

# 10. LEUCIPPUS AND DEMOCRITUS: FIFTH-CENTURY ATOMISM

*Almost nothing is known of Leucippus, who was the founding theorist of atomism. Epicurus, a post-Aristotelian philosopher who adopted certain aspects of Presocratic atomism is even said to have denied that Leucippus existed. Leucippus' birthplace is variously given as Miletus, Abdera, and Elea (Miletus and Elea could represent the Milesian and Eleatic influences on his work, and Democritus, his pupil and associate was from Abdera). It is likely that Leucippus proposed the atomic system sometime around 440 to 430 BCE, thus he is contemporary with the other post-Eleatic thinkers Anaxagoras and Empedocles as well as Melissus. Two books are attributed to Leucippus: On Mind and The Great World System (Makrokosmos).*

*Democritus himself says that he was young when Anaxagoras was an old man; his birth date is usually placed at about 460; he lived well into the fourth century (tradition says he lived to be about 100 years old), and so was a contemporary of Socrates, Plato, and perhaps even the young Aristotle. Democritus was born in Abdera, in Thrace, a birthplace he shares with the sophist Protagoras, but he traveled widely throughout the ancient world (later sources say he went to India, but this is doubtful). Ancient sources list about seventy titles of books by Democritus on all sorts of subjects, both philosophical (on natural philosophy, ethics, mathematics, literature, and grammar) as well as on other perhaps more popular topics: He apparently wrote books on his travels; there are also reports of treatises on medicine, farming, military science, and painting. One of his books was called The Little World System (Mikrokosmos), in obvious homage to his teacher and associate Leucippus.*

*The selections included here concentrate on atomism, the scientific and metaphysical theory begun by Leucippus and continued by Democritus. Unfortunately, very few passages from Leucippus and Democritus on atomism survive; most of the evidence we have about the view comes from*

*Aristotle and the Aristotelian commentators.*<sup>1</sup> We must keep in mind that these reports will also involve interpretation; atomism, which is a mechanistic theory, was the major competitor to the teleological systems of both Plato and Aristotle. The word *atomos* in Greek means “uncuttable,” and so atoms are things that cannot be cut, split, or actually divided. The atomists claim that there is an indefinite number of these atoms, each of which is uniform, not subject to coming-to-be or passing-away, and unchangeable in any other way, except position, an external change that does not affect the inner core of atomic being. Atoms thus satisfy the Parmenidean requirements for reality. Individual atoms are imperceptible: most of them are very small, though Democritus may have said that there could be an atom as large as the cosmos. All atomic stuff is the same; atoms differ from one another only in shape and size (there is controversy about whether pre-Platonic atomists considered weight as a property of atoms).

The second player in the atomic system is “the empty” (void). Void is where the atoms are not, and atoms are able to move into the empty. The atomists explicitly call the void “the nothing” or the “what is not,” whereas atoms are called “the something” or the “what is.” Hence they explicitly challenge Parmenides’ proscription against what-is-not; yet there is good evidence that they insisted that the void is real in its own right, and not simply the negation of what-is. Void separates atoms, which allows them to move and come close to one another without melding into each other. The mixing together and separating of the different types of atoms into different arrangements is responsible for all the aspects of the sensible world, and so what looks like coming-to-be and passing-away is merely rearrangement of the basic entities—atoms and void. All else is, as Democritus says, “by convention.” Democritus offered complex accounts of the structure of physical objects (i.e., arrangements of atoms) and of perception, thought, and knowledge, as well as of many other aspects of human life. There are many fragments on ethical matters attributed to him, but the authenticity of these is unclear.

1. (67B2) No thing happens at random but all things as a result of a reason and by necessity.<sup>2</sup>

(Aëtius 1.25.4)

1. Aristotle wrote a multivolume work on Democritus; only fragments survive, thanks to Simplicius, who quotes some passages (see selection 5, below).
2. This is one of the few fragments that can be assigned to Leucippus with some confidence. Leucippus’ DK number is 67, while Democritus’ is 68.

