

Sources of Metaphysical Thinking in Presocratic Philosophy

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Aristotle commenced his metaphysical treatise with a review of the achievements of his predecessors. Over 2000 years later it must be acknowledged that any virtues he failed to discover among them can scarcely have waxed large in the interim, to say nothing of the fact that he had books in front of his nose instead of the ill-assorted scraps that comprise our legacy. Yet the temperature of appreciation for presocratic thinkers has risen a notch or two since his day, and this may justifiably tempt us to retrofit Locke's notorious quip on them.

It is true that in comparison with Aristotle's stately intellectual mansion, the presocratic workshops are humble mud brick dwellings; and the difference is at once apparent when we agree to "Being qua being" furnishing the base motif for metaphysical inquiry. Nothing remotely as sophisticated as aristotelian causality or logic is in sight – but then we should not reasonably expect it. One can admire visionary masonry without drawing attention to marble as a far superior material to achieve the same purpose.

1. Arche & Apeiron

Metaphysical speculation began, long before it was so named, among the presocratic Greeks as an enquiry into cosmology and first principles from two utterly disparate perspectives. The first of these, propounded by Herakleitos, noted the incessant flux (*panta rhei*) which characterises *phenomena*; the second, advanced by his contemporary Parmenides, taught the doctrine of a single immutable substance. These rivalling perspectives endure to this day: they announce one of the basic themes on which metaphysics since then has strung up an immense set of variations.

Behind both stands the concept of *arche*, a term introduced into philosophical discourse by Anaximandros, rendered into English via Latin as 'principle' and bearing the meaning of the 'first-begotten or underlying substance' of all things. Historically this might be called the first brick to leave the kiln in which the metaphysical fire was burning. Moreover, where Thales' teachings were apparently still subject to aural dispersion, Anaximandros, not content with the word of mouth, becomes the first philosopher among the still relatively small band of *logographoi* to publish his theories in a formal text. His book at once set out to *encompass* what was known and to be known and thereby furnished a role model (presumably *peri physeos*) for a dozen generations to come, carrying echoes down as far as the Romans (*De rerum natura*). It gave a comprehensive depiction of cosmogony and cosmology, astronomy and geography, meteorology and biology and down to a phylogeny of the human species. For

Anaximandros, Barnes writes [19], "Nature embraces every object of experience and every subject of rational enquiry except the productions of human contrivance."

MEANING OF 'APEIRON'

His own contribution to the more stringently philosophical debate on *archeai* was the startling concept of the *apeiron*, which leaps out of the pages of Greek philosophy like a spiky porcupine, never formally groomed as a legitimate occupant of place in a philosophical agenda dominated from the beginning by principles of rationality and intelligibility. We may suppose it to have emerged from debate on candidates for the 'Urstoff' or primeval substance; and it is perhaps permissible to suppose lively exchanges on the virtues and demerits of sundry elements, culminating in a shock of recognition by Anaximandros that none of these substances, being *determinate*, qualified and hence failed to satisfy empirical as well as theoretical criteria. The *apeiron*, initially perhaps merely a device to evade commitment to untenable propositions, proved itself in the long run a truly metaphysical conception with ramifications that have resisted erosion by time. Yet our first duty is to note that it proved indigestible to Greek philosophy for the aforesaid reasons, to which insistence on *form* as the fundamental criterion of being must be added. Indeed it is dubious whether the man himself was altogether aware of the problems raised by his conception; and hence the idea of the *apeiron* – this notion of a formless, homogeneous, all-pervading, incorruptible and morally neutral substance – stood for all Greek philosophy as a signpost at a corner of its domain, pointing to an incognisant reality into which one may not transgress.

This does not, by any means, tarnish the profound genius of the man who proposed it; and it is only fair to mention that modern cosmology is (paradoxically) cut from the same cloth. However, this must be laid to the account of a changed temper of philosophical inquiry.

As to its meaning, we may begin with 'unlimited', which cannot be too far off the mark, because *peras*, its root, means 'boundary'. But if it were as simple as that, we would not have a metaphysical problem on our hands. When the concept recurs in the work of Anaxagoras, there is a shift towards something more concretely apprehensible, if only by negation:

"By *apeira* he (Anaxagoras) probably meant incomprehensible and unknowable to us. This is shown by the words, 'so that we cannot know the number of the things being separated off (*apokrisis*), either theoretically or in practice.' That he believed them to be finite in kind, he makes plain; for he says that Mind knows all things, but if they were literally infinite, they would be altogether unknowable, since knowledge limits and sets bounds to what is known." (Simplicius, *Cael.* 608.24; quoted in Guthrie, I, pp. 420-4).

This puts into perspective the feature of Anaximandros' *apeiron* that worried the Greeks so much: it lacked every attribute by which 'being' might be designated; and worse, it presented itself as a de-anthropomorphised entity, unlike *Chaos* which in its guise as a god retained at least an affiliation with *physis* which on the whole was still regarded as a plenum.

The major stumbling block was the "literally infinite" mentioned by Simplicius. To the Greeks such expressions carried suggestions of offence against the *logos* and it would not be an exaggeration to claim that all of Greek philosophy is one long effort to circumvallate reality by the compass of reason and to disallow as existent or even possible what reason cannot contend with.¹ However, if we place Anaximandros in the roster of creative metaphysical thinkers (indeed as the first of that line), then we cannot stand still with his merely theoretical conceptions: there is another dimension to the *apeiron* which may suitably be dealt with first inasmuch as it springs from a lineage much more ancient (e.g. Hesiod, Orphism) and still a powerful presence to him.

ETHICS AND MORTALITY

Only one sentence from Anaximandros' book actually survives into our era – but what a sentence!

The origin of things is in the illimitable. It is the source of their existence to which in the end they return as ordained by the law of necessity: for they are answerable to and must atone for offending against the just decrees of time.

Unexpectedly we here confront a gnomic utterance that makes no distinction between animate and inanimate Being, placing them both in an *ethical* context. Its core idea: the unlawful and indeed punishable emancipation of individual existence from non-Being, which necessitates both atonement and a return to that state.

It is necessary to dwell on this for a moment, for apart from any other consideration we might wish to attach to the utterance, it is primarily representative of a type of cognition still new to the world, namely the conceptualisation in rational terms of a notion formerly entrenched in and reserved to mythological (theological) thinking and in virtue of this transplantation turned into an eminently *metaphysical* concept. Mortality, i.e. the inevitability of death is not itself the key issue, which recurs as a topos in innumerable myths (e.g. Garden of Eden, Gilgamesh) and in many cultures also embraces the (personified) forces of nature. Anaximandros's 'guilt' is not the sin of Adam and Eve, who in defying their creator

¹ The disaster with irrational numbers is a characteristic vignette. Later, by dint of a major creative enterprise conducted within Plato's school, this dangerous entity had its teeth pulled when that mathematical genius of the first rank, Eudoxus, invented his theory of ratio and proportion, which facilitated work on the same geometric entities under the same truth conditions, but without the insalubrious arithmetical side effects. Henceforth geometry replaced arithmetic as the flagship of mathematical science.

acquired consciousness of their mortality as both a stain and a spur. His concept embraces a view instead which may be characterised as the *protest of the emergent*, which in the act of differentiating itself from an impassive and chaotic sameness seeks to *define and impose value* on its exceptionality.² But acquisition of form is the resultant of an act, an effort – as we would say today, an entropy-producing contraction of matter in a focus of energy which, after running its course, must ineluctably dissipate again. It is not clear whether Anaximandros adverts consciousness (however insignificant) to *all* differentiated matter; but this is scarcely a crucial distinction. For him, as for all Greeks, *form implies intelligibility*.³ Thus the concept of ‘atonement’ is wide enough in its applicability to indicate that an animate being and an inanimate substance share in the necessity of ultimate dissolution.³

THE TRAGIC CONCEPT OF MAN

Before proceeding, let me note that the possible composition of this *Urstoff* of Anaximandros is never an issue (Aristotle will designate it as a ‘potentiality’). The step Anaximandros took beyond Thales led him, as noted, into the ethical and metaphysical dimensions: into questions concerned with eternal justice and with the right to life which all animate creatures assert.

He is herewith at one with the tragic poets in asking: whence this restless activity of creativity and dissolution, this living and dying; what meaning to the interminable drone of death agonies? If life is worth nothing, then why does it happen? For it happens: and it happens under conditions of unlawfulness and consequently guilt; and accordingly the imperative of atonement is stressed. But no more than this can be extracted. Anaximandros does not enlighten us about the possibility of escaping from this eternal cycle.⁴

² Cf. Popper: “The one short fragment we possess from Anaximandros,” he writes, “tells us that the world process is not merely a natural process but a *moral process*; and although few may agree with it today, everyone will feel that this is a poetico-philosophical idea that deserves to be called a deep thought.” [italics added]. *Parmenides*, p. 43.

³ Among Greek philosophers, one can never be certain of the extent to which individual philosophers accepted the notion of ‘animate’ matter. The difficulty for a us lies in the important and not altogether plausible distinction between the biological and other meanings of the term ‘alive’. Matter could be regarded as alive in the vague sense of sharing in a minute quantity of the life force and occupying the bottom rung of the hierarchy, viz. alive and immortal (divinities), alive and conscious (animal), alive in a simple metabolic sense (vegetable), alive on the principle of universal metamorphosis. Cf. Collingwood,, p. 31. To all of these, death was the opposite, i.e. the loss of structure of the element which kept them alive (soul).

⁴ Of some interest is the echo elicited by Anaximandros’s lines from a modern philosopher, who had in addition imbibed a massive dose of Upanishad wisdom: “The right yardstick to apply in any consideration of man’s role is that we are dealing with a creature who is alive only by default and spends his time atoning for his existence by carrying the burden of manifold sufferings and ultimate death: what kind of expectations can one place in such a creature? Are we not all sinners upon whom the death sentence has been pronounced? We do penance for having been born by having to live such a life, and then we atone for it with our death.” Schopenhauer, *Parerga* II, ch. 12.

