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# MUSICAL THEOLOGY
## Xenophanes and the Roots of Eleatic Radicalism

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ABSTRACT
In this essay we examine the commentaries on Music by the poet-philosopher Xenophanes. Through his *astronomy* and *meteorology*, we see his continuity with the Milesians. The controversial issue of his association with the Eleatics, especially Parmenides, is explored. We look at his criticisms of the popular *theology*, as expressed by Homer and Hesiod, and his efforts to expound a more rigorous and consistent theology based on fundamental musical principles. His puzzling employment of paradox and 'crypto-logic' are scrutinized. We note his commentaries on **earth** and **water**, and the meaning of the Elements in general. Finally, we examine his influential distinction between knowledge and opinion, and the important question of the limits of human knowledge. Xenophanes' significance as a bridge between the radicalism of Anaximander and Parmenides is clarified.

*'all things proceed from the One and are resolved into the same.'*
-attributed to Musaeus (Diogenes Laertius, I, 3)

*'I will begin by invoking God, the master and maker and father*
*and encompasser of all, who is both One and all things;*
*not that the One is two, but that these two are one;*
*for the Whole which is made up of all things is One.'*
-Hermetica (Libellus XVI, 3).

## HIS DATE AND LIFE

The poet Xenophanes hailed from Colophon, an Ionian city close by Miletus. According to the ancient evidence, he left Colophon as a young man, and spent much of his life wandering as an itinerant composer-singer of verse, spending most of his time in Magna Graecia (Italy and Sicily). He lived to be extremely old, over one hundred. We have two ancient sources which give us information over his dates. The first comes from Diogenes Laertius:[1] *'Xenophanes son of Dexios or, according to Apollodorus, of Orthomenes, of Colophon...he, being expelled from his native land, passed his time in Zancle in Sicily and in Catana...He wrote in epic metre, also elegiacs and iambics, against Hesiod and Homer, reproving them for what they said about the gods. But he himself also recited his own original poems. He is said to have held contrary opinions to Thales and Pythagoras, and to have rebuked Epimenides too. He had an extremely long life, as he himself somewhere says:* [fragment 8] *"Already there are seven and sixty years tossing my thought up and down the land of Greece; and from my birth there were*

[1] Diogenes Laertius ix, 18 (DK 21A1).

*another twenty-five to add to these, if I know how to speak truly about these things."...And he was at his prime in the 60th Olympiad.'*

Olympiad 60 is 540-537 B.C., making his *floruit* approximately the same as that of Pythagoras. Hence his birth, like that of Pythagoras, would be about 570 B.C. In fact, there are several parallels between the life of Xenophanes and Pythagoras. Both were born around 570 nearby to each other in Ionia. Both led lives of extensive travel, finally settling in the west. Both were intimately involved with religion, music and cosmology. Yet there are also differences. Pythagoras, like Thales, did not write; whereas Xenophanes wrote a large body of poetry, of which 118 lines are still extant as fragments. Also, they came from opposite ends of the 'ideological' spectrum. Pythagoras was a defender of the traditional Orphic-musical cosmology. Xenophanes was more radical and progressive, emphasizing paradoxical or problematic features of the musical paradigm. According to Aristotle, Xenophanes (like Parmenides)[2] *'made nothing clear.'*

Diogenes' evidence for his dating was derived from Apollodorus. We may assume that he left Colophon at about the time of its capture by the Medes under Harpagus. This event occured just after Cyrus' conquest of Lydia in 546. We think that he was exiled, perhaps due to political intrigues. If these events happened when he was 25, then they are consistent with his life-dates being 570-470 B.C. The fragment above was written when he was 92. He probably out-lived Pythagoras by some twenty to thirty years. Heraclitus, who criticized him by name, was about thirty years younger, and Parmenides (his pupil) perhaps sixty years younger. Xenophanes himself referred to Pythagoras and Simonides (his contemporaries), as well as to Thales and Epimenides from the older generation. These references confirm his dates as reasonable.

The other piece of ancient evidence concerning his date adds a note of controversy. It is found in Clement:[3] *'Of the Eleatic school Xenophanes the Colophonian is the pioneer, who Timaeus says lived in the time of Hieron, tyrant of Sicily, and the poet Epicharmus, while Apollodorus says that he was born in the 40th Olympiad and lasted until the times of Darius and Cyrus.'* It is now generally agreed that Clement wrongly reported Apollodorus. The 40th Olympiad (620-617 B.C.) is much too early for his birth date. Also, Cyrus and Darius are connected in an improbable way, since Cyrus died in 529 and Darius gained power in 521. The report of Apollodorus in Diogenes is much more likely to be correct.

However, the first part of Clement's passage gives more reliable information. Timaeus of Taormina was a Sicilian historian who lived at the turn of the 4th and 3rd centuries B.C. He had intimate knowledge of affairs in Magna Graecia and his evidence thus carries considerable weight. Hieron reigned in Syracuse (a Sicilian city) from 478 to 467 B.C., and the poet Epicharmus was also in Syracuse at this time. Thus it is quite possible that Xenophanes spent his final years there. It also makes it possible that he could

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[2] Aristotle *Met.* A5, 986b18.
[3] Clement *Strom.* I, 64, 2.

have had connections with Parmenides of Elea (which was on the south-west coast of Italy). Xenophanes is said to have written a poem concerning the founding of the city of Elea in 540 by the Ionian Phokaians (Herodotus I, 164). It is assumed that Xenophanes went there in the year of its foundation, or even in some way was involved with its foundation. This story supports his philosophical connections with the Eleatic school which is 'officially' founded by Parmenides. He also wrote an epic poem on the founding of Colophon, making him the earliest Greek poet to treat of contemporary and recent history (Diogenes Laertius ix, 20).

## HIS WRITINGS

Xenophanes was a poet and sage (***sophistos***), a singer of his own songs. He has been mistaken for a Homeric rhapsode (a professional singer of the traditional epics), but it is more likely that he was an aristocratic 'free-lance' artist who sang his elegies at *symposia*, or the traditional dinner-parties where food, wine, philosophy, music and dance were invariably mixed. Approximately 40 fragments of his poetry are extant, and Xenophanes is the earliest philosopher to have left us a considerable number of fragments. The reason is simple. Thanks to the verse form, there is much less doubt whether a passage is a direct quote or a paraphrase.

According to Diogenes, he wrote in hexameters and also composed elegies and iambics against Homer and Hesiod. There is very little evidence that he ever wrote a poem specifically on 'philosophy,' and many of the extant fragments have little to do with direct philosophical issues. Three late sources, Stobaeus (DK 21A36), The Geneva scholiast on the *Iliad* (xxi 196; DK 21B30), and Pollux (DK 21B39) maintain that he wrote a treatise *On Nature*. This is improbable, but not impossible, and some modern scholars have assumed it (Zeller, Diels, Reinhardt). At any rate, there is no direct evidence for it. Yet definite philosophical views are embedded within the poetic material. The case of Xenophanes illustrates how artificial is the modern distinction between philosophers and poets in the Presocratic era. Indeed, some later philosophers, notably Parmenides and Empedocles, were also primarily poets, or, at least, wrote in poetic verse-forms.

Xenophanes also penned satires or 'squints,' parodies called *Silloi* by later writers. Such 'tongue-in-cheek' productions gave ample opportunity to express 'scientific' opinions incidentally embedded within the poems. They also encouraged an airing of paradoxical aspects of Music. His satires were justly famous. The great sceptic 'sillographer' Timos of Phlius (c. 259 B.C.) put much of his own satire upon philosophers into the mouth of Xenophanes, according to Sextus (DK 21A35). His love of satire was certainly consonant with a radical perspective on cosmology. Xenophanes could be considered the father of Greek satire, although Archilochus before him also wrote some satires. He was the spiritual ancestor of such comic writers as Aristophanes.

We should emphasize that even the fragments which supposedly have little to do with philosophy also betray a view of the world consistent with Music as it was understood by the ancients. As illustration, consider fragment 1, which sets the stage for a

typical symposium. It shows him at home among the aristocratic circles of good living. This is the longest single fragment of Xenophanes, and it is naturally divided into two parts. The first verse describes the setting of the banquet-hall:

*'Now is the floor swept, hand and cups washed clean;*
*Fresh-woven garlands crown our heads, and now*
*The fragrant unguent-bottle makes its rounds.*
*The bowl stands waiting brimful of good cheer,*
*And here's another wine that will not fail--*
*Soft-tasting, flower-scented in its jars.*
*Incense distils the scent of holiness,*
*And there is water, cold and sweet and clean.*
*See the brown loaves, and on a worthy table*
*A loaf of cheeses and rich honey lies.*
*As centre-piece an altar, thickly strewn*
*With flowers. Song and revel fill the hall.'*

Note the central place of the altar, and the traditional association of song with the sacred. Wine, and possibly other drugs as well, were connected to the god of irrepressible life, Dionysus. The early dramatic festivals, where much poetry was recited, were also dedicated to Dionysus, and formed the cradle of Greek tragedy. The fragment continues with another verse, promoting the traditional custom of commencing a symposium by first evoking the gods (the Muses)--the archetypal act of Musical magic:

*'First it is meet for righteous men to hymn,*
*With pious stories and pure words, the god.*
*Then, due libations paid, with prayers for strength*
*To act aright (our plainest duty this),*
*It is no sin to drink--so much, that all*
*Not weak from age may come safe home alone.*
*Praise him who after drinking can relate*
*Fine deeds, as memory serves and lust for good.*
*Give us no fights with Titans, no nor Giants*
*Nor Centaurs, which our fathers falsely told,*
*Nor civil brawls, in which no profit is.*
*But to be mindful of the gods is good.'*

This fragment shows the typical context of ancient Music, the importance of memory, and the re-telling of the old stories concerning the gods. He criticizes many of the traditional tales as no longer relevant, indeed, as false witnesses of the inner nature of the gods. But he is not *against* the gods as such. Rather, in a typically Presocratic fashion, he wants to introduce a new rigour and consistency when speaking about the traditional gods. Like Anaximander, he wants to uncover the essence of the old tales, and expose the underlying musical nature of the old theology.

Another example of his 'non-philosophical' elegaic writing is his fragment 2, which compares the value (for society) of the poet and the athlete. Here he criticizes the

excessive honours paid to athletes in comparison to poets. For poets contribute more to the good government and material prosperity of the city. The implication is that words and music are more important than physical prowess. We should remember that the archaic Greek educational system was divided between physical development (*Gymnastic*) and mental development (*Music*). Like the aristocratic poets Solon or Theognis before him, he defended the place of letters. In addition, the Olympic games (and other competition festivals) were not solely concerned with athletics. The competition also included poetry, drama, and instrumental music performances on kithara and aulos. In other words, the competitions presented a balance of physical and intellectual exertion, along with various religious rites. The translation of this fragment is by John Burnet (*op. cit.* p. 117):

*'What if a man win victory in swiftness of foot, or in the pentathlon, at Olympia, where is the precinct of Zeus by Pisa's springs, or in wrestling,--what if by cruel boxing or that fearful sport men call pankration he become more glorious in the citizens' eyes, and win a place of honour in the sight of all at the games, his food at the public cost from the State, and a gift to be an heirloom for him,--what if he conquer in the chariot race,--he will not deserve all this for his portion so much as I do. Far better is our art than the strength of men and of horses! These are but thoughtless judgements, nor is it fitting to set strength before goodly art. Even if there arise a mighty boxer among a people, or one great in the pentathlon or at wrestling, or one excelling in swiftness of foot--and that stands in honour before all tasks of men at the games--the city would be none the better governed for that. It is but little joy a city gets of it if a man conquer at the games by Pisa's banks; it is not this that makes fat the store-houses of a city.'*

## ARISTOTLE AND XENOPHANES' STATUS AS A PHILOSOPHER

Aristotle gave relatively little information concerning Xenophanes. He largely ignored him, and considered him a naive and confused thinker. The main reason for this oversight was his own bias concerning the place of early philosophy. As Theophrastus also observed, Xenophanes did not comfortably fit into the pre-conceived mold of 'physical monist.' His monist conception was not 'physical' in the normal sense, like that (supposedly) of Anaximenes and Thales. Aristotle had the same problem with Parmenides, whom he also under-rated. The Aristotelian position was dutifully reported by Simplicius:[4] *'Theophrastus says that Xenophanes the Colophonian, the teacher of Parmenides, supposed the principle to be single, or that the whole of existence was* ***one*** *(and neither limited nor unlimited, neither in motion nor at rest); and Theophrastus agrees that the record of Xenophanes' opinion belongs to another study rather than that of natural philosophy.'* According to the Aristotelian perspective, any early philosopher who did not fit into his category of 'physical monist' was to be side-lined or disparaged. We have already seen similar problems with his interpretation of Anaximander, and it will surface again when we examine the work of Parmenides.

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[4] Simplicius *in Phys.* 22, 26.

exertion, along with various

Aristotle considered him a confused thinker, but it was really Aristotle who was confused over how to assess Xenophanes, much like his confusion over Anaximander. This is understandable, since it appears that Xenophanes' position was that the spherical One is neither material nor non-material, neither limited or unlimited, neither in motion nor at rest. Such a paradoxical argument does not seem to concern 'natural philosophy' in any 'common sense' way; rather, it apparently belongs more to a form of obscure 'logic' divorced from the real world. This sort of 'crypto-logic' is also evident in his pupil Parmenides, whose whole poem '*the way of truth*' directs one to a paradox. Perhaps it finds its most famous expression in the Platonic dialogue *Parmenides*--arguably the most obscure and problematic treatise in the whole history of ancient philosophy. One of the tasks of this essay is to make some sense of this Eleatic 'logic.'

We should keep in mind that Aristotle was not the first philosopher to have difficulties with Xenophanes. Consider fragment 40 of Heraclitus, himself famous for his obscurity and use of paradox: *'Learning of many things does not teach intelligence; if so it would have taught Hesiod and Pythagoras, and again, Xenophanes and Hecataeus.'* Who but Heraclitus could tar both Pythagoras and Xenophanes with the same brush! Plato's assessment of Xenophanes is more complex and less transparent than that of Aristotle, so we have postponed these issues until later in the essay. Suffice it to say that Xenophanes (and Parmenides) have never been 'easy' philosophers for anyone to comprehend.

Aristotle's judgement carried a lot of weight (it still does) and probably hastened the lapse of his poetry into obscurity or rarity. Certainly from the time of Cicero onwards, commentators indicate that they did not have the actual poems at hand, depending more on second-hand information. Galen and Sextus Empiricus indicated as much. Simplicius, in the sixth century, was a careful scholar who always went back to primary sources whenever possible. But he had to rely mainly on Theophrastus and an anonymous treatise called '*On Melissus, Xenophanes and Gorgias*' (*MXG*) which he mistakenly thought belonged to the output of Aristotle. In actuality, this document was written by someone steeped in Eleatic thought from around the time of Christ. It was an eclectic document which does not necessarily reproduce the ideas of Xenophanes in tact. To give an example of the scarcity of Xenophanes' writings, Simplicius wanted to check Xenophanes' paradoxical line about the **earth** (fragment 28), but he could not come to any firm conclusions[7] *'because I have not come across the actual verses of Xenophanes on this subject.'* Complete poems had become difficult if not impossible to access. All of these factors have complicated the ancient assessment of Xenophanes' work.

The opinions of modern scholars vary wildly. He has been regarded as a poet and rhapsode who became a figure in the history of philosophy only by mistake. He has been called the only true monotheist in the history of philosophy, in spite of his acceptance of the gods. He has been labelled a great theologian, while Burnet said that[8] *'he would have*

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[7] Simplicius *de caelo* 522.7, A47.
[8] Burnet *op. cit.* p. 129.

*smiled if he had known that one day he was to be regarded as a theologian.'* Among all later Greeks from Plato onwards, he was the founder of the Eleatic school, and the initiator of its peculiar deductive logic; but for moderns he had no connection to the Eleatics at all. The standard assessment is that he was an isolated figure, very different from the Milesians *and* the Eleatics, in his own niche on the periphery of philosophy. He was thus a somewhat confused thinker who nevertheless broke new ground which would have tangible results in the 5th century. Thus he has been made to fit into the modern fragmented 'isolationist' interpretation of the Presocratic movement.

## THE ASSOCIATION OF XENOPHANES WITH ELEA

We should emphasize here that *all* of the doxographical material, as well as *both* Plato and Aristotle, confirmed that Xenophanes founded the Eleatic school of philosophy, and that he was, in fact, the teacher of Parmenides. To give an example from Plato:[9] *'Our Eleatic tribe, beginning from Xenophanes and even before, explains in its myths that what we call all things are actually one.'* Yet the modern scholarly community has long affirmed that he had *no connection* to Elea or to Parmenides. It is worthwhile to examine this *tour de force* of intellectual absurdity, in order to observe the methods whereby the ancient evidence can be manipulated to suit the most unlikely modern interpretations.

We will begin with John Burnet, one of the most erudite and influential of late 19th century scholars, but a writer heavily influenced by the 'intellectual imperialism' of his age. He argued that Xenophanes had no influence on Parmenides because he never lived in Elea and only visited the city sporadically if at all:[10]

*'In his ninety-second year he was still, we have seen, leading a wandering life, which is hardly consistent with the statement that he settled at Elea and founded a school there, especially if we are to think of him spending his last days at Hieron's court.* [Note: *Diog. ix 20 says he wrote a poem in 2000 hexameters on the colonization of Elea. Even if true, this would not prove he lived there; for the foundation of Elea would be a subject of interest to all the Ionian emigres. Moreover, the statement is very suspicious. The stichometric notices of the Seven Wise Men, Epimenides, etc., in Diogenes come from the forger Lobon, and this seems to be from the same source.*] *It is very remarkable that no ancient writer expressly says he ever was at Elea,* [Note: *The only passage which brings him into connection with Elea is Aristotle's anecdote about the answer he gave the Eleates when they asked him whether they should sacrifice to Leukothea. "If you think her a goddess," he said, "do not lament her; if you do not, do not sacrifice to her" (Rhet. B, 26. 1400b5). Even this does not necessarily imply that he settled at Elea, and in any case such anecdotes are really anonymous. Plutarch tells the story more than once, but he makes it a remark of Xenophanes to the Egyptians (Diels, Vors. 11A13), while others tell it of Heraclitus.*], *and all the evidence we have seems inconsistent with his having settled there at all.'*

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[9] Plato *Sophist* 242d.
[10] Burnet, *op. cit.* p. 115.

We see the usual technique of demanding 'clinical proof' and the use of largely irrelevant anecdotes to 'prove' that Xenophanes could not have lived at Elea at some time during his long life. Yet even if we accept all of his arguments (and who are we to argue with his enormous command of the materials) it still does not prove that Xenophanes could have no influence on Parmenides. After all, if Xenophanes lived mostly at Syracuse, or Catana, or Zancle, or wherever, these places were really not so far from Elea, and travel (of people and ideas) was relatively easy. Even if he *never* lived at Elea, and only visited occasionally, he could still have had Parmenides as a pupil or a like-minded thinker. He could still have been the intellectual founder of the Eleatic school of thought.

More recent scholarship has also maintained a vested interest in keeping Xenophanes as far from Parmenides as possible, in spite of the ancient evidence to the contrary and the many similarities between their ideas. A particularly devious example is found in Guthrie. He uses an attack on the authenticity of the treatise *MXG* to 'prove' that there is no connection between Xenophanes and Parmenides:[11]

*'...one can see...how a not very perceptive writer* [of the *MXG*], *bent on making Xenophanes an Eleatic in the full sense, could have evolved it out of an unintelligent reading of the present passage* [of Aristotle, presented above]. *Aristotle tells us, cautiously disclaiming certain knowledge, that Parmenides was 'said to have been' Xenophanes' pupil--chronologically a perfectly possible relationship. In an age which loved clear-cut 'successions' among philosophers, this would strengthen the impression gained from Plato that Xenophanes was the real founder of the Eleatic school. Again, Aristotle's negative verdict that Xenophanes did not distinguish between material and non-material, nor (as implied) between finite and infinite, is absurdly twisted by the later writer into a positive statement that the divine unity of Xenophanes was* ***both*** *moved* ***and*** *unmoved, both finite and infinite. He then produces sophisticated arguments from Eleatic of even later logic in favour of each thesis in turn. This distortion may have been based not directly on Aristotle but on Theophrastus, who, though in fact only repeating his master's opinion in different words, did put it in a form more liable to misunderstanding.'* The author then concludes in a footnote that: *'This whole nexus between Aristotle, Theophrastus and the writer of MXG affords an illuminating insight into the growth of a myth of philosophical history.'*

The whole connection between Xenophanes and Parmenides is thus supposedly caused by misunderstandings between Aristotle, Theophrastus, and the writer of *MXG*. What is generally ignored here is the real possibility that the *MXG*, in spite of its late production, still managed to preserve typically Eleatic forms of logic which are quite compatible with Xenophanes. The manuscript was quite accurate in its reporting of the teachings of Melissus and Gorgias. Why should it then be wildly innaccurate with regard to Xenophanes? Even if the arguments are eclectic and post-Parmenidean, they could still be defending a genuine Xenophanean position. Guthrie justified the discrepancy between an accurate presentation of Melissus and a fraudulant presentation of Xenophanes thus:[12]

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[11] Guthrie, *op. cit.* p. 369.
[12] Guthrie, *op. cit.* p. 370.

