

John Burnet
Anaxagoras of Klazomenai

Ideas and Impact

From John Burnet's *Early Greek Philosophy*. (1st ed. 1892); London & Edinburgh: Adam & Charles Black Ltd, 1920 (3rd ed.). Chapter VI, "Anaxagoras of Klazomenai," pp. 251-51.

References to H. Ritter & L. Preller's *Historia Philosophiae Graecae* (7th ed., Gotha, 1888) in the footnotes are here abbreviated as R.P.

Contents

Date	2
Early Life	2
Relation to the Ionic School	3
Anaxagoras at Athens	4
The Trial	5
Writings	6
Fragments	6
Anaxagoras and his Predecessors	9
"Everything in Everything"	10
The Portions	10
Seeds	11
"All Things Together"	12
Nous	13
Formation of the Worlds	14
Innumerable Worlds	15
Cosmology	15
Biology	16
Perception	17



Date

All that Apollodoros tells us with regard to the date of Anaxagoras seems to rest on the authority of Demetrios Phalereus, who said of him, in his *Register of Archons*, that he “began to be a philosopher” at Athens at the age of twenty, in the archonship of Kallias or Kalliades (480-79 B.C.).¹ This date was probably derived from a calculation based on the philosopher’s age at the time of his trial, which Demetrios had every opportunity of learning from sources no longer extant. Apollodoros inferred that Anaxagoras was born in Ol. LXX (500-496 B.C.), and he adds that he died at the age of seventy-two in Ol. LXXXVIII I (428-27 B.C.).² He doubtless thought it natural that he should not survive Perikles, and that he should die the year Plato was born.³ We have a further statement, of doubtful origin, but probably due also to Demetrios, that Anaxagoras lived at Athens for thirty years. If it is correct, we get from about 480 to 450 B.C. as the time he lived there.

There can be no doubt that these dates are very nearly right. Aristotle tells us⁴ that Anaxagoras was older than Empedokles, who was probably born before 490 B.C. (§ 98); and Theophrastos said⁵ that Empedokles was born “not long after Anaxagoras.” Demokritos, too, said that he himself was a young man in the old age of Anaxagoras, and he must have been born about 460 B.C.⁶

Early Life

Anaxagoras was from Klazomenai, and Theophrastos tells us that his father’s name was Hegesiboulos.⁷ The tradition was that he neglected his possessions to follow science.⁸ It is certain, at any rate, that already in the fourth century he was regarded as the type of the man who leads the “theoretic life.”⁹ Of course the story of his contempt for worldly goods was seized on later by the historical novelist and tricked out with the usual apophthegms. These do not concern us here.

One incident belonging to the early manhood of Anaxagoras is recorded, namely, the fall of a huge meteoric stone into the Aigospotamos in 468-67 B.C.¹⁰ Our authorities tell us he predicted this phenomenon, which is plainly absurd. But we shall see rea-

¹ Diog. ii. 7 (R.P. 148). For the variation in the archon’s name, see Jacoby, *p.* 244, *n.* 1, and for the chronology generally, see A.E. Taylor in *Classical Quarterly*, xi. 81 *sqq.*, whose arguments appear to me convincing.

² We must read ὀγδοηκοσῆς with Scaliger to make the figures come right.

³ On the statements of Apollodoros, see Jacoby, *pp.* 244 *sqq.*

⁴ Arist. *Met.* A, 3. 984a 11 (R.P. 150a).

⁵ *Phys. Op.* fr. 3 (*Dox.* *p.* 477), *ap. Simpl. Phys.* *p.* 25, 19 (R.P. 162e).

⁶ Diog. ix. 41 (R.P. 187). On the date of Demokritos, see Chap. IX, § 171.

⁷ *Phys. Op.* fr. 4 (*Dox.* *p.* 478), repeated by the doxographers.

⁸ 8. Plato, *Hipp. ma.* 283a, τὸναντίον γὰρ Ἀναξαγόρα φασὶ συμβῆναι ἢ ὑμῖν καταλειφθέντων γὰρ αὐτῷ πολλῶν χρημάτων καταμελῆσαι καὶ ἀπολέσαι πάντα· οὕτως αὐτὸν ἀνόητα σοφίζεσθαι. *Cf.* Plut. *Per.* 16.

⁹ Arist. *Eth. Nic.* K, 9. 1179a 13. *Cf.* *Eth. Eud.* A, 4. 1215b 6 and 15, 1216a 10.

¹⁰ Diog. ii. 10 (R.P. 149a). Pliny, *N.H.* ii. 149, gives the date as OL. LXXVIII. 2; and Eusebios gives it under OL. LXXVIII. 3. But *cf.* *Marm. Par.* 57, ἀφ’ οὗ ἐν Αἰγὸς ποταμοῖς ὁ λίθος ἔπεσε . . . ἔτη ΗΗΙΙ, ἄρχοντας Ἀθήνησι Θεαγενίδου, which is 468-67 B.C. The text of Diog. ii. 11 is corrupt. For suggested restorations, see Jacoby, *p.* 244, *n.* 2; and Diels, *Vors.* 46 A 1.



son to believe that it may have occasioned one of his most striking departures from the earlier cosmology, and led to his adoption of the very view for which he was condemned at Athens. At all events, the fall of the stone made a profound impression at the time, and it was still shown to tourists in the days of Pliny and Plutarch.¹¹

Relation to the Ionic School

The doxographers speak of Anaxagoras as the pupil of Anaximenes.¹² This can hardly be correct; Anaximenes most probably died before Anaxagoras was born. But it is not enough to say that the statement arose from the fact that the name of Anaxagoras followed that of Anaximenes in the *Successions*. We have its original source in a fragment of Theophrastos himself, which states that Anaxagoras had been “an associate of the philosophy of Anaximenes.”¹³ Now this expression has a very distinct meaning if we accept the view as to “schools” of science set forth in the Introduction (§ XIV). It means that the old Ionic school survived the destruction of Miletos in 494 B.C., and continued to flourish in the other cities of Asia. It means, further, that it produced no man of distinction after its third great representative, and that “the philosophy of Anaximenes” was still taught by whoever was now at the head of the society.

At this point, then, it may be well to indicate briefly the conclusions we shall come to in the next few chapters with regard to the development of philosophy during the first half of the fifth century B.C. We shall find that, while the old Ionic school was still capable of training great men, it was now powerless to keep them. Anaxagoras went his own way; Melissos and Leukippos, though they still retained enough of the old views to bear witness to the source of their inspiration, were too strongly influenced by the Eleatic dialectic to remain content with the theories of Anaximenes. It was left to second-rate minds like Diogenes to champion the orthodox system, while third-rate minds like Hippon of Samos went back to the cruder theory of Thales. The details of this anticipatory sketch will become clearer as we go on; for the present, it is only necessary to call the reader's attention to the fact that the old Ionic Philosophy now forms a sort of background to our story, just as Orphic and Pythagorean religious ideas have done in the preceding chapters.

¹¹ Pliny, *loc. cit.*, “qui lapis etiam nunc ostenditur magnitudine vehis colore adusto.” Cf. Plut. *Lys.* 12, και δείκνυται . . . ἔτι νῦν.

