

Thales

1. "...water..."

Anaximander

- a) [Anaximander asserted that the source (archē) and element of beings is the Infinite (apeiron). He was the first to introduce this name for the source. He says that it was neither water nor any of the other so-called elements, but of another nature which is infinite, from which all the heavens and the world-orders in them arise.]
- B) [Anaximander argued that the opposites, which are present in the One, are separated out from it. Such opposites include hot/cold, dry/moist, and so on.]

1. "Into those things from which coming-to-be comes for the beings, passing-away too takes place; according to what is necessary;

for each gives justice and makes reparation to the other for injustice, according to the structure of time."

CHRONOLOGY OF OLD GREEK NATURE PHILOSOPHY

- A. The Milesians. Miletus on the coast of Asia Minor, or in the case of Xenophanes its neighbor city Colophon, provided the location for the oldest school of Greek physics.

THALES c. 624-546 B.C.E.

Legendary first to theorize "About Nature." Made some kind of far-reaching claim about water. Apparently did studies in astronomy and geography.

ANAXIMANDER c. 610-546

A map-maker and student of planetary geology, Anaximander seems to have replaced Thales' "water" with the abstract concept of the Limitless, and to have introduced formulations in general physical dynamics which placed emphasis on "the structure of time."

ANAXIMENES c. 585-528

Picks up Anaximander's concept of the Limitless, but understands it as invisible but material—as "air," which can be compressed into water or earth, or rarified into fire. Attributed soul-like properties to this "air."

XENOPHANES dates uncertain; flourished c. 540-539

Shared the physical interests of his fellows in nearby Miletus, but had more to say about the nature of the divine, and spoke of "one god" who "sees all over, thinks all over, bears all over."

- B. The Pythagoreans. A school of thought stemming from Italy and Sicily and the work of the legendary Pythagoras. No direct quotations from Pythagoras seem to have survived, and the work of his disciples and later followers like Philolaus and Archytas is obscured by late classical compositions attributed to them.

PYTHAGORAS c. 571-497

Cultivated a unique sort of mathematics, derived from the numerical study of musical scales and from an archaic type of analytical geometry, both of which he applied to astronomy and to the theory of the soul and its education. Known for study of Babylonian and Egyptian lore.

- C. HERACLITUS OF EPHEBUS dates uncertain; flourished c. 504-501

An original and powerful thinker, again from the coast of Asia Minor, who brought the Old Physics to its highest point of development through his doctrine of the Logos, which he applied not only to physics proper but to ethics and political philosophy.

- D. The Eleatic School. A school mostly from the perspective of later writers, especially Plato: for originality and power, there is in fact no comparison between Parmenides and the later Eleatics, Zeno and Melissus. The general term "Eleatic" refers to a philosophical style that makes much use of formal argumentation or "logic."

PARMENIDES dates uncertain; flourished c. 501-492

"Father Parmenides" as he would sometimes be called in the later Platonic tradition. A thinker of towering stature, the predecessor that Plato revered most, even treated with respect by Aristotle. Wrote a poem "About Nature" that survives in major portions, in which he was the first to reason in a rigorous way about 'being' and 'non-being' and to explore the power of the 'mind' by way of speculative logic.

ZENO OF ELEA dates uncertain; flourished c. 464

Regarded by Plato as a close student of Parmenides, Zeno invented the form of argumentation called 'reductio ad absurdum' and propounded several apparent paradoxes about motion that led to the study of the mathematical properties of the continuum.

MELISSUS OF SAMOS dates uncertain; flourished c. 441-440

From Parmenides' principles, understood with a kind of block-headed literal-mindedness, Melissus derived a picture of an everlasting, simple, and totally unified physical reality, over against which human perceptions and experiences are mere illusions.

- E. Pluralists. Beginning with the disciples of Parmenides, a New Physics set in which began to treat explicitly of the problem of how the Mind is able to grasp Physical Being. Materialists in almost a modern sense, in that they took the ultimate constituents of nature to be small beyond perception, they began to treat the truth of nature as something other than a dimension or perfection of appearances.

