

Milesians – Material Monists – Thales, Anaximander and Anaximenes

Thales fragments --

Arist. Met. i. 3 ; 983 b 6. . . . most of the early students of philosophy thought that first principles in the form of matter, and only these, are the sources of all things; for that of which all things consist, the antecedent from which they have sprung, and into which they are finally resolved (**the substance persisting but changing in its attributes**), this they say is the element and first principle of things. For there must be one or more than one nature out of which the rest come to be, while it is preserved. 983 b 18. As to the quantity and form of this first principle, there is a difference of opinion; but Thales, the founder of this sort of philosophy, says that it is water (accordingly he declares that the earth rests on water), getting the idea, I suppose, because he saw that the nourishment of all beings is moist, and that warmth itself is generated from moisture and persists in it (**for that from which all things spring is the first principle of them**); and getting the idea also from the fact that the germs of all beings are of a moist nature, while water is the first principle of the nature of what is moist. And there are some who think that the ancients, and they who lived long before the present generation, and the first students of the gods, had a similar idea in regard to nature; for in their poems Okeanos and Tethys were [Page 3] the parents of generation, and that by which the gods swore was water,-the poets themselves called it Styx ; for that which is most ancient is most highly esteemed, and that which is most highly esteemed is an object to swear by. Whether there is any such ancient and early opinion concerning nature would be an obscure question; but Thales is said to have expressed this opinion in regard to the first cause.

Arist. (On the Heavens) (de Coelo) ii. 13; 294 a 28. Some say that the earth rests on water. We have ascertained that the oldest statement of this character is the one accredited to Thales the Milesian, to the effect that it rests on water, floating like a piece of wood or something else of that sort, whose nature it is to rest upon water, though none of them could rest on air. But this is to forget that the same thing may be said of the water supporting the earth as was said of the earth itself.

Arist. (On the Soul) (de Anima) i. 2; 405 a 19. And Thales, according to what is related of him, seems to have regarded the soul as something endowed with the power of motion, if indeed he said that the loadstone has a soul because it moves iron. i. 5 ; 411 a 7. Some say that soul is diffused throughout the whole universe; and it may have been this which led Thales to think that all things are full of gods.

[Page 5] Thales was the first of the Greeks to devote himself to the study and investigation of the stars, and was the originator of this branch of science; on one occasion he was looking up at the heavens, and was just saying he was intent on studying what was overhead, when he fell into a well; whereupon a maidservant named Thratta laughed at him and said : In his zeal for things in the sky he does not see what is at his feet. And he lived in the time of Kroesos.

Anaximander Fragments

Of those who 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 first principle [i.e., he was the first to call the first principle indefinite]. He says that the first principle is neither water nor any other 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 = 12B1 + A9).

[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 203b 10-15 = 12A15).

Some, like Anaximander . . . declare that the earth is at rest on account of its similarity. For it is no more fitting for what is established at the center and equally related to the extremes to move up rather than down or sideways. And it is impossible for it to make a move simultaneously in opposite directions. Therefore, it is at rest of necessity. (Aristotle, *On the Heavens* 2.13 295b11 -16 = 12A26).

Anaximenes (give one of the specific and “sensible” elements all of the traits that Anaximander gave to apeiron)

Anaximenes . . . like Anaximander, declares that the underlying nature is one and boundless, but not indeterminate as Anaximander held, but definite, saying that it is air. [BTW – the term Anaximenes uses is ‘aer’ and is more of a dense mist than the term ‘air’ usually signifies]. It differs in rarity and density according to the substances it becomes. Becoming finer it comes to be fire; being condensed it comes to be wind, then cloud, and when still further condensed it becomes water,

then earth, then stones, and the rest come to be out of these. He too makes motion eternal and says that change also comes to be through it. (Theophrastus, quoted by Simplicius, *Commentary on Aristotle's Physics* 24.26 – 25.1 = 13A5)

Anaximenes . . . said that the principle is unlimited [boundless] air, out of which come to be things that are coming to be, things that have come to be, and things that will be, and gods and divine things. The rest come to be out of the products of this. The form of air is the following: when it is most even, it is invisible, but it is revealed by the cold and the hot and the wet, and movement. It is always moving, for all the things that undergo change would not change unless it was moving. For when it is dissolved into what is finer, it comes to be fire, and on the other hand air comes to be winds when it becomes condensed. (Hippolytus, *Refutation* 1.7 1-3 = 13A7)