¹² Cicero, *De nat. d.* i. 26 (after Philodemos), “Anaxagoras qui accepit ab Anaximene disciplinam” (*i.e.* δῆκουσε); Diog. i. 13 (R.P. 4) and ii. 6; Strabo, xiv. p. 645, Κλαζομένιος δ' ἦν ἀνὴρ ἐπιφανὴς Ἀναξαγόρας ὁ φυσικός, Ἀναξιμένους ὀμιλητής; Euseb. *P.E.* p. 504; [Galen] *Hist. Phil.* 3; Augustine, *De civ. Dei*, viii, 2.

¹³ *Phys. Op.* fr. 4 (Dox. p. 478), Ἀναξαγόρας μὲν γὰρ Ἠγησιβούλου Κλαζομένιος κοινωνήσας τῆς Ἀναξιμένους φιλοσοφίας κτλ. In his fifth edition (p. 973, n. 2) Zeller adopts the view given in the text, and confirms it by comparing the very similar statement as to Leukippos, κοινωνήσας Παρμενίδη τῆς φιλοσοφίας. See below, Chap. IX, § 172.



Anaxagoras at Athens

Anaxagoras was the first philosopher to take up at his abode at Athens. We are not informed what brought him there in the year of Salamis. He was, however, a Persian subject; for Klazomenai had been reduced after the suppression of the Ionian Revolt, and it seems likely enough that he was in the Persian army.¹⁴

Anaxagoras is said to have been the teacher of Perikles, and the fact is placed beyond the reach of doubt by the testimony of Plato. In the *Phaedrus*¹⁵ he makes Sokrates say:

“For all arts that are great, there is need of talk and discussion on the parts of natural science that deal with things on high; for that seems to be the source which inspires high-mindedness and effectiveness in every direction. Perikles added this very acquirement to his original gifts. He fell in, it seems, with Anaxagoras, who was a scientific man; and, satiating himself with the theory of things on high, and having attained to a knowledge of the true nature of mind and intellect, which was just what the discourses of Anaxagoras were mainly about, he drew from that source whatever was of a nature to further him in the art of speech.”

This clearly means that Perikles associated with Anaxagoras before he became a prominent politician. So too Isokrates says that Perikles was the pupil of two “sophists,” Anaxagoras and Damon.¹⁶ There can be no doubt that the teaching of Damon belongs to the youth of Perikles,¹⁷ and it is to be inferred that the same is true of that of Anaxagoras.

A more difficult question is the alleged relation of Euripides to Anaxagoras. The oldest authority for it is Alexander of Aitolia, poet and librarian, who lived at the court of Ptolemy Philadelphos (c. 280 B.C.). He referred to Euripides as the “nursling of brave Anaxagoras.”¹⁸ The famous fragment on the blessedness of the scientific life might just as well refer to any other cosmologist as to Anaxagoras, and indeed suggests more naturally a thinker of a more primitive type.¹⁹ On the other hand, it is likely enough that Anaxagoras did not develop his system all at once, and he doubtless began by teaching that of Anaximenes. Besides there is one fragment which distinctly

¹⁴ That might explain the charge of “Medism” which was perhaps brought against him at his trial (§ 124). It is also perhaps, significant that Apollodoros (and probably Demetrios of Phaleron) spoke of him as twenty years old κατὰ τὴν Ἑέρσου διάβασιν, which means, of course, the crossing of the Hellespont, and would hardly be relevant if Anaxagoras had not been with Xerxes then. It is certainly difficult to see what else could bring a young Klazomenian to Athens at that date.

¹⁵ 270a (R.P. 148c).

¹⁶ Isokrates, *Περὶ ἀνυπόσεως*, 235. Περικλῆς δὲ δυοῖν (σοφιστῶν) ἐγένετο μαθητῆς, Ἀναξαγόρου τε τοῦ Κλαζομενίου καὶ Δάμωνος.

¹⁷ Damon (or Damonides) must have been politically active about 460 B.C. (Meyer, *Gesch. des Altert.* iii, 567; Wilamowitz, *Aristoteles and Athen*, i, 134) so that he must have been born about 500 B.C. He was ostracised before 443 B.C. according to Meyer, and an ostrakon with the name of Damon son of Damonides has been found (Brückner, *Arch. Anz.*, 1914, p. 95). If we suppose that he was ostracised in 445 and returned in 435, his subsequent relations with Sokrates are quite natural. Plato can hardly have known him personally. On the whole subject, see Rosenberg in *Neue Jahrb.* xxxv, p. 205 sqq.

¹⁸ Gell. xv. 20, “Alexander autem Aetolus hos de Euripide versus composuit”; ὁ δ’ Ἀναξαγόρου τροφίμος χαιτοῦ (so Valckenaer for ἀρχαίου) κτλ.

¹⁹ See *Introduct.* p. 10, n. 3.



expounds the central thought of Anaxagoras, and could hardly be referred to any one else.²⁰

The Trial

It is clear that, if we adopt the chronology of Demetrios of Phaleron, the trial of Anaxagoras must be placed early in the political career of Perikles.²¹ That is the tradition preserved by Satyros, who says that the accuser was Thoukydides, son of Melesias, and that the charge was impiety and Medism.²² As Thoukydides was ostracised in 443 B.C., that would make it probable that the trial of Anaxagoras took place about 450 B.C., and would bring it into connexion with the ostracism of the other teacher of Perikles, Damon.²³ If that is so, we understand at once why Plato never makes Sokrates meet with Anaxagoras. He had handed his school over to Archelaos before Sokrates was old enough to take an interest in scientific theories.²⁴ We do learn from Plato, however, what the charge of impiety was based on. It was that Anaxagoras taught the sun was a red-hot stone, and the moon earth,²⁵ and we shall see that he certainly did hold these views (§ 133). For the rest, the most likely account is that he was got out of prison and sent away by Perikles.²⁶ We know that such things were possible at Athens.

Driven from his adopted home, Anaxagoras naturally went back to Ionia, where at least he would be free to teach what he pleased. He settled at Lampsakos, a colony of Miletos, and we shall see reason to believe that he founded a school there. If so, he must have lived at Lampsakos for some time before his death.²⁷ The Lampsakenes erected an altar to his memory in their market-place, dedicated to Mind and Truth; and the anniversary of his death was long kept as a holiday for school-children, it was said at his own request.²⁸

²⁰ R.P. 150b.

²¹ The trial of Anaxagoras is generally referred to the period just before the Peloponnesian War. That is how it was represented by Ephoros (reproduced by Diod. xii, 38), and the same account is followed by Plutarch (*V. Per.* 32). The pragmatic character of the chronology of Ephoros is, however, sufficiently established, and we cannot infer anything from it. Sotion, who made Kleon the accuser, must also have assumed a late date for the trial.

²² Diog. ii. 12, Σάτυρος δ' ἐν τοῖς βίοις ὑπὸ Θουκυδίδου φησὶν εἰσαχθῆναι τὴν δίκην, ἀντιπολιτευομένου τῷ Περικλεῖ· καὶ οὐ μόνον ἀσεβείας ἀλλὰ καὶ μηδισμοῦ· καὶ ἀπόντα καταδικασθῆναι θανάτῳ.

