

ARISTOTLE'S CRITICISM OF THE ELEATICS

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Aristotle's Criticism of the Eleatics

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1. *The General Character of Eleatic Philosophy.*—There has been a great deal of misunderstanding about the nature of Eleatic doctrine among historians of Greek Philosophy. Prof. Burnet interprets it as merely a materialistic or naturalistic doctrine. Zeller has said that the Eleatic doctrine is not to be understood “as a dialectical system, but as a system of natural philosophy……Not the idea of knowing, but the concept of Being dominates the whole.”¹ Such a naturalistic interpretation, as we shall see in the course of this essay, is completely at variance with the spirit of Eleaticism as a whole, as well as with the testimony of Plato and Aristotle. We learn from Aristotle that the two chief points of difference between the Ionian monists and the Eleatic monists were, first, that the former regarded Being as in motion, while the latter regarded it as motionless; and secondly, that the two schools differed among themselves “in respect of the logical character of Being.”² As we shall see later on, the general tenor of Eleatic philosophy is metaphysical, and not physical as it is supposed to be by Burnet and Zeller, and that we have far more reason to agree with Plato and Aristotle than with Burnet and Zeller. We shall also see how the Eleatic Philosophy develops stage by stage through its four great representatives, Xenophanes the Theologian, Parmenides the Ontologist, Zeno the Dialectician, and Melissos the Philosophical Mystic.

1. XENOPHANES

2. *How far can Xenophanes be regarded as the founder of the Eleatic doctrine?*—Prof. Burnet has raised the question whether Xenophanes should be regarded as the founder of the Eleatic school. He comes to the conclusion that it is very unlikely that Xenophanes settled at Elea and founded a school there, though he grants that Xenophanes did write

1. Zeller I. 640-642.

2. Arist. *Meta.* 986 b 12. *Vide* Taylor, *Aristotle on his Predecessors*, p. 96.

a poem of 2000 hexametres on the foundation of that city, and also that he might be supposed to have visited Elea and the surrounding places. His chief contention is that because no ancient writer says explicitly that Xenophanes ever lived at Elea, therefore he could not be regarded as the founder of a school in Elea³. Now, we have evidence from Aristotle to suppose that Xenophanes had come in close touch with the inhabitants of Elea who asked him the question about Leukothea to be presently mentioned, as well as that Xenophanes knew the adjoining parts of the country very well. Aristotle tells us that Xenophanes had observed that the lava stream at Etna appeared recurrently at the interval of many years as well as that he knew that the volcanic fire on the Lepara islands off the North coast of Sicily, after having once ceased for sixteen years, appeared in the seventeenth⁴. We see from this that Xenophanes must have known Elea and the surrounding country long enough, and rather intimately. The question of importance, however, for a History of Philosophy is not whether he founded a school at Elea, but whether he founded the Eleatic doctrine. Plato tells us that Xenophanes might be regarded as almost the first philosopher at the dawn of Greek Philosophy who said that the Many exist only in name, and that the One alone truly exists: "The Eleatics.....say that all things are many in name, but in nature one; this is their mythus which goes back to Xenophanes and is even older"⁵. We have to understand from this passage that the doctrine of the apparent reality of the Many and the absolute reality of the One, even though partly adumbrated by unknown philosophers before the day of Xenophanes, might yet be taken to be for the first time articulately formulated by Xenophanes. Aristotle also tells us that Xenophanes was the first partisan of the new conception of the One, and that Par-

3. Burnet, *Early Greek Philosophy*, p. 127.

4. Arist. *De Mirac. Oscult.* 38 ; 833 a 16.

5. Plato, *Sophist* 242 D.

menides was regarded as having been his pupil⁶. From all this, it would not be amiss if we regarded Xenophanes as the founder of the Eleatic doctrine, especially as Aristotle hands over to us the tradition according to which Parmenides was regarded as the disciple of Xenophanes. We do not enter here into the question as to whether and how far Parmenides differed from Xenophanes, a question debated between Zeller and Jackson, and about which the latter remarks that while to Xenophanes the primary reality was God, to the latter it was Being: while both Xenophanes and Parmenides tried to reconcile the One and the Many from their respective points of view: "Xenophanes, in his theological system, recognised at once the unity of God and the plurality of things; so, Parmenides in his system of nature recognised the rational unity of the Ent, and the phenomenal plurality of the Non-ent"⁷. We regard this as too subtle a distinction to make between the doctrines of Xenophanes and Parmenides; while to ascribe to Xenophanes and Parmenides themselves a definite recognition of the distinction between the theological concept of God, and the metaphysical concept of Being is something which passes beyond our comprehension. We cannot help remarking, however, that Xenophanes' way of thought must have led to that of Parmenides, as is abundantly clear from the way in which Xenophanes himself speaks of the "immovability" of Being, a characteristic of Being which is handed down from Xenophanes to Parmenides, and from Parmenides to Zeno and Melissos. Xenophanes himself speaks about his God as follows:—

αἰεὶ δ' ἐν ταύτῳ μίμνει κινούμενον οὐδέν,
οὐδὲ μετέρχεται μιν ἐπιπρέπει ἄλλοτε ἄλλῃ⁸

which clearly implies that God must be regarded as always

6. Arist. *Meta.* i. 5 ; 986 b 23.

7. Jackson, *Art. Parmenides*, Encyclopaedia Britannica, 11th edition, Vol. XX. p. 852.

8. Fairbanks, *First Philosophers of Greece*, p. 66 fr. 4.

abiding in the same place, and as not moving it at all, a way of speaking about the primary reality which is so characteristic of the whole Eleatic school. It is evident from these considerations that Xenophanes might be credited with having had the honour of being the Founder of Eleatic doctrine.

3. *The injustice of Aristotle's criticism of Xenophanes.*— We cannot enter here into a detailed exposition of the thought of Xenophanes, as the title of our chapter forbids it. We shall look only at those points in his philosophy which have been regarded as worthy of criticism by Aristotle.

(1) Aristotle's first charge against Xenophanes is that his philosophy looks so "crude". He complains that Xenophanes "does not express his opinions in an ordinary and natural way". He even regards that Xenophanes might be "dismissed from an investigation into metaphysics"⁹, as his doctrines seem to him to have no philosophical value. The reason why Aristotle regards Xenophanes as unworthy of consideration in a metaphysical treatise is that according to him Xenophanes "takes no trouble to inquire into the meaning of cause". Xenophanes naively asserts that the earth must be regarded as "rooted in infinity", and there is the end of the matter. Now this seems to Aristotle to be a naive evasion of the problem of cause. To say that "there is no limit to the earth's extension underneath us"¹⁰ is to confess ignorance about the nature of cause. To Aristotle, the theory of four-fold causation is the type and norm, by reference to which any system of philosophy is to be evaluated. He finds in Xenophanes and the early Greek Philosophers generally a sad neglect of the problem of causation. The only cause that they take account of is the material cause: that is the burden of Aristotle's criticism. To us, Aristotle seems to be too much obsessed by his theory of four-fold causation. Whenever he has no other defect to find in any philosopher, he brings in his

9. Arist. *Meta.* i. 5 ; 986 b.

10. Arist. *De Caelo*, ii. 13 ; 294 a 21.

theory of causation, and criticises him for his want of knowledge of the true nature of the problem. Aristotle does not see that the problem of metaphysics is not identical with that of cause, but that it includes other considerations no less vital.

(2) It is especially from this point of view that Aristotle should have taken a more sympathetic view of Xenophanes. The value of Xenophanes consists in the impetus that he gave to moral reflection. All that Xenophanes did under this head escapes the consideration of Aristotle, who judges him merely from the point of view of abstract metaphysics. Xenophanes has a great importance for the student of the humanistic sciences, even though he might not have helped the furtherance of a bloodless metaphysics. He was a pioneer of moral education, and might fitly be regarded as having given lessons to Plato and Aristotle themselves. It was Xenophanes who first inveighed against the poetic habit of ascribing to divinities the faults and foibles which belong to men alone. It was he who first initiated the quarrel between poetry and philosophy. To attribute to gods "things which might be considered disreputable among men.....stealings and adulteries and deceptions of one another"¹¹ is to set a very bad lesson for moral instruction. Xenophanes in this way gave hints even to Plato, who might thus be regarded as having based his ideas of the moral instruction of the young on the inspiration which he received from Xenophanes. Aristotle himself concurs with Plato in this respect. Does he not himself say that a rigorous censorship¹² ought to be exercised over the stories to be imparted to children—stories which would in any way tend to place false models for imitation before the young? Aristotle is entirely blind to Xenophanes' importance for the humanities, when he criticises him from the point of view of pure philosophy. He fails to appreciate the "wisdom" of

11. Fairbanks, *First Philosophers of Greece*, p. 69 ff. 7.

12. *Vide* Plato's *Republic* Bk. III. 386 ff. and Aristotle's *Politics* VII. 17.

