

Creationism and Its Critics in Antiquity

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I Anaxagoras

1. THE PRESOCRATIC AGENDA

The earliest western philosophers were the dazzlingly original Greek thinkers conventionally known as the Presocratics—a line-up which included such heterogeneous figures as Thales, Anaximander, Pythagoras, Heraclitus, Parmenides, Zeno of Elea, Anaxagoras, Empedocles, Democritus, and Protagoras. Our label “Presocratics” assumes that Socrates, who lived in the late fifth century B.C., initiated a new direction in philosophical thought sufficiently radical to mark off his predecessors and many of his contemporaries as jointly constituting a distinct group. While such demarcations inevitably oversimplify, for example by conferring spurious homogeneity on the group thus labelled,¹ one of my contentions in this book (chapter III) will be that, at least on the issue of divine creation, Socrates really can be seen to mark a fundamental new beginning in western thought. So I shall stick with the conventional term and speak of a “Presocratic” agenda.

It is a widespread perception that the Presocratics were materialists who did not think teleologically—that with the possible exception of one minor thinker, Diogenes of Apollonia, they simply did not anticipate Plato’s insistence on the irreducible presence of purposive structures in the world. Both Plato and Aristotle have done much to foster this impression, even though it in fact rests on a rather selective reading of their works.² One reason, no doubt, why the impression has not been as actively resisted as it

1. For warnings about this and other dangers of the term, along with a more nuanced characterization of early Greek philosophy, see Long 1999.

2. Plato *Philebus* 28d5–9, in particular, is a useful antidote to the better-known *Phaedo* 96a5–99d2; cf. also Sedley 2003a, pp. 90–92, for further Platonic evidence. In *Metaphysics A* (esp. 3–4) Aristotle seeks to establish his own originality in iso-

might is that many would like to regard materialistic explanation as one of the Presocratics' great merits, contrasting favorably with Plato's turn to theistic teleology, this latter being a regrettable step with long-term damaging consequences for the progress of science.

Setting aside any such historical evaluation, my aim in the opening two chapters is to correct what I believe to be, for better or worse, a serious misperception of the Presocratic agenda. That the world is governed by a divine power is a pervasive assumption of Presocratic thought. The assumption does not always focus specifically on the world's origins, but where it does it is again a widespread view that the world's original creation exhibited that same divine causation.

To see where these assumptions came from, there is much to be gained by making a brief start, around 700 B.C., with Hesiod, one of the earliest two surviving Greek poets, and author of a classic cosmogonic myth in his *Theogony*. Despite its considerable common ground with the mythologies of neighboring cultures, Hesiod's own perspective on the world's formation seems to have been seminal in forming the distinctively Greek tradition of cosmogony that grew up in its wake. The agenda of the Presocratic cosmologists was in effect already largely set by this creation myth's opening:

The very first thing was that Chaos came to be. Then
broad-bosomed Earth, a safe seat forever of all the gods . . .

Theogony 116–17

There followed a range of further births, including that of Love—a procreative force, ensuring the emergence of subsequent generations. The initial deities then became the forebears of a variety of further actors on the cosmic stage, including Night, who would become in turn the mother of Day; Heaven, the offspring of Earth; and Ocean. In due course further races were created by the gods, including mankind.

Without going into details, we may usefully note some features of this mythological sketch.

1. The explanatory model used by Hesiod is genealogical. The main structural features of the world as we know it are imagined to have come into being as successive generations of a family—at first a somewhat dysfunctional family, as it turns out, but one which has now settled down into a kind of equilibrium. It is not entirely clear in what relative measures these

lating the final cause *as a cause*, but is far from denying a teleological component to the thought of Hesiod, Parmenides, and Empedocles so far as regards the presence in the world of intelligent powers aiming at good outcomes.

protagonists' representation as divinities alludes to their everlastingness, to their power over our lives, and to their purposive functioning, but this last is unlikely to be wholly absent. If so, the presence of some kind of conscious controlling agency was implicit from the outset.

2. The very first deity was Chaos, who has the rare privilege of being grammatically neuter.³ Being a divinity and therefore immortal, Chaos must be assumed to be still with us, but now transformed by the presence in it of the other divinities. Whether—debatably—Chaos is to be assimilated more closely to our notion of matter or to that of space,⁴ its precedence over the rest of the world order already sets the pattern for an enduring feature of ancient cosmology: the world is an orderly structure imposed on a preexisting entity, namely a substrate, matrix, or background which so far as its own nature is concerned is unstructured. Later physicists would vie to identify the true nature of this primeval entity: is it air, fire, or some nameless and indefinite substance or container such as the mysterious "receptacle" described by Plato?⁵

3. The most fundamental feature of the orderly structure, and hence the first named by Hesiod, is the amazing stability of the earth ("broad-bosomed Earth, a safe seat forever of all the gods . . ."). Generations of philosophers would compete to explain how the earth, the heaviest thing known to us, is not at this very moment hurtling downwards. Their various solutions—the earth's floating on water or air; its perfect centrality in the cosmos; its infinite downward extension; its occupying the center of a vortex; and, most daring of all, its eternally orbiting a central fire⁶—came to be emblematic of Presocratic research into the causes of cosmic order.

4. Hesiod recognizes, in the early appearance of Love, the need for a creative force to give direction to the continuing process of cosmogony (a point respectfully acknowledged by Aristotle, *Met.* A 4, 984b23–31).

5. The origin of mankind is itself one of the recognized explananda. While the divine beings who jointly constitute the cosmos are linked by family

3. Hesiod's only other neuter divinity seems to be Chaos's offspring Erebus. (Tartarus is referred to by the neuter plural *Τάρταρα* only, I think, when the name is designating a region rather than a divine individual.)

4. On Chaos in Hesiod, see e.g. Stokes 1962, Podbielski 1986, Miller 2001. The word's basic meaning is undoubtedly something like "space" or "gap," but connotations of material fluidity (via an etymological link to *χεῖσθαι*, "flow") were being attached to it as early as the sixth century B.C.; see Pherecydes 7 B 1A DK.

5. Cf. p. 97 below. For Plato's "receptacle" as combining features of both space and matter, see Algra 1995, chapter 3.

6. Thales (water), Anaximenes and Anaxagoras (air), Anaximander (centrality), Xenophanes (infinite depth), Empedocles and the atomists (vortex), some Pythagoreans (orbiting).

membership, human beings are not part of that same genealogy, but are its manufactured products. In Hesiod's *Works and Days*, the gods are said to have "made" the series of mortal races that culminated in mankind (110, 128, 144, 158).⁷ Hesiod's further myth of the origin of woman, Pandora, supplies the additional information that she was made out of earth and water by the craftsman god Hephaestus (*Works and Days* 47–105), to whom Zeus had delegated the task. By this symbolism it is already made clear in outline that man is not a first-level component of the divine cosmic structure, but somehow a secondary product.⁸ Although Hesiod supplies no further information about the divine craftsmanship that generated mankind, we already have here the matrix for later creationist theories of human origins.⁹

All of these issues were to remain high on the cosmologists' agenda. The very word *kosmos*, "order," and hence "world-order" or simply "world," sums up the main task of the early physicists, despite the uncertainty as to how early the actual word came to be used in such a sense.¹⁰ How does the world succeed in possessing and maintaining such orderly features as the fixed arrangement of its four strata, earth, water, air, and fire, the cyclically recurrent motions of the heavenly bodies around a miraculously stable earth, the user-friendly food supply and cycle of seasons, and the enduring presence of stable life forms, ourselves included? All these questions became and remained a focus of debate.

Most of the earliest discussions of which we are aware were concerned with the search for the best type of explanatory model. Hesiod's genealogical model was quickly superseded by a variety of others.¹¹ Among these, the mechanical model is of particular importance to our story. One very simple explanation of the earth's stability and the motions of the heavenly bodies was that of floating, as even relatively heavy things are seen to do on water or air.¹² A more complex and fruitful mechanical model was that of

7. See esp. Clay 2003, pp. 85–86, for the importance of this. I take it that the enigmatic "distinguishing" of humans and gods at Mekone (*Theogony* 535) was, as it were, political or legal, rather than biological (West 1966, *ad loc.*; cf. Clay 2003, pp. 100–101).

8. Cf. Plato's *Timaeus*, where the world and the lesser gods are themselves created by the primary creator, and the creation of mankind is then delegated to those lesser gods themselves, an alternative way of marking off mankind's strictly subordinate status. I see no reason to agree with Solmsen 1963, p. 474, that the making of mankind is not germane to Hesiod's basic conceptual outlook.

9. For the dependent tradition of aetiological fable, see chapter II §3 below.

10. See Kahn 1960, pp. 219–30, who argues for pre-Heraclitean origins.

11. Lloyd 1966 remains the classic study of these models.

12. Earth floats on water (Thales 11 A 14 DK), or on air (Anaximenes 13 A 7(a), 20 DK).

the vortex. In a familiar vortex of water or air, denser stuffs are drawn to the center, finer ones to the periphery. If we imagine the world as a vortex, we can see why the earth would automatically tend to the lower center, with the progressively rarefied stuffs, water, air, and fire, lying outside it. But that would generate a world in which the heavens rotate horizontally around us with their pole of rotation directly overhead (figure 1). We therefore have to imagine the outer part of this vortex tilting to one side while the earth stays upright, and that does then give us a model for a stable flat earth with the heaven rotating at the angle it does (figure 2).¹³

A refinement to this mechanical approach, based on structural equilibrium, is traceable back to Anaximander. Provided that the world is sufficiently symmetrical in structure, its parts, including the earth, will maintain their places simply because they have no more reason to move off in one direction than in another.¹⁴ If, as has been argued,¹⁵ Anaximander was influenced in this appeal to equilibrium by the principles of architecture, the postulation of a cosmic architect is not lagging far behind.

