριστον εἶδος καὶ τὸ κεχωρισμένον ὡς ὁ πλωτὴρ τοὺ πλοίου. ὅταν οὖν ἐντελέχειαν λέγει τὴν ἄλογον καὶ φυτικὴν ψυχήν, τὸ ἀχώριστον εἶδος λέγει· ὅταν δὲ τὴν λογικήν, τὸ κεχωρισμένον.'

26 The simile is also to be found in Aristotle's *Physics* VII and VIII. See also Theodore Metochites, *Sēmeiōseis gnōmikai*, 3.7.5, in Hult (2002: 47).

27 Aristotle, *De anima* II, 2, 413a8–9, in Hett 1957: 72–3: 'ἔτι δὲ ἄδηλον εἰ οὕτως ἐντελέχεια τοῦ σώματος ἡ ψυχὴ ὥσπερ πλωτὴρ πλοίου.'

28 George Tornikès, *Funeral oration to Anna Comnena*, in Darrouzès (1970: 285):

> Ἡ δὲ τὴν τοῦ Μωσέως ἀντετίθετο γενεσιουργίαν πολλῷ σοφωτέραν οὖσαν καὶ πρὸς πάντα συνείρουσαν.'

29 George Tornikès, *Funeral oration to Anna Comnena*, in Darrouzès (1970: 289):

> 'Περὶ γὰρ τοῦ φύσιν ἀθάνατον αὐτὴν εἶναι καὶ οὐσίαν ἀνώλεθρον τοσοῦτον ἐδεδίει τοῖς ἐναντίοις κατασείεσθαι λόγοις, ὡς καὶ τοῦ Σταγειρίτου τὴν ἐντελέχειαν – ἥ τε ἀχώριστον αὐτὴν εἶναι τῶν σωμάτων ὑπονοεῖν δίδωσι καὶ διὰ τοῦτο καὶ συνδιαρρέουσαν καὶ συνθνήσκουσαν – εἰς τὸ χωριστὸν μετάγειν παραβιάζεσθαι, διττὴν ἐννοοῦσαν τὴν ἐντελέχειαν.'

30 Theodore Metochites, *Sēmeiōseis gnōmikai*, 3.7.2, in Hult (2002: 44–5):

> 'καὶ φέρον ἄλλως ἥ κατὰ τὸ σῶμα, ὥστ᾽ ἐξανάγκης καὶ θνητὴν σὺν αὐτῷ λύεσθαι λυομένῳ, καὶ μηδὲν ἔχειν πλέον.'

31 Theodore Metochites, *Sēmeiōseis gnōmikai*, 3.7.5, in Hult (2002: 46–7):

> 'καὶ κατὰ τὸ παράδειγμα τῆς νηὸς καὶ τοῦ κυβερνήτου ἅμα καὶ πλωτῆρος εἰκονίζει τὸν ἐν σώματι νοῦν, [. . .] τοῦτο μὲν αὐτὸν φέροντα τὸ σῶμα δεικνύων ἡγεμονικῶς, τοῦτο δὲ συμπερόμενον, χωριστὸν δ᾽ ὅμως οὐσιωμένον ἐν ἑαυτοῦ.'

32 Theodore Metochites, *Paraphrase of Aristotle's De anima*, in Bydén (2022: 106–7):

> 'ὥστε ἐπεὶ οὐ πάντοτε γρηγορεῖ τὸ ἔμψυχον, ἀλλὰ καὶ ὑπνώττει καὶ ἠρεμεῖ, χρὴ νοεῖν ἄρα τὴν ἐντελέχειαν τὴν πρώτην εἶναι τὴν ψυχήν, τὴν ὡς ἕξιν καὶ ἐπιστήμην· ἐπειδή, εἴ τις θεῖτο ἐντελέχειαν εἶναι τὴν ψυχὴν τὴν δευτέραν, τὴν ὡς ἐνέργειαν καταλαμβανομένην, ὅταν ἄρα οὐκ ἐνεργῇ οὐδὲ γρηγορῇ τὰ ἔμψυχα ἀλλ' ὑπνώττῃ καὶ ἠρεμῇ, οὐκ ἂν εἴη τηνικαῦτα ἔμψυχα· ἀλλ' ἄτοπον τοῦτο.'