Anaximenes determined that the air is a god and that it comes to be and is without measure, infinite and always in motion. (Cicero, *On the Nature of the Gods* 1.10.26 = 13A10)

Or as Anaximenes of old believed, let us leave neither the cold nor the hot in the category of substance, but hold them to be common attributes of matter which come as the results of its changes. (Plutarch, *The Principle of Cold*)

Pythagoras and Pythagoreans

First he declares that the soul is immortal; then that it changes into other kinds of animals; in addition that things that happen recur at certain intervals, and nothing is absolutely new; and that all things that come to be alive must be thought akin. Pythagoras seems to have been the first to introduce these opinions into Greece. (Porphyry, *Life of Pythagoras* 19 = 14.8a)

There are two kinds of the Italian philosophy called Pythagorean since two types of people practiced it, the *akousmatikoi* and the *mathematikoi*. Of these, the *akousmatikoi* were admitted to be Pythagoreans by the others, but they did not recognize the *mathematikoi*, but claimed that their pursuits were not those of Pythagoras, but of Hippasus The philosophy of the *akousmatikoi* consists of unproved and unargued *akousmata* to the effect that one must act in appropriate ways, and they also try to preserve all the other sayings of Pythagoras as divine dogma. These people claim to say nothing of their own invention, and say that to make innovations would be wrong. But they suppose that the wisest of their number are those who have got the most *akousmata*. (Iamblichus, *Life of Pythagoras* 81, 82 = 18, 2 = 58C4)

Heraclitus fragments

1. "All the laws of men are nourished by one law, the divine law (logos?)"

Although this Logos is eternally valid, yet men are unable to understand it -- not only before hearing it, but even after they have heard it for the first time. That is to say, although all things come to pass in accordance with this Logos, men seem to be quite without any experience of it - at least if they are judged in the light of such words and deeds as I am here setting forth.

2. We should let ourselves be guided by what is common to all. Yet, although the Logos is common to all, most men live as if each of them had a private intelligence of his own. (2)

3. Men who love wisdom should acquaint themselves with a great many particulars. (35)

4. Much learning does not teach understanding, otherwise it would have taught Hesiod and Pythagoras, Xenophanes and Hecataeus. (40)

5. I have searched myself. (101)

6. It pertains to all men to know themselves and to be temperate. (116)

7. To be temperate is the greatest virtue. Wisdom consists in speaking and acting the truth, giving heed to the nature of things. (112)

8. The things of which there can be sight, hearing, and learning ---- these are what I especially prize. (55)

9. Eyes are more accurate witnesses than ears. (101a)

10. Eyes and ears are bad witnesses to men having barbarian souls. (107)

11. The waking have one world in common, whereas each sleeper turns away to a private world of his own. (89)

12. Nature loves to hide. (123)

13. The lord whose oracle is at Delphi neither speaks nor conceals, but gives signs. (93)

14. Everything flows and nothing abides; everything gives way and nothing stays fixed.

15. You cannot step twice into the same river, for other waters and yet others go ever flowing on. (91, 12)

Also: Into the same rivers we step and do not step. (49a)

We are and we are not.

16. Cool things become warm, the warm grows cool; the moist dries, the parched becomes moist. (126)

17. It is in changing that things find repose. (8~)

18. It should be understood that war is the common condition, that strife is justice, and that all things come to pass through the compulsion of strife. (80)

19. Homer was wrong in saying, "Would that strife might perish from amongst gods and men. For if that were to occur, then all things would cease to exist."

20. There is exchange of all things for fire and of fire for all things, as there is of wares for gold and of gold for wares. (90)

21. This universe, which is the same for all, has not been made by any god or man, but it always has been is, and will be -- an ever-living fire, kindling itself by regular measures and going out by regular measures. (30)

22. The phases of fire are craving and satiety. (65)

23. It throws apart and then brings together again; it advances and retires. (91)

24. When earth has melted into sea, the resultant amount is the same as there had been before sea became hardened into earth. (31, ctd.)