The relevant question for our purposes is whether such paradigms can ever seem *sufficient* to account for cosmic regularity. Certainly they do a fine job of accounting for the world's broad structure and patterns of motion. But how about the emergence of life? This last question is complicated by the fact that biology itself came to provide, not just some of the focal explananda, but a second type of explanatory *model* for cosmic structure, one going far beyond Hesiod's simple genealogical model. Thus, to take a very simple example, Anaximander compared the stratification of the cosmic masses to a botanical structure: the layering of a tree, with the bark at the perimeter.¹⁶ Far more ambitiously, and more decisively so far as concerns the eventual direction of cosmology, philosophers would come to assimilate the entire world to a living organism, governed by an immanent deity. Although this conceit found its full expression only much later, particularly in Plato and the Stoics, it had Presocratic antecedents as early as Heraclitus.¹⁷

13. Cf. Anaxagoras's description of this two-stage process, DL II 9.

14. I am inclined to adhere to this traditional interpretation of Anaximander, founded on Aristotle *DC* 295b10–16, despite the impressive challenge mounted by Furley 1989b. For defense of it, see Bodnár 1992, Panchenko 1994.

15. Hahn 2002.

16. 12 A 10 DK.

17. Cf. n. 25 below. The familiarity of hylozoism in the later fifth century is attested by Melissus's denial that the One, which he equates with the universe, suffers pain or distress (30 B 7 DK).

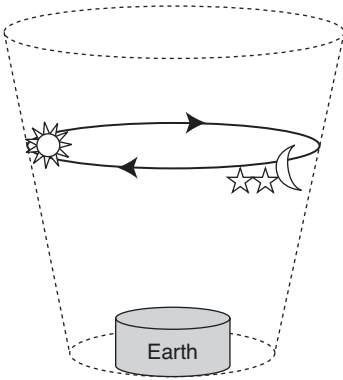


Figure 1

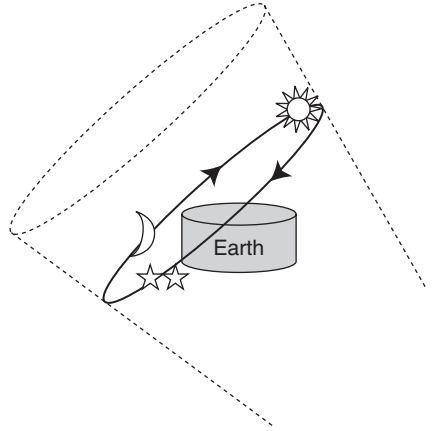


Figure 2

This kind of hylozoism is closely related to a supplementary principle of explanation, which we may call the political model of cosmology. If the world enjoys divine control, its internal regularities can be attributed to a kind of political stability. Such features of the world as the regular cycle of seasons could be presented as exemplifying, on a cosmic scale, that same regulatory factor which in human societies is called justice. Anaximander has been plausibly interpreted¹⁸ here as thinking of the partial victory of cold and wet over hot and dry in winter, followed by the symmetrical reversal of that victory in summer, when he compared cosmic change to the juridical sequence of transgression and retribution (12 B 1 DK).

For reasons like these, the assumption that the cosmos is controlled by one or more divine agents is, far from being Plato's innovation, at least implicitly present in Greek cosmology from a very early date. For most early thinkers such a conception raised no particular problem, because of their starting assumptions about the place of mind in nature. We may put this point in terms of a threefold choice that they faced.

(a) For the majority of these thinkers, the world is inherently animate. Thales, conventionally the earliest of all western philosophers, working in Miletus in the early sixth century B.C., famously remarked that "All things are full of gods" (11 A 22 DK). Most other early thinkers¹⁹ tended to characterize the world's underlying matter as if it were itself divine, if not indeed

18. Esp. Kahn 1960, pp. 178–83.

19. Cf., for Anaximander, Aristotle, *Ph.* 203b11–15, and for Anaximenes, Aetius 17.13, Cicero *ND* 1 26, with discussion by Kirk, Raven, and Schofield 1983, pp. 150–51.

identifiable with god. For thinkers in this pantheist tradition, life and divinity are given as primitive and irreducible properties of things, and there is therefore simply no problem about explaining the world's inclusion of apparently animate features, especially at the level of individual organisms such as ourselves. On the contrary, the problem would be, if anything, to explain why, unlike what we call living beings, some things in the world, such as stones, seem *not* to be animate. But Thales was in fact able to point out pertinently that at least one kind of stone does seem to be animate—namely the magnet, which has visibly motive powers.²⁰ Hence, no doubt, his celebrated assertion that magnets have souls (11 A 22 DK). In other kinds of stone, then, their animate character could be assumed simply to be too muted to show overtly. How far this panpsychism was exploited by Thales himself in accounting for the details of cosmic functioning is hard to say, given our very meager evidence,²¹ but the basis of such an approach was certainly in place.

(b) At the end of the Presocratic period, the exactly contrary thesis was developed, by the atomists, to whom we shall return in chapter V §1. Instead of reducing the inanimate to the animate, they on the contrary systematically reduced the animate to the inanimate. There is nothing but an infinite set of atomic particles, moving in infinite space. These have no properties but basic physical ones. Consciousness is not a basic but a derived or secondary property, an epiphenomenon that occurs when a large number of particularly fine and mobile atoms are arranged in a certain way.

(c) Both these first two approaches are essentially monistic: the reduction either of the inanimate to the animate, or vice versa. Leaving aside the obscure and controversial early Pythagoreans,²² the one thinker before Plato whom we can confidently regard as an exception to this monism is Anaxago-

20. Modern magnets are typically used to move other things, not themselves. In the ancient world, magnets were naturally magnetized pieces of iron ore, and would have been familiarly attracted and repelled by each other, as well as attracting iron.

21. One striking testimonium, overlooked by historians till now, but kindly pointed out to me by Inna Kupreeva, is Philoponus, *In Ar. De anima* 86.29–30, where Thales is reported as having said “that providence (*πρόνοια*) extends to the extremes and nothing escapes its notice, not even the smallest thing.”

22. It seems likely that a Pythagorean doctrine of metempsychosis predated Anaxagoras (cf. Kahn 2001, esp. p. 18). Indeed, Hermetimus, also of Clazomenae and treated by Aristotle as if a forerunner of Anaxagoras (*Met.* A 3, 984b15–22, *Protrepticus* fr. 10c Ross), was both credited with out-of-the-body experiences (e.g. Lucian, *Musc. Enc.* 7) and identified as one of Pythagoras's own previous incarnations (DL VIII 5) in a tradition that can be traced back as early as Empedocles (31 B 129 DK). But whether the transmigrating soul was in this pre-Anaxagorean phase firmly distinguished from matter is harder to establish. In the first surviving version of the doctrine, that of Empedocles, there is no such dualism (see pp. 31–32 and p. 51 n. 62 below).

ras (early to mid fifth century B.C.). Anaxagoras is the first dualist of mind and matter, and he argues that only by making mind and matter two irreducibly different kinds of thing can we explain the power of mind to control matter, as the very existence of a world like ours attests it must do.

Thinkers of group (a), then, did not have a problem with explaining the presence of apparently intelligent structures in the world—any more than there had been such a problem for Hesiod, who treated the main components of the cosmic structure as simply being themselves gods. But *so* unobtrusive was the problem that, to all appearances, these panpsychist thinkers had little to say about it. In other words, in the sixth and early fifth centuries B.C. there is no sign of *debate* about the creative role of such a power. The tradition represented by Hesiod made philosophers slow to realize the need to detail and defend, rather than take for granted, the presence in the world of some superior governing power.²³ The greatest thinker of this early phase, Heraclitus, set out to undermine Hesiod's naïve treatment of the main cosmic players, such as Night and Day, as discrete individual deities;²⁴ but Hesiod's underlying divinization of the world, far from facing any challenge from him, was taken for granted by Heraclitus.²⁵ Even Parmenides, who in the second half of his poem outlined a cosmology that he judged, although false, liable to prove congenial to his audience, included in it a role for a creative goddess (28 A 37, B 12–13). In none of these cases is there any sign that divine causation had yet become a subject for philosophical *argument*.

2. ANAXAGORAS'S COSMOLOGY

In this regard, Anaxagoras was the truly revolutionary thinker.²⁶ He was rightly recognized by Plato²⁷ as the first overt champion of a creative cos-

23. Xenophanes' insistence on god's superhuman nature and powers (21 B 10–16, 23–26) is a partial exception, to this limited extent anticipating Anaxagoras's elevation of the power of *nous* (see below); but there is little sign yet of emphasis on god's creative intelligence.

24. See Mourelatos 1973.

25. In 22 B 30 DK, Heraclitus speaks of the world as an "ever-living fire" which "neither any god nor any man made." The paradoxical addition of "man" makes it unsafe to infer from the fragment that Heraclitus was engaged in speculation or debate about divine creation of the world.

26. I here rely on Aristotle's information that Anaxagoras was older than Empedocles, *Met.* 984a11–13. When he adds that Anaxagoras was *τῶν δὲ ἔργων ὕστερος*, that is a relative evaluation of importance, not a reference to the date at which he wrote: see Kahn 1960, 163–65; an unpublished paper by Stephen Menn has further encouraged me in this direction.

27. Cf. n. 2 above.

mic intelligence, even if Plato found his actual use of that concept to be in the event disappointing. Anaxagoras explains the world as what resulted when *nous*—"mind" or "intelligence"—set out to act upon the preexisting stock of matter.

