

**Theology as the limit of science:
Anaximander's discovery of metaphysics
and the Milesian concept of divinity**

by

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ABSTRACT

**THEOLOGY AS THE LIMIT OF SCIENCE: ANAXIMANDER'S DISCOVERY OF
METAPHYSICS AND THE MILESIAN CONCEPT OF DIVINITY**

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This thesis explores the role the concept of divinity played in the physical theories of Anaximander of Miletus (c.610 – c.546 BCE), arguing that his work anticipated and helped create the metaphysical theories of Aristotle and subsequent thinkers. Focusing on Anaximander's notion of the *apeiron* (the indefinite), the thesis claims: (1) that Anaximander used theological terms to describe a physical and ontological principle well before such concepts were elucidated by Aristotle himself; that he thereby (2) anticipated Aristotle's potentiality-actuality distinction; and (3) identified the central flaws of the mode of explanation current in 6th-century BCE Miletus. The argument is supported by a conceptual schema which shows that Anaximander advanced an ambitious but ultimately unsuccessful metaphysical theory that assigned the *apeiron* both temporal and ontological priority, thereby serving as an early alternative to Aristotle's Prime Mover.

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Introduction:

The Ionian tradition and Anaximander's place within it

In this thesis, I propose to study the role that divinity played in the tradition of Greek philosophy inaugurated by the work of Thales (c.620 – 546 BCE) and Anaximander (c.610 – c. 546 BCE) of Miletus and continued in various ways with the pluralist thought of Anaxagoras of Clazomenae (c.500 – 428 BCE) and Empedocles of Acragas (c.492 – 432 BCE). This movement, recently called the Ionian tradition of scientific and philosophical thought, took place on the western coast of Asia Minor, on the southern shores of Italy, and in various places in mainland Greece and the surrounding islands. The Ionian tradition was characterized by bold speculation regarding things in heaven and on earth, and it was punctuated by skeptical challenges which, rather than destroy it, contributed to refining and magnifying the force of its theories.

What makes this early period particularly interesting and problematic for the modern scholar is both the volume and the diversity of thought which appeared, seemingly *ex nihilo*, within the short period of some eighty years (c. 580 BCE until c. 500 BCE). Within a single generation, the intellectual life of Ionian Greeks¹ was transformed from the myth and religious poetry to a mode of enquiry which was systematic, exhaustive, and public in its criteria of proof and justification. The intellectual strides made c. 600 BCE were gargantuan: within three generations, the simultaneous emergence

¹ The term “Ionian” strictly speaking designates the ethnic group of the Greek speaking peoples which used the Ionic dialect as opposed to the Doric or the Aeolic. The ethnic group included the populations of Attica, as well as the cities of western Asia Minor and the Aegean islands (“Ionians” in the *Oxford Classical Dictionary*, 3 rev ed.). I will use the term “Ionian” in its narrower, geographical sense to refer to the old region of Ionia, that is, the western coast of Asia Minor.

of cosmology, biology, geography, and the study of atmospheric phenomena expanded the Greek intellectual landscape from the kind of mythological and artistic modes seen around the world to the scientific and philosophical activities found in only a few other places.²

The newborn Ionian speculation was not only staggeringly comprehensive in its scope but also incredibly ambitious in its aims. Rather than beginning their enquiry from minute observation and cautious ground-up research, the earliest Greek thinkers began straightaway investigating the nature of the universe as a whole, the character of its largest constituents, and the processes that govern transformation of one thing into another, the generation of one thing from another, and in short the birth and coming-to-be of all the individual things that populate the world of the senses. Their efforts, as crude as they may appear in light of today's scientific achievements, were nevertheless admirably tenacious, and they certainly initiated the tradition which would lead to the great achievements of both the classical and (some say) the modern world.³

According to the acclaimed scholar Gregory Vlastos, the earliest Greek philosophers Thales, Anaximander, and Anaximenes made later philosophy and natural science possible by “demolishing the supernatural” and replacing it with a rational and

² The time from sixth to fourth century BCE is sometimes called the last Axial age to denote the great intellectual transformation which was underway simultaneously (and to all appearances independently) in Greece, India, and Israel of the time. The arguments used to substantiate this observation come ultimately from the philosophy of Karl Jaspers. See Jaspers 1953, 51ff.

³ Karl Popper argued that the Presocratic thinkers had a pivotal role in first engaging in the kind of intellectually profitable discussion that would characterize the history of science and philosophy to the present day (Popper 1963, 151-152). Just as notably, Bertrand Russell credited the Presocratics with advancing theories which would become quintessential to modern science (Russell 1945, 38-39).

empirical mode of thought.⁴ They did so not through open opposition to the teachings of the Greek poets and theologians, but by applying their naturalistic explanation to the world so thoroughly that they rendered divinity, religion, and the supernatural obsolete. This interpretation, though strongly contested since Vlastos's articulation of it, has resulted in recent years in the dismissal of textual material which claims the opposite. The ancient testimonia on early Greek philosophers (as well as some genuine fragments) state not only that the earliest philosophers were interested in gods and the divine, but also that they engaged in what might be considered theological speculation.

The reason for rejecting such comments as metaphorical or exoteric has been the perceived tension between theology and science, between religion and reason, and between the natural and the supernatural. Gods, spirits, and other theological topics, the argument goes, were not discussed by the Ionian thinkers because their very existence is incompatible with the tenets of the nascent natural philosophy. Since both natural philosophy and natural science are premised on the predictability of natural processes and the immutability of natural laws, it is not possible to both engage in natural speculation and at the same time allow the existence of beings capable of influencing or even suspending the natural order on a whim.⁵ Accordingly, early Greek philosophers were forced to eschew all theological speculation in favour of natural, empirical argument.

The main aim of this thesis is to contest this simplistic view of ancient theology and argue that there is no tension between early Greek natural science and the theology of the early Greek philosophers. Put shortly, the argument will claim that these fields of

⁴ Vlastos 1975, 20.

⁵ For this kind of argument, see for example Cherniss 1951, 9-10 and more recently Gregory 2007, 13-14.

enquiry are not at odds with one another because they occupy different places in the hierarchy of philosophical explanation. This is not to claim that theology and natural philosophy had different objects: both were concerned with what we consider the physical universe. However, theology explored this world at the levels of abstraction which were inaccessible to natural philosophy and, in doing so, it anticipated the development of the discipline of metaphysics in later antiquity. The desired effect of this line of reasoning is to produce a nuanced view of the meaning of such key terms as ‘theology’, ‘divinity’ and ‘god’ which will both do justice to theological interests of the early Greek philosophers and preserve the generally scientific character of their cosmological speculation. It is my hope that, by showing the compatibility between early theology and early science, this thesis will help put to rest the persistent concerns over the perceived incoherence and ambiguity of early Greek thought.⁶

Since this argument cannot be readily made for every Milesian thinker, and much less so for every thinker in the Presocratic period, I will focus on the thought of the sixth century philosopher Anaximander of Miletus. Anaximander belonged to a small group of highly distinguished and prolific thinkers from the city of Miletus on the western coast of Asia Minor. These thinkers are collectively known the Milesian monists because their

⁶ This project was in part already started by Gregory Vlastos himself in his classic 1952 article “Theology and Philosophy in Early Greek Thought” (in *The Philosophical Quarterly*, 7:2). Though Vlastos was correct in claiming that philosophical speculation had a transformative effect on Greek religion, turning it from a cult exercise to a kind of intellectual faith, he rested his thesis on the claim that the religious remarks of the early philosophers were a result of their emotional investment in the new world-picture their speculation had created. I intend to go further and claim that the theological speculation of the early thinkers were not only understandable but also a productive activity which ultimately contributed to the development of both natural philosophy and theology proper.

physical theories are based upon a single substance which gives rise to the world as we know it. In the case of Thales, this generating substance is water, which through an unknown mechanism transforms into other familiar substances.⁷ In addition to holding this view, Thales also claimed that the Earth floated on water just like a log does.⁸ Furthermore, Thales is known for two more enigmatic statements regarding the soul and the gods: Aristotle reports that he claimed that “all things are full of gods”⁹ and that the magnet has a soul because it moves iron.¹⁰ Both the sheer scarcity of Thales’s writings and the enigmatic character of the remaining fragments makes the exegesis of his thought highly problematic.

Thales’s compatriot and, according to some accounts, his disciple, Anaximander is more accessible. We do possess one short fragment from Anaximander’s book, and the testimonies surrounding his thought are more extensive and less confusing. According to ancient commentators, Anaximander’s physical principle was “neither water nor any other of the things called elements but some other nature which is *apeiron* [i.e. Boundless or indefinite], out of which come to be all the heavens and the worlds in them.”¹¹ In addition to being in some sense “aside from the elements”,¹² this original stuff was also

7 Almost every commentator on Thales points out that Thales chose water as his physical principle because water is the only common substance which exists in all three aggregate states within the normal temperature range: it is present as a liquid (water), solid (ice) and gas (vapour). This versatility, the argument goes, would have been enough to convince Thales that water is the source of all things. In this regard, see Burnet 1930, 49.

⁸ McKirahan 1994, 28; Aristotle, *Metaphysics* 983b18-27.

⁹ McKirahan 1994, 30; Aristotle, *On the Soul* 411a7-8.

¹⁰ McKirahan 1994, 30; Aristotle, *On the Soul* 405a19.

¹¹ McKirahan 1994, 34; Diels-Kranz 12B1/12A9.

¹² McKirahan 1994, 35; Aristotle, *Physics* 204b22-29.

“deathless”, “indestructible” and in brief had all the qualities the Greeks associated with the divine.¹³ I will dedicate the first chapter of this thesis to determining what exactly the *apeiron* is. For now it will be sufficient to say that the *apeiron* was emphatically not any of the substances of everyday experience, and that its basic character was that of being in some sense boundless or unlimited.

The concept of the *apeiron* will be key to my overall argument because the *apeiron*, unlike Thales’s water, is not an everyday substance, and is not, as we will see, even a substance which is necessarily present in the world as we know it. The crucial aspect of the *apeiron*, as my discussion in Chapter 2 will show, is that it was not chosen as the principle for any of its perceived physical properties; instead, it was invented from the combination of attributes that a first physical principle (that is, something capable of generating on its own all the various objects we see around us) must possess. The key distinction here is that between empirical observation, which appears to have guided Thales (traditionally Anaximander’s immediate predecessor) and Anaximenes (traditionally Anaximander’s immediate successor) and logical inference, which seems to have guided Anaximander. By postulating a physical principle which was not to be found in the world, Anaximander reached a height of abstraction which Milesian philosophy would not achieve again.¹⁴

¹³ McKirahan 1994, 34-35; Aristotle, *Physics* 203b10-15.

¹⁴ In his lectures on the Presocratic philosophers, Hans-Georg Gadamer remarks that the reversion from the *apeiron* to air seems like such an absurd step backward that one is tempted to call into question the very order of the Milesian lineage which begins with Thales, continues with Anaximander, and ends with Anaximenes. See Gadamer 1998, 35.

Scope and structure

In the first chapter, I will attempt to extract the outline of Anaximander's concept of the *apeiron* from the physical and metaphysical writings of Aristotle. In the second chapter, I will elaborate on this concept by locating it in relation to two later developments of Greek thought, with particular regard to Aristotle's notions of potentiality and actuality. In the third chapter, I will argue that the logical and temporal character of the *apeiron* makes it not only a physical principle but also a metaphysical one, and that this tension between temporal and logical primacy is what made Anaximander describe the *apeiron* in terms usually associated with divinity. Lastly, I will conclude that Anaximander discovered metaphysical questions and attempted to address them in the best resources his time afforded – those of theology.

Chapter 1:

The contents of Anaximander's cosmology

Of those who have declared that the first principle is one, moving and indefinite, Anaximander...said that the indefinite was the first principle and element of things that are, and he was the first to introduce this name for the principle. He says that the first principle is neither water nor fire nor any of the things called elements, but some other nature which is indefinite, out of which come to be all the heavens and the worlds in them. The things that are perish into the things out of which they come to be, according to necessity, for they pay penalty and retribution to each other for their injustice in accordance with the ordering of time, as he says in rather poetical language.

– Simplicius, *Commentary on Aristotle's Physics* 24.13-21;
DK 12B1 + 12A9

He [i.e. Anaximander] declares that what arose from the eternal and is productive of hot and cold was separated off at the coming to be of this cosmos, and a kind of sphere of flame from this grew around the dark mist about the earth like bark around a tree. When it was broken off and enclosed in certain circles, the sun, moon and stars came to be.

– Pseudo-Plutarch, *Miscellanies* 179.2; DK 12A10¹⁵

This [i.e. the indefinite] does not have a first principle, but this seems to be the first principle of the rest, and to contain all things and steer all things, as all declare who do not fashion other causes aside from the infinite...and this is divine. For it is deathless and indestructible, as Anaximander says and most of the natural philosophers.

– Aristotle, *Physics* 3.4 203b10-15; DK 12A15

1.1 Anaximander's cosmogony and the Anaximander fragment

It is no exaggeration to say that all of Anaximander's more specialized studies – his geography, his biology, his meteorology – ultimately depend on his account of the beginning of the cosmos. It is likely, in fact, that the lost book of Anaximander followed

¹⁵ Translations adopted from Curd and McKirahan 1996, 12, with minor changes.

what would become the standard layout for all ancient treatises of natural philosophy, beginning with cosmogony and cosmology, that is, the coming to be and the nature of the universe, and moving to geography, meteorology, biology, and finally anthropology¹⁶. In order to reflect on Anaximander's strange and problematic cosmogony, it is instructive to first consider his cosmology.