²³ This would be in complete agreement with the statement that Anaxagoras lived thirty years at Athens (*p.* 251). For the ostracism of Damon, see *p.* 255, *n.* 2.

²⁴ The well-known passage of the *Phaedo* (97b 8 *sqq.*) distinctly implies that Anaxagoras had left Athens when Sokrates was still quite young. He hears of his doctrine only at second-hand (from Archelaos?) and he at once procures the book of Anaxagoras and reads it. If Anaxagoras had still been at Athens, it would have been a simple matter for Sokrates to seek him out and question him, and it would have made an excellent subject for a Platonic dialogue. The fact that Plato does make Sokrates meet Parmenides and Zeno and does not make him meet Anaxagoras is clearly significant.

²⁵ *Apol.* 26d.

²⁶ Plut. *Nic.* 23 (R.P. 148c). Cf. *Per.* 32 (R.P. 148).

²⁷ See the account of Archelaos in Chap. X, § 191.

²⁸ The oldest authority for the honours paid to Anaxagoras is Alkidamas, the pupil of Gorgias, who said these were still kept up in his own time. Arist. *Rhet.* B, 23. 1398b 15.



Writings

Diogenes includes Anaxagoras in his list of philosophers who left only a single book, and he has also preserved the accepted criticism of it, namely, that it was written “in a lofty and agreeable style.”²⁹ There is no evidence of any weight to set against this testimony, which comes ultimately from the librarians of Alexandria.³⁰ The story that Anaxagoras wrote a treatise on perspective as applied to scene-painting is most improbable;³¹ and the statement that he composed a work dealing with the quadrature of the circle is a misunderstanding of an expression in Plutarch.³² We learn from the passage in the *Apology*, referred to above, that the works of Anaxagoras could be bought at Athens for a drachma; and that the book was of some length may be gathered from the way in which Plato makes Sokrates go on to speak of it.³³ In the sixth century A.D. Simplicius had access to a copy, doubtless in the library of the Academy; and it is to him we owe the preservation of all our fragments, with one or two very doubtful exceptions. Unfortunately his quotations seem to be confined to the First Book, that dealing with general principles, so that we are left somewhat in the dark as to the treatment of details.

Fragments

I give the fragments according to the text and arrangement of Diels:

- 1 All things were together, infinite both in number and in smallness; for the small too was infinite. And, when all things were together, none of them could be distinguished for their smallness. For air and aether prevailed over all things, being both of them infinite; for amongst all things these are the greatest both in quantity and size.³⁴
- 2 For air and aether are separated off from the mass that surrounds the world, and the surrounding mass is infinite in quantity.
- 3 Nor is there a least of what is small, but there is always a smaller; for it cannot be that what is should cease to be by being cut.³⁵ But there is also always something greater than what is great, and it is equal to the small in amount, and, compared with itself, each thing is both great and small.

²⁹ Diog. i. 16; ii. 6 (R.P. 5; 153).

³⁰ Schaubach (*An. Claz. Fragm. p. 57*) fabricated a work entitled *τὸ πρὸς Λεξιέου* out of the pseudo-Aristotelian *De plantis*, 817a 27. But the Latin version of Alfred, which is the original of the Greek, has simply *et ideo dicit lechineon*; and this seems to be due to failure to make out the Arabic text from which the Latin was derived. Cf. Meyer, *Gesch. d. Bot.* i. 60.

³¹ Vitruvius, vii. pr. ii. A forger, seeking to decorate his production with a great name, would think at once of the philosopher who was said to have taught Euripides.

³² Plut. *De exilio*, 607f. The words merely mean that he used to draw figures relating to the quadrature of the circle on the prison floor.

³³ *Apol.* 26d-e. The expression βιβλία perhaps implies that it filled more than one roll.

³⁴ Simplicius tells us this was at the beginning of Book I. The sentence quoted by Diog. ii. 6 (R.P. 153) is not a fragment of Anaxagoras, but a summary, like the πάντα ῥεῖ ascribed to Herakleitos. (Chap. III, p. 146).

³⁵ Zeller's τομῆ still seems to me a convincing correction of the MS. τὸ μῆ, which Diels retains.



4 And since these things are so, we must suppose that there are contained many things and of all sorts in the things that are uniting, seeds of all things, with all sorts of shapes and colours and savours, and that men have been formed in them, and the other animals that have life, and that these men have inhabited cities and cultivated fields as with us; and that they have a sun and a moon and the rest as with us; and that their earth brings forth for them many things of all kinds of which they gather the best together into their dwellings, and use them. Thus much have I said with regard to separating off, to show that it will not be only with us that things are separated off, but elsewhere too.

But before they were separated off, when all things were together, not even was any colour distinguishable; for the mixture of all things prevented it — of the moist and the dry; and the warm and the cold, and the light and the dark, and of much earth that was in it, and of a multitude of innumerable seeds in no way like each other. For none of the other things either is like any other. And these things being so, we must hold that all things are in the whole.³⁶

5 And those things having been thus decided, we must know that all of them are neither more nor less; for it is not possible for them to be more than all, and all are always equal.

6 And since the portions of the great and of the small are equal in amount, for this reason, too, all things will be in everything; nor is it possible for them to be apart, but all things have a portion of everything. Since it is impossible for there to be a least thing, they cannot be separated, nor come to be by themselves; but they must be now, just as they were in the beginning, all-together. And in all things many things are contained, and an equal number both in the greater and in the smaller of the things that are separated off.

7 . . . So that we cannot know the number of the things that are separated off, either in word or deed.

8 The things that are in one world are not divided nor cut off from one another with a hatchet, neither the warm from the cold nor the cold from the warm.

9 . . . as these things revolve and are separated off by the force and swiftness. And the swiftness makes the force. Their swiftness is not like the swiftness of any of the things that are now among men, but in every way many times as swift.

10 How can hair come from what is not hair, or flesh from what is not flesh?

11 In everything there is a portion of everything except Nous, and there are some things in which there is Nous also.

12 All other things partake in a portion of everything, while Nous is infinite and self-ruled, and is mixed with nothing, but is alone itself by itself. For if it were not by itself, but were mixed with anything else, it would partake in all things if it were mixed with any; for in everything there is a portion of everything, as has been said by me in what goes before, and the things mixed with it would hinder it, so that it

³⁶ I had already pointed out in the first edition that Simplicius quotes this three times as a continuous fragment, and that we are not entitled to break it up. Diels now prints it as a single passage.



would have power over nothing in the same way that it has now being alone by itself. For it is the thinnest of all things and the purest, and it has all knowledge about everything and the greatest strength; and Nous has power over all things, both greater and smaller, that have life. And Nous had power over the whole revolution, so that it began to revolve in the beginning. And it began to revolve first from a small beginning; but the revolution now extends over a larger space, and will extend over a larger still. And all the things that are mingled together and separated off and distinguished are all known by Nous. And Nous set in order all things that were to be, and all things that were and are not now and that are, and this revolution in which now revolve the stars and the sun and the moon, and the air and the aether that are separated off. And this revolution caused the separating off, and the rare is separated off from the dense, the warm from the cold, the light from the dark, and the dry from the moist. And there are many portions in many things. But no thing is altogether separated off nor distinguished from anything else except Nous. And all Nous is alike, both the greater and the smaller; while nothing else is like anything else, but each single thing is and was most manifestly those things of which it has most in it.³⁷

13 And when Nous began to move things, separating off took place from all that was moved, and so much as Nous set in motion was separated. And as things were set in motion and separated, the revolution caused them to be separated much more.