The interpretation of Anaxagoras's physical theory is something of a minefield.²⁸ His main tenets are in outline as follows:

1. The world's basic ingredients (whatever these may be) are entirely mixed together and can never be fully separated.
2. Originally, before the world came into being, that mixture was so homogeneous that nothing was distinguishable from anything else.
3. *Nous* has since then created a cosmic vortex, thanks to which the ingredients have increasingly separated out from each other.
4. This separation is, however, only ever a partial one: the proportions in the mixture change, but it remains permanently true that "there is a portion of everything in everything."
5. The way that perceptible stuffs are differentiated from each other is determined by whatever predominates in each part of the mixture: each stuff is named after whatever it has got most of in it.

For present purposes, I shall baldly state what I take this theory to amount to. The original matter on which *nous* set to work was a more or less even mixture of all the pairs of perceptible opposites: hot and cold, wet and dry, bright and dark, light and heavy, sweet and bitter, black and white, and so on. The main manifestation of this even mixture was endless stretches of two bland stuffs with few if any discernible features, stuffs which Anaxagoras calls "air and aether" (59 B 1 DK).²⁹ But when intelligence decided to set up a cosmic rotation, the vortex began to separate the pairs of opposites, so that some regions had more hot than cold and vice versa, some more rare than dense and vice versa, and so on for all the opposites. It is from this intelligently generated set of imbalances that familiar stuffs like earth and water have been formed. As Anaxagoras says (B 15) when

28. This is not the place to offer a systematic bibliography of Anaxagorean interpretation, for which see Sider 2005. My own views have most in common with those of Schofield 1980.

29. By "aether" Anaxagoras means, not fire, as Aristotle thought, but the particularly dry and refined atmosphere of the heavens (see Schofield 1980, p. 71; Kingsley 1995b, pp. 28–29), while his "air" is the familiar atmosphere we inhabit. Air and aether, then, are chosen as the two major component stuffs still evident in the cosmos that are least distinguished by discernible visual, tactile etc. properties.

explaining how the earth formed during the cosmic separation, “Dense, wet, cold and dark came together here, where there is now earth.”³⁰ Earth, that is, is not a basic ingredient in the mix, but is itself a product of the partial separation of opposites that *nous* has engineered.³¹ That separative process is in its very nature uncompletable. For example, there neither is nor ever will be an instance of absolute brightness which does not still contain some darkness, that is, which could not in theory become even brighter. Moreover, the bright object will never fail to have in addition some temperature, some degree of density, some color, and so on for all the scales of opposites. And each of these properties similarly admits of further intensification or diminution: no phenomenal object ever stands at the extreme end of any such property scale. In this way, every opposite really is and always will be mixed both with its own opposite and with all the other pairs of opposites. Anaxagoras’s celebrated thesis that “There is a portion of everything in everything” (B 11, etc.) does not describe a merely contingent fact about the world, but embodies a basic metaphysical principle.

Now it has to be admitted that the majority of interpreters, following Aristotle’s lead, do not restrict the ingredients to pairs of opposites as I have done. They hold that included in Anaxagoras’s grand mixture are stuffs such as flesh, bone, and gold. This addition is not only unsupported by the surviving parts of Anaxagoras’s text, but in my view introduces almost intolerable problems for the coherence of his doctrine. Nothing that I shall go on to propose is entirely dependent on the simpler interpretation that I favor, the one which limits the ingredients to opposites alone. I shall for present purposes proceed as if it were correct, saving my defense of it for an Appendix to the present chapter.

30. τὸ μὲν πυκνὸν καὶ <τὸ> διερὸν καὶ τὸ ψυχρὸν καὶ τὸ ζοφερὸν ἐνθάδε συνεχώρησεν, ἐνθα νῦν γῆ. Here the last word, “earth,” is marked in Diels-Kranz 1952 as an editorial supplement, but Sider 2005, p. 149, shows that it in fact has unanimous manuscript attestation. One manuscript also carries the definite article (ἡ) before “earth,” and this is often printed too, but Sider gives good reason for omitting it.

31. Anaxagoras probably speaks here of “earth,” not “the earth” (see previous note). In doing so, he refers most directly to the *stuff* earth, although he probably thereby implies a reference to the cosmic zone of that same name, just as the second half of the fragment (see p. 13 below) refers to “the far side of the aether,” thus designating a cosmic zone (the heaven) by naming the material mass it consists of. Despite this unclarity, there should be no doubt that the material composition of the stuff earth of which the earth consists is his explanandum in the first half of the fragment.

3. THE POWER OF *NOUS*

We must now turn to Anaxagoras's causal principle, *nous*, variously translated "intelligence" and "mind," whose powers he hymns eloquently and at length in fragment B 12. In reading this passage (pp. 11–12 and 20 below), it is important to recognize that the reference of the word *nous* ranges, without clear demarcation, over both intelligence as a power resident in each of us, whose properties we therefore know at first hand, and the great cosmic intelligence which created the world. The ambiguity is permissible because Anaxagoras almost certainly holds that the great cosmic intelligence, having created the world, apportioned at least some of itself into individual living beings, ourselves included (more on this in §6 below).

Anaxagoras's most decisive philosophical innovation is, as I said earlier, his dualism of mind and matter. His great predecessor Parmenides, the ultimate monist, had argued that being is utterly homogeneous, so that its differentiation into a varied world such as we seem to experience must be a mere illusion. In the second half of his poem Parmenides had added, enigmatically, that the necessary price to be paid for vindicating the physical world is a shift from his own monism to some kind of dualism, and had offered, in far from lucid terms, his own suggestion as to what the paired principles of this dualism might be: two stuffs which he calls "fire" and "night."³² Anaxagoras's own preferred answer as I interpret it is that *nous*—mind, intelligence, or thought—which Parmenides had fully identified with being,³³ must instead be radically separated from the rest of being. Intelligence's power to act on matter, and to differentiate it into the world as we know it, requires that it itself be "unmixed" with the matter. As he says at the beginning of B 12,

The other things share a portion of each, but intelligence is something infinite and autonomous, and is mixed with no thing, but it alone is by itself. For if it were not by itself, but were mixed with something else, it would share in all things, if it were mixed with any of them—for in each

32. It is at least possible that Parmenides gave Anaxagoras a cue by somehow identifying his fiery element with the creative goddess of whom he also spoke in the Way of Seeming. But the evidence for this is difficult at best, and I shall not pursue it here.

33. This remains the most natural reading of 28 B 3 DK, τὸ γὰρ αὐτὸ νοεῖν ἐστὶν τε καὶ εἶναι: "For it is the same to think and to be." If Parmenides is, as most agree, a metaphysical monist, he is in any case committed to denying any distinction between the thinking subject and the object thought. This is argued briefly in Sedley 1999a, and fully in Long 1996b.

thing a portion of each is present, as I have said earlier—and the things mixed with it would prevent it from controlling any thing in such a way as it does in being alone by itself.³⁴

This is at first sight curious. *Nous* is for Anaxagoras not merely a cosmogonic cause, but the very same entity which in today's world governs animate beings like ourselves. And he is quite explicit that *nous* is present "in" those beings (B 11). If *nous* is in our bodies, how can it remain altogether unmixed with them?

What Anaxagoras means is, I take it, the following. The stuffs that our bodies are made of either are (on my preferred interpretation), or at least include, pairs of opposite properties like hot and cold, wet and dry. For intelligence to be "mixed" with these would be for it itself to have a certain temperature, a certain degree of moistness, etc. And that would make intelligence subject to physical change, so that it could be acted upon *by* matter, being for example heated and dried in summer, cooled and dampened in winter, when the reality is that it itself controls matter. To say that intelligence is unmixed is thus Anaxagoras's way of saying that, despite being present in living things, it is in itself neither hot nor cold, neither wet nor dry, and so on for all the pairs of perceptible opposites. In short, to call intelligence unmixed is his way of saying that it is free of physical properties.

Anaxagoras is never reported as distinguishing mind or intelligence from body as the "incorporeal" from the corporeal, and indeed he betrays just the opposite assumption when he calls *nous* "the finest and purest of all things," and when, later in B 12, he speaks of it in quantitative terms ("*nous* is all alike, both the larger and the smaller"). He thus treats it as if it were a physical stuff, albeit a very special one. But it seems clear to me that his device of making mind "unmixed" is as close an approximation to the now familiar separation of the incorporeal from the corporeal as was conceptually possible in the first half of the fifth century B.C.³⁵

34. τὰ μὲν ἄλλα παντὸς μοῖραν μετέχει, νοῦς δέ ἐστιν ἄπειρον καὶ αὐτοκρατὲς καὶ μέμεικται οὐδενὶ χρήματι, ἀλλὰ μόνος αὐτὸς ἐπ' ἑωυτοῦ ἐστιν. εἰ μὴ γὰρ ἐφ' ἑαυτοῦ ἦν, ἀλλὰ τεω ἐμέμεικτο ἄλλω, μετείχεν ἂν ἀπάντων χρημάτων, εἰ ἐμέμεικτό τεω (ἐν παντί γὰρ παντὸς μοῖρα ἔνεστιν, ὥσπερ ἐν τοῖς πρόσθεν μοι λέλεκται), καὶ ἂν ἐκώλυεν αὐτὸν τὰ συμμεμειγμένα, ὥστε μηδενὸς χρήματος κρατεῖν ὁμοίως ὡς καὶ μόνον ἔοντα ἐφ' ἑαυτοῦ.

35. Cf. esp. Renehan 1980. He contrasts Plato's clear attributions of incorporeality with their weak anticipations in pre-Platonic thinkers, including (pp. 114–18) Anaxagoras, albeit without any discussion of the mixture theme in B 12.

