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EQUALITY AND JUSTICE IN EARLY GREEK COSMOLOGIES¹

GREGORY VLASTOS

THE early Greek notion of justice lends itself with seductive ease to application far beyond the bounds of politics and morals. To respect the nature of anyone or anything is to be "just" to them. To impair or destroy that nature is "violence" or "injustice." Thus, in a well-known instance, Solon speaks of the sea as "justest" when, being itself undisturbed by the winds, it does not disturb anyone or anything.² The law of the measure is scarcely more than a refinement of this idea of one's own nature and of the nature of others as restraining limits which must not be overstepped.

Cosmic justice³ is a conception of nature at large as a harmonious association, whose members observe, or are compelled to observe, the law of the measure. There may be death, destruction, strife, even encroachment (as in Anaximander). There is justice nonetheless, if encroachment is invariably repaired and things are reinstated within their proper limit. This is the vantage-point from which the commentators have generally interpreted cosmic justice in the pre-Socratics. It is perfectly sound. But it leaves out the additional postulate of equality; for, clearly, it is quite possible to think of harmony and nonencroachment as a relation between unequals. Solon so thought of it.⁴ But the founders of Greek scientific thought gen-

erally⁵ made the opposite assumption: they envisaged harmony in terms of equality. Cosmic equality was conceived as the *guaranty* of cosmic justice: the order of nature is maintained *because* it is an order of equals. To my knowledge, this has never been established.⁶ I propose to review the relevant evidence and interpret briefly its historical significance.

I. MEDICAL THEORY

Greek medical thought offers two well-known formulas of equalitarian harmony: Alcmaeon's definition of health as "equality (*isonomia*) of the powers"⁷ and the conception of temperate climate (*κρήσις τῶν ὥρέων*) in *Περὶ ἀέρων, ὑδάτων, τόπων* 12, as equality (*isomoiria*) of the hot and the cold, the dry and the moist.⁸ *Isonomia* and *isomoiria* here render explicit the equalitarian assumption implicit in the first principles of medical theory, *dynamis* and

⁵ With the qualifications which we shall notice in the case of Heraclitus.

⁶ But see the interesting material on "equality in nature" collected by R. Hirzel, *Themis* (Leipzig, 1907), pp. 308–11; and Werner Jaeger, *Paideia*, I, 104 (my references to this book here and throughout are to the English translation [2d ed.; New York, 1945]).

⁷ Alcmaeon Frag. B4. (All references to pre-Socratic fragments are to H. Diels and W. Kranz, *Fragmente der Vorsokratiker* [5th ed.; Berlin, 1934–37]). *Isonomia* means more than "equality under the law"; it means, rather, "equality of rights" and thus implies equality of dignity or status among the citizens (see, e.g., Hdt. iii. 142. 3; Thuc. vi. 38. 3). *Oligarchia isonomos* (Thuc. iii. 62. 3), possible as a form of speech, does not invalidate the traditional association of *isonomia* with democracy.

⁸ These two pairs head the list of opposites in Aëtius' report of Alcmaeon's doctrine (*loc. cit.*). As for *isomoiria*, it means "equality in portion," as, e.g., of heirs inheriting equal shares of an estate (Demosth. xlviii. 19; Isaeus i. 2 and 35) and, therefore, "equality in personal and social status or dignity," e.g., *Il.* xv. 186–95, 209; Poseidon is Zeus's *homotimos* because he is his *isomoros*.

¹ I am indebted to Professor Hermann Fränkel and Mr. F. H. Sandbach for helpful criticisms of an earlier draft.

² Frag. 11 (Diehl). For the interpretation see my "Solonian Justice," *CP*, XLI (1946), 66, n. 18.

³ The expression is redundant in Greek, since *kosmos* itself means a "just" order, e.g., Solon i. 11 (Diehl) and *Theognis* 677.

⁴ See my "Solonian Justice," pp. 78 ff.

krasis. The original meaning of *dynamis*, as Peck observes, is not "a substance that has power" but rather "a substance which is a power, which can assert itself, and by the simple act of asserting itself, by being too strong, stronger than the others, can cause trouble."⁹ Its strength must, therefore, be "taken away"¹⁰ and thus "moderated."¹¹ And this is to be done not through repression by a superior but through counterpoise against an equal. This is the heart of the doctrine of *krasis*. Alcmaeon's *isonomia* of the powers is no more than its earliest-known statement at a time when interest still centered in the fact of equilibrium itself rather than in the specific nature of the equilibrated powers.

The kind of equality here envisaged can best be gauged from the methodology of "Hippocratic" medicine. Observation, for all its acuteness, is mainly directed toward qualitative data, with only the vaguest quantitative base.¹² No effort is made to measure individual "powers," generalize their observed values, and construct therefrom an equation, however crude. The existence of the equation is rather an outright assumption. If there is health, it

is assumed that the constituent powers must be (1) in equilibrium and therefore (2) equal to one another, much as opposing parties in an evenly matched contest are assumed to be equal.¹³ This is exactly the sense in which equality figures in the medical treatises and, indeed, as we shall see, in the whole development of early cosmological theory from Anaximander to Empedocles. Powers are equal if they can hold one another in check¹⁴ so that none can gain "mastery" or "supremacy"¹⁵ or, in Alcmaeon's term, "monarchy" over the others. Medical theory assumes this kind of equality even when it conceives *krasis* not as the equipoise of pairs of physical opposites (hot-cold, dry-moist, etc.) but as a many-valued blend of powers;¹⁶ for here, too, the purpose of blending is to insure that "no individual power is displayed."¹⁷ Should any power escape this blending and "stand by itself,"¹⁸ it would be ominously "strong" and thus create the "monarchy" which constitutes disease.¹⁹

When we come to the "*krasis* of the seasons" we move directly into the area of cosmic justice; for medical thought is not

⁹ In his *Intro.* to Aristotle's *Generation of Animals* ("Loeb Classical Library" (1943), p. li). For a good example see the definition of pathogenic *dynamis* in Π. ἀρχ. ἱητρικῆς 22. 3-4 (*Hippocrates*, ed. W. H. S. Jones, Vol. I ["Loeb Classical Library"]) as the "intensity and strength of the humors." For "strength" (*ισχύς*, *ισχυρόν*) see *ibid.*, chap. 14; for "strong" foods, *ibid.*, chaps. 3-6; see also below, n. 19; and cf. *Timaeus* 33 a: "hot things and cold and all things that have strong powers. . . ."

¹⁰ Π. ἀρχ. ἱητρ. 16. 49: ἀφαιρέμενον τὴν δύναμιν.

¹¹ Μετρίως, μετρίότης, common through the Hippocratic writings. Ἴσως is sometimes added for emphasis (Π. φύσ. ἀνθρ. 3. 7-8 [Jones, *Hippocrates*, Vol. IV]).

¹² The best clue to the observational roots of the doctrine of *krasis* (and its offspring, the doctrine of the humors) is the mention of "unmixed" substances in stools (*διαχωρήματα ἀκρῆτα*, ἀκρῆτα, often in Ἐπιδ. i and iii) and in vomit, sputum, and urine (e.g., Πρὸ γυν. 12-14). The humors were, no doubt, postulated to account for these unmixed substances: cf. the frequent association of "bilious" with "unmixed" in Ἐπιδ. i and iii; and, conversely, Πρὸ γυν. 13: "the vomit is most useful when phlegm and bile are most thoroughly mixed together."

¹³ Cf. the meaning of *ισοπαλῆς* in Hdt. i. 82. 4, and of *ισόρροπος* in Eurip. *Suppl.* 706.

¹⁴ Cf. Ps.-Arist. *De mundo* 396 b 35, where *isomoiria* is paralleled by the expression "no one of them is more powerful [πλέον δύνασθαι] than any other"; and this is, in turn, explained by adding, "for the heavy is equally balanced [*ισὴν ἀντίστασιν ἔχει*] with the light, and the hot with the cold" (Forster's translation).

¹⁵ Cf. Π. ἀ. ὕ. τ. 12. 18: "nothing has violent supremacy" (*μηδὲν ἦ επικρατέον βιαιῶς*), as a parallel expression to "*isomoiria* prevails."

¹⁶ As, e.g., in the doctrine of coction in Π. ἀρχ. ἱητρ., which assumes "innumerable" powers (*καὶ ἄλλα μυρία* [14. 33-34; 17. 9-10]) and lays down the principle that these "become milder and better the greater the number [*sc.* of powers] with which they are mixed" (19. 53).

¹⁷ *Ibid.* 19. 55-56.

¹⁸ *Ibid.* 14. 37-38: αὐτὸ ἐφ' ἑωυτοῦ γένηται. Cf. Π. φύσ. ἀνθρ. 10-11: ἐφ' ἑωυτοῦ στῆ. Cf. below, n. 167.

¹⁹ Π. παθῶν 16 (Littre, VI, 224): "for phlegm and bile, when concentrated [*ἐννεσθηκότα*], are strong and dominate in whatever part of the body they establish themselves and cause much trouble and pain."

content with the empirical fact that some climates are better suited than others (and thus more "just") to human nature. It goes further to explain the harmony of human nature to its environment through an absolute cosmic fact, i.e., the harmony of the environmental forces with one another.²⁰ This is, in turn, construed as an equilibrium of opposites. But there is a difference. This *isomoiria*, unlike that of the body, can be grounded in an observable equation which is capable of strict quantitative expression—the equinox, when (1) day is equal to night,²¹ (2) all the hours throughout the day and night are equal to one another,²² and (3) the sun rises at a point midway between the northernmost and the southernmost risings of the year (i.e., the summer and winter solstices). That climatic *isomoiria* should be attended by these astronomical equalities was so impressive that the relation between the two was taken as one of causal implication. Thus the Island of Iambulus in Diodorus ii. 56. 7 is endowed with a year-round equinox to validate its claim to the most temperate of climates.

But if *isomoiria* belongs to the equinoctial seasons, a way must be found somehow to bring the rest of the year within the framework of equalitarian harmony. This was done through the idea of rotation in office, or "successive supremacy" (*ἐν μέρει* or *κατὰ μέρος κρατεῖν*), among the powers. As in the democratic *polis* "the demos rules by turn,"²³ so the hot could prevail in the summer without in-

justice to the cold, if the latter had its turn in the winter. And if a similar and concurrent cycle of successive supremacy could be assumed to hold among the powers in the human body, then the *krasis* of man and nature would be perfect. Medical thought must have moved gradually toward this elegant tissue of assumptions.²⁴ In *Ἐπιδημιῶν* i and iii we see the view that each season has its own "constitution," which aggravates some diseases and relieves others.²⁵ *Περὶ ἀέρων, ὑδάτων, τόπων* goes into physiological details on the dependence of the healthy body on an ordered sequence of seasonal change, explaining how even unseasonably good weather would be harmful (chap. 10). Finally, that confident dogmatist, the author of *Περὶ φύσιος ἀνθρώπου*, produces the full-blown theory:

Man's body has always all of these [*sc.* four humors]; but as the seasons revolve they [*sc.* the humors] become now greater, now lesser, each in turn [*κατὰ μέρος*] and in accordance with nature. . . . At one time of the year winter is strongest; next spring; then summer; then autumn. So too in man at one time phlegm is strongest; next blood; next bile, first yellow, then the so-called black [7. 48–52 and 61–66].

II. EMPEDOCLES

Empedocles is our best bridge from medicine to philosophy proper. His thought was so congenial to the medical theorists of his time that, by all accounts, his influence upon them was enormous.²⁶

²⁰ E.g., the physician Eryximachus in Plato *Symp.* 188 a; cf. also *Laws* x. 906 c.

²¹ And thus light is in *isomoiria* with darkness; cf. the report of Pythagorean doctrine by Alexander Polyhistor, *ap.* Diog. Laert. viii. 26.

²² These are the standard hours of scientific inquiry, the "equinoctial hours," as over against the variable "seasonal hours" (*ὥραι καιρικαί*) in popular usage (see Th. H. Martin, "Astronomia" in Daremberg-Saglio, p. 485 a).

²³ Eurip. *Suppl.* 406.

²⁴ Their earliest foundation was the common-sense business of adapting food, clothing, etc., to the prevailing weather: e.g., cold potions in the summer, hot in the winter (II. *διαίτ.* 45. 19 [Jones, *Hippocrates*, Vol. II]; cf. Heracleides of Tarentum *ap.* Athen. ii. 45 d).

²⁵ The *locus classicus* is *Ἐριδ.* iii. 15.

²⁶ Wellmann (*Fragmente der sikelischen Ärzte* [Berlin, 1901], pp. 68 ff.) spoke of him as the "founder" of the Sicilian school, and his statement has often been repeated. Neither Galen nor any other ancient authority goes so far (see the texts under Emp. Frag. A3). However, it may well have been the influence of his four "roots" that fixed the first two pairs of opposites

Even in the Aegean it was strong enough to draw the fire of the author of *Ancient Medicine*.²⁷ In his system man's flesh and blood is made up of the four world-components on the pattern of *isomoiria*; where this equality is imperfect, we get the deviations from perfect health and wisdom in man.²⁸ But in the cosmos the "roots" are strictly equal among themselves;²⁹ and, since each of them is, like Parmenides' Being, eternally equal to itself,³⁰ cosmic justice is perpetually sure. Even at the zenith of the ascendancy of Strife,³¹ when each of the four "roots" would be "unmixed" (Frag. B35. 15) and thus, by Hippocratic norms, a "strong substance," no harm could result, for none would be stronger than any of the rest. Thus, even when Strife rules the World, equality is a sufficient preventive of "injustice."