33 Theodore Metochites, *Paraphrase of Aristotle's De anima*, in Bydén (2022: 114–5):

> ἔνιαι δὲ τῆς ψυχῆς δυνάμεις χωρίζονται τῶν σωματικῶν, αἱ μηδὲ ἐντελέχειαι οὖσαι σωματικῶν μορίων, οἷον ὁ νοῦς· τίνος γὰρ καὶ εἴη ἐντελέχεια τοῦ σωματικοῦ μορίου ὁ νοῦς; ἢ τίνι συνέχεται; πάντως γε οὐδενί (ὡς καὶ τοῦτο προδιώρισται), εἰ μή τις λέγοι, φησί, τὰ τοιαῦτα μέρη τῆς ψυχῆς – τὰ μὴ συνδεδεμένα ἀχωρίστως τοῖς σωματικοῖς – οὕτως εἶναι ἐντελεχείας καὶ ταῦτα καθάπερ ὁ πλωτὴρ λέγεται τοῦ πλοίου, ὃς καθ' ἑαυτὸν μὲν χωριστός ἐστι πάντως τοῦ πλοίου, ᾗδὲ πλωτὴρ ἀχώριστός ἐστιν αὐτοῦ· ἐντελέχεια γὰρ τοῦ πλοίου ἐστὶν ὁ πλωτήρ· οὐ γὰρἔστιν εἶναι τὸ πλοῖον ἐνεργείᾳ πλοῖον πλωτῆρος ἄνευ.

34 See Bydén (2013: 164).

35 As a further example of the success enjoyed by Philoponus' doctrine, see Sophonias' commentary on *De anima*, in Hayduck (1883: 41):

> 'Διττὴ δὲ ἡ ἐντελέχεια, ὡς εἴρηται, ἡ μὲν ὡς ἐπιστήμη ἡ δὲ ὡς τὸ θεωρεῖν. φανερὸν οὖν εἶναι ἐν σώματι ἐντελέχειαν τὴν ψυχὴν ὡς ἐπιστήμην. ἐν γὰρ τῷ ὑπάρχειν καὶ ὕπνος καὶ ἐγρήγορσίς ἐστιν. ἀνάλογον δὲ ἡ μὲν ἐγρήγορσις τῷ θεωρεῖν, ὁ δ' ὕπνος τῷ ἔχειν καὶ μὴ ἐνεργεῖν.'

36 On Philoponus' arguments, see further Gavray's contribution to this volume.

37 See Bydén (2003: 176).

38 On Philoponus' arguments against Proclus, see Edwards (2019: 152–9).

39 Michael Psellos, *Opuscula theologica*, I, 50, in Gautier (1989: 193):

> Τοῦτο δὲ τὸ δόγμα ὁ μὲν ἀπὸ τῆς Ἀφροδισιάδος Ἀλέξανδρος καὶ ὁ παραφράσας τὰ τοῦ φιλοσόφου Θεμίστιος, ναὶ μὴν καὶ ὕστερον ὁ Σιμπλίκιος θαυμάζουσί τε καὶ περιέπουσι καὶ τοῖς ἄλλως φιλοσοφήσασιν ἀντιφέρονται. Πρόκλος δὲ, ὁ μᾶλλον τῶν ἄλλων τὴν φύσιν καλῶς ἐπιγνούς, πολλαῖς βάλλει καὶ πυκναῖς ταῖς ἀπὸ τῶν λόγων νιφάσι, κατατρέχει δὲ τούτου καὶ ὁ φιλοπονώτατος Ἰωάννης καὶ ὁ μέγας Ἀμμώνιος ἐν πολλοῖς.

40 Michael Psellos, *Opuscula theologica*, I, 50, in Gautier (1989: 194):

> 'ἑκάτεροι γὰρ τῶν τε παραδεξαμένων καὶ τῶν ἀθετησάντων τὸ φιλοσόφημα τὰς οἰκείας ἐνστάσεις ἐν πολλοῖς βιβλίοις ἐξήνεγκαν.'

