**[Aristotle], *On the Cosmos***

Translation based on the text of W. L. Lorimer, *Aristotelis qui fertur libellus de mundo* (Paris, 1933). It is licensed for use under the Creative Commons Attribution-NonCommercial 4.0 International License (http://creativecommons.org/licenses/by-nc/4.0/)

© George Boys-Stones

Toronto. Revision of 1st October, 2021

Philosophy has often struck me as a godlike and divine thing, Alexander, especially in cases where it alone can elevate us to the contemplation of the universe, and concerns itself with knowing the truth about them. Others keep their distance from it because it is too elevated, too vast. But philosophy is not afraid of this subject, and does not think itself unworthy of what is more beautiful than anything else. On the contrary, it supposes that it has close affinity with it, and that it is especially suited to learning about these things. We cannot reach heaven physically, or leave the earth in order to inspect the holy country there [10] – as the foolish Aloiadai once had it in mind to do. But thanks to philosophy, the soul, led by the intellect, is elevated and transported; it finds itself on a tireless journey, and in the regions of the mind it surveys things that normally stand far away. It easily recognises what is akin to it, I suppose, and the soul’s divine eye grasps things that are divine – and delivers them as prophetic revelation to humans.

And so it is: for the soul wishes to communicate to everyone whomsoever, as far as it can, everything it values. This is why some people have laboured to sketch for us the nature of some particular place, or the layout of some particular city, or the extent of a river, or [20] the beauty of a mountain – all the kinds of thing people have done. Some of them talk about Ossa, some Nyssa, some the cave at Corycus, others whatever there happens to be in whatever place. One should pity them for their small-mindedness: they are struck with wonder at anything, and make a huge deal out of a trivial scene. This happens to them because they cannot see what is greater – I mean the cosmos, and the larger components of it. If they really knew, they would not ever experience wonder at any of these things, [391b1] but everything else would seem trivial to them, and not worth a thing in comparison to its superiority. So let me speak and, as far as it is achievable, theologise about all these things, the nature and disposition and movement of each. And I think it is fitting for you, as the best of leaders, to engage with an account of the greatest of things, and for philosophy not to think about anything trivial, but welcome the best [men] with gifts like these

So the cosmos is a system made from heaven and earth and [10] all the kinds encompassed within them. (‘Cosmos’ is used in another sense too, to mean the ordering and disposition of the universe protected by god and through god.) The life-giving earth is in the centre of it, unmoved and foundational, the hearth and mother of all kinds of living things. The upper part of the cosmos, which is entirely bounded by an outermost limit, is the dwelling-place of the gods, and is called ‘heaven’ [*ouranos*]. It is full of divine bodies, which we call ‘stars’; it is in eternal motion, and unites the unceasing dance of them all within a revolving circuit they all share. The whole heaven and cosmos is spherical [20] and is, as I said, in continual motion: but there must be two fixed points, opposite each other, as there are in the case of a ball rotating on a lathe, which remain fixed and hold the ball in place, and its whole mass turns around them. These fixed points are called ‘poles’: [392a1] if you imagine a straight line connecting them – some call this the ‘axis’ – it will be the diameter of the cosmos, with earth occupying the centre and the two poles its limits. The poles are unmoving. One is always visible, because it is over our heads in the northern region – it is called the ‘Arctic’; the other is always hidden on the other side of the earth to the south, and is called the ‘Antarctic’.

We call the substance of the heaven and of the stars ‘aether’ – not, as some say, because it is fiery and ‘blazes’ (they confuse it with the completely different power possessed by fire), but because it ‘always rushes’ in a circular path: it is an element different from the four [elements], as one that does not mix and is divine.

[10] Of the stars that the cosmos encompasses, some revolve along with the whole heaven, without wandering, but keeping to the same place. In the middle of them, the so-called ‘zodiac’ forms an oblique girdle between the tropics; it is divided into twelve areas corresponding to the signs [of the zodiac]. Other stars, the ‘wanderers’ [= ‘planets’], do not move with the same speed as the former, or as each other, but they all have their own circles, so that, among them, one is closer to earth and another further out. The number of the fixed stars is undiscoverable to humans, although they move on the single plane of the whole heaven. But that of the planets amounts all told to seven, situated on as many circles, which are arranged in sequence [20] so that the higher is larger than the lower. The seven circles are nested in each other, but all are surrounded by the sphere of the fixed stars. The circle of Phainon, also called that of Cronus, always has the place next in from it; and then that of Phaethon, also known as the circle of Zeus; then Pyroeis, known as the sphere both of Heracles and of Ares. Sixth is Stilbon, which some call the sphere of holy Hermes, but others that of Apollo. After that comes the circle of Phosphorus, which they call Aphrodite (but others again Hera); then that of the sun, and finally that of the moon, which is the lower limit of the aether [30] which embraces all the divine bodies and their serial movements.