Much has been written on what Empedocles really meant by the "equality"

of his elements. In one argumentative passage (*De gen. et cor.* 333 a 19-34) Aristotle professes to be in the dark as to whether equality in volume³² or in "power"³³ was meant; in another (*Meteor.* 340 a 14) he gives himself away, assuming the latter (*ἴσα τὴν δύναμιν εἶναι*) as a matter of course.³⁴ Aristotle's quandary in the first passage, even if only rhetorical, shows well enough that the distinction had not been settled by Empedocles. The second passage suggests just as well that "power" was, nevertheless, uppermost in Empedocles' mind, as it certainly was for the medical writers.³⁵ Empedocles is not averse to spatial categories: Love is "equal in length and breadth."³⁶ But when he formally declares that the roots are equal, he immediately goes on to say that (1) they are of equal age, (2) each has its peculiar honor (*τιμὴ*),³⁷ but (3) they rule in turn (Frag. B17. 27-29).³⁸ Could we ask for more conclusive proof that not mere extension but "power" (with its associated concept of "honor") is uppermost? Points 2 and 3 state the principle of "successive supremacy," whose significance in

in Alcmaeon's list (Frag. B4) as the canonical *dynameis* in Sicilian medicine and even elsewhere (usually in combination with the doctrine of the humors as, e.g., in Diocles, Frag. 8 in Wellmann; Π. παθῶν 1 [Litttré, VI, 208]; Π. νοσίων 1. 2 [Litttré, VI, 142]; Π. τόπ. τ. κ. ἀνθρ. 42 [Litttré, VI, 334]).

²⁷ Jaeger (*op. cit.*, Vol. III, chap. i, p. 40) rightly warns against taking Empedocles as the sole butt of the polemic. Certainly, the scope of the argument is much broader. But it is nonetheless significant that Empedocles is the only opponent to be named. He clearly represents the objectionable influence of "philosophy" in its most oppressive form.

²⁸ Emp. Frags. B98, A78, A86 (Theophr. *De sensu* 10-11).

²⁹ Emp. Frag. B17. 27. Cornford (*From Religion to Philosophy* [London, 1912], p. 64) observed that Empedocles' roots are, like the three gods in *Il.* xv, "equal in status or lot." Actually, the equality of the roots is more thoroughgoing. In the *Iliad* it could be claimed for Zeus that he is superior in force and prior in birth (xv. 165 f.). Neither could be claimed for any of the Empedoclean roots.

³⁰ Emp. Frag. B17. 35: *ἡρεκὲς αἰὲν ὁμοῖα*; and the thrice repeated *αὐτὰ ἔστιν ταῦτα* (Frag. B17. 34, B21. 13, B26. 3).

³¹ This ascendancy of Strife is never explicitly mentioned in the fragments. But it is a legitimate—indeed, unavoidable—inference from (1) the general principal of alternate dominance of Love and Strife and (2) the amply attested dominance of Love in the *Sphairos*.

³² *κατὰ τὸ ποσόν* (l. 20), purely metric dimension; in *Meteor.* 340 a 7-9, Aristotle speaks of *ὄγκος*, *πλήθος*, and *μέγεθος*.

³³ *Ὅσον δύναται* (l. 24). A third possibility, based on the distinction of *ποιόν* and *ποσόν* (ll. 27 ff.), need not detain us here. In Empedocles and his predecessors *dynamis* antedated this distinction and denoted either quality or quantity or else (more commonly) both.

³⁴ Empedocles is not named here; but it is generally agreed that the reference is to him.

³⁵ See above, p. 157.

³⁶ Emp. Frag. B17. 20. Tannery was mistaken in taking this spatial expression as "Empedocles' true thought" and discounting the dynamic *atalanton* in the preceding line as "metaphorical" (*Pour l'histoire de la science hellène* [2d ed.; Paris, 1930], p. 314). Parmenides had used a similarly spatial formula of Being (Frag. B8. 49: *πάντοθεν ἴσον*), whose primary property is, nonetheless, dynamic equilibrium (Frag. B8. 44: *ἰσοπαλὲς πάντη*).

³⁷ Cf. Emp., Frag. B30. 2: *ἐς τιμὰς τ' ἀνόρουσε* (sc. *Νεῖκος*).

³⁸ With *ἐν μέρει κρατοῦσι* here (and also in Frag. B26. 1) cf. Frag. B30. 3: *ἀμοιβαῖος* (sc. *χρόνος*), and Plato *Soph.* 242 d.

medical theory has just been explained (see above, p. 158); and they are introduced by Point 1, which rules out flatly the possibility that any of them could claim permanent supremacy in virtue of seniority rights.³⁹ Because of 1 the universe cannot be a "monarchy," for no power within it possesses the qualifying primogeniture. Because of 2 and 3 the universe must be an *isonomia*, for it conforms to the democratic principle of rotation of office.

Thus Empedocles builds a universe to the specifications of Alcmaeon's formula of health; and in so doing he levels ancient inequalities which had been fixed by religious tradition. Zeus, heretofore "king of kings, of all the blessed the most blessed, over all the mighty sovereign in might" (Aesch. *Suppl.* 524–26) is now merely one of the roots on a par with the "unheard-of"⁴⁰ divinity, Nestis, so inconsequential that its very identity remains in doubt. And as for Strife—"unseemly," "dreadful," "evil," "mad"⁴¹—every impulse of sentimental justice would urge its subordination to the power that makes all "have thoughts of love and work the works of peace" (Frag. B17. 23), "queen Cypris," who in the golden age ruled alone in place of Zeus (Frag. B128). But equalitarian justice rules otherwise. Were not Harmony matched with its perfect equal in Strife, there would be no created world, only the nondescript mixture of the *Sphairos*. It is only the strictly reciprocal power of Strife to undo the work of Harmony and "prevail in turn" (Frag. B17.

29) that makes a cosmos possible.⁴² And, this equality once assured, the process works just as well backward as forward: whether Harmony or Strife has supremacy, the other will be "rising up to [claim] his prerogatives" (Frag. B30. 2), and a world will be born and destroyed in either case.

A lacuna in the argument so far is the apparent absence of any explicit reference to justice in the fragments; the word *dike* is never mentioned. My answer is that the reference to justice is nonetheless present; Empedocles' surviving words, if carefully examined, contain expressions which are charged with the imagery and notion of justice. Consider Fragment B30 once again: Strife "rose up to [claim] his prerogatives in the fulness of alternate time set for them [*sc.* Love and Strife] by the mighty oath . . ." (Burnet's translation). The fragment breaks off abruptly. But we hear of "mighty oaths" again in Fragment B115, where they "seal" the "decree of the gods." Here "oaths" represent the binding, inviolate, *necessary* character of that decree,⁴³ which is an "oracle of *Ananke*." But we know that in Parmenides *Ananke* and *Dike* perform the same function of holding Being fast "in the bonds of the limit."⁴⁴ We may thus infer that "mighty oath" in Empedocles, like "strong *Ananke*" in Parmenides, alludes to the orderliness of existence con-

⁴² The mutual interdependence between opposites is explicit in Π. φύσ. ἀνθρ. 7. 56–59: "if one [*sc.* of the hot, cold, dry, moist] were to fail, all would disappear, for by the same necessity all are constituted and are nourished by one another" (translation adapted from Jones).

⁴³ The oath was often thought so important an aspect of justice that *δικαιον* could be taken as equivalent to *δίκαιον* (Diog. Laert. viii. 33). Cf. θεῶν ἐνορκον δίκαν in Soph. *Ant.* 369.

⁴⁴ Parm. Frag. B8. 14–15 and 30–31. Fränkel observes of *ananke* in Frag. B8. 30: "Ihr Tun wird dadurch begründet, dass das Gegenteil nicht *θεμις* sein würde" ("Parmenidesstudien," *Gött. Nachrichten* [1930], pp. 153–92, at p. 189. My heavy debt to this study will be evident throughout this paper).

³⁹ See Peisthetaerus' argument in the *Birds* 471 ff.: the birds are "prior to the earth and prior to the gods . . . being eldest, the kingship is rightfully theirs." This is also the logic of Plato's long-winded argument in *Laws* x, tersely anticipated in *Tim.* 34 b–c.

⁴⁰ Wilamowitz, *Glaube der Hellenen*, I (Berlin, 1931), 20.

⁴¹ Emp. Frags. B27a; B17. 19; B20. 4; B115. 15. Aristotle (*Metaph.* 1975 b 6–7) is shocked at the thought that Strife, the principle of evil (ἡ τοῦ κακοῦ φύσις), should be imperishable in Empedocles.

ceived under the aspect of justice. This inference is confirmed by three other terms in the fragment:

1. "The 'prerogatives' (τιμαί) of Strife."⁴⁵—This tells us that the dominance of Strife is not lawless self-assertion but duly established right or "office";⁴⁶ it is its "rightful share" or "just portion" (αἶσα).⁴⁷

2. "In the fulness of time" (τελειομένοιο χρόνου).—"Time" here is no abstract measurement of the passage of events. It is the proper time-span allotted to Strife (as also to Love) in the cosmic order; it is a "measure" whose observance is of the essence of justice.⁴⁸

3. "Alternate (ἀμυβαῖος) time."⁴⁹—"Alternate time" specifies what kind of justice this is: the equalitarian justice of rotation of office.

III. PARMENIDES

In Parmenides' Being the reference to justice is more explicit, and there is a stronger accent on its compulsiveness. There may be injustice among men, for

they can overstep the limit of their own nature. There can be no injustice in Being, for its limit is an unbreakable "chain" (Frag. B8. 26 and 31) or "fetter" (Frag. B8. 14) which "holds it fast."⁵⁰ Justice or Necessity is thus spoken of as an active force. But it is immanent in Being, since Being is all there is. What is there, then, about Being which accounts for this necessary justice? It is its self-identity or, as Parmenides thinks of it, its homogeneity or "self-equality." "It is all alike"; "it is equal to itself on all sides."⁵¹

For the historical source of this conception we should look to Anaximander's theorem that the earth owed its stability to its all-around equality (ὁμοιότητα).⁵² Aristotle's paraphrase of the theorem leaves us uncertain as to which of the words, if any, are Anaximander's own.⁵³ But taking the text at its face value, the similarity is striking:

⁵⁰ See below, n. 159.

⁵¹ Frags. B8. 22: πᾶν ὁμοῖον, and B8. 49: οἱ πάντες ἴσων. *Homoion* and *ison* are so closely connected at this stage of thought that geometrical equality may be expressed by *homoiototes*: Eudemus *ap. Proclus In Eucl.* 250. 20 (Friedl.) = Thales Frag. A20. For *homoios* with the sense of "equal in rank or dignity" see Liddell and Scott, *Lexicon* (new ed.), s.v., II.

⁵² *De caelo* 295 b 11 ff. Stocks in the Oxford translation and Guthrie in the Loeb translation render *homoiototes* here by "indifference." The sense is clear enough from the context, which refers specifically to the earth at the center of a circle (cf. the definition of the circle in Plato *Parm.* 137 e; Arist. *Rhet.* 1407 b 27). In deducing the stability of the earth, "he clearly meant that the earth is in equilibrium" (Heath, *Greek Astronomy* [London, 1932], p. xxiii). *Isorropia* is not used here by Aristotle; but it is in Simplicius (*De caelo*, 532). Burnet objects (*Plato's Phaedo* [Oxford, 1911], commenting on *Phaedo* 109 a 3): "Anaximander's cylindrical earth could hardly be called *isorropos* like the Pythagorean spherical earth in the centre of a spherical *ouranos*." But Aëtius iii. 15. 7 applies Anaximander's theorem with the world *isorropia* to Democritus, whose earth was anything but spherical.

⁵³ Stocks (in his note to *De caelo* 215 b 12, in the Oxford translation) observes: "From Aristotle's wording it seems probable that he had the *Phaedo* (109a) in mind here." But what did Plato "have in mind" in the *Phaedo*? The conception, once launched by Anaximander, seems to have had a considerable vogue; Aët. iii. 15. 7 attributes it also to Parmenides and Democritus.

⁴⁵ Cf. also Emp. Frag. B17. 27.

⁴⁶ For the same association of the "great oath of the gods" with the establishment of a "prerogative" (γέρας) see Pindar, *Ol.* 7. 65: Τιμή, like γέρας, is the dignity of one's status in an ordered society (see Cornford, *op. cit.*, p. 16). The scrupulous observance of its claims to deference is the basis of justice. For a cosmological application of the idea see Soph. *Ajax* 660 ff.

⁴⁷ Emp. Frag. B26. 2: ἐν μέρει αἰσας. *Aisa*, like *moira*, originally "share," derivatively "appointed order" or "destiny," and thus, on the assumption that what is fated to be is right, "appropriate or right order" (cf. ὑπὲρ αἰσαν = ὑπὲρ δίκην). Empedocles rationalizes *aisa* exactly as Parmenides (Frag. B8. 37) had rationalized *moira*, and Anaximander (Frag. 1) *chreon*. The latter means generally "fateful necessity," such as attaches to the prediction of an oracle, but (like *aisa* and *moira*) could also mean "right." In Heraclitus (Frag. B80) *chreon* is equivalent to *dike*; in Parmenides (Frag. B8. 9, 11, 45) it stands for logicophysical necessity. Fränkel goes too far in excluding "necessity" from the full meaning of *chreon*: "Die Wörter des Stammes *χρη-* bezeichnen ein Sollen und Schuldig Sein, ein Gebrauchen und Brauchbar Sein, nicht ein Müssen und Unvermeidbar Sein" (*op. cit.*, p. 183). What else but "Müssen und Unvermeidbar Sein" is the *chreon* of an oracle?

⁴⁸ Cf. "the ordering of time" in Anax. Frag. 1.

⁴⁹ Cf. above, n. 38.

PROBLEM

ANAXIMANDER: Why the earth is stationary (μένει).⁵⁴

PARMENIDES: Why Being is stationary (μενεί).⁵⁵

SOLUTION

ANAXIMANDER: Because it "is set at the center and is equably related to the extremes."