Xenophanes, when he calls him merely a "crude" philosopher. As a great satirist of his age, as the moral instructor of his nation, as an apostle of shrewd common sense, Xenophanes stands unequalled. He bewails that people do not prize wisdom as much as they prize physical strength. It is strange, he says, that a gymnast or a wrestler should come to be honoured more than even a philosopher. Would a city, he asks, be better governed for having more wrestlers than philosophers¹³? He expresses humility when he speaks of his having been permitted to have had only a faint glimpse of truth¹⁴. Finally, with a self-confidence engendered by higher vision he asserts that there has not been a man, nor will there be any, who knows distinctly what he says about the gods, and the nature of things¹⁵. Xenophanes certainly had a right to be treated more leniently by Aristotle for his humanistic importance.

(3) It is true that Aristotle seems to have some sympathy with Xenophanes for his attack on anthropomorphism as well as on the conception of a plurality of gods. He commends Xenophanes for having answered the inhabitants of Elea that "they need not sacrifice to Leukothea if they thought her human, and sing a dirge if they thought her divine"¹⁶. He also seems to give some praise to Xenophanes for having said that those who assert that the gods are born are as impious as those who say that they die; for, in both cases the assertion amounts to this that the gods do not exist at all¹⁷. But it seems that Aristotle does not rise to the full stature of his appreciation of Xenophanes' remark that anthropomorphism must be regarded as on all fours with boviomorphism, eomorphism, or hippomorphism¹⁸. Indeed it appears to us

13. Fairbanks, *First Philosophers of Greece*. p. 73 fr. 19.

14. *Ibid* p. 71 fr. 16.

15. *Ibid* p. 71 fr. 14.

16. Arist. *Rhet.* ii. 23 ; 1400 b 5.

17. *Ibid* 1399 b 6.

18. Fairbanks, *First Philosophers of Greece*, p. 67 fr. 6.

that the strain of Xenophanes' philosophy is even more monotheistic than that of Aristotle. Aristotle believed that the stars were divinities; Xenophanes, on the other hand, believed that there were no gods but God: "There is only one God, supreme among gods and men, and not like mortals in body or in mind"¹⁹. His God is the *ἓν καὶ πᾶν* the One and the All. These utterances have indeed given rise to a host of different interpretations. While some would regard him as a pantheist, others would call him a polytheist, still others as a polytheistic pantheist, and there are some who would for the same reasons regard him as even an atheist! To us, Xenophanes definitely appears to be a monotheist, and we also believe that it was impossible for Aristotle to appreciate the kind of monotheism which Xenophanes was preaching. The Jewish God may be a Judge, the Platonic God a Demiurge, the Christian God a Father, and Aristotle's God a Theoriser; but Xenophanes' God is an All-sentient God, "the whole of whom sees, the whole perceives, the whole hears, who without effort sets in motion all things by mind and thought"²⁰. Aristotle has no word of praise for the directive power of Xenophanes' God. He commends Anaxagoras for the directive power with which he credits his *Nous*; but he does not commend Xenophanes for having ascribed to God the same kind of directive power. Finally, Aristotle entirely misrepresents the whole situation when he calls Xenophanes merely a listless observer of the Heavens, who one day looked up to the skies and said that it was all God. Aristotle does not perceive the physico-theological strain of Xenophanes' musings. He is very unsympathetic to the physico-theological argument of others, even though he himself comes to posit a Prime Mover by observing the circular (!) motion of the heavens²¹—a peculiar variety of the physico-theological argu-

19. *Ibid* p. 67 fr. 1.

20. *Ibid* p. 67 frs. 2-3.

21. Arist. *Meta.* xii. 6 ; 1072 a.

ment! The fact is that the physico-theological musing of Xenophanes could not be set at naught. Looking at the blue vault of the sky, observing how the stars are inwrought in the blue structure of the overhanging canopy, "contemplating the universe as a whole", who would not say in the spirit of that first physico-theologian, Xenophanes, that "the One is, namely God?"²².

II. PARMENIDES.

4. *Aristotle's general sympathy with Parmenides.*—Parmenides finds more favour with Aristotle. Aristotle compliments Parmenides on having spoken with greater insight than any other Eleatic²³. He seems to be carried away by Parmenides' invulnerable argument even so far as to allow in one place that all things are one, that is, as much as to say, that monism is the only consistent position: "it is necessary to agree with the reasoning of Parmenides that all things are one."²⁴

5. *Aristotle's objections to the method of Parmenides.*—But even if the goal of speculation as we find it in Parmenides be so far right, Aristotle finds two serious defects in the logical method of Parmenides; first, that Parmenides "makes mistakes of facts," "makes false assumptions", secondly, that he "reasons in a fallacious manner," "does not draw his conclusions correctly," "the course of his reasoning is not logical"²⁵. Thus Aristotle says that there are loopholes in Parmenides' premises, as well as his conclusions. (i) In regard to the first point, we learn from Aristotle, that Parmenides makes the false assumption that Not-Being does not exist in addition to, and as superfluous of, Being²⁶, thus involving the absolute existence of Being alone, and that, therefore,

22. Arist. *Meta.* i. 5 ; 986 b 25.

23. Arist. *Meta.* i. 5 ; 986 b 28.

24. *Ibid.* ii. 4 ; 1001 a 32.

25. Arist. *Phys.* i. 3 ; 186 a 4 ff.

26. Arist. *Meta.* i. 5 ; 986 b.

"Being is to be spoken of absolutely"²⁷. Aristotle could not sympathise with this assumption of Parmenides, inasmuch as he himself believed in the separate existence of Not-Being, as constituting the womb and matrix of all indeterminate existence whatsoever. (ii) Aristotle's second objection is directed against what he regards the false conclusions of Parmenides. Given the position that Being is to be spoken of absolutely, he makes Parmenides conclude, first, for example, that there is no difference between one white and another, so that all whites are one, and second, that the object which is white, and the predicate white, are identical²⁸, so that subject and predicate merge into each other. Aristotle says, in answer to these positions, in the first place, that there are many whites and not one, and in the second place, that white as a quality must be absolutely separated from the object which is white²⁹. We can understand clearly, by reference to Aristotle's doctrine of categories, why he should feel compelled to make a complete separation between substance and quality, while, on the other hand, we can also understand, by reference to Parmenides' monism, why the logic of his position would necessitate a coalescence of substance and quality. It would be beyond our province for the present to institute an inquiry into the justification of either the one position or the other.

6. *Parmenides' identification of Thought and Being.*—The merging together of substantival and adjectival existence has, for Parmenides, not merely a logical significance, but a metaphysical significance as well. As, from the logical point of view, Parmenides asserted the unity of subject and predicate, so from the metaphysical point of view, he asserts the unity of thought and being. τὸ γὰρ αὐτὸ νοεῖν ἐστίν τε καὶ εἶναι said Parmenides. This very thought he reiterates in his Poem once more when he asserts τῶντὸν δ' ἐστὶ νοεῖν τε καὶ οὐνεκέν

27. Arist. *Phys.* i. 3 ; 186 a.

28. *Ibid.*

29. *Ibid.*

ἔστι νόησις : "thinking and that by reason of which thought exists are one and the same things" ³⁰. Plato and Aristotle understood these expressions quite correctly as implying an identification of the real and the rational. Some modern critics, however, have despised this interpretation, and have found in Parmenides' philosophy a crass materialism. Burnet thinks it a mistake to call Parmenides the father of Idealism ; on the contrary, he says that all materialism depends on his view of reality ³¹. He asserts that it would be a Platonic anachronism to regard Parmenides as having made a distinction between appearance and reality ³². We find Zeller also crediting Parmenides with the idea of a mere globular form of ultimate being, "a fixed and homogeneous mass, symmetrically extended from its centre on all sides" ³³. Zeller, however, admits a little further on that we would be justified in rejecting this description as metaphorical, only if we could otherwise find any indication that Parmenides conceived Being as incorporeal ³⁴. It is just this incorporeality of Parmenides' Being which we hope to establish by reference to the ontological strain of Parmenides' thought as understood both by Plato and Aristotle ; but before we proceed to the Platonic-Aristotelian interpretation, we shall first dismiss the materialistic interpretation of Parmenides by discovering the root-source of the fallacy.

7. *The Fallacy of the Materialistic Interpretation of Parmenides by Burnet and Zeller exposed.*—The fundamental mistake of Burnet and Zeller and other similar interpreters of Parmenides consists in their fallacious identification of an analogy with a fact. Shutting their eyes deliberately to the general tenor of Parmenides' Poem which is unmistakably

30. Fairbanks, *First Philosophers of Greece*, p. 90. l. 40, and p. 96 l. 94.

31. Burnet, *Early Greek Philosophy*, p. 208.

32. *Ibid* p. 209 n. 2.

33. Zeller I. 589.

34. *Ibid*.

ontological, these critics have pinned their hope on a single passage which is as follows :—

αὐτὰρ ἐπεὶ πείρωσ πύμακτον, τετελεσμένον ἔστι
 πάντοθεν, εὐκύκλου σφάιρης ἐκλίγκιον ὄγκῳ,
 μεσσόθεν ἰσοπαλὲς πάντη.

