

## CHAPTER I

*Introduction*

*Pavel Gregorić and George Karamanolis*

The work transmitted under the title *Περὶ κόσμου* (*De mundo* in Latin) is both intriguing and perplexing. It sets out to introduce its addressee – Alexander, ‘the best of leaders’ (391b6) – to philosophy, and it does so by explaining what the universe is like and how it is sustained by God. Though *De mundo* is no doubt a protreptic work, it contains parts which read like dry technical compendia and parts which are carefully crafted in the most elevated literary style.

The work explains ‘the orderly arrangement of the universe’ (391b11) by dividing it into two distinct realms, the supralunary and the sublunary. It starts with the supralunary realm of orderly and imperishable things and then proceeds to a consideration of the sublunary realm, which is subject to all manner of change and populated by a vast variety of transient things that come into existence and pass away. Chapter 2 focuses on the heavens, describing their shape, arrangement and material composition, and then proceeds to a brief description of the main structures that constitute the sublunary realm. Chapter 3 begins from that point and examines the arrangement of the earth and the sea. These two chapters present the stable, fixed features of the universe, that is, the features that underlie the order, unity, stability and coherence of the universe.

Chapter 4, by contrast, discusses the many irregular phenomena in the sublunary sphere that pertain to the science of meteorology as the ancients understood it, that is, phenomena such as rain, clouds, rainbows, comets, volcanoes, earthquakes, tides and the like. Most of these phenomena are caused by various forms of opposition and conflict, some of them violent and destructive. Chapter 5, however, assures us that the elements are finely balanced and that the conflicts in certain parts of the sublunary sphere actually contribute to the harmony of the whole, much as Heraclitus taught. Thus, we learn that the universe truly is a *kosmos* – a unified, well-ordered, magnificent and eternal whole – despite the opposing forces that continually operate in it. Chapter 6 sets out to explain how God is the

ultimate cause of the arrangement and harmony of the universe, and Chapter 7 is a panegyric to God, who is one, despite the many names traditionally given to him. The final chapter rounds off the treatise with a conception of God as the dignified ultimate cause of the cosmos and all things in it, great and small.

The contributions in this volume largely follow the traditional order of the chapters of *De mundo* and analyse them section by section. However, since some well-delineated topics spill over the traditional chapter boundaries, this volume contains three papers that cover Chapters 2 and 3, each dedicated to one topic. To be more specific, Karel Thein's paper is dedicated to the first part of Chapter 2, which deals with the structure of the supralunary realm made of aether. Jakub Jirsa's contribution discusses the second part of Chapter 2 and the first part of Chapter 3, from 392a31 to 393a8, where the structure of the sublunary realm is described, proceeding from the topmost layer of fire to the layer of air, and then down to the layers of water and earth in the centre of the universe. Irene Pajón Leyra and Hynek Bartoš look at the second part of Chapter 3, where the organisation of the layers of water and earth is laid out; the second part of Chapter 3 thus amounts to a compendium of geography.

Of the remaining contributions, each covers an entire chapter of *De mundo*. George Karamanolis writes on Chapter 1, the shortest of all the chapters, but one which sets the tone and agenda for the remainder of the treatise. István Baksa gives an overview of Chapter 4, which reads like a school compendium of meteorology. Pavel Gregorić explores Chapter 5, where the author argues that the cosmos, despite the disorderly nature of the sublunary realm, is a harmonious, beautiful and eternal whole. Chapter 6 points out that the cosmos requires a sustaining cause and elucidates what this sustaining cause is like and how it is causally operative in the world. This is achieved by a long series of interlocking analogies, each one analysed by Gábor Betegh and Pavel Gregorić. Finally, Chapter 7, illuminated by Vojtěch Hladký, is an ornate discussion of the names of God, which is supposed to emphasise the points made about God and his relation to the cosmos, thus rounding off the whole treatise.