Pythagoras took one consequence and taught palingenesis. It is unlikely that he was prefigured in this by Anaximandros. The abiding impression conveyed by the latter's concept is of the tragic constitution of existence, of the impenetrability of eternal justice, against which inanimate matter has no recourse whatever, while man's sole counter is the concept of *value*. But such a concept is fundamentally inimical to transmigration and its hidden motive spring in the suggestion of compensation.

In this regard, and especially in its emphasis on atonement and the final irrefragable value of existence against non-existence, it is a philosophical counterpane to the attic stage, of which it has been said with a great deal of insight that its tragedies are metaphysics spun into the veil of poetry.

ORIGINS

Anaximandros's idea arose, as noted, from his doubts about determinate stuff being eligible as *arche*. I like to think of this as an eminently 'metaphysical misgiving', whose issue was an intuition that an *arche* cannot be matter at all; that indeterminacy (*apeira*) is surely the condition at the opposite pole from determinacy and that without this contrast, the very condition of being is inexplicable – for as much as genesis presupposes agency, it cannot work on matter already formed. Impossible to know what Anaximandros' thought process might have been: yet he worked within a tradition (Hesiod's cosmogony; sundry Orphic creation myths) which kept before his eyes the notion of a continuum of formed matter throughout the intelligible cosmos, in which *Eros* functioned as the principle of fecundity. But *Eros transforms*: it cannot have escaped him, with his predilections. Hence he must seek the *formless*, the *unbounded*, the *passive*, *inactive*, *neutral*, *atemporal* and *nonspatial* in which determinacy is latent but not explicit – in short, the *apeiron*.

But to describe this concept in any terms other than negatives would seem to be impossible. Even denomination as a featureless waste is almost asking too much; but whatever else we make of it, the *apeiron* is not a *res extensa*; indeed not a *res* in any sense of the word. It is as close as a Greek philosopher ever came to the edge of that abyss beyond cognition where neither *logos* nor *gnome* can reach.

The *apeiron*, then, is an unvarying and sempiternal One from which the evanescent mutable Many precipitate to run their course and perish. Once in the realm of being, Ananke presides; for there is a natural craving among all created forms for their spot in the sun and fear of the extinguishing of their light; so that without eternal justice tipping the scales impartially, the *apeiron* would cease to be an *arche*; and this, we may take it, would have been inconceivable.

The opposition between mere shape and intelligible form espoused by Aristotle⁵ is binding on the whole intellectual atmosphere which governed Greek philosophical thinking. However, the principle of causation in its aristotelian form obviously postdates the efforts of Anaximandros, whose

⁵ *Metaphysics*, ch. 7.

somewhat naive hylozoism assumed a single homogeneous entity capable of self-caused *apokrisis* in analogy with biological generation. The analytical mind of Aristotle later dissected the intellectual problem into its components and arrived at the correct identification of the *apeiron* as a manifold. But the recognition of this as the minimum requirement to support the notion of self-causation was an idea that arose *from* the concept of the *apeiron* and it took several generations for it to become sufficiently acclimatised among thinkers to bear the fruit which is visible in the work of Aristotle.⁶

Under those tenets, the sum of intelligible forms in the universe comprise that harmonic order which is the knowable cosmos, in opposition to chaos as the image of unrealised potential. But intelligibility implies measurability; a thing imbued with intelligible form is seen to possess circumference, weight and all the other attributes that make it accessible to man's reason. As the example of the pythagorean discovery of irrational numbers shows, nothing was more abhorrent to the Greek intellect than appearances which elude the grasp of the logos; and from this we are forcibly pushed to the conclusion that the incompatibility between ancient and modern thinking revolves in principle around what the ancient thinkers and scientists perceived as the essential *meaninglessness* of unformed entities.

Looking back from this vantage point at the *apeiron* of Anaximandros, we must acknowledge that the principal difficulty with it as a concept was precisely this open-endedness, unformedness, unconstrainedness and hence its ontological ambiguity; and yet its illimitability has no point of intellectual contact with 'eternity', 'infinity' or the 'boundlessness' of our modern universe. The Greek vocabulary contained no terms capable of a one-to-one correspondence to the terms by which they are usually translated.⁷ Ascribing negativity to the concept is (certainly within hellenic philosophical schemata) simply an admission that something lacking numerical definition, extent, weight, measure, boundary represents formlessness as a principle and can therefore only be regarded as a diffusion of potential. As such, formlessness is admissible as a debating point, though plainly peripheral to the central canons of a philosophy of intelligible forms.

This latter type of cognition is essential to the Greek spirit and rescues the *apeiron* from complete ostracism. Formed substance means, incontestably, corporeal substance. It means, in the context I have sketched for Anaximandros (and taken up by Anaxagoras), a drive or desire for

⁶ The concept which underlies Anaximandros' rudimentary causality culminates in the theory of Parmenides, which can be understood on one level as the ultimate consequence to be drawn from a full acceptance of the ambiguity of these causal relations. Hence it is from Parmenides onwards that the struggle dates to evolve and legitimise a concept of uncaused motion.

⁷ For example, when the early church father ransacked Greek philosophy for expression suited to the infinity and omnipotence of God, they found none and were reduced to such embarrassed locutions as 'vast expanse' (*spatium inane*) instead.

emancipation which invests spuriously precipitating clusters of substance, differentiating themselves from their formless environment and rising from lethargy into full individuality against the indifference and impassivity of their host. In other words: the *Apeiron* represents in itself an agenda-setting general conception of *change*; it was adopted as such by Herakleitos and Parmenides, each of whom found his own way of dealing with it and thereby fixed that agenda as a dichotomous theoretical framework for all time to come (the history of philosophical and scientific effort devoted to it presents itself to us like the swing of a pendulum, but to date no end or final solution is in sight).

COSMOLOGY

Anaximandros also branched out from older 'wisdom' in the role he assigned to earth in his cosmology. Thales seems still to have taught that the earth is flat (somewhat like a tambourine) and floats on water – presumably the 'real' ocean of which Plato speaks in the *Critias*. His successor considered this an unsatisfactory theory because it opens itself to infinite regress. Consequently Anaximandros replaced it with a spherical earth hanging motionlessly and unsupported in the midst of space and surrounded by the concentric shells (wheel rims) occupied respectively by sun, moon and the stars. His reply to such critical objections as, what is there to prevent the earth from hurtling aimlessly hither and thither, was: What is to prevent the earth from sitting still? Motion requires a charge (impetus or attraction), while 'hurtling' (i.e. falling) implies directionality, but as the earth occupies the exact geometric centre of the heavens, all directions are equal, hence all difference between up and down and sideways becomes inoperative.

This discrimination between hypothesis and conceptualisation reveals the mind of the philosopher. On the lookout for a *law*, he conceived of this astonishing instance of gravitational symmetry that satisfies completely the 'euclidian' model of geometrical cosmology.⁸ But the point to be brought out from Anaximandros's main ideas is that they click naturally into the chain begun by Thales and continue *the opening of cognitive terrain for the questing intellect*. Such speculations, which strike us powerfully as conveying a notably profound insight into nature are, in a sense, forever: they impregnate the philosophic enterprise with their blazing energy and are apt, as in this instance, to bear fruit in millennia still to come.

2. *The Paradox of Change*

⁸ My usage here is not anachronistic, but simply reflective of the two main strands of geometrical cosmology, whose names are applied retrospectively to the whole Greek era. Where number is interpreted as a geometrical unit and generates *figures* such as triangles, circles etc., I refer to the *euclidian method*. Alternatively numbers can be grouped according to the shapes assembled by enumeration e.g. the number four falls naturally into a square pattern: this is the *pythagorean method*.

It was almost to be expected that the issue of the human endeavour to understand the principles brought to light by philosophical thinking would sooner or later enter the picture: how, given the new priorities relative to genesis and cosmos, *logos* and intelligibility, one might go about persuading interlocutors about the superior claims of 'rational' enquiry over the unforced intuitions of anthropomorphic thinking. This is the essential content of the story of this chapter, which is the story of two men united in their distaste for illusion but occupying diametrically opposed vantage posts in their claim for having divulged the truth about phenomena.

For the first time, then, a calling to witness of *thought (gnome) as the agency that mediates true experience*, on the idea that judgement, knowledge and understanding issue in wisdom (*logos*) and on the exaltation of the supreme intellectual principle: that nature is intelligible precisely because the *logos* 'rules' phenomena. To *know* something is to have brought that experience *inside* and to have fashioned the experience according to one's cognitive reach and versatility.

FIRE AND FLUX

At first blush, the proposal by Herakleitos that *fire* should be looked upon as the originating principle seems a mere substitution for the elements suggested by his predecessors. However, there is a difference in kind – a categorial difference – which renders the various assertions of an 'Urstoff' incompatible with Herakleitos' fire. One has to discriminate, in the first instance, between an *element* and a *process*; and it is the latter notion that is upheld in the doctrine of the fundamentality of fire. In a word, for Herakleitos fire is not to be regarded as an element, predominating equivalently to (say) water in the constitution of the world, but as *the agency by which the elements of the world are transformed from one material constitution into another*.

It is altogether probable that this principle represents an adaptation of a still novel idea broadcast by Anaximenes. The latter had proposed air as the *arche* and pointed to condensation and rarefaction as solutions to the enigma of (in current language) 'phase change'. Herakleitos (and probably Anaximandros as well) rejected 'air' on the sound objection that all specific substances are questionable candidates for the role of an ultimate 'stuff' – a theme destined to recur in my Pythagoras section. Meanwhile, however, Herakleitos apprehended the notion of a transformative agency and a seamless continuum between phases.

I should make mention, in passing, that my vocabulary hereabouts is obviously anachronistic. Anaximenes speaks nowhere of condensation, but uses the ordinary words for 'thickening' and 'thinning' (*pycnosis/manosis*); and whether my expressions 'phase change' and 'continuum' meet exactly what Herakleitos had in mind may be doubted, too. Yet in the end, they purport nothing more than to affix labels to ideas to make them intelligible to a present-day reader, and I believe that in these instances the risk of

misrepresentation is far less than with many another well-accepted mistranslation, which results from our tacit admission that we have nothing better.