According to the extant testimonia, Anaximander's cosmology included the first known model of the cosmos (that is, the world-system consisting of the sun, moon, and stars) as well as the first attempt to explain celestial phenomena as the phases of the moon and lunar and solar eclipses.¹⁷ Anaximander speculated that the Earth is a cylindrical mass like a segment of a stone column, which floated freely, remaining in a fixed position at the centre of the cosmos.¹⁸ Around the earth, and at the intervals of nine, eighteen, and twenty-seven of the earth's diameters are located the stars, the moon and the sun respectively. Anaximander explained both the appearance and the behaviour of celestial bodies by positing a series of fire-filled rings of dark mist which float around the Earth. These rings bear circular openings which account for the sun, moon and the stars: by rotating, the rings carry their apertures along the inside perimeter, giving the appearance of bright circular bodies moving along the sky; these apertures in turn periodically open and close, thereby producing the phases of the moon as well as the

¹⁶ For arguments regarding the character of Anaximander's book, see Naddaf 2005, 63ff.

¹⁷ Anaximander's forerunner Thales is said to have predicted the eclipse of 585 BCE, but no theory explaining the phenomenon has come down to us.

¹⁸ Anaximander's argument in favour of the view that the Earth's location is both fixed and unsupported is vastly superior to either the view of Thales (who thought that the Earth floated on water) or Anaximenes (who thought that the Earth was supported by a column of air); for some reconstructions of this argument, see McKirahan 1994, 40; Kirk, Raven and Schofeld 2007, 134.

eclipses.¹⁹

Given that this is the current order of the cosmos, it seems natural to ask how this (rather complicated) state of things came to be. We already know that Anaximander posited a certain stuff called the *apeiron* (the boundless) as the physical principle of the world. What this roughly means is that there was a time before the world as we know it existed when the only thing in existence was the *apeiron*. It follows, then, that the *apeiron* somehow generated all of the things we see around us today. The manner in which the *apeiron* generated the world, however, is strange and confusing: Anaximander first says that there arose out of the *apeiron* a certain something which was “productive of hot and cold;” then, this something (sometimes called a “seed,” which is a plausible translation for the Greek term *to gonimon*) produced a sphere of flame which enclosed the earth and dark mist, which were also presumably produced by it; then, finally, the flame sphere broke and the Earth and the aforementioned celestial rings were formed. We can thus distinguish three stages in the creation of the cosmos: first, the separating (or, as some translators put it, ‘secreting’) out of the seed of the hot and the cold out of the *apeiron*; second, the growth and bursting of the bark-like flame envelope; and third, the formation of the earth and the celestial rings out of the remains of this sphere.

There are at least two oddities in Anaximander’s cosmogony. First, Anaximander’s account of the beginning of the cosmos is far from parsimonious. The *gonimon* stage seems like a gratuitous mediation of the creation process of the world out of the *apeiron*. At first sight, it is far from clear what the presence of the *gonimon* – the seed of the hot and the cold – is meant to accomplish that could not have already been

¹⁹ A true account of the eclipses of the sun and the moon would first be given by Anaxagoras of Clazomenae who lived some hundred years after Anaximander.

achieved by the *apeiron* itself. Given the overarching tendency toward simplicity of explanation both in Anaximander and in other early Greek thinkers, one is almost forced to conclude that the intermediate step is introduced in order to account for some problem proceeding from the nature of the *apeiron*. The *apeiron*, unlike Thales's water and Anaximenes's air, seems to be incapable of creating the cosmos directly.

Second, as the prevalent interpretation of the Anaximander fragment shows, there is a tension between the *apeiron* and the cosmic role of the primary pair of opposites, the hot and the cold. The fragment is now almost universally recognized to describe the mechanism which maintains cosmic balance by checking the advances of either of the primary pair of opposites.²⁰ The opposites create natural cycles such as the day and the night, the seasons, and the years through a sort of mutual aggression, with the hot gaining the upper hand during the day and the summer, and the cold counterbalancing it by night and winter. The continuing existence of the cosmos thus depends on the ongoing conflict of the opposites, which must “pay penalty and retribution to each other for their injustice in accordance with the ordering of time.”

Given that the persistence of the cosmos is guaranteed by such internal necessity, it seems fair to ask what has happened to the *apeiron*. Indeed, once the *apeiron* has created the cosmos, it seems to play no further role in it. This is quite surprising for a Presocratic thinker: in all other philosophers of the period, the first principle has a

²⁰ Until the second half of the twentieth century, it was thought that the Fragment described the coming to be of finite things from the *apeiron* and their re-absorption into it. This reading, however, was based on a set of manuscripts which omitted the key word *allelois* (“they pay penalty and retribution to each other”) which makes it obvious that the “retribution” occurs between the opposites hot and cold, and not between the *apeiron* and the things which issue from it.

continuing role in the life of the cosmos²¹. In Anaximander's case, however, it seems that a kind of cosmic law has taken over for the *apeiron*, effectively substituting one principle for another. In light of the aforementioned love of simplicity in the period, it seems that this kind of doubling must be explained by something other than a simple oversight on Anaximander's part. We have thus seen that, unlike Thales's water or Anaximenes's air, the *apeiron* neither directly generates the cosmos nor plays any clear role in its continued functioning. These anomalies in Anaximander's cosmogony thus force us to turn to an investigation of the *apeiron* itself, and especially to an investigation of what makes the *apeiron* a unique first principle. For this, I will now turn to the Aristotelian texts which serve as chief sources of material on the *apeiron*.

1.2 Anaximander in the writings of Aristotle

Aristotle's review of ancient philosophy is contained in the preambles to two of his greatest works, the *Physics* and the *Metaphysics*. In both cases, the first book of the work is occupied with providing a historical account of the subject in question which will function as a springboard for Aristotle's own speculation. In the first book of the *Physics*, Aristotle gives the Milesian thinkers the title of *physiologoi* – those whose business it is to give an account of nature.²² For Aristotle, the first great systematizer of human

²¹ Aristotle speculates that Thales chose water as his principle because “the nourishment of all things is moist” (*Metaphysics* 983b18-27). In Anaximenes, air is described as the soul of the world. In Heraclitus, the *logos* is what rules and orders the world on an ongoing basis. Later, in Empedocles, Love and Strife take turns acting as motive forces for the world's generation and dissipation. Likewise, in Anaxagoras, Mind has an enduring cosmic role.

²² The account of the physicists begins at 187a13; Aristotle extends this title to the more contemporary Ionian thinker Anaxagoras of Clazomenae (a long-time resident of Athens)

knowledge, the Milesian ideas occupy only the part of philosophy concerned with the study of nature in general and with movable and perishable things in particular. This, as far as Aristotle is concerned, is the first and most basic form of enquiry from which all other speculation proceeds. The mind, in Aristotle's account, moves from physics (the study of the earth and things on it) to astronomy (the study of the heavens) and theology (the study of the divine).

Aristotle had a roughly evolutionary view of scientific enquiry: the first thinkers were naturally inclined to study nature in the simplest and most general way, while their successors inherited their discoveries and rejected their mistakes, making the theories more consistent and accurate. Aristotle used this view of the steady development of human knowledge to borrow from his predecessors and, whenever appropriate, to acknowledge his debt to them for their ideas and chastise them for their failings. In many ways, he saw in the ideas of his predecessors an anticipation of his own theories, stating, at times, that their own speculation was like a lisping attempt to reach his own ideas.

No doubt, Aristotle sometimes tended to oversimplify the views of his predecessors. We now know that Milesian intellectual enquiry also touched on biology, astronomy, geography and history, if not more. This seems an unsurprising turn of events for powerful and curious intellects, unconstrained by tradition, and applied to a wide world of phenomena which wanted explanation. Aristotle had, in a certain way, mischaracterized his predecessors by calling them mere physicists.²³ Physics, for

as well as Empedocles of Acragas, both of whom engage in the same kind of speculation as the three Milesians.

²³ I will render the word *physiologos* using the term 'physicist'. This term is not misleading as long as we remember that ancient thinkers did not quantify physical

Aristotle, was the study of the sublunar world, and the Milesians certainly did engage in the study of this; however, to describe them as physicists first and foremost puts them into a Procrustean bed, thus dismissing as extraneous all of their other interests and intellectual endeavours.

Modern scholarship has found sinister motives behind Aristotle's omission. In addition to accusing him of willfully misrepresenting the views of the ancients, scholars have alleged that Aristotle assimilates their ideas to his own, presenting the history of early philosophy as a pageant of half-baked Aristotles. To make these accusations all the more severe, critics have pointed out that Aristotle is the source of the earliest extant historical narrative dealing with the progress of philosophy, a narrative which, to make things worse, has erected a misleading historiographic framework that is still with us today.

In what follows, I will argue (contra Cherniss 1951) that these charges are exaggerated, and that Aristotle is in fact an indispensable guide to early Greek philosophy. Furthermore, I will argue that certain Aristotelian concepts can be used to give a fruitful interpretation of Anaximander, and particularly the relationship between Anaximander's physics and Anaximander's theology.

To begin my assessment of Aristotle's virtues and vices as a historian of philosophy, I will describe what Daniel Graham calls the three default requirements of any meaningful interpretation of the history of philosophy.²⁴ Then I will go over some of the main objections to Aristotle's way of writing history of philosophy and decide

magnitudes and use sophisticated equations to describe their behaviour as modern physicists do.

²⁴ Graham 2006, 52.

whether, in light of his flaws, he can be considered a trustworthy commentator on early philosophy. If successful, my defence of Aristotle will allow me to provide an exposition of Milesian, and particularly Anaximander's, physical theory as well as his theological ideas.

According to Graham, the three considerations for any interpretation of a historical philosophical theory are historical appropriateness, philosophical coherence, and dialectical relevance. The first consideration means that the interpretation of a philosophical theory is one which could be plausibly held by a thinker at the given time. The main consequences of this requirement are that the interpretation should ascribe to the thinker being studied an appropriate level of conceptual sophistication and, unless there is overwhelming textual evidence to the contrary, posit only theories that are consistent with the linguistic and conceptual distinctions available to him or her at the time.

The second condition means that an interpretation of a philosophical theory should make that theory as consistent as possible unless there is overwhelming textual evidence to the contrary. This means that a historian of thought should hesitate in ascribing incoherent or blatantly contradictory positions to the thinker whom she is describing in order to avoid creating a straw-man view of his theories.

The last and most interesting requirement demands that an interpretation of a historical theory should make that theory a plausible response to the theories that came before it as well as a plausible forerunner to the theories that come after it. This assumption, in Graham's words, means that the thinkers being studied are engaged in a meaningful philosophical exchange, and that, unless we have some strong reason to think

that they acted independently of one another, the views they espouse are plausible contributions to a common philosophical discourse.

These three considerations are desirable in any history of philosophy, but they are absolutely crucial in a history that relies on limited and fragmentary texts, as the history of early Greek philosophy unquestionably does. In the recent past, Aristotle and his followers have been accused of violating at least the first and the third tenet of historical inquiry by presenting the early philosophers as thinkers who groped after their own sophisticated metaphysical ideas. According to the accusations, Aristotle not only misrepresented the theories of the Milesians as indistinct versions of his own ideas, but he also assimilated the Milesian philosophical project to his own, making it sound like the questions current in the fourth-century Lyceum were also the ones which were being asked in sixth-century Miletus.²⁵

These are not the only objections to Aristotle as historian of philosophy, but they are presently the most relevant ones. Even the scholars who rose to Aristotle's defence noted that the criticism was a welcome call for vigilance, and that we should certainly not treat the testimonies of Aristotle as gospel truth. Nevertheless, even if Aristotle did not consider himself a dispassionate historian of philosophy, it does not follow that we should completely reject the information he gives us, nor should we ignore his analyses of the early philosophers. To do the former, as W.K.C. Guthrie points out, would be to

²⁵ As Cherniss explains (Cherniss 1951, 2):

Book A of Aristotle's *Metaphysics*, for example, which both directly and through Theophrastus had greater influence upon the subsequent ancient histories of philosophy than any other single work, interprets all previous philosophy as a groping for his own doctrine of fourfold causality and is in fact intended to be a dialectical argument in support of that doctrine, which itself implies a question that could not have been formulated before Plato.

give up our best ancient source and leave a void which we could only fill with a “purely modern dogmatism.”²⁶

A much more measured and profitable response to the qualms of contemporary commentators would be to make sure that we detect misleading Aristotelian language in the paraphrases of early philosophers and keep in mind that such technical terms as cause (*arche*), element (*stoicheion*), explanation (*aitia*) were either not used by the early thinkers or that they were used in a sense which did not always accord with Peripatetic terminology. This is indeed a fair warning since some of the terms used in philosophical parlance are so loaded as to mislead a careless reader, especially in the absence of primary sources. Indeed, one of these terms will be the thorny word *apeiron* which, depending on context, could be understood as ‘boundless’, ‘infinite’ or ‘indeterminate’. First, however, we should see whether the concerns over Aristotle’s accuracy as historian compromise the quality of his analyses of the early philosophers. This is particularly important since the main argument in this thesis will rely on precisely one such analysis.