14 And Nous, which ever is, is certainly there, where everything else is, in the surrounding mass, and in what has been united with it and separated off from it.³⁸

15 The dense and the moist and the cold and the dark came together where the earth is now, while the rare and the warm and the dry (and the bright) went out towards the further part of the aether.³⁹

16 From these as they are separated off earth is solidified; for from mists water is separated off, and from water earth. From the earth stones are solidified by the cold, and these rush outwards more than water.

³⁷ [Here is Anaxoras' text on Nous in Greek:

. . . τὰ μὲν ἄλλα παντός μοῖραν μετέχει, νοῦς δὲ ἔστιν ἄπειρον καὶ αὐτοκρατὴς καὶ μέμεικται οὐδενὶ χρήματι, ἀλλὰ μόνος αὐτὸς ἐπ' ἑωυτοῦ ἔστιν. εἰ μὴ γὰρ ἐφ' ἑαυτοῦ ἦν, ἀλλὰ τῶν ἐμέμεικτο ἄλλοι, μετεῖχεν ἂν ἀπάντων χρημάτων, εἰ ἐμέμεικτό τῶν ἐν παντί γὰρ παντός μοῖρα ἔνεστιν, ὥσπερ ἐν τοῖς πρόσθεν μοι λέλεκται· καὶ ἂν ἐκόλυεν αὐτὸν τὰ συμμεμειγμένα, ὥστε μηδενὸς χρήματος κρατεῖν ὁμοίως ὡς καὶ μόνον ἔοντα ἐφ' ἑαυτοῦ. ἔστι γὰρ λεπτότατον τε πάντων χρημάτων καὶ καθαρώτατον καὶ γνώμην γε περὶ παντός πᾶσαν ἴσχει καὶ ἰσχύει μέγιστον· καὶ ὅσα γε ψυχὴν ἔχει καὶ τὰ μείζω καὶ τὰ ἐλάττω, πάντων νοῦς κρατεῖ. καὶ τῆς περιχωρήσεως τῆς συμπάσης νοῦς ἐκράτησεν, ὥστε περιχωρήσῃ τὴν ἀρχὴν. καὶ πρῶτον ἀπὸ τοῦ σμικροῦ ἤρξαστο περιχωρεῖν, ἐπὶ δὲ πλέον περιχωρεῖ καὶ περιχωρήσῃ ἐπὶ πλέον. καὶ τὰ συμμιεγόμενά τε καὶ ἀποκρινόμενα καὶ διακρινόμενα πάντα ἔγνω νοῦς. καὶ ὅποια ἐμελλεν ἔσεσθαι καὶ ὅποια ἦν, ἅσσα νῦν μὴ ἔστι, καὶ ὅσα νῦν ἔστι καὶ ὅποια ἔσται, πάντα διεκόσμησε νοῦς καὶ τὴν περιχώρησιν ταύτην, ἣν νῦν περιχωρεῖ τὰ τε ἄστρα καὶ ὁ ἥλιος καὶ ἡ σελήνη καὶ ὁ ἄηρ καὶ ὁ αἰθήρ οἱ ἀποκρινόμενοι. ἡ δὲ περιχώρησις αὐτῆ ἐποίησεν ἀποκρίνεσθαι. καὶ ἀποκρίνεται ἀπὸ τοῦ ἄραιου τὸ πυκνὸν καὶ ἀπὸ τοῦ ψυχροῦ τὸ θερμὸν καὶ ἀπὸ τοῦ ζοφεροῦ τὸ λαμπρὸν καὶ ἀπὸ τοῦ διεροῦ τὸ ξηρόν. μοῖραι δὲ πολλὰ πολλῶν εἰσι. παντάπασιν δὲ οὐδὲν ἀποκρίνεται οὐδὲ διακρίνεται ἕτερον ἀπὸ τοῦ ἐτέρου πλὴν νοῦ. νοῦς δὲ πᾶς ὁμοίος ἔστι καὶ ὁ μείζων καὶ ὁ ἐλάττω. ἕτερον δὲ οὐδὲν ἔστιν ὁμοιον οὐδενὶ, ἀλλ' ὅτων πλεῖστα ἓν, ταῦτα ἐνδηλότατα ἐν ἑκαστὸν ἔστι καὶ ἦν.]

³⁸ Simplicius gives fr. 14 thus (p. 157, 5); ὁ δὲ νοῦς ὅσα ἔστι τε κάρτα καὶ νῦν ἔστιν. Diels now reads ὁ δὲ νοῦς ὅς ἄ<εῖ> ἔστι τὸ κάρτα καὶ νῦν ἔστιν. The correspondence of αἰεῖ . . . καὶ νῦν is strongly in favour of this.

³⁹ On the text of fr. 15, see R.P. 156a. I have followed Schorn in adding καὶ τὸ λαμπρὸν from Hippolytos.



17 The Hellenes follow a wrong usage in speaking of coming into being and passing away; for nothing comes into being or passes away, but there is mingling and separation of things that are. So they would be right to call coming into being mixture, and passing away separation.

18 It is the sun that puts brightness into the moon.

19 We call rainbow the reflexion of the sun in the clouds. Now it is a sign of storm; for the water that flows round the cloud causes wind or pours down in rain.

20 With the rise of the Dogstar (?) men begin the harvest; with its setting they begin to till the fields. It is hidden for forty days and nights.

21 From the weakness of our senses we are not able to judge the truth.

21a What appears is a vision of the unseen.⁴⁰

21b (We can make use of the lower animals) because we use our own experience and memory and wisdom and art.

22 What is called “birds’ milk” is the white of the egg.

Anaxagoras and his Predecessors

The system of Anaxagoras, like that of Empedokles, aimed at reconciling the Eleatic doctrine that corporeal substance is unchangeable with the existence of a world which everywhere presents the appearance of coming into being and passing away. The conclusions of Parmenides are frankly accepted and restated. Nothing can be added to all things; for there cannot be more than all, and all is always equal. (fr. 5) Nor can anything pass away. What men commonly call coming into being and passing away is really mixture and separation. (fr. 17)

It is in every way probable that Anaxagoras derived his theory of mixture from his younger contemporary; whose poem may have been published before his own treatise.⁴¹ In any case, we have seen that the opinions of the latter were known at Athens before the middle of the fifth century. We have seen how Empedokles sought to save the world of appearance by maintaining that the opposites — hot and cold, moist and dry — were things, each one of which was real in the Parmenidean sense. Anaxagoras regarded this as inadequate. Everything changes into everything else,⁴² the things of which the world is made are not “cut off with a hatchet” (fr. 8) in this way. On the contrary, the true formula must be: *There is a portion of everything in everything.* (fr. 11)

⁴⁰ [*I.e.*, “οπις των αδηλων τα φαινομενα.”]