Having said this, I should also add that even to the ancients he was “Herakleitos the Obscure” (“*skoteinos*”). This may serve to exonerate many a wayward commentary, though it remains baffling what to make of Plato’s account. For he articulates the view that the ‘*panta rhei*’ applies unilaterally (rocks and all), but the setting represents to my mind a clear case of pasquinade, his sardonic sense of humour getting the better of him. But since confrontation with Plato is not the aim here, I may have to let this assertion stand naked, as just my opinion.

To return: there is indeed considerable doubt whether Herakleitos, whenever he speaks of fire, means actual fire. For although there are passages where the word ‘fire’ has an indubitable referent, yet in the majority of instances it seems clearly preferable to embrace the concept as a *metaphor* for transformation.

To the question of what is being transformed, Herakleitos does not furnish an explicit answer. But his numerous examples leave us in no doubt that he has the world of *appearance* in mind: that the object of his philosophy is that reality which presents itself to us in an ever-changing garb, whose multiplicity of forms and changeability of aspect sees us striving, through our language, to capture something of its immanence by, for example, calling a flow of water a ‘river’ or to refer to the sky as ‘blue’ or to enlist the notion of ‘solidity’ in respect of impenetrable objects. In a word: the *phenomenon*.

However, the crucial sentence from a metaphysical perspective, the idea latched onto by Parmenides, is this:

“It is wise to admit that all things are one”.

Thus the *concept of change* entered the philosophical vocabulary: the idea that ‘everything there is constantly changes’; but even so a stable core to its being is presupposed to abet our recognition of what remains invariant in this flux. Whatever a thing *is*, some quality, some attribute or property must remain immutable amid the swirl of changes. A man ages, but his features remain similar to themselves; water may pass through solid, liquid and vaporous phase without shedding its intrinsic nature; a tree, full of flower in spring, will wear bronzed leaves in autumn and stand withered and naked, reduced to its trunk and branches in winter, yet in this and all phenomena, *form* remains the “One” that all things are.

The *logos* to which he appeals – “Listen not to me but to the true account” – is *reason*, the faculty which unveils the mystery of phenomenal change and brings to light an underlying one-ness. I understand this one-ness in light of an underlying *structure*, the term interpreted here as a metaphysical concept: the structure is the *logos*; hence *logos* is self-identical through all transformations. Moreover it serves as the means by which reason orients itself, which is thus enabled to ‘preserve’ the identity-in-structure amid the continuum of temporal flux.

So as we range over the whole gamut of phenomena, mutability greets us wherever we look. In particular, change produces in innumerable instances its opposite: from hot to cold, from solid to vaporous, from light to dark, from life to death. But change needs an agent of change, some force to wreak the dissolution, some force to congeal scattered embers into a new pattern. This force in Herakleitos is cognate with 'fire'.

But opposites imply, again, an ulterior self-identity. Hence his insistence that,

"The path leading up is the same as the path leading down".

It invites the paradoxical formulation that the structure itself is the 'fire'; that no contradiction is involved in taking the logos as both the structure of mutability and of self-identity. For change is a ladder of being, in which the top and the bottom rung delimit the possibilities for change, but all steps show up as the waxing and waning of properties in accord with Anaximenes' principle.

With this we touch on the crux of the matter, on the essence of his inquiry and the source of his historical greatness: *change is paradoxical*, an invitation to air the questions "how?" and "why?". In a word, one of the central metaphysical themes is sounded here and fixed for all time in an imagery of eternal flux and the fiery crucible of transformations. Given a sufficiently wide latitude of interpretation, this imagery projects an idea onto the horizon of philosophy whose lambency has not dimmed in the intervening centuries. It is (in this sense) an ideal case of a cognition breaking through from the immeasurable depths of reality.

This is the firebrand thrust into the metaphysical cauldron by Herakleitos. His main theses may be summarised as:

- (1) The world does not consist of *things*; rather all things are stages of *processes of transformation*.
- (2) Phenomena comprise the objects and occurrences of change.
- (3) The agent of change is fire.
- (4) All these processes are interlocked and continuous.
- (5) Change transforms objects and states along an axis whose poles represents opposites; these opposites are compresent.
- (6) Through all transformations, structure (logos, self-identity-in-multiplicity) is maintained (preserved).
- (7) Therefore it is legitimate to say of any object or occurrence, "in changing, it remains the same".

These theses – further paradox – could be translated without ado into 20th century physics vocabulary and have their credentials affirmed. This is not necessarily proof of the compatibility of Herakleitos and modern physics, for the man was a philosopher and physics is a science. But it indicates that something fundamental has been broached and that in essence this remains a fundamental *philosophical* issue; for in spite of its propinquity to the scientific viewpoint, it does not inherently call for methodological elucidation. A cosmology, yes: but not a research programme. And cosmology is the daughter of *metaphysics*.

3. *The Paradox of Immutability*

An issue of bafflement to scholars since the days of the doxographers has been why Parmenides clothed his own philosophy in the mantle of a didactic poem. Many interesting reasons have been adduced; even so, the prevailing opinion is that from a literary point of view it was an error of judgement. Nevertheless, there is a great likelihood that if it can be shown that Parmenides felt himself *compelled* to adopt this mode of presentation, a number of other perplexing issues will fall readily into place.

Whatever the provocation, it has always been conceded that the book of Herakleitos provided either a stimulus or an instigation. It is accepted that Parmenides preached an unrelenting monism; it was his "Way of the Truth" (*to on aletheia*). But in spite of his 'enmity' to the ephesian doctrine, a suggestion of monism can be read into Herakleitos, viz. "all things are one". Parmenides was to adopt this principle, while scuttling the accompanying phenomenal variety, the notion of processual change. In his philosophy all things are, truly, one – which is to say, *there is but one substance, and it is immutable*.

This must be taken literally. Parmenides preached the doctrine that change is an illusion. The multiplicity of appearances is nothing but the report by our sensorium of the play of light, a purely superficial affair. Underneath this glittering and gladsome apparel, reality remains unchanged. "What is, *is*", he says, appealing to logic. It cannot have come into existence, for no thing could conceivably have been created from nothing. Therefore all there is has always been; and conversely, what *is* cannot be undone.

On the same unimpeachably logical premise, 'all there is' necessarily refers to just one substance, for again 'what is' manifestly does not refer to some partial thing, some chip of the all-in-one block. That would entail the notion of composite substance. Ineluctably, the statements "It is" and "It is not" are mutually exclusive; logically something that *is not*, cannot be. Moreover it cannot come into existence from the one substance, for then the latter would no longer be *one*.

The question of how Parmenides came by this extraordinary doctrine is no mere literary trifle. His poem is, after all, a double-panel, in which "The Way of Truth" is coupled to "The Way of Opinion", the latter part presenting a more 'orthodox' cosmological perspective, reputedly via inclusion of some of his own astronomical discoveries. The truthful 'way', however, he claims to have received from a goddess, i.e. one of the immortals. This has been a millennial debating point, for lacking a solution to this mystery, we can neither explain his strange decision to write in verse nor why, after giving us the 'true' picture, he nevertheless carried through his depiction of the 'obsolete' model. And surely in such a revelatory context, it is not conceivable that his vanity for achievement should get the better of him!?

I believe scholars had the solution under their veritable noses for the 2000-odd years they've been writing about it. Let me present the case; it is very simple.

Parmenides tells us he underwent a *vision*, in the course of which an (unnamed) goddess explained the principles of reality to him, viz. the contents of the section entitled "Way of the Truth". Now there is no bargaining with the compulsion (irrespective of his literary talent) for Parmenides to adopt an idiom commensurate with a divine visitation, e.g. the hallowed metres of Homer and Hesiod. Anything less would have been an insult to the deity.

But when we come to examine the doctrine that resulted from this vision, we should focus once again on *who it is* that communicated the truth in question. A goddess: in other words, an *immortal* being, inhabitant of the *changeless reality* of the divine realm. But the human realm is a part of this divine cosmos; it is all *One realm*; though only the deities are able to *undeceive* themselves about appearances and to be cognisant of the "naked truth" (*aletheia*) behind the gaudy apparel worn by phenomena. In giving us both versions, Parmenides' mission was, as I think this focus reveals, to depict truth and opinion as twin expressions of *one* reality: the truth that all reality *is*, once and for all, and that in consequence of this fixity it is illogical to persist with verbal clauses such as "is not", which cannot have a meaning. What he calls opinion, and we might replace with the term "conjecture", represents the *seeming to be* which punctuates the pessimist Sophokles' tragedies: the effort of fallible mortals to sustain their illusions within a small window of Being where everything appears to be aflutter because our view does not extend beyond that frame. Thus the point of his account is that through the vision granted to him, he had been apprized of the truth that *in the view of the Gods, this reality is changeless*. And this truth needed to be conveyed to his human fellows.

A point not to be missed is that Parmenides was hereby marking out an enormous claim for a science so young as philosophy. A claim, no less, than to have been granted possession of the Truth by grace of a divine being. In this, he set an example (with or without theological apparatus) for many another ardent metaphysician.

To pursue Parmenides' doctrine in fine detail is unnecessary, for the evidence from his own writing is inconclusive owing to several important obscurities which scholars have not managed to resolve, so that it must be reconstructed from his text conjointly with the remains of his pupil Melissos and indirect testimony. What has been said above is already the gist of it and little more needs to be done than to elaborate its metaphysical complexion:

- (1) The senses are not to be trusted: reason is the sole arbiter of knowledge. "Do not give free play to your roaming gaze, the clangour of sound in your ears or the taste on your tongue: but *judge by reason* the proofs I give," the goddess exhorts him.