Now anybody who will take the trouble of interpreting this Greek passage will see immediately that Being is here “compared” to a sphere, and not “identified” with it. It must be remembered that Parmenides here uses the word ἐκλίγκιον which implies that he regards being as “resembling” a sphere. The root-source of the fallacious interpretation of Burnet and Zeller lies in the confounding of resemblance with identity. Being is like unto a sphere in point of its perfection all round, and in point of its subsistence in equality. There is neither rhyme nor reason in understanding an analogy to be a fact. When Homer compares Hector to a bold hound, we have not to understand that Hector was actually a hound. When he compares Pericles to a lordly bull, we have not to understand that he was actually a bull. The materialistic interpretation of Parmenides, based upon understanding the expression “like a sphere” to mean “spherical” is no less ridiculous. It is gross injustice to the spirit of Parmenides to pin one’s interpretation of him on a single passage without looking to the tenor of the whole, and then to distort it in such a way as to make him ridiculous. Once the foundations of a materialistic interpretation are laid, Burnet has no difficulty in raising an equally materialistic edifice on it: the Being of Parmenides is “a finite, spherical, motionless, corporeal plenum” ³⁵, and later Prof. Burnet adds the word “continuous” ³⁷. If Parmenides regarded Being as *finite* it was partly because he had not yet risen to the sublimer conception of Melissos who regarded Being as infinite, and partly because he was yet

35. Fairbanks, *First Philosophers of Greece*, p. 96 ll. 102-104.

36. Burnet, *Early Greek Philosophy*, p. 208.

37. Burnet, *Thales to Plato*, p. 68.

under the thralldom of the Pythagorean identification of finitude and goodness, for which reason even Aristotle praises Parmenides as an acute thinker³⁸. Then, again, we have seen that Being was *like a Sphere* in point of its perfection all round, as well as its subsistence in equality, and we have *no reason to dub it corporeal*. Being was evidently *motionless*, for whereunto could Being move? It was a plenum, not in the materialistic sense, but in the idealistic sense of *perfect*; it was in fact "the whole", the *ἐν καὶ πᾶσι* of Xenophanes once more, so *pervading* that it left no gaps unfilled, for which reason also it was *continuous*. All the epithets which Burnet interprets materialistically, could also be interpreted in an idealistic sense. To crown all, the following excerpts from Parmenides' Poem would be eloquent enough to support our interpretation: "Being is without beginning, and is indestructible. It is universal, existing alone, immovable, and without end. Nor was it, nor will it be, since it now is..... Powerful necessity holds it in confining bonds.....Therefore, Divine Right does not permit Being to have any end. It is lacking in nothing; for, if it lacked anything it would lack everything"³⁹.

8. *Adamson and Gomperz on Parmenides*.—Adamson and Gomperz have not been as unsympathetic to Parmenides as Zeller and Burnet. They agree more or less with the interpretation of Plato and Aristotle, though they do not rise to their full stature in giving an idealistic interpretation. Adamson understands Parmenides to have at least risen to the conception of the Non-corporeal, if not to that of the Incorporeal, that is, mental or psychical⁴⁰. Gomperz interprets Parmenides' philosophy in a Spinozistic sense: "Was the universal Being of Parmenides merely matter, merely corporeal and extended?.....This seems well-nigh incredible.

38. Arist. *Phys.* iii. 6 ; 207 a 15.

39. Parmenides' *Poem* ll. 59-89.

40. Adamson, *Development of Greek Philosophy*, p. 35.

The supposition is rather forced on us that for Parmenides, as Spinoza might have said, thought and extension were the two attributes of one substance, and the real was at once the thinking and the extended.....The Material Being of Parmenides was incontestably a Spiritual Being as well. It is universal matter and universal spirit at once" ⁴¹. We have, then, according to Gomperz, in Parmenides, an early adumbration of the Spinozistic philosophy. This is at least not an unfair interpretation. A Spinozism is much nearer an Ontologism than a crass Materialism.

9. *Plato and Aristotle on Parmenides.*—We can, however, lay the ghost of the materialistic interpretation finally to rest by reference to Plato and Aristotle, whose testimony is more valuable than that of others, because they were so much nearer Parmenides, and were less likely than others to misunderstand his doctrines. Aristotle's evidence is all the more important, because his leanings lay in the direction of naturalism, and not in the direction of ontologism. Aristotle gives a fair objective presentation of Parmenides, even though he himself would not subscribe to the unity of being and thought. Plato's testimony stands in a different category; he had a sympathy with the position of Parmenides, even though his Idealism was of a different kind. It is not without reason that Plato speaks of Parmenides as a person to be at once revered and feared. "I have a kind of reverence," he makes Socrates say in the *Theaetetus*, "not so much for Melissos and the others who say that all is one and at rest, as for the great leader himself, Parmenides, venerable and awful, as in Homeric language he may be called; him I should be ashamed to approach in a spirit unworthy of him" ⁴². It follows that Plato must have taken trouble to at least understand the man whom he so much revered, and that therefore, his testimony may be regarded as having a peculiar value. According to Plato, Parmenides is the

41. Gomperz, *Greek Thinkers*, 1. 179.

42. Plato, *Theaetetus*, 183 E. (Jowett's translation).

father of Ontologism He tells us in the *Sophist* that Parmenides regarded Not-Being as unspeakable, inconceivable, irrational, meaning thereby that in order to exist, anything must be thought, conceived, and reasoned about ⁴³, a statement which agrees so well with the assertion of Parmenides himself that the path of Not-Being must be regarded as "unspeakable and unthinkable", and must therefore be severely left aside, as it is not the path of truth :—

κέκριται δ' οὖν ὡσπερ ἀνάγκη,
την μὲν ἔαν ἀνόητον, ἀνώδυμον. οὐ γὰρ ἀληθὴς
εστὶν ὁδός.⁴⁴

It is very unfortunate that Prof. Burnet does not see that the identical meaning which he finds in the two questions—*Is it or is it not*, and *Can it be thought or not*, ⁴⁵—lays the axe at the root of his materialistic interpretation, and supports the ontological meaning which Plato and Aristotle find in Parmenides. Aristotle very clearly recognises the conceptual character of Parmenides' philosophy. In his *Physics*, for example, Aristotle definitely lays down that the Parmenidean doctrine refers to concepts, and hence a discussion of that doctrine would be beyond the scope of physics proper ⁴⁶. This very definite statement from the foremost scientific philosopher of ancient times is a clear indication of the fact that Parmenides' philosophy has only a conceptual or ontological meaning, and not a naturalistic or materialistic one. Then again, in explaining the nature of unity and plurality from the standpoint of Parmenides, Aristotle lays down that Parmenides regarded the world as a rational unity, while the plurality that one meets with in the world is to be regarded as merely sensible, and therefore, as only apparent : "of necessity he thinks that

43. Plato, *Sophist* 238 C.

44. Parmenides' *Poem* ll. 72-74.

45. Burnet, *Thales to Plato*, p. 67.

46. Arist. *Phys.* i cc 2 f. (*Vide* Adamson p. 34 also).

Being is one, and that there is nothing else.....and being compelled to account for phenomena, he assumes that things are one from the standpoint of reason, and many from the standpoint of sense."⁴⁷ The only meaning that we could assign to this statement about Parmenides is that according to him the essential nature of the world is to be regarded as rational, conceptual, ontological, which allows no scope for ultimate materialistic existence. There is no alternative except to find in Parmenides' identification of Thought and Being a vision of the later ontological argument, which has exercised a potent influence on the whole course of thought. We definitely agree with Prof. A. C. Fraser when he says that the later ontological argument was itself anticipated in the τὸ αὐτὸ νοεῖν τε καὶ εἶναι attributed to Parmenides. ⁴⁸.

10. *Parmenides and Shankaracharya.*—It is very significant that Herr Garbe, following a suggestion, made originally by Gladisch, should have pointed out the extreme similarity between Greek Eleaticism and Indian Monism. It is noteworthy that Garbe finds in Eleatic philosophy a probable borrowing from the Idealistic Monism of ancient India ⁴⁹. As has been shown, however, by the present writer in his "Constructive Survey of Upanishadic Philosophy", recently published, the analogies of Greek and Indian thought have to be explained on the theory of Parallelism, and not on the theory of an unproved and unproveable Inter-influence between Greece and India before the days of Alexander. It is only as a specimen of the Parallelism of Greek and Indian thought that we shall briefly notice in this place how Shankaracharya, who represents an ancient tradition of long duration, should have come to the very position of Parmenides. His philosophy of the one Absolute Existence which is Being and Thought, *Sat* and *Chit*, at the same time, his recognition of Not-Being,

47. Arist. *Meta.* i. 5. 986 b 32.

48. Fraser, *Philosophy of Theism*, p. 223.

49. Garbe, *Philosophy of Ancient India*, pp. 33 and 39.

which is even a verbal equivalent of the word *Māyā*, as being conceptually antithetical to the idea of Being, and as essentially non-existent, his explanation of the plurality of the world which is only apparent, his distinction of the phenomenal and the noumenal, the *Vyāvahārika* and the *Pāramārthika*, which recalls to our mind the Parmenidian distinction of opinion and truth, $\delta\acute{o}\xi\alpha$ and $\lambda\eta\theta\epsilon\iota\alpha$, would go a long way in enabling us to call Shankaracharya the Indian Parmenides. But the most important point with which we are concerned here is the very curiously identical way in which both Parmenides and Shankara argue against the Logical Universal. Shankaracharya, as does Parmenides in the Platonic dialogue of that name,⁵⁰ speaks against the Logical Universal in the following way. What is the relation, he asks, between the Universal and the Particular? Is the Universal wholly present in the Particular, or only partly? If it is wholly present, it is distributed in so many things, and so it is many; if it is partly present in the Particulars which are many, it is divisible. It thus comes about that the logical Universal is either many or divisible: in either case it is not one, which it ought to be by definition⁵¹. Students of Plato's *Parmenides* will notice here the extraordinary analogy of the two arguments. It is not possible either that Shankara borrowed it from Parmenides, or that Parmenides borrowed it from the ancient Indian tradition going so far back to the days of the Upanishads, to which Shankara belonged, and whose traditions he has preserved in his Commentary. We have mentioned the extreme similarity of the arguments in this place only in order to strengthen Gomperz's assertions that "if an idealistic interpretation of Parmenides be incredible on other grounds, the last traces of hesitation would be removed by the parallelism to Parmenides which we find in the Vedānta-Philosophers of India"⁵²; for then, we could interpret the one philosophy in as idealistic a sense as the other.