4. SUN AND MOON

Originally, says Anaxagoras, there was an undifferentiated mixture. *Nous* managed to produce a partial separation of the mixture by stirring it—making it rotate in a vortex which stratified it into the familiar layers of earth, water, air, aether, and fire. Let us revisit and complete our reading of fragment B 15:

Dense, wet, cold and dark came together here, where there is now earth, while rare, hot and dry travelled out to the far side of the aether.³⁶

Earth's distinctive properties have accumulated down here, while the partially separated opposites of those same properties—the light, the rare, the bright etc.—have travelled outwards to the perimeter of the cosmos, at the far edge of the region of aether,³⁷ to form the fiery outer heavens. But stones, Anaxagoras tells us (B 16), also have a certain tendency to heat up and travel to the cosmic perimeter. Hence the sun, according to him, is itself a vast red-hot rock whose anomalous position, caught up in the celestial rotation near the outer perimeter rather than at rest down here, testifies that the separation engineered by intelligence is never either clean or absolute. The moon, comparably, is an outlying mass of earth, not inherently fiery but irradiated by the sun.³⁸ That the separation process is still continuing, with some

36. τὸ μὲν πυκνὸν καὶ <τὸ> διερὸν καὶ τὸ ψυχρὸν καὶ τὸ ζοφερὸν ἐνθάδε συνεχώρησεν, ἔνθα νῦν γῆ. τὸ δὲ ἀραιὸν καὶ τὸ θερμὸν καὶ τὸ ξηρὸν ἐξεχώρησεν εἰς τὸ πρόσω τοῦ αἰθέρος. When Aristotle writes that for Anaxagoras each of the four elemental masses is a composite (GC 314a24–b1, ἐναντίως δὲ φαίνονται λέγοντες οἱ περὶ Ἀναξαγόραν τοῖς περὶ Ἐμπεδοκλέα· ὁ μὲν γὰρ φησι πῦρ καὶ ὕδωρ καὶ ἀέρα καὶ γῆν στοιχεῖα τέσσαρα καὶ ἀπλᾶ εἶναι μᾶλλον ἢ σάρκα καὶ ὄστουν καὶ τὰ τοιαῦτα τῶν ὁμοιομερῶν, οἱ δὲ ταῦτα μὲν ἀπλᾶ καὶ στοιχεῖα, γῆν δὲ καὶ πῦρ καὶ ὕδωρ καὶ ἀέρα σύνθετα· πανσπερμίαν γὰρ εἶναι τούτων) I suspect that he is basing himself primarily on this fragment, even though in doing so he is, in line with his usual interpretation, elevating the homoeomerous stuffs to priority over the opposites. His addition of the term *πανσπερμία*, as DC 302a28–b5 confirms, reflects his belief (which I dispute, see §5 below) that Anaxagoras calls the homoeomerous stuffs *σπέρματα*. If Anaxagoras did himself somewhere call cosmic masses like earth and air *πανσπερμίαι* (which is far from clear), he is more likely to have meant that each is a universal seed-bed, in the literal sense of “seed” which I go on to defend below. It is true that fire could hardly be a seed-bed in this sense, but aether could be; and since Aristotle mistakenly believes that Anaxagoras uses “aether” to designate fire (DC 302b4–5, see n. 29 above), he would here have a further reason for assuming that the “seeds” in question were elements, not biological seeds.

37. Note that aether was not generated by this separation, because as B1 indicates it was there all along.

38. Panchenko 2002.

of the celestial rocks gradually returning to earth and cooling, was confirmed, in Anaxagoras's eyes, by the periodic fall of meteorites.³⁹

5. WORLDS AND SEEDS

With this brief sketch in mind, let us turn to my key passage, B 4, quoted verbatim by Simplicius from book 1 of Anaxagoras's treatise without giving the slightest clue as to its context there. In the first part of this passage, Anaxagoras seems to argue that there must be other worlds like our own:

These things being so, one must believe that there are many things of all kinds in all the things that are being aggregated, and seeds of all things, which have all kinds of forms and colors and savors. And that human beings were compounded, and all the other animals that have soul. And that the human beings, for their part, have cities that they have populated and farms that they have constructed, just as where we are. And that they have both sun and moon⁴⁰ and so on, just as where we are. And that their earth bears many things of all kinds,⁴¹ of which they harvest the best and bring them to their dwelling to use. So much then for my statement about the separation—that it would not happen only where we are, but elsewhere too.⁴²

Anaxagoras here starts by asserting, as an inference from whatever preceded, that in every collection of matter there are not only all kinds of things—meaning either the usual pairs of opposite properties, as on the interpreta-

39. This seems the best way to interpret the reports that he had *predicted* the fall of the meteorite at Aegospotami in 467, A 1 (10), 11–12.

40. I translate “sun and moon” not “a sun and a moon,” to avoid endorsing Simplicius's inference (*In Ar. Phys.* 157.22–24) that these must be a sun and a moon other than our own. Although that inference would support my interpretation, it is unfortunately groundless. But it is important, as we shall see shortly, to note that Anaxagoras's locution does at least indicate that each other civilization has precisely one sun and one moon.

41. I follow Sider 2005, p. 99, in translating τὴν γῆν αὐτοῖσι as “their earth,” with αὐτοῖσι construed as a possessive dative, rather than “the earth bears them many things of all kinds.”

42. B 4. τούτων δὲ οὕτως ἐχόντων χρηὶ δοκεῖν ἐνεῖναι πολλά τε καὶ παντοῖα ἐν πᾶσι τοῖς συγκροτούμενοις καὶ σπέρματα πάντων χρημάτων καὶ ἰδέας παντοίας ἔχοντα καὶ χροιάς καὶ ἡδονάς. καὶ ἀνθρώπους τε συμπαγῆναι καὶ τὰ ἄλλα ζῶα ὅσα ψυχῆν ἔχει. καὶ τοῖς γε ἀνθρώποισιν εἶναι καὶ πόλεις συναρκημένας καὶ ἔργα κατεσκευασμένα, ὥσπερ παρ' ἡμῖν, καὶ ἡλίον τε αὐτοῖσιν εἶναι καὶ σελήνην καὶ τὰ ἄλλα, ὥσπερ παρ' ἡμῖν, καὶ τὴν γῆν αὐτοῖσι φύειν πολλά τε καὶ παντοῖα, ὧν ἐκείνοι τὰ ὀνήστα συνενεγκάμενοι εἰς τὴν οἴκησιν χρῶνται. ταῦτα μὲν οὖν μοι λέλεκται περὶ τῆς ἀποκρίσιος, ὅτι οὐκ ἂν παρ' ἡμῖν μόνον ἀποκριθεῖν, ἀλλὰ καὶ ἄλλῃ.

tion I favor, or these plus primitive stuffs like flesh and gold—but also what he calls “seeds of all things, which have all kinds of forms and colors and savors.” What are these seeds?

Here once more we enter a quagmire of controversy. It has been widely assumed since Aristotle that “seeds” (*spermata*) is Anaxagoras’s technical term for his basic physical principles, whether these be the opposites and/or other underlying stuffs, or some kind of constituent particles. Other interpreters,⁴³ albeit a minority, have taken them to be simply ordinary biological seeds. I am fully convinced of the latter interpretation. The introduction of technical terms such as the former party postulate here was a surprisingly late development in philosophy, the first clear cases being with the atomists, a generation after Anaxagoras. Although Anaxagoras did himself make an important contribution to that development, he did so not by introducing terms with technical senses, but by outlawing ordinary-language usages which he considered misleading. Thus in fragment B 17 he objects to the words “become” and “perish,” pointing out that what the Greeks loosely designate with these verbs is in reality nothing but mixture and separation. True to his word, he never once uses either verb in his surviving fragments, and instead sticks to the language of combination and separation. But that key contribution to the Greek philosophical vocabulary lies in a cleaning up of philosophical language by studious *exclusion*. The further move of creating new terms, or redeploying existing words in unfamiliar technical senses, came only later. If “seeds” were being used by Anaxagoras as an innovative technical term, it would be a probably unique exception⁴⁴ to the pattern I have described.⁴⁵

It therefore seems to me fairly clear that the “seeds” of B 4, far from being any kind of theorized elements or principles, are ordinary biological seeds, the origins of plants and animals. This is fully confirmed by what follows. For what Anaxagoras immediately goes on to infer is that not only in our part of the universe, but elsewhere too, there are worlds—structures with an earth, a sun, and a moon—in which human beings have come into existence just as in our world. Those human beings, moreover, lead both urban and rural lives, in that they will both have founded cities and have constructed farms. On these farms, he continues, all kinds of things must grow

43. Notably Furley 1976, Schofield 1980.

44. Regarding *logos* in Heraclitus, see p. 226 n. 49 below.

45. Indeed, it is precisely Anaxagoras’s failure to supply a technical term for his ingredients, instead simply calling them “things,” that lies behind the difficulties every interpreter since Aristotle has had in reconstructing his theory: see Appendix to this chapter.

from the earth, of which they can be assumed to harvest the best and bring them home.