1.3 The trustworthiness of Aristotle’s testimonies

All objections we have seen so far can be reduced to the general claim that Aristotle mistakes the history of philosophy for philosophy itself. This basic confusion would explain why Aristotle, according to Cherniss and other critics, feels entitled to selectively trawl the history of Greek philosophy for theories which either anticipate his own (as the theories of Anaximander, Anaximenes, Empedocles, and Anaxagoras do) or serve as foils for them (as the ideas of Parmenides, Melissus, and the Atomists arguably do). If this is

²⁶ Guthrie 1957, 251.

Aristotle's intention, then we can say that he is not engaging in writing history at all, but rather cherry-picking thinkers from the past and then assigning them views which are dialectically useful but at the end of the day not at all accurate. This is the claim which I will be seeking to reject in the rest of this chapter.

Aristotle's most vocal critics have certainly said something like this.²⁷ Even W.K.C. Guthrie, one of the first scholars to come to Aristotle's defence, concedes that "because he [Aristotle] was already convinced of the validity of his own scheme of causation he could not but distort his predecessors to fit it."²⁸ Guthrie, however, immediately adds that we should not forget "the mote and the beam," and that we should be careful not to forget that *any* interpretation of past thinkers is liable to be changed in some way by the prior philosophical commitments of even the best historian of thought. From this point of view, Aristotle's awareness (and clear endorsement) of his own philosophical views actually makes him *less* likely to confuse them for the views of his forerunners. To support this claim, Guthrie locates a number of passages in which Aristotle clearly hedges his claims regarding the early philosophers, stating that their ideas, if they should happen to differ from his own, should also be taken into consideration.²⁹

²⁷ Cherniss 1951, McDiarmid 1953.

²⁸ Guthrie 1957, 244.

²⁹ As Guthrie writes (Guthrie 1957, 243):

In the *Physics*, he [Aristotle] says, I have dealt adequately with the subject of the four causes. Nevertheless it will be a useful check on the rightness and sufficiency of this classification of the modes of causation if we run through what earlier philosophers have had to say on the subject. Either we shall find that they adduce some different type of cause, or if we do not, it will give us more confidence in our own results.

Also see *Metaphysics* 983a33.

This produces a rather confusing state of affairs. On the one hand, it seems that Aristotle's history is clearly biased. On the other hand, Aristotle can hardly be blamed for writing within the hermeneutic constraints of his own interests and his own view of the world. If this is a sin, then no one is fit to write history, and even less so the history of ideas. In fact, a recent study of this controversy engages precisely with the way in which history of philosophy is different from history in general.

Recently, Catherine Collobert has argued that Aristotle's historical practice was twofold and that its main purpose was to serve as a document for dialectic (in the Aristotelian sense) and the progress of philosophy. Of these two distinct kinds of history, one presents the early philosophers in a synchronic, confrontational framework which tends to bring out conflicts on particular issues. This approach presents not so much a narrative as a survey of past thinkers in order to develop a matrix of opinions which Aristotle can pit against one another and choose the ones found most promising and the most consistent. Being essentially pragmatic in nature, this approach makes up the first book of most Aristotelian treatises, including the *Physics*, *On the Soul*, *On the Heavens*, *On Generation and Corruption* and so on.³⁰

The second, diachronic, approach, is best known to us from the first two books of the *Metaphysics*, and it is to this approach that we mostly refer when we consider Aristotle's testimonies on his predecessors.³¹ This approach tends to emphasize continuity of thought and similarity among the ideas of the ancients which made the

³⁰ Collobert 2002, 294.

³¹ The late distinguished Plato scholar A.E. Taylor edited a volume entitled *Aristotle on his Predecessors* which consisted of the text of the first book of *Metaphysics* and a commentary. Taylor 1955.

Greek intellectual landscape into what it was in the time of Aristotle. However, as Collobert remarks, it would be a mistake to see even this kind of synchronic narrative as history for history's sake because every history of philosophy "supposes, even implicitly, a philosophy of history."³² This means that even Aristotle's narrative history of thought is in some sense subservient to his broader philosophical project; however, this is also the case with any history of philosophy.³³

In fact, we could push Collobert's assessment even further by touching on Hans-Georg Gadamer's *The beginning of philosophy*, a work Collobert cites but does not actively engage with. Gadamer begins his study of the beginning of philosophy in the West by stressing that a beginning must always be designated in relation to some particular end or goal, so any history is in a sense teleological.³⁴ Certainly, this is also the meaning behind Guthrie's claim that the removal of Aristotle (and by extension Plato) as our prime source of early philosophy would result in the institution of a "purely modern dogmatism." Surely enough, Aristotle sometimes makes it sound like he has resolved

³² Collobert 2002, 287.

³³ In defending Aristotle from Cherniss, Guthrie quotes J.E. Raven's remark, made in 1954, that the Presocratics were "striving after an incorporeal principle" and ultimately failed to formulate it. Guthrie emphasizes that even though the Presocratics certainly had no distinction between the corporal and the incorporeal "no blame attaches to Mr Raven for putting it in that way, since we can only study these philosophers in the light of our own conceptions, nor would the study be of much value if we did not." (Guthrie 1953, 246)

³⁴ In discussing the problems of the historiographical issues relating to the concept of the beginning, Gadamer states that "[t]he beginning and the end are thus bound up with one another and cannot be separated. From where something shows itself to be a beginning and what direction it will take both depend upon the goal." I take this to mean a part of Gadamer's critique of standard histories of early Greek thought. Gadamer's own attempts to reconstruct early Greek philosophy rely on a view of it not as some particular incipient thing (*Anfangende*) but as pure incipience (*Anfänglichkeit*), and thus they covertly move away from the view that "the beginning and the end cannot be separated." (Gadamer 1998, 15-17)

many of philosophy's perennial problems, and he does on occasion assume that he understands his predecessors better than they understood themselves. However, neither of these claims is obviously false, and even if both of them were, it still would not follow that a rejection of Aristotle's testimonies would make a more impartial study of early philosophy possible. In fact, what tends to result from such a rejection is precisely what Gadamer calls "pure historicism without philosophy": that is, the replacement of Aristotle's anachronism with our own.³⁵

It is of course not a sufficient defence of Aristotle to say that he is in a hermeneutical quandary just like we are. There is still the very real concern that Aristotle's philosophical conceptions thoroughly conceal and misrepresent the thought of those who came before him.³⁶ I argue that this danger has been exaggerated for at least two reasons: first, we are reasonably familiar with Aristotle's own ideas, at least in the form in which they are accessible to us in the surviving Aristotelian corpus, and so we should be able to extricate them from those of his predecessors where necessary; and second, Aristotle's overt commitment to assimilating early Greek ideas to his own makes it possible to detect at least those ideas which did not fit smoothly into his philosophy. Aristotle's treatment of his predecessors is not free from inconsistency and forgetfulness,³⁷ and it is in these moments that we can detect traces of something truly

³⁵ One study which makes precisely this mistake is Jaap Mansfeld's (otherwise brilliant) article "Myth, science, philosophy: a question of origins," in which the author proposes we replace Aristotle's definition of philosophy with our own, hence altering the historiographic framework to fit our own views of what makes for philosophy and science.

³⁶ Cherniss 1951, 2.

³⁷ Even in defending Aristotle as historian, Guthrie concedes that the corpus as a whole contains some clear lapses. For example, in discussing Empedocles, Aristotle gives two

non-Aristotelian. As my discussion of the *apeiron* will show, it is precisely those moments in which Aristotle's assimilation effort fails that reveal most readily ideas which were not his own and consequently stem from one or more of his philosophical predecessors.

1.4 Aristotle on Anaximander's *apeiron*

In this section I will begin the work of extricating the views of Anaximander from Aristotle's writings. This is no small task because Aristotle's treatment of Anaximander is very brief, and the passages which treat the main concept of Anaximander's philosophy are quite infrequent; furthermore, the few passages which do seem to treat Anaximander's *apeiron* are surprisingly inconsistent. The first book of the *Physics* and the first book of the *Metaphysics*, which comprise our main Aristotelian sources for the history of the early philosophy – the first synchronic, the second diachronic – disagree on both the place and the character of Anaximander's thought. In the *Physics*, Aristotle classes Anaximander together with the pluralists, who “create things from their mixture by segregation”;³⁸ in the *Metaphysics*, he omits him from the historical survey entirely, bringing him up only as a footnote to Anaxagoras³⁹. The inconsistent emphasis Anaximander receives in the two treatises might seem puzzling, but a brief reflection on the nature of Aristotle's historical surveys will account for it.

Aristotle is, generally speaking, quite comprehensive in the review of his predecessors, so much so that even poets and theologians find their way into his historical

contradictory meanings to the word *phusis*: see *On Generation and Corruption* 314b5 and *Metaphysics* 1014b36 (Guthrie 1953, 247).

³⁸ *Physics* 187a20-23.

³⁹ *Metaphysics* 1069b22.

surveys. For example, in discussing metaphysical matters Aristotle is especially prone to extending a hand to even the mythologists and other non-philosophers, teasing out philosophical implications from their poetic or even mystical pronouncements.⁴⁰ In addition to this, Aristotle very rarely summarily dismisses other philosophers, the one prominent example being the fifth-century philosopher Hippo, whom Aristotle dismisses “because of the paltriness of his thought,”⁴¹ focusing on Thales instead.

These considerations show that Aristotle at least implicitly recognizes the value of completeness and charity in dealing with his predecessors. It follows that any conspicuous omissions or inconsistencies must be accounted for by something other than laziness, ignorance, or malevolence on Aristotle’s part.⁴² As I have suggested above, Aristotle’s assimilation program serves as a clear indicator that inconsistent treatment and omission of particular views means that those views neither fit neatly into Aristotle’s dialectical method nor translate easily into his own philosophy. The former views would be those which are not “dialectilizable”, that is, which cannot be developed into dialectical problems for the progress of philosophy. Of these there are two kinds: those which are inconsistent with experience (and which should therefore be held by no one) and those which are so uncontroversial as to be held by everyone.

⁴⁰ See, for example, *Metaphysics* 989a10 for Hesiod on earth as material principle, *Metaphysics* 983b30 for Homer on Ocean and Tethys, *Metaphysics* 1091b4-13 for Pherecydes of Syros on the succession of the gods.

⁴¹ *Metaphysics* 984a4.

⁴² Though some may be explained by his laxity as a writer, especially considering that the Aristotelian texts were neither polished nor intended for publication. See Shields 2012.

It seems quite clear that the dismissal of Hippo is meant as a rejection of an undialecticizable view,⁴³ and indeed, elsewhere Aristotle dismisses Parmenides for the same reason.⁴⁴ This, however, cannot be the case with the views of Anaximander. In the *Physics* at the very least, Aristotle takes Anaximander seriously as a proponent of a physical theory opposed to his own.⁴⁵ Later in the same work, he reconstructs (or perhaps even reports) an argument for making the first principle of nature qualitatively indeterminate, a view which, as we will see by the end of this chapter, belonged to Anaximander. And finally, he speculates, both there and in *On Generation and Corruption*, on the exact nature of Anaximander's *apeiron*, showing that this concept at least merited consideration.

Turning first to the inconsistent descriptions of Anaximander's *apeiron* offered in the *Physics* and *On Generation and Corruption*, I will argue that Aristotle's speculation on what kind of thing the *apeiron* might be shows that the *apeiron* was entirely alien to his own thought. I will then move on to the criticism of Anaximander and the two pluralists whom Aristotle (mistakenly) meshes together, arguing that Aristotle's assessment of Anaximander's *apeiron* is in part correct since it recognizes that positing the *apeiron* hinges on a reversal of priority between potentiality and actuality, but wrong inasmuch as it locates this reversal in a wrong kind of priority. I will explain what I mean presently.

⁴³ The wording of the dismissal makes it unclear which category Hippo's theories belong to: *Hippōna gar ouk an tis axiōseie theinai meta tautōn dia tēn euteliaian autou tēs dianoias*. The word *euteleia* could mean either "weakness" in a sense of extreme implausibility or "scantiness" in the sense of vagueness. I am inclined to think it is the former.

⁴⁴ *Physics* 185a5-11.

⁴⁵ *Physics* 187a20-23.

1.5 An incorrect view of the *apeiron* as intermediate between the elements

What we find in the *On Generation and Corruption* seems like Aristotle's first, or at least most general, attempt to describe the *apeiron* in terms congenial to his own physical and metaphysical theories. The passage at hand states that

[t]he same argument applies to all, proving that there is no single one of them [i.e. the elements] out of which they all originate. But neither is there anything else beside these four – something intermediate, e.g., between Air and Fire (coarser than Fire, but finer than Air). For the supposed intermediate will be Air and Fire when a pair of contrasted qualities is added to it; but, since one of every two contrary qualities is a privation, the intermediate can never exist – as some thinkers assert the 'Boundless' [*to apeiron*] exists – in isolation.⁴⁶

Even though the passage does not name the proponents of the theory Aristotle is criticizing it does use the word *apeiron* as Anaximander would, combining it with the neuter article *to* to signal a substantive noun.⁴⁷ Of course, the *apeiron* is added here only in apposition in order to give an example of some other thing which exists in an independent way. Another passage, however, does identify the *apeiron* with something intermediate – this time between water and air – adding that “it surrounds all the heavens”.⁴⁸ From this combination of textual detail, modern commentators have argued that Aristotle has Anaximander in mind when he speaks of the boundless intermediate element.⁴⁹

⁴⁶ *On Generation and Corruption* 332a19-26.

⁴⁷ Kirk, Raven, and Schofield 2007, 112.