50. Plato, *Parmenides* 131 A ff.

51. Shankaracharya, *Brahmasutrabhāshya*, II. 1. 18.

52. Gomperz, *Greek Thinkers* I. 179.

III. ZENO.

11. *Zeno, an intellectual acrobat.*—Of all the Eleatics, and in fact of all the early Greek philosophers, Zeno alone could be regarded as having made an approach to the art of intellectual gymnastic. Aristotle says that the early philosophers were only untrained boxers, who occasionally made a splendid hit, but Aristotle generally finds them lacking in the art of intellectual wrestling⁵³. In Zeno, for the first time, we have an intellectual acrobat. He seems to us to be like a porcupine, who darts his sharp-pointed spiny quills at every opponent who happens to come near. By his clever dialectic he sets the whole world of his opponents at naught in order to defend his Master's idealistic monism. Whether, as a champion of Unity, he attacks the Pythagoreans for their inveterate Pluralism, or whether, with a haughtiness to be matched only by that of the proud Herakleitos⁵⁴, he attacks his doctrine of incessant motion, the fact remains that he marshals his arguments so skilfully, that his opponents find themselves at their wits' end in resisting the attacks of Zeno. It is not without reason that the whole world has for more than 2000 years stood agape at the skilful performances of Zeno, and more than one eminent man has called Zeno's arguments "immeasurably subtle and profound."

12. *Was Zeno a mere Sceptic?*—Opinions differ as to whether Zeno should be regarded as having a positive object for his philosophy, or only a negative one. We cannot be too sure as to whether Zeno influenced Protagoras: it seems according to Simplicius as if he did⁵⁵. Gomperz asserts, relying mainly on a misunderstanding of a passage in Plato⁵⁶, that Zeno did not remain a faithful acolyte of Parmenides in his later life, that he no doubt entered the field as an ardent

53. Arist. *Meta.* 985 a 15.

54. Diogenes Laertius Bk. IX (Life of Zeno).

55. Simplicius, *Phys.* 255 r.

56. Plato, *Parmenides* 128 E.

believer in the doctrine of unity, but that he left it as a sceptic, or rather as a nihilist. We thus find, that, according to Gomperz, there was in Zeno what he calls "a spontaneous decomposition of the Eleatic theory of Being" ⁵⁷. As against this view, we have the authority of Zeller, who tells us that Zeno must not be regarded as being merely a sceptic, but should rather be credited with having a positive end for his argumentation ⁵⁸. According to this view, we ought to regard Zeno as merely a henchman of Parmenides, who defended his Master's changeless Being with negative arguments. It is with this latter view that we may see that we have reason enough to agree.

13. *Plato on Zeno's method.*—Plato tells us in the *Parmenides* that Zeno was regarded as the *alter ego* of Parmenides. That he was merely the comely catamite of Parmenides is only a disgraceful calumny ⁵⁹. But the fact remains that Zeno stood to Parmenides in the close relation of philosophical discipleship. Plato tells us that, in this relation, Zeno advanced no new theory of his own, but only fenced round the old theory of Parmenides. While Parmenides affirmed Unity, Zeno denied plurality, and Plato says that they deceived the world into believing that they were saying different things when they were saying the same. In an apologetic vein Zeno replies that he had no intention of deceiving the world; his only object was to defend the arguments of Parmenides against those who made fun of him; and he only paid back with interest the attacks of the partisans of plurality and motion ⁶⁰. Elsewhere, Zeno is called by Plato the Eleatic Palamedes for the subtlety of his inventive genius ⁶¹. With his power of invention, Zeno brought into existence his great hypothetic method. Prof. Burnet has exceedingly well brought out the

57. Gomperz, *Greek Thinkers* I. 204.

58. Zeller I. 614.

59. Diogenes Laertius Bk IX (Life of Zeno).

60. Plato, *Parmenides*, 128 D.

61. Plato, *Phaedrus*, 261 B. D.

nature and implications of this method. According to him, we must trace back the word *ὑπόθεσις* in Plato's *Parmenides* to the days of Zeno himself⁶². The essence of the hypothetic method consisted in provisionally assuming the truth of an opponent's conclusion, and then deducing from it, either one absurd or two contradictory conclusions : in fact it consisted in educating a *reductio ad absurdum*. According to Prof. Burnet, we must regard Plato himself to have been indebted to Zeno for the method of the *ὑπόθεσις* which he later made use of and incorporated in his *διαλεκτικῇ*.

14. *Aristotle on Zeno's method.*—We are also told by Diogenes Laertius that Aristotle himself called Zeno the inventor of the Dialectic. In a translation of Diogenes Laertius, published by R. Bentley and T. Chapman, London, 1696, there occurs the following passage (p. 103): "In his *Sophist*, Plato calls Zeno, for the subtlety of his wit, the Elean Palamedes. Aristotle tells us that he was the first inventor of Logic." Now, this statement must be taken with caution and care. It is not in his *Sophist*, but in his *Phaedrus*, that Plato compares Zeno to Palamedes, as we have already seen above. Hence, Zeller and Burnet, following Ritter and Preller, take over the expression "in his *Sophist*" with the next sentence, and therefore understand that it was Aristotle who made the remark about Zeno in his *Sophist*⁶³. This raises a further question : what work of Aristotle Diogenes Laertius had in view? In any case, we might trust Diogenes so far as to regard Aristotle as having called Zeno the inventor of the dialectic, as we might also trust him for having said that Plato called him the Eleatic Palamedes. That Zeno had a masterly dialectical mind, and that the problems which he set to the thinking world were "difficult of solution," Aristotle asserts more than once⁶⁴. The interest however which Aristotle takes in Zeno

62. Burnet, *Early Greek Philosophy*, p. 361 n. 4.

63. Zeller I. 613, and Burnet *Early Greek Philosophy*, p. 361.

64. Arist. *Topics* VIII. 8 ; *Sophistici Elenchi* 24.

is not primarily of the metaphysical kind. He never makes mention of Zeno in connection with Parmenides, as he does of Xenophanes and Melissos. Aristotle's interest in Zeno is of a logico-physical kind. By his dialectical way of argumentation, Zeno set the thinking world to frame the rules by which correct reasoning might be tested : while Aristotle duly recognises that the whole trend of Zeno's argument had a very important influence on the development of physical science⁶⁵.

15. Zeno's arguments against Motion.—The arguments by which Zeno set the philosophers of Greece to scratch their heads are well-known : but the merciless logic and the profound insight into science with which Aristotle meets them are not equally known. We will go to consider in the next section the way in which Aristotle meets the arguments of Zeno ; but before we do this, we shall take a brief résumé of Zeno's arguments against Motion as stated by Aristotle, in order that we might be better able to understand Aristotle's criticisms of them.

(1) In the first place, Zeno argued that it would be impossible for a moving body to reach any destination whatsoever : it would be impossible, for example, for a runner to reach the end of a race course ; because, before he traverses the whole distance, he must have traversed a half, and before he traverses the half, he must have traversed *its* half, and so on *ad infinitum*. It comes about, therefore, that it would be impossible for anybody to move at all.

(2) It would be impossible, said Zeno, for Achilles of swiftest foot to overtake a creeping tortoise, if it has just got a start ahead of him. When Achilles comes up to the point from which the tortoise started, it has already gone some distance ahead. Before Achilles makes up this distance, it has advanced still a little further, and so on *ad infinitum*. It comes about, therefore, that it is impossible for Achilles even to overtake the tortoise, not to speak of leaving it behind.

65. Arist. *De Generatione* A. 8. 324 b 35 ff.

(3) The flying arrow, said Zeno, must be regarded as at rest. At any moment during its motion, it occupies a position which is equal to its own length ; and thus, at any moment, it must be regarded as stationary. A sum of restful positions could never constitute a motion.

(4) Finally, Zeno argued that if two equal bodies are moving with equal speed in opposite directions past another equal stationary body in the stadium, they will move past each other with double the speed and half the time that each of them would take in moving past the stationary body. It happens thus that half the time is equal to double the time.

16. *Aristotle's criticisms of the arguments against Motion.*—The acuteness with which Aristotle has attacked these arguments has not been noticed, though it is well worthy of our admiration. In his criticism of Zeno's arguments Aristotle contributes three important ideas to the history of thought. They are concerned with the distinction between Relative and Absolute Motion, the Philosophy of the Infinite, and the Philosophy of the Continuum. We shall consider these in order.