*De mundo* clearly has a central thesis that the author aims to establish. The thesis is that the orderly arrangement of the universe has God as its ultimate cause, and therefore we need to have a proper conception of God and his causal relation to the universe in order to gain a full understanding and due appreciation of the universe. The presentation of the structure of the universe, its various regions as well as the salient phenomena in each region, is meant to show, on the one hand, how diverse, complex and

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sophisticated the universe is, and on the other hand that this diversity, complexity and sophistication cannot be maintained unless there is a cause that sustains the universe as a whole. This cause, the author of *De mundo* argues, is God properly conceived. This thesis is not something brought to the reader's attention at the end of the treatise; rather, the very first chapter announces the need to speak theologically while explaining the universe (θεολογῶμεν, 391b4). But the author's objective is more complex than that. By explaining the universe and its cause, the author aims to encourage the addressee to engage in philosophical inquiry; the universe is deemed an appropriate subject to philosophise about, since it is a noble and indeed an excellent thing (391a25).

The treatise, then, is not merely an informative overview of the structure of the universe that highlights its ultimate cause, but first and foremost a protreptic to philosophise that aspires to present philosophy as a study of the universe and its relation to God. More precisely, the treatise is both a protreptic to philosophise and a cosmological treatise that aims to explain the world in terms of what makes it what it is: an orderly arrangement, a cosmos. These two features of the treatise are not kept distinct but make up a unity. There is an ancient tradition that treats the two subjects, the protreptic and the study of the universe, cosmology, as a single endeavour.

Anaxagoras is often mentioned as someone who thought that a good human life was dedicated to the acquisition and contemplation of cosmological truths, that is, to understanding the universe as a whole and as the product of *nous*, the intellect.<sup>1</sup> For Anaxagoras, we are told, the practice of philosophy is nothing but the study of the universe, which he considered to be his native land.<sup>2</sup> This view also permeates Plato's *Timaeus*. The study of the universe in the *Timaeus* shows us what its cause is, namely the demiurge, and also shows us that the study of divine truths is crucial for us to live our best life (90A–C) – the study of the divine things (τὰ θεῖα) which the author of *De mundo* encourages the addressee to take up (391a15). This is something that comes up at the end of the *Timaeus* as a result of the explanation of the universe and of human nature, both of which are caused by God.

The connection between cosmology and philosophy as a way of reaching happiness remained strong in the Hellenistic philosophies. The Epicurean view, according to which nature is responsible for the universe, is closely connected with the ideal of tranquillity that the Epicureans sought (Cicero,

<sup>1</sup> Aristotle, *Eth. Eud.* 7.2.1216a10–14, *Eth. Nic.* 10.9.1179a13–23; DL 2.7, 10.

<sup>2</sup> See Anaxagoras, fr. A1, 16–18 DK (= DL 2.7).

*De natura deorum* 1.53). The Stoics, on the other hand, held that the universe inspires wisdom in us, since it is a wisely ordered arrangement. For them, the universe is something divine, permeated by God (DL 7.138–9). The Stoics actually did not separate the universe from God, but rather suggested that ‘the substance of God is the whole world’ (DL 7.148). We know that several Stoics wrote works entitled Περὶ κόσμου.<sup>3</sup> According to them, the study of the universe reveals an important ethical message for us. We also find the same idea in Philo of Alexandria and in early Christian thinkers. For Philo, the study of the cosmos points to its cause, God.<sup>4</sup> Early Christians, on the other hand, take the view that the cosmos is a reflection of God himself, and they suggest, much like the author of *De mundo*, that the study of the world pertains to theology.<sup>5</sup> The cosmos, they suggest, teaches us what kind of being God is, namely wise, loving, providential.<sup>6</sup>