PARMENIDES: Because it is "like the bulk of a well-rounded sphere, equally poised from the center in every direction."⁵⁶

Anaximander is thinking of the earth, moving with the whirl, yet keeping its place.⁵⁷ The circumference of the eddy moves, the center also moves, yet the center is stationary with respect to the circumference.⁵⁸ Let us abstract from Anaximander's cosmological detail; keep only the part of the design which insures the paradoxical triumph of stability over motion by virtue of equality (ὁμοιότης); allow for the fact that equality will be no longer an external relation and that the "extremes" are now the "limits" of Being itself; then what is left will be "like a well-

rounded sphere, equally poised from the center in every direction."

Deprived of its cosmological application, the sphere is merely vestigial. It is only a simile; the round shape as such is irrelevant to Parmenides' thought: he is concerned only with the formal property of all-around equality.⁵⁹ In *this* sense the sphere makes a perfect vehicle for his conception of Being as "all alike," without distinction of "greater" and "lesser"⁶⁰ or of more and less complete,⁶¹ a whole whose parts are all equal among themselves, so that none can dominate any other.⁶² Thus absolute homogeneity means an internally secure equilibrium; and, since it is also secure against external disturbance, Being cannot move. It is "held fast" by its own "all-around equality."

The same property, applied to Truth, defines a perfectly "just" universe of discourse, for Truth, like Being, is "well-rounded"⁶³—a term which we must in-

⁵⁹ Fränkel: "Den Gegenstand des Vergleichs bildet nicht die Rundheit . . . , sondern das ausgeglichene Kräftespiel (ισοπαλές) in einer so verteilten Gewichtsmasse (δύκος)" (*op. cit.*, p. 191).

⁶⁰ Parmenides' terms are suggestive of "power," not mere volume (cf. above, pp. 157, 159); and they are charged with associations of dignity (cf. the τιμή of Empedocles' roots): χειρότερον, βαϊότερον, and even ἥσσον (Frag. B8. 24, 45, and 48) should be read in the light of the distinction in τιμή between the μεγάλοι and βαιοί, μέγας and σμικρός (e.g., Soph. *Ajax* 158–61) and μέγας and ὀλίγος (Callinus Frag. 1. 17). Note the force of ἐὼν ἐόντι πελάζει (clearly a play on the proverb ὁμοιον ὁμοίω πελάζει [Plato *Symp.* 195 b]) following the repudiation of μάλλον and χειρότερον (Frag. B8. 23–24). Fränkel has some valuable comments on all this; see especially his remark on μάλλον in Frag. B8. 48: "ein Adverb des Grades, nicht ein Adjektiv der Ausdehnung" (p. 192). But he objects, I think unnecessarily, to any spatial content in Parmenides' terms (p. 191). Why the either/or? Parmenides' denial of nonbeing entails, among other things, the rejection of empty space; this destroys differences in density as postulated by Anaximenes and entails a world "all full of being" (Frag. B8. 24–25). To Parmenides this would make good sense in terms of both space and "power" (see also above, n. 36).

⁶¹ Frag. B8. 42–43: τετελεσμένον.

⁶² The exact meaning of ισοπαλές (see above, n. 13; cf. Fränkel, *op. cit.*, p. 191, n. 1).

⁶³ An elegant instance of the general principle that "thinking and being are the same thing" (Frag. B3): they have the same basic properties.

⁵⁴ *De caelo* 295 b 12 and 17; and μένουσαν (*sc. γῆν*) in Hippol. *Ref. i.* 6. 3.

⁵⁵ Frag. B8. 29–30: ταῦτόν δ' ἐν ταύτῳ μένει καθ' ἑαυτὸ τε κείται | χούτως ἐμπεδον αἰθὴ μενεί (text as in Fränkel, *op. cit.*, p. 186).

⁵⁶ Frag. B8. 43–44; and cf. also 49: οἱ γὰρ πάντοθεν ἴσον.

⁵⁷ Eudemus Frag. 94 (= Anax. Frag. A26): "Anaximander held that the earth is in mid-air [*μετέωρος*] and that it moves about the world's center." That the "motion" is that of the whirl is not stated in our evidence, but it is a reasonable inference (see Heidel, "The *Δίνη* in Anaximenes and Anaximander," *CP*, I [1906], 279–82, and "On Certain Fragments of the pre-Socratics," *Proc. Amer. Acad. Arts and Sciences*, XLVII [1913], 681–734, at 687–88). However, I agree with Burnet (*Early Greek Philosophy* [4th ed.; London, 1930], p. 13, n. 3) that Heidel went too far in assuming that the whirl was itself the "eternal motion" of the *apeiron* (see below, n. 140). Burnet's own argument for crediting Anaximander with the whirl (*op. cit.*, p. 61) assumes that the "Pythagorean" cosmogony of the *Timaeus* (52 d–53 a) implies an eddy; Cornford has since shown that this assumption is mistaken (*Plato's Cosmology* [London, 1937], pp. 290–92).

⁵⁸ Cf. Plato *Laws* x. 893 c, where circles rotating *in situ* are described as having τὴν τῶν ἐστώτων ἐν μέσῳ δύναμιν.

interpret in line with Parmenides' own conception of the sphere as a whole whose parts are all equal among themselves. This is not a bad way to describe the purely deductive system which is Parmenides' norm of truth: in such a system (to use the language of a later logic) every proposition expresses an equivalence, and every difference masks an identity. This implies a perfectly coherent universe, without rifts or gaps.⁶⁴ Here inference can pass securely from the given to the not-given.⁶⁵ Here the starting-point becomes a matter of indifference: as on a circle, one can traverse the same line of truth from any starting-point whatever.⁶⁶ In such a world, thought is perfectly "just," i.e., in full accord with its own nature and the nature of Being.⁶⁷ Outside this world, thought is "forced"⁶⁸ to utter the unutterable and think the unthinkable. It thus attempts the impossible,⁶⁹ in defiance of the just necessity (*chreon*) of thought and Being. This cannot injure Being, for it is

⁶⁴ Coherence is asserted in Frag. B4, but only proved in Frag. B8. 23–25, where "Being is *ἑνεχές*" is inferred from "Being is *πᾶν ὁμοῖον*."

⁶⁵ Frag. B4. 1: "See steadfastly with your mind things absent as though present." *Παρόντα* here (cf. Emp. Frag. B106) should be interpreted in the same sense as *ὁλοῖσθ'* *ἐγκυρόωσιν* (Archil. Frag. 68 [Diehl]; Heracl. Frag. B17, reading *δὸκόσους ἐγκυρεῖσιν*; Heracl. Frag. B72; cf. Emp. Frag. B2. 5: *δῶαι προσέκυρσεν*); it is the tiny fragment of actual experience as against the *δλον*. Parmenides feels that for those who have found the "light" the opposition of *παρόν* and *ἀπείον* has been resolved: to know anything is to know everything, since Being is *ομοῖ πᾶν*, *ἑν*, *συνεχές* (Frag. B8. 5–6).

⁶⁶ Frag. B5 in conjunction with Heracl. Frag. B103, which it seems to echo (*ἑνόν*). The *homoiotes* of Parmenides' universe of discourse abolishes the distinction, axiomatic in Milesian thought and the earlier theogonies, between uncreated *arche* and created world. There *arche* was an absolute beginning for thought as well as for being; Parmenides denies this.

⁶⁷ Fränkel's interpretation is somewhat narrower: "Dike ist also hier [Frag. B8. 13–14] die *Richtigkeit* der Konsequenz; einer Konsequenz, die für die Sachverhalte ebenso bindend ist wie für das Denken über sie" (*op. cit.*, p. 161).

⁶⁸ Frag. B7. 3: *βιάσθω*. This is a different compulsion from that of *τὸ χρεών*; it is "violence," which frustrates the intent of thought, while the just necessity of the limit is the condition of thought's self-fulfilment.

⁶⁹ Frag. B2. 7: *οὐ γὰρ ἀνυστόν*.

"all inviolable."⁷⁰ But it can and does injure thought, foredooming it to "blindness," "wandering," and "helplessness."⁷¹

A final confirmation of the present thesis—that Parmenidean justice is grounded in equality—may be found in the cosmological appendix to the world of Truth and Being, which makes sense of the quasi-truth and quasi-being of the world of "mortal opinion." It is no use glossing over the harsh contrast between the two worlds: the first is Truth, the second opinion;⁷² the first is "unshaken" in its "trustworthiness," the second "deceitful" at its very best;⁷³ the first is "all alike," the second a mixture of two absolutely unlike powers. Nevertheless, Parmenides' account of the second is not a systematization of current error.⁷⁴ It is original physical inquiry, attempting the same task to which the Ionians had addressed themselves, using their own categories and reaching results which are confidently proclaimed superior to theirs.⁷⁵ The general formula of this cosmology is defined

⁷⁰ Frag. B8. 48.

⁷¹ The state of the "wanderers" (Frag. B6. 5–6; B8. 54), their eyes "sightless," their hearing "full of noise," is that of mankind before Prometheus' gift of the arts ("seeing they saw not, hearing they heard not" [Aesch. *PV* 447–48; and cf. Heracl. Frag. B107]). *Ἀμηχανία* is the Greek word for the helplessness of such a state. Theognis (140, 1078) uses *πείρα* 'ἀμηχανίης' of man's inscrutable *moira*, which brings him so often the very opposite of his intention.

⁷² *Ἀληθείη* (Frag. B1. 29; 2. 4; 8. 51) versus *βροτῶν δόξας* and the like (Frag. B1. 30; 8. 51; 19. 11; 8. 61).

⁷³ *Ἀτρεμής* (Frag. B1. 29); *πίστις ἀληθής* (Frag. B1. 30); *πίστιος ἰσχύς* (Frag. B8. 12); *πιστὸν λόγον* (Frag. B8. 50) versus *κόσμον ἐμὼν ἐπέων ἀπατηλόν* (Frag. B8. 52).

⁷⁴ For this view, now generally abandoned, see Burnet, *op. cit.*, pp. 182 ff.

⁷⁵ I cannot agree with Verdenius (*Parmenides* [Groningen, 1942], pp. 56 ff. and 77–78) that Parmenides' "mortal opinions" refer *only* to the views of nonphilosophers. Parmenides' doctrine of Being contradicts the views of his philosophical predecessors no less than those of the man in the street; and as for his cosmology, "no mortal judgment shall ever outstrip" it (Frag. B8. 61 [Cornford's trans.]); Verdenius correctly observes that "mortal" here includes even Parmenides himself *qua* mortal in a mortal world; a fortiori it would include every other philosopher.

with astonishing precision, and it is formally identical with that of Empedocles: (1) each of the opposites is, like Parmenides' Being, absolutely self-identical;⁷⁶ (2) neither is, like Heraclitus' opposites, identical with its own opposite;⁷⁷ (3) both are equal.⁷⁸ On the meaning of equality here our best clue is in Parmenides himself, who, as we have seen,⁷⁹ elsewhere uses "equal" as an alternate for "equally poised"; and this agrees perfectly with medical and Empedoclean usage. In the equipoise of opposite powers Parmenides finds the next best thing to the internal equipoise of Being itself.⁸⁰ That is why the mock world of Light and Night is, in its own way, not chaos but cosmos⁸¹ and falls, like Being itself, under the sway of Just Necessity.⁸²

IV. HERACLEITUS

Just as the self-identity of Truth and Being is justice for Parmenides, so the "strife" of Becoming is justice for Heraclitus.⁸³ Here, too, we find, among the mediating concepts, necessity (*chreon*)⁸⁴ and measure: "The earth is poured out as sea, and is measured according to the same *logos*⁸⁵ as before it becomes earth"

⁷⁶ Frag. B8. 57: ἐνυῶνι πάντοσε τωῶνόν.

⁷⁷ Frag. B8. 58: τῶν δ' ἐτέρωι μὴ τωῶνόν.

⁷⁸ Frag. B9. 4: ἴσον ἀμφοτέρων.

⁷⁹ Above, n. 36; and cf. n. 60.

⁸⁰ Note the parallelism in the expressions: Frag. B8. 24: πᾶν δ' ἐμπλεὺς ἐστὶν ἔντος and Frag. B9. 3: πᾶν πλεόν ἐστιν ὁμοῦ φάεος καὶ νυκτός.

⁸¹ Frag. B8. 60: διάκοσμον ἐοικότα.

⁸² Cf. the *Ananke* which "drove and fettered it [sc. the embracing Ouranos] to hold the limits of the stars" (Frag. B10. 5-7 [Cornford's trans.]) with the *Ananke-Dike-Moira* whose "fetters" hold the limits of Being itself.

⁸³ Frag. B80: καὶ δίκην ἔριν.

⁸⁴ Frag. B80: κατ' ἔριν καὶ χρεών.

⁸⁵ E. L. Minar, Jr., rightly calls attention to the primary significance of *logos* as "computation, reckoning" ("The Logos of Heraclitus," *CP*, XXXIV [1939], 323). Perhaps "value" would be a better rendering here, conveying the double sense of "worth" (cf. οὐ πλείων λόγος [Frag. B39] and its "measure" [Frag. B90]).

(Frag. B31). "Strife" is justice because, through the very conflict⁸⁶ of the opposites, the measure will be kept. This means (1) that in every transformation the fire which is "exchanged"⁸⁷ remains constant and (2) that the distribution of fire among the opposites is also constant: "The way up and down is one and the same" (Frag. B60), which I take to mean that the sum total of "upward" changes in the universe equals the "downward" ones,⁸⁸ so that the middle term, water, is exactly divided between the two ways, half of it "turning" to earth and the other half to fire.⁸⁹

Much could be said of the similarities of this design to the Empedoclean. Both are inspired by the principle of the "hidden" harmony (Frag. B54) of Harmony itself with its own opposite, Strife,⁹⁰ achieved in both systems by assuming that these, like

⁸⁶ Frag. B36: each lives the other's death.