- (2) Light is of the senses: *phainos* = shining; hence *phainomenon* = object of perception. "To appearances men have given discriminating names," reads the last preserved fragment of his poem. A little earlier: "For just as [light and dark] are variously mixed in the erring sense organs, so thought is guided by whichever is the stronger."⁹
- (3) It is not evident from Parmenides' poem that he actually *denies* the reality of the phenomenal world, though he does condemn it as illusory. He might be thought of joining the poets in asserting that life *is* an illusion of a sort; but then this illusory state must necessarily be part of the whole of reality. What the goddess described is in fact the *ultimate reality*: strictly regarded, 'real' reality as distinct from phenomenal reality.¹⁰
- (4) The differences in the *concept of substance* between Herakleitos and Parmenides may be seen in the opinion they hold of its perdurance. The former, as we have seen, disallows the concept of substance altogether; but Parmenides will have none of this. His 'real' reality is *one substance*, absolutely uncreated, immutable and indestructible.

This last component of his philosophy has occasioned the greatest perplexity, since then it remains inexplicable how the two realms, the phenomenal and noumenal, might interlock – and Parmenides leaves us in no doubt that immutability is his main contention. If one takes this as meaning that all life is literally illusory, a mere play of light and shadow in the human mind, then one attributes to him a solipsism worse than Berkeley's. I don't think this is the case. In the reading I have given, this problem is attenuated. Immutability refers to the *ultimate reality*; accordingly the subsequent interpretations by Anaxagoras, Empedokles and Demokritos gain in plausibility and shed the stigma (often attributed to them) of a backhanded apostasy against a rigorous principle.

4. *Harmonia*

The written word exerts its own seductions. Oral doctrines, on the other hand, are easily distorted and caricatured beyond all possibility of recognition. Such a comment is pertinent in respect of Pythagoras, for one could put forward the claim that the archetypal metaphysical doctrine of the Greeks is none other than his, while admitting how negligibly it might have figured in history except for its consummation in Plato's writings.

A good starting point might be to inspect its central tenets:

- (a) the cosmos is an orderly, rational and harmonious unity,

⁹ Burnet (*Early Greek Philosophy*, London 1920, p. 178) appends the following note: "It appears from this that he thought the character of men's thought depended upon the preponderance of the light and dark element in their bodies. They are wise when the light element predominates, and foolish when the dark gets the upper hand." As my text indicates, I hold Parmenides' meaning to be the exact opposite.

¹⁰ Admittedly this is a somewhat unorthodox conclusion. But the state of the fragments permits it and I find nothing in the doxography that would expressly outlaw the view advanced here. I feel that one can do justice to Parmenides without attributing views to him which border on the totally untenable.

- (b) nature is one throughout all creation,
- (c) the human soul shares with the divine spirits in a fragment of the vital sources of life, and
- (d) like is assimilable by like.

We cannot, of course, get around the fact that these doctrines were framed on behalf of a quasi-religious fraternity and that its elaborations had to serve members of varying intellectual standard as guides to a life devoted to an aim related to Point (c) above. I may be excused in this context for raising a pure conjecture – a take it or leave it proposition.

I believe that in the early days of the Presocratics, the term ‘logographoi’, if used by a member of the general, conventionally pious public, would hardly have been looked upon as a compliment. On the contrary, a mild sting of blasphemy is likely to have been associated with it; after all, these were the people who presumed to “explain [the world] by the use of reason”, rather than stick to the truths of the gods and their myths. Now the ripples created by the *logographoi* in their society were hardly more substantial than that of any minor irritation; those were liberal days and men (on the whole) free to carve their own path to happiness. Accordingly I imagine that Pythagoras, at some time or another after the founding of his brotherhood and achievement of a high public profile, might have been accosted on the agora by an interlocutor, perhaps one desirous of scoring a point, with the half-question, half-accusation: “Say, Pythagoras, you don’t happen to be one of these . . . (taking a short breath to focus on just the right vocal expression) *logographoi*, would you?” To which I imagine the latter – not forgetting that he was also a superior politician – responding with a smile of fine irony, looking the fellow straight in the eye and giving back the imputation in words which soon after and ever since became a mark of distinction for a certain kind of people pursuing a certain type of endeavour: “*I am a friend to wisdom*”.

RATIOS & THE ISONOMIC UNIVERSE

There is a certain enigma clinging to the person of Pythagoras which, it seems to me, lacks all reasonable explanation. It is a matter, if you like, of fame vaulting far beyond accomplishment. One gaze at, for example, Nestle or Burnet’s account, leaves one bewildered at how little either the man or his clan actually achieved. When you cut your way through the mystical shrubbery and examine the claims on posterity of his teachings, little seems to be left that must not be credited to others, notably Plato, but also such minor figures as Philolaos, Herakleides, Aristarchos and so on. One is left with what can perhaps best be described as a frame of mind, an attitude; but this vanished by at most the third generation and became transmogrified in the later Pythagorean schools into mystery mongering which their eponymous founder would bluntly have repudiated.

Once more I ask to be allowed to infuse some (*perhaps* imaginary) argument into my discussion. My belief is that the philosophy of Pythagoras, together with its (admittedly rudimentary) exemplifications,

sank deep roots into the human psyche, that his *promethean discoveries* – scarcely of much real value to the cultural and technical milieu in which he lived – became a kind of beacon into the possibilities of mind and spirit: a kind of intuited rather than known, and deep rather than cutaneous, feature of human thinking: in a word, a *quintessentially metaphysical propensity* was brought to the fore by his teachings, in which the religious element comprised the kernel and the profane element the envelope; and although the construction was eventually shattered by crude political realities, the beacon itself stayed fixed on the horizon . . . still is.

This fantasia concluded, I need to explain myself in more concrete terms. Let me begin, therefore, with a reprise of the basic thought I have attributed to Anaximandros: any notion of primary matter is vulnerable to defeat if the slightest chink in detail proves that theory invalid. Pythagoras, whatever his view on the *apeiron* might have been, was clearly influenced by it (as were all the Presocratics); but in his mind it became translated into another, analogous concept: that *qualitative differences in matter can be mapped to the mind's 'sight' as abstractions of its structure*. Whatever the form or activity of matter, it could be expressed as a *mathematical ratio*.¹¹

This is tantamount to the discovery of an aspect of nature of which in truth it may be said, it is both an aspect of reality and an aspect of the mind. What is a ratio? In one sense, a pure mind construct that is neither a (platonian) idea nor a (kantian) noumenon, but a response of the human creative intellect to features of nature which she herself does not divulge phenomenally. These features may also be called 'laws' of nature; but yet again, what are these laws if not constructs of mind? – Schopenhauer would centuries later identify a mezzanine layer between phenomenon and noumenon as the habitat of such abstractions (of which it is the same to say, "they exist somewhere" as "they exist nowhere").

The faces worn by reality cannot be known to us *in concreto* – reality is an 'object' of unknown shape and extent and largely opaque to our native sensibilities. And from our present-day, much more subtly inflected viewpoint, *matter* is a concept fraught with insuperable epistemological complications: it is one or it is many; it is finite and divisible or infinite and immutable; it is a lump or a flow or a vapour; it percolates or sediments; etcetera. Matter, then, to put it mildly, is an ambiguous term, for even though the senses detect matter and substance readily enough, at least one issue of inestimable value comes to light when we prod these perceptions for their repeatability. It is highly dubious that we can learn much to help us extract from sensory perceptions those necessary qualities and properties which define a thing or event as *what it is*.

Consequently the method devised by Pythagoras figures as a milestone in the mind's evolution, none the less effective for having taken above a millennium to be recognised explicitly for what it signifies. Transcribing cause and effect into geometrical relationships is a principle which even today's hardened philosophical cynic must hold in reverential awe: for

¹¹ Cf. Collingwood, p.49ff.

although it deals with an aspect (as aforesaid) which does not inhere in nature, it yields true answers to the question we put to her. And even more astonishingly, it does not, like the tales of myths and religion, bear on reality by way of analogy or symbol. It is the naked child of a naked thought. *It is the recognition that certain types of thought patterns are able in their own dimension to reproduce the effective interactions discernible in the phenomenal world and encode these relations in such a way that the forces or energies – in short the invisible concomitants of action – acquire visibility in this thought dimension and thereby render themselves intelligible.* But intelligibility entails *form-ulation*, and thus by *trans-form-ing* the thought patterns into icons of the mind, these forms may be expressed as though they were themselves phenomenal (e.g. as descriptive diagrams or algorithms). They thereby constitute themselves as isonomic entities, to whose ontic existence it is perfectly indifferent from which material source they ultimately stem.

To quote a very banal example: the ratios 1:2, 2:3, 3:5, 5:8 etc. can be drawn on a sheet of paper in the form of geometrical shapes (e.g. as closed figures or as a spiral), without giving away the secret that they are mental icons representative of dynamic action in the phenomenal world. But if you *apply* this knowledge by, say, partitioning resonant strings on a viol or matching the size of bells to these ratios, then you will find that you have contrived a musical instrument tuned in a harmony that your senses acknowledge to be 'making sense'. The ratios in which these phenomenal dynamics are encoded are completely independent of the specific matter on which the occasions are enacted, while the decisive point is this: that having been extracted from one set of occasions, it transpired that many (indeed innumerable) other kinds of occasions were subsequently found to answer to the same ratios in their effective phenomenal propagation. In sum: *There are laws of nature to which all matter, motion, forces and events are answerable, and these laws are intelligible to a human intellect.* We cannot have unmediated cognisance of matter, but it is apprehensible to a cognition which has learnt how to transcribe its meaning into the pythagorean code.

From these researches the concept of the 'harmony of the spheres' was born. And this brings me to a further consideration in relation to 'aspects'. Harmony is a human concept. We may rest assured that not one of those blazing denizen of the universe has a sense of being impelled by ineluctable laws to follow a particular path through time and space, least of all such a one as the pythagorean doctrine recommends. Irrespective of which they do it anyway. Equally when medieval masons applied pythagorean ratios to the building plans of their massive cathedrals, they did so in complete confidence that the resulting structure would hold together – that the weights and tensions in the masonry would obey the laws implicit in the pythagorean code. And they did. In other words, the question simply does not arise that the pythagorean metaphysic is not grounded in reality, that matter knows nothing of such laws.