Immediately after the aetherial and divine part of the cosmos – which we affirm to be organised and undisturbed, unwavering and impassive – comes the part which is everywhere easily affected and disturbed and, in brief, is destructible and perishable. The first bit of it is the thin and flame-like substance [392b1], which is ignited by the aether, because of its size and the speed of its motion. In the fiery and supposedly chaotic [substance], lights shine out, flames shoot forth, and ‘planks’ [*dokides*] and ‘trenches’ [*bothynoi*] and what are called ‘comets’ are frequently ignited and extinguished.

Next to this pours in air, misty and frosty in its own nature; but at the same time, it is illuminated by this [fire above] and even burned and becomes bright and warm. It is itself of an easily affected capacity, and it is very mutable, and within it [10] clouds form and showers beat down, there are snows and frosts and hail, gusts of winds and of typhoons, and even thunder and coruscations, and thunderbolts coming down, and storm-clouds colliding in their thousands.

Next to the aerial nature earth and sea are set. They teem with plants and animals – and springs and rivers, some of which drain into the earth, while others disgorge into the sea. Thousands of plants give it variety, and lofty mountains and thick copses, and cities built by the intelligent animal, the human. There are islands and continents in the sea. [20] The common account divides our inhabited realm world into islands and continents, but it is unaware that the whole of it is a single island, surrounded by the so-called Atlantic sea. Probably there are many other [such islands] corresponding to this, lying on the other side of it, some larger, some smaller, but all except this one invisible to us: what is true of our islands in relation to the local sea is also true of the inhabited realm in relation to the Atlantic sea (and to the many other such realms in relation to the sea as a whole). They are just large islands washed by large seas. The [30] moist nature as a whole predominates. It allows certain so-called ‘cliffs’ of earth to appear, and these are inhabited; but water is the dominant nature after the air. Below it, within its depths, at the very centre of the cosmos, all the earth is to be found, compressed and squeezed, immobile and unmoving – and this is everything in the cosmos that we refer to as ‘below’.

These five elements [393a1], in their five places, are disposed as spheres, the smaller [spheres] surrounded by the larger: earth by water, water by air, air by fire, fire by aether. They constitute the whole cosmos. The whole of the region above is the home of the gods, that below is home to ephemeral animals; part of it is wet (we call that rivers and springs and seas), part dry (we call that earth and continents and islands).

Some islands are large, including [10] (as has been said) this whole inhabited region, and many other such regions surrounded by the great seas. Others are smaller – those that we can see within [the inhabited realm]. Some of these deserve mention: Sicily, Sardo [= Sardinia], Kyrnos [= Corsica], Crete, and Euboea and Cyprus and Lesbos. There are lesser islands still, such as the Sporades and the Cyclades; others have other names.

The sea outside the inhabited world is called the ‘Atlantic’ and the ‘Ocean’: it surrounds us. It comes into [the inhabited realm] from the west through a narrow opening near what are known as the Pillars of Heracles, and flows into the inner sea, as if into a harbour. [20] Gradually it spreads out, and fills a series of large gulfs which are connected to each other – in some places being confined in narrow straits, in others spreading out again. If you sail in through the Pillars of Heracles, the sea is at first said to be shaped by two gulfs on your right: the so-called Gulfs of Syrtis: one of them is called Syrtis Major, the other Syrtis Minor. On the other side, there is no similar gulf, but the sea divides into three: what are called the Sardinian, Gallic and Adriatic seas. Across from these is the Sicilian sea, and beyond this the Cretan sea. That is continuous with the Egyptian, Pamphylian and Syrian seas, on one side, and, [30] on the other, the Aegean and Myrtoan seas. Following the length of these is the Pontic sea, with its many subdivisions. The innermost part is called Maiotis; the outer part, [393b1] towards the Hellespont, is connected by a channel to what is called Propontis.

Over to the east, the Ocean flows in, opens out into the Gulf of India and the Gulf of Persia, then straight afterwards gives us the Red sea (which has no outlet). Passing in the other direction through a narrow and long strait, [the ocean] widens again, setting the bounds of the Hycanian and Caspian seas. Beyond this deep, it occupies the place beyond the harbour of Maiotis; then, a bit further out, beyond the [lands of the] Scythians and Celts, it surrounds the inhabited world towards the Galatic [= Gallic] Gulf [10] and the aforementioned Pillars of Heracles. Outside these points, the Ocean flows around the [whole] earth.

