

## Chapter 4

### Anaximenes

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#### 1. The man

We know very little about Anaximenes except that he wrote a book. Even the boundaries of his life are quite uncertain. He was the youngest of the Milesian inquirers into the natural order, who were designated as a “school” by the Alexandrian scholars. Unlike Anaximander he did not write his book “poetically” but “used simple and economical Ionic language” (13 A 1).<sup>i</sup> Apollodoros placed his *akme* in 546/5 (the year that Cyros captured Sardis, so that his birth was at the *akme* of Thales in the eclipse year of 586/5 BCE).<sup>ii</sup> This may very probably be a scholarly fiction of the kind that Apollodoros regularly perpetrated when he had no definite evidence. But the tradition that Anaximenes was a “companion of Anaximander” is as plausible as it is clear.<sup>iii</sup> So the Apollodoran guess is approximately right. In that case Anaximenes was about twenty-five years younger than Anaximander; and his book may have begun to circulate only a few years after that of his older friend. Their works (and their theories) should be thought of as closely linked. But Anaximander was more of a “theologian”; Anaximenes is the first pure “physical theorist”; and his influence is clearly recognizable in the whole Ionian tradition that follows.

#### 2. The encompassing Air

The theory of Anaximenes — which is often derided as a falling-off from the speculative brilliance of Anaximander — ought to be interpreted as a *development* of Anaximander's theory in which some quite striking improvements are made. The Boundless of Anaximander was an invisible,<sup>iv</sup> material power that surrounded our world-system (and caused it to form and incubate like an egg). But Anaximenes reasoned that if the Boundless controlled the order and all the life of our world as “what must be,” then it has to be somehow present everywhere *inside* the order that it generates and “steers.” The Boundless of Anaximander was absolutely alive and active, not dead and inert; but otherwise it was without definite character — not solid, liquid or cloudy, light or dark, hot, cold, wet or dry. It is not visible or tangible; but it must, in fact, be here with us, even though we cannot be directly aware of it. We only become aware of it when it acts to compel our awareness. It *can* enforce our notice because it is a material body (or “stuff”). It moves; and when it moves, then we can feel it — we call it “the wind” or “the breeze.” The invisible Boundless is all around us, all the time; we ought to call it “the Air.” Thales was quite right to say that “all things are full of Gods”; he was only wrong in thinking that the divine life is primitively “watery.”

The Air that Anaximenes made into the first principle of the physical world was something that he *discovered*. “Air” from Homer to Anaximander is primitively *dark*; and when it is not actually quite dark it is misty, steamy, smoky or cloudy. “The winds” were something different. In the popular mind, they were capricious divine spirits; in the mind of a scientific observer like Anaximander they were caused by evaporated vapor. The quiet air that we are ceaselessly breathing in and out was not yet attended to.<sup>v</sup>

Anaximenes attended to it. He identified it as the invisible Boundless enforcing its control over all mortal life. We breathe because we must. The entry of the Air into us is “what must be.” It surrounds everything, big and little, and maintains all life. It does not simply encompass the world-system; it is not a transcendent divinity that we shall not — *cannot* — ever physically encounter, one that creates worlds — many worlds — like eggs in its many wombs (or perhaps just one sequence of worlds in the singular womb of Time). The Boundless does, indeed, encompass the world from outside for ever; but it also maintains it for ever from inside. There is no need for poetic language

and flights of imagination. Everything is plain and simple. The Air we breathe does it all, and the Air we breathe *is* all of it.

It is with Anaximenes that the divine kingship of the Whirlwind is definitely proclaimed. He is its self-conscious herald. Anaximander could not legitimately have said whether his Boundless was whirling. It *creates* motion; it sets off a process of “separation.” But the things that move are not components already present in it, as if it were a mixture; nor does it “manufacture” them by any familiar process of transformation. We do not know — and we cannot know — how the Boundless brings our world into being.<sup>vi</sup> The question does not yet make sense.

