

The Milesians

The earliest Greek philosophers came from Miletus, one of the Greek colonies in the eastern part of the Greek world – the area called Ionia, on the western coastal regions of Asia Minor in the area that is now within the modern nation of Turkey. These Milesian philosophers wondered at how the great multiplicity and variety of nature might comprise a *cosmos*, which, as we said in the General Introduction, is the world conceived as a unified and orderly arrangement of parts. How or in what sense is the world a *cosmos*, rather than (another important Greek word) a *chaos*? Many things might exist within a *chaos*, but no sense could be made of them; no understanding of a chaotic world would be possible. Any wonder we might experience in witnessing events in such a world, accordingly, could never be relieved – in such a world, we would be doomed forever to the ignorance reflected in wonder. Indeed, we could not exist in such a world even to wonder at it – for the organization of our own bodily systems surely could not survive in such a world. The earliest Greek philosophers, accordingly, attempted to discern the underlying order within this *cosmos*.

Part of what makes the world *seem* chaotic, of course, is the fact that *things change*. Living plants grow out of what appeared to be dead earth; a bowl of water evaporates, leaving it empty; the heavenly bodies move through the skies, and so on. But how is change possible? The world would seem indeed to be chaotic if nothing remained stable – if, that is, there was nothing that remained in some sense *the same* before, during, and after the change. The earliest Greek thinkers, then, attempted to make sense of the *cosmos* and its changes by trying to recognize an enduring order deriving from some fundamental material, common to all of the great variety of nature. Thales of Miletus is generally credited with being the first philosopher.

Thales of Miletus

Thales left no writings behind; indeed, according to Diogenes Laertius' *Lives and Opinions of Eminent Philosophers*, he may never have written philosophy at all, though in some accounts he wrote two treatises (DL I.23). Ancient stories about Thales appear to confirm Aristotle's account of the birth of philosophy: Thales seems to have been quite the "wonderer," and

though entirely capable of turning his impressive intellectual skills to profitable enterprises preferred a life of contemplating the wonders of the world.

I.1 Plato, *Theaetetus* 174a4–9 (= DK 11A9¹)

While Thales was doing astronomy and gazing up, he fell into a well. Some witty and clever Thracian servant-girl gave him a hard time, they say, because he was eager to know the things in the heavens, but couldn't see what was right at his feet.

The story is so familiar it has become a stereotype: the absent-minded professor. The point of the story (and the stereotype) is obviously that philosophical wonderers lack common sense. But another story shows that Thales' life of wonder was the product of choice, rather than the result of an inability to turn his attention to personal profit, as most people do.

I.2 Aristotle, *Politics* I.11.1259a9–18 (= DK 11A10; trans. Apostle and Gerson)

There is the story about the device which Thales of Miletus used to make money. This device is attributed to him because of his wisdom, but it happens to have universal application. He was reproached for his poverty, which indicated that philosophy was of no benefit to man. But, the story goes, from his knowledge of astronomy he perceived, while it was still winter, the coming of a great harvest of olives in the coming season, and, having procured a small sum of money, he made a deposit for the use of all of the olive presses of Miletus and Chios, which he rented at a low price since no one bid against him. When the harvest time came and there was a sudden and simultaneous demand for the use of the presses, he let these at whatever price he wished and made a fortune, thus pointing out that philosophers can easily become wealthy if they wish but that wealth is not their main pursuit in life.

A somewhat similar story of Thales making practical application of his philosophizing can be found in Herodotus (*Histories* 1.74 = DK 11A5), where Thales' prediction of an eclipse turned the tide of a military battle.

Whatever Thales' ingenuity in such things may have been, no doubt his most important contributions to the history of philosophy were in his attempts to understand the *cosmos* in terms of postulating water as the material first principle of all things. Aristotle, who thinks that complete explanations are not possible in only material terms, regarded as quite primitive theories of the sort Thales developed, but it is clear at least that Aristotle credits Thales with being the first and the founder of this sort of approach.

I.3 Aristotle, *Metaphysics* I.3.983b6–27 (= DK 11A2, excerpted; trans. Apostle and Gerson)

Most of those who first philosophized regarded the material kinds of principles as the principles of all things; for that of which things consist, and the first from which things come to be and into which they are finally resolved after destruction (this being the persisting *substance* of the thing, while the thing changes in its affections²), this they

1 References to DK are to H. Diels and W. Kranz, *Die Fragmente der Vorsokratiker*, 6th edn. (Berlin, 1952), the standard collection of fragments and testimonia, and indicate where a given citation appears in this edition.