⁸⁷ Frag. B90; and see the parallel passages to this fragment in Bywater's edition of Heraclitus (Frag. 22 there).

⁸⁸ Philo (*De incorr. mundi* 108-9) puts much the same interpretation on this fragment. He speaks of "reciprocation [ἀντίκτισις] and interchanges according to the standards of equality and the bounds of justice." He also speaks of the interchanges as *isonomia* (112; cf. also ἰσοκρατῆς ἡ τῶν στοιχείων μεταβολή [116]; and a similar passage in *De cherubim* 109-12, esp. 110: ἀντίδοσιν τινα καὶ ἀντίκτισιν πάντα ὑπομένοντα . . .). Philo here is not merely echoing Stoic doctrine, though his immediate source may be Stoic, for he is arguing against the Stoic ἐκπίρωσις; and he has a fair knowledge of Heraclitus, as one can see by his quotations and allusions. See further, below, n. 154.

⁸⁹ Frag. B31a, following Burnet's interpretation (*op. cit.*, p. 149).

⁹⁰ The prototype of this idea, I surmise, was Anaximander's *dinos*. The effect of *dinos* and *dinesis* is to unsettle the established order of things: κυκλᾶν, τάρπτειν (e.g., Plato *Crat.* 439 c; Aesch. *Ag.* 987; Pind. *Pyth.* 9. 38; Emp. Frag. B110. 1). Thus the *dinos* shook the *apeiron* out of its proper state, the *krasis* of the opposites. But, strangely enough, the effect of this unsettling was not chaos but cosmos. To Heraclitus this must have seemed a perfect instance of the "hidden" harmony and the unity of opposites. Though the *dinos* has no place in his own cosmology, he does refer to an analogous instance in Frag. B125 (Frag. 84 in Bywater); and the point is still clearer in the form in which the fragment is quoted by Alexander Aphrod. (cited by Bywater, *ad loc.*): ὁ δὲ κυκλῶν, ὥσπερ καὶ Ἡράκλειτός φησιν, ἐὰν μὴ τις τάρπτῃ, διίσταται.

all other opposites, balance.⁹¹ But there are important divergences both in structure and in intention; and these are material to the role of equalitarian justice in the two cosmologies. The structural differences are mainly two: (1) the universe has not yet been parceled out into six separate sets of Parmenidean being; nor (2) has its history been marked off into separate epochs of successive supremacy. Because of 1 it would be useless to look for the formal equation of physical roots. Everything in Heraclitus' world is in process; instead of equality between substantives of permanence, we find reciprocity between verbs of change. For everything "turning" one way, something else is "turning" the opposite way: "cold things grow hot, the hot grows cold; the moist grows dry, the dry grows moist" (Frag. B126).⁹² Because of 2 the world is not made and unmade in alternate eons;⁹³ generation and destruction are concurrent and constant, hence the form of the world is also constant. Fire, "kindled" by "gathering" into its own substance a measure of fuel, is also "extinguished" by "scattering

abroad" the same measure of light.⁹⁴ This measured give-and-take accounts for the permanence of the world which "was and is and is to be."⁹⁵

But there is another difference which may well be intentional: the words "equal" and "equality" never occur in the fragments.⁹⁶ To express the harmony of the opposites Heraclitus does not say that they are equal but that they are one;⁹⁷ to express their equivalence he says that they are "the same thing."⁹⁸ This is no verbal accident. It is true to a pattern of thought which separates him from Anaximander (as well as from Empedocles) and brings him closer to Anaximenes: the physical opposites are all explained as modifications of one of them; they are thus literally "the same thing."⁹⁹

⁹⁴ Combining Frags. B30 and B91; cf. Arist. *De iuv.* 470 a 3-4: "fire is ever coming into being and flowing like a river." Fire is the "eater" par excellence (*De gen. et cor.* 335 a 16); "it can live only as long as it is fed, and the only food for fire is moisture" (*Meteor.* 355 a 4-5; and cf. Galen in Hippocr. II. *φύσ. ἀνθρ.* i. 39: "and fire . . . manifestly needs moisture for its nourishment, as the flames of [oil-] lamps show"). The last point has not always been understood, even by close students of Greek science (e.g., Tannery, *op. cit.*, p. 175); yet that is what accounts for Heraclitus' triad fire-water-earth on the way up and down: fire and moisture ("water") are juxtaposed in "concordant discord" (Plato *Symp.* 187 a); fire is fed by its "enemy" (cf. Aesch. *Ag.* 650-51).

⁹⁵ See Reinhardt, *op. cit.*, p. 176, n. 2: "Die Worte *ἦν τε καὶ ἔστι καὶ ἔσται* [Frag. B30] formellhaft, ein Ausdruck für die Unveränderlichkeit," and citations.

⁹⁶ Nor *homoion* and *homoioles*.

⁹⁷ E.g., Frags. B50: "all things are one," and B67, "god" is day-night, winter-summer, war-peace, surfeit-hunger.

⁹⁸ E.g., Frag. B88: the equivalence of contraries is shown through the fact that a μεταπεσόν becomes *not-a*, and *not-a* πάλιν μεταπεσόν becomes *a*; the logical upshot is that *a* and *not-a* are "the same thing." Alternatively, Heraclitus will say that *a* is *not-a*—Frag. B62: "immortals [are] mortals, mortals [are] immortals, etc." Finally, he will say that a thing is "one and the same" as its opposite (e.g., Frag. B60, of the upward and downward ways, where what he means is obviously not identity but equivalence).

⁹⁹ Anaximenes' wording is, of course, lost to us; but that of his fifth-century follower, Diogenes of Apollonia, agrees verbally with Heraclitus—Frag. B2: πάντα τὰ ὄντα . . . τὸ αὐτὸ εἶναι . . . τὸ αὐτὸ ἓν μετέπιπτε πολλὰχῶς. To be sure, there is a difference: Unlike Anaximenes' (and Diogenes') air, Heraclitus'

⁹¹ The assumption that not only Love-Strife but the four "roots" as well are conceived as opposites by Empedocles may be questioned. But see Emp. Frag. B21. 3-6: fire is "bright and warm," while water is "dark and cold"; the earth is "closed-pressed and solid" while—if we may fill in the fourth term which does not occur in the context—the air would be rare and light (as, e.g., in Parm. Frag. B8. 56-59, "rare" and "light" appear as the opposites to "compact" and "heavy"). It would be strange indeed if Empedocles employed the concept of *krasis* without its universal accompaniment that it is a balance of opposites.

⁹² Cf. the τροπαί of water, equal parts turning in opposite directions (see above, n. 89).

⁹³ Burnet's argument against the ascription of the periodic conflagration to Heraclitus has been strengthened by Reinhardt, *Parmenides* (Bonn, 1916), pp. 169 ff. Two further points may be added: (1) Philo (cited above, n. 88) quotes Heraclitus against the Stoic conflagration; and (2) Cherniss suggests that Aristotle's ὥσπερ Ἡράκλειτος φησιν ἅπαντα γίνεσθαι ποτε πῦρ (*Phys.* 205 a 3) does not mean "that all things at some time become fire" but rather "that fire at some time becomes everything" (sc. in the course of its circulation on the way "up" and "down") (*Aristotle's Criticism of Presocratic Philosophy* [Baltimore, 1935], pp. 29, 108).

This One is the "common" thing throughout the universe.¹⁰⁰ And, since it defines the measure of every process (Frag. B90), Heraclitus thinks of it as the "one divine law," all-powerful, all-sufficient, all-victorious (Frag. B114). It is the "thought which governs all things through all things" (Frag. B41).¹⁰¹

Should this doctrine of the One "governor" of the universe be interpreted in line with the "aristocratic" politics with which Heraclitus is commonly credited in the textbooks?¹⁰² It is clear enough that he was a misfit in Ephesian politics.¹⁰³ This is in striking contrast to Anaximander, Parmenides, and Empedocles, all of whom seem to have held posts of authority and influence in their respective states.¹⁰⁴ But from this we cannot jump to the conclusion that Heraclitus was a partisan of aristocracy in its relevant, his-

fire is not an original substance from which the world evolved, but the "ever living" power in the world (Frag. B30). On the other hand, the two systems are precisely similar in that the "one" appears in the world in a double role: it is itself one of the opposites, yet it explains the unity in all the opposites; it is both one among the many and the one which is the many.

¹⁰⁰ See below, n. 108. Heraclitus uses *ζυγόν* as an alternate to *παρόν* to express the equivalence of opposites as, e.g., in Frag. B103.

¹⁰¹ Anaximenes' air no doubt performed a similar function (Anaximenes Frag. B2; Diogenes Frag. B5).

¹⁰² E.g., J. B. Bury, *History of Greece* ("Modern Library" ed.; New York, 1937), p. 305: "he was an aristocrat in politics." Zeller, *History of Greek Philosophy*, English trans. (London, 1891), II, 99: "he hates and despises democracy"; this position remains unqualified in the sixth German ed. by Nestle (1920).

¹⁰³ We can infer as much from Diogenes Laertius (ix. 1-6), without taking too seriously his various stories. There is no reason to doubt the fact that Heraclitus renounced a hereditary *basileia* in favor of a brother (Antisthenes of Rhodes *ap.* Diog. Laert. ix. 6); but the facile interpretation of the motive (*μεγαλοφροσύνη*) is another matter. Temperament and politics aside, would his attacks on the mysteries (Frag. B14) and the purification ritual (Frag. B15) be compatible with the discharge of the duties of a priestly office?

¹⁰⁴ Anaximander Frag. A3; Emp. Frag. A1 (Diog. Laert. viii. 64, 66) and Bignone, *Empedocle* (Turin, 1916), pp. 78-79; Parm. Frags. A1 (Diog. Laert. ix. 23) and A12; a commercial city, founded by Ionian émigrés, Elea was probably a democracy.

torical sense.¹⁰⁵ His tirades against the "many" follow logically enough from his basic conviction that they are philosophically benighted.¹⁰⁶ But the philosopher's contempt for the folly of the crowd is not peculiar to Heraclitus. Parmenides shared it; and so did Empedocles, whose loyalty to democracy is well attested.¹⁰⁷ What is peculiar to Heraclitus is, rather, the doctrine of the "common": truth is the "common"; the world is "common";¹⁰⁸ and in the state, law is the "common."¹⁰⁹

This concept of the state as a community, united by a common stake in a common justice, is perfectly compatible with democratic politics. Early in the sixth century it had inspired the Solonian reform program.¹¹⁰ It survived throughout

¹⁰⁵ Diogenes Laertius' statement (ix. 2) that Heraclitus declined the invitation to "give laws" to Ephesus is unsupported by creditable authority. If true, it would only suggest that the demos did not think him an aristocratic partisan.

¹⁰⁶ Jaeger (*op. cit.*, I, 180 ff.) rightly insists on the unity of theory and practice in Heraclitus. Wisdom (*sophie*) includes both "word and act" (*επη-εργα* [Frag. B1]; *λέγειν-ποιεῖν* [Frag. B112 and B73]). The many who live like dreamers, each in his private world (Frag. B89, B73), cannot "follow the common" (Frag. B2). This indictment cuts across class lines. The "many" are not the demos but all who fail to meet the austere standards of Heraclitean wisdom, including the illustrious company of Homer, Hesiod, Archilochus, Pythagoras, Xenophanes, Hecataeus (Frag. B40, B42).

¹⁰⁷ Cf. "mortal opinion" in Parmenides (above, n. 72) and Empedocles (Frag. B2. 7-8, B3. 1, etc.). Contempt for the ignorance of the public (cf. Hecataeus of Miletus Frag. 1a; Π. *ἱερῆς νόστος* 1. 3-5) need not of itself imply rejection of democracy except on the further assumptions that (1) this ignorance is incurable and (2) the enlightened would fare better under some practicable alternative to democracy.

¹⁰⁸ Cf. Frags. B89, B30. In Frag. B80, *xynon* bears the same relation to *dike* and *chreon*, as "war" to "strife"; the "common" in Heraclitus denotes the same category of rational necessity which appears as *ananke-dike* in Parmenides.

¹⁰⁹ Frag. B114. Here the law is clearly the "common" thing in the *polis*, and as such the source of its strength. Hence "the demos must fight on behalf of the law as for the city-walls" (Frag. B44), i.e., as for the supreme condition of its common freedom. Similarly, in Frag. B43, "hybris must be extinguished even more than a conflagration," the reference is again to a common peril.

¹¹⁰ See my "Solonian Justice," pp. 68-75 and 82-83.

the fifth century and into the fourth as a cherished doctrine of Athenian democracy.¹¹¹ Thus the doctrine of law as "common" remains constant throughout a period of sweeping change *within* the democratic tradition. The vital choice in democratic politics in Heraclitus' day was whether to accelerate or to resist this development; whether to press forward toward the radical equalitarianism of the lot and "ruling in turn" or else adhere to the earlier democracy, predicated, as in Solon, not on equal dignity but on common justice.¹¹² If our meager evidence permits any hypothesis concerning Heraclitus' political sympathies, it would be that he favored the limited democracy of the past. This is in line with his known admiration for Bias of Priene, who figures in the tradition as an early democratic statesman.¹¹³ Indeed, Heraclitus' saying, "the many are bad" (Frag. B104), is also traditionally ascribed to Bias.¹¹⁴ And Heraclitus' doctrine that the city "strengthens" itself through the law has an obvious affinity to Bias' reputed saying that "the strongest democracy is the one wherein all fear the law as their master."¹¹⁵

¹¹¹ E.g., Eurip. *Suppl.* 430-32; Demosth. xxi. 30 ff.