Anaximenes made sense of it. Everyone knew that the Air could make itself visible as clouds, mist or smoke; water, and watery solids (snow, hail, etc.) come down to earth out of it. Anaximenes’ new hypothesis was that the encompassing, truly divine, Air solidifies itself into the Earth, liquifies itself into the sea, and rarifies itself into the heavenly and earthly fires. It is carrying these fires around in its great (and very complex) whirling (A 7, A 5).<sup>vii</sup>

Here, at last, we do have Aristotle’s material principle full-blown. Air is the “stuff” of everything. Its divine life consists in condensing, rarifying and whirling. Fire is rare, and Earth and Water are condensed. Our breath warms our hands, and cools our porridge, according to how we hold our mouths when we expel it (B 1).<sup>viii</sup> The soul that is our life principle, is airy; it is maintained by breathing, and its life-giving power holds our bodies together and keeps them functioning. When breathing stops, the body soon ruptures and putrefies. “As our soul,” he says, “being air, holds us together in control, so breath and air embraces the whole kosmos” (B 2).<sup>ix</sup>

Apart from this one revealing fragment, we have little that we can ascribe directly to Anaximenes himself. Plutarch says that he used the word *chalaron* (slack, or loose) for hot or rarefied air; and it is plausible to think that he used the analogy of “felting” for the condensing process (B 1, A 7).<sup>x</sup> He thought that the fixed stars were like nail heads in “the crystalline.” “The crystalline” was an extreme case of his condensation process; so when Hippolytos tells us that

according to Anaximenes the heavenly bodies “go round the Earth as a felt cap turns on the head,” that metaphor may very probably come straight from his book (A 14, A 7).<sup>xi</sup>

### 3. The World-System

Anaximenes has the fixed stars in their proper place. They are fixed like nail-heads in an “ice-like” skin at the outer limit of the organized *kosmos*. This crystalline membrane turns like a felt cap on someone’s head; and as the stars turn with it, many of them rise and set. So this crystalline cap is moving up and down or swaying to some extent at least (and Anaximenes has watched the sky at night). The Earth is a flat solid plate. It is “like a table,” as our tradition tells us. Aristotle reports that it settles on the air *like a lid*, and compresses it “like the water in a *klepsydra* (water-clock)” (A 20).<sup>xii</sup> This makes sense only if the ice-like membrane is not just a half-sphere above the flat earth, but a whole container that goes round below it. In that case, the earth may rock, but it cannot fall. Actually it is quite stable (A 21).<sup>xiii</sup>

What shape the lower part of the container has below the Earth we do not know. A complete sphere would seem fit and proper to the mathematically-minded; probably that is what Anaximander thought. Anaximenes, who preferred empirical analogies, may have thought of an egg.<sup>xiv</sup> The tradition about his view reports that the flat Earth was formed *first* by the “felting” of the Air; but if Aristotle understood the account of its stability correctly, the Earth cannot have been older than its crystalline container. The Earth is *first* only in the sense that it is older than the solid bodies in the sky.

“The Sun and Moon and other heavenly bodies,” our late report continues, “originate from Earth.” Sun and Moon (and presumably the planets too) are solid (earthy) objects; and the Sun is very hot (being heated by its swift motion) (A 6).<sup>xv</sup> It is the Sun alone that is responsible for our earthly seasons (A 14). We do not know how Anaximenes explained this; but he distinguished hot, cold, wet and dry as *qualities*, from the solid, liquid and airy *bodies* of which they were properties (B

1).<sup>xvi</sup> And the fiery (or light-giving) solids are not the only heavenly bodies that the Air is carrying round. There are others which we do not see, until they obscure one of the light or fiery ones. This seems to be how Anaximenes explained eclipses (A 7, A 14).<sup>xvii</sup> According to one report, Eudemos credited him with being the first to realize that the Moon shines by the reflected light of the Sun. But since Plato's Sokrates takes this to be a new discovery made by Anaxagoras nearly a hundred years later, it is virtually certain that Eudemos has been misreported (A 16 — quite probably he wrote "Anaxagoras" not "Anaximenes"; but even in that case he was probably mistaken.)<sup>xviii</sup>