⁴¹ I do not now think, however, that this is the meaning of the words τοις ἔργοις ὕστερος in Arist. *Met.* A, 3. 984 a 12 (R.P. 150a). At any rate Theophrastos did not take them so; for he imitates the passage in speaking of Plato (*Dox.* 484, 19), of whom he says Τοῦτοις ἐπιγενόμενος Πλάτων τῇ μὲν δόξει καὶ τῇ δυνάμει πρότερος, τοῖς δὲ χρόνοις ὕστερος. It seems that he understood the Aristotelian formula as “inferior in his achievements.”

⁴² Arist. *Phys.* A, 4. 187b 1 (R.P. 155a).



“Everything in Everything”

A part of the argument by which Anaxagoras sought to prove this point has been preserved in a corrupt form by Aetios, and Diels has recovered some of the original words from the scholiast on St. Gregory Nazianzene. “We use a simple nourishment,” he said, “when we eat the fruit of Demeter or drink water. But how can hair be made of what is not hair, or flesh of what is not flesh?” (fr. 10) That is just the sort of question the early Milesians must have asked, only the physiological interest has now definitely replaced the meteorological. We shall find a similar train of reasoning in Diogenes of Apollonia. (fr. 2)

The statement that there is a portion of everything in everything, is not to be understood as referring simply to the original mixture of things before the formation of the worlds. (fr. 1) On the contrary, even now “all things are together,” and everything, however small and however great, has an equal number of “portions.” (fr. 6) A smaller particle of matter could only contain a smaller number of portions, if one of those portions ceased to be; but if anything *is*, in the full Parmenidean sense, it, is impossible that mere division should make it cease to be. (fr. 3) Matter is infinitely divisible; for there is no least thing, any more than there is a greatest. But however great or small a body may be, it contains just the same number of “portions,” that is, a portion of everything.

The Portions

What are these “things” of which everything contains a portion? It once was usual to represent the theory of Anaxagoras as if he had said that wheat, for instance, contained small particles of flesh, blood, bones, and the like; but we have just seen that matter is infinitely divisible, (fr. 3) and that there are as many “portions” in the smallest particle as in the greatest. (fr. 6) That is fatal to the old view. However far we carry division, we can never reach anything “unmixed,” so there can be no such thing as a particle of simple nature, however minute.

This difficulty can only be solved in one way.⁴³

In fr. 8 the examples given of things which are not “cut off from one another with a hatchet” are the hot and the cold; and elsewhere (frs. 4, 15), mention is made of the other traditional “opposites.” Aristotle says that, if we suppose the first principles to be infinite, they may either be one in kind, as with Demokritos, or opposite.⁴⁴ Sim-

⁴³ See Tannery, *Science hellène*, pp. 283 sqq. I still think that Tannery's interpretation is substantially right, though his statement of it requires some modification. It is, no doubt, difficult for us to think of the hot and cold, dry and wet as “things” (κρήματα); but we must remember that, even when the notion of quality (ποιότης) had been defined, this way of thinking survived. Galen (*De nat. fac.* i. 2, 4) is still quite clear on the point that it is the *qualities* which are eternal. He says οἱ δὲ τινες εἶναι μὲν ἐν αὐτῇ (τῇ ὑποκειμένη οὐσίᾳ) βούλονται τὰς ποιότητας, ἀμεταβλήτους δὲ καὶ ἀτρέπτους ἐξ αἰῶνος, καὶ τὰς φαινομένας ταῦτα ἀλλοιώσεις τῇ διακρίσει τε καὶ συγκρίσει γίνεσθαι φασιν ὡς Ἀναξαγόρας.

⁴⁴ Arist. *Phys.* A, 2. 184b 21, ἢ οὕτως ὡσπερ Δημόκριτος, τὸ γένος ἓν, σχήματι δὲ ἢ εἶδει διαφερούσας, ἢ καὶ ἐναντίας.



plicius, following Porphyry and Themistios, refers the latter view to Anaxagoras;⁴⁵ and Aristotle himself implies that the opposites of Anaxagoras had as much right to be called first principles as the “homoeomeries.”⁴⁶

It is of those opposites, then, and not of the different forms of matter, that everything contains a portion. Every particle, however large or however small, contains every one of those opposite qualities. That which is hot is also to a certain extent cold. Even snow, Anaxagoras affirmed, was black;⁴⁷ that is, even the white contains a certain portion of the opposite quality. It is enough to indicate the connexion of this with the views of Herakleitos (§ 80).⁴⁸

Seeds

The difference, then, between the theory of Anaxagoras and that of Empedokles is this. Empedokles had taught that, if you divide the various things which make up this world, and in particular the parts of the body, such as flesh, bones, and the like, far enough, you come to the four “roots” or elements, which are, accordingly, the ultimate reality. Anaxagoras held that, however far you may divide any of these things — and they are infinitely divisible — you never come to a part so small that it does not contain portions of all the opposites. On the other hand, everything can pass into everything else just because the “seeds,” as he called them, of each form of matter contain a portion of everything, that is, of all the opposites, though in different proportions. If we are to use the word “element” at all it is these seeds that are the elements in the system of Anaxagoras.

Aristotle expresses this by saying that Anaxagoras regards the ὁμοιομερῆ as στοιχεῖα.⁴⁹ We have seen that the term στοιχεῖον is of later date than Anaxagoras, and it is natural to suppose that the word ὁμοιομερῆ is also only Aristotle’s name for the “seeds.” In his own system, the ὁμοιομερῆ are intermediate between the elements (στοιχεῖα), of which they are composed, and the organs (ὄργανα), which are composed of them. The heart cannot be divided into hearts, but the parts of flesh are flesh. That being so, Aristotle’s statement is quite intelligible from his own point of view, but there is no reason for supposing that Anaxagoras expressed himself in that particular way. All we are entitled to infer is that he said the “seeds,” which he substi-

⁴⁵ *Phys. p.* 44: He goes on to refer to θερμότητος . . . και ψυχρότητας ξηρότητας τε και ὑγρότητας μανότητός τε και πυκνότητος και τῶς ἄλλας κατὰ ποιότητα ἐναντιότητας. He observes, however, that Alexander rejected this interpretation and took διαφερούσας ἢ και ἐναντίας closely together as both referring to Demokritos.

⁴⁶ *Phys. A.* 4. 187a 25, τὸν μὲν Ἀναξαγόραν ἄπειρα ποιεῖν τὰ τε ὁμοιομερῆ και τὰναντία. Aristotle’s own theory only differs from this in so far as he makes ὕλη prior to the ἐναντία.

⁴⁷ *Sext. Pyrrh.* i. 33 (R.P. 161b).

⁴⁸ The connexion was already noted by the eclectic Herakleitean to whom I attribute *Περὶ διαίτης*, i. 3-4 (see above, *Chap. III p.* 150, *n.* 2). *Cf.* the words ἔχει δὲ ἀπ’ ἀλλήλων τὸ μὲν πῦρ ἀπὸ τοῦ ὕδατος τὸ ὑγρόν· ἐνὶ γὰρ ἐν πυρὶ ὑγρότης· τὸ δὲ ὕδωρ ἀπὸ τοῦ πυρὸς τὸ ξηρόν· ἐνὶ γὰρ και ἐν ὕδατι ξηρόν.