ANAXAGORAS c. 500-428

Anaxagoras was one of the first philosophers to work at Athens. He argued that material nature is composed of a mixture of minute elementary portions or samples of every distinct kind of substance. Their combinations and intensifications here and there were directed by a Mind which stood apart from the physical processes themselves.

EMPEDOCLES c. 484-424

A younger and in some ways more original colleague of Anaxagoras, Empedocles taught at Sicily under Pythagorean influences. His system involved the four elements, earth, air, fire, and water, and two forces, Love and Strife.

DEMOCRITUS c. 460-371

Democritus of Abdera usually gets the credit for the first version of an atomic theory of matter. He also had a very sceptical view of the powers of human perception.

EMPEDOCLES

2. For narrow are the ways that are scattered throughout the limbs, and many the troubles that press upon them, blunting the edge of their careful thoughts. And having perceived but a small part of life while they live, doomed to perish, they rise up and are dissipated like smoke, each persuaded only of what he has chanced upon as he is driven this way and that, vainly supposing that he has discovered the whole.

So hard is it for these things to be seen or heard by men, or comprehended by the mind. And you, who have come here into retirement, shall learn no more than mortal mind has power to know. (Robinson 8.24)

3. Turn aside from my tongue, you gods, the madness of those men; make flow from lips that are holy a pure stream! And you also, much-wooed, white-armed virgin Muse, ~~said~~, I entreat you, such wisdom as is right for mortal creatures of a day to hear, driving your well-yoked chariot from the halls of piety; nor let the flowers of glorious honor force you to be revered by mortals on condition that you speak in rashness more than is holy. Then indeed will you sit upon the heights of wisdom. (Robinson 8.25)

- 8 There is no real coming into being of any mortal creature, nor any end in wretched death, but only mingling and separation of what has been mingled, and "coming into being" is merely a name given to them by men. (Robinson 8.31)

9. [There are four "roots of all things," the elements earth, air, fire, water.] When these have been mingled in the form of a man, or some kind of wild animal or plant or bird, men call this "coming into being"; and when they separate men call it "evil destiny" [passing away]. (Robinson 8.28)

- 26 These alone exist; but running through one another they become men and the tribes of other animals—at one time coming together into a single order through Love, at another time each being borne apart again through the hostility of Strife until, grown together once more, they are wholly subdued. Thus insofar as they have learned to grow into one from many and, when the one grows apart, to become many again, to this extent they come into being and have no lasting life; but insofar as they never cease changing places continually, they remain inviolate throughout the cycle. (Robinson 8.32)

EMPEDOCLES continued

- 23 Just as two painters—men skilled by wisdom in their art—make votive offerings, and take in their hands colorful pigments and blend them in greater or less proportions, and from these fashion likenesses of all things, and make trees and men and women and beasts and birds and fishes who dwell in the sea and also the gods who are highest in honor, so let not deceptions beguile you into thinking that the countless manifestations of mortal things have any different source. But know these things for certain, having heard the story from a goddess. (Robinson 8.80)

ANAXAGORAS

Lucretius, in On the Nature of Things: "When Anaxagoras speaks of the homoiomerai of things he means that bones are made up of tiny, miniature bones; flesh, of tiny, miniature bits of flesh; blood, through the coming together of many droplets of blood. Gold, he thinks, is made up of grains of gold, earth is a concretion of tiny earths, fire of fires, moisture of moistures. And he fashions and conveives of everything else in the same way." (Robinson 9.4)