⁴⁸ *On the Heavens* 303b10.

⁴⁹ Kirk, Raven, and Schofield 2007, 112;

This interpretation, even if it was held by Aristotle, was not held consistently: already at *Physics* 187a20, Aristotle brings up Anaximander's *apeiron* as something other than the intermediates, calling it simply 'the One'. It is quite clear from the indecision in Aristotle's treatment of the *apeiron* that he was not quite sure what to do with it. The former description of the *apeiron* as something between fire and air or air and water is untenable not only because Aristotle implicitly abandons it in the *Physics*, but also because it goes directly against the reasons for introducing the *apeiron* in the first place.

At *Physics* 203b16, Aristotle gives the following reason for introducing something boundless (*apeiron*) as the source of all things:

Belief in the existence of the infinite comes mainly from five considerations: From the nature of time – for it is infinite; From the division of magnitudes – for the mathematicians also use the infinite; again, if coming to be and passing away do not give out, it is only because that from which things come to be is infinite...

The first two reasons are not relevant to our study. The third, however, is crucial because it tells us why the physical origin of all things must be at least quantitatively boundless (*apeiron*). Further down, we see a qualification of what the infinite body must be like in order to sustain generation:

Nor can any infinite body be one and simple, whether it is, as some hold, a thing over and above the elements (from which they generate the elements) or is not thus qualified. There *are* some people who make this the infinite, and not air or water, in order that the elements may not be annihilated by the element which is infinite. They have contrariety with each other – air is cold, water moist, fire hot; if one were infinite, the others by now would have ceased to be. As it is, they say, the infinite is different from them and is their source.⁵⁰

⁵⁰ *Physics* 204b22.

These passages taken together have been interpreted as the line of reasoning which led Anaximander to improve upon Thales by replacing a determinate, finite stuff (namely water) with an indeterminate or infinite one.⁵¹ This reasoning implies that the *apeiron* must not be identical with any of the elements in order to perform its physical function of giving rise to them. If, then, the *apeiron* cannot be any of the elements, there is no reason it should be allowed to be something intermediate between them, because even though that something would not be any of the traditional elements, it would nevertheless be a determinate stuff which would absorb them all.⁵² Furthermore, it is unclear how, in light of the contrariety of the elements, a stuff intermediate between air and water or fire and air would “by separation” give rise to something as simple as earth. In any case, the view that elements exist as irreducible *maxima membra mundi* is not attested before Empedocles, and it is unlikely to have been Anaximander’s view.

Having dispensed with the interpretation of the *apeiron* as something intermediate, we have a view of it as an indeterminate stuff “over and above the elements”. This statement serves as a good transition to another enlightening but ultimately false account of the *apeiron* as a primordial mixture like that of Anaxagoras and Empedocles. It is this interpretation that will eventually serve as a bridge to a more accurate reading of the role of the *apeiron* – one which will also allow us to understand the relationship between Anaximander’s physics and his theology.

⁵¹ For one such reconstruction see Kirk, Raven and Schofield 2007, 114.

⁵² This conclusion only follows on the assumption that the elements “contain opposition with regard to one another” (*Physics* 204b22-29): that is, that each element inherently tend to absorb and transform the others into itself. This is of course far from obvious, but we can see from the Anaximander fragment that Anaximander did think of the elemental stuffs (“the things that are”) as engaged in a series of mutual invasion and retribution. For more on this matter, see Naddaf 2005, 68-70, McKirahan 1994, 35-36.

1.6 An incorrect view of the *apeiron* as primordial mixture

If Aristotle's description of the *apeiron* as intermediate between elements was motivated by emphasis on the *apeiron* as something that is actively involved in the world, his identification of the *apeiron* as *migma* or primordial mixture is motivated by emphasis on the *apeiron*'s role as the first cause of the universe.⁵³ It is therefore appropriate that whereas the discussion of the *apeiron*'s qualities (or lack thereof) is found in the *Physics*, the discussion of it in terms of actuality and potentiality is found in the *Metaphysics*. As we will see, Aristotle was not entirely wrong in casting Anaximander as a Pluralist, because Anaximander's *apeiron* and the Pluralist *migma* have certain traits in common. In fact, it is through the identification of these common traits that we will be able to come closer to the true character of the *apeiron* and identify the role it played in Anaximander's philosophy.

The first similarity between the *apeiron* and the *migma* is their shared character as the unity of all things. In two distinct ways, both designate the time before the differentiation of the natural world as we know it, and both seem to in some sense unify the distinct members of the physical world into the great system we call nature. To better

⁵³ The passage from the *Physics* which speaks of segregation from the one is of course not enough to establish that Aristotle thought of Anaximander as a pluralist, The following passage from the *Metaphysics*, however, shows that Aristotle did ascribe to Anaximander a 'Mixture' which can only be identified with the *apeiron*: "And since things are said to be in two ways, everything changes from that which is potentially to that which is actually, e.g. from the potentially white to the actually white, and similarly in the case of increase and diminution. Therefore not only can a thing come out of that which is not, but also all things come to be out of that which is, but is potentially, and not actually. And this is the 'One' of Anaxagoras; for instead of 'all things were together' and the 'Mixture' of Empedocles and Anaximander and the account given by Democritus, it is better to say all things were together potentially but not actually." *Metaphysics* 1069b19-24.

understand what these claims mean for Anaximander and the Pluralists, let us reflect briefly on what Aristotle took the unity of being to mean.

On one reading, the claim that “all things were one” seems to amount to a number of different monisms, all of them inimical to Aristotle’s own thought and hence readily misunderstood by him. As an example, let us consider a passage in the *Physics* where Aristotle criticizes the views of those who, despite not being physicists, “incidentally raise physical questions”⁵⁴ having to do with the unity of being. Here Aristotle is thinking of Melissus and Parmenides, who could not be classified as physicists because, by denying motion, change, and coming to be, they in effect denied the existence of nature. In considering the claim that “all things are one”, Aristotle rightly recognizes that two of its components are ambiguous: both the sense in which all things ‘are’ one, and the sense in which all things are ‘one’. With regard to these terms, Aristotle says the following:

The most pertinent question with which to begin will be this: In what sense is it asserted that all things *are* one? For ‘is’ is used in many ways. Do they mean that all things are substance or quantities or qualities? And, further, are all things *one* substance – one man, one horse, or one soul – or quality and that one and the same – white or hot or something of the kind? These are all very different doctrines and all impossible to maintain.⁵⁵

What follows is a critique of Melissus and Parmenides, proving that all things can be neither quantitatively infinite nor qualitatively infinite.⁵⁶ In either case Aristotle

⁵⁴ *Physics* 185a18.

⁵⁵ *Physics* 185a21-26.

⁵⁶ At least in this section of the *Physics*, Aristotle seems to contrast Parmenides and Melissus, claiming that the former held being to be qualitatively one but quantitatively limited, while the latter held that it was both qualitatively and quantitatively unlimited.

demolishes their monism with such ease that it is tempting to think that he is misunderstanding their views or arguing against a straw-man.

In the case of Melissus, he remarks that quantitative infinity would have to be infinity of a substance or it would be nothing at all. In other words, any quantity must be a quantity of some independently existing thing, and so every quantity must be at the same time a quality and a substance. So it would follow that what exists can be talked about it two different respects, and so it is in fact not one but two. This observation, true as it is, is a simple restatement of Aristotle's claim that "none of the others [i.e. categories] can exist independently except substance; for everything is predicated of substance as subject."⁵⁷

When it comes to Parmenides, Aristotle considers the possibility that "all things are one in the sense of having the same definition, like raiment and dress."⁵⁸ If this is Parmenides's position, Aristotle continues, then his view will collapse into its opposite, namely Heracliteanism, which asserts that "it [is] the same thing to be good and to be bad, and to be good and not to be good, and man and horse."⁵⁹ This theory, however, has the absurd consequence of claiming "not that all things are one, but that they are nothing,"⁶⁰ in the sense that nothing will be anything in particular. This criticism seems like a simple restatement of Aristotle's axiom that everything that exists has a definable essence which makes it distinct from other beings. Since Parmenides's position amounts to a complete denial of separately existing beings, Aristotle seems to be begging the

⁵⁷ *Physics* 185a31-33.

⁵⁸ *Physics* 185b19.

⁵⁹ *Physics* 185b21-23.

⁶⁰ *Physics* 185b24.

question.⁶¹ Again, we have what now seems a systematic misunderstanding and misrepresentation of a monistic position.

In both cases, Aristotle is being very uncharitable to the Eleatics, and his criticism amounts to little more than saying that their notions of infinity have no place in his own ontology. As we will see, something similar happens in Aristotle's treatment of the unity of being as it is applied to the physical theories of Anaximander. The twelfth book of the *Metaphysics* continues the work of dismantling the claim that "all things are one", only now Aristotle is no longer dealing with Eleatic metaphysics but with Ionian and Italian physics. In the *Metaphysics*, Aristotle follows up his discussion of change by a rebuke to four of his forerunners:

And since things are said to be in two ways, everything changes from that which is potentially to that which is actually, e.g. from the potentially white to the actually white, and similarly in the case of increase and diminution. Therefore not only can a thing come to be, incidentally, out of that which is not, but also all things come to be out of that which is, but is potentially, and is not actually. And this is the 'One' of Anaxagoras; for instead of 'all things were together' and the 'Mixture' of Empedocles and Anaximander and the account given by Democritus, it is better to say all things were together potentially but not actually. Therefore these thinkers seem to have had some notion of matter.⁶²

This is one of the rare instances in which Aristotle mentions Anaximander by name,⁶³ and he clearly classes him together with the Pluralists. This would naturally lead

⁶¹ Another possibility is that Aristotle is simply too impatient to deal with Parmenides. In the paragraphs immediately preceding the above discussion, he calls their arguments "merely contentious" – that is, eristic. *Physics* 185a5-12.

⁶² *Metaphysics* 1069b14-24.

⁶³ The Index of Names to the Bollingen series edition of Aristotle's complete works lists Anaximander seven times, as opposed to Anaxagoras (56) and Empedocles (90). By comparison, Thales is listed seven times and Anaximenes nine.

us to believe that the *apeiron* of Anaximander is something like the primordial mixture of Empedocles and Anaxagoras, that is, a state in which all actually existing materials are mixed beyond recognition and out of which they slowly emerge and (perhaps) assemble into the objects we see in nature. Some modern interpreters, like Cherniss 1951, have adopted precisely this view. In arguing that the *apeiron* is like Plato's "limitless sea of dissimilitude," Cherniss chooses to describe it as a mass in which the known materials are contained and out of which they periodically segregate into one of the countless worlds that populate Anaximander's universe.⁶⁴ On this view, the *apeiron* is taken quite literally as a 'reservoir' out of which things emerge and into which they are periodically reabsorbed. This interpretation, he claims, has the advantage of accounting for the extant fragment of Anaximander while not ascribing to him the Aristotelian distinction between a property and the object which has it. It thus gives a suitably primitive interpretation of Anaximander which is both historically and dialectically plausible.

The question of potentiality and actuality will have to wait until the next section. As for the general merits of Cherniss's interpretation, they seem to be outweighed by its shortcomings. For one, Cherniss's reading of the Anaximander fragment as a process by which "the ingredients" of the *apeiron* are generated and reabsorbed by the cosmic expanse is decidedly outdated. The more contemporary reading makes it clear that "the things that are" are the hot and the cold, and that their cycle of mutual invasion and recompense does not depend on the *apeiron* at all. This takes considerable support away from Cherniss's interpretation of the *apeiron*: if "the things that are" periodically come in and out of the *apeiron*, there would be reason to read it as a kind of cosmic bank which

⁶⁴ Cherniss 1951, 7; *Statesman* 273d.

debts the excess of any single element from its worlds, returning them when the opposite elements threaten to prevail. However, the new reading of the fragment makes it clear that this is not the case: after generating the world, the *apeiron* is conspicuously absent. The reason for its absence, however, is something that we can grasp only once we come to terms with the metaphysical uniqueness of the *apeiron* itself.

Chapter 2:

Two reversals of the potentiality-actuality relation in Anaximander and the Pluralists

2.1 Two reversals of the potentiality-actuality relation

As we have seen, overarching similarities exist between Anaximander's *apeiron* and the Pluralist *migma*. Both designate a primordial material source of all things, and therefore both in a sense support the claim that, in the beginning, "all things were one". This similarity makes Aristotle's comparison understandable, but it also calls for careful analysis of the difference between the two concepts. In order to bring out what is distinctive about Anaximander's *apeiron*, I will explain, using Aristotle's own potentiality-actuality distinction, in what sense the Pluralists assert the unity of being. This will in turn help us see what makes the unity of Anaximander's *apeiron* distinct and why Aristotle is mistaken in grouping Anaximander with Anaxagoras and Empedocles.

In the above passage from the *Metaphysics*, Aristotle interprets the primordial mixture of Anaxagoras and Empedocles as a claim that actuality always preceded potentiality, only to quickly follow this assessment up with the remark that "to say that actuality is prior is in a sense correct and in a sense not."⁶⁵ In order to understand what Aristotle means by this, it is necessary to reflect on what his own view of the potentiality-actuality relationship is, and in which sense he thinks that Anaxagoras and Empedocles were right and in which sense they were wrong.

⁶⁵ *Metaphysics* 1072a3.