2 By "affections," Aristotle means the often transitory properties that something just happens to have, which do not determine the exact sort of thing it is. The opposite of an "affection," in this sense, would be the thing's *essence*.

say is the element and the principle of things; and because of this they think that nothing is generated and nothing perishes, since such a nature is always preserved. [. . .] For there must be some nature, either one or more than one, which is preserved and from which the others are generated.

However, these thinkers do not all agree as to the number and kinds of such principles. Thales, the founder of such philosophy, said that this principle was *water* (and on account of this he also declared that the earth rests on water), perhaps coming to this belief by observing that all food is moist and that heat itself is generated from the moist and is kept alive by it (and that from which things are generated is the principle of all); and he came to this belief both because of this fact and because the seeds of all things have a moist nature, and water is the principle of the nature of moist things.

Much of Aristotle's testimony here is his own speculation as to what may have led Thales to his surmise that the first principle of everything is water. Whether or not Aristotle is right about this, it seems at least clear that Thales was indeed the first to try to explicate the *cosmos* in terms of an underlying unity of matter. Water really does seem a likely candidate, in some ways, as not only so important for life (as Aristotle notes), but also as the one natural substance readily observable in all three of the states of matter: solid, liquid, and gas. Of course, much remains *unexplained* by hypothesizing water to be the first material principle (e.g. colors). In particular, it seems obvious that another sort of principle must be introduced to explain why water undergoes the changes that it does, or what makes it do so – something Aristotle calls an “efficient cause,” and which we would now call a causal principle. But is Aristotle right to suggest that Thales and those like him supposed that material principles were the only principles needed to explain the *cosmos*?

Aristotle's own testimony elsewhere would seem to refute this suggestion, but what he says raises more questions than it answers.

I.4 Aristotle, *On the Soul* I.2.405a19–21 (= DK 11A22)

It seems Thales, too, judging from what has been recorded about him, seems to have held soul to be a source of movement, if he said that magnetite has soul because it moves the iron.

I.5 Diogenes Laertius, *Lives of the Philosophers* I.24 (= DK 11A1)

Aristotle and Hippias claim that he [Thales] attributed soul even to soulless [lifeless] things, using magnetite and amber as evidence.

I.6 Aristotle, *On the Soul* I.5.411a7–8 (= DK 11A22)

Some say that it [the soul] is mixed in the whole of things, which is why, perhaps, Thales thought that all things are full of gods.

These texts are often taken as decisive evidence for attributing a kind of “hylozoism” to Thales³ – the view we now generally regard as quite primitive, according to which many or all of the changes we see in the world are the result of animating principles within the things that change. Thales is counted as a hylozoist on the ground that (as per I.4 and I.5) he

³ See, for example, G. S. Kirk, J. E. Raven, and M. Schofield, *The Presocratic Philosophers: A Critical History with a Selection of Texts*, 2nd edn. (Cambridge, 1995), 95–8.

supposed that magnetite must have a soul because it can move iron. Although there is nothing impossible about the idea that Thales might have been a hylozoist, these texts hardly establish it. Aristotle's own commitment to the thesis that Thales attributed soul to magnetite (in I.4) is obviously tentative at best, and one can find no further evidence in Aristotle himself for the rather bolder claim we find in Diogenes (I.5). Even if Thales did associate "soul" with whatever the sources of movement within things might be, regarding this as evidence of hylozoism require that we conceive of Thales as holding an otherwise familiar conception of what a soul is – which is anything but assured by these texts. It seems rather more likely that Thales simply identified soul with *whatever* might count as a principle of change within a thing – without at all supposing that anything having such a principle or principles within it must *also* have other "psychological" attributes.

I.6 in particular would seem to support such a view. In I.6, notice, Aristotle is clear only in the attribution to Thales of the view that everything is full of gods – it is Aristotle's own hypothesis that links this idea with things having souls. Those most eager to attribute hylozoism to Thales manage to ignore the universality of Thales' view – not merely *some things* but *everything* is "full of gods."⁴ We can, of course, elect to take this as evidence that Thales was guilty of a profound superstition of some sort. But Thales' view seems more plausibly understood as an attempt to articulate what modern physicists take to be the uncontroversial point that nothing in existence is absolutely *inert*, but instead all things have attributes that allow them to have causal effects on other things. If we use the words "soul" or "gods" to denote such attributes, it is only because the technical vocabulary of modern physics had yet to be invented.