Yet, while we detect in *De mundo* this rather widespread intellectual tendency in Hellenistic philosophy and in later ancient philosophy, we have reasons to believe that the author of *De mundo* is competing particularly with the Stoic view of the universe and of God as its cause. More precisely, the author of *De mundo* writes his work in order to replace the Stoic theological explanation of the world as an orderly whole organised by a God who is immanent in the world with an Aristotelian conception, that is, with an explanation of God’s causal operation in the world along the lines of Aristotle’s theology. We have some evidence that Stoic and Peripatetic theology were competitors in the Hellenistic period and that each school made an effort to differentiate its position from that of its rival. For instance, Cicero criticises the founder of the Stoic school for failing to distinguish his position sufficiently from that of the Peripatetics:

There were also some minor points on which he [viz. Zeno] differed from the Peripatetics, but on the central question he agreed that the whole of the universe and its greatest parts were governed by a divine intellect and nature. (*De finibus* 4.12)

Leaving aside the question of our author’s competition with the Stoic view on God and his relation to the world, one of the central points of this volume, which several authors seek to defend in their contributions, is that our author advocates a view which is recognisably Aristotelian. This is

<sup>3</sup> See Mansfeld 1992. Such Stoics were Posidonius and Antipater; cf. DL 7.142, 148.

<sup>4</sup> Philo, *De opificio mundi* 2–3. On possible echoes of *De mundo* in the works of Philo of Alexandria, see Tzvetkova-Glaser 2014: 137–40, with selected passages in translation in Thom 2014: 203–5.

<sup>5</sup> Tertullian, *Adv. Marc.* 1.10.1–4, 2.3.2, 5.16; Irenaeus, *Adv. Haer.* 2.56.

<sup>6</sup> Irenaeus, *Adv. Haer.* 3.24.1–2, 25.1.

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discussed in detail in the contributions on Chapters 5 and 6 but also, more briefly, below.

Another conviction that unites the contributors to the present volume, and which in a way precedes the one mentioned above, is that *De mundo* cannot possibly be an authentic text of Aristotle's. There is a long debate about the authenticity of *De mundo*, which had apparently already started in antiquity. The treatise was considered to be authentic by Alexander of Aphrodisias and Philoponus, for example, but Proclus voiced his doubts.<sup>7</sup> The Renaissance saw a growing number of scholars who questioned the authenticity of *De mundo*, and since the early nineteenth century only a tiny minority have taken the treatise to be a genuine work of Aristotle's.<sup>8</sup> In the twentieth century, apart from Gohlke's obsolete study from 1936, Giovanni Reale argued valiantly in favour of its authenticity in his detailed line-by-line commentary on the work, published in 1974. Reale replied to his (many) critics with the help of Abraham Bos, who had argued for the authenticity of *De mundo* on independent grounds, in a 1995 joint publication of a revised and expanded version of Reale's commentary. The most recent volume on *De mundo*, edited by Johan Thom, speaks strongly against the authenticity of *De mundo*.<sup>9</sup>

We should make it clear from the outset that the question of authenticity is not systematically addressed in this work. Questions regarding the dating and sources of *De mundo* are raised and discussed only sporadically in the pages that follow. Indeed, different contributors may have different views as to the likely dates and sources of *De mundo*, and we did not press them on these issues. Rather, we believe that these issues have been the focus of *De mundo* research for far too long, deflecting scholarly attention away from the philosophical value and distinctive features of this remarkable little treatise.<sup>10</sup> This is not surprising, but it tends to be the sad fate of all treatises deemed inauthentic.

A corollary of this debate over authorship and dating is that scholars have been strongly engaged with the identification of the sources of the doctrines of *De mundo*. The assumption behind this *Quellenforschung* is the idea that the treatise is a compilation of doctrines from others: Peripatetics, Platonists and the Stoics. Generations of scholars have sought to identify in *De mundo* the doctrines and methods of Posidonius, but also, to a lesser degree, of Antiochus of Ascalon and the Pythagoreans. The present volume

<sup>7</sup> *In Tim.* 3.272.20–1 Diehl. <sup>8</sup> See Kraye 1990.

<sup>9</sup> For an informative overview of the disputes concerning the authorship of *De mundo*, from antiquity to the present day, see Kraye 2014.