⁴⁹ *Arist. De gen. corr.*, A, 1, 34a 18, 6 ὁ μὲν γὰρ (Anaxagoras) τὰ ὁμοιομερῆ στοιχεῖα τίθησιν, οἷον ὅσποιν και σάρκα και μυελόν, και τῶν ἄλλων ὧν ἐκάστῳ συνόνυμιον τὸ μέρος ἐστίν. This was, of course, repeated by Theophrastos and the doxographers; but it is to be noted that Aetios, supposing as he does that Anaxagoras himself used the term, gives it an entirely wrong meaning. He says that the ὁμοιομέρεια were so called from the likeness of the particles of the τροφή to those of the body (*Dox.* 279a 21; R.P. 155f). Lucretius, i. 830 *sqq.* (R.P. 155f) has a similar account of the matter, derived from Epicurean sources. Obviously, it cannot be reconciled with what Aristotle says.



tuted for the “roots” of Empedokles, were not the opposites, in a state of separation, but each contained a portion of them all. If Anaxagoras had used the term “homoeomerics” himself, it would be very strange that Simplicius should quote no fragment containing it.

The difference between the two systems may also be regarded from another point of view. Anaxagoras was not obliged by his theory to regard the elements of Empedokles as primary, a view to which there were obvious objections, especially in the case of earth. He explained them in quite another way. Though everything has a portion of everything in it, things appear to be that of which there is most in them. (fr. 12 *sub fin.*) We may say, then, that Air is that in which there is most cold, Fire that in which there is most heat, and so on, without giving up the view that there is a portion of cold in the fire and a portion of heat in the air.⁵⁰ The great masses which Empedokles had taken for elements are really vast collections of all manner of “seeds.” Each of them is, in fact, a πανοπερμία.⁵¹

“All Things Together”

From all this it follows that, when “all things were together,” and when the different seeds of things were mixed together in infinitely small particles, (fr. 1) the appearance presented would be that of one of what had hitherto been regarded as the primary substances. As a matter of fact, they did present the appearance of “air and aether”; for the qualities (things) which belong to these — *i.e.* the hot and the cold, prevail in quantity over all other things in the universe, and everything is most obviously that of which it has most in it. (fr. 12 *sub fin.*) Here, then, Anaxagoras attaches himself to Anaximenes. The primary condition of things, before the formation of the worlds, is much the same in both; only, with Anaxagoras, the original mass is no longer the primary substance, but a mixture of innumerable seeds divided into infinitely small parts.

This mass is infinite, like the air of Anaximenes, and it supports itself, since there is nothing surrounding it.⁵² Further, the seeds of all things which it contains are infinite in number. (fr. 1) But, as the innumerable seeds may be divided into those in which the portions of cold, moist, dense, and dark prevail, and those which have most of the warm, dry, rare, and light in them, we may say that the original mass was a mixture of infinite Air and of infinite Fire. The seeds of Air, of course, contain “portions” of the “things” that predominate in Fire, and *vice versa*; but we regard everything as being that of which it has most in it. Lastly, there is no void in this mix-

⁵⁰ Cf. above, p. 263.

⁵¹ Arist. *De gen. corr.* A, 1. 314a 29. The word πανοπερμία was used by Demokritos (Arist. *De an.* A, 2. 404a 8; R.P. 200), and it occurs in the *Περὶ διαίτης* (*loc. cit.*). It seems natural to suppose that it was used by Anaxagoras himself, as he used the term σπέρματα. Much difficulty has been caused by the apparent inclusion of Water and Fire among the ὁμοιομερῆ in Arist. *Met.* A, 3. 984a 11 (R.P. 150a). Bonitz understands the words καθάπερ ὕδωρ ἢ πῦρ to mean “as we have just seen that Fire and Water do in the system of Empedokles.” In any case, καθάπερ goes closely with οὕτω, and the general sense is that Anaxagoras applies to the ὁμοιομερῆ what is really true of the στοιχεῖα. It would be better to delete the comma after πῦρ and add one after φησι, for συγκρίσει καὶ διακρίσει μόνον is explanatory of οὕτω . . . καθάπερ. In the next sentence, I read ἀπλῶς for ἄλλως with Zeller (*Arch.* ii. 261). See also Arist. *De caelo*, Γ, 3. 302b 1 (R.P. 150a), where the matter is very clearly put.

⁵² Arist. *Phys.* Γ, 5. 205b 1 (R.P. 154a).



ture, an addition to the theory made necessary by the arguments of Parmenides. It is, however, worthy of note that Anaxagoras added an experimental proof of this to the purely dialectical one of the Eleatics. He used the *klepsydra* experiment as Empedokles had done, (fr. 10) and also showed the corporeal nature of air by means of inflated skins.⁵³

Nous

Like Empedokles, Anaxagoras required some external cause to produce motion in the mixture. Body, Parmenides had shown, would never move itself, as the Milesians had assumed. Anaxagoras called the cause of motion by the name of Nous. It was this which made Aristotle say that he “stood out like a sober man from the random talkers that had preceded him,”⁵⁴ and he has often been credited with the introduction of the spiritual into philosophy. The disappointment expressed by Sokrates in the *Phaedo* as to the way in which Anaxagoras worked out the theory should, however, make us pause to reflect before accepting too exalted a view of it. Plato⁵⁵ makes Sokrates say: “I once heard a man reading a book, as he said of Anaxagoras, and saying it was Mind that ordered the world and was the cause of all things. I was delighted to hear of this cause, and I thought he really was right But my extravagant expectations were all dashed to the ground when I went on and found that the man made no use of Mind at all. He ascribed no causal power whatever to it in the ordering of things, but to airs, and aethers, and waters, and a host of other strange things.” Aristotle, of course with this passage in mind, says:⁵⁶ “Anaxagoras uses Mind as a *deus ex machina* to account for the formation of the world; and whenever he is at a loss to explain why anything necessarily is, he drags it in. But in other cases he makes anything rather than Mind the cause.” These utterances may well suggest that the Nous of Anaxagoras was something on the same level as the Love and Strife of Empedokles, and this will be confirmed when we look at what he has to say about it.

In the first place, Nous is unmixed, (fr. 12) and does not, like other things, contain a portion of everything. This would hardly be worth saying of an immaterial mind; no one would suppose that to be hot or cold. The result of its being unmixed is that it “has power over” everything, that is to say, in the language of Anaxagoras, it causes things to move.⁵⁷ Herakleitos had said as much of Fire, and Empedokles of Strife. Further, it is the “thinnest” of all things, so that it can penetrate everywhere, and it would be meaningless to say that the immaterial is “thinner” than the material. It is

⁵³ *Phys. Z.*, 6. 213a 22 (R.P. 159): We have a full discussion of the experiments with the *klepsydra* in *Probl.* 914b 9 *sqq.*, a passage which we have already used to illustrate Empedokles, fr. 100. See above, p. 219, n. 2.

⁵⁴ Arist. *Met. A.*, 3. 984b 15 (R.P. 152).

⁵⁵ Plato, *Phaed.* 97b 8 (R.P. 155d).

⁵⁶ Arist. *Met. A.*, 4. 985a 18 (R.P. 155d).