41 Michael Psellos, *Opuscula theologica*, I, 50, in Gautier (1989: 194):

> 'ἐγὼ δὲ ἐπιστήσας τοῖς τε τοῦ Σιμπλικίου καὶ τοῦ Φιλοπόνου, παρὰ πολὺ νικῶντα ἔγνωκα τὸν Φιλόπονον, καίτοι θατέρῳ τῶν φιλοσόφων ὑστέρῳ γενομένῳ πλείων ἀπὸ τοῦ χρόνου κατὰ τοῦ προλαβόντος προσεπορίζετο δύναμις.'

42 Symeon Seth, *Conspectus rerum naturalium*, 36, in Delatte (1939: 41):

> Ὁ μὲν Ἀριστοτέλης πέμπτον φησὶ σῶμα τὸν οὐρανὸν καὶ ἕτερον τῶν τεσσάρων στοιχείων, ἀποδεικνύων τοῦτο ἐκ τῆς κινήσεως οὕτως. ὧν αἱ κινήσεις διάφοροι, διάφοροι καὶ αἱ φύσεις. διαφέρουσι δὲ αἱ τῶν στοιχείων κινήσεις πρὸς τὴν τοῦ οὐρανοῦ κίνησιν, τῶν μὲν κατ' εὐθεῖαν κινουμένων, τοῦ δὲ οὐρανοῦ κύκλῳ, ὥστε τούτων ἐστὶν ἑτερόφυλος. πρὸς ταύτην τὴν ἀπόδειξιν ἐνιστάμενος ὁ Φιλόπονος Ἰωάννης φησίν· ὦ Ἀριστοτέλες, εἰ ὧν αἱ κινήσεις διάφοροι, διάφοροι καὶ αἱ φύσεις, λοιπὸν ὧν αἱ κινήσεις αἱ αὐταί, καὶ αἱ φύσεις αἱ αὐταί. καὶ μὴν ὁρῶμεν τὴν τῆς γῆς κίνησιν ἐπὶ τὰ κάτω καὶ τὴν τοῦ ὕδατος ὁμοίως, ὥστε μία φύσις ἀμφοῖν· καὶ ὁ ἀὴρ καὶ τὸ πῦρ ἀνωφερῆ μέν, ἕτερα δὲ τὴν φύσιν εἰσίν.

An English translation of the passage is also provided in Philoponus, *Contra Aristotelem*, fr. 2 Wildberg. See also Wildberg (1988: 106–11).

43 Nikephoros Blemmydes, *Epitome Physica Latine versa*, in Wegelin (1606: 255):

> 'Idem hoc corpus aetherium Aristotelici et quintum corpus sive quintam essentiam appellarunt, et diversae naturae a quatuor elementis statuerunt. Platonici autem ex sincerissimis et purissimis elementis, praedominante tamen igne, ipsum quoque constare censuerunt. [. . .] Sententiam Platonis membro quarto expositam confirmat, et coelum ex quatuor elementis constare probat, ex eo quod videri et tangi possit.'

44 Philoponus, *Contra Aristotelem*, frr. 6–8 Wildberg. On this, see Wildberg (1988: 120–5).

45 Philoponus, *Contra Aristotelem*, fr. 8 Wildberg.

46 Nikephoros Blemmydes, *Epitome Physica Latine versa*, in Wegelin (1606: 255–6):

> Occupatio, qua docet corpus coeleste etsi est compositum, simplex tamen esse, si cum iis quae magis sunt composita conferatur, quomodo etiam elementa haec nostratia dicuntur corpora simplicia, si comparerentur illis quae ex ipsis sunt composita. [. . .] Occupatio, qua monstrat, etsi coelum est compositum, motu tamen moveri simplici, ignis nimirum in ipso praedominantis, cuius motum confirmat circularem esse.

47 Ševčenko (1962); Bydén (2003: 171–8 and 188–98).