<sup>10</sup> See the brief outline of the history of scholarship in Thom 2014: 3–17.

does not engage in such research. Rather, it sets out to highlight what is distinctive and valuable in *De mundo*.<sup>11</sup> We believe that the distinctive elements of this work have not been sufficiently appreciated. This is why the present work is modelled on the structure of the volumes of the Symposium Aristotelicum; it contains a section-by-section commentary on *De mundo* that aims to highlight and appreciate what is of historical and philosophical interest in it. We cannot, however, simply pass over the authenticity issue in silence, because it is to some extent connected with the philosophical identity of the work.

There are three sets of reasons that speak against the authenticity of *De mundo*: (i) the language and style of the treatise, (ii) particular points of philosophical doctrine and (iii) the theological doctrine espoused in it. Perhaps there is a way of explaining each of these points with greater or lesser plausibility, but cumulatively, we think, they speak decisively against attributing *De mundo* to Aristotle himself, no matter to which period of his life one might wish to assign the writing of *De mundo*.

- (i) As several scholars have observed, we find a number of unique locutions and words that are not encountered before the third century BCE.<sup>12</sup> We see καίτοι used three times in a concessive sense, which is indicative of the post-classical period.<sup>13</sup> The Homeric quotations and the way they are introduced also point to the same period.<sup>14</sup> The language is mostly very elevated (Chapters 1, 5, 6 and 7), and in some places very technical (Chapters 2, 3 and especially 4), indicating that the author made extensive use of compendia and anthologies characteristic of the Hellenistic age.<sup>15</sup>
- (ii) There are many points on which *De mundo* diverges from Aristotle's attested doctrines, such as, for instance, the idea that air is moist and cold in Chapter 2, discussed by Jakub Jirsa in his paper, and the view that the Hyrcanian and the Caspian seas are inlets of the one surrounding ocean in Chapter 3, pointed out by Irene Pajón Leyra and Hynek Bartoš in their piece. Moreover, there are many points

<sup>11</sup> A favourable judgement of *De mundo* has not only been made by Reale and Bos, as one would expect, but also by scholars who take the treatise to be inauthentic, such as Thom 2014 and Betegh and Gregorić 2014.

<sup>12</sup> See Barnes 1977, Schenkeveld 1991, Martin 1998, Thom 2014: 6.

<sup>13</sup> Boot 1981 and Sanz Morales 1993: 40. <sup>14</sup> Sanz Morales 1993: 43–7.

<sup>15</sup> See Baksa's chapter and Galzerano 2018, who shows that two lines from the opening of Sophocles' *Oedipus Tyrannus* are quoted at *De mundo* 6.400b25–6, badly out of their original context. This suggests that the author took these lines from an anthology or from another author, whereas Aristotle, who knew the play well, could hardly have made such an oversight.

which have no parallels in Aristotle's authentic works, but also points whose omission from *De mundo* would be extremely puzzling if Aristotle had written it. For example, there is an interesting note in *De mundo* on the connection between tides and the Moon – something that Aristotle does not mention in any of his genuine works; on the other hand, there is no mention of the Milky Way in *De mundo*, whereas Aristotle invests significant efforts to explain it in his *Meteorology*. These are only two examples taken from Chapter 4, both discussed by István Baksa in his contribution.

- (iii) The theological thesis of *De mundo* is somewhat different from that of Aristotle in Book 8 of *Physics* and Book 12 of *Metaphysics*, yet it is clearly inspired by Aristotle's position. In *De mundo*, God is the cause of the unity and order of the universe, much as Aristotle held to be the case, but God is not said to be a form, a pure actuality, or an intellect thinking itself. In fact, Aristotelian distinctions between form and matter, or between actuality and potentiality, are not present in *De mundo*. Of course, this can be attributed to the protreptic nature of the work, whose target audience need not be immersed in heavyweight Aristotelian metaphysics. Even so, it is surprising that we find no statement of the central Aristotelian ideas that God is an intellect and that he causes motion as an object of desire.<sup>16</sup> What is stated and emphasised, however, is God's *dunamis*, which extends from the periphery to the centre of the cosmos. While God himself remains dignifiedly outside of the cosmos, his power is present and causally efficacious everywhere, although it wanes with respect to distance and the number of intermediaries, which explains the increasing disorder in the sublunary realm. This is best seen in contrast with the Stoic conception of God. Pressed by the Stoic conception, the author of *De mundo* appreciates the need to make God present and operative in the world, yet not so as to jeopardise his dignity.