The first distinction to make regarding this topic is that ‘priority’ is itself an ambiguous term. In fact, Aristotle devotes an entire section of book five of the *Metaphysics* to explaining the senses in which something can come ‘before’ something else.⁶⁶ In his own work on this topic, he strikes a distinction between logical priority and temporal priority, claiming that actuality is logically prior to potentiality while potentiality is temporally prior to actuality.⁶⁷

The former statement roughly means that possibilities are always dependent on already existing actualities to which they can be said to belong (in order for a house to exist potentially, the building materials must exist actually; in order for a child to exist potentially, the parents must exist actually). Furthermore, since every potentiality is dependent on some antecedent actuality, every potentiality is particular and limited: either it is potentially red, or potentially a house, or potentially a statue. Nothing, except for pure matter, is potential in a completely unqualified sense, and even matter, which is potentially anything, is just an abstraction. It follows that potentiality can be meaningfully referred to only in terms of some actuality, so actuality is prior in the sense that it must be taken for granted in talking about any potentiality. To put this relationship in more rigorous terms, actuality is logically prior to potentiality because actuality can be conceived without reference to potentiality, while potentiality cannot be conceived without at the same time conceiving of actuality.

⁶⁶ *Metaphysics* 1018b9 – 1019a14.

⁶⁷ A neat example of something that is logically prior without being temporally prior is the relationship between the concept of ‘metal’ and the concept of ‘gold’. One can conceive of metal without conceiving of gold, but one cannot conceive of gold without having the idea of ‘metal’ in mind. This means that the term ‘metal’ is logically prior to the term ‘gold’. However, from this it does not follow that there was ever a time when metals existed but gold did not.

In this sense, then, potentiality is logically parasitic on actuality. This does not, of course, mean that potentiality is also *temporally* prior to actuality. In the same book of the *Metaphysics*, Aristotle remarks that “everything that acts is capable of acting, but not everything capable of acting actually does so.”⁶⁸ This claim roughly means that things that undergo change from some state X to Y are always first potentially Y and only then actually Y. For example, a copper roof that becomes green over time is always first potentially green and only later actually green. This is what Aristotle means when he says that things can come to be “out of that which is not”: in order to become something (say a man, or a house, or blue) one cannot already actually be that thing. In this sense, potentially being Y is always temporally prior to actually being Y.

This converse relationship between potentiality and actuality leads to some of the most interesting realizations in Aristotle’s thought, and it also sheds light on how Aristotle differs from his predecessors, as well as how they differed from each other. As I will now argue, the hallmark of pluralist physics was the reversal of temporal priority between actuality and potentiality. Within the physical frameworks of Anaxagoras and Empedocles, natural change is not so much the transformation as the disclosure of latent actualities which emerge out of the primordial *migma* as if from a state of hiding.

2.2 The Pluralist reversal

From Aristotle’s point of view, the mistake of Empedocles, Anaxagoras, and all others who spoke of things “inhering” in a primordial mixture was to confuse the two senses of

⁶⁸ *Metaphysics* 1071b25.

priority and make actuality temporally prior⁶⁹ to potentiality when it is in fact only logically prior. Things ‘inhere’, then, in the sense that they are already there, so that nature is a very grand process of disclosure of hidden objects and qualities. What makes things manifest is separation out of the mixture; it allows them to display the qualities which they have always had but which were obscured by their participation in the “sea of dissimilitude” which is the *migma*. Every change, then, is merely a disclosure of a latent actuality which was already there.

The contemporary way of talking about the theory of Anaxagoras, as found, for instance, in the writings of Daniel Graham and Patricia Curd, bears this fact out well: the prime mechanism of natural change, for Anaxagoras, is one of separation and aggregation of infinitesimally small particles whose mixture in different proportions results in a predominance of one particular particle, while all others remain latent. Change occurs when the ratios that make up medium-sized objects are altered so as to bring another kind of particle to potency and render the previously potent one latent.⁷⁰

Anaxagoras’ explanation of nourishment illustrates this mechanism quite well. Nourishment is the process by which foodstuffs like bread become part of the body, allowing growth and renewal of tissues. From this, it is clear that bread and other foodstuffs are capable of somehow augmenting the amount of bone, flesh, hair and nails in our body. The conclusion Anaxagoras draws from this is that food contains a certain portion of bone, flesh, hair, and nails. The process of digestion then is the separation of these body-particles and their incorporation into the human body. Furthermore, this

⁶⁹ *Metaphysics* 1072a6.

⁷⁰ Graham 1999, 174; Curd 2011.

process is analogous to any other process involving change of one stuff to another. Since every body contains particles of every stuff in existence, and there exist no smallest particles, Anaxagoras is able to explain all qualitative change in separation and aggregation of particles which result in different stuffs becoming potent at different times.⁷¹

Every form of growth or change, in other words, is simply a case of separation and combination. And since every substance contains every other substance, it seems to follow that, under the right circumstances, anything can turn into anything else. Obvious problems aside, Anaxagoras' explanation of change is an ingenious statement of Aristotle's stance on actuality and potentiality. As Aristotle's discussion of potentiality in the fourth book of *Metaphysics* shows, everything that changes into a thing X is already potentially that thing. Anaxagoras' account of change takes this same insight and develops it completely in terms of actuality: everything that changes into a thing X is already *latently* that thing, that is to say, it contains actually existing infinitesimal parts of that same thing which come to expression under the right conditions.

The situation with Empedocles is altogether similar. As a matter of fact, it even seems that, despite being the earlier philosopher, Empedocles is more consistent on a number of issues. Rather than engage in the fine points of Empedocles' pluralism, however, we can simply reflect on his (extremely strange) anthropogony, which shows clearly that Empedocles privileges actuality in the same way Anaxagoras did. In his natural writings, Empedocles describes a macabre scenario in which human and animal

⁷¹ The denial that there exist smallest particles was necessary for Anaxagoras to explain why materials don't separate out completely, thereby ending the process of becoming. It is also one of the weakest and most puzzling premises of Anaxagoras' physical theories.

limbs and organs go about attempting to join into bodies, resulting in a long series of chimera, until eventually they form the original members of the current species.⁷²

All this happens under the guiding influence of love (*philia*). The formation of the organs is a lower manifestation of *philia*'s agency. The formation of organisms is a higher level of *philia*'s activity, and this is what Empedocles's anthropogony is meant to describe. What is interesting for us is the whole-part relationship this process implies, a relationship which assumes the actuality of the whole before the actuality of the parts. The whole-part relationship represented here favours the whole by making it implicit in the formation of parts, and it does sound like the organs were independently formed for the organism's sake even before the organism existed. In other words, the actuality of the organism is assumed even before any one instance of the organism exists, just like the actuality of the automobile is assumed by the parts' manufacturers even before the first vehicle is put together.

This is presumably because *philia* only reverses the prior sundering of the whole under the influence of *eris*, so that even though the actual existence of the whole is not temporally prior within the period of Love's activity, it is temporally prior within the Love-Strife cycle as a whole. As with Anaxagoras, with Empedocles the coming to be of objects is a return, or rather continuation, of the existence of actualities. In Empedocles, these actualities are not latent in quite the same way as in Anaxagoras, but their existence

⁷² "By her [Love] many neckless faces sprouted,/and arms were wandering naked, bereft of shoulders,/ and eyes were roaming alone, in need of foreheads." (Diels-Kranz 31B57); "[In this situation, the members were still] single-limbed/[as the result of the separation caused by Strife, and] they/ wandered about [aiming at mixture with one another]." (Diels-Kranz 31B58); "Many came into being with faces and chests on both sides,/ man-faced ox-progeny, and some to the contrary rose up. As ox-headed things with the form of men, compounded/ partly from men/ and partly from women, fitted with shadowy parts." (Diels-Kranz 31B61)

is nevertheless presupposed in the process of their own becoming. Every becoming, then, is the return of an actuality, while every destruction is a temporary hiatus. In this way, potentiality is derivative of actuality not only in the logical but also in the temporal sense.

The two Pluralist thinkers, then, do not explain natural change so much as they explain it away. The reason for this is their assumption of actuality as pre-existing every potentiality, so that nothing is potential in the true sense of the word.

It is because the Pluralist ideas are so close to Aristotle's own that he is able to present them in relatively unaltered form. We need not, however, conclude from this that Aristotle is also correct in his description of Anaximander. What is much more likely is that, faced with a genuinely alien concept of the *apeiron*, Aristotle responded by assimilating him to what he did understand. The truth is that the *apeiron* fits so poorly into the physical system of Aristotle that the latter thinker was consistently led into misdescribing it as the closest 'dialectilizable' position – that of the Pluralists. We will see how Anaximander's own implicit treatment of this subject is at once similar and different. The reason for the similarities is that the Anaximander's *apeiron* is like the primordial mixture of Empedocles and Anaxagoras; the reason for the differences is that the *apeiron* depends on a different reversal of priority than the *migma* does.

2.3 Anaximander's reversal and the correct interpretation of the *apeiron* as pure potentiality

The above discussion of Anaxagoras and Empedocles has shown us that Aristotle had recourse to a powerful conceptual tool – namely the distinction between potentiality and actuality – which could make sense of his pluralist predecessors, as well as explain some of the stranger aspects of their theories. In fact, the potentiality-actuality distinction

provides us with a conceptual schema which we have already in part populated: of the four possible positions (actuality is logically but not temporally prior; actuality is temporally but not logically prior; potentiality is both logically and temporally prior; actuality is both logically and temporally prior), we have already populated two by Aristotle and the Pluralists. In this section I will argue that the one remaining consistent position was occupied by Anaximander: the position which claims that potentiality is not only temporally but also logically prior to actuality.⁷³

	Potentiality logically prior	Actuality logically prior
Potentiality temporally prior	Anaximander	Aristotle
Actuality temporally prior	Pluralists	X ⁷⁴

As the above table indicates, the Pluralist position relies on assimilating potentiality’s temporal priority to actuality. This is nothing but a more technical statement of the claim that things “inhere” in a primordial mixture, and that becoming is only a process of emergence. While this is a reasonable explanation of the Pluralist position, it does not suit Anaximander’s general theory because his *apeiron* is not a ‘reservoir’ as Cherniss and others claim. The alternate interpretation, and one which I think suits Anaximander better, is that “all things were one,” which refers to a primordial

⁷³ One of the consequences of the twofold priority of the *apeiron* is that its actualization seems to become impossible. For more on this problem, see section 3.3.

⁷⁴ This position would perhaps be occupied by a view like that of Parmenides, positing a universe in which actualities exist but are not subject to change. Since this universe contains neither movable nor perishable objects, it is not subject to physical speculation and thus lies outside the current discussion.

collection (inasmuch as it can even be considered a collection) of unrealized potentialities which do not exist actually.

This in fact closely corresponds to Aristotle's description of the *apeiron* as "some notion of matter", because unlike natural substances we see (all of which have a set of determinate possibilities), the *apeiron* can become anything at all. This description of the *apeiron*, though somewhat mysterious from Aristotle's own point of view, corresponds with the reasons he himself gives for introducing the *apeiron* into physical theories.⁷⁵ Furthermore, it shows why the later Pluralist term *migma* is inappropriate. If a mixture is a combination of distinctly existing objects (and is thus not homogeneous), and the *apeiron* is a collection of possibilities, then it follows that the *apeiron* is not a mixture in the genuine sense of the word. Rather than prioritizing actualities and presenting them as if they were potentialities, as the primordial mixture of Anaxagoras and Empedocles, the *apeiron* is much better understood as prioritizing possibilities as if they were actualities. This requires some explanation.

In our discussion of logical priority, we have said that any potentiality has some implicit actual content (either changing to some particular shape, or colour, or some other being altogether). This is the case with all natural and artificial objects. Iron is limited by its brittleness, wood is limited by its softness, and copper is limited by its malleability. In none of these cases does 'limit' refer to something bad or deficient. In fact, limit is necessary for the possession of distinct qualities. A being which has all qualities, in Aristotle's own words, is not everything: it is nothing at all. A being which is not limited by anything, in Aristotle's view, cannot even exist except as an abstraction.

⁷⁵ See above; see also *Physics* 204b22.

Anaximander's *apeiron*, however, is exactly such a being. And in fact, it has this character necessarily, because anything that can transform into all objects and properties must be completely indeterminate. Indeed, the possession of any quality is only possible to the exclusion of at least some other qualities, and this is precisely why the *apeiron*, if it is to be a source of all existing things, cannot have any properties itself.

In order to be generative, then, the *apeiron* must be indeterminate and thus unlimited in its possibilities. However, this means that the possibilities inherent in the *apeiron* are not informed by any particular actualities. The statement that the *apeiron* can become anything at all, then, turns out to be much more radical than it first seems: the possibilities of the *apeiron* are not only temporally, but also *logically* prior to its actualities. The *apeiron*, in other words, exists at a time when there are possibilities but no actualities, and there is hence nothing to make the world turn out this way rather than that.⁷⁶ In the case of Anaximander, then, potentiality's temporal priority has in a sense also assimilated logical priority.