(1) Aristotle finds it easy enough to dispose of the fallacy underlying the argument of the stadium by saying that it rests on a confusion between the concepts of relative and absolute motion : when we say "half the time," we are comparing the motion of the two moving bodies in respect of each other, that is, we are taking into account relative motion. When we say "double the time," we are considering the motion of a moving body past a stationary body, that is, we are speaking of absolute motion. "The fallacy lies in the fact that while Zeno postulates that bodies of equal size move forward with equal speed for an equal time, he compares the one with something in motion and the other with something at rest"⁶⁶. The two motions, and therefore the two times, cannot be equated with each other, and thus arises the fallacy of the confusion of relative and absolute

66. Arist. *Phys.* 240 a 1-4.

motion. When we remember that there has been a great deal of controversy in the history of modern mathematical physics over the nature of absolute and relative space, time, and motion between the two camps of Newton and Leibnitz, the one definitely asserting the existence of these, and the other controverting the position,⁶⁷ we will be not a little surprised that Aristotle first moots the problem, and throws it as an apple of discord amongst the contending schools of mathematicians.

(2) We have hitherto discussed the fallacy underlying the last argument of Zeno. We may now consider how in criticising Zeno's first three arguments, Aristotle makes a contribution to the Philosophy of the Infinite, and the Philosophy of the Continuum. And first, in regard to Aristotle's Philosophy of the Infinite. One of the most significant fallacies underlying the arguments of Zeno, says Aristotle, is the confusion of the infinite and the infinitesimal. "Both space and time can be called infinite in two ways: either absolutely as a continuous whole, or by division into the smallest parts. With infinites in point of quantity, it is not possible for anything to come in contact in a finite time; but it is possible in the case of the infinites reached by division"⁶⁸. Aristotle's point is that though it would be impossible to traverse an infinite space in a finite time, it would yet be possible to imagine that an infinitesimal space could be traversed in a finite time. On a consideration of the passage from Aristotle, which we have quoted, it may be seen that even though Aristotle is shrewd enough to make a distinction between the two meanings of the word Infinite, namely the infinite proper and the infinitesimal, his argument, that the infinites could not be brought into relation with infinites while the infinitesimals could, falls wide of the mark, and might be condoned in him in the absence of the discovery of the infinitesimal calculus in his day. Aristotle did not see that the infinitesimals have to do

67. Vide Russell, *Principles of Mathematics*, p. 489 ff.

68. Arist. *Phys.* vi. 2; 233 a.

with the finites no more and no less than the very infinites themselves ; the two stand absolutely on a par so far as their relation with the finites is concerned.

(3) The most important criticism, however, which Aristotle makes is directed against the assumption of discontinuity underlying the arguments of Zeno. It seems as if Aristotle regards this as a criticism of Zeno himself: "Both time and space are continuous, and the divisions of time and space are the same. Accordingly, Zeno's argument is erroneous that it is not possible to traverse infinite spaces, or come in contact with infinite spaces, successively in a finite time" ;⁶⁹ or again, "Zeno's reasoning is fallacious.....for time is not composed of present moments that are indivisible, nor indeed is any other quantity."⁷⁰ It must be remembered that this criticism applies not to Zeno himself, but to the Pythagorean idea of discontinuity, which, *pace* Prof. Adamson⁷¹, was the *ὑπόθεσις* of Zeno. We must also remember that Zeno only provisionally assumes the Pythagorean conception of discontinuity, proves that it is beset with difficulties, and finally implies that such a hypothesis must therefore be destroyed. Zeno wanted to uphold the continuity of Parmenides' Being, and was therefore obliged to prove the absurdity of the Pythagorean notion of discontinuity before he could successfully defend his Master's position. According to the Pythagorean view, space and time must be regarded as merely empirical syntheses of discrete positions and moments : as space consists of only present positions, the "heres," so time consists of only present moments, the "nows". Time and space are merely complexes of jerks; the moving finger writes—and stops—and then moves on ; there are caravansaries in the course of space and time. It was such a view which Zeno wanted to prove absurd, and Aristotle would only join him in

69. Arist. *Phys.* vi. 2 ; 233 a 21-23.

70. Arist. *Phys.* vi. 9 ; 239 b 5-9.

71. Adamson, *Development of Greek Philosophy*, p. 37.

the affray. To Zeno, as to Aristotle, space could not be composed of serial locations, any more than time could be composed of present moments. Aristotle complains that the view he criticises depends on the false assumption that time is composed of present moments: *συμβαίνει δὲ παρὰ τὸ λαμβάνειν τὸν χρόνον συγκείσθαι ἐκ τῶν νῦν.*⁷² and what is true of time could be analogously asserted of space likewise. The Pythagorean idea of discontinuity of space and time was abhorrent to both Zeno and Aristotle; they both regarded their infinite divisibility as a mere chimera. It may thus be seen that Aristotle unconsciously agrees with Zeno: he defends his intention even though he criticises his hypothesis. If, however, Zeno stops with a negative proof of continuity implied in the disproof of the discontinuous, Aristotle goes beyond Zeno in supplying us with a positive definition of continuity, and thus manifests an insight into science which is wonderful: "A thing is continuous *συνεχές* when of any two successive parts, the limits at which they touch are *one and the same*, and are, as the word implies, held together."⁷³ Aristotle tells us how continuity implies more than mere contiguity. We may say without exaggeration that Aristotle has supplied all modern philosophies of the continuum with a solid basis to build upon. It will take us too long to discuss in this place the contribution to the philosophy of the continuous made by recent writers like Cantor, Dedekind, Canturat Peano, and others. We will only take a typical modern definition of the continuous, and see how much it owes to the definition of Aristotle: "A series is continuous when any term divides the whole series unambiguously into two mutually exclusive parts, which, between them, comprise all the terms of the series, and when any term which so divides the series is itself a term of the series"⁷⁴. Aristotle's definition is even better, because it is still simpler, and we must credit Aristotle

72. Arist. *Phys.* 239 b 31-32.

73. Arist. *Phys.* 217 a 10-13.

74. Taylor, *Elements of Metaphysics*, p. 171.

with the first and most complete definition of the continuous. If Logic sprang full-grown from the head of Aristotle, as Kant once said, we could also say that the idea of Continuity also sprang full-grown.

17. *Zeno's arguments against Multiplicity and Empty Space.*—We have hitherto considered Zeno's arguments against motion which have been mentioned and discussed by Aristotle himself. We shall now briefly consider the other arguments of Zeno which are preserved for us by Simplicius.

(1) Being said Zeno, could not be a plurality, because, on this supposition, it could be shown to be at once finite and infinite. It is finite because it consists only of as many units as there are; it is infinite, because, on the hypothesis of plurality, we could always interpose an intermediate unit between any existing pair of units; hence, says Zeno, the hypothesis which we have assumed leads to two inter-contradictory conclusions, which fact destroys the original hypothesis.

(2) Then again, said Zeno, Being could not have any magnitude, for, if possible, let Being have a magnitude. On this supposition, a line which has got magnitude could be divided *ad infinitum* into an indefinite number of units. Each of these units must itself either have a magnitude or not. If it has, the line becomes infinitely large; if it has not, the line becomes infinitely small. Thus it comes about that the same line is both great and small, small enough not to have any magnitude, and great enough to be infinite: *μικρὰ μὲν ὥστε μὴ ἔχειν μέγεθος, μέγαρα δὲ ὥστε ἄπειρα εἶναι.*⁷⁵

(3) Then follows the argument of the bushel of corn, involving the idea of plurality, but intended apparently to prove the invalidity of sense-perception. It was inconceivable, said Zeno, how a bushel of corn could make a noise, when one grain of corn, or a ten-thousandth part of a grain is not perceived to make a noise, even though it must be regarded as making one.

75. *Simpl. Phys.* 30 V 141, 1.

(4) Finally, Simplicius makes mention of Zeno's argument against the reality of empty space. If all Being exists ⁷⁶ in space, space as Being must exist in a second space, and this in another, and so on *ad infinitum*; hence it follows that there is no such thing as space: ἔσται ἄρα καὶ ὁ τόπος ἐν τόπῳ καὶ τοῦτο ἐπ' ἀπειρον. οὐκ ἄρα ἔστιν ὁ τόπος. ⁷⁶

18. *Aristotelian criticism of these arguments*—Aristotle has not himself criticised these arguments formally in detail excepting the last one; but we might see that the principles underlying his criticism of the arguments against motion could easily be made applicable to the first three of these arguments also. We shall however first consider Aristotle's criticism of the last argument before we discuss the validity of the first three arguments from the Aristotelian point of view.