48 Bydén (2003: 171–4).

49 Nikephoros Choumnos, *Against those who resent refutations of rhetorical authors lacking clarity and craftmanship and astronomers who teach the contrary to what Plato taught and thought*, quoted from Bydén (2003: 173):

> Πέμπτον φησὶν ἐκεῖνος σῶμα πρῶτον καὶ ἁπλοῦν τὸ τοῦ οὐρανοῦ εἶναι σῶμα ὅτι δὴ τῶν ἄλλων πάντων εὐθὺ φερομένων ἄνω ἢ κάτω, βαρέων ἢ κούφων ὄντων, οὗτος δὴ μόνος φέρεται κύκλῳ καὶ ἀεὶ περιδινεῖται, ἀεικινήτου καὶ τῆς σφαιρικῆς καὶ κυκλικῆς κινήσεως οὔτης· ἐγὼ δ᾽οὐ τίθεμαι τῷ δόγματι τούτῳ, οὐδ᾽εἶναι λέγω ἕτερον οὐδὲν τῶν πρώτων καὶ ἁπλῶν τεσσάρων σωμάτων, οὐδέ γε πέμπτον, καὶ πρὸς [*sic*. read ὡς] ἔπος εἰπεῖν ἁπαντῶν εἰμὶ καὶ λύων τὰς ἐκείνου θέσεις, ἀναλύων ἅμα καὶ τὰς ἀποδείξεις. Τί γοῦν μὴ καὶ αὐτὸς τὸν ἴσον τρόπον ἐμὲ διελέγχεις; (Greek text given at 174, n. 165)

50 Bydén (2003: 192–5).

51 Bydén (2003: 193).

52 Wildberg (1988: 106–19).

53 Bydén (2003: 194).

54 Nikephoros Choumnos, *On the nature of the world* (Paris, BNF, MS gr. 2015, 3*v*–4*r*), quoted from Bydén (2003: 194):

> καὶ μὴν εἴ γε πέμπτον δεξαίμεθα σῶμα, καὶ αἰσθητὸν αὐτὸ πάντως δεξαίμεθα – σῶμα γὰρ πᾶν αἰσθητόν – καὶ δεῖ γε τοῦτο καὶ τὸν τῆς αἰσθήσεως τρόπον πέμπτον, τουτέστιν ἕτερον τῶν τεττάρων, εἶναι, καὶ μᾶλλον ἑτέρας αἰσθήσεως ἢ ὧν τὰ λοιπὰ δεῖσθαι, εἴ γ᾽αἰσθητὸν πᾶν αἰσθήσει ἐστὶν αἰσθητόν. ἀλλὰ μὴν ὅτι οὐρανὸς ὁρατός, δῆλον, καὶ τῇ ὁράσει ταύτῃ ὁρατὸς καθ᾽ἥν δηλονότι καὶ τὰ λοιπὰ τῶν ὁπωμένων, ὥστε οὔτ᾽ἄλλο τι σῶμα οὐρανὸς ἐτέκεινα τῶν τεττάρων, καὶ κατ᾽ Ἀριστοτέλην πέμπτον, οὔτ᾽ ἄλλο αἰσθητόν. πᾶσα γὰρ αἴσθησις ἐξ ὧν ἔφημέν ἐστιν ἢ δυνάμεων ἢ σωμάτων πρώτων· ὅρασις μὲν γὰρ οὐκ ἄνευ πυρὸς καὶ ἀέρος, ἄλλ᾽ οὐδ᾽ ἀκοὴ ἢ ὄσφρησις ἄνευ ἀέρος, οὔτε μὴν ἁφὴ ἥ γεῦσις, ἁφή τις οὖσα καὶ αὐτή, ξηρότητος δίχα καὶ ὑγρότητος, καὶ ψυχρότητος καὶ θερμότητος. [. . .] καὶ οὕτως οὔτ᾽ αἴσθησιν οὐδεμίαν ἔστιν ἄλλην νοῆσαι ἢ εὑρεῖν ἢ ὧν γε τὴν ἕξιν καὶ ἡμεῖς ἔχομεν, οὔτε σῶμα πέμπτον νοῆσαι ἢ αἰσθητόν. ὅτι μὲν οὖν ὁ οὐρανὸς σῶμα, καὶ σῶμα γε πεπερασμένον, καὶ τὸν ἄνω τόπον πάντα πληροῖ, καὶ κύκλῳ κινεῖται, καὶ ὅτι μὴ πέμπτον σῶμα, δέδεικται.

55 Philoponus, *Contra Aristotelem*, fr. 59 Wildberg.

56 Bydén (2003: 194–5).

57 See Hankins (1990: I, 165–263); Karamanolis (2002: 265); Trizio (2017: 402–3).

58 Bydén (2013); Trizio (2017); Varlamova (2017); Bydén (2022).

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