25. Fire lives in the death of earth, air in the death of fire, water in the death of air, and earth in the death of water. (76)

26 The sun is new each day. (6)

Heraclitus' Opposites

1. It is by disease that health is pleasant, by evil that good is pleasant, by hunger satiety, by weariness rest. (111)
2. Sea water is at once very pure and very foul: it is drinkable and healthful for fishes, but undrinkable and deadly for men. (61)
3. Donkeys would prefer hay to gold. (9)
4. Pigs wash in mud, and domestic fowls in dust or ashes. (37)
5. The handsomest ape is ugly compared with humankind; the wisest man appears as an ape when compared with a god --- in wisdom, in beauty, and in all other ways. (82, 83)
6. Man is regarded as childish by a spirit (daemon), just as a boy is by a man. (79)
7. To God all things are beautiful, good, and right. Men, on the other hand, deem some things right and others wrong. (102)
8. Doctors cut, burn, and torture the sick, and then demand of them an undeserved fee for such services. (58)
9. The way up and the way down are one and the same. (60)
10. In the circumference of the circle the beginning and the end are common. (103)
11. Into the same rivers we step and do not step. (49a)
12. For wool-carders the straight and the winding way are one and the same. (59) (Writing is both straight and crooked).
13. The bones connected by joints are at once a unitary whole and not a unitary whole. To be in agreement is to differ; the concordant is the

discordant. From out of all the many particulars comes oneness, and out of oneness comes all the many particulars. (10)

14. It is one and the same thing to be living and dead, awake or asleep, young or old. The former aspect in each case becomes the latter, and the latter becomes the former, by sudden unexpected reversal (88)
(Cf. "Reversal is the movement of the Dao").

15. Hesiod, whom so many accept as their wise teacher, did not even understand the nature of day and night; for they are one. (57)

16. The name of the bow is life, but its work is death. (48)

17. The hidden harmony is better than the obvious. (54)

18. People do not understand how that which is at variance with itself agrees with itself. There is a harmony in the bending back, as in the cases of the bow and the lyre. (51)

19. Listening not to me but to the Logos, it is wise to acknowledge that all things are one. (50)

20. Wisdom is one and unique; it is unwilling and yet willing to be called by the name of Zeus. (32)

21. Wisdom is one ---- to know the intelligence by which all things are steered through all things. (41)

22. God is day and night, winter and summer, war and peace, satiety But he undergoes transformations, just as (.....) when mixed with is named according to the particular aroma which it gives off. (67)

23. The sun will not overstep his measures; if he were to do so, the Erinnyes, handmaidens of justice, would seek him out for punishment (94)

24. Even sleepers are workers and collaborators in what goes on in the universe.

25. Opposition brings concord. Out of discord comes the fairest harmony.

Heraclitus as misanthrope:

26. The Ephesians had better go hang themselves, every man of them, and leave their city to be governed by youngsters, for they have banished Hermadorus, the finest man among them, declaring: "Let us not have anyone among us who excels the rest; if there should be such a one, let him go and live else-where." (121)

Eleatic Philosophy: Parmenides -

1. Come now, I will tell you ... the only ways of inquiry there are for thinking: the one, that it is and that it is not possible for it not to be, is the path of Persuasion (for it attends upon Truth), the other, that it is not and that it is necessary for it not to be, this I point out to you to be a path completely unlearnable, for neither may you know that which is not (for it is not to be accomplished) nor may you declare it. [2=B2]

2. For the same thing is for thinking and for being. [3=B3]

3. That which is there to be spoken and thought of must be. For it is possible for it to be, but not possible for nothing to be. [6=B6]

4. For in no way may this prevail, that things that are not, are. But you, bar your thought from this way of inquiry, and do not let habit born from much experience compel you along this way to direct you sightless eye and sounding ear and tongue, judge by reason the heavily contested testing spoken by me. B7

5. There is still left a single story of a way, that it is. On this way there are signs exceedingly many – that being ungenerated it is also imperishable, whole and of a single kind and unshaken and complete. Nor was it ever nor will it be, since it is now, all together one, continuous. For what birth will you seek for it? How and from where did it grow?

Thus it must either fully be or not. Nor will the force of conviction ever permit anything to come to be from what is not beside it.

In this way, coming to be has been extinguished and destruction is unheard of.

Nor is it divided, since it all is alike; nor is it any more in any way, which would keep it from holding together, or any less, but it is all full of what is. Therefore, it is all continuous, for what is draws near to what is.

But unchanging in the limits of great bonds, it is without start or finish, since coming to be and destruction were banished far away and the true conviction drove them off.

Remaining the same in the same and by itself it lies and so stays in the bonds of a limit, which pens it in all round, since it is right for what is to be not incomplete; for it is not lacking; if it were, it would lack everything.

Thinking and the thought that it is are the same. For not without what is, in which it is expressed, will you find thinking; for nothing else either is or will be except that which is, since Fate shackled it to be whole and unchanging; wherefore it has been named all things mortals have established, persuaded that they are true – to come to be and to perish, to be and not [to be], and to change place and alter bright color. But since there is a furthest limit, it is complete, on all sides like the bulk of a well-rounded ball, evenly balanced in every way from the middle; for it must be not at all greater or smaller here than there.