*School is demonstrated by the following reasons. In the first place, his concerns are completely* ***theological****, whereas those of the Eleatics are exclusively* ***ontological****. In the second place, his dialectic so destructive of traditional opinions does not have anything to do with Eleatic dialectic, because the former does not derive from a precise principle while the latter is hinged on the principle of the immutability of being, and hence has a totally different import.'* Xenophanes is altogether more 'primitive.' He goes on with two more reasons already given, namely that no ancient evidence 'proves' he ever was in Elea, and that he travelled up to the age of 92 so that he could not have started a school in Elea.

He ends with another version of the argument based on Plato's *Sophist*: *'The ambiguity which gave birth to the idea that Xenophanes founded the School of Elea is to be found in a passage of the Sophist in which Plato, opposing to the philosophers who admit a plurality of principles those who on the contrary reduce everything to a unity, writes: "Our Eleatic tribe, beginning from Xenophanes and even before, explains in its myths that what we call all things are actually one." Plato was not speaking historically, but rather theoretically. He understood by the "Eleatic sect" that philosophical group which reduces all to a unity, and for this reason (but for only this reason) he considered Xenophanes as the chief source of this way of thinking about this matter. Further, he immediately corrects his assertion with the subsequent phrase that such a manner of thinking about things had begun "even before" Xenophanes. Therefore, the Platonic assertion lacks solid historical basis. Further, we will see that the unity of the* ***cosmos-God*** *of Xenophanes is totally different from the unity of the Eleatic* ***Being****. This means, as the recent scholarship has shown, that although Xenophanes and the Eleatics can be in general placed together in the group of the philosophers who reduced all to the One, still they are completely independent and, in fact, strangers to each other especially for their manner of conceiving the One.'*

Reale, like some other writers, wants to see Xenophanes as a *theologian* who advanced the 'evolution' toward a more 'Christian' notion of god (generically called God), by criticizing polytheism and emphasizing aspects more compatible with 'God.' Many writers also assume, or want to believe, that Xenophanes' concept of god must be somehow influenced by the Pythagoreans, who were the true initiators of philosophy in Italy and the first 'religionists.'

For all of these reasons Xenophanes has been *squeezed* between the orthodox interpretations of the two 'giants' Pythagoras and Parmenides. He should not have a connection with the Milesians, although if any connection is to be made at all, preferably it should be with them and not Parmenides. He should not have a connection with Pythagoras, although a vague connection is sometimes granted in that they were both infuenced by Italian 'religiosity.' But most of all, he should not have a connection with Parmenides, even though their doctrines are practically identical and all of the ancient evidence says that they were connected.

Consequently, the modern interpretation of Xenophanes paints him as a rather lonely and disconnected figure, a treatment which is also erroneously foisted on

Heraclitus. In this essay, we will argue instead that he had strong connections with *all* of these figures, but especially Parmenides who very likely was his student. Xenophanes deserves a better deal than he's been given by contemporary scholarship.

## CRITICISMS OF THE 'POPULAR' THEOLOGY

Much of this material is found within Xenophanes' satires. Hence, the question can always be raised: is he serious or not serious in his statements? Xenophanes is the first philosopher for whom these issues become important. He is the intellectual ancestor of Plato, who continually mixed the 'tragic and the comic,' the serious and the 'tongue-in-cheek' within his dialogues. Unfortunately, it is not always clear when Plato is 'telling the truth' or when he is 'pulling your leg.' This situation is not so critical in Xenophanes, where the boundaries between 'truth' and 'parody' are more clear-cut. Moreover, Xenophanes, like all good satirists, uses his art to communicate a deeper insight into his subject matter. The danger lies only in drawing false conclusions from the given material.

Xenophanes was remembered by the ancients principally for his satirical criticisms and denunciations of various 'sacred cows.' We have already seen him rail against the cult of athleticism, and recommend the expurgation of theological myths at a symposium. Respected philosophical and religious leaders, such as Thales, Pythagoras and Epimenides also aroused his ire. He even subjected his own countrymen to this treatment, for example, his denunciation of the luxurious habits of the Lydians (fragment 3):

> *'And they learned dainty, useless Lydian ways*
> *While they were still from hated tyrants free.*
> *In robes all scarlet to the assembly went*
> *A thousand men, no less: vainglorious*
> *Preening themselves on their fair flowing locks,*
> *Dripping with scent of artificial oils.'*

One of his most entertaining fragments satirizes the Pythagorean-Orphic doctrine of reincarnation (fragment 7, found in Diogenes Laertius viii, 36): *'On the subject of reincarnation Xenophanes bears witness in an elegy which begins: 'Now I will turn to another tale and show the way.' What he says about Pythagoras runs thus: 'Once they say that he was passing by when a puppy was being whipped, and he took pity and said: "Stop, do not beat it; for it is the soul of a friend that I recognized when I heard it giving tongue."'* This passage is obviously a jest, but it is also an intelligent jibe at those who take themselves too seriously. However, we should not conclude that Xenophanes was thus anti-reincarnation or anti-Orphic.

Xenophanes reserved the fullest weight of his criticisms for Homer and Hesiod, the two poets who, more than anyone else, shaped the Greek notions about the gods. As Herodotus noted (II, 53): *'It is they who created a theogony for the Greeks, gave the gods their names, distributed their privileges and skills, and described their appearance.'* The texts of the *Iliad* and *Odyssey*, along with some other writings, served as the foundation for religious, moral, and literary education. Every educated person knew the stories, and

this is one reason that we find various quotes from and illusions to Homer scattered throughout the philosophical literature. Xenophanes was correct when he wrote (fragment 10): *'What all men learn is shaped by Homer from the beginning.'* Given the importance of these writers, it is natural that they should be the principal object of his witticisms. This does not mean, however, that he was rabidly anti-Homer, anti-religion, or anti-education; rather, he sought a deeper insight into the nature of his religious heritage.

Xenophanes criticized the writers for portraying the gods as immoral, as no better than humans. For example, fragment 11 (found in Sextus, *adv. math.* ix, 193): *'Homer and Hesiod have attributed to the gods everything that is a shame and reproach among men, stealing and committing adultery and deceiving each other.'* More fundamentally, he criticized the writers for making the gods overly anthropomorphic. They are altogether too human. For example, fragment 14 (found in Clement *strom.* v, 109, 2): *'But mortals consider that the gods are born, and that they have clothes and speech and bodies like their own.'* Again, fragment 16 (found also in Clement *strom.* vii, 22, 1): *'The Ethiopians say that their gods are snub-nosed and black, the Thracians that theirs have light blue eyes and red hair.'* Ethiopia and Thrace represent the extremes of the south and the north in the ancient Greek world. This observation is remarkable for its perception and objectivity. If the different races credit the gods with their own particular characteristics, then such assessments are subjective and have no objective value. The true nature of the gods must be different than these particular images. Xenophanes drives the point home in an extraordinary and humorous passage, fragment 15 (found in Clement *strom.* v, 109, 3): *'But if cattle and horses or lions had hands, or were able to draw with their hands and do the works that men can do, horses would draw the forms of the gods like horses, and cattle like cattle, and they would make their bodies such as they each had themselves.'*

Various writers have credited Xenophanes with initiating an early example of the new anthropological approach to the analysis of culture. This approach was to be further developed in the 5th century by Herodotus who travelled around the world noting the customs and beliefs of various races and nations. Such observations fueled the ***physis-nomos*** debate: are customs 'natural' or 'conventional?' It also gave an impetus to the rise of scepticism. Xenophanes himself was well travelled, and may himself have gone to Ethiopia or Thrace; at any rate, he had good opportunities to experience the peculiarities of different societies. His writings display a wisdom which is much more than 'book learning.'

Xenophanes' condemnation of the poets for making the gods too human was an indirect jibe at the notion of *anthropos*--that the cosmos is a 'macro-person' which corresponds with the human microcosm, a view emphasized by the Milesians. The criticism was particularly influential in the 5th century, when the old musical model of the cosmos was increasingly questioned. It aroused a ready response in the dramatist Euripides, for example, in these lines from the *Heracles* (1341ff.): *'That the gods enjoy illicit love I do not believe, nor have I ever thought it right nor counted it true that they should go in chains, nor that one god should lord it over another; for the god, if he be truly god, lacks for nothing. Those are the wretched tales of singers.'* Here the gods (or

the god) must not only be moral, but also self-sufficient--arguably a claim that Xenophanes himself made (fragment 25): *'without toil he shakes all things by the thought of his mind.'*

We also see in this passage an apparent repudiation of the hierarchy among the gods, a distinctly 'un-musical' view, since the notion of hierarchy lies at the heart of the musical model of the cosmos. Such a view may go back to Xenophanes himself, although it is nowhere displayed in the extant fragments. According to Eusebius (*Strom.* 4, DK 21A32) we read: *'Concerning the gods he shows that there is no government among them, for it is impious that any of the gods should have a master; and that none of them lacks anything in any respect.'* Cicero (A52, also in Aetius) claimed that Xenophanes denied the reality of divination or prophecy. Even though we cannot prove that such 'un-religious' views actually belonged to Xenophanes, they nevertheless indicate that he was a progressive thinker who creatively questioned the traditional beliefs of his culture. Such beliefs provided food for his satirical (and profound) observations.

Although Xenophanes criticized the gods, we should not conclude that he was *against* the gods. This is evident from a remark made by Aristotle (*Rhet.* 1399b6), which he used not out of any interest in Xenophanes' views, but rather as an example of a particular form of argument: *'As for instance Xenophanes used to argue that to say the gods are born is as impious as to say that they die; for either way it follows that there is a time when they do not exist.'* It is evident from this statement that Xenophanes also had a positive conception of the gods, and upheld their eternity. Moreover, we can safely conclude that he believed the One to be *imperishable*--not subject to 'birth and death.'

Sometimes Xenophanes' comments are ambivalent about the gods, rather than blatantly critical. One example from his *Silloi* is fragment 17, (found in the scholiast *Ar. Eq.* 408): *'And fir-trees as Bacchi stand around the well-built hall.'* The sense would be totally incomprehensible but for a remark by the scholiast, who was commenting on the *Knights* by Aristophanes: *'Not only Dionysus is called Bacchus but also those who perform his rites, and the branches carried by the intiates. Xenophanes mentions this in his Silloi...'* We should recall the psychology of the Bacchic religion. The purpose of the orgiastic rites was to become *entheos*, possessed or *at one* with the god. At that point he or she *was* Bacchus, the personification of the vitality of life, the very juice of life. Bacchus was lord of the grape, but there is evidence that wine was not the only drug to be used in this essentially shamanistic religion. More potent brews were also made. The drink *kykeon* used at Eleusis for the mysteries has been shown to involve a psychedelic fungus.[17] Fir trees have been closely identified with the gods Bacchus and Dionysus, and classical art shows columns of foliage with the god's mask hanging on them. The initiates would carry fir branches in honour of the sacred plant. Fir trees have also been shown to have an ecological relationship with certain psychoactive fungi. Hence it is not so odd that the

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[17] See R. Gordon Wasson, Albert Hofmann, and Carl Ruck: *The Road to Eleusis* (New York, Harcourt, 1978), also Terence McKenna: *Food of the Gods, A Radical History of Plants, Drugs, and Human Evolution* (New York, Bantam, 1992).

Jews-Christians-Moslems, who tend to see polytheism as a 'primitive' or erroneous religious concept. They often interpret polytheism as a confused welter of gods which must be in conflict with each other. The polytheist answers that the Many gods are simply aspects or expressions of the One god, and that the One and Many are entirely compatible due to the hierarchical (musical) nature of the cosmos.

Those writers who want to see a 'proto-Christian' aspect to Xenophanes' One must contend with the second part of his statement, that the god is '*greatest among gods and men.*' The One god is evidently in no way incompatible with the gods. Nowadays people deal with this problem by the handy device of giving it a label: it is merely a 'polar expression,' a cliche used for emphasis and not intended to be taken literally. But Xenophanes also referred to the gods (plural) in the usual traditional manner in other places. For example, in Fragment 1 he said that *'it is good to be mindful of the gods.'* More examples will be encountered later in this essay. Various scholars attempt to undermine these passages in various ways. In this particular example, we should ignore the evidence and not look for serious theology here since the fragment is *only* a drinking-poem. Similar type arguments are made for the other instances of his plural use of 'gods.' Another tack, employed by Kahn (*Anaximander*, 156, n. 3) claims that the plural 'gods' refers to the sun, moon, and planets, while the greatest deity is the world itself. This analysis is closer to the thought of Xenophanes, for whom *the One and the All* can be equated with the ***kosmos***.

Kirk skated around the difficulties by saying:[20] *'In fact, Xenophanes wrote of "gods" in other places...partly, no doubt, this was a concession, perhaps not a fully conscious one, to popular religious terminology. It seems very doubtful whether Xenophanes would have recognized other, minor deities as being in any way related to the "one god," except as dim human projections of it.'* Again, the 'inconsistency' is explained by Xenophanes' 'primitivism:' he was not fully conscious of the discrepancy. Guthrie was a bit more willing to consider the traditional polytheistic perspective:[21] *'Doubtless Xenophanes did not condemn the worship of gods outright, provided man's notion of them was stripped of anthropomorphic crudities and immorality. He is emphatic that god is essentially one, but if this one god was, as will be argued here, the living and divine cosmos, then he probably thought that the spirit of this universal being manifested itself to the imperfect perceptions of man (fr. 34) in many forms.'* Note the typically modern western attitude that polytheistic expressions are 'crudities.' The true 'God' should be devoid of plural expressions.

Burnet wanted to tie Xenophanes to his special 'non-religious' usage of the term *god* (***theos***), which he had already connected with the 'scientific' Milesians. He wrote:[22] *'What Xenophanes is really concerned to deny is the existence of any gods in the proper sense, and the words "One god" mean "No god but the world."'* For Burnet, the very

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[20] Kirk, Raven, Schofield, *op. cit.* p. 170.
[21] Guthrie, *op. cit.* p. 376.
[22] Burnet, *op. cit.* p. 128.

terms monotheist and polytheist are irrelevant to Xenophanes (and the other Presocratics as well). He concluded that: *'Diels, I fancy, comes nearer the mark when he calls it a "somewhat narrow pantheism."'* Burnet thought that Xenophanes was not a theologian at all.

By contrast, Reale thought that Xenophanes was first and foremost a theologian, and that his god was the '*cosmos-God*'--God is the cosmos itself. For him, this was a step on the way to a more 'evolved' (Christian-type) god. Xenophanes could conceive of God as other than human, but he was still too 'primitive' to conceive of God as other than the cosmos. Therefore, he would concede that Xenophanes' One is pantheistic, but it is an archaic or crude form of pantheism different from modern definitions. According to modern criteria, pantheism means that God is *immanent* in nature (the cosmos) rather than *transcendant* of nature (the proper, Christian conception--that God is outside nature). But Xenophanes was still too primitive to be able to distinguish immanence from transcendance. Thus:[23] *'Xenophanes achieved some intuitions about the divine, but he lacked all those metaphysical categories which only those who came after him were able to constuct.'*

What all of these interpretations have in common is the attempt to isolate and fragment Xenophanes' One from the One of the other Presocratics--the Milesians, the Pythagoreans, the later Eleatics, and so forth. It is presumed that he must have his own, peculiar '*One god*' which must be totally divorced from the others, indeed, in competition with them. Yet there is another alternative interpretation totally ignored by the modern academic community, since it does not suit their preconceived paradigm of what early philosophy was all about. In this Musical interpretation, the One of Xenophanes *is* the One of the other early philosophers. All of them refer to the underlying *Oneness* of the musical ***kosmos***, the assumed *Wholeness* of the vibratory realm. This Oneness is intimately related to the Many, the *All* (***To Pan***) which is its manifold expression in nature, its ***physis***. Like the Milesians, this Oneness and its expression through the *All* (the ***kosmos*** itself) is inherently divine, it is god and the gods. Xenophanes' comments on the qualities of the One were intended, in a reverent manner, to expose certain features which are inherently present within the musical paradigm of the vibratory world.

## THE ONE, A SPHERICAL WHOLE

Xenophanes identified the One with the *All*, or the *Whole*. It is clear that he inherited this concept from Anaximander, for whom the ***kosmos*** was the *All*. In an effort to model the musical continuum, Anaximander had recognized that the 'harmony-space' between **heaven** and **earth** was *infinitely divisible*, and capable of generating *innumerable worlds*, both rational and irrational. He stressed the typically Musical generation of these ***kosmoi*** through the *eternal motion* of the vibratory realm. Each particular ***kosmos*** was subject to 'birth and death,' but each represented an aspect of the *Whole*; indeed, each was itself the Whole, for musical materials are architectonically

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[23] Reale, *op. cit.* p. 81.

Wholistic--wholes within wholes. The endless possibilities within the vibratory realm, which change by the rulings of *Time*, were described as ***apeiron***.

Xenophanes and the other Eleatic philosophers inherited this same Whole, but were even more radical in their willingness to closely examine the problematic implications of this Whole. If the innumerable worlds of harmony form a Whole, then why not consider them *all at once* as the Whole consisting of all possible wholes? In a sense, this viewpoint comes directly out of a more strict conception of the continuum. If the plenum has absolutely no void, then it is totally 'filled with itself.' It is made up of all possible divisions at once, so that it is *solid*. From this radical perspective, the Whole is ungenerated, since it is *all there at once*. This conception inevitably leads to some paradoxical conclusions that Xenophanes and the other Eleatics after him faced and strove to explain or describe.

We should admit that their conception of the Whole was based on solid musical evidence. Probably the most important and easily demonstrated feature of musical harmony is its architectonic nature. Whether the harmony is simple or very complex, all of its sub-componants or elements both separately and together constitute *wholes within wholes*. This is one reason why the ancient notion of harmony was dominated by the image of a 'mountain,' as illustrated by the simple tetrachord in the first essay. If the continuum consists of every possible division at once, with no 'void' or spaces between because nothing is omitted, then we have the *All and Everything*, the sum of all possibilities. The Eleatics were willing to describe the ***kosmos*** in these terms.

For Xenophanes and the later Eleatics, the concept of a Whole was central. Plato spoke of the Eleatics as:[24] *'partisans of the Whole.'* Aristotle also described Xenophanes as:[25] *'the first partisan of the One,'* and a little later: *'referring to the whole world, Xenophanes said the One was god.'* The Eleatics distinguished themselves from the Milesians by initiating a more rigorous investigation of what it means to be a Whole. This investigation was already implicit in Anaximander, but Xenophanes furthered the process by making it explicit. Thus we should judge the Eleatics as cosmological radicals who probed the deeper aspects of the Musical paradigm. While the Pythagoreans defended and clarified the more traditional aspects of Music, the Eleatics probed the more paradoxical aspects; hence they constituted the 'progressive' wing of the Presocratic movement.

This emphasis on the One as the Whole did not appear 'out of the blue' with Parmenides. Fragment 24 of Xenophanes (found in Diogenes ix, 19, DK 21A1) states: *'He* [the One] *sees as a whole, perceives as a whole, hears as a whole.'* Sometimes this is also translated: *'All of him sees, all thinks, and all hears.'* The Whole is often correctly translated as the All. Note that the One is here described in the terms of *anthropos*--as a cosmic being, so that it is unlikely (as Reale thought) that he abandoned the concept

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[24] Plato, *Theaetetus* 181a6.
[25] Aristotle, *Metaphysics* A5, 986b21.

altogether. Xenophanes was not discarding the old Musical-religious notions, only probing their 'hidden' secrets.

For Anaximander as well as the Orphics, the ***kosmos*** was essentially spherical or 'egg-shaped' (the cosmic Egg). We should assume that Xenophanes inherited this perspective; indeed, it was common throughout the Presocratic movement. The reasons are not difficult to fathom. The circle and sphere were given special status among shapes, even among later Greeks. They constitute the 'perfection' of shape, and were thought to contain all possible shapes within them. Hence the sphere was the natural shape of the Whole or the All. It was also ***apeiron*** and divine. It is not at all surprising that the '*One god*' of Xenophanes and Parmenides should be spherical.