The two largest islands are out here, known as the British Isles, Albion, and Ierne: these are larger than those recounted above, and lie beyond the [land of the] Celts. No smaller than these is Taprobane [= Sri Lanka], which lies beyond India [15], slanting with respect to the inhabited region; and also †Phebol, which is situated in the Arabian gulf. There are also a lot of small islands around the British Isles and Iberia, and they crown this inhabited realm which we have said is [itself] an island, and whose breadth, at the widest part of the continent, is a little less than [20] 40,000 stades, as the best geometers say; its length is as much as around 70,000 stades. It is divided into Europe, Asia and Libya. Europe is bounded in a circle by the Pillars of Heracles and the inner parts of the Pontic and Hyrcanian seas. From the latter, a very narrow isthmus goes to the Pontic (though some have said that [Europe’s border] is not this isthmus but the river Tanais). Asia stretches from this isthmus of the Pontus and the Hyrcanian sea as far as another isthmus, which lies between the Gulf of Arabia and the inner sea, surrounded [30] by this and the encircling Ocean. (But some say that the border of Asia goes from Tanais to the outlets of the Nile.) Libya goes from the Arabian isthmus to the Pillars of Hercules (but some think that it goes there from the Nile). [394a1] Some people attach Egypt, bounded by the outlets of the Nile, to Asia, some to Libya. And some people accord islands their own status, but others always make them part of the lands they are near.

This is what we have discovered about the nature and position of the earth and sea which make up what we know as the inhabited world.

Now let us discuss the most noteworthy things within and around [the world], with a summary of the essentials. There are two types of exhalation which constantly rise [10] from it into the air above us: they are fine and completely invisible, except that sometimes at dawn they can be observed rising from rivers and springs. One type is dry and like smoke, and comes from the earth; the other is moist and vaporous, and exhaled from moisture. [15] Mists come from this, and dews and different types of frost, as well as clouds and rain and snow and hail, while from the dry type [come] winds and the different air-currents, and thunder and coruscations and presters and lightning and everything else of the sort.

Mist is [20] a sterile, vaporous exhalation from water, thicker than air, thinner than cloud. It arises as a cloud is forming, or when it is dissolving. Its converse is said to be (and is) cold air, which is just air with no cloud or mist in it. Dew is moisture from cold air, which is carried by it because of it is so fine in constitution. [25] Ice is water which is gathered from the cold air and compressed. Frost is compressed dew, and hoar-frost half-compressed dew. A cloud is a gathering of thick vapor, capable of producing water. Rain occurs when an especially dense cloud gets weighed down. There are as many types of rain as there are degrees of pressure on the cloud. [30] When a cloud is calm, it scatters soft drops, but when violently compressed, thicker ones: this we call a shower, which is heavier than rain, and sends persistent precipitation down to the earth. Snow comes about through the breaking up of thickened clouds, which get chopped up before the change into water: the chopping makes it foamy and white, and the compaction of the water inside (before it has been poured out or been rarefied) causes the coldness. [394b1] When it is carried down thickly and in quantity it is called a snowstorm. Hail comes about when a snowstorm is compressed and the compaction gives it weight so that it falls faster. Because of the size of the pieces torn off, their mass and speed increase. These are the derivatives from moist exhalations.

Wind comes about from the dry exhalations when the cold strikes it so that it starts to move. Wind (also called air-current) is just a lot of air massed together. (Air-current in another sense [sc. as ‘breath’] is what is in plants and animals and pervades all things as an animate and generative substance, but not something we need to talk about now.) Air-currents which blow in the air we call winds; gusts from moist exhalations are breezes. Winds include ‘terrestrial’ winds, which arise from damp earth; and ‘bay-winds’ [*enkolpiai*], which rush out of bays (and there are some which come from rivers and lakes which have something in common with them). Winds that arise when clouds break apart, and cause their masses to be dispersed are called ‘nebular’. ‘Hydrated’ winds [*exudriai*] come with water when they break open their mass.

A wind which arises regularly in the east has been named a eurus; one from the north a boreas; zephyrys come from the west, and noti from the south. Euri include the wind which blows from where the sun rises in the summer [ENE], which is called Kaikias; Apeliotes comes from the region where it rises at the equinoxes [due E]; and Eurus come from from the region where the sun rises in winter [ESE]. Zephyrs are opposite them: Argestes, which some people used to call Olympias and others Iapyx, comes from the where the sun sets in summer [WNW], Zephyr from [where the sun sets at] the equinox [due W], Lips from [where it sets during] the winter [WSW]. The boreal winds includes Boreas which is in the specific sense the one neighbouring Kaikias [NNE]; Aparktias is the next, coming from the [North] in a southerly direction; then Thraskias (some call this Kirkias), next to Argestes [NNW]. Of the noti, the one which comes from the hidden pole [S] is called Anti-Aparktias; Euronotos is between Notus and Euros [SSE]; on the other side, between Lips and Notus is what some call Libonotus, others Libophoenix.