2. (67A1) Leucippus' opinion is this: All things are unlimited and they all turn around one another; the all [the universe] is both the empty [void] and the full. The worlds come to be when the atoms fall into the void and are entangled with one another. The nature of the stars comes to be from their motion, and from their increase [in entanglements]. The sun is carried around in a larger circle around the moon; and whirled around the center, the earth rides steady; its shape is drumlike. He was the first to make the atoms first principles.

(Diogenes Laertius, *Lives of the Philosophers* 9.30; tpc)

3. (67A6) Leucippus and his associate Democritus declare the full and the empty [void] to be the elements, calling the former "what-is" (*to on*) and the other "what-is-not" (*to mē on*). 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 declare that the differences <among these> are the causes of the rest. Moreover, they say that the differences are three: shape, arrangement, and position. For they say that what-is differs only in "rhythm," "touching," and "turning"—and of these "rhythm" is shape, "touching" is arrangement, and "turning" is 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* 1.4 985b4–20)

4. (67A9) After establishing the shapes, Democritus and Leucippus base their account of alteration and coming-to-be on them: coming-to-be and perishing by means of separation and combination, alteration by means of arrangement and position. Since they held that the truth is in the appearance, and appearances are opposite and infinite, they made the shapes infinite, so that by reason of changes of the composite, the same thing seems opposite to different people, and it shifts position when a small additional amount is mixed in, and it appears completely different when a single thing shifts position. For tragedy and comedy come to be out of the same letters.

(Aristotle, *On Generation and Corruption* 1.1 315b6–15)

5. (68A37) Democritus believes that the nature of the eternal things is small substances (*ousiai*)<sup>3</sup> infinite in number. As a place for these he hypothesizes something else, infinite in size, and he calls their place by the names “the void,” “not-hing” (*ouden*) and “the unlimited” [or, “infinite”] and he calls each of the substances “hing” (*den*) and “the compact” and “what-is.” He holds that the substances are so small that they escape our senses. They have all kinds of forms and shapes and differences in size. Out of these as elements he generates and forms visible and perceptible bodies. <These substances> are at odds with one another and move in the void because of their dissimilarity and the other differences I have mentioned, and as they move they strike against one another and become entangled in a way that makes them be in contact and close to one another but does not make any thing out of them that is truly one, for it is quite foolish <to think> that two or more things could ever come to be one. The grounds he gives for why the substances stay together up to a point are that the bodies fit together and hold each other fast. For some of them are rough, some are hooked, others concave, and others convex, while yet others have innumerable other differences. So he thinks that they cling to each other and stay together until some stronger necessity comes along from the environment and shakes them and scatters them apart. He describes the generation and its contrary, separation, not only for animals but also for plants, *kosmoi*, and altogether for all perceptible bodies.

(Aristotle, *On Democritus*, quoted by Simplicius, *Commentary on Aristotle's On the Heavens* 295.1–22)

6. (67A8, 68A38) Leucippus . . . did not follow the same route as Parmenides and Xenophanes concerning things that are, but seemingly the opposite one. For while they made the universe one, immovable, ungenerated, and limited, and did not even permit the investigation of what-is-not, he posited the atoms as infinite and ever-moving elements, with an infinite number of shapes, on the grounds that they are no more like this than like that and because he observed that coming-to-be and change are unceasing among the things that are. Further, he posited that what-is is no more

3. Translator's note: *Ousia*, “substance,” is a noun derived from the verb *einai*, “to be.” There is a connection in language and meaning between *ousia* and *on*.

than what-is-not, and both are equally causes of things that come to be. For supposing the substance of the atoms to be compact and full, he said it is what-is and that it moves in the void, which he called "what-is-not" and which he declares is no less than what-is. His associate, Democritus of Abdera, likewise posited the full and the void as principles, of which he calls the former "what-is" and the latter "what-is-not." For positing the atoms as matter for the things that are, they generate the rest by means of their differences. These are three: rhythm, turning, and touching, that is, shape, position, and arrangement. For by nature like is moved by like, and things of the same kind move toward one another, and each of the shapes produces a different condition when arranged in a different combination. Thus, since the principles are infinite, they reasonably promised to account for all attributes and substances—how and through what cause anything comes to be. This is why they say that only those who make the elements infinite account for everything reasonably. They say that the number of the shapes among the atoms is infinite on the grounds that they are no more like this than like that. For they themselves assign this as a cause of the infiniteness.