Yet many modern scholars (eg. Kirk and Jaeger) want to deny knowledge of the spherical nature of the One to Xenophanes. There are two reasons for this tack. Firstly, many modern interpreters would prefer that the Pythagoreans 'discover' the sphere; indeed, some modern scholars (under the spell of Plato) want to credit Pythagoras for almost *everything* 'scientific.' Secondly, Parmenides explicitly described the One as spherical. Hence, by denying the sphere to Xenophanes, they can bolster their theory that Xenophanes had no influence on Parmenides and was altogether more 'primitive.' We will not review here all of the tortured arguments which have been generated by modern scholars in an effort to deny the obvious. Here is one short example:[26] *'It was probably because of its motionless unity that Xenophanes' god was identified with Parmenides' Being, and later absorbed some of its properties...its sphericity goes beyond the fragments and is perhaps debatable.'* It *is* true that there are no extant Xenophanean fragments that specifically say that the One is a sphere. These scholars then use a lack of 'clinical' proof to support their interpretation. Usually the 'error' is accounted for by a projection back from Parmenides:[27] *'obviously due to a later interpretation of B23 under the influence of Parmenides.'*

Even though no relevant quotation has survived from Xenophanes himself, most authorities in the doxographical literature say it *was* indeed spherical. Here are some examples. Diogenes Laertius (ix, 19) in the quote already given above, wrote: *'The being of the god is spherical, with no resemblance to man. He sees as a whole, thinks as a whole, and hears as a whole.'* He goes on to say that '*it does not breathe*,' in an effort to contrast the Eleatics with the Pythagoreans. Since modern interpreters assume that this was not part of Xenophanes' original poem, therefore the first part can also be jettisoned. It should be noted though, that wherever Diogenes' description can be checked against an extant fragment, it tallies with them exactly. Hence, there is the possibility that the phrase '*the being of the god is spherical*' is an accurate Xenophanean sentiment.

Sextus wrote (A35): *'Xenophanes asserted...that* ***the all is one****, and god consubstantial with all things, and that he is spherical, impassible, unchanging, and*

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[26] Kirk, Raven, Schofield, *op. cit.* p. 170.
[27] W. Jaeger, *Theology of the Early Greek Philosophers*, p. 211, n.23.

*rational.'* These further characteristics are also identical with those of Parmenides' One. This evidence is backed up by Theodoret (A36): *'He said that the all was one,* ***spherical and finite****, not generated but eternal, and altogether unmoved.'* The modern nay-sayers negate this evidence with the assertion that these ideas were Parmenidean and projected back onto Xenophanes. This type of argument is often employed to justify the most unlikely of interpretations.

In the *MXG* (977b1, A28) we read: *'Being similar in all directions he is spherical.'* Simplicius repeated the evidence of the *MXG*, and added that according to Alexander the ***arche*** of Xenophanes was finite and spherical, identical characteristics to Parmenides' One. Hippolytus (A33) wrote: *'He says that the god is eternal and one and similar in all directions and finite and spherical and sentient in all his parts.'* From Cicero (A34): *'deum...conglobata figura'* (the god is a compacted sphere in shape). From ps.-Galen (A35) we see that Xenophanes *'asserted only that all things are one and this is god, finite, rational, unchanging.'* In *all* of the doxographical evidence, Xenophanes' One is hardly distinguishable from that of Parmenides. Theophrastus also said that the Xenophanean One is:[28] *'equal every way,'* in other words a sphere. The evidence also goes back to an earlier source, since Timon of Phlius, the satirist and follower of Xenophanes credited him with saying that the All is (fr. 60) *'equal in every direction.'*

We should note how closely fragment 8 of Parmenides echoes this doctrine (found in Simplicius *in phys.* 146, 5): *'But since there is a furthest* ***limit****, it is perfected, like the bulk of* ***a ball*** *well-rounded on every side, equally* ***balanced*** *in every direction from the centre. For it needs must not be somewhat more or somewhat less here and there. For neither is it non-existent, which would stop it from reaching its like, nor is it existent in such a way that there would be more being here, less there, since it is all* ***inviolate****: for being equal to itself on every side, it lies* ***uniformly*** *within its limits.'* In other words, the continuum is a *plenum* with no inherent *void*, and sphericity is its natural shape. Also, using the monochord as justification, it is limited by virtue of its string length (the distance between **heaven** and **earth** must be defined in some manner), yet it is also unlimited by virtue of string divisibility. Some writers use this fragment to 'prove' that '*equal in every direction*' was misappropriated from Parmenides and foisted on Xenophanes.

Guthrie took a slightly softer stand, asserting that there *may* have been some influence of Xenophanes on Parmenides.[29] *'In any case the idea of a spherical divine universe is hardly surprising for the sixth or early fifth century. There is no suggestion that Xenophanes anticipated the pure intelligible One of Parmenides, though his insistence on unity (which is fortunately attested by actual quotation) represents an advance which no doubt gave an impetus to the even subtler thought of his successor.'* This is as far as an orthodox scholar is allowed to go in connecting Parmenides to Xenophanes. Given the overwhelming ancient evidence for the essential identification of

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[28] Simplicius, *phys.* p. 23, 18.
[29] Guthrie, *op. cit.* p. 379.

their doctrines, this whole issue illustrates how far modern interpreters are willing to 'twist' the evidence in order to uphold a preconceived paradigm of philosophical history.

## THE ONE, IMMOVABLE UNCHANGEABLE AND IMPERISHABLE

The question of motion and change forms the 'great divide' between Milesian and Eleatic philosophy. We can argue that both schools accepted the One as a spherical Whole identified with the ***kosmos***. But the Milesians emphasized the importance of the *eternal motion* to effect change and bring about coming-to-be, 'birth and death.' They confirmed the possibility of *innumerable worlds* which are nevertheless all valid expressions of the Whole within a Musical model of the vibratory world. Generation and dissolution, motion and change, are central to their analysis of the vibratory realm. These notions also possess a certain measure of 'common sense' in relation to the every-day world. It appears that the musical model is appropriate, since all living things move and change, are born and die. These observations supported and confirmed their musically-based model.

On the other hand, the Eleatic philosophers appear to have thrown out common sense altogether! Their conclusions, that there is no motion, no change, no birth and death, is at odds with the common and obvious experience of the world. This is one reason why later philosophers (like Aristotle) supposed that they were not describing the 'real' world; rather, they were pursuing some strange form of logic independant of the world itself. This analysis has become an unquestioned orthodoxy, resulting in the ubiquitous theory that Parmenides invented logic *itself* and used it to turn common sense upside-down. But why would an intelligent person (which, no doubt Parmenides was) make an effort to prove the absurd? Endless articles have been written in order to justify or explain Parmenides' actions. All of these efforts portray him as a solitary 'genius' whose philosophy has almost no connection to the Milesians, to Pythagoras, or to Xenophanes.

But there is a more likely explanation. The Eleatics faced the paradoxical implications of the notion that the 'universal harmony of the world' is a solid continuum, *one Whole*, all at once. It is the sum of the 'innumerable worlds' as a totality, as a 'solid block.' This conception arises out of the architectonic nature of harmony--its ability to manifest itself as 'wholes within wholes.' Given this property of harmony, the Whole can be equated with the All and everything at once. This conception is by nature *a-temporal*. Consequently, the notions of coming-into-being, change, and dissolution are irrelevant to it. It is imperishable. It exists as a 'sphere' in splendid isolation with no 'other.' This argument was not made in isolation by a solitary genius, but by philosophers who were willing to face the problematic implications of a common musical model. It was already implicit in the creative radicalism of Anaximander. The modern effort to isolate the Eleatics from the Milesians (or the Pythagoreans) is forced and quite artificial.

The denial of movement and change is the hallmark of the Eleatic school. Contrary to what most modern scholars want to believe, such views did not begin with Parmenides. They can already be seen in Xenophanes. For example, fragment 26 + 25 (found in Simplicius *in Phys.* 23, 11 + 23, 20) says: *'Always he* [the One] *remains in the same*

*place,* ***moving not at all****; nor is it fitting for him to go to different places at different times, but without toil he* ***shakes*** [or sways, shivers] *all things by the thought* [or impulse] *of his* ***mind.*** ' The Greek term for '*shakes*' has been related to the use of the term in Homer's *Iliad* (1, 530), where *Zeus* shakes great Olympus with a simple nod of his head. Note the essentially musical associations of the fragment, since to 'shake' is to vibrate. Also, this activation of the vibratory realm is accomplished by his thought, will, or impulse--by his mental powers. We are reminded here of the Musical terms ***Nous*** (mind) and ***Eros*** (will, impulse). The actual term used is ***Phren***, a term related to the others. It is thought that ***Phren*** originally referred to an internal body part, perhaps the diaphragm, which was believed to be the location of the thinking processes. The point is that the god does not need to make an effort at all in affecting the world. These sentiments were also found in Aeschylus (*Supplices* 96-103): '[***Zeus***] *hurls mortals in destruction from their high-towered expectations, but puts forth no force: everything of gods is without toil. Sitting, he nevertheless at once accomplishes his thought, somehow, from his holy resting-place.* '

These two fragments of Xenophanes have caused endless problems for modern scholars. Kirk thought that Xenophanes' One must have a *body* (it must be some form of physical *substance*) but it is motionless. This could only be because of the well-accepted Greek criterion of *seemliness*--it is 'unfitting' for the god to move. But his '*One god*' is also to be pantheistic--to represent the physical world itself. How can it be immovable since the world is obviously in motion? Kirk concluded that his One was derived simply from taking the very antithesis of the Homeric gods, who are forever coming down from Olympus and getting involved in human affairs. There is no more to Xenophanes' god than that, and the only conclusion to which we can safely come is that Xenophanes' god was 'without location.' His motionless god is, at any rate, confusing, and prompted Aristotle to remark that Xenophanes '*made nothing clear.*' We should not expect too much from Xenophanes, who was, according to Aristotle '*rather too uncouth.*' Thus[30] *'This puzzlement of Aristotle's suggests that Xenophanes did not produce a discursive elaboration of his theological views, which might not, indeed, have gone very far beyond the extant fragments on the subject.* ' It is quite amazing to see that the opinions of Aristotle still have so much weight.

Those who want to eliminate the problems by undermining Xenophanes' fragment should remember that Aristotle also said that, for Xenophanes and the Eleatics, the ***kosmos*** was immovable and ungenerated. Moreover, fragment 14 said: *'gods are not born.* ' It is difficult to escape the conclusion that the world is unmoved; but it is also difficult for modern interpreters to deny that Xenophanes was pantheistic. Cherniss sought to overcome the problem by denying his pantheism *and* the spherical form of the world. He wrote:[31] *'The fragments give no reason to suppose that he identified God and the world; and it is likely that the notion of a spherical god was inferred for him from the unity which he predicated of God.* ' He would prefer that the god not be immanent in the

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[30] Kirk, Raven, and Schofield, *op. cit.* p. 171.

[31] H. Cherniss, *Aristotle's Criticism of Presocratic Philosophy*, p. 201, n. 228.

world; rather, it should be transcendant--a theological position consistent with spelling god with a capital 'G.' Yet the pantheistic hypothesis is irresistable to those who have no inkling of Xenophanes' Musical foundations. It is then quite difficult to reconcile the motionless god with the obvious motion of the world.

The reaction of McKirahan is more openly theological. He wrote:[32] *'The world is full of motion, but Xenophanes' god does not move; therefore, he is not part of the world. A counterargument would go as follows. Xenophanes' god always remains in the same place; therefore, he occupies some place, so that he has a location in the world. Moreover, if without moving he causes all things to move, he must be present everywhere. The conclusions of these arguments need not contradict one another. They point to a conception of god as a divinity that permeates the world and causes change in it but is distinct from the things it affects. This picture requires a distinction between god and the world such that the former is an active principle and the latter is passive, and it calls for an account of how the one can act on the other and how the other can be affected by it. That Xenophanes failed to address these questions is suggested by the silence of the sources and confirmed by the remark that "he made nothing clear" which Aristotle makes with this sort of issue in mind.'* Notice how 'proto-Christian' the god has now become. The god permeates and affects the world but stands outside it directing it with his intelligence. Historically, the slow breakdown of the ancient Musical model of the world triggered the rise of theological explanations which increasingly excluded the musical element.

We should note that the Greek word for *motion* (***kinesis***) covers *any* type of motion and change. Aristotle, in his usual methodical fashion, laid out the different types of change: locomotion or change of place, qualitative change, quantitative change, and the change between being and non-being (birth-and-death). Clearly, all of these forms of change were denied in the Eleatic One. It cannot move from a to b, since it covers the whole spectrum as a plenum, it is not capable of qualitative or quantitative change since everything is included within it, and it cannot be born or die since it is a-temporal in its fullness. Hence it simply *is*.

Guthrie accepted Xenophanes' pantheism, but skirted around the problems, saying that the universe as a whole did not need to move, only individual parts moved. Thus he echoed the analysis of Cornford (*Princ. Sap.* p. 147): *'This is not a denial of any change inside the world. It probably means that, unlike other animals, which must move about to seek their food, the world, needing no sustenance, stays where it is.'* He supported this conclusion with the (now familiar) argument that Xenophanes was not yet evolved to the point where he could intelligently consider the implications of change. Such terms as ***kinesis*** were not yet used in any properly 'philosophical' manner. He wrote:[33] *'But such precision* [in the use of ***kinesis***] *is hardly found before his* [Aristotle's] *time, and certainly not before the time of Parmenides, whose confrontation of Being and*

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[32] McKirahan, *op. cit.* p. 63.
[33] Guthrie, *op. cit.* p. 382.

*Becoming, with its proofs that what is can neither become nor perish, neither grow nor diminish, nor yet change in quality nor move in space, marked a turning-point in Greek thought. Before that, the work* ***kinesis*** *was not a technical term, but used in relation to its context and most usually in the popular sense of local motion or disturbance.'* According to this theory, Xenophanes (and the Milesians for that matter) were not yet capable of distinguishing Being, Non-being, and Becoming, or the varieties of change in the world.

Such a common appeal to the 'unevolved' character of early philosophy hides the apparent confusion which is always just below the surface in the modern exegesis. That confusion was already evident in Aristotle, and it has become compounded over the centuries. The easiest way to hide one's lack of real understanding is to accuse the ancient philosopher in question of 'fuzzy thinking.' It absolves the modern interpreter from the need of probing deeper and uncovering more fundamental issues. The abandonment of the ancient Musical model of the ***kosmos*** and the widespread ignorance of its implications have left early philosophy without a consistent context in which to judge its statements. Without this important key, the 'jig-saw puzzle' is practically impossible to put together. With the key, one comes to a fuller appreciation of the subtlety and inner consistency of the movement. These people were not unintelligent; they simply inhabited a different cosmological paradigm (a different 'universe of discourse') to us moderns.

## INNUMERABLE WORLDS, FINITE AND INFINITE

As we have seen above in the passages from the doxography, the majority of the ancient sources credit Xenophanes' One with the properties '*spherical and finite*.' Galen, Hippolytus, Theodoret, and Simplicius reporting Alexander all agree. These same properties were explicitly associated with the One in the fragments of Parmenides. Therefore it is not totally unreasonable to conclude that here we have an example of the connection between Parmenides and Xenophanes. The modern academic community strenuously tries to negate such influences, because they do not fit into their pre-conceived idea of the proper 'place' of these philosophers. Yet even when we suspend the dominant modern paradigm concerning the relative importance of Parmenides and Xenophanes we still encounter difficulties with Xenophanes.

For the doxographical record is not straight-forward. Some sources credit Xenophanes' One with the properties '*spherical and infinite*.' Simplicius, after quoting the evidence of Alexander that the One is finite, added that Nicolaus of Damascus (first century B.C.) said it was ***apeiron*** and unmoved. Cicero, in his dialogue *De Natura Deorum* (DK, A34) had an Epicurean philosopher give a cursory summary of early theologies designed to show that they were all wrong-headed. Among these, Xenophanes' god was described as '***infinitum***.' The modern response to this evidence is generally to undermine it, since the majority of extant sources say that the One is finite and not infinite.

However, further complications arise. Aetius (II, 1, 3, DK 12A17) put Xenophanes among those who posited an infinite number of ***kosmoi***. Diogenes Laertius (ix, 19) supported this notion, adding the phrase '*not overlapping in time*.' This statement

would support the notion that Xenophanes believed in innumerable worlds which were successive and not simultaneous. The modern response, of course, is to deny the idea of 'innumerable worlds' since it must be incompatible with Xenophanes' finite and pantheistic One, which *is* the ***kosmos***. Yet, from a Musical perspective, there is no necessary incompatibility between '*innumerable* ***kosmoi***' and its essentially finite nature. Worlds are innumerable because of the fact of infinite divisibility, as demonstrated on the monochord's music wire. At the same time, the music wire itself is finite (or definite, some given measure) by virtue of its length. This was essentially the position of Anaximander, and we should accept that this perspective was understood and perpetuated by Xenophanes. He, in turn, passed it on to Parmenides. It then became a corner-stone in Zeno's collection of paradoxes. The radicalism which was implicit in Anaximander was thus passed on and further (more explicitly) developed.

The phrase '*not overlapping in time*' is undermined because it was also in Stoic use, meaning '*precisely similar*.' Yet it is not at all difficult to see how this meaning could come out of '*successive* ***kosmoi***.' Certain Pythagoreans believed that successive worlds were, indeed, precisely similar in an endless musical progression. In Xenophanes' case, it is difficult to conceive just how successive worlds could have any validity within the Eleatic a-temporal perspective. Such a stand promotes innumerable worlds as *simultaneous* (all at once) rather than successive. This is most likely the Eleatic viewpoint. However, we should also admit the possibility that Xenophanes recognized the a-temporal perspective *and* the temporal perspective *at once*, in which case both simultaneous *and* successive worlds are possible. The evidence that he was, indeed, capable of such an orientation is examined later. For now, we are concerned with his use of the terms finite and infinite.

The various doxographers mostly drew on Theophrastus, who supported the stand that the One is '*spherical and finite*.' However, Theophrastus, following his teacher Aristotle, was also ambivalent. In this regard, he was possibly just perpetuating Aristotle's confusion, for Xenophanes '*made nothing clear*.' Simplicius is usually one of our most reliable sources, and fortunately he gave what appears to be a direct quote from Theophrastus himself. Yet this very statement is a bit of a 'bomb-shell,' and likely the source of Aristotle's confusion:[34] *'Theophrastus says the hypothesis of Xenophanes was that the* ***arche*** *was one, or the universe* [***To Pan***] *was one, and neither finite nor infinite, nor moving nor at rest.'* Needless to say, such a proposition has always been problematic to the modern interpreter, and even to Aristotle, for whom the strict procedures of logic allow only the one or the other--not both (or neither) together. The situation is further complicated by the *MXG*, which Simplicius also used as a source. It has been pointed out that the statement '*nor moving nor at rest*' was likely taken from the *MXG* and not Theophrastus. Moreover, the *MXG* adds the further complication of expressing the statement in its 'flipped-over' version (which amounts to the same thing): '*both finite and infinite, both moving and at rest*.' Finally, Aristotle himself, in the quote given early in this essay (*Met.* A5, 986b18) said that Xenophanes stipulated neither finite nor infinite, neither

[34] Simplicius, *in phys.* 22, 26.

*material* nor *immaterial*! As we said earlier, Xenophanes is not the easiest of philosophers!

The modern response to all this is predictable. Xenophanes must be merely a 'fuzzy thinker' who never got it straight; in other words, Aristotle was right. Moreover, he was principally a poet anyway, so we should not expect any great consistency in his philosophy. He was still somewhat primitive, and incapable of any sort of *real* logic--that would come in the next generation with Parmenides. The complex Eleatic logic found in the *MXG* invalidates any of the doctrines there attributed to Xenophanes, since, by definition, he was incapable of such logic. The statements of Aristotle, Theophrastus, and Simplicius just confirm that he was 'muddle-headed.' Guthrie had the most elegant solution to the whole problem. He wrote:[35] *'through the work of Aristotle, the concept of infinity had been isolated and grasped.'* In other words, before Aristotle no philosopher was capable of conceiving the concept of *infinity* with any depth or accuracy, not even Anaximander or Parmenides. In this way we can dismiss the whole movement of Presocratic philosophy as the somewhat primitive 'precursors' of real philosophy, which began with Plato and Aristotle. The Presocratics (especially the earlier Presocratics) had not yet 'evolved' the 'philosophical tools' to conceive of infinity, and used these terms in only a 'popular' or 'context-based' manner. This exegesis conveniently supports the idea of 'progress' in Greek philosophical history.

Needless to say, we dissagree with this simplistic analysis. The early philosophers, like Anaximander and Xenophanes, were quite aware of the deep meaning of such terms as ***apeiron***, and they should be taken seriously. This leaves us with the responsibility of making some sense of Xenophanes' strange logic. According to the strict tenets of modern or even Aristotelian logic, such statements of Xenophanes are indeed problematic. Either it is finite or infinite, but it can't be both or neither.