- 3 For of the small there is no smallest, but there is always a smaller; for it is not possible for what is not to be. But of the great there is always a greater also. And it is equal in number to the small, each thing being with respect to itself both great and small. (Robinson 9.9)
- 6 Since the portions of the great and the small are equal in number, so too all things would be in everything. Nor is it possible for any to exist apart, but all things have a portion of all. Since it is impossible that there should be a smallest part, it is unable to be separated or come to be by itself, but as it was at the beginning, now too all things are together. In all things there are many things, and they are equal in number in the smaller and in the greater of the things which are being separated off. (Robinson 9.10)
- 12 Other things have a share of everything, but mind is infinite and self-ruled and not mixed with anything, but is alone by itself. For if it were not by itself, but were mixed with anything else, it would, by virtue of being mixed with this, have a share of all things; for there is a portion of everything in everything, as I said before. And the things that were mixed in it would hinder it, so that it could control nothing as it does now, being alone by itself. For it is the finest of all things and the purest, and it has all knowledge concerning all things and the greatest power; and over everything that has soul, large or small, mind rules.
- And mind controlled the whole rotation, so that it rotated in the beginning. And at first it began to rotate from a small beginning, but now it rotates over a larger area, and it will rotate still more over an even larger area. And mind knows all the things that are mingled and separated out and distinguished. ... (Robinson 9.18)

DEMOCRITUS

Aristotle, in a lost work "On Democritus," cited by Simplicius:

"Democritus gives to space the names "void," "no-thing," and "the infinite." To each of his substances [the atoms] he gives the name "thing," and "the compact," and "being." He supposes them to be so small that they elude our senses; but they have forms of all sorts and shapes of all sorts and differ in size. So that ~~they~~ ^{he} is able to create from these, as elements, by aggregation, the masses that are perceptible to sight and the other senses.

"They jostle and move in the void because of their unlikeness and the other differences mentioned above, and as they move they collide and become entangled so as to touch and make contact with one another —though not so as to come to have a single nature, for it would be silly to suppose that two or more things could ever become one. Their coherence with one another for a time he explains by the interlocking and clinging of the bodies; for some of them are angular, some are hooked, some concave, some convex, and they differ in countless other ways. And so, he thinks, they cling to one another and remain together until such time as some stronger necessity from outside shakes them loose and scatters them abroad. (Robinson 10.3 and 10.8)

6 It is necessary to realize that by this principle man is cut from the real.

And indeed it is impossible to know what each thing really is, as is evident.

In truth we know nothing of anything, but belief is a flowing in upon each of us.

9 Sweet exists by convention, bitter by convention, color by convention; but in reality atoms and the void alone exist.

Parmenides

Prologue

1. The mares that draw me wherever my heart would go escorted me, when the goddesses who were driving set me on the renowned road that leads through all cities the man who knows. Along this I was borne; for along it the wise horses drew at full stretch the chariot, and maidens led the way. The axle, urged round by the whirling wheels at either end, shrilled in its sockets and glowed, as the daughters of the sun, leaving the house of night and pushing the veils from their heads with their hands, hastened to escort me to the light.

There are the gates of the ways of day and night, enclosed by a lintel and a threshold of stone; and these, high in the æther, are fitted with great doors, and avenging Justice holds the keys which control these ways. The maidens entreated her with gentle words, and wisely persuaded her to thrust back quickly the bolts of the gate. The leaves of the door, swinging back, made a yawning gap as the brazen pins on either side turned in their sockets. Straight through them, along the broad way, the maidens guided mares and chariot; and the goddess received me kindly, and taking my right hand in hers spoke these words to me:

"Welcome, youth, who come attended by immortal charioteers and mares which bear you on your journey to our dwelling. For it is no evil fate that has set you to travel on this road, far from the beaten paths of men, but right and justice. It is meet that you learn all things—both the unshakeable heart of well-rounded truth and the opinions of mortals in which there is no true belief. But these, too, you must learn completely, seeing that appearances have to be acceptable, since they pervade everything. (Robinson 6.3. Reproduced for class use only.)

The Way of Truth

2. Now then, I will tell you (take with you the story that you hear!), the routes of inquiry that alone exist for thought: the one, how it is, and how not to be is not—this is the way of persuasion, for it attends truth; the other, how it is not, and how it is necessary that not to be is—this, I declare to you, is a way entirely unknowable. For you could not know what is non-being (for it cannot be accomplished), nor could you declare it.