To show that this interpretation of Anaximander's thought is broadly correct, I now turn to the denotations and connotations of the word *apeiron*, and consider the different interpretations that were available to Aristotle given Anaximander's use of it. Etymologically, the word *apeiron* is a simple combination of an alpha privative with the noun *peiros* (boundary, limit), which adds up to the substantive term "that which is boundless, that which is without limits". In addition to this (more standard) meaning, the

⁷⁶ Hence the *apeiron* is generative in a kind of completely unpredictable way. One reason Cherniss saw the *apeiron* as a reservoir of possibilities is its ability to repeatedly produce the same objects. As the new reading of the Anaximander fragment shows, there is no evidence that the *apeiron* was predictable in its generation or even that it participated in the world after its creation.

alternative root of *peirao* (verb, “to pass”) has been suggested, which would render the term “what cannot be passed from end to end.”⁷⁷

The word *apeiron* outside of its philosophical usage is already attested in Homer, where it seems to mean “boundless” in the former sense. The poet speaks of the boundless land and boundless sea, and elsewhere even of “countless bounty”, “countless goats”, and “endless sleep.”⁷⁸ Evidently, the ‘limits’ that the *apeiron* is supposed to remove are quite diverse: in two cases they are spatial, in two they are numerical, and in the last they are temporal. Given the ambiguity and looseness of the word in its pre-philosophical usage, it is no surprise that even its philosophical sense remains ambiguous. As we have seen, the *apeiron* in the case of Parmenides was meant to remove qualitative but not quantitative limits (that is, Being is indefinite but not unlimited in size), while for Melissus the term served to remove both qualitative *and* quantitative limits (i.e. the world was both indefinite and infinitely large). Given that the *apeiron* refers to different limits (*peirai*) depending on the author’s wider metaphysical framework, the question now arises as to what limits Anaximander might have been concerned with. In order to determine this, we will need to have a look at how Anaximander uses this term and what problems its use is supposed to solve.⁷⁹

Sadly for us, there are no verbatim statements in which Anaximander speaks of the *apeiron*. The one extant fragment was once interpreted to mean that individual objects

⁷⁷ McKirahan 1994, 34.

⁷⁸ Kahn 1964, 233.

⁷⁹ One difference to note, however, is that whereas in Homer *apeiron* is always used in an adjectival form, in Anaximander and some later philosophers it is used as a substantive noun. For more on the role of the definite article in the development of philosophical terminology, see Snell 1975, 205ff.

infringe on or are re-absorbed by the *apeiron*, but developments in manuscript scholarship have proven this interpretation to be false.⁸⁰ There are, however, testimonies which speak about it, many of them from Aristotle himself. These testimonies generally agree that the *apeiron*, in order to play the kind of generative role it plays, must be not only quantitatively infinite (or at least indefinitely large) but also *qualitatively indeterminate*. In fact, this feature seems to mark the difference between the philosophical and the pre-philosophical meanings of the word.

The characterization of the *apeiron* as something indeterminate not only fits in with the view of many contemporary commentators,⁸¹ but it is also consistent with Aristotle's own understanding of the reasons for introducing the *apeiron*.⁸² As Richard McKirahan notes, what Aristotle gives us at *Physics* 204b22 may be Anaximander's original argument for making the original substance something distinct from any of the materials we observe in nature. The so-called Long Ago argument claims that if any natural substance were infinite, and natural substances could undergo qualitative change into one another, then the infinite substance would long ago have absorbed all the others. This is a strong reason to think that the *apeiron* is boundless in the sense of qualitatively unlimited, which is why it is capable of giving rise to all the distinct natural substances. As McKirahan further notes, this is a distinct improvement upon Thales's theory, which

⁸⁰ This interpretation relies on manuscripts which omit the key word *allelois*, which makes it clear that "the things that are" pay retribution not to the *apeiron* but to each other. See section 1.1 above.

⁸¹ Barnes 1982, 29; McKirahan 1994, 35; Graham 2005, 30; Kirk, Raven and Schofield 2007, 110.

⁸² See above, *Physics* 204b22.

could not easily explain why water, being the one original substance, has not assimilated all other substances and hence arrested natural change.⁸³

In light of this argument, it seems almost certain that Aristotle's description of the *apeiron* as something "apart from the elements" comprised a kind of attempt to describe its qualitatively indeterminate nature (or, to put it more poetically, its lack of essential nature). This in itself is enough to make us see why Aristotle had such trouble explaining Anaximander's *apeiron* in terms of his own physical theory. The *apeiron* is a distinct kind of material which is characterized precisely by its lack of qualitatively defining properties. In this sense, the *apeiron* is a unique kind of thing, and the only kind of material capable of generating distinct natural substances; by the same token, however, the *apeiron* is nothing in particular. Since it is not qualitatively determinate, it cannot be defined except in negative terms, and, even more puzzlingly, it cannot be equated with any other material or combination of materials.⁸⁴

⁸³ I here use the word 'substance' to mean *stoicheion*, stuff.

⁸⁴ Against my position, Cherniss argues (Cherniss 1951, 8-9):

To apeiron is in this respect no different from such a designation as *to thermon*. As the latter does not mean 'heat' in Aristotle's sense or ours, an abstract quality which cannot be anything other than itself, that which is hot or all hot things, which being hot may yet at the same time have many other characteristics, so the former means that which is 'unlimited', though besides this significant characteristic it may have other characteristics too. The significance of the fact that Anaximander called his *arche* simply *to apeiron* without further specification or restriction is not that limitlessness or infinity exhausts its nature but that it is unlimited without restriction, unlimited in every sense of the Greek word, in extent, in multitude, and in kind, in short not that it is *potentially* everything being *actually* nothing but infinity, as the Peripatetic interpretation would have it, but that it is everything *in actuality*.

I have already argued against Cherniss's reading of the Anaximander fragment. As for the alleged anachronism of the Peripatetics, it is interesting to note that Aristotle himself

From here, it is only a tangential question whether the *apeiron* is infinitely large or only indefinitely large, as McKirahan claims. Calling the *apeiron* indefinitely rather than infinitely large in this case means that Anaximander claimed it to be sufficiently vast to hold the cosmos without necessarily making the stronger claim that it extends infinitely in all directions. For us, however, it is enough to say that the *apeiron* is either not spatially infinite or that spatial infinity is not its most important feature.

We have thus seen that the *apeiron* is unique not only in Milesian but also in all of early Greek thought: rather than a straight-forwardly physical source of all becoming, it is a metaphysical construct whose existence is inferred based on strictly logical considerations. Indeed, this might be the very reason behind Anaximander's strange and confusing cosmogony. The difficulties we identified in the first chapter – namely the mediation of the *gonimon* and the tension between the *apeiron* and the pair of opposites – are thus symptomatic of Anaximander's need to both make the *apeiron* the origin of the cosmos and do justice to its special character as something necessarily extra-cosmic and metaphysically aloof. What to us appeared to be a doubling of the first principle, then, is only representative of the problems which arise from the fact that the *apeiron* straddles the limit between the physical and metaphysical. The third and final chapter will build on this conclusion. We will see that Anaximander was at least implicitly aware of the newly discovered metaphysical difficulties his theory had brought up – difficulties which signalled the limits of both his own physical method as well as the method of Milesian philosophy in general. Moreover, the chapter will aim to show that the theological terms

already gave an interpretation of Anaximander's *apeiron* as being "everything in actuality." See *Metaphysics* 1069b14-24.

which Anaximander used to probe the new metaphysical difficulties in the long run furthered the cause of both positive theology and natural science.

Chapter 3:

Theology as the limit of science

3.1 Introductory remarks

If the foregoing is a satisfactory account of the *apeiron*, it is also a sure sign that Aristotle had no means of incorporating the *apeiron* into his own physical theory. The only thing close to a qualitatively indeterminate and indefinitely large body in Aristotle is matter itself. Indeed, conceiving of the *apeiron* as matter would help explain why Aristotle claimed that the Milesians were first to discover the material cause. However, matter in Aristotle's physics never exists in its pure, formless state. What exists are separate materials, such as bronze or wood, but even those are already formed in a certain way and instantiated in particular entities. For Aristotle, pure matter is just an abstraction. Every material is already limited in a certain way and has only certain possibilities (for example, wood can be made into a boat, while bronze cannot; and wood can be made into a wooden statue, but not into a bronze one). Every material is limited in what it can become, and there is no material, as far as Aristotle is concerned, which could become *anything at all*.

It is therefore not surprising that Aristotle seems never to know quite what to do with Anaximander's *apeiron*, and alternates between calling it something between the elements, something apart from them, and the primordial mixture (*migma*). The first characterization, as we can tell from the foregoing discussion, is plainly wrong: the *apeiron* can perform its function of being the universally generative substance only if it is qualitatively indeterminate, and so putting it *anywhere* on the hot-cold, dry-wet scale is a

mistake. The second formulation is more accurate, but it does not explain the relationship between the elements (or whatever else there is in nature) and the *apeiron*. And, as we have just seen, the third formulation is wrong, but it captures an important feature of the *apeiron* by explaining it in terms of the potentiality-actuality nexus.

Turning back to the broader history of Greek philosophy, we see in Aristotle what amounts to a wholesale rejection of the Ionian cosmogonic project. Instead of attempting to describe the transition between nothingness or absolute homogeneity of some primordial stuff and the world as we know it, Aristotle argues that the world exists eternally and that coming to be and passing away are cyclical. The eternity of the world *such as it is* ensures that there are always antecedent determinate causes whose possibilities are already fixed by the kind of thing they are, be it biological species, type of material, kind of element, or whatever. These causes, though in a certain sense stretching back indefinitely, are always already actual, which also means that their potentialities are always determinate. This eternal availability of antecedent actualities then obviates the need for a single temporal origin of all things whose possibilities have to be, by hypothesis, unlimited.

As we will see, Aristotle's own theory is a response to the crippling difficulties that the views of Anaxagoras and Anaximander face when turned into cosmological speculation. The following section will explicate the consequences that issue from conceiving of the *apeiron* as a collection of pure possibilities, as well as the problems of the Ionian style of genetic explanation in general. It is my hope that by reflecting on these fundamental problems we will be able to grasp Anaximander's motivation for speaking about divinity in his mostly naturalistic theory. Anaximander's use of the term 'divine', I

will argue, is so pointed that it almost certainly reflected the recognition of the limits of his own mode of enquiry into nature.

3.2 The general character of Milesian explanation

In reconstructing the general character of Milesian thought, Daniel Graham points to the mythographic tradition as the only direct competition, and by extension the only source of influence for the nascent Milesian thought. The thought of the mythographers is of course very different from that of the philosophers, for while the former only sometimes develop cosmogonic ideas,⁸⁵ the latter explicitly attempt to do so. Nevertheless, this does not mean that the separation is so complete that the two do not even share formal properties. In fact, Graham points out that the Milesian program of explaining the coming to be of the world (cosmogony) broadly resembles Hesiod's theogony, while the second half (cosmology) resembles, at least formally, the distribution of powers among the Olympian gods (theonomy).⁸⁶ In both cases, the first part of the comprehensive theory of the world is genetic in character, while the second is systematic or structural.⁸⁷ It is the former kind of explanation that interests us here.

In Hesiod's *Theogony*, composed in all likelihood at the beginning of the seventh century, the origin of the world is explained by a succession of cosmic deities who generate each other in a variety of ways. The first beings—Chaos, Earth, Tartarus, and Love—come to be spontaneously and proceed to generate the other deities either by

⁸⁵ As, for example, in the beginning of the *Theogony* or certain passages of the Homeric epics. Kirk, Raven and Schofield point to the well-known passages on the river Ocean as the source of all things. See Kirk, Raven, Schofield 1982, 13-17.

⁸⁶ Graham 2006, 95.

⁸⁷ Graham 2006, 106.

copulation or asexually.⁸⁸ The story is punctuated by a power struggle between generations of the gods and continues until the Olympian pantheon (or most of it) is firmly established as rulers of the world with Zeus at their head. Taken as a story about the coming to be and the character of the world, then, the *Theogony* is a story which privileges origins and attempts to explain (or at least elaborate) the contents of the world by describing how they came to be.

In the mythographic tradition, then, the answer to the question “what is the sea?” is “the sea is the offspring of earth”, and the answer to the question “what is the earth?” is “earth is that which came to be after chaos”. This kind of deferred explanation of course has its disadvantages because one is forced to either keep listing origins or cut off the series at some arbitrary member. So Hesiod, for instance, could not give an explanation of how chaos came to be, and the very choice of chaos as first member seems to bear this fact out.⁸⁹ In this way, what started as a reasonable and satisfying mode of explanation turns out to be either groundless or infinitely regressive.

A similar problem confronts Milesian thought. Since the paradigm of Milesian explanation posits, at the temporal beginning of the universe, a state in which all that existed was some primordial stuff (whether water, air, or the *apeiron*), Milesian explanations too face what Graham calls “the problem of origination.” Indeed, early philosophers were themselves not exempt from the “mental habit” of genetic explanation,

⁸⁸ Earth, for example, gives birth to Heaven and then proceeds to have children with him. Night, by contrast, parthenogenically gives birth to a whole swarm of personified gods.

⁸⁹ The word ‘chaos’ designates not some sort of primeval disorder as it does for us, but a yawning gap (or chasm) in which subsequent generation happens. This somewhat explains why Chaos has no offspring of its own.

and this habit would eventually lead to the replacement of Ionian thought by other forms of philosophy.

3.3 The limits of genetic explanation

We have seen that rather than privileging actuality, as Anaxagoras and Empedocles did, Anaximander privileges potentiality, and his view has all kinds of strange consequences. The first has to do with the content of Anaximander's explanation, namely the *apeiron* itself. In order to generate the world, the *apeiron* must be nothing other than a collection of unrealized possibilities. Yet in order to exist in such a way, the *apeiron* must be like nothing any of us have ever experienced. This is one problem which Milesian thought does not seem equipped to solve.

