

## Anaximander

*Anaximander, like Thales, came from Miletus.*

Apollodorus of Athens . . . says in his *Chronicles* that [Anaximander] was sixty-three in the second year of the fifty-eighth Olympiad [547/6 BC] and that he died shortly afterwards.

(Diogenes Laertius, *Lives of the Philosophers* II 2)

*If Apollodorus is right, Anaximander was born in 610 and died in about 549 BC. He wrote a book, which circulated under the title On Nature. He also produced a star-map and a map of the world:*

Anaximander of Miletus, a pupil of Thales, was the first to try to draw the inhabited world on a tablet; after him, Hecataeus of Miletus, a great traveller, made it more accurate so that the thing was greatly admired.

(Agathemerus, *Geography* I i)

*The leading ideas of Anaximander's work On Nature are summarized in the following extract:*

Anaximander was a pupil of Thales. Anaximander, son of Praxiades, a Milesian. He said that a certain nature, the limitless, is the principle of the things which exist. From it come the heavens and the worlds in them. It is eternal and ageless [12 B 2], and it contains all the worlds. He also calls it time, since the generation and the destruction of the things which exist are determinate.

He said that the limitless is the principle and element of the things which exist, being the first to call it by the name of principle. In

addition, there is an eternal motion by which the heavens come into being.

The earth is aloft, not supported by anything but resting where it is because of its equal distance from everything. Its shape is rounded, circular, like a stone pillar. Of its surfaces, we stand on one while the other is opposite. The heavenly bodies are a circle of fire, separated off from the fire in the world and enclosed by air. There are vents – tubular channels – at which the heavenly bodies appear; hence eclipses occur when the vents are blocked, and the moon appears now waxing and now waning according to the blocking or opening of the channels. The circle of the sun is twenty-seven times greater <than the earth and the circle> of the moon <eighteen times greater>. The sun is highest, the circles of the fixed stars lowest.

Animals come into being <from moisture> evaporated by the sun. Men originally resembled another type of animal, namely fish.

Winds occur when very fine vapours of air are separated off, collect together and move. Rain comes from vapour drawn up from the earth by the sun. Lightning occurs when wind breaks out and parts the clouds.

He was born in the third year of the forty-second Olympiad [610/609 BC].

(Hippolytus, *Refutation of All Heresies* I vi 1-7)

*A second report contains some supplementary material:*

Anaximander, an associate of [Thales], says that the limitless contains all the cause of the generation and destruction of the universe. From it, he says, the heavens were separated off and in general all the worlds, limitless in number. He asserted that destruction and, much earlier, generation occur inasmuch as, from limitless ages past, all things are renewed.

He says that the earth is cylindrical in shape and is a third as deep as it is broad.

He says that at the generation of this world something generative of hot and cold separated off from the eternal, and from it a ball of flame grew round the air about the earth, like bark on a tree. When the ball burst and was enclosed in various circles, the sun and the moon and the stars came into being.

Further, he says that originally men were born from animals of a different kind, because the other animals can soon look after themselves while men alone require a long period of nursings; that is why if they had been like this originally they would not have survived.

([Plutarch], *Miscellanies* fragment 179.2 Sandbach, in Eusebius, *Preparation for the Gospel* I viii 2)

*Anaximander's most striking thoughts concern biology, astronomy and 'the limitless'. In biology, the remarks of Hippolytus and pseudo-Plutarch can be eked out by three further texts:*

Anaximander says that the first animals were born in moisture, surrounded by prickly barks. As they grew older they emerged on to drier parts, the bark burst, and for a short time they lived a different kind of life. ([Plutarch], *Opinions of the Philosophers on Nature* 908D)

Anaximander of Miletus says he thinks that from water and earth, when they were heated, there arose fish, or animals very like fish, that humans grew in them, and that the embryos were retained inside up to puberty, whereupon the fish-like animals burst and men and women emerged already able to look after themselves.