For neither is there what is not – which would stop it from reaching its like – nor is what is in such a way that there could be more of what is here and less there, since it is all inviolate; for equal to itself on all sides, it meets with its limits uniformly.

[8=B8]

Zeno's Paradoxes

Zeno's arguments about motion which present difficulties for those who try to solve them are four. First is the argument which says that there is no motion because that which is moving must reach the midpoint before the end. (Aristotle, *Physics* 6.9).

The second is the one called "Achilles." This is to the effect that the slowest as it runs will never be caught by the quickest. For the pursuer must first reach the point from which the pursued departed, so that the slower must always be some distance in front. This is the same argument as The Dichotomy, but it differs in not dividing the given magnitude in half. (Aristotle, *Physics* 6.9)

. . . Zeno's argument falsely assumes that it is impossible to traverse or come into contact with an infinite number of things individually in a finite time. For both length and time and generally everything that is continuous are called infinite in two ways: infinite in division and infinite with respect to their extremities. Now it is impossible to come into contact with things infinite in quantity in a finite time, but it is possible to do so with things that are infinite in division. For time itself too is infinite in this way. And so, it follows that it traverses the infinite in an infinite and not a finite time, and comes into contact with infinite things in infinite, not finite times. (Aristotle, *Physics* 6.2)

The third argument is the one just stated, that the arrow is stopped while it is moving. This follows from assuming that time is composed of "nows." If this is not conceded, the deduction will not go through.

Zeno makes a mistake in reasoning. For if, he says, everything is always at rest when it occupies a space equal to itself, and what is moving is always “in the now,” the moving arrow is motionless. (Aristotle, *Physics* 6.9)

The fourth argument is about the equal bodies moving in a stadium past equal bodies in the opposite direction, the one group moving from the end of the stadium, the other from the middle, at equal speed. He claims in this argument that it follows that half the time is equal to the double. The mistake is in thinking that an equal magnitude moving with equal speed takes an equal time in passing something moving as it does in passing something at rest. (Aristotle, *Physics* 6.9)

If there are many, they must be just as many as they are and neither more nor less than that. But if they are as many as they are, they would be limited. If there are many, things that are are unlimited. For there are always others between the things that are, and again others between those, and so the things that are are unlimited.

But if it exists, each thing must have some size and thickness, and part of it must be apart from the rest. And the same reasoning holds concerning the part that is in front. For that too will have size and part of it will be in front. **Now it is the same thing to say this once and to keep saying it forever.** For no such part of it will be last, nor will there be one part <of any such part> not related to another. Therefore, if there are many things, they must be both small and large; so small as not to have size, but so large as to be unlimited.

Responses to Parmenides – The Pluralists: Anaxagoras and Empedocles

Anaxagoras

1. For of the small there is no smallest, but always a smaller (for what is cannot not be). But also of the large there is always a larger, and it is equal in amount to the small. But in relation to itself, each is both large and small. (Simplicius, *Commentary on Aristotle's Physics*)

2. These things being so, it is necessary to suppose that in all things that are being mixed together there are many things of all kinds, and seeds of all things, having all kinds of shapes and colors and flavors; and that humans too were compounded and all the other animals that possess life;

3. But before these things separated off, when [or since] all things were together, not even any color was manifest, for the mixture of all things prevented it – the wet and the dry, the hot and the cold, the bright and the dark, there being also much earth in the mixture and seeds unlimited in amount, in no way like one another. For none of the other things are alike either, the one to the other. Since this is so, it is necessary to suppose that all things were in the whole.