Why does all this follow from the initial assertion about the existence of seeds in the mixture? The reason why Anaxagoras is confident that the same range of life forms, humans included, has occurred in other worlds too is clearly that the "seeds" contained in the universal mixture are assumed to be the very same complete range of biological seeds which, in our own experience, give rise to life. Wherever in the universe the right conditions recur, the same life forms are bound to emerge, Anaxagoras has inferred.⁴⁶

I have spoken of other worlds here, although it is by no means generally agreed that Anaxagoras held there to be other worlds than our own,⁴⁷ mainly because the ancient doxographies (catalogues of doctrines) report that he did not.⁴⁸ Some have for this reason preferred to see in our passage a reference to merely hypothetical worlds: the same results *would* have ensued anywhere in the universe *if* intelligence had gone to work there. The Greek syntax however favors a reference to actual, not counterfactual, civilizations. Nor is it plausible, as yet others have suggested, that these are civilizations merely in other parts of our own world. As a flat-earth theorist⁴⁹ Anaxagoras cannot be postulating people in the antipodes, and if he just means distant civilizations on the same flat surface as we inhabit he hardly had to argue for them, as he does here, since the Greeks were well aware of the existence of distant barbarian races. No, he really has to be referring to other worlds, even if he never developed the doctrine with sufficient clarity to earn it a place in the later doxographies. The reason why the doxographers overlooked the significance of B 4 in this regard is, I imagine, that they had already classified Anaxagoras as a one-world theorist on the evidence of B 8: "The things *in the one world* have not been severed from each other, nor has the hot been chopped apart with an axe from the cold, or the cold from the hot." Here Anaxagoras was probably in fact referring to the world's unity, not its uniqueness, but the expression was no doubt enough to mislead a doxographer scanning the text to find out Anaxagoras's position in the "One world or many?" controversy.

46. True, the ability of animal seeds initially to germinate and grow directly from the earth (for which see DL II 19 and n. 51 below) would require some assumptions about, for example, the spontaneous formation of surrogate wombs. For Lucretius's postulation of such "wombs," and possible Presocratic antecedents, see Campbell 2003, pp. 75–77.

47. For recent discussions of the issue which *inter alia* helpfully survey the earlier bibliography, see Schofield 1996, and cf. Louguet 2002.

48. Aetius II 1.2, cf. Simplicius *In Ar. Phys.* 178.25.

49. DL II 8; Hippolytus, *Ref.* I 8.3; 59 A 87 DK.

What Anaxagoras is telling us, then, is that there must be other worlds with the same kind of flora and fauna as ours, including human civilization as we know it. Moreover, the confident prediction is based specifically on the ubiquity, in the universal mixture, of the full range of seeds from which life develops.

This impression is confirmed by what he immediately goes on to say in the remainder of B 4, if I have understood it right:

Before these things were separated off, all things were together and not even any color was evident. For it was prevented by the mixture of all things—the wet, the dry, the hot, the cold, the bright, and the dark, there also being present in it much earth and seeds infinite in quantity, quite unlike each other. For of other things too, one is quite unlike another. These things being so, one must believe that in the universe all things are present.⁵⁰

This passage has caused a great deal of puzzlement, largely, I believe, because it has been unanimously assumed to describe the original primeval state before intelligence started the cosmic rotation. That this is wrong is, it seems to me, shown by the fact that in the situation described there is already a lot of *earth* present: for, as we have seen in B 15, earth came to be only after the cosmic separation had started, thanks to the heavy, the dense etc. gathering together. Probably then these lines describe not the primeval state of matter before intelligence had even begun work on producing a world, but our world in its drab, uniform state just before life, as described in the immediately previous lines, emerged from it. The introductory words “Before these things were separated off . . .” refer by “these things” to life forms within our world, and not to the world as such.

With this thought in mind, look again at the list of items which Anaxagoras singles out for mention: in this colorless primeval world there was a mixture of the wet and the dry, the hot and the cold, the bright and the dark, a lot of earth, and innumerable seeds of widely differing kinds. Contrary to what appears to be the universal scholarly assumption, what he has set out here is no random list. Ask any farmer or gardener. Anaxagoras has set out the perfect hothouse conditions for the emergence of life: earth, seeds, and a temperate balance of moisture, temperature, and light. It is because the

50. πρὶν δὲ ἀποκριθῆναι ταῦτα πάντων ὁμοῦ εἰόντων οὐδὲ χροὶ ἔνδηλος ἦν οὐδεμία· ἀπεκάλυε γὰρ ἡ σύμμειξις πάντων χρημάτων, τοῦ τε διεροῦ καὶ τοῦ ξηροῦ καὶ τοῦ θερμοῦ καὶ τοῦ ψυχροῦ καὶ τοῦ λαμπροῦ καὶ τοῦ ζοφεροῦ, καὶ γῆς πολλῆς ἐνεούσης καὶ σπερμάτων ἀπείρων πλήθος οὐδὲν ἐοικότων ἀλλήλοις. οὐδὲ γὰρ τῶν ἄλλων οὐδὲν ἔοικε τὸ ἕτερον τῷ ἑτέρῳ. τούτων δὲ οὕτως ἐχόντων ἐν τῷ σύμπαντι χρῆ δοκεῖν ἐνεῖναι πάντα χρώματα.

world has turned out to possess such amazing biodiversity that we can work out, as Anaxagoras says in the concluding words of the fragment, that the universal stuff from which intelligence made our world must already contain all these necessary ingredients, seeds included. And that is how we can further work out that, as we saw in the earlier part of the fragment, the same diversity of life forms must have emerged *everywhere* in the universe that *nous* has got to work.

This interpretation, if correct, has important implications. Life forms arise, not because intelligence plans, designs, and constructs them, but because the universal stuff is already full of seeds.⁵¹ This may sound like an abnegation of the scientist's responsibility to *explain* life, but on the assumptions available to Anaxagoras it is more than reasonable.

First, there is the familiar empirical fact that almost any portion of earth subjected to moisture, warmth, and light will produce life forms. These life forms may include not only weeds, molds, and other such growths, but also primitive animals—worms, grubs, insects etc.

Second, many small organisms were widely believed, in and well after antiquity—even by Aristotle—to be the product of spontaneous generation,⁵² self-formed without seeds. So if Anaxagoras, by making the ubiquitous presence of seeds a primitive fact, is avoiding the alternative of a resort to spontaneous generation, he earns some credit here. Indeed, Theophrastus speaks approvingly of Anaxagoras's doctrine of ubiquitous seeds for precisely this merit—its reduction of the need to postulate spontaneous generation.⁵³

51. Cf. Anaxagoras A 113: animals first arose from seeds that fell from heaven to earth.

52. For Aristotle's belief in spontaneous generation, see e.g. *HA* 569a29–570a3, *GA* 761b24–763b16, *Met.* 1032a12–b1, and for more references Bonitz 1870 s.v. *αἰτόματος* 4. For the Epicureans, see Lucretius II 871–73, 898–901, 926–29, III 713–40, V 795–800. Although the doctrine's origins are likely to lie in legends of "earth-born" races, rather than in scientific speculation, cf. Plato, *Phd.* 96b2–3 for evidence of its currency in at least later Presocratic physics, and DL II 16–17 and Hippolytus, *Ref.* I 9.5–6 for its association with Archelaus, the pupil of Anaxagoras and teacher of Socrates. The closely interrelated versions in Diodorus Siculus I 7.3–6, 10.1–7 and Ovid, *Met.* I 416–37 are likely also to be of Presocratic origin or inspiration; they cite the supposed evidence of regions, like the Nile valley, where creatures are said to form in the mud that are half organic, half inorganic. For more discussion, cf. Blundell 1986, pp. 62–65, and esp. Campbell 2003, pp. 61–63, 330–33, where a comprehensive range of parallels is assembled. However, one may question the latter's inclusion of Anaxagoras on the strength of DL II 9, "Animals started coming to be out of what is moist, warm, and earthy, but later from each other." The first part of this, which captures B 4 well, is not meant to exclude the role of seeds.

53. Theophrastus, *CPI* 5.2; cf. *ib.* III 1.4. Theophrastus here refers to seeds borne in the air—an attested part of Anaxagoras's *panspermia* theory; see n. 36 above.

Third, it was widely assumed that the earth in its infancy had been much more fertile than it subsequently became, so that a far wider range of animals could be born from it than would be possible today. Hence Anaxagoras's projection onto a primeval earth of a greatly enhanced power to generate life from these ubiquitous seeds would, in context, seem like a satisfactory explanation of the origin of all life, even human. In fact some individual Greek peoples, the Athenians included, claimed to be "autochthonous"—indigenous to their present lands—and this was sometimes taken to mean that their earliest ancestors had been "earth-born," literally sprung from the local soil.⁵⁴ The same idea of "earth-born" races had a widespread currency in myth.

In short, not only does the evidence point to a reading of Anaxagoras whereby the ubiquity of seeds is a primitive fact, not demanding further explanation, but in its cultural context the postulation of such an explanatory principle was at least as satisfactory as its main rival, the theory of spontaneous generation.

Anaxagoras did, we know, theorize about the internal structure of seeds (B 10).⁵⁵ An animal seed (*gonē*) already contains minute portions of bone, flesh, hair etc., he maintained, since only on this supposition can we understand its having causal powers sufficient to generate the developed specimen that grows from it. But we have no hint in our sources that he went on to explain the structure of seeds as having been itself planned and imposed by *nous*, and in the absence of such evidence it may be safer to assume that he viewed it as an irreducibly primitive fact about the universe.⁵⁶ Whatever *nous* may have done, there is no sign in Anaxagoras's text that it designed life forms. Either the seeds have simply always been there, as *nous* presumably has been too, or else (we might more hazardously speculate) they have spread from previously formed worlds. The latter hypothesis would at best endlessly push back, rather than solve, the question how these seeds originally came into existence.⁵⁷

54. Diodorus and Ovid as cited in note 52 above; Aristotle, *GA* 762b28–30; Philo, *Aet. mundi* 57; more in Campbell 2003, p. 331.

55. Quoted in full, n. 71 below.

56. I suspect, in fact, that the reference in B 1 to things in the original mixture being invisible "because of smallness" is intended at least partly to cater for the presence of seeds.

57. Cf. the surprisingly enduring theory that life reached Earth from outer space, first proposed by Lord Kelvin in lectures of 1864 and 1871 ("life originated on this earth through moss-grown fragments from the ruins of another world," in "seed-bearing meteoritic stones") and subsequently supported by the high levels of amino acids and other organic substances found in meteorite fragments.