Because of the closed character of the system, with the flat table-earth operating like a lid on the bottom part, none of these solid bodies can actually go below the Earth. So the Sun and Moon (and the planets too, one supposes) must actually rise and set in the great surrounding sea of Ocean — which is on the "table." In Homer's River Ocean, Sun and Moon were carried round in bowl-boats when they set, to their next rising points. Anaximenes thinks that the Sun is hidden from our sight after its setting, because the outer edge of the solid Earth is considerably higher than our ground-level — in other words, our Earth is rather *concave*. The Sun is actually flat like a leaf; so Anaximenes clearly assumed that it would float round quite easily (A 7, A 14, A 15).<sup>xix</sup>

What the divine Air does in the heaven surpasses our ordinary earthly experience in all directions. But Anaximenes thought hard about analogies that would make his theory mechanically plausible. What the Air does, is generally a large-scale projection of phenomena with which we are familiar. For instance, Air is "felted" into solids; and the Sun can "ride" on the great whirl, because it is like a leaf; its heat derives from its speed, and so on. Still, some things in the Heaven are paradoxical. The "ice-like" outer membrane cannot be *cold*, because the stars fixed in it are fires (whose heat we do not feel because they are so far away); and it need not be *hard*, either — as its name might seem to imply. Anaximenes *may* have thought of it as "fire-hardened"; but it is "ice-like" only because it is *transparent*; and the Air extends boundlessly outside it.<sup>xx</sup>

Thus the Air is "God." It does some things that appear miraculous, by our standards. Among its other works it has created the "Gods" of Thales and the "theologians" (A 7).<sup>xxi</sup> It has

formed itself into fires that burn without being consumed. It keeps solid objects in orbit, when we would have expected them to fall, and so on. It is the *one and only* real God. The community of Gods, whom we can still recognize in Thales, has been decisively downgraded. This theological monism was almost certainly a speculative achievement of Anaximander. There would be room for “created Gods” in his theory, but he took the same view as Anaximenes about lightning and earthquakes. In Anaximenes even the moral dimension of the one God’s activity has vanished. “God” is simply the name for a great natural order that operates *mechanically*. Thus Iris (the Rainbow), for example, arises from the effect of the Sun’s rays on compacted air that is turning into moisture (A 18). Earthquakes are not caused by Poseidon, but by the breaking, or cracking, of the Earth’s outer surface, because of increased wetness — or perhaps through its drying out (A 21);<sup>xxii</sup> and the Sky-God’s thunder and lightning are the result of the wind splitting a cloud. The phosphorescence of the Sea is in some way analogous with the lightning (A 7, A 17).<sup>xxiii</sup>

The Heaven operates on different principles from earth, water, fire and air on Earth. But organic life on Earth operates upon “heavenly” principles. Anaximenes is a worthy forerunner of Laplace. He needs an “immortal” life-principle; but otherwise he does not need the hypothesis of “God” at all; and he is unique among the early thinkers, in that he seems to have had no philosophy of politics and human affairs.

## Notes

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- i. Diogenes Laertius, II, 3.
  - ii. Even to get this date we must assume a scribal confusion of *akme* and death dates in Diogenes, and take “had come to be” as an *akme* indicator (when it might more normally be taken to refer to birth). The best evidence is that of Hippolytos (A 7) who gives 548/7 for the *akme* — Barnes, 78.
  - iii. See especially the report of Simplicios (who had the book of Theophrastos always at hand) — A 5; Guthrie, I, 121.
  - iv. The Boundless is *invisible* not just *empirically* (because it is beyond the Aether which is the most distant thing that we can see) but *in principle*. This was vitally important to Anaximenes, who recognized the presence of an *invisible* element within the normal range of our perceptions.
  - v. C.H. Kahn (1960, 93, 100-9, 147-8) wants to credit Anaximander with the actual recognition of atmospheric Air. This is quite *possible* but there is no way in which we can be certain about it. We can see in Anaximander’s theory of the Winds and of Rain — 12 A 24, A 11 — how close he was to the conception of “condensation and rarefaction.” But we can also see that because of his belief in a continuum of transformation it was easy to overlook atmospheric air in the transition to Aether. It was certainly Anaximenes who saw the potential significance of the discovery of the atmosphere.