Yet the archaic Musical model of the cosmos which these philosophers assumed to be true *does* allow both at once (or neither at once). In other words, Xenophanes was presenting or demonstrating various *paradoxical* features of the musical model, in an effort to 'get behind' or underneath the obvious. Heraclitus said (fragment 123): *'The real constitution of things is accustomed to hide itself.'* It is the duty of the philosopher-scientist to probe below the surface and uncover the deeper aspects of one's paradigm of 'reality.' Xenophanes himself said much the same thing in fragment 18 (found in Stobaeus, *Anthology* 1, 8, 2): *'Yet the gods have not revealed all things to men from the beginning; but by seeking men find out better in time.'* Pointing out the paradoxical or problematic aspects of Music, Xenophanes was carrying on the tradition founded by Anaximander and furthered by his Eleatic successors.

By indicating that we learn better *over time*, Xenophanes is demonstrating that he is not bound solely to the a-temporal perspective in which there is no motion, change, or beginning. He can also work within its obverse--the world of change ruled by *time*, the

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[35] Guthrie, *op. cit.* p. 379.

world of 'birth-and-death.' This is the world of the Milesians, especially Anaximenes who represents its most developed version. As this essay unfolds, the reader will increasingly understand that Xenophanes acted as a 'conduit' between the Milesians and the Eleatics.

## THE ROOTS OF THE EARTH

Those who want to deny Xenophanes any decent understanding of ***apeiron*** must contend with fragment 28, which uses the term *directly*. This fragment is arguably the most extraordinary and pregnant statement in all of his extant fragments, and it illustrates his complete familiarity with and understanding of the traditional musical model of the ***kosmos***. The fragment is found in Achilles (*Isag.* 4, p. 34, 11): *'Of* ***earth*** *this is the upper* ***limit*** *which we see by our feet, in contact with the* ***air****; but its underneath continues indefinitely.'* The later part of the statement is sometimes translated *'below it reaches down without a limit'* (***eis apeiron***). Taken literally, the statement paints a picture of the Homeric cosmos illustrated in the first essay (beside the division into 1:2). The person replaces the tree in the diagram, and his feet stand firmly on the *mese* position. In the traditional cosmology, the 'bottom' (***Tartaros***) is then as far below this position as the **Heaven** is above it (*Iliad* viii, 16; *Theogony* 720). In a totally compatible but vaguer description (*Theogony* 727) the 'roots' of the **earth** are said to be above ***Tartaros***. Now in Xenophanes' description, the roots must descend indefinitely, so that there is no ***Tartaros***. This seems to defy common sense. The standard modern interpretation is that Xenophanes was again merely reacting against Homer and Hesiod by eliminating ***Tartaros*** altogether. Others contend that he was simply countering 'Milesian dogmatism.' In other words, he was discounting Thales (the **earth** floats on **water**), Anaximander (the **earth** is suspended freely) and Anaximenes (the **earth** rides on **air**). Granted that he *may* have had satirical motives, yet we suspect that there is more to it than this.

Aristotle attested Xenophanes' doctrine that the **earth** is '*infinitely rooted*' (*De caelo* B13, 294a21), and added that Empedocles criticized Xenophanes for holding this problematic view. It further appears from the fragment of Empedocles quoted by Aristotle that Xenophanes also held that the vast **air** extended infinitely upwards. So now we have both an infinite **earth** and an infinite **air**. We would expect Empedocles to criticize Xenophanes since he had a more conservative orientation, closer to the Pythagoreans and quite different from the Eleatics. Burnet (*op. cit.* p. 125) thought the statement showed that Xenophanes wanted to get rid of the **Heaven** (***Ouranos***) as well as ***Tartaros***.

We should not deny a satirical intent, but in the meantime he is revealing several 'truths' about the musical paradigm. In the first place, both **earth** (DYAD) and **air** (TRIAD) are characteristically expansive. The **earth** serves as the productive 'bridal-bed' making expansion possible through cyclical identity. The **air** makes the expansion actual, as in an arrow. The focus on the position of the feet at the *limit* of the **earth** confirms that the *mese* position is the first emanation of the DYAD, the middle position of the music wire, the center of the apeirous circle. By implication, 'taking the middle path' is relevant to the process of extending the **earth**, of '*extending underneath indefinitely.*' A clear

contrast is made between the expansion of **air** *upwards* (toward the usual 'manifestation' of larger monochord numbers), and **earth** *downwards* (through an 'experiment' examined shortly). This evident 'bi-directionality' also supports the traditional symbolism in which the 'light Elements (**air-fire**) rise and the 'heavy' Elements (**earth-water**) descend. Last but not least, at its *mese* position, the **earth** is also '*in contact with the* ***air***,' hinting at the division 2:4, where the TRIAD is first emanated 'next' to the **earth**. **Air** is juxtaposed to **earth** in the emanation of the *Genera*.

In spite of these riches herein, we see essentially nothing to which Empedocles or the Pythagoreans would take offence. But the image of the **earth** extending *downward without a limit* is the key to the Empedoclean distress. It is certainly a paradoxical or problematic statement, since the **earth** should have *some* kind of limit within a finite, spherical cosmos. Some scholars have tried to undermine the whole fragment for this reason, claiming that the statement came originally from the 'suspect' *MXG*. Yet Empedocles and Aristotle also confirmed it, so that we must accept it as genuine. We present here an interpretation which ties Xenophanes closely to the Eleatics, and accounts for Empedocles' distress.

The process of extending the **earth** '*indefinitely*' can literally be applied to the monochord in this evident manner. First we take the middle (*mese*) position, as indicated in the fragment. Now we have 1/2 of the string length. Then we divide the string in half again, so that we have 1/4th of the string length (measured from the bridge '***Tartaros***'). Again, we divide in half, giving 1/8th of the string length. Such a process involves the use of the DYAD to affect a geometrical progression. It is thus 'extending the **earth**.' Note that the direction is 'downward' rather than the normal monochord bridge direction 'upward' toward **Heaven** and larger monochord numbers. In addition, a normal monochord operation always has a definite *limit* at the **Heaven** position (the open string). On the other hand, this peculiar operation has a very different characteristic. In pursuing this procedure, the position of the moveable bridge descends ever closer to the bridge (***Tartaros***) on the monochord, yielding higher and higher octaves in pitch. Yet it *never* reaches the bridge, since the process always takes half of the remaining length. This process is an *infinite progression*, at least, theoretically. In actuality, one eventually gets so close to the bridge that one must 'give up,' but the mental 'experiment' is still clear. (A traditional monochord only extended to two octaves--the 1/4th position). Using this simple yet conceptually powerful procedure, the **earth** can be '*extended downward indefinitely*.'

Such a procedure forms the prototype or 'essence' of Zeno's paradoxes of motion. For example, Aristotle (*Phys.* Z9, 239b11) reported on the first of the paradoxes: *'the first asserts the non-existence of motion on the ground that that which is in locomotion* [a runner] *must arrive at the half-way stage before it arrives at the goal.'* The remainder must also be divided in half, and so on, resulting in an inability to reach the goal. Zeno's argument is this: To reach his goal, the runner must touch infinitely many points ordered in the sequence 1/2, 1/4, 1/8...and so on. It is impossible to get through this task of touching infinitely many points, since there is always another before the goal is reached. Therefore,

the runner cannot ever reach the goal. Without delving into Aristotle's criticisms of Zeno's paradoxes, we should nevertheless note that this procedure is *already implicit* in the fragment of Xenophanes. Zeno, of course, was the pupil of Parmenides, so that we cannot deny the possibility of an influence from Xenophanes, even if it is only indirect. The fragment tends to confirm the close intellectual ties between Xenophanes and the Eleatics. Specifically, we see the use of 'logical argument' in order to demonstrate an absurdity or a paradoxical situation. Such arguments are the hallmark of the Eleatic philosophers.

Diogenes Laertius (viii, 57; DK 29A10) wrote: *'Aristotle in the Sophist says that Empedocles was the first to discover rhetoric and Zeno dialectic.'* For Aristotle, dialectic meant the sort of philosophical interrogation (question and answer) pursued by Socrates in the early Platonic dialogues. An accepted belief is undermined or reduced to absurdity by an argument which is *logical*. The belief can also be shown to conflict with another belief which itself is 'proven,' thus creating '***antimonies***' between statements. Of course, as we often see in the Platonic dialogues, the arguments used are sometimes less than logical, even at times devious and manipulative, sometimes satirical or deeply ironic. If one suspects the motives or tactics of the questioner, he can be accused of being merely a controversialist (***antilogikos***)--one who simply is 'making trouble.' Plato, a partisan of the Pythagorean perspective and ultimately suspicious of the Eleatics, accused Zeno of such 'treachery,' even though he was himself (like the Sophists) an expert in these 'devious' practices. He wrote of Zeno (*Phaedrus* 261d; DK 29A13): *'Do we not then know that this Eleatic Palamedes argues with such skill that the same things appear to his listeners to be both like and unlike, both one and many, both at rest and in motion?'* Even though this criticism is directed toward Zeno, it could also be applied to work of Parmenides. Are we wrong to suspect that the roots of these practices lie with Xenophanes?

## EARTH AS AN *ARCHE*

So far, we have focussed mainly on Xenophanes' connections with the Eleatic school of philosophy. In the next few sections, his ties with the Milesians are examined more closely. These ties were extensive, and this is not surprising. The generation of cosmologists which have given us Xenophanes and Pythagoras had ample opportunity to study *directly* with the Milesians. When Xenophanes was a young man, both Thales and Anaximander were then old and renowned, while Anaximenes was in his prime. Moreover, Colophon (and Samos) were only a short distance travel from Miletus. It would be surprising if these young budding philosophers did not make the effort to meet the highly distinguished (and justly famous) Milesians. In spite of the vissicitudes of time which have left us only a hand-full of fragments, they still display an essential congruence with the import of Milesian cosmology. The modern isolation of Xenophanes from the Milesians is quite unjustified.

We carry on with more fragments relating to the **earth**. Although all of the traditional Elements are present within the body of the fragments, we have more commentaries on **earth** than the others. This would lead us to believe that Xenophanes concentrated on **earth** as an ***arche*** in some manner similar to Thales' **water** or

Anaximenes' **air**. He was indeed classified as an early 'monist' like the Milesians in some surprisingly early sources. The medical Hippcratic work *On the Nature of Man*, from the early 4th century B.C. said:[36] *'One of them calls this universal unity* ***air****, another* ***fire****, another* ***water****, another* ***earth****.'* The last one must surely be Xenophanes. Later in the doxographical writings, Galen (A36) gave a paraphrase of the same medical passage which he derived from Sabinus (a commentator from the time of Hadrian): *'I do not say that man is altogether* ***air*** *like Anaximenes, or* ***water*** *like Thales, or* ***earth*** *like Xenophanes in one of his poems.'* We also find it in others. For example Olympiodorus (DK A36): *'No one believed* ***earth*** *to be the* ***arche*** *except Xenophanes of Colophon.'*

However, some doxographical writers were also aware of the problematic nature of his work. Both the *Stromateis* and Hippolytus confirmed that 'everything originates from **earth**,' but this statement is juxtaposed with his assertion that 'the Whole' is exempt from change, with its explicit denial of coming-to-be and dissolution. How could they reconcile these contradictions? Theodoret was also bothered by the inconsistency, and said (A36) that he must have forgotten his statement that the Whole is imperishable when he wrote the line (fragment 27): *From* ***earth*** *come all things, all things end in* ***earth****.'* Sextus (*Math.* x, 313) was also confused by Xenophanes. After quoting the line above, he added only that '*according to some*' this meant the **earth** was the '*origin of becoming*' in a similar sense as Thales' **water** or Anaximenes **air**. What this sense actually was he could not say.

The doxographical evidence was firmly influenced by Aristotle and Theophrastus. Aristotle wrote:[37] *'none of those who posit a unity makes* ***earth*** *the element.'* Moreover:[38] *'all the other elements have been chosen save* ***earth****.'* He was thinking primarily of the Milesians; but he wanted to exclude Xenophanes from this group because his *unity* was not sufficiently '*physical*.' Because it could not so easily fit into his schematic for early philosophy, he must be excluded from the picture. Moreover, he had other reasons for wanting to 'side-step' Xenophanes. In some other fragments, Xenophanes claims that all things are born '*from* ***earth*** *and* ***water***.' This makes it more difficult to portray him as strictly a '*physical monist*.' Finally, Xenophanes claimed that the ***kosmos*** is eternal. Thus Aristotle concluded that (in his own sense of the meaning of ***arche***) the world could not have an ***arche*** at all, at least not in what he thought to be the Milesian sense. Xenophanes just did not fit well into his overall scheme for early philosophy.

This Aristotelian scheme is still extremely influential, as seen in modern reactions to Xenophanes. One of the favorite means of dealing with this 'problem' fragment is simply to deny its validity altogether. Since the earliest authority for it was the late writer Aetius, it is relatively easy to dismiss it as spurious. Moreover, Aristotle's statement is taken to be categorical and final. Another tack was illustrated by Jaeger (*Theology of the Early Greek Philosophers*, p. 211), who accepted its validity but insisted that it has

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[36] *On the Nature of Man*, vi, 32 (Littre).
[37] Aristotle, *Metaphysics* 989a5.
[38] Aristotle, *De Anima* 405b8.

nothing to do with natural philosophy. Another solution is to state that the imperishable aspect of the ***kosmos*** refers only to the (physical) cosmos as a whole, while the generation from **earth** refers only to the local 'terrestrial' scene. Finally, most scholars assume that it is asking too much to expect any consistency in Xenophanes, who was mainly a poet and hardly a philosopher at all.

The offending fragment could also be translated: *'For everything is born of the **earth**, and everything goes back to the **earth**.'* This beautiful statement is totally consonant with the Milesian-Musical conception of the coming-to-be of the ***kosmos***. It is another one of those clear descriptions or declarations of a 'truth' from the Musical perspective. The DYAD is indeed the 'mother' of the vibratory realm, the enabler of the All, the true 'origin of becoming.' It is also the 'end' of the monochord progression, as well as the 'beginning,' in that the octave interval has a special 'intertwined' relation with the MONAD. These two are really One through cyclical identity. The *mese* exhibits this special relation with the open string. None of this is incompatible with the Milesian perspective, which is ruled by *Time* and *Number*.

But, according to this perspective, there exist innumerable ***kosmoi*** which are born and die, changing constantly. How does one reconcile this cosmology with Xenophanes' doctrine that the ***kosmoi*** represent *one Whole*, unchanging and imperishable? The only possible reasonable conclusion is that Xenophanes could himself *simultaneously* look at the 'world' from both a *temporal* (Milesian) perspective as well as a radical *a-temporal* (Eleatic) perspective. The first perspective recognizes that change exists in the world of experience. The second perspective recognizes that the theoretical 'Whole-of-Wholes' is conceptually different. It is theoretically outside of time. This second perspective is perhaps also aided by the belief that successive ***kosmoi*** follow one another in endless cycles (the Great Year concept) which flow on endlessly in their musical repetition. These endless cycles need have no beginning or end, yet they can also be the carriers of innumerable ***kosmoi***. But, strictly speaking, the Eleatic perspective is acquired through a form of conceptual 'logic' rather than any common sense experience.

## EARTH AND WATER

It is tempting to interpret Xenophanes' *'earth and water'* as a version of the Milesian polar opposites *'dry and wet'* paralleling Anaximander's *'hot and cold'* or Anaximenes' *'rare and dense.'* Some hint of this is given by Philoponus who cited fragment 29:[39] *'Porphyry says that Xenophanes held the dry and the moist--i.e. **earth** and **water**--to be first principles, and he quotes an example which indicates this: "**Earth** and **water** are all things which grow and come into being."'* These two Elements may have been used metaphorically with this meaning at times, but it is more likely that he simply meant to group them together as the 'heavy' Elements in the traditional Milesian cosmos--the layering of the 'cosmic egg' from center to periphery: **earth**, **water**, **air**, **fire**.

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[39] Philoponus, *Commentary on the Physics* 125.27-30.

It was a common Greek belief that we are born from **earth** and **water**. When we die we return to these Elements, as shown in *Iliad* vii, 99: *'May you all become **earth** and **water**.'* As Anaximander noted, life springs spontaneously from the **earth** when it is *moist*. **Earth** (***Gaia***, the Great Mother) needed *rain* from the sky-god (***Ouranos***, ***Aither***, ***Zeus***) in order to fertilize the fields. Xenophanes may have been thinking of Homer, as shown when Sextus wrote:[40] *'Xenophanes, according to some, holds that everything has come into being from **earth*** [fragment 27]*: "For all things are from **earth** and in **earth** all things end." ...the poet Homer holds that everything has come into being from two things, **earth** and **water**,...and according to some Xenophanes of Colophon agrees with him. For he says* [fragment 33]*: "For we all come into being from **earth** and **water**."'* This passage shows that Xenophanes was not *always* anti-Homer, as some modern writers imply. The fragments indicate that he may have simply been following a 'popular' and widespread belief about cosmic origins. This popular cosmology was preserved in the Milesian system, with the addition of more musical depth for the symbolism.

We dissagree with the narrow vision of Guthrie, who wrote:[41] *'We may conclude, then, that all three lines describe the same thing, namely the origin of organic life from the **earth**, which, in order to produce it, had to be moist. The **arche** of the cosmos is not in question because, being everlasting, it has no **arche**. In accounting for the origin of life, we may be sure that Xenophanes followed the rationalistic rather than the polytheistic path, and in fact his motive seems to be still the same: to discredit Homer in whatever ways he can.'* Note the artificial contrast between 'rationalism' and 'polytheism,' and the characteristic use of ***arche*** in an Aristotelian sense rather than in a Presocratic sense. In fact, there is nothing in this material which could be considered anti-Homer.

The confluence between Xenophanes, Homer, and the Milesians is also illustrated by a beautiful picture (fragment 30, found in a scholian *in Iliadem* xxi, 196) which confirms the meteorological interplay between **water** and **air** in the cosmos:

> *'**Sea** is the source of **water** and the source of **wind**.*
> *For not without the great **ocean** would there come to be*
> *in **clouds** the force of **wind** blowing out from within,*
> *nor the streams of **rivers** nor the **rain water** of the upper **sky**,*
> *but great **ocean** is the sire of **clouds** and **winds** and **rivers**.'*

A passage such as this reminds us strongly of the 'musical meteorology' of Anaximander and Anaximenes. It also plays on the symbolic ambivalence of **water** and **ocean** as the PENTAD interacting with the TRIAD and **ocean** as the original *Silence* (the ***Nun***, ***Okeanos***). As we will see in the next section, Xenophanes also held the typically Milesian theory that the Elements transmute into each other through '*exhalation*' or emanation. The 'light' Elements are exhalations and condensations (rare and dense) from the **sea** and **earth**. Rather than being a 'rudimentary physical theory,' as Kirk imagined, this fragment shows all of the subtle ecological-musical symbolism found in Anaximenes.

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[40] Sextus Empiricus, *Math.* x, 313-314.
[41] Guthrie, *op. cit.* p. 386.

Xenophanes also held the Milesian theory of the alternation of wet and dry ages, an evolutionary perspective of the cosmos. A fragment of Anaximander said that the **sea** is drying out, with the implication that the **water** and the **earth** periodically 'overstep' each other. Again we see the common belief in alternating disasters, leading to a cyclical regeneration of the cosmos. The flood of Deucalion is followed by the **sea** drying out, so that the **earth** eventually becomes too dry and burns in the fires of Phaethon. After each disaster life begins anew from the 'mud' when the **sea** begins to dry out again. The wet time is the winter of the Great Year, the dry time is the summer. Both Plato and Aristotle believed in these periodic cycles. Fragments from Heraclitus, the Pythagoreans, and Empedocles also show that the notion was quite widespread--it was the mainstream in ancient culture. Hence it is not totally surprising when the *Stromateis* (iv, A32) said of Xenophanes: *'He declares also that in the course of time the **earth** is continuously slipping down and gradually moving into the **sea**.'* This development is a natural part of the ongoing process. The theory of the Great Year also makes sense of fragment 37 (found in Herodian, 30, 30): *'And in some caves water drips down.'* The image involves the interaction between **water** and **earth** in stalactitic caves where the **water** drips down and becomes **earth**. These ideas also tie together Xenophanes and Thales, who was famous for his commentaries on **water** as an ***arche***.

Kirk and Guthrie tried to isolate Xenophanes from Anaximander by stating that there is no 'clinical proof' that Anaximander's cosmic process was *cyclical*, only the statement that the **sea** is drying up. On the other hand, Xenophanes' process was indeed cyclical. Such arguments are rather devious attempts to separate the cosmologists and account for some *progress* between their ideas. Xenophanes supposedly made a conscious *correction* of Anaximander, and accounted for it by the fact that the **sea** was receding around Miletus but rising around Sicily (having engulfed the land-bridge which became the Messina strait). These rather silly arguments attempt to bolster a preconception of the early cosmologists as 'competing scientists.' In actuality, they are entirely compatible and they all have more-or-less the same cosmology. Their various statements are mutually reinforcing aspects of the same musical-cosmological framework.