Our principal source for the harmony of the spheres is the richly embroidered version retailed in Plato's *Timaios*, but a point of distinction

ought to be noted: that Pythagoras was apparently of the opinion that this harmony is heard constantly, though because it is ubiquitous we do not *discern* it. Hence a significant part of training was to induct students into his method for its discrimination, so that even if not audibly they might share in it intellectually. A remarkable point of view!

It is perhaps the clearest (perhaps the only) statement of the essential connectedness of cognition and metaphysical truth in ancient philosophy. If that was indeed his meaning, then Pythagoras is here postulating the possibility of the distinction between perceptive phenomenality and cognitive apprehension *disappearing* in the ascent to that ultimate dimension of reality; it becomes a meaningless differentiation.

NUMBER

In his cosmology, Pythagoras adopted the notion promoted by Anaximandros of earth as a spherical body. We may assume that two motives played a role in this: firstly, observations of lunar eclipses with their unmistakably circular earth shadow on the moon, and secondly aesthetic considerations. Philolaos, a second-generation member of the school and apparently the first to publish under his own name, proposed that the earth itself is one of the planets and that in the same way as the moon always turns the same face to earth, the earth does the same vis-à-vis a fire at the centre of the universe. This central fire was called the 'watchtower of Zeus'. Philolaos also added a dark body or 'counter-earth' (*antichthon*) to the complement of planets to complete the tensome – Aristotle would sneer at this superstition (the number 10 was sacred to the School), and I think he was right, in spite of the probability that Philolaos might have had another good reason, namely the refraction of the earth's shadow during eclipses when both sun and moon are above the horizon. Being in conversant with refraction, Philolaos could have argued that the shadow was that of the counter-earth.

However, although on the face of it this theory seems to have all the trimmings of a major imaginative leap, it derives its justification from a concept of numbers as *substantial* entities, the very infatuation which incurred Aristotle's censure. This is how Philolaos rationalised his approach:

It is in the nature of numbers to offer themselves as our guides, teachers and interpreters of all matters that would otherwise remain incognisable and impenetrable. For to none of us perception of things would be possible, nor their relations to one another, without number and its essential power. But number, by accommodating itself to the faculty of perception . . . gives body to things.¹²

"Gives body to things": Let us take this in combination with some other fragments as an affirmation that "all things were harmonised from limiting

¹² From Nestle, *op. cit.*, Diels Fr. 11.

and unlimited things". In a way this takes a stand on the *apeiron* of Anaximandros, whose operation it seeks to illuminate. Beginning with a mass of undefined matter, one needs to ask not merely, "what sets it in motion?" as Anaxagoras did, but also "how are the forms of the resulting phenomenal entities defined?" According to Philolaos, then, a limiting principle imposes on undifferentiated matter. That this principle is number cannot be doubted, for the context of the fragment is a book on numbers.

The idea of *numbers as the delimitation of substance* is certainly deserving of a comment. Alexander of Aphrodisias reports:

They hold it wrong to define [circle and triangle] in terms of lines, saying "A circle is a surface bounded by a single line" [or] "A line is a continuous length extended in one dimension . . . For this reason, viz. that the line and the continuous are as matter to the triangle etc., they reduce all these to numbers, which are not material nor have any substratum analogous to matter, but exist independently. Thus they say that the formula of the line is that of the number 2, for seeing that 2 is the first product of division . . . we must say, not that it is a quantity divided in one dimension, but that it is the first product of division; for 'the first' is not, so to speak, a material substratum for the line, as continuity is.¹³

Translated into modern language this states that matter has extension, but its form is expressible only by number. Aristotle concurs with the first but disputes the second, writing that "numbers are not substances nor the cause of form", but with this statement he actually missed the real point which (it seems) his rationality was unable to accommodate. For one suspects that the Pythagoreans had scarcely arrived yet at the distinction between formal and material cause that was to be the cornerstone of aristotelian physics. They began with something much simpler, namely the elementary percepts: point (1), line (2), surface (3) and volume (4). Adding these together they arrived at 10 (decad) which they held in especial veneration on account of its 'perfection'. But what is so special about it that they would enthuse about these numbers?

Looking at them again in a *generative* context, you will note that the sequence 1,2,3,4 identifies the four dimensions.¹⁴ Begin with a *point* and extend (stretch) it to form a *line*. Now take the line and, leaving it hinged on its point of origin, rotate it so as to sweep an *area*. Rotate the area on the same hinge to form a *solid*. From this graphic illustration the decad's 'perfection' appears: that in it are encompassed the four dimensions; and from this Philolaos argued that unity and decad delimit all reality. As Guthrie writes: "For the Pythagoreans the essential difference between different kinds of body lay in the *harmonia* or *logos* in which the elements

¹³ Quoted in Guthrie, I 257.

¹⁴ In modern nomenclature, we start with 0, so that from a present-day perspective the pythagorean sequence only adds up to 6!

were blended. The elements themselves were put together from mathematically defined figures, and so 'the whole universe is a *harmonia* and a number'. This is how the limit is composed which makes it a cosmos."¹⁵

Yet from a cognitive point of view, there is an *ontology* alive in this construct which constitutes a corruption of the purity of thought on which the original conceptions rested. This is not unusual – ideas cannot grow beyond the height to which the cognitions can reach which are their seeding bed, and thinkers who persist in attempts to squeeze more substance out of them than they bear will find themselves having to augment with fantasy what reality cannot give. In a word, one can put aside Aristotle's strictures and yet refuse to give credit; for in putting forward the claim that "*x is y*" in relation to numbers, Philolaos was putting his hand into an ontological wasp's nest where it was perhaps inevitable that confusion between *metaphysical truth* and *physical factuality* would exact its toll. The difference between "numbers are" (ontic), "numbers do" (epistemic) and "numbers as icons" (metaphysical) cannot be bridged his way, for numbers do not *enable*, but *reveal* what already is or the conditions under which a thing might be; and so it seems to me that Pythagoras, who attached no causal efficacy to numbers, knew something that Philolaos had already forgotten.

APPENDIX

After simmering for centuries on very low gas (owing in the main to the indistinguishableness, by now, of the movement's aims from astrology, alchemy and magic), the history of Pythagoreanism concluded in a blaze of glory – in 1596! In that year Kepler published his *Mysterium Cosmographicum*, whose main significance lies in its (very belated) proof that *the planets combine in their orbits both the pythagorean harmony of the spheres and the mathematics proper to the five regular polyhedra*. The discovery turned firstly on the fact that the five polyhedra, being symmetrical, can be inscribed in a sphere so that its vertices touch the circumference; but on the same principle, a sphere can be inscribed in the solids so that its surface touches every face at its geometrical midpoint. Secondly, Kepler discovered that the ratios of the planets' actual orbits mirror the ratios of the polyhedra in certain succession, viz. the inner and outer spheres of the cube represent the orbits of Saturn and Jupiter, while Jupiter's orbit in turn functions as the outer sphere of a tetrahedron inside which the Mars orbit was inscribed. And so on.¹⁶ Surely a stunning revelation, and indeed Kepler's book is worth reading at least for the magnificent enthusiasm with which he narrates the discovery. Sadly, modern astronomy has done away with this divine music – not that there is anything wrong with Kepler's scheme, it is as true today as it was 400 years ago. But the additional planets Uranus,

¹⁵ Guthrie, I 275.

¹⁶ Kepler wrote the book subsequent to his adoption of the copernican scheme and on the basis of his fairly accurate knowledge of the physical shape of the solar system out to Saturn.

Neptune and Pluto upset this neat device; and today's astronomer, if he thinks of Kepler's grand scheme at all, will look on it as a spurious coincidence. Leaving it to us to determine which of these views may at least have *wisdom* on its side . . .

5. *Kinesis & Substance*

Immutability of substance and preservation of identity through transmutations belong among the great metaphysical staples which thread their channels through the entire philosophy of the West. The emphasis in both science and philosophy has swung pendulum-like from one to the other throughout the ages. For every defender of the heraclitean view of transformation, there is a corresponding parmenidian adversary maintaining the effective insolubility of the *paradox of change*. Thus the irruption of Parmenides' doctrine into Ionian philosophy had the effect of a wet blanket; for to the degree that parmenidian monism could scarcely be ignored, a new and unwelcome desideratum presented itself. The central issue of parmenidian dogma, especially as expounded by his followers Melissos, Zenon and Gorgias, was as simple as could be and the more intractable for that: *change can be successfully disproved in logic*. For the logical corollary of the statement "All that exists is One" is the absence of a void; therefore movement is impossible (*akineton*).¹⁷ From this arose the imperative to account against Parmenides for the reality of a world which includes the phenomenal, and this required that logical foundations be laid for a *principle of motion* that allowed itself to be dovetailed with parmenidian doctrine.

A significant stage in defusing Parmenides' maladversion against the senses and their offence against the logic of immutability was a shift of attention to the mind itself (*nous*). Notwithstanding the indifference of the milesian school and its successors to the concept of divinity, their attitude must not be mistaken for blasphemy: and it would not have been incompatible with their philosophy to reserve a realm of being for the gods while denying them immediate intervention in the affairs of the phenomenal world.¹⁸ Therefore the spirit, widely believed to be a splinter of the Titanidae soul inherited by humans, could be theoretically admitted into rational discourse as a kind of agency. Moreover, as Anaxagoras (who adopted this principle in his cosmology) demonstrated, such a concept

¹⁷ It needs no emphasising that monism lends itself to distortion, exaggeration (Gorgias) and lampooning; according to Plato's account, the *logoi* devised by Zenon were products of the latter's incense against the satirisation of his master. Let me add that Zenon, after being depicted for centuries as an eristic disputant, has recently been 'rehabilitated' (by Bertrand Russell) as an "immeasurably subtle and profound" thinker. But those who agree with that estimate cannot point to an antique tradition to support it, nor has it proved feasible to mint any metaphysical, epistemological or other philosophical coin from his paradoxes. One could plausibly argue that Russell was just impressed by the dazzle of Zenon's logical artifices and thus forgot that they are parasitic on an existing doctrine. No original philosophy is known to have been advanced by Zenon.