- vi. Even Aristotle “improved” Anaximander by treating his Boundless as a “mixture.” In spite of the “separating out” language this seems clearly to be an error.
- vii. Barnes, 77-78; Guthrie, I, 121.
- viii. From Plutarch (Barnes, 79).
- ix. From Aetios (Barnes, 79). As far as we can tell from the surviving records, the terms for the universal “macrocosm” and the human “microcosm” were invented by the Atomists. But it is here in Anaximenes that the parallel is first explicitly drawn. Xenophanes begins to qualify it; Parmenides and his followers make a great gulf between the divine life and human mortal existence; then the Atomists revive the parallel explicitly.
- x. A 7 is from Hippolytos (Barnes, 77 uses the word “compression” for Anaximenes’ “felting.”) Compare A 6 (Ps. Plutarch — Guthrie, I, 133).
- xi. For A 14 (Aetios) see Guthrie, I, 135; A 7 is in Barnes, 78. Whether “the crystalline” (or “ice-like”) comes from the book, is less certain. But if my reconstruction of the kosmos is right it would be a very appropriate expression. There is one other “fragment” in Olympiodoros (B 3 — Barnes, 79). But since it speaks of “the incorporeal” (or “bodiless”) it is certainly *corrupt* at best. The rest of it *might* be genuine; but it does not add anything significant to what we know, or can surmise with great plausibility. So it is best not to rely on it at all.



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- xii. From Aetios and Aristotle, *On the Heaven*, 294b. See Guthrie, I, 133.
- xiii. Aristotle (*Meteorology*, 365b) gives us Anaximenes' theory of earthquakes, and it does not involve anything as radical (or as mythically primitive) as the whole Earth rocking (see below).
- xiv. Because of the shape of the Earth in the center — and because of the Cosmic Birth Process — I have already suggested that Anaximander conceived of the world-system as an egg lying on its side. If that hypothesis is accepted, then the change made by Anaximenes was to stand the Cosmic Egg upon its head.
- xv. See Guthrie, I, 133.
- xvi. From Plutarch (Barnes, 79).
- xvii. Hippolytos and Aetios (Barnes, 78; Guthrie, I, 134). The sources do not actually testify about eclipses.
- xviii. We shall see later that “Sokrates” claimed too much for Anaxagoras — *Cratylus* 409b. It is more likely that Anaxagoras encountered this account of the Moon in the poem of Parmenides.
- xix. Hippolytos and Aetios (Barnes, 78; Guthrie, I, 134, 137). Also Aristotle, *Meteorology*, 354a (Guthrie, I, 138).

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- xx. Anaximenes probably thought of his “crystalline” as something like the containing membrane of an egg. For a good discussion see Guthrie, I, 135-137.
- xxi. Hippolytos would naturally have paid close attention to what Theophrastos reported about the genesis of “the Gods.”
- xxii. Aristotle, *Meteorology* 365 b 6. Ammianus ascribes the same view to Anaximander (see 12 A 28). The critical scholars are inclined not to trust him because they think that he (or his source) simply confused Anaximenes with Anaximander (see C.H. Kahn, 1960, 68). But I see no compelling reason for this scepticism — we might plausibly suspect that Anaximander believed in “drying out,” and Anaximenes in “increased wetness.”
- xxiii. Anaximander held the same view of thunder and lightning — 12 A 23. The point about phosphorescence on the surface of the sea certainly caught the attention of Herakleitos.