At any rate, if we put this together with what Thales seems to have believed about water as the first material principle, we find an attempt to make sense of the world in terms of a single fundamental material, whose capacities for change are both numerous and also contained in everything that comes out of the fundamental water. If Thales had more to say about the nature(s) of these capacities, it seems to have been lost.

Anaximander of Miletus

Anaximander is said to have written several works, mostly on various topics in astronomy, but now only a small, obscure fragment remains (the quotation embedded within the following testimony):

I.7 Simplicius, *Commentary on Aristotle's Physics* 24.13–18 (= DK 12A9)⁵

Of those who say that it [the *cosmos*] is one, moving, indefinite, Anaximander, the son of Praxiades, a Milesian, the successor and student of Thales, said that the principle

4 Kirk, Raven, and Schofield conclude that Thales' actual view "approaches close to" a moderate sort of hylozoism, according to which "the world is interpenetrated by life, that many of its parts which appear inanimate are in fact animate" (ibid. 98). I.4 and I.5 are *compatible* with such an interpretation, but certainly do not compel it. I.6, however (and despite their complicated but irrelevant argument about what it means to say that something is "full of" something else), compels the view that whatever Thales means by "gods" *absolutely everything* is full of them.

5 Different versions of the same description, which seems originally to have come from Theophrastus, can be found in Hippolytus, *Refutation* 1.6.1–2 (= DK 12A11) and pseudo-Plutarch, *Stromata* 2 (= DK 12A10).

and element of things that are was the indefinite, and was the first to introduce this name [i.e. “indefinite” – *apeiron*] for the principle. He says that it is neither water nor any of the other things that are called elements, but is instead some other indefinite nature, and all the heavens and the worlds in them come out of this. And the source of coming into being for things that are is also that into which destruction occurs, “by necessity, for they pay penalty and retribution to each other for their wrongdoing, according to the arrangement of time,” as he says in somewhat poetical language.

One of Anaximander’s many contributions seems to have been to move away from Thales’ conception of the first material principle as water, and to proclaim the material principle to be the “indefinite” instead. There continue to be debates about precisely what Anaximander meant by this term. The term itself is formed by adding what is called the “alpha privative” (which works like the prefix *a-* meaning “not”) to the noun *peirar* or *peiras*, which means “limit” or “boundary.” So, *apeiron* means something like “limitless” or “unbounded.” But even though Anaximander thought of it as the material substance for all things, the idea of the *apeiron* seemed to be less that it was endless in special extent so much that it was *indefinite* in its characteristics and makeup.

There seem to have been two ways in which a substance might be called an *apeiron* among the early Greek thinkers, as Aristotle explains:

I.8 Aristotle, *Physics* I.4.187a12–23

The physical thinkers provide two sorts of explanation. Those who have made the underlying body one, either one of the three⁶ or some other thing which is denser than fire and more rarified than air, and generate the other things by condensation and rarefaction, making many things [from the one body]. [. . .] The other [group of thinkers] claim that the opposites are in the one and separated out from it, as Anaximander says and all who say there are one and many, such as Empedocles and Anaxagoras; these also separate out other things from the mixture.

Some scholars have argued that we should understand Anaximander’s *apeiron* as a kind of amorphous element that is somehow intermediate between the other elements, from which the other elements are generated.⁷ But I.8 seems to make clear that Anaximander regarded the *apeiron* as a mixture of everything else, out of which all things are separated, and into which everything ultimately returns. Because he thought of the *apeiron* as everlasting and indestructible, Anaximander regarded this primordial substance as divine (Aristotle, *Physics* 3.4.203b13).

The way in which the process of separation occurs, for Anaximander, is some kind of never-ending motion (Hippolytus, *Refutation of All Heresies* 1.6.1 = DK12A11). According to Aristotle, those who talk about never-ending motion as the mechanism by which the *cosmos* is generated conceive of such motion as a vortex (the swirling motion of, for example, tornadoes).

I.9 Aristotle, *On the Heaven* II.13.295a7–14

But if in fact there is some natural motion, neither motion nor rest would be by force only; if, then, it is by force that the earth now remains in its place, it, too, came together

⁶ i.e. water, air, or fire. At *Metaphysics* A.988b30, and 989a5–6, Aristotle says that no one ever made earth the first material principle.