The cyclical nature of the cosmic process is confirmed in a passage from Hippolytus, which demonstrated more connections between Xenophanes and Anaximander:[42] *'Xenophanes thinks that a mixture of the **earth** with the **sea** is going on, and that in time the **earth** is dissolved by the **moist**. He says that he has demonstrations of the following kind: shells are found inland and in the mountains, and in the quarries in Syracuse he says that an impression of a fish and of seaweed has been found, while an impression of a bay-leaf was found in Paros in the depth of the rock, and in Malta flat shapes of all marine objects. These he says, were produced when everything was long ago covered with mud, and the impression was dried in the mud. All mankind is destroyed whenever the **earth** is carried down into the **sea** and becomes mud; then there is another beginning of coming-to-be, and this foundation happens for **all the worlds**.'*

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[42] Hippolytus, *Ref.* 1, 14, 5.

The deduction based on the observation of fossils is a remarkable one, and shows that Xenophanes (like Anaximander) was not an 'ivory tower' logician disconnected from the real world, in spite of his bouts with 'Eleatic logic.' The assertion ascribed to Xenophanes in the Aristotelian *Mirabilia* (DK 21A48) that the volcano Stromboli tended to erupt in the seventeenth year is another instance of observational practice fundamental to science. The whole fragment confirms Xenophanes' acceptance of Anaximander's *evolutionary* theory. The knowledge of fossils was quite widespead in the ancient world, and Anaximander may also have made remarks about them, although they have been lost if they ever existed. A little later Herodotus (II, 12) also mentioned them, and came to the same conclusion as Xenophanes--that the land was once sea. Note, at the end of the passage, the confirmation that Xenophanes (like Anaximander) believed in '***innumerable kosmoi***.' This belief supports the cyclical theory of the Great Year, a succession of 'world-arrangements' which are endlessly repetitive like vibratory phenomena.

## ASTRONOMY AND METEOROLOGY

The concept of a Great Year had a strong astronomical-astrological componant. It was generally conceived as the time-cycle needed for all of the planets to return to their original positions and begin a new cycle. Hence, the planetary gods (the gods of Fate) would repeat the conditions of the previous cycle. Like all of ancient astrology, it was permeated with musical notions. Astrology gradually liberated itself from Music, especially after the time of Alexander the Great, but during this earlier period of history they we still very much inter-connected. Apart from an acceptance of cyclical history, we have no more information on Xenophanes' conception of the Great Year, certainly nothing on its measurement. In the coming generation, Heraclitus (and the Pythagoreans) will have more information, so that we will cover the Great Year in some detail in those essays. For now it is enough to realize that the concept itself was older than Heraclitus; indeed, it was older than Xenophanes.

Unfortunately, very few direct fragments of Xenophanes concerning astronomy have survived. We must rely more on the doxographical evidence, which, of course, is more tentative. But the evidence consistently shows that Xenophanes followed the model based on 'exhalation' that we have already seen in Anaximander and Anaximenes. We will see in the coming essays that the Milesian cosmic system was extremely influential, and was more-or-less taken for granted by all of the Presocratic philosophers. It was still largely intact within Plato and Aristotle. Later Alexandrian science mostly refined it rather than replacing it, gradually purging it of its musical elements and making it more geometrical, less overtly arithmetical. In these early philosophers the influence of the symbolism of Music is still very strong.

The standard modern attitude toward the astronomy of Xenophanes is exemplified by Guthrie, who wrote:[43] *'some of the views described are simply taken over from the Milesians and others are rather nonsensical. If correctly reported, they suggest that*

[43] Guthrie, *op. cit.* p. 390.

*Xenophanes did not take these matters very seriously, but was probably chiefly concerned to ridicule religious notions of the heavenly bodies.'*

Such common statements have the following characteristics: First, Xenophanes is castigated for simply 'aping' the astronomy of the Milesians rather than making some 'progress' over them. The Milesian astronomy is assumed to be primitive, rather than an expression of a subtle Musical symbolism. Making 'progress' is the only criterion of worth in assessing his astronomy. Secondly, Xenophanes' astronomy has aspects which appear quite nonsensical or even bizarre. These issues are treated in a literalist manner with absolutely no appreciation of the possibility that Xenophanes may have been expressing himself *poetically* (and, at times, satirically) rather than 'scientifically.' Thirdly, the doxographical evidence, even though quite consistent in its picture of Xenophanes, is undermined in various ways in order to confirm that he was not really interested in astronomy. Fourthly, it is assumed that his main interest was only in attacking Homer, and thus it is a mistake to look for any consistency in 'his own' system. For all of these reasons, his astronomy has been undermined and isolated from the other philosophers.

We can generalize the framework of Xenophanes' astronomy thus: all of the heavenly bodies, as well as meteors, rainbows (and much else) are in fact *luminous* (or fiery) *clouds*, (a mixture of **air** and **water**). Clouds are formed from evaporation or exhalation from the **sea** and **earth**. They are subject to rarefaction and condensation. As they are rarefied, they become *winds*, **air**, ***aither***, and eventually **fire** when they are ignited by rapid motion. Rarified clouds tend to rise to the periphery of the cosmos, condensed clouds tend to fall as rain. All of these exchanges exist within the cosmic polarity between **fire** (**heaven**) and **earth**. The reader will note that this is essentially the astronomy of Anaximander and Anaximenes, with the highly appropriate image of *clouds* as a blanket description of the various intermediate phases between **heaven** and **earth**. The evidence in the doxography confirms that Xenophanes was simply expressing the Milesian cosmology in poetic terms. Here is some of the evidence:

Diogenes wrote:[44] *'The **clouds** are composed of the vapour from the **sun**, rising and lifting them up into the surrounding.'* This passage seems confusing, since the vapour should rise up from the **earth** rather than the **sun**. However, symbolically, the sun (**fire**) is the ultimate 'engine' of the 'exhalation' (emanation), even though the manifestation itself comes from **earth** and **sea**. In other words, the sun represents the One (the MONAD). Another example of this 'musical meteorology' is given by Aetius:[45] *'Xenophanes says that the original cause of what happens in the upper regions is the **heat** of the sun. Moisture is drawn up from the **sea** and the sweet part owing to its fine texture is **separated out** and being thickened into a mist forms the **clouds** and by **compression*** [lit. '**felting**'] *causes dripping showers and by **vaporization** makes **winds**. For he says explicitly: "**Sea** is the source of **water**."'* The reference to *heat*, the defining aspect of **fire**, refers to the will, or urge (***Eros***) of the One to become the Many. The term

[44] Diogenes Laertius, ix, 19, (A1).
[45] Aetius, III, 4, 4 (A46).

'*separating out*' (***apokrisis***) is typically Milesian, as is the term '*felting*.' Compression and vaporization characterize the process. All of this can also be seen in Anaximenes, for whom the heavenly bodies originated from **earth**, when moisture rising from it was rarified and eventually became **fire**.

The doxographers also reported his view on the sun. It consists of a collection of '*firelets*' or *sparks* which are themselves clouds ignited by rapid motion. From Aetius:[46] *'Xenophanes says that the* ***sun*** *is made of ignited* ***clouds****. Theophrastus in the* **Physical Philosophers** *wrote that it is made of little pieces of* ***fire*** *collected together from the moist exhalation, and themselves collecting together the* ***sun****.'* Again, from the *Stromateis*:[47] *'He says that the* ***sun*** *is gathered together out of a number of small sparks...the* ***sun*** *and the* ***stars*** *come from* ***clouds****.'* Finally, we have Hippolytus:[48] *'The* ***sun*** *comes into being each day from little pieces of* ***fire*** [sparks] *that are collected, and the* ***earth*** *is* ***infinite*** *and enclosed neither by* ***air*** *nor by the* ***heaven****. There are innumerable* ***suns*** *and* ***moons****, and all things are made of* ***earth****.'*

The theory that the heavenly bodies consist of '*sparks*' related to the central **fire** is a poetic way of saying that the One (**fire**) and the All (the planets, etc.) have the same essence. As Heraclitus said, out of all things comes a Unity, and out of Unity all things. This Unity is symbolized by **fire**, the most divine of Elements, which make up the 'body' of the planets and stars of the heavens. The stars are '*sparks*' or embers just like the sun. They too are made of ignited clouds, and, like the sun, they are renewed daily:[49] *'being daily quenched they rekindle at night like embers; their risings and settings are ignition and quenching.*' Quenching is caused by condensation or 'felting.' Fragment 36: *'all of them that are visible for mortals to behold'* was (perhaps correctly) interpreted by Diels as referring to the stars, which are luminous clouds. The phrase *'like charcoal embers'* quoted by Theophrastus is quite likely a direct quote, although it cannot be proved and isn't accepted as an 'official' fragment.

The *moon* is also a luminous cloud which has been ignited and 'felted.' It has its own light like the stars, and this light is put out each month as it wanes (Aetius II, 25, 4). Comets and shooting stars have the same composition. On the phenomenon now known as St. Elmo's fire:[50] *'Xenophanes says that the things on boats which shine like oars, which some call the Dioscuri, are little clouds which shine as a result of the motion.'* Lightning occurs when:[51] *'clouds are made bright by the movement.'* All of this is totally compatible with the symbolic musical astronomy of the Milesians. It is also compatible with the astronomy of Heraclitus in the next generation, who poetically called the heavenly bodies 'bowls' filled with **fire** and nourished in their courses by the exhalations. Like

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[46] Aetius, II, 20, 3 (A40).
[47] Ps.-Plutarch, *Stromateis*, 4 (DK 21A32).
[48] Hippolytus, *Ref.* I, 14, 3 (A33).
[49] Aetius, II, 13, 14, (DK 21A38).
[50] Aetius III, 2, 11.
[51] Aetius II, 18, 1 (DK 21A39).

Xenophanes, Heraclitus also believed that (poetically) the sun renewed itself every day, as also described in the mythology of Egypt. Another possible connection with Egypt is the statement in Aetius that the moon[52] *'does no work in the boat.'* It could be a (perhaps) satirical reference to the common ancient belief that the sun and planets ride on boats through the cosmic river (the ecliptic or the Milky Way, the 'cloud' of stars).

Burnet countered the consistency of the evidence thus:[53] *'In the doxographers the same explanation is repeated with trifling variations under the head of moon, stars, comets, lightning, shooting stars, and so forth, which gives the appearance of a systematic cosmology. But the system is due to the arrangement of the work of Theophrastus, and not to Xenophanes.'* He has been pre-judged as a second rate cosmologist, so that any consistency which is quite evident in the literature must have been implanted later. Anyway, astronomy was not important to him, since: *'the chief aim of Xenophanes was to discredit the anthropomorphic gods, rather than to give a scientific theory of the heavenly bodies.'* Xenophanes just isn't given a chance. Concerning the highly evocative phrase *'the moon does no work in the boat,'* Burnet makes this conclusion:[54] *'Such expressions can only be meant to make the heavenly bodies appear ridiculous, and it will therefore be well to ask whether the other supposed cosmological fragments can be interpreted on the same principle.'* It seems that the one aim of the whole Xenophanean corpus was to undermine the polytheistic gods.

Kirk and his associates tried to undermine the evidence by interpreting it strictly in a narrow literalist fashion, then claiming that there is an inconsistency between a '*concentration of fiery particles*' and an '*ignition of clouds.*' They then reconcile them in this way:[55] *'It is conceivable that the concentrations of fire* ***resemble*** *fiery clouds, and that some such statement in Theophrastus became dissected in the epitomes. Alternatively, the sun alone, because of its special brightness, might be a 'concentration' of fire, the other heavenly bodies being merely ignited clouds.'* This example demonstrates the narrow and arid treatment of Xenophanes' poetic astronomy by modern scholars, who have no empathy at all for the ancient musical mind-set.

They are even more perplexed by the sun *literally* renewing itself every morning. Understandably, they must be totally confused by this paradoxical (and satirical) statement reported by Aetius:[56] *'Xenophanes said there are many* ***suns*** *and* ***moons*** *according to regions, sections and zones of the* ***earth****, and that at a certain time the disc is banished into some section of the* ***earth*** *not inhabited by us, and so treading on nothing* [lit. stepping into a hole], *as it were, produces the phenomenon of an eclipse. The same man says that the* ***sun*** *goes onwards* ***ad infinitum****, but seems to move in a circle because of the distance.'* Another report of Aetius (II, 24, 4, DK 21A41) speaks of a month-long

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[52] Aetius II, 30, 8.
[53] Burnet, *op. cit.* p. 122.
[54] Burnet, *op. cit.* p. 123.
[55] Kirk, Raven, Schofield, *op. cit.* p. 174.
[56] Aetius, II, 24, 9 (A42a).

eclipse. Such evidence is used by modern scholars to 'prove' that Xenophanes was simply naive, although some admit there may be some humour or irony involved. Granted there may be (and probably is) some corruption in this late evidence, which comes from hundreds of years after Xenophanes wrote his poetry, but modern interpreters seem to have no ability to make the obvious distinction between literal 'primitive science' and poetic expression. Consequently, they simply dismiss his astronomy as 'bizarre.'

This literalist interpretation is also illustrated by the modern reaction to Xenophanes' fragment 32, concerning the rainbow (found in a scholiast *in Iliadem* xi, 27):

*'She*
*Whom men call Iris also is a* ***cloud,***
*Purple and red and yellow to behold.'*

*Iris* was not only the rainbow, but also a goddess who acted as a messenger between other gods. Homer also used the term *Iris* for the rainbow without necessarily personifying it (as at *Iliad* xviii, 547 and 551). The usual modern interpretation assumes that Xenophanes is again discrediting traditional religion, but this is not necessarily the case. Like we have seen in his use of ***Okeanos*** presented earlier, Xenophanes is not one-dimensionally or consistently 'anti-Homer.'

In the last few sections we have given evidence to show that Xenophanes' cosmology was quite consonant with the Milesian system. The historical evidence in the doxographical writings is very consistent. Perhaps there is some corruption of the information here and there, for example in Hippolytus' assertion that the *'**earth** is **infinite** and enclosed neither by **air** nor by **heaven**. There are innumerable **suns** and **moons**, and all things are made of **earth**.'* Here, the **earth** being infinite was obviously derived from the fragment in which the **earth** extends down indefinitely. All things being made of **earth** is itself accurate. The statement about innumerable **suns** and **moons** was derived from his statement that the heavenly bodies are renewed each day. Thus all of this material has *some* basis in Xenophanes' fragments. Only the problematic sentence about the **earth** being enclosed neither by **air** nor by **heaven** is suspect, and it is probably a corruption of the evidence. Of course, there is another possibility. Such problematic statements may be genuine but intended to be taken in some satirical or paradoxical way. Surely this is the case in the description of the sun 'stepping into a hole' during an eclipse. Unfortunately, the context of these fragments are lost, so that it is often impossible to decide whether they are 'serious' or 'humorous.' In spite of these problems, we can safely conclude that Xenophanes' cosmology was hardly distinguishable from the Milesians.

## THE LIMITS OF HUMAN KNOWLEDGE

Xenophanes has been called the father of *epistemology* (the study of the nature, grounds, limits, criteria, and validity of human knowledge). Related to this, he has also been labelled the father of *Scepticism*. He is the earliest Presocratic philosopher to possess an extant fragment which directly addresses these issues. Such honors are based on fragment 34 (DK 21B34, found in Sextus Empiricus, *adv. math.* vii, 49 and 110, also in Plutarch *Aud. poet.* 2, 17e)--a fragment which was justly famous in antiquity:

*'No man has seen or will ever know*
*the truth about the gods and all the things of which I speak.*
*For even if a person should in fact say what is absolutely the case,*
*nevertheless he himself does not know,*
*but belief is fashioned over all things.'*

The last line is alternatively translated *'but seeming* [or fancy] *is wrought over all things.'* The poem reflects on the frailty of human knowledge, and the distinction that can be made between knowledge and belief (or opinion). Xenophanes is willing to admit that sure knowledge on certain subjects is unattainable, and that the best we can do is to find the 'most likely story.' He was even humble about the proof of his own doctrines, as shown in fragment 35 (found in Plutarch, *Symp.* ix, 7, 746b): *'Let these things be believed as resembling the truth.'* Yet he was also optimistic that through effort we could come closer to the truth, as shown in fragment 18 (found in Stobaeus *Anth.* 1, 8, 2): *'Yet the gods have not revealed all things to men from the beginning; but by seeking men find out better in time.'* These fragments reveal a non-dogmatic and sensible approach to the limitations of human knowledge.

The Sceptic movement of the 4th century seized on the lines of fragment 34 as an anticipation of their own view that real knowledge is totally unattainable. According to Sextus (*Math.* vii, 49), the Sceptics believed Xenophanes to imply that *everything* is incomprehensible; no one knows the truth, and even if they hit upon it by chance, they still do not know that they have acquired it. This is a very extreme stand. Sextus also related another interpretation less extreme, substituting *opinion* for knowledge in certain cases as a criterion for judgement. This less sceptical stance is probably closer to Xenophanes' own intentions; but it still places him firmly in a sceptical camp.

Such a charge of scepticism in the 4th century sense of the meaning may be misplaced. It is more likely that Xenophanes was simply making a distinction between what men *surmise*, and what the gods *know* or reveal. In other words, he was distinguishing human conjecture from divine certainty. Later writers supplied the likely information that fragment 34 was the first half of an antithesis which contrasts human opinion and divine knowledge. Such distinctions were also made by other Presocratic philosophers. For example, Alcmaeon's fragment 1 (found in Diogenes Laertius viii, 83): *'Alcmaeon of Croton, son of Peirithous, spoke these words to Brotinus and Leon and Bathyllus* [early Pythagoreans]*: "Concerning things unseen the gods see clearly, but so far as men may conjecture..."'* The same attitude is also witnessed in Heraclitus, who said in fragment 78 (found in Origin *c. Celsum* vi, 12): *'Human disposition does not have true judgement, but divine disposition does.'* Parmenides also sought divine guidance in writing his revelatory philosophical poem.

Such attitudes were not new to the Presocratic philosophers. They were also implicit in *any* invocation to the Muses. The Muses (the gods) had always been assumed to be all-knowledegeable, while the poet was comparatively ignorant, and the poet naturally called on them to assist him. We can see instances of this in Homer's *Iliad* II, 485, in Pindar's *Paean* 6, 51, and in Theognis 141-2. Sometimes these appeals imply that

there are two classes of things, 'mortal' and 'non-evident,' the latter of which is the domain of the gods. We have here a division between the 'objects' of human and divine knowledge. Fragment 36 is sometimes translated to support this stand: *'As many things as are evident to mortal view.'* Yet fragment 34 does not make such a clear distinction, since it remarks on *'the gods **and** everything of which I speak.'* Some modern interpreters, anxious to confirm Xenophanes as a 'scientist,' maintain that the certain knowledge comes only from direct sensible experience (like his fossils), while knowledge of other 'objects of cognition' (his theology) belong only to the gods (or sometimes God). Yet this view seems backwards, since it is human sensible knowledge that is uncertain, not the divine. Another modern view (supporting theology) is that Xenophanes made a clean break between the *Absolute* and the *Earthly*, which is empirical and less certain. In this view, Xenophanes posited two realms of existence, which generate knowledge and opinion. If we accept this view, then Xenophanes was the intellectual father of Platonism.

The traditional invocations to the Muses expressed the belief that no knowledge was certain unless the gods *chose* to reveal it (thus verifying it). The poet had to submit to their superior wisdom, somewhat like the follower of the later religion of Islam (which means submission) had to submit to *Allah*. One can see this attitude not only in Xenophanes, but also in Alcmaeon, Pythagoras, Parmenides, Heraclitus, and Empedocles. Democritus wrote (fragment 117): *'we see nothing truly, for truth is in the depths.'* Ecphantus the Pythagorean said (DK 51,1): *'it is not possible to obtain true knowledge of existing things, but only to define them as we believe them to be.'* Yet all of these philosophers also had a firm conviction that they possessed at least part of the truth, because it had been revealed to them through the auspices of the Muses. Many modern interpreters would like to negate or ignore this evidence. They prefer to see Xenophanes, and the other Presocratics, as having thrown out the gods (sometimes to be replaced by God), and as having acquired their knowledge through 'rational thought' rather than 'poetic imagination.' Also, they interpret fragment 18 as the first ancient Greek statement supporting the notion of 'progress.' The situation is not so simplistic and clear-cut.