¹¹² Solon's common justice does imply "equal" laws (Frag. 24. 18 [Diehl]; literally, "like," *ὅμοιως*, but see above, n. 51). But these equal laws do not annul the vested inequalities in dignity between the social classes. Solon clearly thinks of himself as conserving the difference in "honor" and "prerogative" between the *demos* and their social superiors (Frag. 5 [Diehl]). His rejection of *isomoiria* in land is a corollary (Frag. 23. 21 [Diehl]).

¹¹³ There is good evidence of his repute as a "pleader" (Hipponax Frag. 79 [Bergk]); this suggests that, whatever his political power at Priene, it was not above the law. Plutarch (*Moralia* 862 d) lumps his career with that of Pericles as examples of praiseworthy statesmanship. Of Priene's constitutional history we know next to nothing. But it is fair to assume that early in the sixth century its constitution, like that of other commercial Ionian cities, was at least moderately democratic.

¹¹⁴ Diog. Laert. i. 88.

¹¹⁵ Plutarch *Moralia* 154 d. The obvious comparison is with Demaratus' words to the Persian king in Hdt. vii. 104: "Law is their despot, whom they

From this perspective we should interpret those fragments in Heraclitus which exalt the "one" against the "many."¹¹⁶ The core of his politics is the supremacy of the "common"—law. "And it is law, too, to obey the counsel of one" (Frag. B33) can only mean: the will of "one" is law only when it expresses the "common" to which all (including the "one") are subject.¹¹⁷ So, too, we must think of the cosmic supremacy of fire in Heraclitean physics, not as the predominance of a single power but as the submission of all powers to a single law. For if we think of fire as itself one of the powers, then it must keep its equal place among the rest. Thus water is absolutely impartial as between fire and earth, its two neighbors (and enemies) on the way up and down: it dies into earth as much as into fire; it lives from fire as much as from earth. Or if, conversely, we think of fire not as one of the many but as the One which *is* the many, then fire is not a separate power lording it over the rest; its justice is simply the common measure in all

fear much more than your men fear you." This doctrine of *θεσπότης νόμος* sounds—and is—Spartan. But it is not opposed to democracy as such, but to Persian absolutism; it is matched in Aeschylus (e.g., *Eum.* 516-27 and 698-99). Its broader formulation in Demaratus' first speech to the king (Hdt. vii. 102)—"virtue is acquired, wrought of wisdom and strong law"—is explicitly applied to "all Greeks." It could certainly be taken as the maxim of both Solonian and Heraclitean morality.

¹¹⁶ Frags. B49, 99, 110, 121. The point of Frag. B121 should not be blunted by rendering *ὀνείστος* "best" or "worthiest," as in Cicero (*nemo de nobis unus excellat*) and subsequently in the textbooks. Hermodorus' intrinsic worth is not in question here. Heraclitus' point is that the Ephesians are losing the man who would be pre-eminently useful to the community and thus *to themselves*.

¹¹⁷ The form of this fragment suggests the possibility that it is a qualifying antithesis to a preceding generalization: e.g., law is common counsel (cf. Frags. B114, B2, B113), but "it is law, too, to obey the counsel of one." At any rate, a comparison with Frag. B114 shows that the ultimate "one" on which all human laws rest is the "common mind" (= "the one divine law").

the powers. If everything is fire, then the "government" of fire in the cosmos is cosmic self-government.¹¹⁸

V. ANAXIMANDER

We must reckon, finally, with the oldest and most controversial text in pre-Socratic philosophy, Anaximander's Fragment 1:

And into those things from which existing things take their rise, they pass away once more, "according to just necessity [*chreon*]; for they render justice and reparation to one another for their injustices according to the ordering of time."¹¹⁹

Any responsible interpretation of these words calls for justification; and this involves unavoidably the evaluation of certain Aristotelian texts which form our most important collateral evidence. I have left this last so as to approach it in the light of Heraclitus, Parmenides, Empedocles, and the medical writers: their thought-forms are safer guides to Anaximander than are the categories of Aristotelian physics. Yet, even so, we must respect what we know of the development of pre-Socratic thought and guard against reading into Anaximander atomic physics or Parmenidean logic.

¹¹⁸ The Greek term *αὐτόνομος* (below, n. 165) fits Heraclitus' thought exactly: the universe is "a law unto itself"; its law is inherent in its own nature, not imposed upon it by a superior.

¹¹⁹ Diels-Kranz start the citation with *ξί ὦν*. But Burnet's (*op. cit.*, p. 52, n. 6) and Heidel's ("On Anaximander," *CP*, VII [1912], 212-34, at 233) doubts with regard to *τοῖς οὐσι*, *γένεσις*, and *φθορά* in the first clause have never been properly answered. *Φθορά* is particularly open to suspicion. It never occurs as an abstract noun in any pre-Socratic fragment (Democ. Frag. B249 has an obviously different meaning). Parmenides, whose polemic against the Ionians reflects their terminology, uses *δλεθρος* (and the verb, *δλλύναι*). That Anaximander, too, would use *δλεθρος* instead of *φθορά* is probable from *ἀνώλεθρον* in Arist. *Phys.* 203 b 14, quoting Anaximander, in place of *ἀφθαρτον* in l. 8, where Aristotle is using his own words. As for *φθοράν γίνεσθαι* for *φθείρεσθαι*, is this likely at this stage of philosophic prose?

A. EQUALITY OF THE OPPOSITES

Aristotle writes:

Some people make not air or water the infinite, but this [*sc.* "something distinct from the elements"]¹²⁰ in order that the other elements may not be destroyed by the element which is infinite. They are in opposition to one another—air is cold, water is moist, fire hot. If one were infinite, the others would have been destroyed by now. As it is, the infinite is something other than the elements, from which they arise [*Phys.* 204 b 24-29].

Anaximander is not named here. But the identification is made in Simplicius, and there is no good reason to question it.¹²¹ What the argument aims to prove is fortunately clear enough from independent evidence. We know that the first generation or two of Ionian thought *did* turn one of the opposites into the boundless source of everything else. This is obvious for Anaximenes' air. In the case of Xenophanes, we have his own words, off-hand, untechnical, and all the more valuable on that account: the earth has its upper limit just where you see it, "next to your feet"; as for its lower limit, there is none, "it goes on endlessly" (*εἰς ἄπειρον ἰκνέται* [Frag. B28]).¹²² Thales' water, too, must

¹²⁰ *Phys.* 204 b 23-24: *τὸ παρὰ τὰ στοιχεῖα*. The phrase serves well enough to distinguish Anaximander's *arche* from its derivatives. Aristotle's interpretation of the phrase—as a "sensible body" which ought to be "present in our world here" (ll. 32-34)—may be disregarded; it is clearly not Anaximander's own thought but a construction which Aristotle puts upon it for polemical purposes.

¹²¹ Cherniss rejects it as "the peculiarly Aristotelian argument of the necessary equilibrium of contrary forces" (*op. cit.*, p. 376), referring to *Meteor.* 340 a 1-17. But the latter is itself an Aristotelian adaptation of the old physical and medical doctrine of *ισονομία τῶν δυνάμεων*. Here (and also in *Phys.* 204 b 14-18) Aristotle enriches the argument with various other notions of his own; these are absent from *Phys.* 204 b 23-29, especially the distinction between "power" and "bulk," which is foreign to the medical literature and the earlier philosophers (see above, p. 00).

¹²² Aristotle (*De caelo* 294 a 22) paraphrases Xenophanes' doctrine as follows: *ἐπ' ἄπειρον αὐτὴν* [*sc.* the earth] *ἐρριζώσθαι*. Xenophanes seems to be combating the Hesiodic view that the *γῆς ῥίζαι* start somewhere, i.e., from Tartarus (*Theog.* 728).

have been as endless as Xenophanes' earth and in the same sense: it must "go on endlessly," for it supports the earth, while no provision is made for its being supported, in turn, by anything else.¹²³ Thus, in denying infinity to any of the opposites, Anaximander was going against the general trend. He could only have done so for a good reason. The argument in *Phys.* 204 b 24–29 supplies the reason: to safeguard the equilibrium among the opposites.

That the main components of the universe are equal was an old tradition in popular cosmology. In *Il.* xv it is implied that the heavens, the sea, and "the murky darkness" are equal, since their respective lords are equals in "rank" and "portion."¹²⁴ In Hesiod earth and heavens are declared equal (*Theog.* 126); and the distance between heavens and earth is equal to that between earth and Tartarus (*ibid.* 719–25). Such ideas are mainly without even a semblance of physical justification.¹²⁵ They boldly read into the universe that feeling for symmetry and balance which makes the *Odyssey* speak of a well-made ship as "equal"¹²⁶ and of a wise, balanced mind also as "equal."¹²⁷ Anaximander's own cosmology is designed with just such a sense of aesthetic symmetry,

with equality as the main motif: the intervals between each of the infinite worlds are equal;¹²⁸ the intervals between earth, fixed stars, moon, and sun are also equal;¹²⁹ earth and sun are equal;¹³⁰ the two land-masses of the earth—Asia and Europe—are equal, and the two great rivers in each are equal and divide the regions through which they flow into equal parts.¹³¹ To cap all this with the equality of the opposites which constitute this world would be in fine harmony with the whole design. The argument in *Phys.* 204 b 24–29 takes us beyond this aesthetic presumption into physical reasoning: If one of the opposites were boundless, it would not only mar the architectonic elegance of the cosmology but would positively "destroy" the other opposites.¹³² Why so? Because—as we know from Fragment 1—the opposites are constantly encroaching upon one another. If one of them were limitless, there would be no stopping it by the rest, singly or in combination, for they are all limited. Its encroachment would continue until the rest were destroyed.

B. JUSTICE IN THE BOUNDLESS

We may now settle accounts with the older interpretation of Fragment 1: that the very existence of the cosmos is itself an injustice against the Boundless, to be

¹²³ That the earth floats on water is well attested (Thales Frags. A13, A14, and A15) and a surer ground of inference than the conflicting tradition on the question as to whether or not Thales' water was boundless (Theophrastus vs. Simplicius in Thales Frag. A13). Anaximander may well have been the first to name his *arche* "Boundless" (so Theophrastus ap. Simplicius *Phys.* 24. 15–16).

¹²⁴ See above, n. 8; and Cornford's discussion of this passage in *From Religion to Philosophy*, pp. 15–16.

¹²⁵ Only for the equality of heavens and earth in *Theog.* 126–27 can one conjecture a rough appeal to observable fact, i.e., the apparent coincidence of the visual horizon with the base of the celestial hemisphere.

¹²⁶ viii. 43 ff. The most striking example of this use of equality to express geometric symmetry is the definition of the straight line in Euclid: ἡ *ῥίς* ἐξ ἰσού [i.e., symmetrically] τοῖς ἐφ' αὐτῆς σημείοις κείται.

¹²⁷ xi. 337; xiv. 178; etc.

¹²⁸ Aët. ii. 1. 8.

¹²⁹ From the data in Hippol. *Ref.* i. 6. 5; Aët. ii. 20. 1 and ii. 21. 1; with Tannery's reasonable conjectures (*op. cit.*, pp. 94 f.).

¹³⁰ Aët. ii. 21. 2. Strictly speaking, this means that the diameter of the circular vent of the sun-ring which constitutes the visible sun is equal to the diameter of the earth.

¹³¹ All this, of course, on the assumption that the geography of "the Ionians" in Hdt. iv. 36 and ii. 33 is substantially derived from Anaximander (via Hecataeus) and conserves his accent on equality (see Jaeger, *op. cit.*, I, 155–56).

¹³² Cf. the association of encroachment ("injustice") with "destruction" by Eryximachus in Plato *Symp.* 188 e.

expiated by reabsorption.¹³³ This was the general view before the restoration of the words "to one another" (ἀλλήλοις) in the second clause; thereafter, it was left without firm foothold in the text and has been largely abandoned.¹³⁴ What still gives it a measure of plausibility is the suggestion in the first clause that "reparation" is somehow connected with "passing away";¹³⁵

¹³³ Jaeger observes (*op. cit.*, p. 159) that this is not a Greek idea. Certainly, it is alien to the pre-Socratics. The least objectionable version of the view is in O. Gilbert, "Spekulation und Volksglaube in der ionischen Philosophie," *Arch. f. Religionswissenschaft*, XIII (1910), 312. He thinks that the divine energy "stuft sich, je weiter es sich von dem Urquell der Gottheit [sc. the Boundless itself] entfernt, mehr und mehr ab." Even so, I see no good reason for reading this Neo-Platonic notion into Anaximander. Hippol. *Ref. i. 7. 1* (*Doxogr. Graeci* 560. 13–15), to which Gilbert appealed, does not bear out the interpretation he put upon it.

¹³⁴ Diels clung to it to the end (see "Anaximandros von Milet," *Neue Jahrbücher f. d. klass. Altertum* [1923], p. 69). For a more recent defense see Mondolfo, *Problemi del pensiero antico* (1935), chap. ii; also his "La Giustizia cosmica secondo Anassimandro ed Eraclito," *Civiltà moderna* (1934). He argues that, because "injustice" is normal (he compares war and strife in Heraclitus), existence is inherently unjust ("La Giustizia," p. 416), and thus a collective sin against the "universal law of harmony and unity" (*ibid.*, p. 418). But this misses the whole point of the equation of reparation and encroachment which insures that, on balance, existence is always "just." Mondolfo writes of Heraclitus: "Generated and existing only through war, individual things exist through each other's destruction and thus through *hybris*" (*ibid.*, p. 416). But *hybris* is not in Heraclitus, except in Frag. B43, where the reference is not cosmological. As for war and strife, whatever we may think of them, they passed at the time for perfectly proper instruments of justice—so much so that *veikos* could stand for action-at-law (e.g., *Od.* xii. 440; Hesiod *Op.* 232); *teis* could mean simply "cause" (e.g., Aesch. *Suppl.* 644–45: ἀτιμώσαντες ἐριν γυναικῶν); and even participation in *stasis* could be made a matter of statutory obligation by Solon (Arist. *Ath. pol.* 8. 5; Plut. *Solon* 20. 1). As I have argued in the text, because inverse processes of "strife" balance in Heraclitus, his own statement that "strife is justice" makes sense: from "god's" standpoint there is no injustice (Frag. B102). His system not only expels *hybris* and injustice from the cosmos but employs strife as an essential instrument in their expulsion.