¹⁸ Clearly articulated in the writings of Epikouros and Lucretius.

implies a fine grain in the spirit's constitution that evades the parmenidian strictures: spirit cannot be of a piece with the One; it is a substance unique to itself. Of such a substance, however, it may axiomatically be claimed that it is capable of self-agency; in particular that its capacity to generate *multiplicity from invariance* confirms the in-principle possibility of locomotion.

INVARIANT MULTIPLICITY

It is altogether likely that Parmenides would have castigated the theories of Anaxagoras as 'category errors' and from the portrait that steps out of Plato's pages, we can picture him shrugging them off with a lordly show of indifferent pity. Philosophical problems, however, have a habit of persisting beyond such casual shrugs; and we are therefore obliged to render unto Anaxagoras the credit for proposing them. The objections are:

- (1) Thinking itself is an activity, namely an *activity* of the mind. But the notion of activity forcibly implies movement; and it is quite obvious that in thinking, our mind moves from thought to thought, from image to image and so on. To speak of this as an 'immobile activity' is to sanction an oxymoron.
- (2) If sensory perceptions deliver sham, there is the problem that the faculty being deceived – the cognitive faculty – is the very one which is our anchor in logic: and this lands us in what might be called a 'cognitive oxymoron'. Moreover, the logical mind revolts at the idea that the only reality of being to which its faculties have access can be an avenue of unilateral deceit – who or what is being deceived?

These are serious objections and evidently at the root of the resurgence of Ionian endeavour to reinstate plurality.

Anaxagoras attempted to account for change from *within*, that is to reconcile the disparity between seeming and being. That this did not succeed without conveying an impression that for all his fidelity he was covertly seeking to edge out of the system will be plain to anyone who has swallowed Parmenides whole – as apparently Anaxagoras did.

Now if changes and the movements we perceive and which inexorably control our existence cannot logically be derived from the one Being, then they must be interpreted as potentiations of differentiated *forms*. It is like a game of dice: at every throw, different faces turn up, yet the dice are always the same. Put another way, *the structure remains unchangeable, but the forms in which it manifests itself vary with each instance of its appearance*. In a sense, this is an extension of the thought behind Zeno's riddles, though turned against him. Achilles and the turtle, or the ships in countermovement with each other, exhibit change in relation to their positions from instant to instant as well as relatively to each other; what remained inexplicable was the paradox this provoked.

Anaxagoras agrees that multiplicity cannot arise from invariance; but since he expressly withheld his consent from the notion of delusion, a

resolution of this conflict must necessarily resort to a logical paradox: multiplicity of emanations arising out of an immensity of substances which are subject to an immensity of throws of the dice. It must lead almost ineluctably to the concept of a prime mover. In Anaxagoras' scheme, this is the role reserved to the *nous*.

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For him, the *nous* was an entity whose movement ought to be explicable without resorting to mechanical force. For in disconnecting the movement of thought from the seat of its being and setting it apart as a *noumenon*, he arrived at the concept of a contemplative principle as such and interpreted it as a sort of primordial *agent provocateur* which causes the initial 'shaking up' of the eternal substance from within itself; it is an entelechy absolving the paradox of motion within its own immobility. A strange admixture of epistemological, ontological and metaphysical pursuits is detectable in this conceptuality: for on one hand a whiff of extreme reductionism and immediate forerunnership to the corpuscular theory of Leukippos and Demokritos is in evidence, on the other the mere postulating of such an entity as 'spirit' must have struck independent thinkers as an incompatibility within that theory – we recall that Sokrates repudiated it for its ateleological appearance. The idea, at any rate, was of an original chaos populated with infinitesimally minute 'seeds of matter' (*spermata*); and consistency with parmenidian doctrine is maintained by supposing these seeds to comprise "all there is". – If you bake a cake, all the ingredients must be well stirred, so when you bite into it, you get a taste of "all there is" in that mouthful. But if some portion of the cake got too hot or the dish was tilted, the raisins might all gather in one corner. Now this almost criminally rough comparison is meant to indicate just what Anaxagoras had in mind: namely, that in putting a gold ring on your finger, you are carrying "all there is", for all the elements of reality are mixed in with the metal, but – because gold is dominantly present and the other elements merely as traces, we name the metal 'gold'. In an ultimate sense, however, the ring and indeed every substance whatever, is some mixture of "all there is". That way the metaphysics of Parmenides were preserved, while motion was (if not legitimised) at least explained.

This conception of a primeval chaos – a kind of 'cosmic dust', later known as the *homoiomeria* of Aristotle – is the core of Anaxagoras' cosmological physics. Aristotle scarcely distinguished between this and the *apeiron* of Anaximandros, but there is a difference, and a crucial one: from the chaos of Anaxagoras all individuality, all movement and germination can be derived without contradicting Parmenides. His mass remains one; generation and decay remain internal as instances of local concentration and dissipation.

But he was, of course, compelled to allow one exception; and it is precisely this which carries the full burden of contentiousness. For he exempted the *nous* from membership of the 'cosmic dust'. A consequence

of this approach is that the spirit is the single item in this materialistic zoo which remains pure – “if anything were mixed in it would have prevented the Spirit from controlling anything” due to contamination (from heavier elements). The Spirit plays its role as an *eminence grise*: the thing that moves cannot be part of the thing being moved.

How does a chaos become transformed into a cosmos?

Spirit controlled the whole rotation, so that it started to rotate in the beginning. It first began to rotate in a small part, but now it rotates over a larger field and will include a larger one still. And all things that were to be, all that were but are not now, all that are now or shall be, Spirit arranged them all, including this rotation in which now move the stars, sun and moon, air and fire that are being separated off. Dense is separated from rare, hot from cold, bright from dark, dry from wet. But there are many portions of many things, and no one thing is completely separated or divided from another except Spirit.” [Fr. 12].

In spite of its impressiveness, however, this imagery cannot dissolve the intrinsic dilemma of mechanical transfer of causation from one link to the next, for the last member of that chain has no greater claim to exemption from being a recipient of causal impetus than any other. This presumably, was Sokrates’ complaint; for be the *nous* ever so fine-grained and subtle, its action does not explain what he desired to know, namely its *causa finalis*. But Nietzsche demurs; he was never especially fond of Sokrates and rises to the defence with lofty eloquence:

The whole conception is of miraculous daring and artlessness As a conception it derives its pride and grandeur precisely from the deduction of cosmic genesis from these spinning circles Once the *nous* has communicated its impulse, all the orderly, lawful consequences ensue, with beauty as its necessary concomitant. What an injustice to Anaxagoras to lay blame on him for his sagacity in eschewing a teleological conception and to put down his *nous* as a *deus ex machina*. Rather he might pridefully have used words like those written down by Kant in his Natural History of the Heavens to justify the removal of all mythological and theistic apparatus as well as anthropic purposes and utilities. After all, how sublime a thought to trace back all the splendours of the cosmos and the astonishing phenomenon of stellar revolutions to an utterly simple, purely mechanical push, even to a mere mathematical figure . . . to a mere flutter, which is yet destined of necessity to generate effects which resemble the most sharp-witted

calculations of the intellect and the most circumspect planning, without being any of this! [Nietzsche §17; my translation].¹⁹

Nietzsche concludes this fine piece of homage with an observation that strikes me as bringing out the essence of metaphysical contemplation. Anaxagoras, he writes, was perfectly content with his explanations and refused in principle to be drawn into teleological arguments, because it would have seemed folly to him to thus *delimit the perfect autarchy and eternal self-sufficiency of the nous*. “Anaxagoras appreciated well this attribute of the nous, to have complete arbitrariness at its command, undetermined and uninfluenced by any cause or purpose whatever.” In a word, ultimate freedom, ultimately unconcerned creativity, echoing perhaps the epigram “Time is a child at play, moving pieces on a board: a child is king,” with which surely Anaxagoras was well acquainted.

ANTIPERISTASIS

The dogmatic wing of eleatic philosophy eventually found its match in Empedokles, who confronted Parmenides head-on, down to unmistakable verbal echoes from the poem, viz.:

Hear thou the undeceiving order of my discourse.

And while he agrees that the senses are prone to treachery, the spirit is not exempt:

Thou shalt learn no more than the farthest reach of mortal wit.

Empedokles wasted no time in grappling with the idea of a spatial void. His reference to the clepsydra may be accepted as a token proof that ‘void’ is a spatial concept, enabling *antiperistasis* or counter-movement. To understand this, we have to appreciate that ‘void’ in old Greek meaning did not equate with vacuum – the presence of air in a void did not militate against the notion of emptiness. An alternative illustration occasionally used, makes this point more apparent. Expelling air from a wine skin collapses the bag: no void remains, because nature ‘makes room’ elsewhere to accommodate the diminution in spatiality. Remember also the principle of condensation and rarefaction introduced by Anaximenes; Empedokles refers to it as the circulation of “the elements running through one another” as in the fountain filling a large stepped basin subdivided into compartments *a, b, c, d* etc., where the water spilling over from one to the next is eventually conducted back to its source for another cycle. Here is continuous movement of a single substance, a form of locomotion which does nothing to impair to the integrity of that single substance.²⁰

¹⁹ Driven to its logical issue, this encomium lands us straight in the theories of Leukippos/Demokritos; but Nietzsche’s essay does not continue beyond Anaxagoras.

²⁰ This case was finally laid to rest by Aristotle, who buttressed the idea by imposing his concept of *form* on it. Since form is not a thing, but a potential actualised, the transfer of form from one object to another has the effect of altering an object, of which a subclass is bringing it into existence by actualising its potential.

But this is not the end of his contribution: among the Presocratics, he is easily the most 'interesting' character, and the fact that incidentally he was also a philosopher of noteworthy achievement almost too much of a good thing. Perhaps it is not amiss in an essay such as this to lighten the texture for a minute or two with a glance at what sort of a personality gazes at us through the fog of legendry-cum-biography.

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Physician, orator, engineer, statesman, poet, evolutionist, charlatan, god: Empedokles was all these, making it difficult for us to disentangle which of his qualities are attributable to the man or to the god. He was the 'purple patch' in this gallery of thinkers, and his verse at any rate good enough to earn the flattery of imitation by Lucretius.