6. *NOUS* AS CREATOR

How much then *did* intelligence contribute to the emergence of life, both in our world and in the others that it has created?⁵⁸ We have already seen Anaxagoras's insistence on its causal powers, due to its purity. He also, in the continuation of B 12, has a lot to say about its cognitive powers. When intelligence started off the cosmogonic rotation in our own world, it knew exactly what the result would be, he tells us:

And the entire rotation was controlled by intelligence, so as to make it rotate in the first place. And at first it began to rotate in a small way; subsequently it has been rotating more; and it will rotate still more. And the things which are being mixed, separated, and segregated, intelligence knew all of them. And both what they were going to be like and what they were like—both the things that are not now and the things that are now—and what they will be like, intelligence arranged them all, and also this rotation which is now being undergone by the stars, sun, moon, air, and aether that are being separated off.⁵⁹

58. I relegate to a footnote the difficult question whether the *nous* which creates a world is in any sense an individual, and, if so, whether each world is created by a different *nous*. *Nous* was not often used as a count noun at this date (cf. Menn 1995, p. 16), so one might wonder how easily Anaxagoras could even have formulated the question. What creates a world, it might be thought, is not *an* intelligence, just intelligence. On the other hand, consider B 14 (on the reading of Diels-Kranz 1952), *ὁ δὲ νοῦς, ὃς αἰεὶ ἐστὶν, τὸ κάρτα καὶ νῦν ἐστὶν ἵνα καὶ τὰ ἄλλα πάντα, ἐν τῷ πολλῷ περιέχοντι καὶ ἐν τοῖς προσκριθείσι καὶ ἐν τοῖς ἀποκεκρμένους*. "The mind, which is for ever, certainly is now too, when there are all the other things in the large amount that surrounds and in the things which were aggregated and those that have been separated." Here *ἵνα* is usually translated "where," but with the temporal antecedent *νῦν* it is more likely to mean "when" (cf. Antiphon 6.9), which also makes the sentence inferentially more coherent: if *νοῦς* is *everlasting*, it follows that it exists *now*, whereas no further inference to *where* it is seems warranted. This, however, would be a pointless inference if *ὁ νοῦς* just referred to intelligence in general, which *obviously* exists now, namely in us. It is therefore almost certainly a reference to the cosmogonic *nous*, which, Anaxagoras holds, is still causally operative, as B 12 also attests in asserting that *nous* will continue to speed up the rotation. Such a reference would also account for the addition of the definite article, *ὁ . . . νοῦς*, "the intelligence," i.e. the intelligence which created our world. Hence in B 14 it may well be being treated as a distinct intelligence both from our own and from those responsible for other worlds.

59. *καὶ τῆς περιχωρήσιος τῆς συμπάσης νοῦς ἐκράτησεν, ὥστε περιχωρήσαι τὴν ἀρχήν. καὶ πρῶτον ἀπὸ τοῦ μικροῦ ἤρξατο περιχωρεῖν, ἔπειτα πλεόν περιχωρεῖ, καὶ περιχωρήσει ἐπὶ πλεόν. καὶ τὰ συμμισγόμενά τε καὶ ἀποκρινόμενα καὶ διακρινόμενα πάντα ἔγνω νοῦς. καὶ ὅποια ἐμελλεν ἔσεσθαι καὶ ὅποια ἦν, ἄσσα νῦν μὴ ἐστὶ καὶ ὅσα νῦν ἐστὶ, καὶ ὅποια ἔσται, πάντα διεκόσμησε νοῦς καὶ τὴν περιχώρησιν ταύτην ἦν νῦν περιχωρεῖ τὰ τε ἄστρα καὶ ὁ ἥλιος καὶ ἡ σελήνη καὶ ὁ ἀήρ καὶ ὁ αἶθρ οἱ ἀποκρινόμενοι*. In adopting Ritter's *ἔπειτα* for the MSS *ἔπει δέ*, I follow Sider 2005.

Here it is explicit that, in setting off the vortex, *nous* not only was aware of the inevitable outcome, but indeed controlled it. But just how far-reaching was this foresight? There is no mention here of the emergence of life among the things foreseen and controlled by intelligence. All that is explicitly picked out for mention is the cosmic rotation now being undergone by the stars, sun, and moon, as well as by the upper atmosphere: this, at the very least, was planned by *nous*.

Having started to worry about the extent of *nous's* planning, we have to consider in addition a complaint lodged against Anaxagoras by both Plato and Aristotle.⁶⁰ As Socrates protests in Plato's *Phaedo*, although Anaxagoras said that everything was caused by intelligence, when it came down to it he hardly made any use of intelligent causation, but fell back on the traditional material causes—air, water, aether, and the like. Now in one sense the criticism is undoubtedly correct. The creationist methodology which Plato advocates, and whose absence from Anaxagoras's treatise he therefore laments, is one of accounting for a cosmic structure by explaining why that was the intelligent, in other words the *best*, way to construct it. There is little doubt that Anaxagoras did not adopt any such methodology. But from his failure to be explicit about the goodness of the world's structures we need not necessarily infer that his account was not even implicitly cast in terms of intelligent planning for the best. As with so many of Anaxagoras's doctrines, we must be prepared to read between the lines. If we do so, the following creationist doctrine emerges.

Nous starts off cosmic rotations both here and elsewhere in the universe fully knowing and fully planning what the outcomes will be. The first outcome is an at least primitively stratified world with earth accumulated in the center, while air and aether circle overhead. In the earth are distributed countless biological seeds, ready to generate life. Moreover, the conditions that obtain are a temperate blend of temperature, moisture, and light, perfectly suited to the seeds' germination.

So far one might nevertheless retain the suspicion that this emergence of life is, as such, a mere accident of the cosmic arrangement, not necessarily an integral part of intelligence's plans. That suspicion will however not survive the following consideration.

The reason why in B 4 Anaxagoras is confident that the human civilizations of other worlds are agricultural is that they too, as we do, have a sun and a moon. That a sun is necessary for agriculture is obvious enough. The relevance of these other civilizations' also having a moon may seem less ob-

60. Aristotle, *Met.* A 4, 985a18–21. For Plato, see chapter III §3 below.

vious, but we have only to recall the importance which Hesiod, in his agricultural poem, the *Works and Days* (especially 765–828), attributes to the farmer’s systematic observance of the lunar calendar, with specific properties attached to each day of the month.⁶¹ In the world attested by Hesiod, as indeed throughout antiquity, the moon, and also the stars, which in B 12 Anaxagoras adds alongside sun and moon as features of the world planned by *nous*, provided human civilization with an utterly indispensable agricultural calendar.⁶²

But why is Anaxagoras confident that those other worlds have, each of them, a sun and a moon? These celestial objects are, let us recall, lumps of rock or earth stranded up in the rotating aether, far from the location to which a complete cosmic separation would have assigned them. There seems absolutely no reason why accident alone should have ensured that each world had precisely one large fiery rock in its upper atmosphere, and one large non-fiery mass of earth capable of absorbing and reflecting light from the first. If all the other worlds can be conjectured to have a sun and a moon, the only plausible explanation is that *nous* is assumed to have planned and created them that way.⁶³ And once we appreciate that, we can bring into focus the teleological subtext which eluded Plato. When intelligence creates worlds, it designedly constructs them so as to be hospitable to agricultural civilizations like Anaxagoras’s own. It not only sets up the original hothouse conditions in which the ubiquitous seeds will germinate, but also provides the right heavenly bodies to serve the vital agricultural needs of the humans who will emerge from the primeval earth. We may also here remind ourselves that the vortex, once *nous* had created it, had then to be *tilted* to a suitable angle, but for which neither the succession of day and night nor the stellar calendar would have become available to us.⁶⁴

The reason why these assumptions have to be teased out of Anaxagoras’s text is that, as I argued at the outset, the presence of personal or quasi-personal control in the world is already the default assumption of nearly all Presocratic thought. The need to spell out what its beneficial effects are does

61. Likewise the Derveni Papyrus in col. 24 (on whose problems of interpretation see Jourdan 2003, pp. 98–101, and Betegh 2004, pp. 247–49) identifies the moon’s two services to us as enabling farmers to distinguish the seasons and teaching sailors when to sail.

62. On these calendars or *parapēgmata*, see Taub 2003, chapter 2.

63. Or is it that those worlds that *happened* to have just one sun and just one moon generated life, the others not? This does not seem a credible reading of B 4, which rather gives the strong impression of generalizing over all other worlds (“in all the things that are being aggregated”).

64. See p. 6 above, with DL II 9, for the two-stage vortex in Anaxagoras.

not occur to Anaxagoras, in the way that it would later occur to Plato, writing in a very different intellectual atmosphere, with the anti-teleological challenge of atomist materialism hanging over him.

When speaking earlier of Hesiod (pp. 3–4), I pointed out that the motif of divine craftsmanship was already at least embryonically present in his account of the origin of mankind. From the fact that it is Hephaestus to whom Hesiod's Zeus delegates the job of creating woman (*Works and Days* 60, quoted p. 54 below), we can infer that the art of the bronzesmith was being to some extent singled out as a model for divine craft. In Anaxagoras's system *nous* takes over the role of divine creator, and we are now in a position to ask what kind of creative expertise *he* has in mind.

The answer should be clear. *Nous* is a farmer. Its creation of worlds is its way of setting up environments which will enable seeds to germinate, with plant and animal life the outcome.

Can we go further? Is Anaxagoras interested in the question what motivates *nous* so to act? Here my comments must become increasingly speculative.