¹³⁵ I follow Cherniss (*op. cit.*, p. 376) in assuming that the first clause, though probably only paraphrased (see above, n. 110), does convey the substance of Anaximander's thought. We would save ourselves a good deal of exegetical trouble by assuming (with Heidel, "On Anaximander," pp. 233–34) that the thought, as well as the wording, is not Anaximander's but Theophrastus'.

how can things "render justice and reparation to one another" in a process which destroys their very existence? Unless this paradox can be resolved, we shall find ourselves drifting back into the older view, even after formally abandoning it; we shall be constantly tempted to think of the Boundless itself as the payee of the "damages" and, consequently, as itself the victim of the original injustice.

We may approach the answer by way of the little-noticed fact that the fragment refers in the plural!¹³⁶ to the matrix from which all things arise and to which they all return. This is strange, for the reference is obviously to the Boundless; and this is plainly singular. The shift to the plural can mean only that in this context the Boundless is explicitly thought of as a plurality.¹³⁷ This is in line with what Aristotle tells us in *Phys.* 187 a 20–22, where he speaks of Anaximander's opposites (ἐναντιότητας) as being "contained in" (ἐνούσας) the "one" and issuing from it by a process of "separation" (ἐκκρίνεσθαι). Burnet ruled against this statement as "not even a paraphrase of anything Anaximander said."¹³⁸ But his objection to Aristotle's word for "contained in" (ἐνείναι) as "unhistorical"—his only definite reason for the sweeping condemnation of the text—is completely unfounded. The same word occurs frequent-

¹³⁶ Cherniss (*op. cit.*, p. 377) observes that the standard translations obscure this point by turning the plural of the original (ἐξ ὧν . . . εἰς τὰ πάντα . . .) into the singular. Thus Burnet translates: "Into that [= εἰς τὰ πάντα] from which [ἐξ ὧν]. . . ."

¹³⁷ Cherniss (*loc. cit.*) infers an unlimited plurality. From Simplicius' statement, "opposites are hot, cold, dry, moist, and the rest" (*Phys.* 150. 24–25), we may infer that Anaximander assumed a great number of opposites (as did Alcmaeon: "the wet, dry, cold, hot, bitter, sweet, and the rest" [Frag. B4]). But to say that he assumed an *infinity* of opposites goes beyond our evidence and leaves unexplained the practice of Aristotle and his school, who regard this as the innovation of Anaxagoras (e.g., Theophrastus *ap. Simplicius Phys.* 27. 4).

¹³⁸ *Op. cit.*, p. 57, n. 1.

ly in the pre-Socratics and the medical literature with the very sense required in the present context, i.e., the relation of any ingredient to the compound of which it forms a part.¹³⁹ As for the other terms used here by Aristotle—"separation" and "oppositions"—both refer to characteristic concepts of Ionian medicine and physics and accord perfectly with what we know of Anaximander's system. The "opposites" are obviously "the hot, cold, dry, moist, and the rest" (Simpl. *Phys.* 150. 24), which are the main components of his cosmology. "Separation" is the basic cosmogonic category of Ionian thought, the process by which "the heavens and all the infinite worlds" are formed in Anaximander.¹⁴⁰

There is, nonetheless, a residual problem here: If the *apeiron* is a compound of opposites, why should Aristotle think of it as "one" and contrast it as such with the "one and many" of Empedocles' *Sphairos* and Anaxagoras' primitive mixture?¹⁴¹ The answer is surely that Empedocles and Anaxagoras both thought of their original compound as made up of Parmenidean bits of Being, eternally self-

identical in the mixture as in the world which issues from it.¹⁴² This is just what we cannot ascribe to Anaximander without anachronism: he thought of his Boundless as "one" in a far more intimate sense than would have been possible for a physicist schooled in Parmenidean logic. That logic compelled Empedocles to revise the basic concept of *krasis* and to think of it as a mere juxtaposition of minute particles.¹⁴³ For the unreformed doctrine of *krasis* we may look to the anti-Empedoclean *Περὶ ἀρχαίης ἡτρικῆς*, which speaks of a compound in *krasis* as "one and simple."¹⁴⁴ This seems to be our best clue to the sense in which Anaximander's Boundless is "one": it does "contain" the "opposites"; but these are so thoroughly mixed that none of them appear as single, individual things.¹⁴⁵ This would explain why Aristotle and his school commonly refer to Empedocles' principles (*archai*) as six and to Anaxagoras' as infinite in number, while they invariably speak of Anaximander's principle as one.¹⁴⁶ And it would further explain what we must understand by the Aristotelian term "indefinite" (*φύσις ἀόριστος*) as applied to Anaximander's Boundless. Just as in a

¹³⁹ For the pre-Socratics see Kranz's *Wortindex*, s.v. *εἶναι*. For the medical literature see, e.g., Π. ἀρχ. ἡτρ. 14. 29, 31; 16. 6; see also instances cited by H. C. Baldry in "Plato's 'Technical Terms,'" *CQ*, XXXI (1937), 141-50, at 146.

¹⁴⁰ Ps.-Plut. *Strom.* 2. For a good discussion of "separation" see Heidel, "On Anaximander," pp. 229-32. But Heidel's suggestion that *ἐκ τοῦ αἰδίου* in Pseudo-Plutarch means "from eternity" has not found favor. The correct rendering of the whole phrase (*Dozogr. Graeci* 579. 13-14) seems to me to be: "something productive of hot and cold was separated off from the eternal" (adapted from Burnet's translation). That the process which generates the hot and the cold should be spoken of in the passive voice as itself "separated off" sounds strange perhaps; but cf. Democ. Frag. B167: *δίδον ἀπὸ τοῦ παντός ἀποκριθῆναι*. "Productive of hot and cold" may also seem strange, since both are "contained in" the Boundless; but I think this sufficiently explained in the suggestion which I make in the following paragraph: hot and cold, being perfectly "blended" in the Boundless, emerge as distinct, recognizable powers only after the "separation."

¹⁴¹ *Phys.* 187 a 21-22.

¹⁴² This leads to at least two fundamental differences from Milesian doctrine: (1) generation, the prime category of Milesian physics, is now denied (Emp. Frag. B8; Anaxag. Frag. B17); (2) the opposites themselves usurp the role of the Milesian *arche*: they become "roots" and "seeds," are thus the "source" (*πηγή*) of mortal things (Emp. Frag. B23. 10), and, in Empedocles, are endowed with the divinity which the Milesians had assigned to the *arche*.

¹⁴³ Galen's commentary on Hipp. Π. φύσ. ἀνθρ. 15 (cited in Diels-Kranz under Emp. Frag. A34): *οὐ μὴν κεκραμένων γε δι' ἀλλήλων* [the Hippocratic doctrine] *ἀλλὰ κατὰ σμικρὰ μόρια παρακειμένων*. Empedocles was followed by the atomists: Alexander Aphrod. *De mixtione* 2 (cited in Diels-Kranz under Democ. Frag. A64).

¹⁴⁴ Frag. 14. 55-57: *εἰς τε κέκρηται καὶ . . . ὅλον ἐν τε γέγονε καὶ ἀπλοῦν*. Contrast this with Aristotelian usage, where *κεκραμένων* and *ἀπλοῦν* appear as contraries (*De sensu* 447 a 18).

¹⁴⁵ In Hippocratic terms, "no individual power is displayed" (see above, n. 12).

¹⁴⁶ With the single exception noted above: the plural *ἐξ ὧν . . . εἰς ταῦτα . . .* in Frag. 1.

Hippocratic compound in *krasis* the individual opposites are "not apparent,"¹⁴⁷ so neither are they in Anaximander's Boundless: no part of the compound, no matter how minute, being either hot or cold or dry or moist, etc., the whole is just what Aristotle would call "indeterminate."¹⁴⁸

On this interpretation we can explain the strictly reciprocal nature of injustice and reparation in Fragment 1. The Boundless itself, being perfectly blended, must be a state of dynamic equilibrium.¹⁴⁹ In no portion of it can any power dominate another and thus commit "injustice." Only when the world-forming segregation occurs can separate powers show up. Thereafter, wherever one of these is strong enough to encroach upon another, "injustice" will result. When the world is, in due course, reabsorbed into the Boundless, the opposites are *not* destroyed. They do *not* cease to exist. They are only blended once again, and their equilibrium is perfectly restored. And this must entail a process of "reparation," where unjust gains are disgorged and unjust losses fully made up. Thus at no time is there either injustice against the Boundless or reparation to it. Reabsorption into the Boundless is only

the process which insures full reparation among the opposites themselves; the damages are paid not to the Boundless but to *one another*.

C. JUSTICE IN THE WORLD

But what of the interval between generation and dissolution? Are we to suppose that the life-history of the world is a series of encroachments, unchecked until a judgment day at the very end? Such a supposition would go against every canon of pre-Socratic physics. If becoming were a theater of injustice without reparation, it would be not cosmos but chaos, and the elegant pattern of balanced equalities in Anaximander's world would collapse. But such a possibility is precluded by the structural elements of Anaximander's own cosmogonic process. The opposites, balanced in the Boundless, issue from it *together* in balanced proportions.¹⁵⁰ It follows that the hot in a given world will be no stronger than the cold, and so for the other opposites. Moreover, since the world is "encompassed" by the Boundless,¹⁵¹ nothing can enter or depart to upset the balance fixed upon the opposites in the process of generation.¹⁵² Thus the Boundless "governs" the world through-

¹⁴⁷ E.g., *Ancient Medicine* 16. 35; when the powers are "mixed and blended with one another, they are neither apparent [*φανερὰ*] nor do they hurt a man; but when one of them is separated off and stands by itself [see above, n. 18], then it is apparent [*φανερὸν*] and hurts a man" (translation adapted from Jones).

¹⁴⁸ For Aristotle determination is primarily qualitative, not quantitative; e.g., *Metaph.* 1063 a 28: τὸ ποῦν ἀρισμένως φύσεως, τὸ δὲ ποῦν τῆς ἀορίστου.

¹⁴⁹ I say "dynamic," for the Boundless, in spite of its perfect homogeneity, is eternally in motion. Parmenides made the opposite assumption: that a perfectly homogeneous whole would have to be in a state of *static* equilibrium and, therefore, absolutely motionless. Parmenides is followed by Plato in this: "Motion will never exist in a state of homogeneity" (*Tim.* 57 e). Plato's original matrix moves because, unlike Anaximander's, being "filled with powers that were neither alike [or 'equal,' *ἰσότης*] nor evenly balanced," it was *therefore* in disequilibrium. Anaximander's Boundless—ungenerated, indestructible, homogeneous, necessarily just—satisfies precisely the conditions of Parmenides' Being, except at two points: it is (1) in eternal motion and (2) unlimited.

¹⁵⁰ Cf. Fränkel, *op. cit.*, p. 184: "nichts Einzelnes werdend aus dem *apeiron* heraustritt, sondern nur gemeinsam die Gegensätze."

¹⁵¹ Arist. *Phys.* 203 b 11–13: "and it encompasses all things and governs all things, as those assert who do not recognize other causes besides the Boundless, e.g. *nous* or love." The terms of reference apply definitely, though not exclusively, to Anaximander. Cf. also Hippol. *Ref.* i. 6. 1 (*Doxogr. Graeci* 559. 18).

¹⁵² For the atomists, matter inside and outside a "world" was homogeneous; hence the *exitus introitusque* through the *spiracula mundi* (Lucretius vi. 492–94; cf. i. 999–1001; i. 1035–51; ii. 1105 ff. See also Democ. Frag. A40 = Hippol. *Ref.* i. 13. 4; Leucippus Frag. A1 = Diog. Laert. ix. 32). Similarly, Anaximenes' world could "breathe in" the outside air, which was the same stuff as the air within. For Anaximander, on the other hand, the Boundless is unassimilable, unless duly separated out; and there is no hint in our sources that this separation could occur except at the appropriate stage of world-formation. This would seem to invalidate Heidegger's assumption ("On Anaximander," pp. 227–28) of cosmic respiration in Anaximander.

out its growth and decline. This is never a matter of direct action by the Boundless upon the inner structure of the world, for the whole of the cosmology is delineated in terms of the interaction of the opposites themselves upon one another. The Boundless "governs" by "encompassing,"¹⁵³ i.e., by safeguarding the original equality of the opposites with one another.

If this equality is maintained, justice is assured, for no opposite will be strong enough to dominate another. When encroachment occurs, it will be compensated by "reparation," as, e.g., in the seasonal cycle the hot prevails in the summer, only to suffer commensurate subjection to its rival in the winter. We have already met this ordered sequence of "successive supremacy" in the medical writers and Empedocles. And, although our evidence is not sufficient to establish it conclusively in the case of Anaximander, we can impute it to him with considerable likelihood.¹⁵⁴ In any case we can assume with perfect confidence that, while reabsorption into the Boundless would be the com-

plete and absolute end of all injustice, nevertheless over-all justice is preserved throughout the life-process of the world despite the occurrence of injustice; and this by the equation of reparation to encroachment, which is itself assured through the invariant equality of the opposites.