Xenophanes' fragment 34 certainly makes a distinction between knowledge and *seeming*, or opinion. The former was already implied in the Milesian concept of ***physis***, the drive to uncover the implicit 'reality' behind the explicit. The term ***physis*** always had the implication of denoting truth rather than opinion. In the next generation, Parmenides was to use this distinction to generate the ultimate paradox--that everything which is evidently true (movement, birth) is false, and that the truth is its opposite, which is evidently false. Such an intellectual indeavour was certainly influenced by similar statements in Xenophanes, whose intent may have been satirical rather than 'serious.' For that matter, Parmenides may also have been writing a satirical poem, although 5th century commentators took him very seriously. Perhaps they took him too seriously, and misrepresented him, as modern philosophers still do. Xenophanes (and Parmenides) may have produced these paradoxes mainly to draw attention to the differences between knowledge and opinion. Such differences, they pointed out, are not always what they seem to be.

The question of 'progress' is a favourite topic among modern interpreters of Xenophanes. Fragment 18 is deemed to mean that the emphasis on personal research and human effort eliminated the gods and turned upside down the traditional Greek notion of history. Remember that the Greeks (like the Hindus) believed in a historical *degeneration* of culture from a past 'Golden Age' through Silver, Bronze, and Iron in a parallel to the generation of the Elements from the One. According to the modern interpretation, Xenophanes replaced this tradition with the 'realistic' view that early man was brutal and ignorant, and that we make progress independant of the gods. It *is* true that there were tentative signs of such a reversal among 5th century writers--in Euripides, Critias, Moschion, Sophocles, and Aeschylus. Aeschylus said that mankind was taught by the god Prometheus to think for himself, and encouraged mankind to stand up for themselves in spite of the power of the gods. Diodorus (I, 8) said that man's only real teacher was '*expediency*.' Such views were evident among Sceptics and Sophists, for example in the agnostic Protagoras. However, these reversals are highly exaggerated in an anachronistic manner to justify the ancient Greeks as the cradle of the 19th century European scientific tradition. In fact, the traditional views were still quite dominant even at the end of the ancient era. It is highly doubtful that they can be projected onto Xenophanes in any clear and unambiguous manner.

One more fragment of Xenophanes can be cited as potentially supporting the frailty of human knowledge. Fragment 38 (found in Herodian, 41, 5) stated: *'If the god had not made yellow honey, man would consider figs far sweeter.'* The implication is that human knowledge is relative, that judgement is contextual. These issues were further developed by Heraclitus, who examined the relatedness between the primal Milesian *opposites*. However, the issue of relatedness was not original to Xenophanes; it permeates all of Presocratic philosophy. Relatedness underlies *ratio* itself. The Milesians explored the relations between the various Elements of the ***kosmos***. The issue of relatedness surfaces in all of the early philosophers. We should place Xenophanes within this mainstream rather than to separate him out as the 'discoverer' of the fact of relatedness itself.

By now, the reader will appreciate that our Xenophanes was a complex character indeed. He was quite comfortable wearing both 'hats,' Milesian and Eleatic, even though the two schools were seemingly incompatible. It becomes apparent that he also had much in common with Pythagoras and early Pythagoreans, even though Xenophanes and Pythagoras lie at opposite ends of the cosmological spectrum. He was a true son of Anaximandrean radicalism, and full of surprises.

Yet another example of his broad interests can be derived from his fragment 2 (p. 5). In extolling the superiority of such 'spiritual' values as intelligence and wisdom (the domain of the poet) over purely physical powers (exemplified by the athlete), he was expressing a high moral ideal. As such, this fragment could well be judged the earliest philosophical fragment in the field of *ethics*. Traditionally, ancient philosophy was divided into three broad areas of interest: natural philosophy (the study of nature or ***physis***), logic, and ethics (which includes, for example, politics). Xenophanes is the earliest Greek philosopher to have extant fragments in all three departments. Perhaps such philosophers

as Anaximander also made contributions to these fields, but if they ever existed they have nevertheless been totally lost. One could justifiably argue that Xenophanes was the first 'all-around' philosopher. He also puts a lie to the orthodox notion that ethics began with Socrates. Other Presocratic philosophers as well made commentaries on ethical questions. The notion that the early philosophers were interested *only* in 'natural philosophy' is a result of the massive influence of Aristotle. His shadow looms strongly over such modern writers as Reale, who seek to belittle the Presocratic contributions in statements such as this:[57] *'But these notions* [of Xenophanes], *however noble they are, are not philosophically grounded on general considerations of the nature of man. We see this repeated consistently by all the Presocratics.'* It seems that the early Presocratics are only allowed to comment on the physical cosmos. Such demarcations are surely quite artificial.

## SIMPLICIUS ON THE XENOPHANEAN ONE

Simplicius was an able and careful scholar; consequently, his evidence usually carries a lot of weight. Writing at the very close of the ancient Greek philosophical era, he had access to materials from the entire history. In his *Commentary on the Physics* (22.26-23.20), he made a summary of the logical arguments used to defend the cosmological theology of Xenophanes. This commentary is of great interest, since it is the only such discussion to have survived the social upheavals (the book burnings) which were soon to put an end to the thousand year history of ancient Greek philosophy. It is now the fashion to demean this document, for several reasons. First, it is assumed that such instances of logical argument are (almost by definition) beyond the ability of Xenophanes. Second, the arguments must be post-Parmenides in conception, therefore they have no connection to Xenophanes who was *not* an Eleatic. Third, Simplicius was influenced by the late Eleatic treatise of the *MXG*, so that we have a perfect excuse to dismiss the whole thing as spurious. For all of these reasons the modern consensus is that the document is anachronistic.

Granted that the inherent arguments *are* probably 'post-Parmenides,' they still give us an insight into the typically Eleatic way of thinking. Since, contrary to current fashions in interpretation, Xenophanes *should* be closely allied to the Eleatics, it is not unreasonable that such arguments probably have some connection with Xenophanes, even if they are not all original to him. It is quite possible that at least some of this material *was* indeed original to Xenophanes; at any rate, it is consistent with his approach. For these reasons it is worthwhile to examine this commentary. The document is not too long, and it naturally divides itself into seven short sections. We use the translation by J Barnes:[58]

*'Theophrastus says that Xenophanes of Colophon, the teacher of Parmenides, supposed that the first principle, or the existing universe, was* ***one*** *and neither finite nor infinite, neither changing nor changeless. Theophrastus allows that the account of his*

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[57] Reale, *op. cit.* p. 82.
[58] Jonathan Barnes, *Early Greek Philosophy* (Penguin, 1987), p. 96-97.

*views belongs to a different inquiry from the study of nature; for Xenophanes said that this one universe was* ***god.'***

Theophrastus recognized that the argument of Xenophanes belonged to logic rather than natural philosophy, since the conclusions on offer go contrary to common sense. How could the world be *both* changing and changeless? Xenophanes, like Parmenides, will be using some 'devious' form of logic to picture a *paradox* or impossibility within the traditional musical notion of the world. Such a *mystery* is associated with the realm of the divine, a realm to which we have only limited knowledge and understanding. As in Parmenides, access to this divine scheme of things is afforded to the poet only through *revelation*, which, by the way, always comes through *hearing* above the other senses. We can increase our understanding of the divine through certain investigations, but real insight always comes through *grace* (a gift of the Muses). Such insights are often (necessarily) expressed through paradoxes, since they transcend the normal plane of our existence. Mystics have always used paradox to express the divine aspects of the world, both in the west and the east, irrespective of their particular religious traditions. Xenophanes' poetic logic should be considered in this light.

*'He shows that* ***god is one*** *from the fact that he is most* ***powerful*** *of all things; for if there were more than one, he says, they would all have to possess equal power, but what is most powerful and best of all things is* ***god.'***

The '*One god*' is **the One itself**, equated with the *Whole* or the *All*. There can be no 'other.' In the words of the later religion of Islam: *'There is no God but God.'* The One is most powerful because it is both the MONAD as the source of vibration and the MONAD as the sum-total of all vibration. From the ancient perspective, nothing is more powerful than the laws of *resonance*. There cannot exist a plurality of this 'One' since it includes the All-and-everything. If such an 'other' existed, it would have to share power with the One, which is impossible since the One is all-powerful. This 'other' would need to have equal power with the One, which is absurd. Therefore, the One is without equal. It is the best--it is the 'only game in town.' It comprehends the All.

*'He shows that it was* ***ungenerated*** *from the fact that what comes into being must do so either from what is similar or from what is dissimilar; but similar things, he says, cannot be affected by one another (for it is no more fitting that what is similar should generate than that it should be generated by what is similar to it), and if it comes into being from what is dissimilar, then what is will come from what is not. In this way he showed it to be ungenerated and* ***eternal.'***

This argument is also found in Parmenides, but that does not mean that it had no basis in Xenophanes. Perhaps Parmenides acquired it from him and developed it further. The One is not subject to 'birth-and-death' because it is the *Whole all at once*. Anything which is born, or subject to *Becoming* (the Milesian perspective) must undergo some transformation or change through movement. It must arise from some *other* which is similar to it or (more likely) dissimilar to it. If the other was similar, it is not an other at all.

In that case the generation is meaningless, since generation implies the creation of some other. Consequently, it is equally absurd to say that it generates another like it or that it is generated by another like it. If they are both 'like,' then they are one and the same. Another problem arises if we posit that the *One Whole* was generated by another which is dissimilar to it. Such a theory must suppose that there is something outside of the Whole generating it. But this is impossible, since the Whole would also include this 'other.' Therefore, the Whole is not subject to *Becoming*--it is pure *Being*. It simply *is*. Thus the Milesian perspective can be summed up in the temporally-based word *Becoming*, while the Eleatic perspective is summed up in the a-temporal concept *Being*. Such an a-temporal concept is contrary to common sense. Hence it is akin to the divine, and is *eternal* and beyond our rational comprehension. The divine aspect of nature expresses itself through paradox.

*'It is neither **infinite** nor **finite** because it is what does not exist which is infinite (having no beginning, no middle and no end), while it is several things which are finite, being limited by one another.'*

Instead of appealing to the monochord to show that the 'world-harmony' is both infinite and finite (or neither infinite and finite), the writer appeals to another argument of 'logic.' Either the One exists or does not exist. However, the latter possibility is clearly impossible. If it did not exist, then it would surely be infinite, since it would have no beginning, middle or end; in other words, it would be unmeasurable and ***apeiron***. Thus it is not infinite. But the One *does* exist as the Whole. Therefore it cannot be several things; rather, it is the totality of the All. Only when there are several things can they each be finite, since they must be bounded or limited by each other. They must have some measurable 'borders.' The Whole does not have these boundaries; therefore it is not finite either. The argument is meant to show that the conception of the Whole lies outside both the categories of finite or infinite altogether.

*'He does away with **change** and **changelessness** in a similar fashion: it is what does not exist which is changeless (for nothing else passes into it and it does not pass into anything else), while it is several things which change (for one thing changes into another). Hence when he says that it remains in the same state and does not change* [fragment 26]-- *"Always he remains in the same state, changing not at all, nor is it fitting for him to move now here now there" --he means not that it rests in virture of the stationariness which is opposed to change but in virtue of the rest which is distinct from change and from stationariness.'*

A similar argument to the above also applies for change (and plurality itself). It is what does not exist which is changeless, since it is not interactive--nothing happens to it affecting change. But we have already established that it *does* exist. Hence it is not changeless. Moreover, its existence must either be a *Unity* or a *Plurality*. Only if it is a plurality can there be change, since one thing must transform into another. The very notion of change implies a plurality. But, being the Whole, it is a Unity and not a Plurality. Thus it is not subject to change; in fact, the very notions of 'change-changelessness' are foreign

to it. Thus its type of changelessness is not the common type in which something just 'rests' from changing. It is beyond all such categories. The only thing which can be said of it is to confirm its *Being*.

*'According to Nicolaus of Damascus in his work* On Gods, *he says that the first principle is* ***infinite*** *and* ***changeless****, and according to Alexander he says that it is* ***finite*** *and* ***spherical****. But it is clear from what I have said that he shows it to be neither infinite nor finite. (Alexander supposes that it is finite and spherical because* [Xenophanes] *says that it is similar from all directions.)'*

Simplicius is here demonstrating that the various commentators on Xenophanes had trouble with his 'system,' and found reasons to call it both finite and infinite. But, according to Simplicius, the truth is that Xenophanes' arguments came from logic alone, without any appeal to common sense or the empirical world. The 'logical' arguments already presented showed that the categories of 'finite and infinite' are irrelevant to the Wholeness of Being itself. The Xenophanean phrase *'it is similar from all directions'* (which was also used by Parmenides) is deliciously ambivalent in this matter. It can reasonably be interpreted as referring to the apeirous sphere. But it can also refer to the fact that all such 'logical' arguments lead to a similar conclusion: the One is beyond 'time and space.' It simply *is*. It is this mystical import which lies at the heart of Xenophanes' statements of strange 'logic.'

*'And he says that it thinks of all things, when he writes* [fragment 25]*: "but far from toil he governs everything with his* ***mind****."'*

This *paradox of Being* lies at the heart of our ***kosmos***. All manifestation, all forms of 'birth-and-death' are merely temporal aspects of this a-temporal *Totality*. Such a Wholeness is equated with the god itself, the 'over-mind' of the universe. It underlies and 'moves' the universe without any effort; indeed, without any real connection to it at all. It is absolutely transcendant, yet also immanent in the world. The changing world is the expression of it through time (the harmony of the cosmos). It is beyond any conventional logic or means to 'explain' it. To a large extent, the puzzling use of a 'strange logic' in Xenophanes and his pupil Parmenides was an effort to express this quintessentially mystical-religious perspective in poetic terms. Instead of being 'rational non-religious scientists' as the moderns want to believe, the Eleatics were rather mystically oriented poet-philosophers who attempted to express the ineffable in terms compatible with their Milesian predecessors.

## ON SYMMETRY AND COMPLIMENTARITY IN HARMONY

*Reciprocity* is one of the most fundamental characteristics of harmony. It manifests itself in many ways, both practical and theoretical. One of the most obvious expressions of it is the *bi-directionality* of musical scales. A scale can proceed in an 'up' direction or its converse. We moderns think of a scale as 'rising' when it goes 'higher' in pitch; that is, when it embodies increasingly larger frequency numbers. This conception reflects the

widespread modern use of *frequency* (vibrations per second) to measure musical pitch. It seems a little odd to us that the ancient Greeks thought of the 'up' direction as the movement 'down' in pitch, and they arranged the strings on their kitharas accordingly. The reason for this reversal is quite simple. The ancients did not measure pitch by frequency numbers at all; rather, they used monochord sequences based on string length, the reciprocal of frequency. In this case, the numbers go 'up' when the pitch moves down. The highest number in the sequence (the open string) defines the 'lowest' possible pitch. Their language thus reflected their method of measurement.

All of this shows that the descriptions 'up' and 'down' have a certain absolute arbitrariness, but they reflect the fundamental bi-directionality of musical scales. Anyone who works with harmony soon realizes that there are always two possibilities which are *reciprocals* to each other. The ancients did not have a word for frequency; indeed, they had no way of measuring it at all. Such measurements were not made until the 19th century. But they still used the concept of frequency indirectly simply by recognizing it as the reciprocal of the 'normal' monochord sequence. The monochord came first. This reciprocity was recognized in, for example, the relations between the two musical means, the Arithmetic Mean (from the monochord) and its reciprocal, the Harmonic Mean. Harmonic series relations can only be accessed on a limited basis, since, even with a long string, it is only possible to locate and sound the first (roughly) sixteen harmonics. It is impossible to find the 81st harmonic. On the other hand, the monochord string can be divided into any number, so that it was more practical as an exploration tool. This does not mean, however, that they were totally unaware of the reciprocal.

The theoretical, but not practical, 'equal status' of the reciprocals was undoubtedly a factor influencing the development of the ancient Musical symbolism. The fact of reciprocity also shows why the MONAD and the DYAD have an over-riding importance in Musical symbolism. The relations between them are special and unlike any other number relations in the vibratory realm. It isn't unexpected that they should dominate the field. It would appear that 'twoness' is inherent in 'oneness' itself. Oneness does not even make an 'appearance' without twoness being implicated. This is traditionally symbolized by the relation between the circle and its center.

In this short tutorial, we take a closer look at the issues of *complimentarity* and *symmetry*, the harmonic architecture which emerges directly out of bi-directionality. Thus this section is an extension of the introduction given in the first essay (SEPARATING EARTH AND SKY on pages 41 to 43). Some more elaborate musical examples are presented in order to bring out a few features of musical architecture.

Given a specific number sequence, it usually makes a different scale when it is considered in its 'up' direction (as harmonic series componants) or in its 'down' direction (on a monochord). The two alternative scales are called *modal compliments*. As an example, lets start with a very familiar 'up' scale, a famous just intonation major scale. The harmonic series numbers go 24:27:30:32:36:40:45:48, pitches C D E F G A B C. Now if we wanted to make this same scale on the monochord ('falling'), we must use not

the double 24:48 but rather 90:180, like so 90:96:108:120:135:144:160:180, pitches C B A G F E D C. These two sequences have a special relation to each other, known as *Duals*. If we had taken the sequence 24:48 and applied it as a 'down' scale on the monochord, we get instead a form of 'Phrygian minor' scale. (The names given here are the modern forms, and *not* the classical Greek names for the scales). Specifically, this sequence would give us the pitch sequence C \Bb Ab G F Eb Db C. In order to get this pitch sequence 'rising' in harmonic series componants, we must again use the sequence ruled by 90:180. This sequence would then give us C Db Eb F G Ab \Bb C. Thus the two scales, Ionian major and Phrygian minor, are *modal compliments* of each other, and the two 5-Limit sequences ruled by 24:48 and 90:180 are *Duals* of each other.

The two most famous harmonic structures, the major and minor triads, are also modal compliments. Obviously, the harmonic series and the sub-harmonic series are also modal compliments, and this whole relation is based on reciprocity. The vast majority of musical patterns have this characteristic.

However a 'small' (relatively speaking) minority of patterns make the same pitches when they are projected in *both directions*. These patterns are called *symmetrical* (or possessing *bi-lateral symmetry*). As a widely used traditional harmony illustrating this property, consider the 3-Limit 'Dorian minor' scale ruled by 432:864, the sequence 432:486:512:576:648:729:768:864. It gives the pitches C D \Eb F G /A \Bb C rising, and the same pitches falling. A symmetrical harmony such as this has *no modal compliment*, and it is '*self-dualing*;' in other words, it has no Dual. Not all symmetrical harmonies are 3-Limit. Here is an example of a 5-Limit symmetrical harmony, closely related to the one above, because it is also a form of 'Dorian minor' scale with some comma shifts in its componants: 90:100:108:120:135:150:162:180, pitches C \D Eb F G A Bb C. Notice how similar the two scales are, both generally classed as 'Dorian minor,' but the 5-Limit version is somewhat more consonant because the numbers involved are smaller. Also, note that this scale is ruled by the double 90:180, which was also used to project the 'Ionian' scale above. A given double, such as 90:180, can make many different types of scales, depending on which numbers we allow within the sequence. The 'ruling double' is the 'house' or framework which is filled by alternative 'tone children.'

Because symmetrical harmonies are relatively rare and have these special properties, they have always been the objects of keen interest by musicologists with a mathematical inclination. Mathematicians (both ancient and modern) have always loved looking for symmetries and writing about their properties. This was also the case with the ancient Pythagoreans, who were monochord virtuosi, and keen to delineate the structural properties of harmony. One of their favourite harmonies was the 3-Limit pattern ruled by the double 6:12, the sequence 6:8:9:12. One of the main reasons that it was considered so special was that it is the *first symmetrical division* after the primal 1:2 division. It is the first of a series of symmetrical divisions which they gave cosmic import. These patterns will be explored in the essay on Pythagoras, but an important point must be made here. Although symmetrical harmonies have always had a great attraction for mathematicians, they are *not* musically superior or special in any way. In fact, the most important and much

used harmonies (such as the major and minor triads) are generally *not* symmetrical. Musicians rightfully do not place too much value on the mathematician's focus on symmetry. Complimentary harmonies are the mainstay of most music. Also, it is interesting to note that the shift to a tempered system of harmony always increases the inventory of symmetrical harmonies.

Complimentary harmonies are also useful to demonstrate a peculiar property of harmony which manifests itself within the progression of the 'dimensions' of harmony, that is, 3-Limit, 5-Limit, 7-Limit, 11-Limit, and so on. As we move toward higher 'Limits,' the numbers needed to find the relevant Dual grow further and further apart. We will illustrate this with examples. First, consider 3-Limit harmony. Say we are given the 3-Limit tetrad harmony defined by the sequence 18:24:27:32:36 (monochord sequence C G F D C). Its Dual is the Harmonic series pattern 24:27:32:36:48 (rising scale C D F G C). The numbers are not so different in their size. This is the case with all 3-Limit harmonies. For example, the double 384:768 has as its Dual 486:972, and so on.