(1) According to Aristotle, the indefinite regress involved in the argument against the existence of space is not of an objectionable kind. It is not difficult, says Aristotle, to solve Zeno's problem; there is no reason why the first place should not be in something else.....just as health exist in warm beings as a state, while warmth exists in a material body as an affection, and so on indefinitely: οὐδὲν γὰρ κωλύει ἐν ἄλλῳ μὲν εἶναι τὸν πρῶτον τόπον ... ὥσπερ ἡ μὲν ὑγίεια ἐν τοῖς θερμοῖς ὡς ἕξις, τὸ δὲ θερμὸν ἐν σώματι ὡς πάθος. ⁷⁷ It might seem at first sight as if this is merely a verbal argument addressed to Zeno, and as if it meets one infinite regress by another of the same kind. But, if we look deeper, we will find that Aristotle is here unconsciously making a distinction between two kinds of infinite regress, one of an objectionable kind, and the other absolutely harmless. Mr. Bertrand Russell has very cleverly pointed out that an infinite regress is objectionable, only when in a series of backward processes we never reach a proposition which has a definite meaning; on

76. *Simpl. Phys.* 130 V 562, 4.

77. *Arist. Phys.* 210 b 24-27.

the other hand, a regress is absolutely harmless when we do ⁷⁸. In the regress suggested by Zeno, the very meaning of the successive propositions is in question; on the other hand, in the regress suggested by Aristotle, the meaning of the propositions is quite definite. Hence we see that by recognising that not all infinite regresses are objectionable, Aristotle gives a very clever answer to the sophism of Zeno.

2) The two arguments against plurality and magnitude were not formally refuted by Aristotle; but, as we have seen, the principles underlying his criticism of the arguments against motion could be made applicable to these arguments also. The arguments against multiplicity as much as the arguments against motion are based upon a fundamental misunderstanding of the nature of the Infinite and the Continuous; with this difference only, that while in the case of the arguments against motion, we were concerned with Time, in the case of the arguments against multiplicity, we are concerned with Space. The arguments against motion are based on a defiance of the application of the concepts of the Infinite and the Continuous to Time; the arguments against multiplicity are based on a like defiance as extended to Space. If time is not made up of discrete moments, space is equally well not made up of discrete positions; the two are alike infinite and continuous, and they equally rebel against the kind of subjection to divisibility which Zeno's argument would impose upon them. It is very important to remember in this connection that the outcome of Zeno's argument was the formation of the concept of the geometrical point, which has merely an imaginary position and which must therefore be regarded as having no physical parts. How well does this anticipate Euclid's definition of a point as having merely an imaginary location, and having no physical parts! σημείον ἐστὶν οὐ μέρος οὐθεν ⁷⁹. While it is important to remember that Zeno thus inspired

78. Russell, *Principles of Mathematics*, pp. 348-9.

79. Euclid's *Elements* (opening).

Euclid in regard to the first principles of his science it is unfortunate that Aristotle did not catch the inspiration. As Euclid agreed with Zeno in regard to the definition of a point, Aristotle agreed with the Pythagoreans. We shall show elsewhere in an Essay on "Aristotle's criticism of the Pythagoreans" how Aristotle develops the Pythagorean conception of a point as having an actual magnitude. As to how far Aristotle's doctrine of a point as having magnitude⁸⁰ is consistent with his other doctrine of the continuity of space, it will be too much for us to enquire in detail in this place. We may say however that Aristotle seems to us to be a defaulter in this respect. We could understand the Pythagorean doctrine of the discontinuity of space as consistent with their other doctrine of a point as having magnitude; we could understand Zeno's doctrine of the continuity of space as entirely consistent with the doctrine of a point as having no magnitude; but we cannot understand how Aristotle could maintain the doctrine of continuity with Zeno, and the doctrine of a magnitudinous point with the Pythagoreans! The Pythagoreans were wrong, but consistent; Zeno was both right and consistent; but Aristotle was both right and wrong, and therefore inconsistent. For our present purposes, however, it is enough to understand that Aristotle was at one with Zeno in the doctrine of the "continuity" of space at least, and from that point of view it is easy enough to see, as in the case of the previous arguments, how the arguments against multiplicity could be answered.

(3) Zeno's argument of the bushel of corn is, like the above two arguments, based upon the antinomy inherent in the conception of multiplicity, and could therefore be answered from the same point of view. There are, however, in the argument of the bushel of corn two further considerations, which were not contemplated by Aristotle, but, which we might briefly mention. In the first place, the argument intro-

80. Arist. *Meta.* 992 a. 23.

duces the idea of number, as the ideas of space and time were introduced in the previous arguments. Now, as students of the History of Thought know, the fundamental conception underlying the idea of number may be taken to be either time as with Kant, or Space as with Bergson⁸¹. We do not enter here into the question as to which of these views is more valid. Our point is that whether we understand number to be fundamentally spatial or whether we understand it to be temporal, the antinomy underlying its conception could be, from the Aristotelian standpoint, equally well disposed of as the antinomies underlying the conceptions of space and time. In the second place, we have to remember that the argument of the bushel of corn which was intended to invalidate the authority of sense-perception, could not be finally answered until we go to the psychology of consciousness. Students of Leibniz know that the problem which most seriously engaged his attention was exactly the problem of Zeno: "I am accustomed to use the example of the roaring of the sea with which one is assailed when near the shore. To hear this noise, as one does, one must hear the parts which compose its totality; that is, the noise of each wave, although this noise would not be noticed if its wave were alone. One must be affected a little by the movement of each wave, ... however small it be; otherwise one would not hear that of a hundred thousand waves, for of a hundred thousand zeroes one can never make a quantity"⁸². In fact, as Leibniz tells us, we have to take for granted the existence of "*petites perceptions*" before we could constitute out of them a total state of consciousness, the "*aperception*." The problem of Zeno is the same as the problem of Leibniz, and we cannot answer it unless we consider the nature of the subconscious, and the miraculous commingling of subconscious units to form a total state of consciousness.

81 Kant, *Critique of Pure Reason* (Transcendental Aesthetic); Bergson, *Time and Free-will*, pp. 78-85.

82. Leibniz, *Nouveaux Essais*, Avant-propos.

19. *Zeno, Neo-Zenoism, and the Infinitesimal Calculus.*—(1) We have considered so far the general nature of Aristotle's criticism of Zeno's arguments. We have seen that Aristotle does not rise to an appreciation of the true nature of the Infinite, as the Infinitesimal Calculus had not yet been discovered; we have seen that he does not rise to the appreciation of the nature of the geometrical point as a dot in an ideal space without any physical magnitude; we have seen that he could not come to imagine the existence of *petites perceptions* in the absence of any light yet thrown on the nature of the sub-conscious. But the way in which he cleverly distinguishes between different kinds of infinite regress, some of which are objectionable and others harmless, the acute insight which he shows in making a distinction between relative and absolute motion, and finally, his prophetic vision of the nature of the continuous in space and time, are sufficient for our purposes to enable us to regard him as a precocious scientific intellect, whose musings would put the pioneers of modern science to the blush. There are, however, one or two other considerations from the standpoint of modern science, to which we have to do justice before we finish our review of Aristotle's criticisms of Zeno.

(2) One such consideration is forced upon us almost immediately after the dazzling effect produced by Zeno's arguments has partially subsided. Granted that Zeno was acute enough to discover the nature of the continuous; granted also that he could discover the nature of the geometrical point as having merely an imaginary position; granted likewise that these are real contributions to the development of science; what can we say about his doctrine of absolutely motionless Being? Even supposing that the Whole is to Zeno a mere static reality, could there be no immanent motion inside it, as Aristotle urged? Then again, is Reality a mere block-universe, which allows of no motion and no change? Trying to fly to the opposite pole from the Becoming of Herakleitos, Parmenides and Zeno are obliged to descend on the nude table-

land of the Whole, desolate, breezeless, motionless, scorched under the glare of the midday sun. To Aristotle, such a conception of Reality was unimaginable. His principal complaint is that Parmenides and Zeno make no room for change in their static universe. Zeno might prove by a sleight-of-hand that motion is inconceivable; but experience forbids such a false view of the universe. Equally false is the explanation of motion which Plato and Aristotle have themselves to offer as due to the initiation of the soul; it is no less mythological and crude. Plato and Aristotle have played out their cards; Zeno remains unbeaten; the sophisms by which he proves the unreality of motion remain; what trump-card could modern Science show?

(3) The fact is that Zeno could not be finally answered until it comes to be definitely realised that motion is a spatio-temporal relation. It is neither a purely spatial, nor a purely temporal, function, It consists of a correlation between places and times. As Mr. Bertrand Russell cleverly points out, "there is motion when different times.....are correlated with different places; there is rest when different times.....are all correlated with the same place.....Motion consists broadly in the correlation of different terms of t with different terms of s "⁸³. In his arguments against motion Zeno with his right hand shows the card s and then withdrawing his right hand, with his left shows the card t ; we must compel him to show the cards simultaneously. All the Sophisms of Zeno against motion, the flying arrow, the Achilles, and the rest, depend upon a promiscuous huddling up of δs and δt and the clever passing off of one for the other. To put the whole thing mathematically, motion must be understood as defined by the differential coefficient ds/dt ; it is neither mere δs nor mere δt ; it is a correlation of the two, different from either, and

83. Russell, *Principles of Mathematics*, p. 473.

qualitatively new. It is this fact which has been urged upon us by the Neo—Heraklitean French Philosopher, Monsieur Bergson. Time and oft in his books has he urged that movement is indivisible: "Motionless in each point of its course, says Zeno, the arrow is motionless during all the time that it is moving! Yes, if we suppose that the arrow can never *be* in a point of its course.....To suppose that the moving body is at a point of its course is to cut the course in two by a snip of the scissors at this point, and to substitute two trajectories for the single trajectory which we were first considering..... The other three arguments all consist in supposing that what is true of the line is true of the movement,.....which is regarded as decomposable and recomposable at will" ⁸⁴. It may be easily shown that Zeno's arguments could be disposed of by giving to motion the things which are motion's.