Some winds are called direct, blowing straight ahead; others turn back on themselves, [395a1] for example the one called Kaikia. Some are more common in the winter, like the noti, others in summer, like the so-called etesian winds, which are a mixture of those that come from the north and the zephyrs. Some are known as ‘ornithiae’: these are winds that arise in the spring, but belong to the class of boreases. [5] Violent air-currents include the hurricane, an air-current which blasts upwards suddenly. A whirlwind is a violent current of air which arises unexpectedly; the tornado or cyclone is an air current which twists from below reaching upwards; the ‘upward blast’ [*anaphysema*] is an air current which erupts upwards from the earth where a gorge or fissure opens up. [10] When it gets tightly twisted, it is a terrestrial ‘prester’. When an air current finds its way into a dense and dark cloud, and then is expelled through it, violently rupturing the compaction of the cloud, it causes a mighty crack and rumbling, which is called thunder (it is just like when there is a impulsion of air within water).

[15] When a cloud breaks up in fire, the air current and light is called coruscation – which we perceive before the thunder, although it arises later, since hearing tends to be beaten by sight, even when the object of sight is further away, and the other is closer to hearing. This is especially true when [the object of sight] is the fastest of things, namely something fiery; while sound is less fast, being of the air, and reaching hearing by [the air’s being] struck. Flame, ignited and violently racing to earth, is called lightning; if it is less fiery, but still violent and fast, it is a prester; and if it is entirely without fire, it is a typhoon. Each of these, as something rushing down to earth, is called a ‘bolt’. [395a25] Some forms of lightning are said to be sooty and smoky; some, which dart quickly, are bright. Forked lightning moves in thin lines. Anything that crashes down to earth is a ‘bolt’.

To speak in general, some atmospheric phenomena are mere apparitions, but some are real. Apparitions include rainbows and rods and the like; streaking light, comets and so on are real. A rainbow is when part of the sun or moon appears in a dark and curved cloud, and seems to be continuous, as if seen around the edge of a circular mirror. [35] A rod is a rainbow that looks straight. A halo is a bright apparition coming from the light of a star: [395b1] it differs from a rainbow, because a rainbow appears opposite the sun or moon, but a halo makes a circles around the whole star. A light is the ignition of a mass of fire in the air. Some forms of it dart, some are fixed. A dart is fire sparked from friction as it is carried quickly in the air, giving the appearance of length because of its speed. A fixed light is extended but unmoving, or moves as a star does. A flatter version of this is called a comet. Some forms of lightning last longer [10], but some are extinguished immediately. There are many other types phenomena: ‘torches’ and ‘planks’ and ‘jars’ and ‘trenches’ – named for their similarity to these things. Some of them arise in the west, some in the east, some can be seen in both regions; but they are rare in the north and south. However, they are all unpredictable: there is nothing you can say about them that always holds true. So much for the atmosphere, then.

[395b18] The earth contains many things within itself: for example, sources of water, but of air current and fire too. Some of these are below the earth and unseen; but often they are expelled and blasted upwards – as at Lipari and Aetna and in the Aeolian islands. Sometimes fiery masses are thrown up which actually flow like a river; or they remain below the earth and heat things up near sources of water, resulting in springs that are warm, or very hot, or temperate. Similarly in the case of the air-currents: there are openings for them in many places on earth. Some of them cause anyone who comes near to be possessed, or, in other cases, to waste away; and some make them deliver oracles, as those in Delphi and Lebadeia do; and some altogether destroy them, as the one in Phrygia.

[395b30] Often a temperate air-current which belongs in the earth finds itself displaced from its home territory in pockets within the earth, and causes agitation in many parts. And often, it is compressed within these pockets and then breaks out with violence that [35] shakes the earth’s foundations; and in finding its escape, it causes what we can an earthquake. Some earthquakes [396a1], called *epiklintai*, shake sideways at acute angles; *brastai* heave the earth up and down on the perpendicular; *hizmatiai* cause the earth to collapse into sinkholes; the ones that open up chasms and churn up the earth are called *rhektai*. [5] Some emit a current of air too, some throw up rocks, or mud; others reveal springs that were not there before. Some shift once and topple everything: they call these *ostae*. Others, called *palmatiai*, rebound and set what they have shaken straight again, as they are made to lean one way and then back again in the opposite direction – the effect they create is a sort of shiver. Then there are ‘moaning’ earthquakes, which roar as they shake the earth. Often there is a rumbling within the earth but no earthquake – this happens when the current of air is not powerful enough to shake the earth, but coils up inside it and strikes it with resounding force. [15] The air currents within are also amalgamated by hidden bodies of water contained within the earth.