⁵⁷ Arist. *Phys. Θ.*, 5. 256b 24, διὸ καὶ Ἀναξαγόρας ὀρθῶς λέγει, τὸν νοῦν ἀπαθῆ φάσκων καὶ ἀμιγῆ εἶναι, ἐπειδὴ περ κινήσεως ἀρχὴν αὐτὸν ποιεῖ εἶναι· οὕτω γὰρ ἂν μόνως κινεῖται ἀκίνητος ὢν καὶ κρατοῖται ἀμιγῆς ὢν. This is only quoted for the meaning of κρατεῖν. Of course, the words ἀκίνητος ὢν are not meant to be historical, and still less is the interpretation in *De an.* Γ, 4. 429a 18. Diogenes of Apollonia (fr. 5) couples ὑπὸ τούτου πάντα κυβερνᾶσθαι (the old Milesian word) with πάντων κρατεῖν.



true that Nous also “knows all things”; but so, perhaps, did the Fire of Herakleitos,⁵⁸ and certainly the Air of Diogenes.⁵⁹ Zeller holds, indeed, that Anaxagoras meant to speak of something incorporeal; but he admits that he did not succeed in doing so,⁶⁰ and that is historically the important point. Nous is certainly imagined as occupying space; for we hear of greater and smaller parts of it. (fr. 12)

The truth probably is that Anaxagoras substituted Nous for the Love and Strife of Empedokles, because he wished to retain the old Ionic doctrine of a substance that “knows” all things, and to identify that with the new theory of a substance that “moves” all things. Perhaps, too, it was his increased interest in physiological as distinguished from purely cosmological matters that led him to speak of Mind rather than Soul. The former word certainly suggests to the Greek an intimate connexion with the living body which the latter does not. But, in any case, the originality of Anaxagoras lies far more in the theory of substance than in that of Nous.

Formation of the Worlds

The formation of a world starts with a rotatory motion which Nous imparts to a portion of the mixed mass in which “all things are together,” (fr. 13) and this rotatory motion gradually extends over a wider and wider space. Its rapidity (fr. 9) produced a separation of the rare and the dense, the cold and the hot, the dark and the light, the moist and the dry. (fr. 15) This separation produces two great masses, the one consisting mostly of the rare, hot, light, and dry, called the “Aether”; the other, in which the opposite qualities predominate, called “Air.” (fr. 1) Of these the Aether or Fire⁶¹ took the outside while the Air occupied the centre. (fr. 15)

The next stage is the separation of the air into clouds, water, earth, and stones. (fr. 16) In this Anaxagoras follows Anaximenes closely. In his account of the origin of the heavenly bodies, however, he showed himself more original. We read at the end of fr. 16 that stones “rush outwards more than water,” and we learn from the doxographers that the heavenly bodies were explained as stones torn from the earth by the rapidity of its rotation and made red-hot by the speed of their own motion.⁶² Perhaps the fall of the meteoric stone at Aigospotamoi had something to do with the origin of this theory. It will also be observed that it necessarily implies the rotation of the flat earth along with the “eddy” (δίνη).

⁵⁸ If we retain the MS. εἰδέναι in fr. 1. In any case, the name τὸ σοφόν implies as much.

⁵⁹ See fr. 3, 5.

⁶⁰ Zeller, p. 993.

⁶¹ Note that Anaxagoras says “air” where Empedokles said “aether,” and that “aether” is with him equivalent to fire. Cf. Arist. *De caelo*, Γ, 3. 302b 4, τὸ γὰρ πῦρ καὶ τὸν αἰθέρα προσαγορεύει ταυτό and ib. A, 3. 270b 24, Ἀναξαγόρας δὲ καταχρήται τῷ ὀνόματι τούτῳ οὐ καλῶς· ὀνομάζει γὰρ αἰθέρα ἀντὶ πυρός.

⁶² Aet. ii. 13, 3 (*Dox.* p. 341; R.P. 157c).



Innumerable Worlds

That Anaxagoras adopted the ordinary Ionian theory of innumerable worlds is clear from fr. 4, which we have no right to regard as other than continuous.⁶³ The words “that it was not only with us that things were separated off, but elsewhere too” can only mean that Nous has caused a rotatory movement in more parts of the boundless mixture than one. Aetios certainly includes Anaxagoras among those who held there was only one world;⁶⁴ but this testimony cannot be considered of the same weight as that of the fragments. Zeller’s reference of the words to the moon is very improbable. Is it likely that any one would say that the inhabitants of the moon “have a sun and moon as with us”?⁶⁵

Cosmology

The cosmology of Anaxagoras is clearly based upon that of Anaximenes, as will be seen from a comparison of the following passage of Hippolytos⁶⁶ with the quotations given in Chap. I (§ 29):

3 The earth is flat in shape, and remains suspended because of its size and because there is no vacuum.⁶⁷ For this reason the air is very strong, and supports the earth which is borne up by it.

4. Of the moisture on the surface of the earth, the sea arose from the waters in the earth (for when these were evaporated the remainder turned salt),⁶⁸ and from the rivers which flow into it.

5 Rivers take their being both from the rains and from the waters in the earth; for the earth is hollow and has waters in its cavities. And the Nile rises in summer owing to the water that comes down from the snows in Ethiopia.⁶⁹

6 The sun and the moon and all the stars are fiery stones carried round by the rotation of the aether. Under the stars are the sun and moon, and also certain bodies which revolve with them, but are invisible to us.

7 We do not feel the heat of the stars because of the greatness of their distance from the earth; and, further, they are not so warm as the sun, because they occupy a colder region. The moon is below the sun, and nearer us.

⁶³ See above, p. 259, n. 1.

⁶⁴ Aet. ii. 1, 3 (Dox. p. 327).

⁶⁵ Further, it can be proved that this passage (fr. 4) occurred quite near the beginning of the work. Cf. Simpl. *Phys.* p. 34, 28 μετ’ ὀλίγα τῆς ἀρχῆς τοῦ πρώτου Περί φυσέως, p. 156, 1, καὶ μετ’ ὀλίγα, (after fr. 2) which itself occurred, μετ’ ὀλίγον, (after fr. 1) which was the beginning of the book. A reference to other “worlds” would be quite in place here, but not a reference to the moon.

⁶⁶ Ref. i. 8, 3 (Dox. p. 562).

⁶⁷ This is an addition to the older view occasioned by the Eleatic denial of the void.

⁶⁸ The text is corrupt here, but the general sense can be got from Aet. iii. 16, 2.

⁶⁹ The MS. reading is ἐν τοῖς ἄρκτοις, for which Diels adopts Fredrichs’ ἐν τοῖς ἀνταρκτικοῖς. I have thought it safer to translate the ἐν τῇ Αἰθιοπίᾳ of Aetios (iv. 1, 3). This view is mentioned by Herodotos (ii. 22). Seneca (*N.Q.* iv. 2, 17) points out that it was adopted by Aischylos (*Suppl.* 559, fr. 300, Nauck), Sophokles, (fr. 797) and Euripides (*Hel.* 3, fr. 228), who would naturally take their opinions from Anaxagoras.



8 The sun surpasses the Peloponnesos in size. The moon has not a light of her own, but gets it from the sun. The course of the stars goes under the earth.

9 The moon is eclipsed by the earth screening the sun's light from it, and sometimes, too, by the bodies below the moon coming before it. The sun is eclipsed at the new moon, when the moon screens it from us. Both the sun and the moon turn back in their courses owing to the repulsion of the air. The moon turns back frequently, because it cannot prevail over the cold.