(Simplicius, *Commentary on Aristotle's Physics* 28.4–26)

7. (67A7) Leucippus and Democritus have accounted for all things very systematically and in a single theory, taking the natural starting point as their own. For some of the early philosophers held that what-is is necessarily one and immovable. For the void is not, and motion is impossible without a separate void, nor can there be many things without something to keep them apart. . . . But Leucippus thought he had arguments that assert what is generally granted to perception, not abolishing coming-to-be, perishing, motion, or plurality. Agreeing on these matters with the phenomena and agreeing with those who support the one [that is, the Eleatics] that there could be no motion without void, he asserts that void is what-is-not and that nothing of what-is is not, since what strictly is is completely full. But this kind of thing is not one thing but things that are infinite in number and invisible because of the minuteness of their size. These move in the void (for there is void), and they produce coming-to-be by combining and perishing by coming apart, and they act and are acted upon wherever they happen to come into contact (for in this way they are not one), and they

generate <compounds> by becoming combined and entangled. A plurality could not come to be from what is in reality one, nor one from what is really many, but this is impossible.

(Aristotle, *On Generation and Corruption* 1.8 324b35–325a36)

8. (67A19) They declare that their [atoms'] nature is but one, as if each one were a separate piece of gold.  
(Aristotle, *On the Heavens* 1.7 275b32–276a1)
9. (68A59) Plato and Democritus supposed that only the intelligible things are true (or, "real"); Democritus <held this view> because there is by nature no perceptible substrate, since the atoms, which combine to form all things, have a nature deprived of every perceptible quality.  
(Sextus Empiricus, *Against the Mathematicians* 8.6)
10. (68A47) Democritus specified two <basic properties of atoms>: size and shape; and Epicurus added weight as a third.  
(Aëtius 1.3.18)
11. (67A15) Since the bodies differ in shape, and the shapes are infinite, they declare the simple bodies to be infinite too. But they did not determine further what is the shape of each of the elements, beyond assigning a spherical shape to fire. They distinguished air and water and the others by largeness and smallness.  
(Aristotle, *On the Heavens* 3.4 303a11–15)
12. (67A14) These men [Leucippus, Democritus, and Epicurus] said that the principles are infinite in multitude, and they believed them to be atoms and indivisible and incapable of being affected because they are compact and have no share of void. (For they claimed that division occurs where there is void in bodies.)  
(Simplicius, *Commentary on Aristotle's On the Heavens* 242.18–21)
13. (67A13) 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. Except that Leucippus and Democritus hold that the cause of the primary

bodies' indivisibility is not only their inability to be affected but also their minute size and lack of parts.

(Simplicius, *Commentary on Aristotle's Physics* 925.10–15)

14. (68A48b) Democritus would appear to have been persuaded by arguments that are appropriate to the science of nature. The point will be clear as we proceed. For there is a difficulty in supposing that there is a body, a magnitude, that is everywhere divisible and that this [the complete division] is possible. For what will there be that escapes the division? . . . Now since such a body is everywhere divisible, let it be divided. What, then, will be left? A magnitude? But that cannot be. For there will be something that has not been divided, whereas we supposed that it was everywhere divisible. But if there is no body or magnitude left and yet the division will take place, either <the original body> will consist of points and its components will be without magnitude, or it will be nothing at all so that even if it were to come to be out of nothing and be composed of nothing, the whole thing would then be nothing but an appearance. Likewise, if it is composed of points it will not be a quantity. For when they were in contact and there was a single magnitude and they coincided, they made the whole thing no larger. For when it is divided into two or more, the whole is no smaller or larger than before. And so even if all the points are put together they will not make any magnitude. . . . These problems result from supposing that any body whatever of any size is everywhere divisible. . . . And so, since magnitudes cannot be composed of contacts or points, it is necessary for there to be indivisible bodies and magnitudes.

(Aristotle, *On Generation and Corruption* 1.2 316a13–b16)

15. (67A7) When Democritus said that the atoms are in contact with each other, he did not mean contact, strictly speaking, which occurs when the surfaces of the things in contact fit perfectly with one another, but the condition in which the atoms are near one another and not far apart is what he called contact. For no matter what, they are separated by void.