[396a17] There are analogous phenomena in the sea too, which cause the water to be sucked down and rise back up; or surging waves, sometimes after an initial recoil, but sometimes just moving forwards, as is said of Helike and Boura. Often there are spurts of fire in the sea, and water-spouts comparable to springs or newly germinating plants; and rivers and eddies analogous to those found in winds too, some occuring in the open sea, [25] others only in straits and channels. And the sea is said to ebb and flow at fixed times which follow the moon.

To speak generally, the elements are mixed together in air and eath and sea in a way that makes it only reasonable that they constitute the similarities [that there are] in the way things fall out; they bring about local instances of destruction and generation, but ensure the preservation of the whole, which is neither destroyed nor generated. And yet someone might wonder how the cosmos could ever be constituted from opposed principles – I mean from dry and wet [35], cold and warm – and not have been destroyed and lost long ago. [396b1] But this is like wondering how a city could persist although made up of extreme opposites among people – I mean poor and rich, young and old, weak and strong, bad and good. You do not realise that this is the triumphant achievement of political concord, I mean that one [city] can be effected from many people – and a consistent disposition from different dispositions, embracing every kind and subject to every chance. And perhaps nature actually aims for opposites, and effects its harmony out of these rather than out of things similar to each other: for example, it leads the male to the female, rather [10] than each to its own kind, and it establishes this primal concord in things that are opposite not similar. You can see that art too imitates nature in doing this. Painting mixes up the colours, whites and blacks, ochres and reds, and makes images harmonious with what it depicts. And music brings high together with low, long and short notes, mixing the sounds in different voices to effect a single harmony. Grammar too mixes voiced and unvoiced letters, and builds its whole art out of them. This is exactly what Heraclitus the obscure meant when he said: ‘Taken together they are whole and not whole, combined divided, consonant dissonant; from all things one and from one all things.’ In this way a single harmony directs the organisation of all things – by which I mean heaven and earth and the whole cosmos – by mixing principles which are extreme opposites [25]: dry is mixed with wet, warm with cold, light with heavy, and straight with curved. One power coursing through all things has organised all the earth and sea and aether and sun and moon and the whole heaven, crafting the whole cosmos from distinct elements (air, earth, fire and water), enclosing the spheres within a single surface, forcing agreement between things with kinds that are extreme opposites to one another inside it, and engineering out of them a way of preserving the whole. The cause of this is agreement between the elements, and the fact that each has an equal part in the agreement so that one of them [397a1] is never more powerful than another. Heavy and light are equally matched, as are warm and its opposite. Nature thus teaches us through these greater matters that equality can preserve concord – even concord within the cosmos, which is the most beautiful thing, and father of all things. [5] Indeed, what kind of thing could be greater than this? Whatever you mention is a part of it, and anything that has beauty and structure is named after it: it is said to be ‘ordered’ [*kekosmēsthai*] after the ‘cosmos’.

And how could any part match the order of the heavens and the movement of stars and sun and moon, [10] which move in the most precise measures from one age to the next? What could aspire to such predictability as is observed by the beautiful and fertile seasons of the universe, which bring sumer and winter in order, and days and nights to complete a month and a year? It is [15] superlative in size, most swift in its movement, most radiant in its splendour, unwearying and imperishable in power. It determined the different natures of sea, land and air creatures, and measured out their lives by its own movements. Thanks to it all animals breathe and have life. Thanks to it too all amazing phenomena are accomplished in due order – the winds of all kinds being dashed together, lightning falling from the sky, and extreme sotrms breaking. By means of these phenomena – which include the compression of moisture and the expulsion of fire – the whole is brought into agreement and fixed.

Earth bristles with plants of all sorts, has springs bubbling up everywhere, and is covered in animals: it gives birth to everything in due season, and nourishes and cherishes them, giving rise to thousands of forms and qualities, and unwearyingly keeps nature the same. Yet it is also shaken by quakes, inundated by floods, and burned by local conflagrations. [30] But all of these things can be seen arising within it for the good, and serve its preservation over time. When the earth is shaken, the fissures give vents for the subterannean exhalations which are thereby expelled, as was said above; showers wash away everything diseased; the breezes that gust around the earth purify both what is above and below ground. [397b1] Flames soften what is frosty, and frosts cures the flames. At an individual level things are variously born, mature and die; but the births make good the deaths, and the deaths give space for the births. [5] There is a reciprocal displacement by which all things work to the preservation of the whole: by dominating and being dominated in turn, each thing keeps the whole imperishable over time.

It remains to speak in summary terms about the cause that makes the universe cohere [10], as in other cases: it would be a mistake to leave out the most important part of the cosmos, even in an account of the cosmos that does not go into detail but aims to teach in outline.