(4) We must not forget, however, to take account of certain Neo-Zenoist tendencies of modern thought. As we have a rehabilitation of Herakleitos in Bergson, so we have a rehabilitation of Zeno in Mr. Bertrand Russell. He preaches us a philosophy of what he is pleased to call "static change" ⁸⁵. With an eloquence which comes out of intense appreciation, he expatiates on the capriciousness of posthumous fame: "One of the most notable victims of posterity's lack of judgment is the Eleatic Zeno. Having invented four arguments, all immeasurably subtle and profound, the grossness of subsequent philosophers pronounced him to be a mere ingenious juggler, and his arguments to be one and all sophisms. After two thousand years of continual refutation, these sophisms were reinstated, and made the foundation of a mathematical renaissance, by a German professor, who probably never dreamed of any connection between himself and Zeno. Weierstrass, by strictly banishing all infinitesimals, has at last shown that we live in an unchanging world,

84. Bergson, *Creative Evolution* pp. 325-328. Also *Vide Time and Free-will*, p. 113, and *Matter and Memory*, p. 250.

85. Russell, *Principles of Mathematics*, p. 350.

and that the arrow, at every moment of its flight, is truly at rest"⁸⁶. At rest indeed, and with a vengeance! For, does not Mr. Russell say that all such conceptions like velocity, acceleration, and force, which may to the slightest extent imply the existence of a changing, moving, world, are mere fruitful fictions⁸⁷ of the scientific imagination? Is not Mr. Russell a fit associate of Weierstrass in banishing the conception of the infinitesimal, and in urging that there exist "no infinitesimal differences at all?" For, are not infinitesimals "an attempt to extend to the *values* of a variable, the variability which belongs to it alone?" And finally, does not Mr. Russell justify the sophism that the flying arrow is always at rest, as being merely an illustration of a very widely applicable platitude that "every possible value of a variable is constant"?⁸⁸ But the Nemesis of a static philosophy soon overtakes Mr. Russell. He bethinks himself that Zeno may probably have erred: he may have erred "in inferring (if he did infer) that, because there is no change, therefore the world must be in the same state at one time as at another"⁸⁹. And, to crown all, he is in the end compelled to reject the Achilles argument⁹⁰ and favour the Tristram Shandy even though both are equally ridiculous, forgetting all the while that the rejection of the Achilles takes the bottom off the philosophy of rest!

(5) The fact is that the Infinitesimal Calculus can not be so slightly treated, as has been done by Weierstrass and Russell. The Infinitesimal Calculus has come to stay, and mathematicians could ill afford to despise its rules. If the notions of infinity and continuity are to any extent valid, —and that they are valid must be recognised by every

86. *Ibid*, p. 347.

87. *Ibid*, pp. 473, 482.

88. *Ibid*, p. 351.

89. *Ibid*, p. 347.

90. *Ibid*, p. 359.

thinker—the Infinitesimal Calculus must hold its own in spite of the Casca-like thrusts of Herr Weierstrass. Well might we say to Mr. Russell "*Et tu, Brute!*" His attack on the Infinitesimals is the most unkindest cut of all. The Infinitesimal Calculus supplies us with the only possible answer to Zeno's sophisms. On a review of the mathematical basis on which a majority of these arguments repose, it may be seen that they take the form of the mathematical question—How is it possible for an infinite number of infinitesimally small units to produce a finite whole in combination? In fact, the question is—Is it possible that the expression $\infty \times 0$ may give us a finite result? Now, as modern Calculus would tell us, the expression $\infty \times 0$ is of the

form $\frac{0}{0} = \frac{\phi(x)}{\psi(x)}$, when $x = a$ reduces both of these functions

to 0. Supposing that the next higher value that we could assign to x is $a+h$, we have, according to Taylor's theorem

$$\frac{\phi(x)}{\psi(x)} = \frac{\phi(a) + h\phi'(a) + \frac{h^2}{2!}\phi''(a) + \dots + \frac{h^n}{n!}\phi^{(n)}(a) + \dots \text{to } \infty}{\psi(a) + h\psi'(a) + \frac{h^2}{2!}\psi''(a) + \dots + \frac{h^n}{n!}\psi^{(n)}(a) + \dots \text{to } \infty}$$

Now $\phi(a)$ and $\psi(a)$ are each of them zero by hypothesis. The next succeeding value of $\frac{\phi(x)}{\psi(x)}$ would therefore be $\frac{\phi'(a)}{\psi'(a)}$. Now, if $\phi'(a)$ and $\psi'(a)$ are zero again, the next value of $\frac{\phi(x)}{\psi(x)}$ would be $\frac{\phi''(a)}{\psi''(a)}$ and so on, the general type of evaluation of the original

expression being $\frac{\phi^{(n)}(a)}{\psi^{(n)}(a)}$. Thus, it would be ultimately possible

to get a finite value for $\frac{\phi(x)}{\psi(x)}$ which would no longer remain indeterminate. The only hope for us to lay to rest the ghost which Zeno has raised is to compel it to submit to the magical wand of the Infinitesimal Calculus,

IV. MELISSOS.

20. *Points of difference between Parmenides and Melissos.*—When Aristotle comes to speak of Melissos, he brings Melissos' doctrine in close relation with that of Parmenides, and tells us where they agreed as well as where they differed. Melissos has for Aristotle a logico-metaphysical interest. We have seen already that Zeno was treated apart by Aristotle for his logico-physical significance. Zeno had applied the doctrine of his Master in such a way that he might be enabled to repel the attacks of the advocates of plurality and motion, and he thus contributed more to the history of science than to the history of metaphysics. Melissos, on the other hand, looks at the metaphysical doctrine of Parmenides *per se*, and carries it to its logical conclusion. Aristotle tells us that there were two important points of difference between Parmenides and Melissos. (i) The first consisted in that, while Parmenides' Being was limited, that of Melissos was infinite⁹¹. Aristotle even compliments Parmenides as an acute thinker for having said that Being was finite! As we have already seen, both Parmenides and Aristotle were too much under the spell of Pythagorism to rise to the conception of the infinity of Being as philosophically a sounder and more advanced conception. It is strange that even Aristotle could not extricate himself from the thralldom to finiteness, which is a dominant note of Greek thought: "Nothing is complete which has not an end; and an end is a limit; therefore, Parmenides was a more acute thinker than Melissos"⁹². (ii) The second point of difference between Parmenides and Melissos consisted, according to Aristotle, in this, that while Parmenides seemed to take hold of Unity according to reason, Melissos seemed to take hold of it according to matter: Παρμενείδης μὲν γὰρ ἔοικε τοῦ κατὰ τὸν λόγον ἑνὸς ἀπτεσθαι, Μελισσος δὲ τοῦ κατὰ τὴν ὕλην.⁹³

91. Arist. *Phys.* iii. 6 ; 207 a 16 ; also *Meta.* i. 5 ; 986 b 20.

92. Arist. *Phys.* iii. 6 ; 207 a 14.

93. Arist. *Meta.* i. 5 ; 986 b 18-20.

What this cryptic assertion means, we shall immediately see ; but we may forewarn our readers that it does not mean that Melissos was a materialist.

21. *Burnet on the Materialism of Melissos.*— It could be easily imagined that the authoritative statement of Aristotle that Melissos laid hold of Unity according to matter would be regarded as a god-send by all those interpreters of Eleaticism who would approach it with a pre-conceived notion of its materialistic tendencies. We thus find that Prof. Burnet sees in Melissos merely a materialism *redivivus*. Unmindful again of the general tenor of Melissos' thought, unmindful of the deliberate and definite statement of Melissos which we shall quote a little further that Being cannot have body, and therefore that it must be regarded as incorporeal, Burnet fathers upon Melissos a materialistic interpretation once more. The only justification which Prof. Burnet gives for this interpretation is a sublime *petitio principii*: "If our general view as to the character of Early Greek Philosophy is correct"⁹⁴, then we must disbelieve that Melissos regarded Being as incorporeal, and believe that he was a materialist! "Reality" to Melissos "is a single, homogeneous, corporeal plenum, stretching out to infinity in space, and going backwards and forwards to infinity in time"⁹⁵. Adamson points out cleverly as against this view that "material" to Aristotle does not mean "corporeal": "Matter with Aristotle is a much wider notion than corporeality ; there is for him, for example, intelligible matter. The *logos* is the abstract notion, the complete representation of what is essential to the thing. In regard to it, *hyle* is always involved, but only as a subordinate factor or element"⁹⁶. We have to remember, further, that, in the explanation of the doctrines of the earlier philosophers, Aristotle often uses expressions

94. Burnet, *Early Greek Philosophy*, p. 377.

95. *Ibid.*, p. 376.