When we shift to 5-Limit harmonies, the differences are wider, but still not too wide. For example, we have already looked at the dual relation between doubles 24:48 and 90:180. Take the simple monochord sequence 4:5:6:8 (pitches C Ab F C). Its Dual is the sequence 15:20:24:30 (rising C F Ab C). The Dual is not as 'close' to the original in its number expession as in 3-Limit harmonies.

When we move to 7-Limit harmony, the gap widens considerably. We will use only a simple division to illustrate this property, in order to keep the numbers as small as possible. Take the 7-Limit monochord sequence defined by 4:5:6:7:8 (falling pitches C Ab F /$D^{+}$ C). In order to find its Dual on the harmonic series, we must use the sequence 105:120:140:168:210 (pitches C /$D^{+}$ F Ab C). Notice how wide the gap has become between the Duals. If we now move to the 11-Limit, the gap expands much more. For example, the monochord sequence 6:7:8:9:10:11:12 has a Dual on the harmonic series found between the double 2310:4620!

The shift to the 7-Limit, and more markedly the 11-Limit, also entails complications in notation, as already observed in the need for a little 'plus sign' to indicate that the 7-Limit /D (ratio 7:8) is slightly higher in pitch than the 5-Limit /D (ratio 225:256). All of these issues and properties have a converging effect in restricting the 'mainstream' of just intonation harmony to the 3-Limit and 5-Limit. The 7-Limit is for 'virtuosi' and explorers. The further exploration of the 11-Limit is even more 'adventurous.' Not surprisingly, traditional just harmonies in the east and the west were generally 3-Limit or 5-Limit, and so were the accompanying cosmic numbers found in mythology, calendrics, and so on.

It is also not surprising that the mainstream of Pythagorean thought was also 3-Limit and 5-Limit, as reflected in the four traditional Elements. Even that more progressive segment of the movement which espoused a fifth Element (and the 7-Limit) still restricted the 'ancestors' only to the ratios of the first ten numbers. Ratios of eleven or

higher primes were taboo. We should assume that this bias came from a musical source. On the other hand, the truly progressive cosmologists, beginning with Anaximander, implied that higher Limits, indeed, the 'n-Limit' were to be considered, along with the inclusion of irrationals as well as rationals. We see here the beginnings of the 'liberation' of cosmology from tuning theory.

Much later in ancient history, the Egyptian scientist Ptolemy made a listing of various tunings espoused by different musicians and theorists, as well as some of his own. Among this valuable and unique list are various harmonies of the 11-Limit, even one of the 23-Limit. The implication is that by the time of Ptolemy (150 A.D.) the old restrictions had been superceded. He had absorbed the musical research of the Presocratic movement and accepted the practical possibilities of the n-Limit. Although his own bias was toward only just intonations and against irrational (tempered) tunings (as shown by his treatment of Aristoxenus), his writings implied the practical reality that tempered tunings can be adequately approximated by using just ratios of the n-Limit. This stand shows an advanced sophistication in the understanding of harmony. Ptolemy represents the most developed level of tuning awareness evident in the ancient western culture. A few hundred years later the restrictive orthodoxy of the western Christian Church confined tuning solely to the 3-Limit, and used Pythagoras as its justification, in an effort to destroy the old sacred pagan music culture. It is here that we find the source for the typically western attitude (still generally believed) that Pythagoras knew *only* 3-Limit ratios, and that musical canonics is at any rate peripheral to religion and cosmology.

## AN ASIDE FOR MAHAVIRA

Modern fashion prefers to isolate Presocratic Greek philosophy from the contemporary philosophical-religious reform movements which were also happening in the Indian sub-continent. Yet even a cursory glance at 6th century Indian thought reveals that these writings (namely, various Upanishads, Jainism, and Buddhism) share many features in common with Greek philosophy and with Orphism. Indeed, even the modern Hindu religion, which arose out of these reform movements, still holds a lot of the typical attitudes and doctrines that we have defined as Music. This leaves the possibility open (though rarely considered) that there may have been influences moving in both directions. A few scholars have indeed claimed that the religious reform movement of Orphism may have originated in India, perhaps mediated through Persia. While potentially true, it is perhaps less likely the case than an Egyptian origin, but we should not deny that the movement both in Greece and in India came out of the same mind-set and transcended mythologies which are very similar.

The similarities between 'western' Orphism and ancient Hinduism are many. Both believed in the 'wheel of rebirth,' and reincarnation. Both sought deliverance (***moksha***) from desire (***kama***) and death (***mara***) through asceticism (for example, in vegetarianism). Both believed in the *soul*, and that the soul was held in bondage to the body (in Orphic terms, 'the body a tomb' or ***soma sema***). Both saw the universe as vibratory in origin, beginning through sound (***nada*** or ***shabha***), which generates the initial Elements (***Bhuta***)

and then the diversity. Both believed in the same four Elements (**fire**, **earth**, **air**, **water**) with the addition of the Hindu fifth Element **aither**. Both believed that one vibration leads to another, that motion is eternal, and that there is a direction to action. This very Anaximandrean musical assumption underlies the Hindu doctrine of ***karma***--the cosmic moral order. Both believed that we can affect the moral order by our actions: sin leads to punishment in the next life, virtue leads to ecstasy and thence to absolute knowledge and deliverance from the eternal round of rebirths.

Many related mythological images are also identical. For example, we have the cosmic Egg, the cosmic Dancer, the cosmic Soul, and the universal Man who epitomizes the relation between the microcosm-macrocosm, the original sacrifice. Ancient Hinduism also asserted the Unity within the diversity, the universal presence of sympathy between vibrations based on resonance, and its corrollary law that like is attracted to like. They also saw the world as a harmony (***samanvaya***) between the Elements and Forces. Even many of the gods have similar characteristics. For example, Orpheus as the cosmic musician and mediator is a lot like Khrishna, while Dionysus is a lot like Shiva.[59] We could give many more examples of the many similarities between ancient thought in India and in Greece.

All of this evidence indicates that the principles of Music were strong suppositions not only in ancient Greece, but also in ancient India. It also implies that the 6th century heterodox reform movements of Jainism and Buddhism had many characteristics in common with the reform movements in Greece. We will illustrate this fact by examining the religious philosophy of Vardhamana Mahavira, the greatest of the Jain *Tirthankaras* ('river-crossers' or world deliverers). Of course, it is impossible to do justice to the complexity of Jain philosophy in a few pages. Our interest here is merely to demonstrate that the supposed gulf between Jain philosophy and its contemporary 6th century philosophy in Greece is not so wide as many western scholars would have us believe.

According to tradition, Mahavira died when he was 72, a number possibly chosen for musical reasons. Pythagoras is also sometimes said to have died at this age. The Svetambara sect of Jainism believes that he died in 526 B.C. This would make him roughly a contemporary of Anaximander. The Digambara sect believes that he died in 509. Modern scholarship has concluded that he died around 480 (around the time of the death of the Buddha, which was 483), making him a contemporary of Xenophanes and Pythagoras. It is certainly an amazing 'accident' of history that Xenophanes, Pythagoras, Mahavira, Buddha, Confucius, and (probably) Lao Tzu were all exact contemporaries of each other. Never before in history have such influential figures lived at about the same time. Since the dates must be given some leeway, we can also include Anaximenes, Heraclitus, and Parmenides in this august list. Surely this is the most interesting time in the whole history of ancient philosophy.

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[59] See, for example, Alain Danielou *Gods of Love and Ecstasy: The Traditions of Shiva and Dionysus*, (Inner Traditions, Rochester, Vermont, 1979).

Mahavira was not the first Jainist philosopher; rather, he was the most articulate and developed figure of a whole school of thought. One earlier member of that school probably has some historical validity and was not purely mythical, namely Parsvanatha, who died (traditionally) in 772 B.C. Again we see that the reform movements in India began earlier than in Greece, since the bulk of the Upanishadic writings also predated Mahavira and the Buddha. These two 6th century figures represent the climax of a reform movement which probably began several hundred years earlier.

Since the movement began earlier in India than it did in Greece, it is logical to assume that reformist influences tended to move from the east to the west, rather than the other way around. This theory is also supported by the tradition that Zoroaster (who represented the reform movement in Persia) lived somewhat before the time of Thales. These dates lead us to conjecture that Greece many have been the beneficiary of developments further east. However, such ideas are obviously speculative, and it is perhaps more reasonable to argue that any 'outside' influences came more from Egypt and Babylonia than points further east. Be that as it may, we can only marvel at the many similarities between ancient Indian and Greek philosophy.

The followers of Mahavira were called ***Jainas***, a term derived from ***Jina***, meaning the *conquering one* or *victor*. We are reminded that ancient Indian philosophy was practical in its intent, and not merely empty intellectual theorizing. It laid out a process whereby one could be liberated from the wheel of rebirths. Its ethical componant was very strong and dominant, and its cosmology-metaphysics was mostly a supporting scaffold for ethical action. Although our interest here is mostly focussed on cosmology, we should remember that these matters form only an aspect of Jain philosophy.

Jainism recognizes an underlying substance or *substrate* for the cosmos. It is called ***Dravya***, a principal category which is both material and non-material, and includes all things, living and non-living. It is thus similar to the Greek One or cosmic Unity which includes the All. It is constituted of six real and independent *categories*, which form the core of Jain cosmology. These six categories are: individual *souls* or 'life-monads,' (***jiva***), *matter* (***pudgala***), the principle of *motion* (***dharma***), the principle of *rest* (***adharma***), *space* or *ether* (***akasha***), and *time* (***kala***). Except for matter, they are all immaterial. Except for time, they are all extended reals (***astikaya***), and divisible into innumerable parts. Interestingly enough, the first distinction which can be drawn from the ***Dravya*** is the separation into *extended* reals (***astikaya***) and *non-extended* reals (***anastikaya***). Only time has the honor of being in the second group, since time (***kala***) has no parts and is beginningless and immaterial. It is a universal, non-individual category (***ajiva-dravya***) which is the auxiliary cause of change. Strictly speaking, there are two types of time: absolute time (***dravya-kala*** or ***mahakala***) which has the properties just outlined, and relative time (***vyavahara-kala*** or ***samaya***) which is normal measurable time. Note how this emphasis on the importance of time mirrors Greek philosophy, and also Persian philosophy, which makes a distinction between absolute or infinite time (***Zurvan akarana***) and relative time. The high status of time is a sure sign of a musically-based cosmology.

Jain philosophy is obsessed with time, and uses extravagant numbers within their mythology in order to describe cosmic time. For example, in their mythical history, they speak of the *Age of susama-susama* lasting for 400,000,000,000,000 '*oceans of years*.' An ocean of years consists of 100,000,000 times 100,000,000 ***palyas***, a palya being a period of *countless years*![60] Like other Indian and Greek systems, they view history as a slow degeneration from a distant golden age. Other Indian philosophical systems also use extremely long cycles of time (***kalpas***), employing numbers which are invariably significant 3- and 5-Limit musical numbers. The movement of time is often likened to a serpent movement, reminding us of the association of time with the serpent in the mythology of Babylonia and Greece.

Jain philosophy is quite dualistic, and separates everything into two principal groups: ***jiva*** and ***ajiva***. This distinction is somewhat like the western distinction between *soul* and *body*. The individual soul is characterized by consciousness, life, immateriality, and extension in space. The mark of consciousness consists in knowledge, insight, bliss, and power. In size it corresponds to the body that it occupies. There exist a plurality of individual souls. The word ***jiva*** is derived from the root '***jiv***,' which means '*to continue breathing*.' Thus we have the same association of *breath* with *life* and *soul* that we see in Anaximenes and other Greek philosophy. The ***jiva*** is also described as ***purusha***, which is explained as ***puri-saya*** or 'what lies in the citadel of the body.' Much of Jain philosophy is centred around the ***jiva***. It is likened to a crystal which takes on 'colouration' according to its karmic history. Jain ethical practices (***tapas***) are intended to clean this 'karmic matter' from the ***jiva*** and again make it pure and uncontaminated by ***karma***. It then breaks free into absolute release (***kaivalya***--perfect isolation), in absolute oneness, alone, uncompounded and perfect. Like a free balloon the soul then ascends to the zenith of the organism of the universe. At this point one has reached ***Nirvana***, which is derived from '***Nir-va***,' meaning 'to blow out the flame,' to cease to draw breath, the fire of desire (***kama***) being extinguished. This is the aim of Jain practices.

The ***ajiva*** is, strictly speaking, the non-soul, which is inert or non-conscious. From the ***ajiva*** comes the 'karmic matter' which must be cleansed from the ***jiva***. The other five categories (***Padartha***) all fall under this heading: *matter*, the medium of *motion* and *rest*, *space* and *time*. The medium of *motion* (***dharma***) pervades the entire universe. It is one and eternal and is itself neither active nor does it produce motion in others. Rather, it makes all motion possible by providing the 'movement-medium' for them. Sometimes it is called ***dharmastikaya*** to emphasize its extension. Similarly, the principle of ***adharma*** pervades the whole cosmos, accounting for its inertia. This important pair of opposing principles ***dharma-adharma*** is responsible for the systematic characteristics of the universe. Again we see similarities to Greek philosophy, in which the categories of motion and motionlessness have an important place. The nature of movement is likened to the motion of a musical progression. It can be approached as a 'wave' of synergetic motion, or it can be analysed into 'particles' with atomic characteristics. This dual viewpoint

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[60] Joseph campbell: *The Masks of God, Oriental Mythology*; (Penguin Books, 1962) p. 220.

emphasizes the principles of motion and rest. To a certain extent, the complimentary approaches of the Milesian and Eleatic philosophical schools mirror this distinction.

The category of *matter* (***pudgala***) is the only material aspect of the universe. It is uncreated and eternal, and is that which is subject to modifications by combinations and dissociations. Thus matter can be aggregate (***skandha***) or atomic (***paramanu***). Matter can form communities (***sanghata***) or be separated into indivisible or smallest parts, like atoms (***anu***). The followers of Mahavira divided themselves into groups called ***gana*** with each group led by a ***ganadhara***. Together they formed the Jaina ***sangha***. Thus their social organization mirrored their view of the physical cosmos.

***Anu*** means *atomic*, an elementary particle which cannot be further divided. Jainism is one of the most materialistic of Indian philosophies, and has been compared with the Greek atomism of Democritus. All material things are ultimately aggregates of five forms of elementary particles, called the ***Maha-bhuta***, the five great Elements. Even though these Elements are conceived on the physical plane, they nevertheless are closely associated with the five senses. The implication is that the five senses 'create' the physical world. They are: *ether* or **aither** (***akasha***), the equivalent of *space*, which emerges from *sound* (***shabda***), the first and most important of the senses. Then **air** (***vayu***) which emerges from *touch* (***sparsha***), **fire** (***tejas***) which emerges from *colour* (***rupa***), **water** (***ap***) which emerges from *taste* (***rasa***), and **earth** (***prthivi***) which emerges from *smell* (***gandha***). These five gross elements emerge from subtle essences (***tanmatras***) which are themselves only just barely physical.

Not only Jainism, but also most other schools of Indian philosophy hold *ether* or **aither** to be the first Element (like certain western Pythagoreans). It fulfills a function somewhat like ***dravya*** but on the physical plane alone--the all pervasive subtle existent substance which provides the ground for the other Elements to exist. It has priority over the other Elements, just as the One has priority in the west; but while Presocratic philosophy tended to equate the One with the Element **fire** (sometimes also **aither** with **fire**), Indian philosophy makes the Element **fire** of lesser importance than **aither**. It is connected to the sense of *sight* or *colour*, which was not so primary as the sense of *hearing* ruled by **aither** (***akasha***). According to Indian philosophy, the sense of hearing is the only sense to give us *direct* information on the underlying vibratory nature of the world. The other senses are mediated, more complex and compounded in structure. Hence the sense of hearing is connected to the ***akasha***, the first or 'substrate' Element. The reader will note how very musical this theory is.

Jain philosophy is quite materialistic. Unlike other Indian philosophies, it defines the ***karma*** which clouds the ***jiva*** as an aggregate of extremely fine *matter* which is imperceptible to the senses. This matter is of eight types which we will not delineate here. They colour the ***jiva*** and put it into bondage (***baddha***). The individual ***jiva*** can be in either of two states which form a continuum bound by opposites; in bondage or in liberation (***mukta***). Liberation comes through the '*three jewels*' of Jainism: right knowledge

(***samyag-jnana***), right faith (***samyag-darshana***), and right conduct or character (***samyag-caritra***). The term ***pasha*** (bond, fetter) literally means 'rope,' and, like a rope, it is made up of three strands. The first strand is *ignorance* (***anava***), which is a beginningless, positive, inert entity which causes delusion. It is the original cause of the individual's bondage. The second strand is ***karma***, the bond forged by actions of thought, word, and deed. These produce merit and demerit which tie the individual to the wheel of birth and death. The third strand is ***maya***, which provides the individual with its bodies, instruments, and objects of experience. It creates the universe for one's advancement, though under the influence of ignorance, it is misused and becomes a fetter. These three strands make up the 'rope' which ties the ***jiva*** to the ***ajiva***.

The 'locale' of the universe in which one lives depends upon the state of the individual ***jiva***'s purification. The Jain universe has three parts (***loka***): where the gods reside (***urdhva-loka***) which are the heavens above, the **earth** (***madhya-loka***) in the middle, and the hell realms (***adho-loka***) below where the demons dwell. This arrangement is similar to the ancient western monochord-based conception (**Aither, Earth, Tartaros**); indeed, even the medieval vision of Dante is similar. One's virtue or vice puts one in the appropriate spot. The purified ***jiva*** is like a water-bubble that naturally rises to its appropriate level. When one achieves complete liberation, one moves beyond the ***urdhva-loka*** altogether, to the top of ***lokakasha***, there to remain motionless forever in utter perfection. The place 'beyond the heaven' lies in that 'region' that Anaximander called the ***apeiron*** beyond the *vortex*.

The over-all form of the universe is of a colossal human, usually female, with the **earth** plane at her waist in the middle. On the plane of the **earth** there are a number of circular continents arranged like the *rings* of a target with oceans between. They circumscribe the central axial mountain--Mount Meru. The great being of the universe has no joy, will, or even being of its own. It is merely a vast magnitude of *matter* (***ajiva***) blown into shape by the force and vitality of an infinite number of deluded *monads* (***jivas***), which swarm throughout every particle of physical substance. They move either up or down in the hierarchy according to their ***karma***, creating the ever-changing different orders of appearance. Thus the Jain vision of *anthropos* is modified toward the impersonal and the pluralistic. The universe is a myriad of ***jivas*** and ***ajivas***.

No god stands outside this quasi-scientific construction. The gods who inhabit the heavens are themselves also deluded monads who have merely earned their privileged place on a temporary basis. Only strict ascetic practices can completely free the monad from this *cosmic vortex*. Jainism, like Buddhism, does not recognize the infallibility of the old Vedas; hence they are called *heterodox* philosophies. One can see in Jain cosmology an effort to reform Vedic thought along lines which can only be described as 'scientific.' Like Presocratic philosophy in the west, Jainism represents an advancement of the scientific impulse in ancient India.

This short precis of Jain philosophy does not do justice to its well acknowledged subtlety.[61] Our presentation inadvertently makes the doctrine appear quite dogmatic, but in truth it is not so simple. For example, Jainism accepts a theory of *relative pluralism* or 'manifoldness' (***anekanta-vada***). All things and ideas are relatively manifold. Nothing can be affirmed absolutely as all affirmations are true only under certain conditions. Thus the nature of Reality can only be expressed in several steps, depending upon the state of evolution of the individual ***jiva***. No single definition is adequate to describe all of its manifoldness. This can be interpreted as a form of relativism. Consequently, no single simple proposition can express the nature of Reality fully. Jain philosophers call this doctrine ***syad-vada***, the theory of 'may be.' Thus Mahavira, like Xenophanes, treated the question of knowledge versus opinion.

In spite of the meagerness of our presentation, the reader will hopefully realize that Jainism is a complex cosmological system enfolding many points in common with early Greek philosophy. Above all, it comes out of a similar set of musical presuppositions, and attempts to ground them within a cosmology having a scientific impetus. Thus it shares the essential attitudes and intentions of early Greek philosophy.

## XENOPHANES WITHIN PLATO'S *SOPHIST*

In the whole of the Platonic corpus, the name of Xenophanes is only mentioned directly once, in the *Sophist* (242d), where Plato remarks on '*our Eleatic tribe, beginning from Xenophanes and even before*.' Yet it is a mistake to assume that Plato ignored Xenophanes and his concerns. Rather, Xenophanes is closely grouped with the other Eleatic philosophers, most notably Parmenides. Eleatic issues are covered extensively by Plato in a number of his dialogues, especially in the late ones. Here we will examine Plato's treatment of Xenophanes, but only in the *Sophist*. The complexity of this late dialogue is such that we cannot do an adequate overall analysis of it here. Such an analysis would entail an article even longer than this whole chapter. No, our interests here are mainly with Plato's discussion of *the Whole*, an investigation of the passage which cites Xenophanes directly, and a few examples of Plato's oblique references to Xenophanes within this dialogue. From this material we can get some idea of Plato's reactions to Xenophanes.