There is an ancient account common to the ancestors of all men that everything comes from god and is constituted through god, [15] and nothing of any kind is self-sufficient without him to preserve it. For this reason, some of the ancients have suggested that all these things, which are apparent to our eyes and hearing and every other sense, are ‘full of gods’. This is a rejection of the explanation which gives proper regard to god’s power, [20] even if it acknowledges his substance. For god truly is the preserver and progenitor of everything at all that happens in this cosmos – but not because he undertakes the burden of a hard labourer’s life: rather, he employs an unwearying power by which he controls things which seem far off.

[25] He occupies the highest and first place, and is called the Most High because of this; he is enthroned, in the words of the poet, at the ‘crown and summit’ of the whole heaven. The body closest to him benefits most from his power, and then the one next to that, and so on until the regions where we are. [30] This is probably why the earth and the things on earth, which are at the furthest remove from god’s aid, are weak and poorly constructed and full of confusion. Nevertheless, the divine is such as to extend to everything, as far as possible, and reaches the things around us in the same way that it reaches the things above us: but each participates more or less in his aid according as they are nearer or further from god. [398a1] So the better way to conceive things, the way that is fitting and most appropriate for god, is (to sum up) that his power is located in the heavens, benefits what is closest most, and is the cause of preservation for everything – all the more because it does *not* pervade everything and proceed everywhere and manufacture those things on earth that are neither beautiful nor well formed. It is not even appropriate for human leaders – I mean, for example, the ruler of an army or the head of a household – to take care of every task whatsoever, e.g. bagging up the bedclothes, or doing some even lowlier job which any slave could do. It is as it is related of the Great King. Cambyses, Xerxes and Darius were screened off from the world in a way appropriate for their solemnity and supreme elevation. The Great King, as we are told, had his seat in Susa or Ecbatana, where he was not seen by anyone. He had an amazing royal palace, enclosed by a wall which coruscated with gold, electrum and ivory. There was a long series of gateways and many porches, stades from each other, fortified by bronze doors and huge walls. Outside these walls were arrayed the men of the first rank and honour, [20] some of them armed guards and attendants of the king himself, others guards of the various walls, known as gate-keepers and listeners, who enabled the king himself, named lord and god, to see everything and hear everything. In addition to these, other men were appointed as treasurers and army generals and hunt-masters and receivers of gifts – and others given care of the other tasks that needed to be done. And the whole empire of Asia, bounded by the Hellespont to the west, and by India to the east, was divided according to tribe among generals and satraps and kings, all slaves of the Great King; and there were scouts and lookouts and message-carriers and people to take care of the beacons. And things were so arranged, especially in the matter of the beacons, which could be lit in succession from the edges of the empire to Susa and Ecbatana, that the king could know all the news in Asia on the very day it happened.

[398b1] You should consider that the Great King, when compared the god who maintains the cosmos, is no more exalted than the basest and weakest animal, so, if it would be impious to think of Xerxes doing everything for himself, and carrying out his own wishes and taking care of achieving his own aims every time, it would be all the more unfitting to think this of god. It is more pious and fitting for him to be seated at the highest place, while his power pervades the whole cosmos and moves the sun and moon and drives the whole heaven around and is the cause of the preservation of things on earth. [10] He is not even in need of the skills and services of others, in the way that rulers among us need a great deal of help because of their own weakness. This in fact is the most divine thing, to achieve a diversity of sructures through one easy and simple movement – just as, perhaps, inventors do with machines in which a single trigger results in different operations. Or, similarly, puppeteers, who pull on one string and make not only the animal’s neck move, but its shoulder and eye, and sometimes all of its limbs, with a certain grace. So likewise [20] a simple initial movement from the divine transmits power from the first thing to those things that are next to it, and from those again all the way to the most distant, until [the power] extends right the way through everything. One thing is moved by another, and it in turn moves something else along with the cosmos. And everything acts in a way approprate to its own arrangement, [25] and there is no single path for all, but they follow different, heterogenous, and even sometimes contrary, paths – although there was a single first impulse. It is as if one should throw a sphere, a cube, a cone and a cylinder from from a jar at the same time: each of them will be set in motion according to its own shape. [30] Or again, it is as if someone should release aquatic, terretstrial and winged animals from his lap where he had been holding them: obviously, the swimmer would leap into its own habitat and swim away, the terrestrial animal will creep off according to its own character and customs, and the creature of the air will ascend heavenward from the earth on its wings: [35] but a single cause gave each its own opportunity. So it is in the case of the cosmos too. [399a1] A single revolution of the whole heaven defined a day and a night; all the other various orbits, although enclosed by the one sphere, then come about, some faster, some more leisurely, all according to the distance between them and their individual constitutions. The moon completes its cycle, waxing and waning and wasting away, in a month; the sun, accompanied on its course by Phosphorus, also known as Hermes, takes a year; Pyroeis takes twice as long, Zeus six times that, and finally the [star] known as that of Kronos taken two-and-a-half times as long as the sphere underneath it. They all sing and dance together in harmony, according to unifying arrangement of the cosmos which produced a single thing – ‘order’ [*kosmos*] being the name true to the whole, rather than disorder. [15] And just as in a chorus the chorus-master starts off and the whole chorus responds – men and sometimes women too – making one meoldious harmony from a mixture of different voices, higher and lower, so too in the case of god conducting the universe. The key-note and lead is given by the well-named leader; the stars and the whole heaven move unceasingly; the all-illuminating sun follows its double path, rising and setting to define day and night, but at the same time advancing south or recding north to mark out the four seasons of the year. Storms and winds arise in due season, [25] as does dew and everything else that happens in our environment thanks to the first and originating cause. These in turn lead rivers to flow, seas to swell, trees to burst forth, fruits to ripen, animals to give birth, and their offspring to be reared, to mature, and to die, each according to its constitution, as I said.