Every student of Greek science must feel how profound was the debt of subsequent cosmology to Anaximander. His were the seminal ideas of the whirl, the infinite worlds, the unsupported earth, the conception of sun and stars as huge, free-swinging masses rather than fixtures on a copper dome. Yet more important than these and his other physical hypotheses was his philosophical concept of nature as a self-regulative equilibrium, whose order was strictly immanent, guaranteed through the fixed proportions of its main constituents. Once established, this idea becomes the common property of classical thought. It is shared by minds as diametrically opposed as Lucretius,¹⁵⁵ on the one hand, and the pious author of the *De mundo*, on the other.¹⁵⁶ In Anaximander we can trace it back to its source in the political assumption that justice was an affair between equals¹⁵⁷ and that its settlement involved an equation of compensation to injury.¹⁵⁸

¹⁵³ And thus performs the function which Parmenides would later assign to *Dike-Ananke*, i.e., it holds the world fast "within the bonds of the limit" (see Parm. Frags. B8. 31, and B10. 5-7, bearing in mind that *περιέχειν* = *ἀμφὶς ἔχειν*. Parmenides internalized—to Being in Frag B8, to the Ouranos in Frag. B10—this function of "holding the limits" which Anaximander's Boundless performs by surrounding each world from the outside). But to "hold the limits (or ends) of all things" had been the divine prerogative (e.g., Semonides of Amorgus Frag. 1. 1-2 [Diehl]; Solon Frag. 16 [Diehl]). Hence the point of Aristotle's reference to the *συνόριος* of the Boundless: τὸ πάντα περιέχον (*Phys.* 207 a 19; cf. the ancient tradition in *Metaph.* 1074 b 2: "that the divine encompasses the whole of nature"). The connection between "holding the ends" and "governing" need not be labored. But it may be worth noting that (1) boundlessness as such conveyed the idea of incapability (e.g., Aesch. *Suppl.* 1049-50); (2) even *ἔχειν* alone could mean "to hold to the course, guide, steer" (Liddell and Scott, *s.v.*); (3) *περιέχειν* has also the sense "surpass, excel" and "overcome in battle" (*ibid.*, *s.v.*).

¹⁵⁴ Heidel "On Anaximander," pp. 233-34; also *Proc. Amer. Acad.*, XLVIII (1913), 684-85. To the parallels cited by Heidel add Philo *De incorr. mundi* 108 ff., which explicitly uses the cyclical exchanges of the seasons to illustrate "reciprocation between the four powers."

¹⁵⁵ On *isonomia* in Epicurus and Lucretius see below, p. 178 and n. 184.

¹⁵⁶ His explanation of the imperishable order of nature through the *isomoiria* and successive supremacy of the opposites comes strikingly close to Anaximander's (see citation above, n. 14; and 397 b 6-7). Cf. Philo (above, n. 88); Ocellus Lucanus 22: ἀντιπαθεῖς οὐσαι [sc. the four "powers"] μήτε κρατῶσιν εἰς τέλος αὐταὶ αὐτῶν μήτε κρατῶνται αὐταὶ ὑπ' αὐτῶν; Seneca *QN* iii. 10. 3: "omnium elementorum alterni recursus sunt; quicquid alteri perit, in alterum transit; et natura partes suas velut in ponderibus constitutas examinat, ne portionum aequitate turbata mundus praeponderet."

¹⁵⁷ As Heidel observes: "*dike* obtains between peers," ("On Anaximander," p. 234).

¹⁵⁸ To "get justice" was literally to "get (back) the equal" (ἴσα ἔσεται [*Od.* ii. 203]). To "give justice" (δικὴν δίδοναι) was, again literally, "to pay the equal" (ἴσην ἔτισεν [*Soph. OT* 810]). The underlying prin-

VI. THE NATURALIZATION OF JUSTICE

When Parmenides speaks of *Dike-Ananke* holding Being fast in the bonds of the limit, his words echo Hesiod and Semonides, who speak of fate as a "bond of unbreakable fetters",¹⁵⁹ but his thought is far from theirs. In Hesiod and Semonides the source of the compulsion is external to the thing compelled. In Parmenides the compulsion is immanent. The first is a nonrational concept of *ananke*: the determining agency remains hidden from human reason. The second is so thoroughly rational that *ananke* merges with *dike*, and *dike* with logicophysical necessity: the order of nature is deducible from the intelligible properties of nature itself. We may speak of this transition, the work of Anaximander and his successors,¹⁶⁰ as the naturalization of justice.

ciple is that of an *exchange*: equal value rendered for value taken. The same words apply to the closure of a commercial transaction, like barter, sale, or loan, and to the satisfaction of justice:

ἀμείβω,	ἀνταμείβομαι,	ἀμοιβή,	ἀνταμοιβή'
ἀλλάσσω,	ἀνταλλάσσω'	ἀπόδοσις,	ἀνταπόδοσις.

This pattern of thought was capable of indefinite generalization. It was popularly applied to physical sequences where one event was regularly followed by (and thus "exchanged for") its reciprocal: e.g., the cycle of birth and death (*Phaedo* 71 e-72 b); waking and sleeping (*Phaedo* 72 b); the succession of day and night (e.g., *Hesiod Theog.* 749); the cycle of the seasons (Philo *De incorr. mundi* 109); hoofs that strike the ground in turn (Pindar *Pyth.* 4. 226); land, plowed and left fallow in turn (Pindar *Nem.* 6. 9). Scientific thought used this pattern to join events which had either been left unconnected (like evaporation and precipitation [Arist. *Meteor.* 355 a 28]) or else had not been clearly grasped as strict equations by the popular mind (like breathing in and breathing out [Plato *Tim.* 79 e 7-8]; or the stretching of a lyre string and the vibration when released [Arist. *Mech. probl.* 803 a 31]). But the uniformity of nature as a whole could also be construed as just such a reciprocity among its basic components. Anaximander so construes it in *Frag.* 1.

¹⁵⁹ Hesiod *Theog.* 615: ἀλλ' ὑπ' ἀνάγκῃς | . . . μέγας κατὰ θεσμὸς ἐρύκει. Semon. 7. 115 (Diehl): θεσμὸν ἀμφέθηκεν ἔρρηκτον πέδης. Parm. *Frag.* B8. 14: (οὐκ) ἀνῆκε Δίκη χαλάσασα πέδησιν, | ἀλλ' ἔχει. *Frag.* B8. 31: πείρατος ἐν θεσμοῖσιν [sc. Ἀνάγκῃ] ἔχει, τό μιν ἀμφὶς ἔργει.

¹⁶⁰ For Solon's contribution see Werner Jaeger, "Solon's *Eunomie*," *Sitzungsber. Preuss. Akad. d. Wissenschaften* (Berlin, 1926); and *Paideia*, Vol. I,

Justice is no longer inscrutable *moira*, imposed by arbitrary forces with incalculable effect. Nor is she the goddess *Dike*, moral and rational enough, but frail and unreliable. She is now one with "the ineluctable laws of nature herself",¹⁶¹ unlike Hesiod's *Dike*, she could no more leave the earth than the earth could leave its place in the firmament.

Thus the naturalization of justice transformed her status and added immeasurably to her stature. But it also transformed nature. These "ineluctable laws of nature," what were they prior to Milesian physics? Behind the massive stability of heaven and earth had lurked a realm of arbitrariness and terror. The uniform motions of sun and moon could be inexplicably broken by an eclipse;¹⁶² the fertility of earth and womb might mysteriously fail; children could be born "unlike those who begat them, but monsters";¹⁶³ these and a thousand other things could be thought of as lesions in natural order, special interventions of Zeus and his instruments, vindicating the authority of the supernatural by suspending or reversing the ordinary course of

chap. viii and also p. 158 in chap. ix. Yet the old magical conception of justice survives in Solon, side by side with the new (see my "Solonian Justice," pp. 76-78).

¹⁶¹ Maurice Croiset in a brilliant comment on Solon *Frag.* 3 (Diehl): "La Morale et la cité dans les poésies de Solon," *Compt. rend. Acad. d. inscrip. et belles lettres* (Paris, 1903), p. 587.

¹⁶² Archil. *Frag.* 74 (Diehl); Pindar *Paeon* 9. 1-21. But it is worth noticing that Archilochus takes the eclipse not as the operation of a superior type of order, obscure but unquestionable, but rather as a threat against all order. He identifies order implicitly with nature (even though everything comes under the power of Zeus). His very consternation at the thought that a natural uniformity could be broken is a confession that he has lost faith in magic as a realm of order in its own right. This is a more enlightened attitude than Pindar's, whose main reaction is fear at the calamities that the eclipse may portend.

¹⁶³ See Hesiod *Op.* 225-45 and parallels cited *ad loc.* in Mazon's edition; further parallels mentioned in my "Solonian Justice," nn. 9, 10.

nature.¹⁶⁴ The adventurous reason of Ionian science charted this realm of magic, detached it from the personal control of supernatural beings, and integrated it into the domain of nature. All natural events, ordinary and extraordinary alike, were now united under a common law.

The equality of the constituents of this new commonwealth of nature was of the essence of the transformation, for it meant the abolition of distinctions between two grades of being—divine and mortal, lordly and subservient, noble and mean, of higher and lower honor. It was the ending of these distinctions that made nature autonomous and *therefore* completely and unexceptionably “just.” Given a society of equals, it was assumed, justice was sure to follow, for none would have the power to dominate the rest.¹⁶⁵ This assumption, as we have seen, had a strictly physical sense. It was accepted not as a political dogma but as a theorem in physical inquiry. It is, nonetheless, remarkable evidence of the confidence which the great age of Greek democracy possessed in the validity of the democratic idea—a confidence so robust that it survived translation into the first principles of cosmology and medical theory.¹⁶⁶

¹⁶⁴ For the supernatural sanctions of the pre-Solonian concept of justice see my “Solonian Justice,” pp. 65–66.

¹⁶⁵ For the political import of this idea see II. *ἀ. ὕ. τ.* 16 (also 23. 30 ff.; and cf. Hdt. iii. 80. 3–6, iii. 142. 3, v. 78). The benefits of democracy are inferred here from the fact that under it men are *autonomous* (II. *ἀ. ὕ. τ.* 16. 10; cf. 16. 35 and 23. 37). This is not merely the formal power to issue laws but the more fundamental power to order one's own life without domination by an “alien power” (16. 36).

¹⁶⁶ Professor Kurt von Fritz raises an important question (by correspondence): May not the political equivalent of cosmic equality be the idea of balance of power between classes or governing bodies (as, e.g., kings, ephors, senate, *apella* in Sparta) rather than the idea of equality between individual citizens? Only the latter, of course, would be characteristic of democracy in its mature form. The answer, it seems to me, is in the idea of “rotation of office,” which (1) applies to individual citizens rather than to classes or governing bodies; (2) is decisively democratic as

Of the four *physiologoi* we have studied, Heraclitus alone appears estranged from democratic politics. His interest in the current belief in equality is not so much to vindicate as to qualify and correct it. It is therefore significant that there should be no mention of equality in his physical fragments. The equalitarianism of his physics, such as it is, seems imposed upon the author as a structural necessity rather than as a conscious choice. Order he must have, and he knows of no other way of getting it than by enforcing the equal submission of all powers to the “common” law. Thus Heraclitus in his own way remains within the general framework of equalitarian physics; certainly, he makes no effort to break with that tradition. The attempt first comes with Anaxagoras' doctrine of *nous*, which, unlike Heraclitus' fire, is “mixed with nothing, but is alone, itself by itself,”¹⁶⁷ and has therefore absolute,¹⁶⁸ one-sided dominion over the “mixed” forces of nature. But this revolt proved abortive. It was Plato, the bitter critic of Athenian democracy, who carried through the intellectual revolution (or, more strictly, counterrevolution) to a successful conclusion; and Aristotle followed, though with hesitations and misgivings.¹⁶⁹

a general constitutional practice; and (3) implies equality of “honor” (*τιμή*) or status. This, as we have seen, Empedocles explicitly asserts of the cosmic powers. There is no reason to believe that Parmenides or Anaximander thought of the powers in any other sense. On the contrary, everything we have seen of their respective cosmologies implies perfect equality of status among the basic constituents of their cosmos.

¹⁶⁷ Frag. B12: *μέμικται οὐδενὶ χρήματι, ἀλλὰ μόνος αὐτὸς ἐν' ἑωυτοῦ ἐστίν.* For the same expression in Hippocratic treatises see above, n. 18. In medical thought the state of isolation is a sign of *disorder*; in Anaxagoras' *nous* it accounts for *order*. There could be no more striking evidence of the clear-cut negation of Ionian categories. The Platonic Form conserves this feature of Anaxagoras' *nous*: it is *αὐτὸ καθ' αὐτό*, and thus *ἀμεικτον, καθαρώτατον*.

¹⁶⁸ *Ἀυτοκρατής*, Frag. B12. Cf. Plato *Crat.* 413 c: *αὐτοκράτορα γὰρ αὐτὸν ὄντα* (sc. Anaxagoras' *nous*).

¹⁶⁹ For Plato see my “Slavery in Plato's Thought,” *Philosophical Review*, L (1941), 289–304, Sec. I. Herodotus had registered the conviction that “mon-

In their systems we find at last the explicit and thoroughgoing negation of Anaximander's equalitarian universe.