(Philoponus, *Commentary on Aristotle's On Generation and Corruption* 158.27–159.3)

16. (68B156) [When Democritus declares that] There is no more reason for the “hing” {Greek: *den*} to be than the nothing {Greek: *mēden*, not-hing}, [he is calling thing body and nothing void, and declaring that this too (void) has some nature and existence of its own.]  
(Plutarch, *Against Colotes* 1108F; tpc)
17. (67A19) By “void” people mean an interval in which there is no perceptible body. Since they believe that everything that is is body, they say that void is that in which there is nothing at all. . . . So it is necessary to prove<sup>4</sup> . . . that there is no interval different from bodies . . . which breaks up the totality of body so that it is not continuous, as Democritus, Leucippus, and many other natural philosophers say, or that there is anything outside the totality of body, supposing that it is continuous. . . . They say that (1) there would be no change in place (that is, motion and growth), since it does not seem that there would be motion unless there were void, since what is full cannot admit anything else. . . . (2) Some things are seen to contract and be compressed; for example, they say that the jars hold the wine along with the wineskins, since the compressed body contracts into the empty places that are in it. Further, (3) all believe that growth takes place through void, since the nourishment is a body and two bodies cannot coincide. (4) They also use as evidence what happens with ash: it takes no less water to fill a jar that contains ashes than it does to fill the same jar when it is empty.  
(Aristotle, *Physics* 4.6 213a27–b22)
18. (67A16) This is why Leucippus and Democritus, who say that the primary bodies are always moving in the void (that is, the infinite) must specify what motion they have and what is their natural motion.  
(Aristotle, *On the Heavens* 3.2 300b8–11)

4. Translator’s note: This passage forms part of Aristotle’s treatment of void, in which he both presents the arguments offered in favor of the thesis that void exists and shows why they fail. Aristotle here says that he needs to refute the view that void exists.



19. (67A18) For they say that there is always motion. But why it is and what motion it is, they do not state, nor do they give the cause of its being of one sort rather than another.  
(Aristotle, *Metaphysics* 12.6 1071b33–35)
20. (68A58) They say that motion occurs because of the void. For they, too, say that nature<sup>5</sup> undergoes motion in respect of place.  
(Aristotle, *Physics* 8.9 265b24–25)
21. (67A16) Leucippus and Democritus said that their primary bodies, the atoms, are always moving in the infinite void by compulsion.  
(Simplicius, *Commentary on Aristotle's On the Heavens* 583.18–20)
22. (68A47) Democritus, saying that the atoms are by nature motionless, declares that they move “by a blow.”  
(Simplicius, *Commentary on Aristotle's Physics* 42.10–11)
23. (68A47) Democritus says that the primary bodies (these are the compact things) do not possess weight but move by striking against one another in the infinite, and there can be an atom the size of a *kosmos*.  
(Aëtius 1.12.6)
24. (67A6) These men [Leucippus and Democritus] say that the atoms move by hitting and striking against each other, but they do not specify the source of their natural motion. For the motion of striking each other is compelled and not natural, and compelled motion is posterior to natural motion.  
(Alexander, *Commentary on Aristotle's Metaphysics* 36.21–25)
25. (68A58) They said that moving by virtue of the weight in them, <the atoms> move with respect to place through the void, which yields and does not resist. For they said that they “are hurled all about.” And they attribute this motion to the elements as not just their primary but in fact their only motion, whereas things composed of the elements have the other kinds of motion. For they grow and decrease, change, come to be, and perish through the combination and separation of the primary bodies.  
(Simplicius, *Commentary on Aristotle's Physics* 1318.35–1319.5)