10 Anaxagoras was the first to determine what concerns the eclipses and the illumination of the sun and moon. And he said the moon was of earth, and had plains and ravines in it. The Milky Way was the reflexion of the light of the stars that were not illuminated by the sun. Shooting stars were sparks, as it were, which leapt out owing to the motion of the heavenly vault.

11 Winds arose when the air was rarefied by the sun, and when things were burned and made their way to the vault of heaven and were carried off. Thunder and lightning were produced by heat striking upon clouds.

12 Earthquakes were caused by the air above striking on that beneath the earth; for the movement of the latter caused the earth which floats on it to rock.

All this confirms the statement of Theophrastos, that Anaxagoras had belonged to the school of Anaximenes. The flat earth floating on the air, the dark bodies below the moon, the explanation of the solstices and the "turnings back" of the moon by the resistance of air, the explanations of wind and of thunder and lightning, are all derived from the Milesian.

As to the moon's light and the cause of eclipses, it was natural that Anaxagoras should be credited at Athens with these discoveries. On the other hand, it seems very unlikely that they were made by a believer in a flat earth, and there is sufficient evidence that they are really Pythagorean.⁷⁰

Biology

"There is a portion of everything in everything except Nous, and there are some things in which there is Nous also." (fr. 11) In these words Anaxagoras laid down the distinction between animate and inanimate things. He tells us that it is the same Nous that "has power over," that is, sets in motion, all things that have life, both the greater and the smaller. (fr. 12) The Nous in living creatures is the same in all, (fr. 12) and from this it followed that the different grades of intelligence we observe in the animal and vegetable worlds depend entirely on the structure of the body. The Nous was the same, but it had more opportunities in one body than another. Man was the wisest of animals, not because he had a better sort of Nous, but because he had hands.⁷¹ This is in accordance with the previous development of thought upon the subject. Parmenides, in his Second Part, (fr. 16) had already made the thought of men depend on the constitution of their limbs.

⁷⁰ See p. 177, n. 1.

⁷¹ Arist. *De part. an.* Δ. 10. 687a 7 (R.P. 160b).



As all Nous is the same, we are not surprised to find that plants were regarded as living creatures. If we may trust the pseudo-Aristotelian *Treatise on Plants*⁷² so far, Anaxagoras argued that they must feel pleasure and pain in connexion with their growth and with the fall of their leaves. Plutarch says⁷³ that he called plants “animals fixed in the earth.”

Both plants and animals originated in the first instance from the πανοπερμία. Plants arose when the seeds of them which the air contained were brought down by the rain-water,⁷⁴ and animals originated in a similar way.⁷⁵ Like Anaximander, Anaxagoras held that animals first arose in the moist element.⁷⁶

Perception

In these scanty notices we seem to see traces of a polemical attitude towards Empedokles, and the same may be observed in what we are told of the theory of perception adopted by Anaxagoras, especially in the view that perception is of contraries.⁷⁷ The account which Theophrastos gives of this⁷⁸ is as follows:

But Anaxagoras says that perception is produced by opposites; for like things cannot be effected by like. He attempts to give a detailed enumeration of the particular senses. We see by means of the image in the pupil; but no image is cast upon what is of the same colour, but only on what is different. With most living creatures things are of a different colour to the pupil by day, though with some this is so by night, and these are accordingly keen-sighted at that time. Speaking generally, however, night is more of the same colour with the eyes than day. And an image is cast on the pupil by day, because light is a concomitant cause of the image, and because the prevailing colour casts an image more readily upon its opposite.⁷⁹

It is in the same way that touch and taste discern their objects. That which is just as warm or just as cold as we are neither warms us nor cools us by its contact; and, in the same way, we do not apprehend the sweet and the sour by means of themselves. We know cold by warm, fresh by salt, and sweet by sour, in virtue of our deficiency in each; for all these are in us to begin with. And we smell and hear in the same manner; the former by means of the accompanying respiration, the latter by the sound penetrating to the brain, for the bone which surrounds this is hollow, and it is upon it that the sound falls.⁸⁰

⁷² [Arist.] *De Plant.* A, 1. 815a 15 (R.P. 160).

⁷³ Plut. *Q.N.* 1 (R.P. 160), ζῶον . . . ἐγγεῖον.

⁷⁴ Theophr. *Hist. Plant.* iii. 1, 4 (R.P. 160).

⁷⁵ Irenaeus, *Adv. Haer.* ii. 14, 2 (R.P. 160a).

⁷⁶ Hipp. *Ref.* i. 8, 12 (*Dox.* p. 563).

⁷⁷ Beare, p. 37.

⁷⁸ Theophr. *De sense*, 27 sqq. (*Dox.* p. 507).

⁷⁹ Beare, p. 38.

⁸⁰ Beare, p. 208.

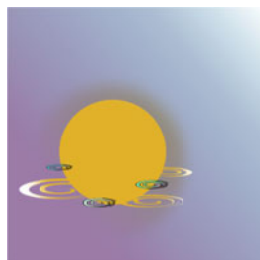


And all sensation implies pain, a view which would seem to be the consequence of the first assumption, for all unlike things produce pain by their contact. And this pain is made perceptible by the long continuance or by the excess of a sensation. Brilliant colours and excessive noises produce pain, and we cannot dwell long on the same things. The larger animals are the more sensitive, and, generally, sensation is proportionate to the size of the organs of sense. Those animals which have large, pure, and bright eyes, see large objects and from a great distance, and contrariwise.⁸¹

And it is the same with hearing. Large animals can hear great and distant sounds, while less sounds pass unperceived; small animals perceive small sounds and those near at hand.⁸² It is the same too with smell. Rarefied air has more smell; for, when air is heated and rarefied, it smells. A large animal when it breathes draws in the condensed air along with the rarefied, while a small one draws in the rarefied by itself; so the large one perceives more. For smell is better perceived when it is near than when it is far by reason of its being more condensed, while when dispersed it is weak. But, roughly speaking, large animals do not perceive a rarefied smell, nor small animals a condensed one.⁸³

This theory marks in some respects an advance on that of Empedokles. It was a happy thought of Anaxagoras to make sensation depend upon irritation by opposites, and to connect it with pain. Many modern theories are based upon a similar idea.

That Anaxagoras regarded the senses as incapable of reaching the truth of things is shown by the fragments preserved by Sextus. But we must not, for all that, turn him into a sceptic. The saying preserved by Aristotle⁸⁴ that "things are as we suppose them to be," has no value at all as evidence. It comes from some collection of apophthegms, not from the treatise of Anaxagoras himself; and it had, as likely as not, a moral application. He did say (fr. 21) that "the weakness of our senses prevents our discerning the truth," but this meant simply that we do not see the "portions" of everything which are in everything; for instance, the portions of black which are in the white. Our senses simply show us the portions that prevail. He also said that the things which are seen give us the power of seeing the invisible, which is the very opposite of scepticism. (fr. 21a)



⁸¹ Beare, *p.* 209.

⁸² Beare, *p.* 103.

⁸³ Beare, *p.* 137.

⁸⁴ *Met. Δ*, 5. 1009b 25 (R.P. 161a).