The second unsolvable problem comes from the very form of Milesian explanation: given that the *apeiron* was at one time all that existed, and given that it existed as a homogeneous stuff, what could possibly have caused the *apeiron* to give rise to the world, and why would this generation have happened at one time rather than any other? If, before the beginning of the cosmos, the *apeiron* were all that existed, then there could have been nothing that could initiate change and thereby give rise to nature as we know it.⁹⁰

Aristotle recognized the latter for the kind of crippling difficulty which it was. He puts this criticism succinctly in the first book of *Metaphysics*, where he asks:

However true it may be that all generation and destruction proceed from some one or more elements, why does this happen and what is the cause? For at least the substratum itself does not make itself change; e.g. neither

⁹⁰ For the most recent articulation of this problem, see Graham 2006, 109.

the wood nor the bronze causes the change of either of them, nor does the wood manufacture a bed and the bronze a statue, but something else is the cause of the change.⁹¹

Here, Aristotle is correct in observing that the *apeiron* (or whatever kind of matter from which things are made), while necessary, is not a sufficient condition for the generation of the world. The earliest philosophers, in other words, pursued genetic explanation as far as it could take them and then conducted their cosmogony from there. They did well to infer that explanation could not regress infinitely, and they attempted to maintain parsimony by going back only as far as was necessary; however, their attempts failed because, having reached the first principle, they could not retrace the cause that made it active or generative in the first place.

All we have said about the shortcomings of Anaximander's physics is in agreement with the now dominant interpretation of Presocratic philosophy. This interpretation, as advanced by, among others, Jonathan Barnes, claims that Ionian natural speculation was arrested by Eleatic scepticism only to return in the form of pluralism (in the figures of Empedocles and Anaxagoras) and atomism (in the figures of Leucippus and Democritus).⁹² The reason Milesian natural speculation failed is precisely its inability to fully observe the principle of sufficient reason in explaining how and when the cosmos came to be.

Barnes offers a very neat and satisfying picture of natural philosophy before Socrates, giving Parmenides a deservedly pivotal role in the development of early Greek speculation. Furthermore, this historiographic framework also explains wonderfully

⁹¹ *Metaphysics* 984a19-26.

⁹² Barnes 1982, 155ff.

some of the theoretical developments philosophy underwent in the fifth and sixth centuries. For example, Parmenides's intervention explains well why Presocratic thinkers moved from speaking about stuffs (*stoicheia*) to speaking about the elements (*rhizomata*) and why they introduced forces such as Love, Strife, Mind and so on.

All this goes to show that after Parmenides, the principle of sufficient reason served as a constant concern for anyone who engaged in physical speculation. What is implied is also that Parmenides's predecessors did not observe this principle as closely as they could have. No doubt, this is to some extent correct. If the earliest philosophers had been perfectly rigorous and consistent in their speculation, Parmenides would not have had any reason to state forcefully and repeatedly that being is one and simple, that it has no parts, that it could not come to be in motion and so on. However, it does not follow from the fact that the Milesians (for all we know) did not have a good solution to it that they were not aware of this problem. In fact, as the next section will demonstrate, Anaximander was aware of the metaphysical questions that his ambitious use of the *apeiron* had laid bare, and his attempt to deal with these questions took the guise of theological speculation. He was implicitly aware of the problem, and he made an attempt, however unsatisfactory it may have proved, to address it.

3.4 The *apeiron*'s divinity as recognition of limits

There are two conspicuous gaps in our knowledge of Anaximander's philosophy: one is the above-mentioned failing to describe or even explain the process by which the *apeiron* generates the world, or rather, the seed of the world; the other is the report in Aristotle of the claim that the *apeiron* is "the Divine" as well as "deathless and imperishable" and

that it encompasses and steers all things.⁹³ In this section, I will argue that the second problem in a sense resolves the first, and that describing the *apeiron* as divine and all-controlling was Anaximander's way of recognizing its inscrutable character. Furthermore, I will argue that it is no accident that these descriptions, like all other descriptions of the *apeiron*, are either negative or tautological. This will in turn help establish the general character of Anaximander's theology as an acknowledgement of the explanatory limitations of his physics, thereby demonstrating how there is in fact no tension between Anaximander's science and his theology, and that the one consists entirely in the recognition of the other's limits.

This is admittedly a strange way to talk about theology. The term 'theology' designates for us, as for Plato and Aristotle, some account of the nature and existence of the gods. This theology, in its natural variety, proceeds from observation of the natural world to inferences regarding the character and the way of being of gods, if there are gods. Plato's account of the divine craftsman in the *Timaeus* is an example of such a theology, and so is Aristotle's account of the prime mover in book twelve of the *Metaphysics*. Both proceed from certain facts about nature, namely its orderly, intelligible

⁹³ *Physics* 203b10-15. As Graham explains (Graham 2006, 87-88):

One curious feature of G[enerating]S[ubstance]T[heory] is the presence of (5). As we have seen, there are hints in Anaximander and Anaximenes, echoed later in Heraclitus, that the generating substance has divine powers and controls the world. Point (5) then anchors a kind of theology in GST, and also provides a source of teleological reflection in which things may happen for a purpose. From what we can gather, these hints were never developed in detail, but rather the burden of explanation was carried by (3) – (4), the scheme of transformation and the causal mechanism driving it. There is an apparent tension between GST-5 and GST-3—4, between teleological and mechanistic explanation, between natural theology and reductive science.

and enduring character, to claims regarding the kind of being who must be responsible for them. Furthermore, both have positive (that is, substantive) claims to make about the divine beings, even if all that this amounts to is the abstract claim that the prime mover thinks about its own thinking.

If this is what we mean by theology, then it is indeed likely that Anaximander had no theological ideas.⁹⁴ This is so not only because we do not find any description of gods in their fragments and testimonies, but also because Anaximander could not both provide such descriptions and stay true to the metaphysical quandary he found himself in. Anaximander's near contemporaries, such as Xenophanes and Heraclitus, did continue to talk about god in the way which is familiar to us, but only by abandoning the metaphysical divinity in favour of an alternative theology. Xenophanes's challenges to traditional anthropomorphic deities show clear awareness of the need to align the popular image of the gods with the demands which the concept of divinity placed on them. Not long after, however, Heraclitus's pronouncement that "the divine is willing and unwilling to be called by the name of Zeus" shows that the crisis had solidified into a kind of philosophical mysticism.⁹⁵

However strange this statement is, it is still a form of positive theology, that is it gives us some bit of concrete information about the divine. The theology of the Milesians, on the other hand, had to be entirely negative, and on those rare instances in which it was not (in all likelihood the instances which we have preserved), it was

⁹⁴ As Cherniss (1951, 10) and Burnet (1930, 80) maintain.

⁹⁵ "The wise is one alone; it is willing and unwilling to be called by the name of Zeus." Heraclitus 22B32.

tautological.⁹⁶ In the case of Anaximander, any statement regarding the divine had to be negative because the *apeiron* itself is pure potentiality and hence could not be expressed in terms of anything with a determinate existence. A religion built around the *apeiron* would thus certainly have been an iconoclastic and mystical one, one which could do nothing except point to the divine. The *apeiron*, as Aristotle already pointed out, is a kind of contradiction – a corporeal entity actually existing, but existing without qualities, and hence without being a possible object of experience or language.

3.5 The properties of the *apeiron*

Indeed, if we assess all we know about the *apeiron*, we can see that all our information is cast in negative terms. The first and most obvious negative feature is the *apeiron*'s very name as that which is without limits. This substantive privation is in itself a great leap of language inasmuch as it succeeds in attributing a property to that which has no properties. We often tend to forget that Anaximander's *apeiron* is a substantive noun by omitting the definite article and speaking of it simply as '*apeiron*' rather than '*to apeiron*'. As Bruno Snell's classic study of the development of Greek scientific concepts explains, the definite article made it possible to express, with hitherto unavailable precision, the essential nature of the object being talked about.⁹⁷ What is most ingenious about

⁹⁶ One possible exception to this might be Thales's statement that "all things are full of gods" (*On the Soul* 411a7-8; DK11A22). This in itself is reminiscent of the anecdote in which Heraclitus invites his guests into a hut, reminding them that "even in that kitchen divinities were present." *Parts of Animals* 645a17-23.

⁹⁷ As Snell explains (Snell 1975, 205-206):

Im Gebrauch des bestimmten Artikels ist schon die homerische Sprache weiter entwickelt als etwa das klassische Latein. Cicero hat Mühe, die einfachsten philosophischen Begriffe wiederzugeben, nur weil ihm der Artikel nicht zum Gebote steht, und nur umschreibend kann er Begriffe nachbilden, die sich im

Anaximander's use of the substantive is precisely that he is employing it to express something without defining properties – something that is indefinite in every possible way. In this sense, then, it is exactly the case that “limitlessness or infinity exhausts its [the *apeiron*'s] nature.”⁹⁸ The *apeiron* is not only unlimited in every sense of the Greek word, but unlimited in the sense of all words put together. It is inexpressible in language. This is in fact why what the ancients took to be Anaximander's single largest failing – the refusal to specify what kind of stuff the *apeiron* was⁹⁹ – is his single largest achievement.

Three of the *apeiron*'s features – it is everlasting (*aidion*), ageless (*ageron*) and immortal (*athanaton*) – can be taken together. Though these words are Aristotle's and not Anaximander's, they are unambiguously attributed to Anaximander and not to “most of the physicists.” Indeed, one might be suspicious of the very poetic alliteration of the three privatives here – (*aidion*, *ageron*, *athanaton*), but it is good to remember that Anaximander is supposed to have expressed himself, at least on occasion, using “rather poetic terms.”¹⁰⁰ These three adjectives taken together seem to convey temporal infinity in the strictest sense of the term. The *apeiron* is not only infinite in the sense of having no end (*athanaton*) but also of being ungenerated (*aidion*). The term ‘ageless’ can be taken either to reinforce the prior two or to mean that the *apeiron* is not subject to degeneration or loss of potency. These may seem like pedantic matters to us, but it is good to

Griechischen kurz und natürlich einstellen – er übersetzt etwa “das Gute” (to agathon) mit “*id quod (re vera) bonum est*”. Solche philosophische Begriffsbildung ohne Artikel ist nur möglich bei einer Entlehnung des Gedankens; die Sprache rezeptiert hier etwas, das über ihre eigenen unmittelbaren Ausdrucksmöglichkeiten hinausgeht....

⁹⁸ Cherniss 1951, 8.

⁹⁹ McKirahan 1994, 35.

¹⁰⁰ This is at least what Simplicius says of the extant fragment. Diels-Kranz 12A9.

remember that Greek gods were as a rule deathless but not eternal (in the sense that they were born at some point in time). Furthermore, certain later conceptions of divinity asserted that the gods were neither deathless nor without birth, but that they were only extremely long lived but essentially mortal beings.¹⁰¹

Just as these three negative terms convey the notion of temporal infinity, the fourth term, imperishable (*anolethros*), seems to convey spatial infinity or at least quantitative inexhaustibility of the *apeiron*. We have already observed that the *apeiron* is ultimately the sole source of the things that are, and that in order to become them it must itself be indeterminate. The more obvious but nevertheless necessary condition is that it must be large enough to supply at least the contents of our world, but possibly also those of other worlds.¹⁰² Whether this would make it spatially infinite or merely indeterminately large is inconsequential at the moment. We can also add that, in the case the *apeiron* periodically reabsorbs the world and creates others, as some have claimed, it is paramount that there is no loss in the process of transformation.

The fifth term which I will discuss is usually translated using the awkward participle “encompassing” or “surrounding,” but which roughly means that the *apeiron* in some sense contains the world or worlds which issue out of it. On the one hand, this could be taken as a simple indicator that the *apeiron* is still extant event after the world’s creation and that it exists in the great beyond. The Greek alternates, depending on the source, between a substantive noun in Aristotle (*to periehon*) and a verb in Hippolytus

¹⁰¹ Werner Jaeger takes this to be the character of Anaximander’s infinite worlds, which in one testimony are described as “gods.” Jaeger 1947, 33.

¹⁰² The question of whether Anaximander believed in multiple worlds is a controversial one, but it has no real bearing on the topic at hand.

(*pantas periehen tou kosmou*). The key idea here, I think, is not that the *apeiron* physically supports the earth or anything of the sort¹⁰³ but that the *apeiron* exists outside the world-system as we know it. Since the *apeiron* is all the things mentioned above, it could very well not exhaust itself in the creation of the world; however, the *apeiron* is not present in the world as we know it. The best answer on where it exists, then, would be just outside the spatial limits of our cosmos. This, I claim, is in itself a negative term since it emphasizes the *apeiron*'s exclusion from the world and at the same time its unavailability as a possible object of experience and knowledge. This does not mean that the *apeiron* is in what we think of as outer space; it is rather outside the universe.

Of the terms used to describe the *apeiron*, then, four are negative, as their very form (alpha privative) shows. The fifth, *periehon* or *periehein*, I take to designate the exclusion of the *apeiron* from the world as we know it. This, though admittedly not an obviously negative term, belongs to the same array of adjectives which emphasize the inaccessibility and unknowability of the *apeiron*. The last two terms we will consider are not so easy, and they are the ones that have given scholars the most grief. In the same passage in which Aristotle says that the *apeiron* is deathless and imperishable, he calls it the divine (*to theion*) and says that it “encompass[es] all and steer[s] all.”¹⁰⁴

I have claimed that the other properties associated with the *apeiron* are negative. These are not. Of course, we could recast “the divine” into “the immortal”, but that is not what the Greek says. The term used is a substantive noun just like *to apeiron*, and it does not lend itself to easy analysis like the other terms do. Fortunately for us, Werner Jaeger

¹⁰³ Anaximander had a separate explanation for that, and one which did not appeal to any naive substructure. See Aristotle *On the Heavens* 295b10.