First, according to Anaxagoras, everything that has soul contains some *nous* (B 11, B 12.11–12). At the very least this includes all animals, and it would not be untypical of Greek usage to include plants too as having soul.⁶⁵ So either all or at least a great many of the organisms whose seeds *nous* sows will, once grown, be vehicles for the distribution of intelligence around the world. Just why *nous* might prefer this incarnate accommodation to its previous extra-cosmic existence is a separate question, on which I have up to now found no help in the sources.⁶⁶

I think we can nevertheless go a little further. *Nous*, I have said, is a cosmic farmer. How then does Anaxagoras view the nature of farming? Fortunately the very same text, B 4, contains the rudiments of an answer.⁶⁷ First of all, as we have seen, farmers are said there to “construct” farms, a verb (*kataskeuazein*) which mirrors accurately enough the purposive construction of the great cosmic farm by *nous*. Secondly, Anaxagoras says

65. Aristotle *DA* II 2, 404b1–5, despite the fact that he himself assigns soul to plants, seems to understand only animals as falling within the scope of Anaxagoras's theory. But Anaxagoras A 116 and 117 provide evidence for plants having soul and *nous*. See further Sider 2005, pp. 97–98.

66. The apparent fact that *nous* does, for whatever reason, prefer incarnate accommodation has the advantage of explaining why, being infinite (B 12), it finds the need to keep on creating further worlds, as argued above.

67. The very special significance of farming in Anaxagoras's worldview tends, I believe, to confirm that in B 4 *ἔργα* does indeed mean “farms,” as translated above (p. 14), and not “manufactured items,” as argued most recently by Sider (2005, p. 99).

of farming civilizations that “their earth bears many things of all kinds, of which they harvest the best and bring them to their dwelling to use.” What farmers do, then, is orchestrate the intrinsic generative powers of the earth. Under their management, it grows many things, including no doubt brambles, moles, wasps, and other unwanted life forms. The farmers encourage the earth’s generative activity, not for the sake of these lesser organisms, but for the sake of the *best* things it produces, namely the crops.⁶⁸

Should we then not assume something similar about the cosmic farm? *Nous*, like human farmers, makes the earth grow all kinds of things, but we may infer that it does so for the sake of the best things to emerge from it. And what are these best products of cosmic farming? Even without specific textual evidence, we might have ventured the guess that Anaxagoras shares in the widespread consensus that nature’s best product is man. And that obvious guess gains direct support from Aristotle (*PA* IV 10, 687a8–10), who criticizes Anaxagoras for saying that it is because man has hands that he is the wisest of animals (according to Aristotle it is the other way round: it is because he is the wisest of animals that man has hands). If for Anaxagoras man is the “wisest” of animals, it hardly need be doubted that this already implies “best,” especially given the obvious assumption that wisdom is *par excellence* the kind of goodness that *nous* would favor.⁶⁹

It therefore seems ultimately implicit in Anaxagoras’s text that *nous* constructs and, as it were, farms worlds primarily in order to generate human beings. The teleology proves to have an anthropocentric bias. Since he further regards humans as, among all living creatures, the best vehicles for *nous* itself to occupy, it is at least a possibility that he thinks of worlds as created by *nous* out of motives of pure self-interest.

In the light of these findings, I submit that Anaxagoras is a creationist in a much stronger sense than Plato was prepared to recognize. When Anaxagoras insists that the world must be the product of intelligence, *nous* is being postulated not merely as the moving cause that first stirred the mix-

68. That this is a distinctive way of viewing the farming enterprise can be seen by contrasting it with Plato, *Rep.* 589b1–3, “{ . . . } like a farmer, who nurtures and tames domesticated kinds *but prevents wild kinds from growing.*”

69. For *nous* as good-seeking, see Aristotle, *DA* 404b1–2, “Anaxagoras{ . . . } in many places says that *nous* is the cause of good and correct states of things. . . .” For contemplative knowledge as the human good in Anaxagoras’s view, see the anecdotal evidence of Aristotle, *EE* 1216a10–16, and cf. *ib.* 1215b11–14. This, however, even if correct, does not remove practical skills (farming included, no doubt) from the domain of wisdom, as is confirmed by Anaxagoras’s reference to hands as making man the best of animals.

ture, but as the planning cause that creates worlds in order to proliferate intelligent beings like itself.⁷⁰

7. SCIENTIFIC CREATIONISM

If he really was, as I have argued, a committed creationist, it may seem paradoxical that Anaxagoras acquired in his own day the reputation of an irreligious thinker. But the reputation was not unjustified. His sun and moon are, after all, not divine beings, just huge inanimate objects, as his critics were said to have pointed out at his Athenian trial on charges of impiety. Even his supreme power, *nous*, is not overtly a divinity. Far from being essentially superhuman, the power he describes is most directly recognizable as familiar human intelligence. Even when he hymns its powers, there is little sense that he is thereby fitting it out with the trappings of traditional divinity, and much more reason to say that he is, on the contrary, replacing the traditional notion of a supreme divinity with a fundamentally naturalistic concept, one best known to us by study of our own human nature and more widely exemplified by the animal kingdom.

The religion-science polarity is an almost unavoidable area of uncertainty when interpreting the rational theology of the Greek philosophers. Rationalization of traditional religion can frequently be understood, at one pole, as endorsing that religion by giving a firm scientific reality to the divine powers it describes, but no less frequently, at the other pole, as undermining it by construing its divinities as popular misrepresentations of what are in reality nothing more than natural entities. Anaxagoras might of course be doing neither of these, because between the two poles lies much intermediate ground, in which theological and scientific explanation can operate in fruitful partnership. Plato's *Timaeus* (chapter IV) would come to be the classic occupant of that middle ground. Nevertheless, in Anaxagoras's case the scientifically reductive style of reading seems to me well suited to capturing the naturalistic tone of his writings. His motivation in advocating a dualism of mind and matter, and in postulating the former of these as supreme cause of matter's organization, is not theological in its essence, but scientific and causal.

70. It is hard to resist the further speculation that Anaxagoras may have supposed *nous* to transmigrate from body to body. The grounds for this speculation are (see n. 22 above) that Hermodotus, an earlier inhabitant of Anaxagoras's native city Clazomenae, (a) was considered a possible forerunner of his theory of *nous*, and (b) was associated with a doctrine of transmigration (see further Betegh 2004, pp. 283–84).

Thus the upshot of my first chapter is something of a surprise. Teleological explanation started life in Anaxagoras's doctrine of creationism, and came, as we shall see in the next three chapters, to promote a religious agenda. Only at a much later stage in the history of thought would Aristotle finally separate the two strands, preserving teleology while abandoning creationism. That subsequent history might have led one to expect teleology to have had an essentially religious origin. But the expectation would be mistaken. For Anaxagoras's creationism itself belongs firmly in the domain of natural science. If it has any theological import, it is not one that we see Anaxagoras himself setting out to advertise. To witness the religious lobby's appropriation of teleology, we will have to wait for the next chapter.

APPENDIX. ANAXAGORAS'S THEORY OF MATTER

Although Aristotle's reading of Anaxagoras has been dominant, we should not be too quick to endorse it. Enough of Anaxagoras's treatise survives to demonstrate that he can be a maddeningly obscure as well as imprecise writer. When he says that there is a portion of everything in everything, he does not in any surviving passage pause to say a portion of *what* in *what*. Aristotle, I suggest, may have been misled into his assumption that the reference is to stuffs like bread and flesh by a single passage where Anaxagoras asks, "How could hair come to be from not-hair, and flesh from not-flesh?"⁷¹ We have explicit evidence that the context of this question was in

71. B 10, ὁ δὲ Ἀναξαγόρας παλαιὸν εὐρῶν δόγμα ὅτι οὐδὲν ἐκ τοῦ μηδαμῆ γίνεται, γένεσιν μὲν ἀνήρει, διάκρισιν δὲ εἰσήγεν ἀντὶ γενέσεως. ἐλήρει γὰρ ἀλλήλοις μὲν μεμίχθαι πάντα, διακρίνεσθαι δὲ ἀξανάμενα. καὶ γὰρ ἐν τῇ αὐτῇ γονῇ καὶ τρίχας εἶναι καὶ ὄνυχας καὶ φλέβας καὶ ἀρτηρίας καὶ νεῦρα καὶ ὀστέα καὶ τυγχάνειν μὲν ἀφανῆ διὰ μικρομέρειαν, ἀξανάμενα δὲ κατὰ μικρὸν διακρίνεσθαι. "πῶς γὰρ ἂν, φησί, ἐκ μὴ τριχῶς γένοιτο θρίξ καὶ σὰρξ ἐκ μὴ σαρκός;" οὐ μόνον δὲ τῶν σωματίων ἀλλὰ καὶ τῶν χρωμάτων ταῦτα κατηγορεῖ. καὶ γὰρ ἐνεῖναι τῷ λευκῷ τὸ μέλαν καὶ τὸ λευκὸν τῷ μέλανι. τὸ αὐτὸ δὲ ἐπὶ τῶν ῥοπῶν ἐτίθει, τῷ βαρεῖ τὸ κοῦφον σύμμικτον εἶναι δοξάζων καὶ τοῦτο αὖθις ἐκείνῳ. "Anaxagoras, having discovered an ancient doctrine, that nothing comes to be out of what in no way is, eliminated coming-to-be, and introduced segregation instead of coming-to-be. He had the insane idea that all things are mixed with each other, but undergo segregation during the process of growth. For in the same seed, he said, there are hairs, nails, veins, arteries, sinews, and bones: they are non-evident because of their small-partedness, but in the process of growing they are gradually segregated. 'For how' he asks 'could hair come to be from not-hair, and flesh from not-flesh?' He predicates this not just of bodies, but also of colors. For, he says, black is present in white and white in black; and he posited the same for weights, thinking that light is mixed in with heavy and vice versa."

fact *not* that of nutrition, where Anaxagoras might have been explaining why bread must already contain flesh and hair, but one concerning the constitution of animal seed. The seed from which a human being is generated, he argued, must already contain minute portions of hair, flesh, bone etc., in order to be causally capable of leading to the birth of a complete human being constituted out of these stuffs. Clearly the fact that Anaxagoras held this causal thesis about seeds does not in itself commit him to such stuffs as flesh being ultimate and irreducible constituents of the world. But the remark may have misled Aristotle into thinking so, just as it has misled a long series of Anaxagoras's modern interpreters.