⁷ See e.g. Kirk, Raven, and Schofield, *The Presocratic Philosophers*, 111–13.

at the center because of the vortex. For this is the cause that everyone states, on the basis of what happens in water and in air; for in these the larger and heavier things are always carried to the center of the vortex. This is why all who generate the heavens say that the earth came together at the center.

Aristotle also suggests that Anaximander fixed the earth at the center of the *cosmos* by a kind of equilibrium of the surrounding (presumably vortex) forces. Anaximander's argument seems to have been that, once established at the center, it was "equally related" to all around it, and thus could not move in any direction without equal opposition from the others (Aristotle, *On the Heaven* 2.13.295b11–16).

Anaximander is also credited with many other theories, including what looks a bit like an early version of what physicists now call the "Big Bang" theory.

I.10 Pseudo-Plutarch, *Stromata* 2 (= DK 12A10)

He [Anaximander] says that what produces the hot and cold from the everlasting was separated off at the coming to be of this *cosmos*, and a kind of sphere of flame from this formed around the air surrounding the earth, like bark around a tree. When this was broken off and closed into certain circles, the sun and the moon and the stars were formed.

Anaximander also seems to have articulated a very early version of evolutionary theory, or at least an ancestor of such a theory, according to which animals derived from earlier life forms (Aetius 5.19.4 = DK12A30), and that human beings came into being from these other, earlier animals (Pseudo-Plutarch, *Stromata* 2 = DK 12A10; Censorinus, *On the Day of Birth* 4.7 = DK 12A30). According to one source (Pseudo-Plutarch), Anaximander reasoned that human beings would have to evolve from other animals, because whereas other animals do not require lengthy nurturing, human beings cannot take care of themselves for quite a long time after birth. So, human beings could not have survived unless the first human beings were born from, and preserved by, other species.

Anaximenes of Miletus

Anaximenes of Miletus was a student and associate of Anaximander. Although most scholars find Anaximenes somewhat less ingenious than his mentor, later Greeks often recalled Anaximenes' theories with obvious interest and respect. Rather than postulate some obscure "indefinite" (*apeiron*) as the material first principle, Anaximenes sought to explain the material source of the *cosmos* in terms of air. In keeping with Anaximander's insight that some explanation must be given for how everything else could come out of the material first principle, however, Anaximenes did not conceive of the air as a mixture of everything else, from which the rest would be "separated off," but instead conceived of the process of change-of-form as the product of condensation and rarefaction.

I.11 Theophrastus, quoted by Simplicius, *Commentary on Aristotle's Physics* 24.26–25.1 (= DK 13A5)

Anaximenes, son of Eurystratus of Miletus, an associate of Anaximander, like him also says that the underlying nature is one and indefinite [*apeiron*], but not indeterminate, as the latter held, but determinate, saying it was air. It differentiates in its substantial

forms by rarity and density. Becoming more rarefied, it becomes fire; being condensed, it becomes wind, then cloud, and when condensed yet further, water, then earth, then stones, and the rest come to be from these. He also makes motion everlasting and says that change also comes to be by it.

As Anaximander did before him, Anaximenes identified the material first principle with the divine (Cicero, *On the Nature of the Gods* 1.10.26 = DK 13A10). We do not know how Thales conceived of the way in which things came out of the primordial water. As we have seen, for Anaximander, the first material principle seems to have been a kind of mixture, where the process of separation into the more familiar substances derived from some sort of vortex motion. Even if Anaximenes' alternative explanations strike us as somewhat less magnificent in imagination, he provides them with the advantage of support from readily observable processes – and the ancient evidence supports that Anaximenes actually did offer direct empirical evidence for his views (see e.g. Plutarch, *The Principle of the Cold* 7.947F = DK 13B1).

Concluding Remarks about the Milesians

The earliest contributions to the history of thought helped to define intellectual inquiry in the West thereafter. As we have seen, these contributions included the formulation of cosmological systems based upon first material principles out of which all things came into being, and into which all things eventually returned. The forces by which cosmological changes came about were ubiquitous and though counted as “divine,” it is their naturalistic (as opposed to supernatural) character that is most striking. Milesian speculation touched on much of what we now study in the natural sciences. But the move away from traditional religious explanations, implicit in the naturalistic accounts of the Milesians, and later explicit in Xenophanes, was, all by itself, a giant step in the history of philosophy.