5. Translator's note: This is a word the Atomists used to refer to the atoms.

26. (68A47) Democritus holds that there is one kind of motion, that due to pulsation.  
(Aëtius 1.23.3)
27. (68A60) Those <who call the primary bodies> solid can rather say that the larger ones are heavier. But since compounds do not appear to behave in this way, and we see many that are smaller in bulk but heavier, as bronze is heavier than wood, some think and say that the cause is different—that the void enclosed within makes the bodies light and sometimes makes larger things lighter, since they contain more void. . . . Those who make these distinctions must add not only that something contains more void if it is lighter but also that it contains less solid.  
(Aristotle, *On the Heavens* 4.2 309a1–14)
28. (68A66) Democritus leaves aside purpose but refers all things which nature employs to necessity.  
(Aristotle, *Generation of Animals* 5.8 789b2–4)
29. (68A66) <Concerning necessity> Democritus <says it is> the knocking against <each other> and the motion and “blow” of matter.  
(Aëtius 1.26.2)
30. (68A68) <Democritus> seemed to employ chance in his cosmogony, but in his detailed discussions he declares that chance is the cause of nothing, and he refers to other causes.  
(Simplicius, *Commentary on Aristotle’s Physics* 330.14–17)
31. (67A14) These atoms, which are separate from one another in the infinite void and differ in shape and size and position and arrangement, move in the void, and when they overtake one another they collide, and some rebound in whatever direction they may happen to, but others become entangled by virtue of the way their shapes, sizes, positions, and arrangements correspond, and they stay together, and this is how compounds are produced.  
(Simplicius, *Commentary on Aristotle’s On the Heavens* 242.21–26)
32. (68A57) What does Democritus say? That atomic substances infinite in number, not different in kind, and moreover incapable of

acting or being acted upon, are in motion, scattered in the void. When they approach one another or collide or become entangled, the compounds appear as water or fire or as a plant or a human, but all things are atoms, which he calls forms; there is nothing else. For there is no coming-to-be from what-is-not, and nothing could come to be from things that are, because on account of their hardness the atoms are not acted upon and do not change.

(Plutarch, *Against Colotes* 8 1110F–1111A)

33. (68B155) If a cone is cut by a plane parallel to the base, what should we think about the surfaces of the segments? Do they prove to be equal or unequal? If they are unequal they will make the cone uneven, with many step-like notches and rough spots, but if they are equal the segments will be equal, and the cone will appear to have the character of a cylinder, being composed of equal not unequal circles, which is most absurd.

(Plutarch, *Against the Stoics on Common Conceptions* 1079E)

34. (67A14) Leucippus and Democritus, calling the smallest and primary bodies atoms, <say> that by virtue of differences in their shapes and position and order, some bodies come to be hot and fiery—those composed of rather sharp and minute primary bodies situated in a similar position, while others come to be cold and watery—those composed of the opposite kinds of bodies. And some come to be bright and shining, while others come to be dim and dark.

(Simplicius, *Commentary on Aristotle's Physics* 36.1–7)

35. (68A129) He makes sweet that which is round and good-sized; astringent that which is large, rough, polygonal, and not rounded; sharp-tasting, as its name indicates, sharp and angular in body, bent, fine, and not rounded; pungent, round, small, angular, and bent; salty, angular, good-sized, crooked, and equal-sided; bitter, round, smooth, crooked, and small-sized; oily, fine, round, and small.

(Theophrastus, *Causes of Plants* 6.1.6)

36. (68A135) Iron is harder and lead is heavier, since iron has its atoms arranged unevenly and has large quantities of void in many

places . . . while lead has less void, but its atoms are arranged evenly throughout. This is why it is heavier but softer than iron.

(Theophrastus, *On Sensation* 62)

37. (67A1) <Leucippus> declares the universe to be infinite. . . . Of this, some is full and some is empty [void], and he declares these [full and void] to be elements. An infinite number of *kosmoi* arise out of these and perish into these. The *kosmoi* come into being in the following way. Many bodies of all sorts of shapes, being cut off from the infinite, move into a great void. They collect together and form a single vortex. In it they strike against one another and move around in all different ways, and they separate apart, like to like. When they are no longer able to rotate in equilibrium, the fine ones depart into the void outside as if sifted. The rest remain together, become entangled, move together in unison, and form a first spherical complex. This stands apart like a membrane, enclosing all kinds of bodies in it. As these whirl around by virtue of the resistance of the center, the surrounding membrane becomes thin, since the adjacent atoms join the motion when they come into contact with the vortex. And the earth came into being in this way when the atoms moving to the center remained together. And again the surrounding membrane-like thing itself grows because of the accretion of bodies from outside. As it moves in a vortex it acquires whatever it comes into contact with. Some of these become intertwined and form a complex that is at first damp and muddy, but when they have dried out and rotate with the vortex of the whole, they catch fire and form the nature of the stars.