If instead we turn to the surviving verbatim passages of Anaxagoras, we find that the ingredients to which he constantly refers are not these stuffs, but opposites like the hot and the cold, the wet and the dry, the bright and the dark.⁷² And there is a very strong case for going along with a minority of interpreters (Tannery 1886, Cornford 1930, Vlastos 1950, Schofield 1980) who take these opposites alone to be the basic ingredients. One strong piece of evidence in their support is B 15, where Anaxagoras explains how the earth formed during the cosmic separation: "Dense, wet, cold, and dark came together here, where there is now earth." Earth, it seems from this way of putting it, is not a basic ingredient in the mix, but is itself a product of the partial separation of opposites engineered by *nous*.⁷³ The same impression is confirmed by the entire set of verbatim quotations preserved by Simplicius, where opposites are again and again listed as ingredients. Indeed, Simplicius himself, despite starting his commentary on Aristotle, *Physics* 1 chapter 4, with the interpretative assumptions about Anaxagoras that he has inherited from Aristotle and Alexander of Aphrodisias, by the end (178.28–179.12) is expressing his strong suspicion that in fact it is the opposites alone that are Anaxagoras's real ingredients.

On such an interpretation the thesis that there is a portion of everything in everything turns out to be, not a wild extravagance, but a metaphysical axiom, and a direct ancestor of Plato's principle of the compresence of opposites. With very few apparent exceptions, every phenomenal stuff in the world does indeed always have some temperature, some color, some weight, some luminosity, some density, some flavor, and so on for Anaxagoras's other pairs of perceptible opposites. Moreover, the principle that separation is never total incorporates the further fact that the scales of temperature, flavor etc.

72. Indeed, not only in the verbatim fragments, but also in the source text from which "How could hair come to be from not-hair . . . ?" is drawn; see previous note.

73. See further, p. 10 above.

seem indefinitely extendible. Nothing is so hot that it could not be hotter, for example: that is, all hot things contain some cold too. As Anaxagoras put it (B 8), “. . . nor has the hot been chopped apart with an axe from the cold or the cold from the hot.”

Secondly, the assumption makes much better sense of the principle that each thing's evident character is determined by what predominates in it: “. . . no other thing [than *nous*] is like anything else, but the things that it has got most of in it, those are what each single thing most evidently is and was” (end of B 12).⁷⁴ On Aristotle's reading, the competition for predominance can in each case have only one outright winner. If the item on a supermarket shelf has even fractionally more bread than beer in it, it is bread and not beer. Yet obviously bread can vary in flavor, density, darkness, and weight too. And Aristotle is unable to deny the obvious fact that the sweet and the savory, the rare and the dense, the dark and the bright, and the light and the heavy are also ingredients in the mixture. But this now means that the law of predominance breaks up into two radically different clauses. What makes the loaf bread is that the bread component is the outright winner of a competition between all comparable stuffs, including oil, mud, hair, water, urine, leather, iron etc. as well as bread. What gives the loaf its precise flavor, color, and density, on the other hand, is a series of separate competitions, each of them between just one pair of opposites—respectively the sweet and the savory, the black and the white, and the dense and the rare. And these competitions have no outright winners, since nothing is so heavy that it could not be heavier, or so sweet that it could not be sweeter. Thus these secondary competitions will establish nothing more than the *proportion* of hot to cold, heavy to light etc. It is unlikely that the principle of predominance was formulated to cover simultaneously both of these utterly different types of competition. And if we have to choose just one of the two, the competition between opposites is not only the one with the greater explanatory power, but also so powerful as apparently to leave no explanatory work for the other competition to do, as should become clear by the end of the next paragraph.

Anaxagoras's theory of perception similarly makes it hard to find a place for ingredient stuffs like flesh and gold. According to his perceptual theory

74. ἕτερον δὲ οὐδὲν ἔστιν ὁμοιον οὐδενί, ἀλλ' ὅτων πλείστα ἐνι, τὰτα ἐνδηλότατα ἐν ἑκάστῳ ἔστι καὶ ἦν. Although Simplicius found ὅτω, not ὅτων, in his copy of Anaxagoras, the simple emendation not only yields a far more credible text, but also corresponds to the paraphrases of it in Aristotle and Theophrastus (see Sider 2005, p. 141, although he himself favors the unemended text).

(A 92), perception is an interaction between pairs of opposites. We perceive an external opposite by its contrast with the matching opposite in us. You perceive the heat of the bathwater by the coldness in your toe, the coldness of the seawater by the heat in your legs. Dark-eyed animals such as ourselves perceive bright objects, whereas nocturnal animals have bright eyes with which they can see dark objects. And so on. Thus the theory is specifically set up to explain how we perceive opposites, and it meshes perfectly with the thesis that every external object contains some blend of more or less every pair of opposites.⁷⁵ When Anaxagoras writes “. . . the things that it has got most of in it, those are what each single thing most evidently is and was,” we can find a comfortable fit with this same perceptual theory. Note the plural: each thing's evident properties (plural) are determined by predominance—hardly a natural way to refer to a single characteristic like that of being bread. Worse, it is not even clear how bread, or flesh, could as such be perceptible, since these stuffs do not have opposites. All that we can perceive of bread should be specific degrees of whiteness, weight, density etc.; and that brings us back to the opposites as the real components.

How about Anaxagoras's famous dictum that “In everything there is a portion of everything”? A criterion of interpretation that is sometimes invoked insists that the word “everything” here must have the same reference at both occurrences.⁷⁶ Thus, on the prevailing interpretation in terms of ingredient stuffs, “everything” would refer at both occurrences to the homogeneous stuffs such as flesh and gold: there is a portion of gold in every bit of flesh, and vice versa.⁷⁷ How about on the “opposites” interpretation that I am favoring? One could if one wished preserve the same principle by saying that, for example, every bit of hot has got in it not only some cold but also some heavy and some light, some sweet and some bitter, etc. But I do not find that the natural way to understand the dictum, which it will be far simpler to read as saying that every phenomenal thing, for example a horse or a rock, contains every opposite. That may offend against the crite-

75. I say “more or less,” not to allow for e.g. odorless objects, since for these a perfectly good explanation would be that they have exactly the same balance of smell-opposites as we have in our own noses, but particularly to cater for auditory opposites. Anaxagoras could well believe that objects themselves have no sound-pitch, low or high, so that at least this pair of opposites belongs not to objects themselves but to something else, e.g. the intervening air.

76. E.g. Guthrie 1969, pp. 284–85, who cites Bailey and Raven as previous proponents of the same argument.

77. I leave aside the problems that modern interpreters have acknowledged in interpreting “gold,” “flesh” etc. here: phenomenal (impure) gold and flesh, or ingredient (pure) gold and flesh? See especially Strang 1963.

tion, but I do not believe that the criterion should ever have been invoked in the first place. Here are two reasons.

First, it is easy to devise informal contexts in which the two occurrences of “everything” would not be co-referential. If on seeing an array of food someone with a nut allergy asked which dishes have which ingredients, they might quite intelligibly be told “Sorry, there’s a bit of everything in everything,” where the first “everything” refers to ingredients, the second to dishes. Second, with regard to Anaxagoras’s dictum, he usually does *not* use the same word at both occurrences. Thus in B 4, there are “many things of all kinds” (πολλά τε καὶ παντοῖα) in “all the things that are being combined” (ἐν πᾶσι τοῖς συνκρνωμένοις), and “in the universe” (ἐν τῷ σύμπαντι) there are “all things” (πάντα χρήματα). In B6 there are “in everything” (ἐν παντί, singular) “all things” (πάντα, plural); “all things” (πάντα, plural) have a bit of “everything” (παντός, singular), and “in all things” (ἐν πᾶσι) there are “many things” (πολλά). Finally, in B12, “the other things” (τὰ ἄλλα) have a share of “everything” (παντός). In none of these six cases does the phraseology emphasize symmetry between the two items thus connected. Indeed, symmetry is even more absent from the Greek than from these English renditions, in which the inevitability of our adding some form of the word “thing” gives a misleading impression.

Against these six cases, there are just two where Anaxagoras uses the same word: B 11, “In everything there is a portion of everything” (ἐν παντί παντός μοῖρα ἔνεστι), repeated with an explicit back reference in B 12. And even here he cannot possibly mean the two terms to be co-referential, for the following reason. In B 11 he writes, “In everything there is a portion of everything, and in some there is *nous* too.” The things in which *nous* is additionally present must be living beings, so for consistency the first “everything” (ἐν παντί) must refer to the genus of compound beings of which living beings are a sub-genus: he means that in everything, i.e. in every compound entity, there is a portion of everything, and in some, i.e. in some compound entities, there is *nous* too. And the “everything” that is in every compound entity cannot itself be every compound entity, or he would be saying, nonsensically, that every compound being contains a portion of every compound being. So even here the two occurrences of “everything” cannot be co-referential.

In the light of all this, it seems overwhelmingly probable that Aristotle misunderstood the theory—as well he might, given Anaxagoras’s anything but lucid exposition.