¹⁰⁴ *Physics* 203b10-15.

already undertook a quite extensive study of the word *to theion* in his *The Theology of the Early Greek Philosophers* (1947), in which he argued that the substantive form of the word had the effect of calling to mind not a god (*theos*) or gods (*theoi*) but the divine in the most general and abstract sense of the term. Jaeger claims that the very word *to theion* does not appear before Anaximander and that Milesian thought effectively had the effect of transforming the notion of god from the naively anthropomorphic figures in Hesiod's *Theogony* to an independent concept associated with the rational principle of the *apeiron*.¹⁰⁵ *To theion* then means 'that which is properly called divine and which has divinity as its defining trait'. It is a definite advance over the anthropomorphic Olympian gods who, as Aristotle succinctly puts it, are nothing but "eternal men."¹⁰⁶

However, we should not be misled by the use of the word *to theion* into thinking that the *apeiron* has become something like the Olympian or even like Hesiod's cosmic gods. The *apeiron* is termed divine simply by virtue of being the first principle, and the first principle in an unqualified sense at that. It is not so much that the traditional divinities have assimilated the *apeiron* and made it one of their own rank; it is more the case that the *apeiron*, being the first principle, has adopted the title of divinity since that title becomes its nature more than it does the character of the traditional gods.¹⁰⁷

¹⁰⁵ Jaeger 1947, 31.

¹⁰⁶ *Metaphysics* 997b10-11.

¹⁰⁷ As Jaeger explains (Jaeger 1947, 203):

His [Anaximander's] *modus procedendi* is quite natural. He cannot begin with the concept of God or the Divine, but starts with experience and the rational conclusion based on it. Having arrived in this way at the conception of a first cause, the predicates of which are equal to those which earlier religious belief used to attribute to the gods, he takes the last step, which is the identification of the highest principle with the Divine.

3.6 The divinity of the first principle

For the Greeks, as for us, to speak of the divine was to attempt to express something essentially inexpressible. This is true, in a sense, in the case of mystery religions, and it is also assumed in the hierophantic and mantic practices of the Olympian religion.¹⁰⁸ Of course, there existed stories of gods and heroes which described episodes from their lives, or such etiological stories as Homeric hymns which taught or reminded the worshipper what qualities the gods honoured and how he or she might come to possess them. These, however, are not forms of explanation but of careful and systematic obfuscation. They stand on the same explanatory level as Socrates's bizarre display of etymological wordplay in Plato's *Cratylus*.¹⁰⁹

In the philosophical milieu, however, the claim that the divine is inexpressible takes a somewhat more nuanced meaning. It is, as Aristotle points out, an observed fact that every Greek and barbarian thinks of the divine as that which is in some sense primary.¹¹⁰ The issue on which the thinkers disagree, however, is in what sense that is true. The divine, the way Aristotle uses the term to speak of his prime mover, is primary in the sense of being an independent cause and therefore most basic explanatory item. The prime mover, as Aristotle colourfully puts it, is somewhat like the leader of an army:

¹⁰⁸ Heraclitus, for example, says that "The Sybil with raving mouth uttering mirthless [and unadorned and unperfumed phrases, reaches a thousand years in her voice on account of the god]." (22B92)

¹⁰⁹ Here I am siding with Aristotle's description of myth as extraneous material accrued onto the bones of metaphysical insight. In Aristotle's view, myth serves both pragmatic and recreational purposes, but it does not express the nature of divinity. See *Metaphysics* 1074b1-14.

¹¹⁰ *On the Heavens* 270b5-11.

while the goodness of the army depends on him, his goodness does not depend on the army.¹¹¹

We have seen in the above sections that the *apeiron*, in order to serve the purpose it serves and be the thing it is, must be primary, uncaused, and inexplicable in terms of anything else. That is to say that the *apeiron* was, for Anaximander, the first principle or principle of principles. Whereas all other principles (of biology, geography, beekeeping or whatever) are qualified precisely by the activity they are principles of, the *apeiron* is a principle of everything that exists. It is both generative and explanatory in an *unqualified sense* and as such, it serves as the ultimate explanatory role for any other being, but it cannot itself be explained by reference to them.

All of this follows directly from the claim that the *apeiron* is something indeterminate and hence purely potential. What I have done is merely explain in very explicit terms what it means for something to be a first principle both in temporal and in logical terms. One additional consequence which we can draw (although Anaximander himself probably could not have) is that because a first principle of the sort under consideration cannot be explained by reference to any determinate thing, it is also not subject to being expressed in language.

The divine, for Anaximander as for Aristotle, is the explanatory principle, and hence it is something that cannot itself be explained. This is perhaps why contemporary scholars betray a sense of disappointment in declaring that the Greeks considered anything which was eternal and beyond human will to be divine. These traits, however, are only tangentially relevant to what is philosophically interesting in Anaximander's

¹¹¹ *Metaphysics* 1075a11.

view of divinity. The key traits of the *apeiron* as something divine were not that it was eternal or in some sense radically independent, though it certainly was that, but that it designates the limit of any genetically founded physical theory. Admittedly, this use of divinity sometimes takes on the familiar form of a ‘god of the gaps’, where a thinker attempts to explain some natural phenomenon by ascribing it to divine intervention.¹¹² If this is the way in which Anaximander conceived of his own divinity, then his theology is of little more than historical interest.

However, Anaximander’s divine *apeiron* is far from a supernatural creator god: it is an ingenious if problematic metaphysical construct which showed that the logical primacy that was needed in an ontological principle could be at odds with the temporal priority that was thought to be needed in a physical one. Seen as a temporal and ontological principle, the *apeiron* of Anaximander becomes the nexus of a host of metaphysical questions, the resolution of which becomes the guiding thread of subsequent Greek philosophy. Here I have dealt only with what Daniel Graham has called the Problem of Origination: the question of how change can be initiated within a stable homogeneous primordial stuff.¹¹³

The allegation that Anaximander did not recognize the principle of sufficient reason in his cosmology is in a sense correct, but in a sense not. It is clear from Anaximander’s astronomy that he had all along operated in accordance with this

¹¹² This is what Aristotle accuses Anaxagoras of doing with his Mind (*nous*), which he uses “as a *deus ex machina* for the making of the world.” *Metaphysics* 985a18.

¹¹³ Graham 2006, 109-110.

principle, and that he was willing to boldly apply it.¹¹⁴ It is surprising, at first sight, that he would refuse to supply a sufficient cause for the event on which all his geographic, biological, and astronomical speculation depended. I have tried to argue that Anaximander was aware of the need to explain the events which led to the initial separation of the cosmos from the *apeiron*, and yet the limitation of genetic explanation would have made it impossible for him (or for anyone else operating under the same assumptions) to supply the reason for this cosmic event.

The question of whether the inability to provide a response constitutes a failure on Anaximander's part depends on our expectations. I claim that Anaximander was aware of the fundamental limitations his theory faced. However, he was incapable of expressing the reasons for this failure because, being one of the very first philosophers, he operated within a state of unequalled terminological if not also conceptual poverty. What was left for him was to express, by means of analogy and intellectual gesture, the kind of obstacle he had run up against. From this point of view, Anaximander's failure is completely excusable.

The claim that the *apeiron* is inexpressible does not depend on any particular theory of language. As the *apeiron* has neither any distinct parts nor any distinct properties, it cannot be referred to except in negative or analogical terms. In all likelihood, Anaximander was aware of this difficulty and, having asserted the necessity of the *apeiron* for fruitful physical speculation, he did what he could to give a consistent treatment of it. His efforts, however, were misunderstood precisely because his successors unwittingly asked him to violate the limitations of language. We have already

¹¹⁴ Here I refer mainly to Anaximander's argument as to why Earth can be both unsupported and stationary. For a discussion of this, see McKirahan 1994, 40.

indicated that the main criticism of Anaximander's physics (one which in all likelihood inspired Anaximenes to base his physical theories on air as primary *stoicheion*) was that Anaximander never specified what kind of thing the *apeiron* was. This, however, was tantamount to asking Anaximander to describe as a substance something which was no substance at all. With Anaximander, just as with Anaxagoras, the first temporal principle also served as the first explanatory principle, and this is why demanding that Anaximander express in positive terms the nature of the *apeiron* was tantamount to making him perform the impossible task of providing principles obtaining prior to his first explanatory principle.

Conclusion:

The legacy of Anaximander's theology

I have argued that Anaximander's recognition of limits of genetic explanation, rather than being a wholesale philosophical failure, cleared the space for the more nuanced, if perhaps less ambitious, thought of the later Greek thinkers. We see in Aristotle's prime mover, for example, an instance of a cause which is logically prior but not at the same time temporally prior to the cosmos. Aristotle's ability to develop such a radical concept is due in part to the rich notion of causality developed elsewhere in his writings.

Anaximander's conceptual resources may not have been as rich as Aristotle's, but he nevertheless attempted, as far as was possible, to use language, in the form of circumlocution and tautological gesture, to show what constituted this 'thing' that the world neither contained nor was possible without. This was at once a fierce attempt at both metaphysics and positive theology, neither of which would be possible for another generation. Theological speculation would begin only with Xenophanes, and it would reach its highest point with Aristotle's *Metaphysics*. I have tried to argue here that these developments were helped, if not in fact made possible, by Anaximander's refusal to qualify and decorate the divine with extraneous detail, an act which made it clear that the nature of the divine was a philosophical problem and that the gods, whatever they were, were not "eternal men".

On the physical plane, Anaximander's theory serves as the utmost achievement of Ionian natural philosophy: already a generation later, Anaximenes' reversion to air as first principle showed that the deficiencies of Milesian physics could not be solved through unending cycling through material principles. Two generations after that, this

realization would come to a head in Parmenides's devastating critique of the Ionians, which, as Daniel Graham recently argued, almost certainly had not only Heraclitus but also the Milesian philosophers as its prime target.¹¹⁵ This historical dialectic would not have proceeded as smoothly or quickly had Anaximander been less honest of a thinker and attempted to disguise his shortcomings. The failing, but also the achievement, of Anaximander's system, in other words, was to lay bare the limits of genetic explanation which the simple view of generation carried with it, and thereby to make possible the advance of Greek physics.

¹¹⁵ Graham 2005, 155.

Bibliography

Barnes, Jonathan ed. *The Complete Works of Aristotle*. Volume 1. Princeton: Princeton University Press.

------. *The Complete Works of Aristotle*. Volume 2. Princeton: Princeton University Press.

Burn, Andrew Robert, and Simon Hornblower. "Ionians." In *The Oxford Classical Dictionary*. : Oxford University Press, 2005.
<http://www.oxfordreference.com/view/10.1093/acref/9780198606413.001.0001/acref-9780198606413-e-3320>. Accessed August 14th 2013.

Burnet, John. 1930. *Early Greek Philosophy*. London: Adam & Charles Black.

Cherniss, H.F. 1951. "The Characteristics and Effects of Early Greek Philosophy." In Furley and Allen 1970, 1-28.

Collobert, Catherine. "Aristotle's Review of the Presocratics: Is Aristotle finally a historian of philosophy?" *Journal for the History of Philosophy* 40: 281-295.

Curd, Patricia ed. *A Presocratics Reader*. Indianapolis: Hackett Publishing Company.

Furley, David, and Allen, R.E. 1970. *Studies in Presocratic Philosophy*. Volume 1. New York: Humanities Press.

Gadamer, Hans-Georg. *The Beginning of Philosophy*. New York: Continuum.

Graham, David. 2006. *Explaining the Cosmos*. Princeton: Princeton University Press.

Gregory, Andrew. 2008. *Ancient Greek Cosmogony*. London: Bloomsbury Publishing.

Guthrie, W.K.C. "Aristotle as historian." In Furley and Allen 1970, 239-254.

Jaeger, Werner. 1947. *The Theology of Early Greek Philosophers*. Oxford: Clarendon Press.

Jaspers, Karl. 1953. *The Origin and Goal of History*. London: Routledge and Kegan Paul.

Kahn, Charles. 1964. *Anaximander and the Origins of Greek Cosmology*. New York: Columbia University Press.

Kirk, G.S, Raven, J.E., and Schofield, M. 1982. *Studies in Presocratic Philosophy*. Cambridge: Cambridge University Press.

Maansfeld, Jaap. 1990. *Studies in the Historiography of Greek Philosophy*. Maastricht: Van Gorcum.

McKirahan, Richard Jr. 1994. *Philosophy Before Socrates*. Indianapolis: Hackett Publishing.

Naddaf, Gerard. *The Greek Concept of Nature*. Albany: State University of New York Press.

Shields, Christopher. 2012. "Aristotle." In *Stanford Encyclopaedia of Philosophy*. URL = <<http://plato.stanford.edu/archives/sum2012/entries/aristotle/>>. Accessed July 4th 2013.

Snell, Bruno. 1975. *Die Entdeckung des Geistes*. Göttingen: Vandenhoeck & Ruprecht.

Vlastos, Gregory. 1975. *Plato's Universe*. Oxford: Clarendon Press.