An unmistakable instance of his *splendidior* comes out in the invocation to his poem ... (Purgations), as magnificent a specimen of self-exaltation as occurs anywhere in the literature of the world:

*Hail ye, friends! who dwell in the great city and citadel
High above the yellow streams of Acragas – ye men of virtuous heart,
Who honour strangers and art strangers to want and ill intent!
I, no longer a mortal, but reckoned an immortal god,
Walk among ye honoured with due reverence,
Crowned with holy fillets and garlands in bloom.
Where aught I go, by disciples thronged and men and women
Of resplendent cities, worship and wondrous esteem is mine,
And in their thousands do they come, full of desire to learn
The ways of salvation and to hear the oracles and words
Of healing power, for solace in their grief and hurt.*

Unlike the *dramatis personae* of the plot so far, Empedokles seems to have been more of a synthetic genius than an original thinker. Certain similarities to the mythico-religious teachings of Orphism and Pythagoreanism spring to mind immediately, while the same applies to his speculations involving the transmigration of souls, which also recall famous precedent. Where Pythagoras and Empedokles differ most markedly is in the emphasis on science, which was 'pure research' in almost a modern sense for the former, and an eminently practical and *ad hominem* activity with the latter.

The thesis by which he is best known is a statesmanlike reconciliation of opposing factions which is exposed in his poem *On Nature*, where he presents a theory combining the 'best of both worlds'.

LOVE AND STRIFE

Attraction and combustion, materialism and idealism, Parmenides and Herakleitos find place in this system; what is new is their mix and the actions they perform on his stage, which he designed as a spectacle of wagnerian proportions. He called his opposing principles 'Love' and 'Strife' (using, of course, their divine appellations), and arbitrated on the

elements by admitting all four – aether, fire, water, earth.²¹ Empedokles' four roots propose another solution to the enigma left behind by Parmenides. We may agree that reality is imperishable and therefore *ex nihilo* creation a logical absurdity; yet in spite of these concessions we find Empedokles coming up against the same objections as Anaxagoras, namely that our minds are part of this reality and that its logic and deductive processes are indubitable instances of movement. Perhaps a cardinal error of the monistic scheme lies exposed here: if appearance is not to be regarded as a cognitive illusion, it proves by contradiction that the ultimate constitution of the cosmos is a plurality *in origin* as well as its temporal unfolding. Thus the mythopoetic inclination joins hands with the scientific impetus to give fresh warrant to an old idea, namely the creation of the world from the four basic elements.

In relation to this quartet, it is not illegitimate to conceive of them as chemical elements. Empedokles propounded some notions which sound a little like pre-echoes of a chemistry yet to be born. Some structures of the world are thus the outcome of the spontaneous mingling of elements, while others result from processes such as heating. The elements pre-exist; they are fundamental and immutable, consistent with parmenidian doctrine. The agency of transformations on the cosmic scale – namely those which attend to the evolution of the world – Empedokles called *Love* and *Strife*. We might be inclined to reinterpret these without falsifying their intent as energetic expansion and contraction. Irrespective of their divine names, there is little doubt that Empedokles conceived them as influences on the matter elements, shaking them up in a manner akin to stirring sugar into a cup of tea, except that it takes huge time spans for distinct patterns to emerge from this action and that the trend is for the dominance of one of these forces. When Love, the creative force, reaches its peak, recession sets in and disintegrative Strife gains in power. In philosophy, this is the first articulation of the theory of cosmic cycles.

Empedokles was the first thinker to require two contrary forces to set matter in motion. This also occasioned debate, which strictly speaking has not yet died down. Of overriding interest to us is the cognitive dilemma that might have brought the idea to the fore. An 'easy' explanation can be found in the religious background of such an oracular personality, but it seems dubious to me to connect myth-bound divine actions with metaphysical cognitions except by way of the fertilisation of a ready and inventive mind. Viewed from a philosophical platform, the *terminus a quo* for all presocratic thinking was Anaximandros' *apeiron* – a concept of differentiation they all wrestled with, but none of them too happily. Hence

²¹ The air we breathe is already an admixture, hence it is improperly named as an element. Empedokles explicitly specifies the *aether* of the upper uncontaminated layers. – As an incidental note, let me point out another subtlety which inevitably is lost in translation: namely that he did not write 'water', but 'Nestis', the name of a locally worshipped goddess, whose names however occurs in Homer. We can safely put this down to a desire for flattering the Italianate contingent among his readership, while jolting the others with the reconditeness of the allusion.

Empedokles would undoubtedly have been struck by the worry over an unstoppable *apocrisis* – it might expand forever, where to? Unlimited expansion was anathema to Greek thought; sooner or later this unchecked differentiation would have to double-back on itself and engulf the already created world, resulting in the unresolvable dilemma of an autophagous cosmos. Empedokles' idea accordingly offers itself as a necessary corrective – as a means of preserving the total energy in the universe without at the same time requiring an infinitely expanding spatial domain.

En passant, it is worth reminding ourselves that Empedokles was considered the founder of one of the three great schools of physiology in ancient times, to which another reference will be made *infra*. The grand larceny of Plato among pythagorean papers is consequently matched by an equally voracious appetite for the physiological knowledge of the empedoclean school. In regard to the latter it would *not* be fair comment to assert that Plato improved on it.

Empedokles' personality was such that he could not ever be described as a servant of philosophy – he was Lord of the Manor. There are conflicting versions of his passing from the earth, of which the most poetical sees him leaping into the crater of Aetna to leave the halo of his self-proclaimed divinity intact. Not the least remarkable fact of his after-life is that many poets have taken up the invitation to embroider this rich theme, including one tragedy of the highest order from the pen of Hölderlin.²²

6. *Metaphysics from a Grain of Sand*

CORPUSCULAR COSMOS

Anaxagoras wholly espoused the doctrine of Parmenides, on which account his philosophy may be termed the first *scientific metaphysic*. However, he recoiled from the final step that was already implicit in his idea of both the *nous* and the *homoiomeria*, namely admission of the necessity of an interstitial void. Between his and the theory of atomism, as framed by Leukippos and Demokritos, there is a logical and indeed compulsory pathway, culminating in the doctrine of an ultimate particle (*atomos*) which is both immutable and indestructible and the *one fundamental substance*. The World of the One can therefore be plausibly explained and described in the corpuscular theory. Departing from the parmenidian single block imagery, which is not logically compulsory, while substituting atoms moving indirectly in the void, the theory affirms reality as one, on the strength of the internal rearrangement caused by collisions and mergers among these atoms.

The philosophy of Demokritos was the last Ionian-inspired metaphysic. This claim might raise eyebrows if we are used to thinking of Demokritos as a distant precursor of nuclear science; but nothing could be further off the mark, and indeed the philosopher himself would scarcely have

²² *Der Tod des Empedokles*, 1806.

accepted this imposition as a compliment. For he invariably designated his substances *ousiai* and *onta*; accordingly his theory is an ontology; and in measure as the emphasis lay on the explication of beings *qua* being (in accord with Aristotle's subsequent definition) through the corpuscular theory, ancient atomism is indubitably a metaphysical pursuit.

Moreover it derives, as noted, from its confrontation with the eleatic doctrines. The atomists, on their part, accepted the void as spatial on a principle not unlike that of sufficient reason: in logic a concept of empty space is not incompatible with the concept of a single substance, as indeed Empedokles' idea of antiperistasis proposed. Moreover, Parmenides seems not to have claimed either the infinite extent or the absolute smoothness of his single substance.

Perhaps the overriding point is the smallness of atoms: this is not a necessary but contingent property, yet simple observation speaks for it, since among macroscopic objects there is none that could not be divided or reduced into components; and thus we have a plain-speaking argument for the microscopic size (i.e. invisibility) of atoms. Hence atoms furnish us with a notion of primary substance very much attuned to the parmenidian: they are unitary, eternal, immutable, indestructible. Mention must also be made of their impassivity: creation in this scheme is by chance collision, which of course presupposes an infinite number at large in the cosmos and it seems to avoid the pitfalls of infinite regress entailed in the supposition of an (arbitrary) entity imbued with ultimate causative authority.

Demokritos indeed drives the theories of Anaxagoras and Empedokles to their logical conclusion. His atoms, in spite of their smallness, have extension and interact in a completely physical way with each other. However they assemble in any one locality, the qualities apparent there are the result of their specific mixture. He furnishes an intriguing piece of analysis in his diagnosis of sweet and sour, explaining how two persons might disagree. Human taste buds contain pores into which those atoms penetrate that are productive of 'taste' qualities; but pores and atoms are each of minute size difference, so a plausible explanation is that Person A's tongue (think of sponge!) may have pores which permit ingress to more atoms of one than the other kind; or alternatively the pores may be clogged up by atoms present in them on account of illness, and this explains why the same taste may be sweet today and sour tomorrow to the same individual.

From examples like these we understand that Demokritos has taken a truly radical step, a philosophical idea commensurate in its boldness to that of Parmenides. By 'reducing' both Empedokles' roots and Anaxagoras' spermata to quality-less atoms, and ejecting *nous* as well as the Love/Strife duo from the driver's seat, he gains what they failed in the last resort to accomplish, namely a completely objective principle of assembly among the elements. His world is a single homogeneous collective of atoms moving at random through the void and 'creating' the world of phenomena on the fly by their collisions – an idea of a size to match Parmenides' and,

paradoxically, even though it comes across as the exact opposite to the presumed 'block universe', it is the actually same thing, but with the one enormous difference that creation and destruction (and hence motion) within the universe are not only readily explained, but actually of the essence.