This position is both interesting and philosophically valuable. It is not quite Aristotle's position, yet it is an Aristotelian position, that is, a position inspired by Aristotle in the same sense in which many of Plotinus' positions are not Plato's but are nevertheless inspired by Plato and are presented with the specific aim of advocating Plato. The author of *De mundo* is not inspired by Plato or the Stoics in the way he depicts God's causal nature; he steers

<sup>16</sup> In their paper on Chapter 6, however, Betegh and Gregorić detect possible hints of these two central theological ideas of Aristotle's; see pp. 193, 203–5, 208.



between the Platonic view – according to which God, who is external to the universe, is its creator and eternal maintainer, though the universe remains subject to his will – and the Stoic view, according to which God is immanent and active in the world, permeating the smallest part of it. The God of *De mundo* is also active in the universe, but not by virtue of his immanence, as the Stoic would have it. The author of *De mundo* takes pains to show what God's causal role in the universe is, and it is for this reason that he goes on in Chapter 6 to explain this role at great length by a series of analogies that complement one another and build up a complex picture of God's causal operation in the universe. Although God is not himself in the universe, he is not outside of it either; he dwells 'at the uppermost place' (397b25) and is the cause of every motion of the heavens (400b12). The heavenly motions in turn cause changes in the sublunary world, and not only the large, periodic ones, such as changes of season, but also small, local changes, such as the motions of winds, rain and other atmospheric phenomena, all of which cause the growth of, and regulate the behaviour of, living beings. God's power thus seems to amount to this uninterrupted causal chain from the topmost heavenly region to the depths of the earth.

Although these three sets of reasons speak decisively against Aristotle's authorship, they do not allow us to say much about when *De mundo* was written or by whom. If pressed, we would date it between the second half of the third century BCE and the first half of the first century BCE, though a later date cannot be excluded. As for the author, we have no grounds even to speculate, though it must have been a remarkably well-educated person who knew a great deal about philosophy, yet cherished Aristotelian philosophy above all others. But, again, the question of dating and authorship is not the primary concern of this work.

As we have shown, and as some of the contributions will argue for in more detail, the conception of God presented in *De mundo* is essentially Aristotelian. Like Aristotle's God, the God of *De mundo* accounts for the stability, eternity and indestructibility of the universe without being involved in the events of the sublunary world.<sup>17</sup> This view of the extent to which God is involved with the world was recognised as characteristically Aristotelian in the Hellenistic and early imperial age, and it stands in sharp contrast to the views of the Stoics, Platonists and Epicureans.<sup>18</sup>

<sup>17</sup> One notable exception seems to be the story of the stream of lava forking in order not to harm the pious young men who carried their parents on their backs (6.400a35–b6). This story is discussed by Betegh and Gregorić in their contribution, pp. 207–8.

<sup>18</sup> See Sharples 2001 for a detailed characterisation of the Aristotelian view along with its variations and ancient reception.