So when the leader and father of all things, invisible to everything except reason, gives the signal to the realm between heaven and earth, everything moves continuously in circles and within its own boundaries. Sometimes we cannot see them, but sometimes we can: they appear and are occluded in many different ways from their single starting-point. [399b1] And it is all exactly like what happens in periods of war when the trumpet gives the signal to the army: immediately, on hearing the sound, one person picks up his spear, another puts on his breastplate, another dons greaves or helmet or belt; one puts the bridle on the horse, another mounts a pair, another entrusts the password; the captain goes straight off to his platoon, the squadron-leader to his squadron, the cavalryman to the wing; the light infantryman runs to his own place. Everything is driven by one signal given at the order of the commanding officer. So one must think about the whole: from one impulse everything is stirred into action and everything that is needed arises, while the origin is unseen and out of view. There is nothing to prevent this impulse from acting, or us from believing in it. The soul too, by which we live and have houses and cities, [15] cannot be seen, but is seen in its effects. The whole organisation of human life was discovered and is organised and held together by soul: irrigation of the land and agriculture, the inspiration of art, the use of law, constitutional order, civic affairs, foreign war, peace. God should be considered to be [20] in power the strongest, in beauty the most attractive, of immortal life and in virtue most powerful. He is unseen in the realm of mortal nature, but he is visible in his effects there. For everything that happens, in the air and on land and in the water, are, one might say, truly the works of that god who sustains the cosmos. From him, as the physicist Empedocles has it, comes:

all that was and all that is and that will be hereafter;

trees that bloom, and men and women,

and beasts and birds and water-bred fish.

To compare it with something smaller, he is really like those so-called ‘keystones’ which are set in the middle of vaults and by holding each part to the other preserve the whole structure of the vault in harmony and in order and unmoved. They say that the statue-maker Phidias, when he was making the Athena in the Acropolis, engraved his own face in the midde of her shield, and connected it [400a1] to the structure through some concealed artifice, so that if someone wanted to take it out, they would inevitably undo and ruin the whole statue. This is the position god holds in the cosmos: maintaining the harmony and preservation of everything. Only god is not in the middle, which is occupied by earth and this misty region; rather he resides above, himself pure in a pure place. We call it *ouranos* true to the fact that it is the ‘boundary above’ (*horon ano*), and *Olympus* as if ‘the whole of it shines’ (*holoampe*). It is far away from all that is dark and unordered in movement, as can be the case with with us because of the violent storms and winds. As the poet said:

Olympus, which they say is always the unerring seat of the gods:

neither is it shaken by winds, nor ever doused by storm

nor approached by snows, but the clear sky

is cloudless, and white brightness goes about.

[15] And the whole of life is witness to this, ascribing the upper regions to god. Indeed, all men stretch up their hands towards heaven when they pray. So this is not badly put: ‘To Zeus fell the broad heaven in the aither and clouds.’ [20] And the visible things we honour most occupy the same region – the stars and sun and moon. Because of this it is only celestial things that keep to the same pattern, and are never altered and changed in the way that things on earth are rather easily turned, and are subject to many alterations and affections. [25] Violent earthquakes have torn up parts of the earth; sudden rushing storms break things up; waves surging and withdrawing have often made seas of continents and continents of seas; violent air currents and typhoons have overturned whole cities; fiery flames in earlier times have come down from the heavens, they say, as in the case of Phaethon, who burned the eastern parts of the world; while others in the west have erupted and gushed forth from the earth, such as the craters torn open in Etna, and been carried along the earth like a torrent. In that case, the pious people showed high honour to what was sacred: they were surrounded by the rivers [of fire] because they were carrying their aged parents onto their shoulders to save them; but when the river of fire got close to them it divided, some of the fire turning one way some the other; so it kept the young men safe along with their parents.