The attributes of divinity are now reserved to one set of superior entities, which alone are perfect, "prior,"¹⁷⁰ sovereign,¹⁷¹ ageless, incorruptible. Nature is no longer a single mechanical system, composed throughout of the same stuff, ordered throughout by the same laws of motion. It breaks apart into a "hither" and a "yonder."¹⁷² The first, thinks Aristotle, consists of the familiar Ionian opposites; the other, of "something beyond the bodies that are about us on this earth, different and separate from them, the superior honour of its nature being proportionate to its distance from this world of ours."¹⁷³ There are two types of motion, each simple and incommensurable with the other: the circular motions of the "more honorable" bodies, which are "perfect" and undeviatingly uniform; the rectilinear, "imperfect," and "wandering"

motions which occur only in the "lower" regions.¹⁷⁴ *Dike* and *ananke*, logical reason and physical necessity, which had merged in the pre-Socratics to banish disorder from the physical universe, are now separated.¹⁷⁵ For all its teleological subordination to the "good," matter remains a residual principle of evil and disorder.¹⁷⁶

From the polemics of *Laws* x, one would never guess that any of Plato's materialistic opponents¹⁷⁷ had believed that

¹⁷⁴ For the effects of this bifurcation on Aristotelian dynamics see W. D. Ross, *Aristotle's Physics* (Oxford, 1936), p. 33. Ross points out that in *Phys.* 244 a 1-3 (he might have added *Meteor.* 370 b 20-8) there is, nonetheless, a true analysis of circular motion as the resultant of two inverse rectilinear motions. The history of thought offers no better example of a great thinker, hitting on a scientific explanation of revolutionary import, yet missing its significance because of the blinkers of a metaphysical dogma.

¹⁷⁵ See my "Slavery in Plato's Thought," p. 296; to the references there cited add *Soph.* 265 c: *αἰτίας αὐτομάτης καὶ ἄνευ διανοίας φύσεως ἢ μετὰ λόγον* etc.; and *Laws* xii. 967 a: *ἀνάγκαις . . . οὐ διανοαίσις*. In Aristotle the contrast of the "good" and the "necessary" cause is analogous to the contrast of "rational" and "material" (*Phys.* 200 a 14: *ἐν τῇ ὅλῃ τὸ ἀναγκαῖον, τὸ δ' οὐ ἔνεκα ἐν τῷ λόγῳ*. *De part. anim.* 663 b 22-23: *ἡ ἀναγκαῖα vs. ἡ κατὰ λόγον φύσις*).

¹⁷⁶ See my "Disorderly Motion in the *Timaeus*," *CQ.* XXIII (1930), 71-83, at 80 and 82, n. 3. Hence natural science can be only a "likely tale." And even Aristotle holds categorically that there can be no science of the indeterminate (*An. post.* 32 b 18); cf. the role of the indeterminateness of matter (*ἡ τῆς ὅλης ἀοριστία*) in *De gen. anim.* 778 a 7, and cf. also *Met.* 1010 a 3, 1049 b 2.

¹⁷⁷ Plato here is intent on exposing the basic error of "all the men who have ever handled physical investigation" (891 c [Bury]). He has in mind the most mature physical systems, including atomism; but he draws no fine distinctions and makes no honorable exemptions, for he is convinced that all those who sowed the materialist wind must be held responsible for the whirlwind, i.e., the conventional theory of justice. Tate (*CQ.* XXX [1936], 48-54) has argued that the butt of Plato's polemic is Archelaus and his fourth-century followers. Certainly, Archelaus meets the double imputation of materialist cosmology and the conventional theory of justice and thus falls within the scope of Plato's polemic. But that a second-rate thinker should be singled out as the representative of materialist physics seems unlikely; and as for his "followers," we know nothing about them. I think Tate forces the meaning of *νέων καὶ σοφῶν* in 886 d. Since *ἀρχαῖοι* here clearly refers to the theogonies (886 c; cf. Arist. *Meteor.* 353 a 34), *νέοι* can only mean the more "modern," though scarcely contemporary, cosmogonies of scientific physics (cf. *Meteor.* 353 b 5; and *Met.* 1091 a 34-1091 b 11: *ποιητὰ ἀρχαῖοι* versus *ὑστέροισι σοφοῖς*); what is contemporary for Plato is the

archy" is *unjust in principle*, i.e., irrespective of the personal merits of the incumbent; it would produce *hybris* even "in the best of all men" (iii. 80. 3). Plato and even Aristotle, on the other hand, hold that, given a man sufficiently superior in virtue, he should be "sovereign over all" as a matter of justice (*Pol.* 1284 b 28 ff., 1288 a 15 ff.).

¹⁷⁰ See above, n. 39.

¹⁷¹ *Κύριος*: Plato *Rep.* vii. 517 c (of the Form of the Good); *Tim.* 90 a (of the rational soul). More frequently in Aristotle (s.v. in Bonitz, *Index Arist.*). This is instructive, for the term conveys the nearest Greek equivalent to the modern concept of political sovereignty.

¹⁷² Note Plato's use of *τόνδε τὸν τόπον, ἐνθάδε* versus *ἐν θεοῖς, ἐκεῖσε*, ὁ τῶν κακῶν καθαρὸς τόπος (*Theaet.* 176 a 7-8, b 1; 177 a 5), and Aristotle's use of *τὰ ἐνταῦθα* (s.v. Bonitz, *Index*), *τὰ παρ' ἡμῖν* versus *τακεῖ, ἡ θεοσιτέρα οὐσία*.

¹⁷³ *De caelo* 269 b 13-17 (Stock); cf. *ibid.* 269 a 31-33, and *Meteor.* 339 a 11. Abstracting from Aristotle's "fifth" element, one finds a comparable, though weaker, distinction in Plato: in the heavens the four elements are "purer," "nobler," etc., than they are "here" (*Phil.* 29 b-d; *Phaedo* 109 b-111 b, esp. 110 a), presumably because "there" they are free of the six wandering motions (*Tim.* 34 a). In *Laws* xii. 967 c (cf. x. 886 d-e) the view that there are "stones or earth" in the stars is denounced as criminal atheism.

"all human laws are nourished by the one law divine" and had thought of this justice in the nature of things not as impersonal order but as a "thought that steers all things through all things."¹⁷⁸ But Plato is right in accenting the difference and neglecting the agreement. His early predecessors had endowed physical nature itself with the attributes of reason, including justice and thought. They had been so absorbed in the discovery that nature was rational that they never stopped to distinguish between the categories of intelligibility and intelligence.¹⁷⁹

influence of this trend of thought. Tate further restricts unnecessarily the reference of the doctrine that the heavenly bodies are "earth and stones"; this applies to Democritus (Frag. A39) as much as to Anaxagoras. Tate appeals to 895 a to show that "Plato cannot be arguing against atomism, according to which motion is eternal and had no beginning" (p. 53); but note the force of *οἱ πλείστοι τῶν τοιούτων*. The frequent inveighing against "chance" and "necessity" must have Empedocles and Democritus in mind. If we may judge from the reference of similar arguments in Aristotle (for Democritus see the passages in Diels-Kranz, Frags. A65-A70). And, since Empedocles was not known for his political theory (Frag. B135 to the contrary notwithstanding), the sequel to materialism that "politics shares little with nature, much with art" (889 d) must surely include Democritus (and his followers, whose existence is not a matter of conjecture). Plato's concession that politics, on this view, does have a "small" share with nature fits Democritus, who would insist (against the out-and-out conventionalists) that art is itself a product of material necessity and "makes" nature (Frag. B33; cf. Nausiphanes Frag. B2. 18. 3). Incidentally, Anaxarchus (Frag. A3 and A5) shows the kind of objectionable politics that could be associated (rightly or wrongly) with the Democritean school and thus lends some plausibility to the worst that Plato imputes against the wicked materialists in 890 a.

¹⁷⁸ Heracl. Frag. B41. "Governs" connects this fragment with Anaximander (see above, n. 153). Xenophanes (Frag. B25) and Empedocles (Frag. B134) speak explicitly of a divine "mind"; and Parmenides' Being was also, no doubt, conceived as mind on the principle of the identity of thought and being. Needless to say, in all this the accent falls not on spiritualizing nature but on naturalizing spirit. In Anaximander the Boundless itself has the properties of the gods (Frag. 3). In Heraclitus the governing mind is still plain fire (Frag. B64). In Xenophanes, God is described in words which Parmenides applies unchanged to his Being (cf. Xen. Frag. B26: *ἀεί δ' ἐν ταυτῷ μένει* with Parm. Frag. B8. 29).

¹⁷⁹ On the contrary, they made, all too confidently, the opposite assumption—that "all things have

That distinction is foreign to archaic thought and language, as we can see from the systematic ambiguity of words like *logos*, *gnome*, and *nous*.¹⁸⁰ In Plato and Aristotle, on the other hand, the identification of rational thought and rational thing is deliberate. It is achieved not by rationalizing material nature but by degrading matter to the realm of the irrational, the fortuitous, and the disorderly.

W. A. Heidel, who was much preoccupied by this momentous transformation, took a strangely fatalistic view of the transition: "The transfer of the functions and attributes of the ancient gods to *physis* by the philosophers of the sixth and fifth centuries eventually so charged nature with personality that the Socratic teleology was a foregone conclusion."¹⁸¹ The atomist system proves that this development was anything but a "foregone conclusion"—that the natural evolution of pre-Socratic thought was not toward the ever increasing personalizing of nature, but the reverse. From his Ionian predecessors Democritus inherited the universe of homogeneous construction and immanent necessity which they had reared with the scaffolding of cosmic

thought" (*πεφρόνηκεν ἅπαντα* [Emp. Frag. B103; cf. Frag. B110. 10]). There is every reason to believe that this is the general assumption among the pre-Socratics; cf. the identification of thought with the *krasis* of the elements in Empedocles and Parmenides and of soul with fire in Heraclitus and air in Anaximenes.

¹⁸⁰ *Λόγος*, "account," both in the active sense of accounting (*λόγος* as speech and/or thought) and in the objective sense of the character of things which makes them capable of being so accounted (*λόγος* as mathematical proportion, etc., which can be in physical objects themselves [Leucip. Frag. B2: *πάντα ἐκ λόγου τε καὶ ὑπ' ἀνάγκης*]). Similarly, *γνώμη* could also be used to mean not only the *cognoscens* but also (though rarely) the *cognoscendum*, e.g., the well-known *κακῶν γνώμας* in *Theog.* 60, where *γνώμας* has exactly the same sense as the *σήματα* of fire and night in Parm. Frag. B8. 55 ("Merkzeichen" [Diels-Kranz]). As for *νοῦς*, Liddell and Scott cite Hdt. vii. 162: *οὗτος ὁ νόος* (sense) *τοῦ βήματος*.

¹⁸¹ *Περί φύσεως*, *Proc. Amer. Acad. Arts and Sciences*, XLV (1910), 79-133, at 94-95.

equality and cosmic justice. The structure completed, the scaffolding could be dropped. The order of nature is now assured through the impenetrability of the atoms,¹⁸² the eternity of their motion,¹⁸³ the infinity of their number and form. Thence Democritus could have deduced "the balanced strife of the first beginnings," the equality of opposites, the equilibrium of creative and destructive forces.¹⁸⁴ These theorems appear in Epicurus under the title of *isonomia*. Democritus could have made the same deductions and claimed the same title; there is no evidence that he ever did.

Compared to Anaximander's, the design of the Democritean universe is indifferent to equality: The infinite worlds are unequal in size and power and at unequal intervals from one another.¹⁸⁵ Earth, sun, moon, and stars are also, no doubt, un-

equal in size and at unequal intervals.¹⁸⁶ As for the earth, its breadth and length are unequal,¹⁸⁷ and the northern and southern halves of the cylindroid are unequal in weight.¹⁸⁸ Cosmic equality has lost its importance, for cosmic justice no longer makes sense. Justice is now a human device; it applies solely to the acts and relations of conscious beings. It is not arbitrary, for it is rooted in the necessities of man's nature and environment. But neither does man find it in the universe as such; it is a product of civilization and art.¹⁸⁹ Justice is only the form which the immanent order of nature achieves in the mind and works of man. Justice is natural, but nature is not just.

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¹⁸² See Lucr. i. 485-86 and 592-98, where the uniformity of nature is derived from *ἀντικρυμία*.

¹⁸³ For the conservation of motion see Lucr. i. 294-307 (cf. Epic. *Ep. ad Hdt.* i. 39, and the ultimate source in Parm. Frag. B8. 7).

¹⁸⁴ Cicero *ND* i. 19. 50; cf. also Lucr. ii. 567-76 (successive supremacy in "nunc hic nunc illic superant . . . et superantur item").

¹⁸⁵ Hippol. *Ref.* i. 13. 2 and 3 (Democ. Frag. A40). Hence the destructive collisions between worlds, "the greater overcoming the lesser" (Aët. ii. 4. 9 = Frag. A84). Moreover, the worlds are dissimilar in contents: "in some there is no sun nor moon, in others larger ones than ours, in still others more [*sc.* than one sun and moon] . . . and there are worlds devoid of animals, plants, and all moisture" (Hippol. *loc. cit.*).

¹⁸⁶ The first I infer from (1) the general gravitational theory, which entails that the largest bodies are sifted toward the center and (2) the fact that sun and moon were originally composed of a substance that "resembled the earth" (*Strom.* 7 = Frag. A39). As for the intervals, the only definite statement is Hippol. *Ref.* i. 13. 4 = Frag. A40: "neither is the height of the planets equal"; but even this would be enough to spoil the symmetry of Anaximander's scheme.

¹⁸⁷ Frag. B 15 (Agathemerus i. 1. 2); Frag. A94 (Eustathius, schol. to *Il.* vii. 446).

¹⁸⁸ The south being more temperate, "the earth is weighed down in that direction, where it has an excess of produce and growth" (Frag. A96 = Aët. iii. 12. 2).

¹⁸⁹ See Frags. B172-73: "good" and "evil" are not in nature as such, but in what man does with nature through the power of his art and its "teaching." For the application of this principle to the origin of human civilization, see Democ. Frag. B5. The validity of this material as a source of Democritean ideas has been disputed; but see "On the Prehistory in Diodorus," *AJP*, LXVII (1946), 51-59.