But it also presupposes acausality, and this incurred Aristotle's censure. Yet this is a minor point which under the terms of his theory may well be conceded to Demokritos. And this brings me to another issue of considerable perplexity, namely that Plato, who assiduously surveyed the works of all his predecessors for mintable metaphysical ore and was certainly *au fait* with what was happening around him on the intellectual scene, never once mentions the name of his older contemporary in all his writings. One may suppose that the self-appointed administrator of Pythagoreanism and traditional mythical cosmology reviled the 'materialistic' conceptions issuing from the pen of the Abderite, so inimical to his own propensity for geometrical (i.e. formed) visions of the cosmos; and one suspects that inclination having driven him into the arms of Philolaos and his manuscript on numbers and their generative potency, he could not stomach even the thought of his demiurge reduced to a diet of rice bubbles . . . ²³ In any case, remembering Sokrates' unhappiness with the *nous* of Anaxagoras, one may gain a perspective on his pupil's disinclination to consider atomism at all, for if the *nous* can be suspected of having been dragged in by the hairs, what of the demokritean 'mind', which is an adventitiously engendered fabric of the same collisions among particles that also make the sand pebbles which they resemble so much in their earth-bound conceptualisation.

Plato may indeed have argued (we don't know) that Demokritos' atoms, lacking agency, explain *nothing*; and from his perspective rightly so, for the concept of agency, once it was brought into the open by Anaxagoras, would have smitten all materialistic theories with sterility in the one department that now mattered most, namely the precedence of the spirit in the quest for metaphysical foundations. Demokritos appears to have little or nothing to contribute to this agenda; yet by the same token, the fragments available to us notably suggest that he also embraced an elaborate theory of cognition. For in speaking of the phenomenal world, he refers to (secondary) qualities as "conventions" that must be referred back to the mind of the beholder, while their underlying attributes are referable to the constitution of individual atoms. This is a subject which may fittingly conclude proceedings here.

SENSATION, PERCEPTION, COGNITION, MIND

A fragment of Alkmaion sponsors a healthy scepticism about the ability of humans to judge "things unseen" that was widespread and tended to

²³ Some (probably scurrilous) aspersions were cast about in antiquity that Plato's *Timaios* was just an elaborate reworking of Philolaos' MS. Well, perhaps it was? I mean: where would Shakespeare be without Boccaccio, Plutarch and Holinshed?

have the point of its shaft aimed at the hubristic confidence of humans to trespass into realms of understanding (*sapheneia*) reserved by the gods for themselves. *On Ancient Medicine*, a treatise from the Hippocratic corpus, carries this a step further and produces an argument against philosophers that has been heard ringing down the ages:

If one should state and declare how these things are, it would be clear neither to the speaker nor to his hearers whether they were true or not; for there is nothing by referring to which one can know the clear truth.

Whether philosophical assertions have a referent or not, that is the gist of this critique-cum-accusation.

On the other hand, one comes across statements like “nothing is in the mind that has not passed through the senses first” quite frequently in western philosophy – they all have their origin in the same medical text from which the above quote was culled:

You will find no measure or number or balance to refer which enables you to know with certainty – except that it has first been perceived.

One of Demokritos’ most famous epigrams confirms this:

Poor reason! said the senses to the intellect: from us you take your evidence, with which you want to undo us. Yet in putting us down, you only succeed in undoing yourself!

Of a piece with this is Empedokles’ conception of the integrity of bodily and mental health. He held that soundness of mind is, on the whole, dependent on the same chemistry which controls somatic functions. A diseased organism inevitably results in an impaired mind:

As much as men change their nature (ὅσον ἄνθρωποι) so their thinking is changed.

This is further illustrated by his views on cognition, viz. “Man’s wit is increased with reference to what is present”, meaning that cognition is “of like by like”. Thought and senses, being physically based, exemplify the dictum of “birds of a feather flock together”:

If thou shouldst hanker after thoughts of a different sort, such as in human life come in their myriads, poor ideas to blunt men’s thoughts, they will quickly desert thee as time goes by, desiring to rejoin their own kind. For know that all things have wisdom and a portion of thought.

Cognition, like the all-pervading spirit of Anaxagoras, is omnipresent, in minds as in rocks, though obviously found in the latter as a mere trace element. Not far from pantheism, but (curiously) a completely materialistic philosophy at the same time.

What can be felt stirring in these fragments is a noticeable epistemological curiosity, allied to doubt about the capacity of 'mere' thinking to get to the bottom of its self-imposed problems. This, too, a dichotomy that was to endure; and it is a telling point to recall in this connection that one of the 20th century's great physicists, Niels Bohr, was in the habit of sitting down with his colleagues at conferences devoted to quantum physics in order to thrash out new *epistemological* issues, with nary a thought for the tremendous *metaphysical* implications inherent in their work.

THE TRUTH OF PHENOMENA

In Demokritos' physiology, every sensation involves physical contact: Demokritos follows Empedokles in theorising that the body absorbs external stimuli through pores as physical collisions. From this and the example of sweet and sour tastes it will readily be adduced that in Demokritos' theory, *all* sensations are extensions of the sensation of touch (it will be recalled that Hobbes taught the same doctrine).

His theory of vision is based on reflexivity, on atoms repelled from surfaces entering the retina. Hearing is of aerial vibrations entering the ear canal; and there are various adumbration of these to explain colour, heat, flavours and odours: but as Guthrie writes [II, 448], most of this is filtered through an unsympathetic report by Theophrastus, leaving us with having to guess whether Demokritos was a serious rival to aristotelian science.

Thought, for him, is also an alteration in the body and classifiable with sensations, a result of disturbances among the thought atoms. Hence good thought is due to a "duly proportioned" bodily mixture, bad thought or derangement the result a bad mixture generating too much heat. Interestingly, Demokritos believed this theory to constitute a refutation of Protagoras' dictum that "Man is the measure of all things". But more importantly, and presumably with full intent, it is also an effort at destroying the parmenidian noumenon. Even the slogan-like description given above indicates that for Demokritos only phenomena are left from the dichotomy – "only atoms and the void have existence"; yet these are deductively derived by the mind, for they are not perceivable as such. Hence Demokritos' cognitive philosophy is based on the following foursome of criteria:

- (1) Sensory appearances are true. Aristotle: "For Demokritos soul and mind were simply identical, for what is true is the phenomenon." [De Anima 404a27].
- (2) The truth is not in the sense impressions themselves. Fragments 10 & 7: "That we do not comprehend what is or what is not the true character of each thing has been made clear . . . this shows that we know nothing truly about anything, but each man's opinion is a reshaping."²⁴

²⁴ Reshaping alludes, of course, to the atomic interactions, their mixture and specific congregations.

- (3) Sensible phenomena confer indirect knowledge: "Phenomena are the sight of the unseen".
- (4) Scepticism about the possibility of knowledge is baseless. "Truth is in the depths," Demokritos wrote. The senses, although indispensable, constitute a barrier between real and sham knowledge. But reason can overcome. Plutarch: "He was so far from saying that each thing is no more this than that, that he did battle with Protagoras the Sophist for saying so and brought many convincing argument against him." Fragments 138 reads: "There are two kinds of cognition, one legitimate, one bastard. To the bastard belong all these: sight, hearing, smell, taste, touch. The other is legitimate and separate from these."

So Demokritos, too (comments Sextus), makes the *logos* the means of judging, leaving us with doubt about his allegiance to that archetypal Greek philosophical principle.

From a present-day perspective, several appreciation-problems present themselves in respect of Demokritos. Why should any of the foregoing be regarded as philosophy, let alone metaphysics? Isn't it obvious that we are rather dealing with science? This kind of prejudice is natural today. Against it, however, we need do no more than remember that Demokritos never experimented; and on that score alone any claimant on his behalf would have evidence falling considerably short of even the entitlements of Aristotle. Further it is arguable (more convincingly than any claim to the converse) that his physical theories constitute primarily a scaffolding for the larger picture: for his ontology, epistemology, ethics, politics etc., and he strove mightily to gain a platform for his favourite subject, euthymie. In any case, his atomism is not remotely classifiable as a science — it is an *idea*; and since it forms the last link in a long chain of debate that began as a metaphysical enquiry, his idea necessarily reflects the same metaphysical values as every other which belongs to this tradition.

* * *

What is conveniently called 'presocratic philosophy' comes to an end with Demokritos. His impact can scarcely be overestimated; for although the very concept of metaphysics was only taking shape when he wrote and thought, yet his system split the river of philosophy in two and none among the thinkers in his wake, beginning with Aristotle, could evade the decision whether to repose their trust in the materialistic or teleological stream. Is Being a function of matter or of agency? Is the complexity of organisation in the universe attributable to a predisposition of matter to organise itself or to an intelligent designer? Paradoxically this is four questions rolled into two, for if we incline to the former, then one is almost compelled to admit that mechanism *demand*s a designer, whether an intellect or chance; and conversely the telos of the other side might also be a

mere perception by the human intellect which is *conditioned* to perceive teleologically.

But whichever way we incline, reality for us remains the phenomenal realm to which we belong as *phenomenal beings*. The task of metaphysics was, for the Presocratics, an endeavour to elucidate that realm and to assert the rationality of transcendence within it, given the irresolvable traces of the numinous that seem to inscribe their enigmatic presence on the world of experience. The roster of thinkers we have met in this essay were responsible for putting many of these questions on the agenda as items suitable for ratiocination.

Although the Presocratics provided few tenable answers, it is a mistake to think that anyone in the interim has significantly improved on their ratio of success. Moreover, to believe in that possibility would be to misunderstand the nature of metaphysics altogether, which is an *exploration*, not a homecoming. In an ultimate sense, metaphysics might be said to be that part of the mind's activity which is the continued exploration and discovery of itself. But the *understanding* this endeavour conveys is potentially cumulative. It may be phrased in this way, that metaphysics is the galleon on which the human spirit sails out to nurture in each newly conquered realm its achievements in the arts and sciences and thus to embrace in the expansion of its domain the idea of "beings qua being" as the *creative principle per se*, to which the cosmos is not as indifferent as is frequently maintained. The cosmos *contains* human consciousness; hence it cannot have opposed its generation. The human efflorescence is not, therefore, a chance event: and dim though the prospect might seem, we are driven to seek *reasons*, through *reason*, for the emergence of conscious creativity from the dust of cosmic matter. This is the fundamental issue in our quest for the meaning of Being; the issue on which intelligent human effort is ever focused when (to paraphrase a famous quote) the sense of wonder brings the spark to life which is referred to as a "thirst" for knowing.

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