(Diogenes Laertius, *Lives of the Philosophers* 9.31–32)

38. (68B164) Animals flock together with animals of the same kind—doves with doves, cranes with cranes, and likewise for the other irrational kinds. It is the same for inanimate things, as can be seen in the cases of seeds being sifted and pebbles on the shore. For through the swirling and separating motion of the sieve, lentils wind up together with lentils, wheat with wheat, and barley with barley, and through the motion of the waves, elongated pebbles are pushed to the same place as other elongated ones, and round ones to the same place as round ones, as if the similarity in these had some mutually attractive force for things.

(Sextus Empiricus, *Against the Mathematicians* 7.116)

39. (68A40) There are an infinite number of *kosmoi* of different sizes. In some there is no sun or moon. In some the sun and moon are larger than ours, and in others there are more. The distances between the *kosmoi* are unequal, and in one region there are more, in another fewer. Some are growing, some are at their peak, and some are declining, and here one is coming into being, there one is ceasing to be. They perish when they collide with one another. Some *kosmoi* have no animals, plants, or any moisture. In our own *kosmos* the earth came into being before the stars. The moon is lowest, then the sun, then the fixed stars. The planets too have unequal heights. A *kosmos* is at its peak until it is no longer able to take anything in from outside.

(Hippolytus, *Refutation of All Heresies* 1.13.2–4)

40. (67A1) The orbit of the sun is furthest out, that of the moon is nearest, and the others are in between. All the stars are on fire because of the speed of their motion; the sun too is on fire because of the stars, while the moon has only a small share of fire. The sun and moon suffer eclipses . . . [something is missing from the text—probably a reference to the ecliptic] because the earth is tilted toward the south. The regions to the north are always covered with snow and are very cold and frozen. The sun is eclipsed rarely, but the moon is eclipsed often because their orbits are unequal.

(Diogenes Laertius, *Lives of the Philosophers* 9.33)

41. (68A93) Democritus stated that thunder results from an uneven compound forcing the surrounding cloud to move downward. Lightning is the collision of clouds, as a result of which the atoms that generate fire are filtered through interstices containing much void (a process that involves friction) and collect in the same place. A thunderbolt occurs when there is a violent motion of fire-producing atoms that are very pure, fine, even, and “close-fitted” (the word Democritus himself uses). A waterspout occurs when compounds of fire containing much void are held back in regions with a lot of void and are wrapped in special membranes, and form bodies because of this rich mixture and make a rush toward the depth.

(Aëtius 3.3.11)

42. (68A104) Some say that the soul moves the body in which it is found in the same way as it is itself moved: Democritus, for example, who has a view like Philippos the comic poet, who says that Daedalus made the wooden statue of Aphrodite move by pouring quicksilver into it. Democritus speaks similarly, since he says that the indivisible spheres are in motion because their nature is never to stay still, and to draw the entire body along with them and move it. But we will ask if these same things also produce rest. How they will do so is difficult or impossible to state. In general, the soul does not appear to move the body in this way, but through choice of some kind and through thought.

(Aristotle, *On the Soul* 1.3 406b16–25)

43. (68A135) The visual impression is not formed directly in the pupil, but the air between the eye and the object is contracted and stamped by the seen object and by the seeing thing. For there is a continual effluence from everything. Then this [air], which is solid and has a different color, forms an impression in the eyes, which are moist.

(Theophrastus, *On Sensation* 50)

44. (68B9) Nonetheless [Democritus] is found condemning them [the senses]. For he says, “We in fact understand nothing exactly [or, “exact”], but what changes according to the disposition both of the body and of the things that enter it and offer resistance to it.”

(Sextus Empiricus, *Against the Mathematicians* 7.136)

45. (68B11) 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 separate 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> toward what is fine, <then the legitimate one enables us to carry on>.<sup>6</sup>

(Sextus Empiricus, *Against the Mathematicians* 7.138)

6. Translator’s note: This fragment trails off into corruption, but there is general agreement about the sense of what is missing.