96. Adamson, *Development of Greek Philosophy*, p. 35.

which have significance only from the standpoint of his own philosophy ; and it could be easily imagined that Aristotle uses the word "matter" in the above reference from his own standpoint. Moreover, if the statement from Aristotle above referred to would enable us, according to Burnet, to regard Melissos as a materialist, then the very same statement must enable us to regard Parmenides as a 'rational' philosopher, which would give the lie direct to Burnet's interpretation of Parmenides' philosophy ! There is no alternative except to understand Aristotle as implying, that while Parmenides may have looked at Unity from the abstract point of view, Melissos may have looked at it from the concrete.

22. *Melissos at the bar of formal logic.*—The philosophy of Melissos calls forth very unsympathetic criticism from Aristotle. We shall consider in the next section what Aristotle has to say about the metaphysical philosophy of Melissos. We shall consider here the logical arguments which Aristotle brings against Melissos, and by which he tries to prove that the philosophical structure of Melissos is not in the logical plumb line.

(i) In the first place, Aristotle very severely criticises Melissos for the simple conversion of a universal affirmative proposition. Even if you allow that what is generated has beginning, it does not follow, as Melissos argues, that, what has a beginning is generated. It may be true, says Aristotle, that a man with fever is warm ; but it does not follow that one who is warm has fever. ⁹⁷.

(ii) Secondly, Aristotle finds in Melissos a fallacious inference by added determinants. He tells us that Melissos believed that things which are generated from equals have the same size. ⁹⁸

(iii) Aristotle discovers in Melissos a fallacy of inversion. From the proposition SaP, we could only infer an S'oP

97. *Arist. Soph. Elen.* 5.

98. *Arist. Soph. Elen.* 6.

as the result of inversion ; an S'eP is fallacious. From the proposition "Things which have come into being have a beginning", Melissos unjustifiably infers the proposition, "Things which have not come into being have no beginning".⁹⁹

(iv) Aristotle tells us further that, assuming the truth of the conclusion of the previous immediate inference, Melissos uses it with a minor premise in order to deduce a conclusion therefrom. He makes Melissos argue, that, because Things which have not come into being have no beginning, and Time is seen to have no beginning, therefore, that, Time does not come into being at all ¹⁰⁰. This evidently involves the fallacy of undistributed middle.

(v) Finally, when Melissos tries syllogistically to prove the infinity of Being, Aristotle finds in the argument the fallacy of Illicit Major. From the two premises—What is generated has a beginning, and The All is not generated,—he makes Melissos deduce that The All has no beginning, and that therefore it is infinite ¹⁰¹. We do not want to enter into the question whether the criticisms which Aristotle thus passes on Melissos are justifiable ; we have no desire to exonerate Melissos from the attacks of Aristotle ; but we cannot forbear remarking that the criticisms of Aristotle which we have noticed above are anything more than a mere verbal jugglery.

23. Aristotle unsympathetic to the metaphysics of Melissos.—In regard to the metaphysical position of Melissos, we find that Aristotle is extremely unsympathetic. Melissos' metaphysic has been subjected to most undeserved criticisms by Aristotle. "The argument of Melissos," he says, "is all the more wearisome because it sets no problem ; but granted one strange thing, others follow" ¹⁰². Any kind of

99. Arist. *Phys.* i. 3 ; 186 a.

100. *Ibid.*

101. Arist. *Soph. Elen.* 5.

102. Arist. *Phys.* i. 3 ; 186 a 8-10.

metaphysical monism, like that of Melissos, is to Aristotle nothing short of puerility. In regard to the static Being of Melissos, Aristotle asks, what does Melissos mean by saying that the whole is immovable? Granted that for the whole there is no transcendent or external motion; what nevertheless, asks Aristotle, would prevent us from saying that there could be an immanent or internal motion? Why should not the whole be moved, even as a part of it, namely water, is moved in itself?¹⁰³ ἔπειτα διὰ τί ἀκίνητον, εἰ ἐν; ὥσπερ γὰρ καὶ τὸ μέρος ἐν ὄν, τοδοὶ τὸ ὕδωρ. κινεῖται ἐν ἑαυτῷ, διὰ τί οὐ καὶ πᾶν; It cannot be said that the philosophy of Melissos is invulnerable, or that Aristotle's criticism of the static, changeless, Being of Melissos is absolutely groundless; but our complaint is that Aristotle cannot put in even a single word of appreciation for Melissos. Aristotle had no eye of sympathy for the deductive method in philosophy. To him, from the empiristic point of view, the philosophy of Melissos was as absurd as Spinoza's would have been, had he lived to see the uprise of that philosophy. To us, the philosophy of Melissos, like the philosophy of Spinoza himself, seems to be a culmination of the deductive method as applied to metaphysics. Melissos applies this method so successfully that if we just grant the first premise of Melissos, we are carried irresistibly from one stage of the argument to another, until we reach the conclusion of the argument. The deductive method is thus made by Melissos to reveal to our gaze a whole panorama of metaphysical truths. Aristotle shuts his eyes deliberately, and would not see the vision.

24. The Metaphysical Sorites of Melissos.—In order to exemplify what we mean, let us briefly cast a glance at the main stages of Melissos' Metaphysical Sorites. Melissos starts by saying that we cannot conceive of the existence of Non-Being; it follows from this that Being is (fr. 1 a)¹⁰⁴. If it is,

103. Arist. *Phys.* i. 3; 186 a 16-18.

104. The fragments quoted follow the arrangement of Prof. Burnet in his *Early Greek Philosophy*, pp. 370-373.

it is eternal! it ever was and ever shall be (fr. 1). It is thus without beginning and end, and therefore without limit (fr. 2), that is, infinite (fr. 3). If it is infinite, it must be one; for, if it were two, it could not be infinite, for then, the two would be bounded by each other (fr. 6). Since it is one, it is alike throughout; for, if it were unlike, it would be many, and not one (fr. 6 a). Moreover, if it is one, it cannot have body; for, if it had body, it would have parts, and would no longer be one (fr. 9). Also if it is one, nothing can be added to it, nor anything taken away from it. It cannot therefore suffer pain or grief; for, a thing in grief could not be ever, nor would it be alike if it were in pain. It is not therefore changed by so much as a single hair in ten thousand years (fr. 7). It is thus complete, and therefore, it has no necessity to move, for, whereunto should it move if it is complete (fr. 7)? The One is thus an eternal, infinite, homogeneous, incorporeal, painless, unchangeable, complete, immovable Whole. It would be harder to conceive of a more irrefragable chain of philosophical truths, which follow by necessity on the assumption of a single premise. The general tenor of the reflections of Melissos seems to us to be definitely metaphysical; but if Prof. Burnet chooses to call it materialistic, we cannot help the jaundice.

25. General Survey.—On a review of Aristotle's criticism of the Eleatics as a whole, we find that it was hard for him, with his empirical bias, to agree with the idealistic tenor of the Eleatic philosophy. It was the philosophy of the changeless one, which militated against his own doctrine of development, as embodied in the duality of Form and Matter. It was a philosophy which he supposed to have left no scope for the operation of the efficient and the final causes. It must be said to Aristotle's credit that he thoroughly understood the idealistic character of the Eleatic philosophy, though it must also be said that he failed to extend to it his sympathetic appreciation. He makes fun of Xenophanes for having been

merely a listless observer of the heavens, and has no sympathy with the physico-theological strain of his musings. The ontologism of Parmenides, with its identification of Being and Thought, was, for Aristotle, too hard a nut to crack. In spite of his own original contribution to the philosophy of the Continuous, he "fails to understand the historical significance of Zeno"¹⁰⁵, implied in his disproof of the idea of the discontinuous. Melissos he calls merely a wearisome philosopher; he fails to appraise correctly the importance of the deductive method in philosophy, which Melissos was one of the earliest to formulate and to carry to perfection; he fails to sympathise with the painless, griefless, sentient being of Melissos which puts us in mind of Parmenides' perfect Being, which lacked nothing, for then, it would lack all; finally, he failed to perceive that this was merely a negative preparation for his more positive, ecstatic, theoretic God, whose utter transcendence serves to place him on no higher pedestal than would be assigned to the thoroughly immanent Eleatic God.

105. Taylor, *Art. Continuity*, Encyclopaedia of Religion and Ethics Vol. IV. p. 9.

Shri Gurudev Darshan

by Ramanna Kulkarni.

Here is presented a picture of Professor R. D. Ranade—Gurudeva — who was a great **philosophico-mystical luminary**. The book is not just a collection of a few anecdotes of doubtful authenticity: because, the author's close contact with Gurudeva and his utmost sincerity have been two great assets in interpreting documents, correspondence, information collected from eye-witnesses, or reminiscences and, of course, Gurudeva's writings. The writer has skilfully traced and depicted how Gurudeva's intense longing for spiritual life originated from sheer curiosity, how it was initially accompanied by a desire for fruit, how gradually it was nourished and strengthened by his own sadhana combined with unswerving faith in his spiritual teacher and how ultimately it culminated into that pure all-absorbing love of God. **The writer has ably described Gurudeva's spiritual evolution with the help of many incidents in his life and has thrown a flood of light on the psychology of mysticism.** In short, he has done justice to the fullness and variety of Gurudeva's mystical experience as well as his burning desire for the spiritual welfare of man. While reading the book one clearly sees that, the reverence which the writer has for Gurudeva is just that reverence Plato had in his mind when he said : it was one of my greatest fortunes that I was born while Socrates was living.