4. For how could hair come to be from what is not hair or flesh from not flesh?
5. In everything there is a portion of everything except Mind, but Mind is in some things too.
Mind is unlimited and self-ruled and is mixed with no thing, but is alone and by itself. For if it were not by itself but were mixed with something else, it would have a share of all things, if it were mixed with anything. For in everything there is a portion of everything
And Mind rules all things that possess life – both the larger and the smaller. And Mind ruled the entire rotation, so that it rotated in the beginning. . . . And Mind knew all the things that are being mixed together and separated off and separated apart. And Mind set in order all things, whatever kinds of things were to be – whatever were and all that are now and whatever will be. . . . All Mind is alike, both the larger and the smaller. But nothing else is like anything else, but each single thing is and was most plainly those things of which it contains most.
6. The Greeks are wrong to accept coming to be and perishing, for no thing comes to be, nor does it perish, but they are mixed together from things that are and they are separated apart. And so they would be correct to call coming to be being mixed together, and perishing being separated apart.
7. Anaxagoras makes the principles infinite, both the uniform parts and the opposites It seems that Anaxagoras thought the principles were infinite because he accepted as true the common opinion of the physicists that nothing come to be from not being For if everything that comes to be necessarily comes to be either from being or from not being, and it is impossible that it come to be from not being . . . they thought that . . . thing come to be out of things that are, that is, out of things in which they are already present, but they are imperceptible to us on account of the smallness of their bulk. . . . Nothing is purely or as a whole pale or dark or sweet or flesh or bone, but whatever each contains the most of is thought to be the nature of that thing.
8. Anaxagoras makes the elements homoiomerous things, such as bone and flesh and marrow, and each of the others, whose parts have the same name [as the whole].

Empedocles

1. Fools. For their thoughts are not far-reaching, who expect that there comes to be what previously was not, or that anything perishes and is completely destroyed.

For the coming together of all things produces one birth and destruction, and the other is nurtured and flies apart when they grow apart again.

And these never cease continually interchanging, at one time all coming together into one by Love and at another each being borne apart by the hatred of Strife.

Thus in that they have learned to grow to be one out of many and in that they again spring apart as many when the one grows apart

I will tell a double story. For at one time they grew to be only one out of many, but at another they grew apart to be many out of one:

Fire and water and earth and the immense height of air, and deadly Strife apart from them, equal in all directions and Love among them, equal in length and breadth. Behold her with your mind, and do not sit with your eyes staring in amazement. . . . For these [the four elements] are all equal and of the same age but each rules in its own province and possesses its own individual character, but they dominate in turn as time revolves. And nothing is added to them, nor do they leave off, for if they were perishing continuously, they would no longer be. But what could increase this totality? And where would it come from? And how [or where] could it perish, since nothing is empty of these? But there are just these very things, and running through one another at different times they come to be different things and yet are always and continuously the same.

The Atomists: Democritus and Leucippus

No thing happens at random but all things as a result of a reason and by necessity.

Democritus leaves aside purpose, but refers all things which nature employs to necessity. (Aristotle, *Generation of Animals* 5.8)

<Concerning necessity> Democritus <speaks of> knocking against <each other> and motion and “blow” of matter.

Leucippus and his associate Democritus declare the full and the empty [void] to be the elements, calling the former “what is” and the other “what is not.” Of these the one, “what is,” is full and solid, the other, “what is not,” is empty [void] and rare. (This is why they say that what is is no more than what is not, because the void is no less than body is.) These are the material causes of existing things.

. . . They say the difference [in atoms] are three: shape, arrangement and position. . . . For A differs from N in shape, AN from NA in arrangement, and Z from N in position. Concerning the origin and manner of motion in existing things, these men too, like the rest, lazily neglected to give an account. (Aristotle, *Metaphysics*).

Those who abandoned division to infinity on the grounds that we cannot divide to infinity and as a result cannot guarantee that the division cannot end declared that bodies are composed of indivisible things and are divided into indivisibles.

When Democritus said that the atoms are in contact with each other, he did not mean contact strictly speaking . . . but the condition in which the atoms are near one another and not far apart is what called contact. For no matter what, they are separated by the void.

There is no more reason for the thing to be than the nothing.

For they [the Atomists] say that there is always motion. But they do not say why or what motion it is, nor, if it is of one sort or another, do they state the cause. (Aristotle, *Metaphysics* 12.6)

Leucippus and Democritus said that their primary bodies, the atoms, are always moving in the unlimited void by compulsion.

There are two kinds of judgment, one legitimate and the other bastard. All the following belong to the bastard: sight, hearing, smell taste, touch. The other is legitimate and is separated from this. When the bastard one is unable to see or hear or smell or taste or grasp by touch any further in the direction of smallness, but <we need to go still further> towards what is fine, <then the legitimate one enables us to carry on>.

By convention, sweet; by convention, bitter; by convention, hot; by convention, cold; by convention, color; but in reality, atoms and void.

Wretched mind, after taking your evidence from us do you throw us down?

To all humans the same thing is good and true, but different people find different things pleasant.

Plato and Democritus supposed that only the intelligible things are true; Democritus <held this view> because there is by nature no perceptible substrate, whereas the atoms, which combine to form all things, have a nature deprived of every perceptible quality.