(Censorinus, *On the Day of Birth* iv 7)

The descendants of Hellen of old sacrifice [fish] to Ancestral Poseidon, believing that men came from the moist substance – as do the Syrians. That is why they revere fish, as being of the same kind and nurture as themselves. Here their philosophy is more equitable than that of Anaximander. For he asserts, not that fish and men were born in the same surroundings, but that at first men came into being inside fish and were nourished there – like sharks – not emerging and taking to the land until they became able to fend for themselves. So just as fire consumes the matter from which it was kindled, its own mother and father (as the poet who inserted the marriage of Ceyx into Hesiod's poems said), so Anaximander, having asserted that fish are at once fathers and mothers of men, condemns them to be eaten.

(Plutarch, *Table Talk* 730DE)

*The astronomical theory described by Hippolytus can be given a little more colour:*

Anaximander holds that there is a circle twenty-eight times as great as the earth. It is like the wheel of a cart, with a hollow rim full of fire, which at a certain point reveals the fire through a mouthpiece, as through the tube of a bellows. This is the sun.

([Plutarch], *Opinions of the Philosophers on Nature* 889F)

*At the hub of the celestial wheel is the stationary earth:*

Some say that [the earth] rests where it is because of similarity (so, among the ancients, Anaximander). For there is no reason why what is situated in the middle and is similarly related to the edges should move upwards rather than downwards or sideways. But it cannot move in opposite directions at the same time. So it necessarily rests where it is.

(Aristotle, *On the Heavens* 295b11–16)

*As for the limitless or infinite principle or element of all things, a few words from Anaximander's book are preserved, the earliest surviving words of Western philosophy. It is uncertain – and a matter of vigorous scholarly controversy – exactly how extensive the citation is.*

Of those who hold that [the element] is one, moving, and limitless, Anaximander, son of Praxiades, a Milesian, who was successor and pupil of Thales, said that the limitless is principle and element of the things which exist. (He was the first to introduce this word 'principle'. He says that it is neither water nor any other of the so-called elements but some different limitless nature, from which all the heavens and the worlds in them come into being. And the things from which existing things come into being are also the things into which they are destroyed, in accordance with what must be. For they give justice and reparation to one another for their injustice in accordance with the ordering of time [B 1] (he speaks of them in this way in somewhat poetical words). It is clear that he observed the change of the four elements into one another and resolved not to make any one

of them the underlying stuff but rather something else apart from them. He accounts for coming into being not by alteration of the element but by the separating off of the opposites by an eternal motion.

(Simplicius, *Commentary on the Physics* 24.13-25)

*Simplicius explains why Anaximander's 'element' was different from the four traditional elemental stuffs (earth, air, fire, water). He does not explain why it was limitless or infinite. A passage in Aristotle's Physics alludes to Anaximander and lists some reasons for a belief in infinitude: it is possible that one or more of these reasons originally came from Anaximander.*

It is with reason that they all make [the limitless] a principle; for it can neither exist to no purpose nor have any power except that of a principle. For everything is either a principle or derived from a principle. But the limitless has no principle – for then it would have a limit. Again, it is ungenerated and indestructible and so is a principle. For what has come into being must have an end, and there is an ending to every destruction. Hence, as I say, it has no principle but itself is thought to be a principle for everything else and to encompass everything and to steer everything – as is said by those who do not set up any other cause (for example mind, or love) apart from the limitless.

And it is also the divine; for it is immortal and indestructible, as Anaximander and most of the natural scientists say. [B 3]

Belief in the existence of something limitless comes mainly from five considerations: from time (since this is limitless), from the division of magnitudes (mathematicians use the limitless); again, because only in this way will generation and destruction not give out – only if there is something limitless from which what comes into being is subtracted; again, because what is limited is always limited by something, so that there cannot be an [ultimate] limit if one thing must always be limited by another. Especially and most importantly, there is something which raises a puzzle for everyone alike: because they do not give out in thought, numbers seem to be limitless, and so do mathematical magnitudes and the region outside the heavens. But if the region

outside is limitless, then body and worlds also seem to be limitless – for why should they be here rather than there in empty space? Hence if mass is anywhere, it is everywhere. At the same time, if empty space and place are limitless, body too must be limitless – for with eternal things there is no difference between being possible and being actual.

(Aristotle, *Physics* 203b4-30)