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However, and this is what we find significant, the author of *De mundo* presents this view without openly criticising the competing views of other philosophical schools. Quite the opposite is the case – he seems to adopt a reconciliatory tone. He explicitly and charitably refers to Heraclitus (5.396b20, 6.401a10–11) and to Empedocles (6.399b26), and he ends the treatise with a generous mention of Plato (7.401b23–9). Indeed, allusions to Plato can also be detected in other parts of *De mundo*, most notably in Chapter 1. This, however, does not mean that the author of *De mundo* was an eclectic, as has often been argued.<sup>19</sup> The author of *De mundo* seems to be a committed Aristotelian. We can be sure about this from the fact that he espouses a number of distinctly Aristotelian doctrines in addition to the broadly Aristotelian conception of God and his relation to the world. For instance, he adheres to the doctrine of the five elements and their places, of the spherical shape and layered structure of the cosmos with the Earth in the centre, of the division between the supralunary and sublunary sphere, of the unity of the cosmos, of its ungenerated and imperishable nature, of cyclical changes due to regular heavenly motions, of the two exhalations that bring about meteorological phenomena, and of the interconnectedness of things in the cosmos. In addition, as George Karamanolis and Pavel Gregorić point out in their contributions, the author makes a great deal of effort to pass the treatise off as one of Aristotle's. At the same time, however, the author does not want to exacerbate the differences between the Aristotelian and other philosophical schools. Polemics is the unappealing side of philosophy and it has no place in a work encouraging one to philosophise.

To conclude, the picture of the cosmos and God presented in *De mundo* teaches us that order and harmony are beneficial to us. And this is what philosophy via the study of the cosmos encourages. If this is what the author of *De mundo* aims to achieve, he may be adopting a grand philosophical perspective proposed by Plato and later made prominent in Stoic philosophy – namely, that the cosmos itself offers a powerful lesson in wisdom. The author of *De mundo* very convincingly shows how an Aristotelian could embrace this idea. The defence of a contemplative life at the end of the *Nicomachean Ethics* as the best kind of life might well consist, as argued in *De mundo*, in a contemplation of the universe and its cause.

Whatever we may make of the details of this little treatise, it is nonetheless an interesting presentation of Aristotelian cosmology and theology

<sup>19</sup> See, e.g., Duhot 1990.

alongside a helpful digest of geography and meteorology. On the most general level, it can be read as an introduction to some of the central tenets of ancient philosophy, abounding with examples of elevated style and memorable analogies.

We hope that the contributions to this volume will help the readers to appreciate *De mundo* on all of these levels.

### Synopsis of *De mundo*

Chapter 1 introduces the topic of the treatise and addresses it to Alexander, ‘the best of leaders’. Philosophy is praised as a divine subject, which, unlike the specialised sciences, aims to engage the human mind in contemplating the cosmos itself and the greatest things in it. This requires an understanding of the main cause of the cosmos, God, and in this sense the study of the cosmos involves theology (θεολογεῖν).

Chapter 2 and part of Chapter 3 (391b9–393a8) describe the cosmos as a whole and its largest stable structures, which are composed of the five elements: aether, fire, air, water and earth. The cosmos is divided into two main parts, the upper, supralunary part made of aether, where things are incorruptible and in regular circular motion, and the lower, sublunary part, where things are diverse and less regular, subject to generation and corruption. The supralunary part forms a system of rotating concentric spheres. Beneath the lowest celestial sphere, that of the Moon, the sublunary region begins, which is also organised into concentric spheres, each one dominated by one of the four elements, fire, air, and finally, in the centre of the universe, water and earth. Because each sphere interacts with the bordering one, the cosmos is connected from the highest periphery to the centre. The rest of Chapter 3 (393a9–394a6) provides a geographical description of the inhabited world (οἰκουμένη), focusing mainly on the ocean encompassing the continents and the location of the major islands within and outside of the Mediterranean.

Chapter 4 discusses the most notable meteorological phenomena. Many of these phenomena are the result of two exhalations, one wet and the other dry, that arise from the surface and interact with the elements. In the air, they cause different sorts of precipitation: clouds, wind, lightning. Some phenomena in the aerial sphere are said to be real, such as comets and meteors, while others are only apparent, that is, optical phenomena such as haloes and rainbows. Terrestrial phenomena are discussed next, such as volcanoes, vapours emitted from the earth, and different sorts of earthquakes, followed by similar marine phenomena, such as chasms, tidal waves and underwater volcanoes.