In general, what a helmsman is in a ship, a driver in a chariot, the chorus-leader in a chorus, the law is a city, the leader in an army, this is what god is in the cosmos, except that for them ruling is tiring, energetic and complex, while for him it is without grief or pain or threat to his health. Established in serene power he moves everything and leads it around where and how he wants, in all its diverse structures and kinds. It is, as, I suppose, as the law of a city which resides unmoving in the souls of those who use it, but organises everything in the city. It is in obedience to it that rulers move about in their spheres, the law-givers go to the lawcourts, counsellors and advisors to the appropriate benches; one person goes to the prytany to eat, another to the judges to defend himself, another to the prison to die. [20] And there are ordained feasts and annual vigils and sacrifices to the gods, the observance of hero cults, and libations for those laid to rest. Different things are done in different ways but according to a single order. What is truly active preserves the power of the law so that ‘a city is at the one time full of incense and at the same time of paeans and lamentations’. So it should be understood to be for that great city, I mean the cosmos: for god is our equitable law, which allows neither correction nor change, yet greater, I think, and more secure than those written down in tablets. When he leads, without himself moving, the whole cosmic arrangement of heaven and earth is administered, parcelled out according to the various kinds: to plants and animals according to genus and species through their proper seeds; to [401a1] vines and palm-trees and persea-trees, ‘and sweet figs and olives’, as the poet says; to [plants] which do not bear fruit but have other uses, planes and pines and box-trees, ‘black polar and sweet-smelling cypress’; [5] to those that bear sweet autumn fruit (albeit sometimes difficult to store). Animals too, the wild and tame, those that feed in air and on earth and in water, are born and mature and perish in obedience to the decrees of god: ‘For every creeping thing moves because it is struck,’ as Heraclitus says.

[God] is one, but he goes by many names, which are names for all the effects which he causes. We call him Zen and Dia, using these names as well [as ‘Zeus’] , as if we were to say ‘Through whom (*dia*)we live (*zēn*)’. He is called the son of Kronos, or ‘time’ (*chronos*), persisting from unshaken age to another age. He is called coruscating and thundering and sky-clearing, and ‘aetherial lightning god’ and ‘rain god’ – from rain and lightning and the rest. And he is named ‘fruitful’ from fruits, and ‘protector of city’ from cities [20], protector of birth, of the courtyard, of siblings, and of paternity from his relationship with these things; of companions and friendship and hospitality and the army and trophy-bearing; of purification and of the murderer, and of suppliants and soothing, as the poets say. He is, to sum it up, truly the saviour and liberator of heaven and earth, and named for nature and chance, insofar as he is the cause of everything. The Orphic lines do not put it badly:

Zeus was first, Zeus last, lord of lightning

Zeus the head, Zeus the middle: everything was done by Zeus.

Zeus is the foundation of the earth and the starry heaven;

Zeus nourished man, Zeus goes as immortal nymph;

Zeus is the breath of all, Zeus the force of unwearying fire;

Zeus the root of the sea; Zeus is sun and moon;

Zeus is king, Zeus is the ruler of all, lord of lightning

For he hides everything and again into joyful light

from his pure heart he compelled them, doing terrible deeds.

Necessity (*ananke*), I know, is so called as if to say ‘the unmoved (*aniketos*) cause’; and Fate (*heimarmene*) because of ‘stringing together’ (*eirein*), and going unimpeded; and Pepromene because he has set bounds (*pepratosthai*) for everything (nothing among existing things is unbounded); Moira comes from his having appoitioned everything (*merizo*); Nemesis from distribution [*dianemesis*] to each; Adrasteia is the unavoidable (anapodrastos) cause in nature; Aisa ‘always is’ (*aiei ousa*). The attributes of the Moirai and the spindle nod in the same direction: for the Moirai are three, corresponding to the divisions of time. Some of the thread has already been spun by the spindle, some is about to be, some is now being spun. This is the pattern because one of the Moirai, Atropos, is what has been – and everything that is past is ‘unalterable’ (*atreptos*); Lachesis is assigned to the future, which nature is yet to determine; and Clotho to the present, accomplishing and spinning the appropriate things for each. And the myth expresses all this in proper order.

But all these things are nothing else but god, as the noble Plato says: ‘God, as the ancient account [says], holds the beginning and end and middle of all the things that are, and goes straight, travelling according to nature; justice always follows along with him, the punisher of those who abandon divine law’, ‘[justice] in which he who will be blessed and happy should at once from the beginning participate.’