46. (68B9) By convention [or, “custom”], sweet; by convention, bitter; by convention, hot; by convention, cold; by convention, color; but in reality, atoms and void.<sup>7</sup>  
(Sextus Empiricus, *Against the Mathematicians* 7.135)
47. (68B6) A person must know by this rule [*kanōn*: measuring stick, standard] that he is separated from reality.  
(Sextus Empiricus, *Against the Mathematicians* 7.136)
48. (68B8) In fact it will be clear that to know in reality what each thing is like is a matter of perplexity [or, “that people are at a loss to know in reality what each thing is like”].  
(Sextus Empiricus, *Against the Mathematicians* 7.136)
49. (68B7) In reality we know nothing about anything, but for each person opinion is a reshaping [of the soul-atoms by the atoms entering from without].  
(Sextus Empiricus, *Against the Mathematicians* 7.136)
50. (68A112) Either nothing is true, or at least to us it is unclear [or, “hidden”]. It is because these thinkers suppose intelligence to be sensation, and that, in turn, to be an alteration, that they say that what appears to our senses must be true (or, “real”).  
(Aristotle, *Metaphysics* 4.5 1009b11–15)
51. (68B117) In reality we know nothing, for truth is in the depths.  
(Diogenes Laertius, *Lives of the Philosophers* 9.72)
52. (68B125) Wretched mind, do you take your evidence from us and then throw us down? Throwing us down is a fall<sup>8</sup> for you!  
(Galen, *On Medical Experience* 15.8)
53. (68B166) Democritus says that certain images of atoms approach humans, and of them some cause good and others evil, and as a

7. There is a variant of this fragment in Plutarch (*Against Colotes* 1110E): “Color is by convention, and sweet by convention, and combination by convention” (tpc).

8. Translator’s note: The word used here is a technical term for a fall in wrestling.

result he prayed “to meet with propitious images.” These are large and immense, and difficult to destroy though not indestructible. They indicate the future in advance to people when they are seen and emit voices. As a result people of ancient times, upon perceiving the appearances of these things, supposed that they are a god, though there is no other god aside from these having an indestructible nature.

(Sextus Empiricus, *Against the Mathematicians* 9.19)

54. (68B191) Cheerfulness arises in people through moderation of enjoyment and due proportion in life. Deficiencies and excesses tend to change suddenly and give rise to large movements in the soul. Souls that undergo motions involving large intervals are neither steady nor cheerful . . .

(Stobaeus, *Selections* 3.1.120)

55. (68A1) The goal of life is cheerfulness, which is not the same as pleasure . . . but the state in which the soul continues calmly and stably, disturbed by no fear or superstition or any other emotion. He also calls it “well-being” and many other names.

(Diogenes Laertius, *Lives of the Philosophers* 9.45)

56. (68B74) Accept nothing pleasant unless it is beneficial.

(Democrates, *Maxims*)

57. (68B69) To all humans the same thing is good and true, but different people find different things pleasant.

(Democrates, *Maxims*)

58. (68B214) Brave is not only he who masters the enemy but also he who masters pleasures. Some are lords of cities but slaves of women.

(Stobaeus, *Selections* 3.5.25)

59. (68B33) Nature and teaching are closely related. For teaching reshapes the person and by reshaping makes <his> nature.

(Clement, *Miscellanies* 4.151)

60. (68B189) Best for a person is to live his life being as cheerful and as little distressed as possible. This will occur if he does not make his pleasures in mortal things.

(Stobaeus, *Selections* 3.1.47)



61. (68B235) All those who make their pleasures from the belly, exceeding the right time for food, drink, or sex, have short-lived pleasures—only for as long as they eat or drink—but many pains.  
(Stobaeus, *Selections* 3.18.35)

### Suggestions for Further Reading

All of these entries have further bibliographies. Complete bibliographical information for collections may be found in the bibliography in the Introduction, pp. 10–12. See also the relevant chapters in Barnes; Guthrie; McKirahan; and Kirk, Raven, and Schofield.

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