Plato has set up the dramatic context of this dialogue in such a way that Eleatic issues can be given an airing. The day after their convoluted conversation in *Theaetetus* (which concerned the very Xenophanean issue of 'knowledge versus opinion'), the geometer Theodorus, together with his Athenian pupils Theaetetus and Socrates' young namesake, meet Socrates for further discussions. They have brought with them an

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[61] For a good introductory overview, see, for example: Heinrich Zimmer *Philosophies of India*, Edited by Joseph Campbell (Bollingen Series XXVI, Princeton University Press, 1951), p. 181-280.

unnamed visitor from Elea:[62] *'...he's a member of the group who gather around Parmenides and Zeno. And he's very much a philosopher.'* Socrates had already encountered Parmenides and Zeno in yet another dialogue closely linked with this one, *Parmenides*. But in *Sophist*, the 'Eleatic visitor' becomes the main speaker, ousting Socrates from the dominant role. This dramatic device puts Plato in a deliciously ironic position. His main speaker is supposedly arguing from an Eleatic standpoint, but Plato uses his speaker to undermine the Eleatic position. Remember that Plato's own position is decidedly pro-Pythagorean and anti-Eleatic.

The Eleatic visitor is never named, but he is prone to quoting Parmenides. He is also presumed to be an expert at Eleatic logic. In fact, the visitor has many characteristics in common with Xenophanes, whom Plato also assumes to be a member of the same 'tribe.' He refers to the Eleatics as a tribe in several places, for example (218d): *'...it isn't the easiest thing in the world to grasp the tribe we're planning to search for--I mean, the sophist.'* Plato holds the Eleatics responsible for initiating the scepticism of the sophist movement. Thus the dramatic situation is ideally suited to the inclusion of veiled and covert allusions to Xenophanes. We are not dissappointed. Although we cannot say that the 'Eleatic visitor' actually represents Xenophanes, he does represent a figure much like him and his pupil Parmenides.

The discussion is initiated when Socrates asks the visitor to expound on the Eleatic treatment of the philosopher, the sophist, and the statesman. Are they the same sort of person, or are they distinct intellectual types? Hearing that the latter is the Eleatic view, they begin two complex discussions. In this dialogue they try to sort out the meaning or essence of the sophist, while in the next dialogue (*Statesman*) they discuss the statesman. They also opt for a question-and-answer approach (*dialectic*) rather than one person's straight-forward exposition (*rhetoric*). Due to internal references and other factors, it is possible to lay down a chronology of these late Platonic dialogues: *Parmenides*, *Theaetetus*, *Sophist*, *Statesman*. They are all connected in various ways, and the Eleatic visitor also becomes the main speaker in *Statesman*. All of these dialogues treat issues associated with the Eleatics, and with Xenophanes in particular.

Note that the grouping of 'philosopher, statesman, sophist' intriguingly mirrors the traditional division of ancient philosophy into the study of *nature* (***physis***), *ethics*, and *logic*. The Eleatics were most closely affiliated with logic, another indication that Eleatic issues dominate this dialogue. Indeed, much of the work is bound up in a discussion of '*that which is*' and '*that which is not*,' typically Parmenidean subjects. In fact, the visitor engages in a form of '*parricide*,' showing how Parmenides was wrong concerning this issue. Thus we have a situation in which an Eleatic philosopher engages in an anti-Eleatic position. We are reminded of the paradoxical arguments of Xenophanes in which the One

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[62] *Sophist* 216a. We are using the translation of *Sophist* by Nicholas P. White found in *Plato: Complete Works*, edited, with introduction and notes by John M. Cooper (Hackett Publishing Co., Cambridge, 1997).

is both finite and infinite. It is difficult to conceive of a more suitable vehicle for introducing Xenophanean issues.

In striving to define the sophist, the visitor employs the '*method of collection and division*' which we have already seen in *Philebus* (in the essay on Thales), which is described in *Phaedrus* (265d), and which is even more prominant in the upcoming *Statesman*. A thing is to be understood through an awareness of its similarities and differences in relation to other things. He is striving to come to a proper *division* of things into types or *genera*. This is a typically Pythagorean practice, contemplating everything on the analogical model of Music--the division of the One into the musical Genera. By finding the appropriate *place* for the division, one can determine the essence and definition of the subject at hand. As in other Platonic-Pythagorean writings, this process generally includes veiled references to the *Emanation Table* outlined in the first essay.

Right at the very beginning of the dialogue Plato introduces some humour with oblique references to Xenophanes. He has Socrates say (216b): *'Are you bringing a visitor, Theodorus? Or are you bringing a god without realizing it instead, like the ones Homer mentions? ...your visitor might be a greater power following along with you, a sort of god of refutation to keep watch on us and show how bad we are at speaking--and to refute us.'* Here we have a reference to the association of Xenophanes with the gods of Homer, and the ability of the Eleatics to 'speak with forked tongue.' Socrates also asks the visitor if he prefers (217c) *'to explain it by yourself in a long speech* [the method of Parmenides in his philosophical poem], *or to do it with questions? That's the way Parmenides did it one time, when he was very old and I was young. He used questions to generate a very fine discussion.'* He refers here to the conversation in *Parmenides*, which began innocently enough with question and answer, but then evolved into the most obscure of monologues. With tongue in cheek, the visitor answers (217d): '*Its easier to do it the second way, Socrates, if you're talking with someone who's easy to handle and isn't a trouble-maker. Otherwise, its easier to do it alone.'* In fact, Xenophanes and Parmenides are *not* easy to handle, and they are indeed 'trouble-makers' for Plato. Nevertheless, they opt for the dialectical method.

Since the 'method of collection and division' is somewhat obscure, they decide to do a 'dry run' using a simple and trivial subject. How shall we define an angler or fisherman? After enumerating the various forms of expertise that an angler has, the visitor sums up the discussion in a paragraph which alludes to Xenophanes' (and Zeno's) process of '*extending the **earth** down infinitely*.' He relates (221b-c): *'So now we're in agreement about the angler's expertise, not just as to its name; in addition we've also sufficiently grasped a verbal explanation concerning the thing itself. Within expertise as a whole one half was acquisitive; half of the acquisitive was taking possession; half of possession-taking was hunting; half of hunting was animal-hunting; half of animal hunting was aquatic hunting; all of the lower portion of aquatic hunting was fishing; half of fishing was hunting by striking; and half of striking was hooking. And the part of hooking that involves a blow drawing a thing upward from underneath is called by a name that's*

*derived by its similarity to the action itself, that is, it's called draw-fishing or angling--which is what we're searching for.'*

The method involves starting from the whole, then systematically demarcating specific classes (genera) or sub-classes nested within larger, more inclusive classes in a manner identical to the musical classification of the *enharmonic genus* within the *chromatic genus* within the *diatonic genus*, all generated from the One. As usual, a musical model underlies the method. The visitor goes on to say (221c): *'let's use that model to try and find the sophist.'* Meanwhile, he has described this process obliquely as: 'taking half of...taking half of...taking half of' in a manner reminiscent of the strange Zenonian monochord 'experiment' outlined earlier. It is this sort of 'covert' reference to Xenophanes and the other Eleatics which permeates this dialogue.

The method is then applied to the search for the sophist. Six distinct routes for understanding the sophist are discussed, and they are then summarized at 231d-e. We will not go into the specifics, only note that by the end of the dialogue the sophist is defined as one who produces in words totally inadequate 'copies' of the truth on important subjects. These conceptions may appear like the truth, but they are nevertheless entirely false. This is a typically Platonic stand, derived from the conservative Pythagorean distinction between the 'true' numerical archetypes of harmony (the simple ratios such as 4:5) and their 'imitators' within tempered (irrational) systems. The Platonic corpus makes a lot of mileage out of the 'conflict' between rational ('correct') and irrational ('counterfeit') versions of the primary archetypes. The 'correct' versions form the analogical model for a theory of Forms, which the 'bogus' versions merely imitate.

The 'important subjects' which the sophist apparently addresses are also closely connected with the traditional symbolism of musical concerns. These issues are well illustrated at 232c-d:

*'VISITOR: ...do sophists make people competent to dispute about issues about the* ***gods****, which are opaque to most people?*

*THEAETETUS: Well, people say they do.*

*VIS: And also things that are open to view, on the* ***earth*** *and in the* ***sky****, and related matters?*

*THE: Of course.*

*VIS: And when people make general statements in private discussions about* ***being*** *and* ***coming-to-be****, we know that sophists are clever at contradicting them and they also make other people able to do the same thing?*

*THE: Absolutely.*

*VIS: And what about* ***laws*** *and all kinds of* ***political issues****? Don't sophists promise to make people capable of engaging in controversies about them?*

*THE: If they didn't promise that, practically no one would bother to discuss anything with them.'*

Issues concerning the gods, the earth and sky, being, coming-to-be, and laws are issues traditionally Musical, and hence prone to the sort of musical models followed by

Plato. This also applies to political issues, since politics was defined as the *relations* between the citizens of a city-state. Such relations are also prone to musical models. According to this account, the sophist is able to engage in controversies concerning these important matters. Assuming that the sophist movement did have a strong sceptical componant, this was probably true. But we should not forget that in this dialogue it is really the Eleatics that are on trial, and not just the sophists themselves. The controversies concerning the gods, coming-to-be, and so on, were not initiated by the sophists, but by Xenophanes and the other Eleatics.

The final accounting of the place of the sophist is delayed in the dialogue because the visitor feels the need to show how it is even possible for the sophist to speak words that *appear* to be true but are in fact false. As is often the case in Plato, his argument rests on a bit of devious semantic trickery. He mistakenly understands speaking falsely as saying '*what is not*.' Then he points out that his great teacher Parmenides famously proved by logic that this is impossible. Thus he is forced to engage in '*patricide*,' showing that Parmenides was wrong. A long discussion ensues (covering much of the dialogue) which is entirely based on this deliberate misinterpretation of Parmenides' argument. He must prove that '*that which is not*' actually '*is*' since otherwise falsity could not come into being at all. In pursuing this course, he can undermine not only the sophist, but also the Eleatic philosophers in general. We pick up the action at 241d-e:

*'VIS: Then I've got something even more urgent to request.*
*THE: What?*
*VIS: Not to think that I'm turning into some kind of patricide.*
*THE: What do you mean?*
*VIS: In order to defend ourselves we're going to have to subject father Parmenides' saying to further examination, and insist by brute force both that* ***that which is not*** *somehow is, and then again that* ***that which is*** *somehow is not.*
*THE: It does seem that in what we're going to say, we'll to have to fight through that issue.*
*VIS: That's obvious even to a blind man, as they say. We'll never be able to avoid having to make ourselves ridiculous by saying conflicting things whenever we talk about false statements and beliefs, either as copies or likenesses or imitations or appearances, or about whatever sorts of expertise there are concerning these things--unless, that is, we either refute Parmenides' claims or else agree to accept them.'*

Plato's way forward is now apparently clear. But rather than focus right away on Parmenides, he widens the net and criticizes other Presocratic philosophers as well. Here at last we have the passage referring to Xenophanes by name. We begin at 242c and quote until 243c:

*'VIS: Parmenides' way of talking to us has been rather easygoing, it seems to me. So does the way of talking that everyone uses who has ever urged us to specify just how many beings there are and what they're like.*
*THE: How?*

*VIS: They each appear to me to tell us a myth, as if we were children. One* [Ion] *tells us that there are three beings, and that sometimes they're somehow at war with each other, while at other times they become friendly, marry, give birth, and bring up their offspring. Another one* [Anaximander, Anaximenes] *says that there are two beings, wet and dry or hot and cold. He marries them off and makes them set up house together. And our Eleatic tribe, starting from Xenophanes and even people before him, tells us their myth on the assumption that what they call "all things" are just one. Later on, some Ionian and Sicilian muses both had the idea that it was safer to weave the two views together. They say that* ***that which is*** *is both many and one, and is bound by both hatred and friendship. According to the terser of these muses* [Heraclitus], *in being taken apart they're brought together. The more relaxed muses* [Empedocles], *though, allow things to be free from that condition sometimes. They say that all that there is alternates, and that sometimes it's one and friendly under Aphrodite's influence, but at other times it's many and at war with itself because of some kind of strife. It's hard to say whether any one of these thinkers has told us the truth or not, and it wouldn't be appropriate for us to be critical of such renowned and venerable men. But it wouldn't be offensive to note the following thing, either.*

*THE: What?*

*VIS: That they've been inconsiderate and contemptuous toward us. They've simply been talking their way through their explanations, without paying any attention to whether we were following them or were left behind.*

*THE: What do you mean?*

*VIS: For heaven's sake, Theaetetus, do you understand anything of what they mean each time one of them says that many or one or two things* ***are*** *or* ***have become*** *or* ***are becoming****, or when another one* [Anaximander] *speaks of hot mixed with cold and supposes that there are separations and combinations? Earlier in my life I used to think I understood exactly what someone meant when he said just what we're confused about now, namely, this* ***is not****. You do see what confusion we're in about it?*

*THE: Yes, I do.'*

The philosopher who speaks of 'three beings' is most likely the 5th century Pythagorean-influenced dramatist-philosopher Ion of Chios, who wrote a lost treatise called *Triad* or *Triads*. The triad of beings obviously refers to the primal archetypes DYAD, TRIAD, and PENTAD which underly harmony. His one surviving fragment (found in Harpocration, *Lexicon* s.v. Ion) says: *'This is the beginning of my account: all things are three, and there is nothing more or less than these three things. Of each one thing the excellence is threefold: intelligence* [DYAD] *and power* [TRIAD] *and fortune* [or beauty, PENTAD].' These three make up the sacred triad of music. Pythagorean philosophers were prone to describing important musical numbers by attributes and vice-versa. They are 'somehow at war with each other' because they are themselves mutually incommensurable. However, they 'marry, give birth, and raise up offspring' through least common multiples within the monochord context.

The 'two beings, wet and dry or hot and cold' refers to the philosophy of Anaximander and Anaximenes, the Milesian emphasis on the *opposites*. They are 'married

off and set up house together.' Through their relations the harmonic ***kosmoi*** are generated. Meanwhile, Xenophanes and the other Eleatics are 'partisans of the Whole' and emphasize that all things are one. Plato unfairly credits Heraclitus and Empedocles for *first* realizing that the many and the one are related by the Forces ('hatred and friendship' or dissonance and harmony). This implies that earlier philosophers did not relate the one and the many to each other; yet this had already been done by the Milesians. Heraclitus, the 'terser of these muses' (since he wrote in a very compact, economical style) showed that the unity was not only in the opposites, but that they need each other. There is no unity possible without the primal opposites. As usual, Heraclitus was speaking a Musical truth in accord with Milesian cosmology. Empedocles emphasized the musical Forces of harmony (Aphrodite) and disharmony (Strife), and the resultant interplay of unity and diversity.

Plato contends that it is hard to judge which one is 'telling the truth or not,' as if these various philosophers were totally at odds with each other. He then accuses them of being inconsiderate and contemptuous toward 'us,' their followers. However, it is quite evident that it is indeed Plato who is inconsiderate and contemptuous, and not his predecessors. It is rather Plato who happily distorts their conception of *being* to suit his own ends. This falsification and manipulation of early philosophy is abundantly evident throughout the dialogue. The *Sophist* offers copious fine examples of Plato's polemical attitude toward the Presocratics. Many 'slanted' references are made to 'the renowned and venerable men,' too many to consider in this essay. He shows himself to be a master at the sort of 'sophistry' which he consistently opposes within the sophist movement. Perhaps Plato's anti-sophist stand is one of the supreme ironies within the Platonic corpus.

## PLATO ON THE WHOLE

The dialogue continues with the decision to focus (for the moment) on the Eleatic meaning of *being*. Such a discussion necessitates some talk of *the one* as *the whole*. We are now firmly placed within the territory of Xenophanes and Parmenides. We begin at 244b:

*'VIS: Well, then, shouldn't we do our best to find out from the people who say that* ***everything is one*** *what they mean by* ***being****?*

*THE: Of course.*

*VIS: Then they should answer this question: "Do you say that only one thing is?" "We do," they'll say, won't they?*

*THE: Yes.*

*VIS: "Well then, you call something* ***being****?"*

*THE: Yes.*

*VIS: "Is that just what you call* ***one****, so that you use two names for the same thing? Or what?"*

*THE: How will they answer that question?*

*VIS: Obviously it's not the easiest thing in the world to answer that question--or any other question either--for someone who makes the suppositions that they do.*

*THE: Why not?*

*VIS: Surely it's absurd for someone to agree that there are two names when he maintains that there's only one thing.*

*THE: Of course.*

*VIS: And it's completely absurd, and unacceptable, for someone to say that there's a name if there's no account of it.*

*THE: What do you mean?*

*VIS: If he supposes that a thing is different from its name, then surely he's mentioning two things.*

*THE: Yes.*

*VIS: And moreover if he supposes that the name is the same as the thing, he'll either be forced to say that the name is the name of nothing, or else, if he says that it's the name of something, then it's the name of nothing other than itself and so will turn out to be only the name of a name and nothing else.*

*THE: Yes.*

*VIS: And also* ***the one****, being the name of* ***the one****, will also be the one of the name.*

*THE: It will have to be.'*

The strange phrase '*the one of the name*' is generated because the terms '*one*' and '*name*' are assumed to designate one thing. Plato is fond of using such devious semantic trickery to undermine his opponants. Unfortunately, such 'word games' have also become a mainstay in the history of philosophy, allowing writers to use many words while saying very little of substance. Plato continues by making a similar treatment of '*the whole*.' We are now at 244e:

*'VIS: Well then, will they say that* ***the whole*** *is different from* ***the one being****, or the same as it?*

*THE: Of course they'll say it's the same, and they do.*

*VIS: But suppose a whole is, as even Parmenides says, "All around like the bulk of a well-formed sphere, / Equal-balanced all ways from the middle, since neither anything more / Must it be, this way or that way, nor anything less." If it's like that, then* ***that which is*** *will have a middle and extremities. And if it has those then it absolutely has to have parts, doesn't it?*

*THE: Yes.*

*VIS: But if a thing has parts then nothing keeps it from having the characteristics of being one in all its parts, and in that way it's all* ***being*** *and it's also* ***one whole****.*

*THE: Of course.*

*VIS: But something with that characteristic can't be just* ***the one*** *itself, can it?*

*THE: Why not?*

*VIS: Surely a thing that's truly one, properly speaking, has to be completely without parts.*

*THE: Yes.*

*VIS: But a thing like what we've described, which consists of many parts, won't fit that account.*

*THE: I understand.*

*VIS: Now if* ***that which is*** *has the characterisic of* ***the one*** *in this way, will it be one and a whole? Or shall we simply deny it's a whole at all?*

*THE: That's a hard choice.*

*VIS: You're right. If it has the characteristic of somehow being one, it won't appear to be the same as* ***the one****. Moreover, everything will then be more than one.*

*THE: Yes.*

*VIS: Further if* ***that which is*** *is not a whole by possessing that as a characteristic, but rather just is* ***the whole*** *itself,* ***that which is*** *will turn out to be less than itself.*

*THE: Certainly.*

*VIS: And because it's deprived of itself,* ***that which is*** *will be* ***not being****, according to that account.*

*THE: Yes.*

*VIS: And everything will be more than one, since* ***that which is*** *and* ***the whole*** *will each have its own separate nature.*

*THE: Yes.*

*VIS: But if* ***the whole*** *is not at all, then the very same things are true of* ***that which is****, and in addition to not being, it would not even become a being.*

*THE: Why not?*

*VIS: Invariably whatever becomes has at some point become as a whole. So we can't label either* ***being*** *or* ***becoming*** *as being without taking* ***the whole*** *to be among the beings too.*

*THE: That seems entirely right.*

*VIS: And moreover something that isn't a whole can't be any quantity at all, since something that's of a certin quantity has to be a whole of that quanity, whatever it may be.*

*THE: exactly.*

*VIS: And millions of other issues will also arise, each generating indefinitely many confusions, if you say that* ***being*** *is only two or one.'*

There are several ways in which we can account for this 'philosophico-babble.' Perhaps Plato does not himself comprehend the traditional Musical relation between the One and the Many. However, this is highly unlikely, since his understanding is abundantly evident from other writings. Indeed, the 'One-Many relationship' is a cornerstone of Pythagoreanism and Presocratic philosophy in general. The only plausible alternative is that he is engaging in *purposeful* polemic against the Eleatic position. He is evidently using the kind of arguments for which the sophists were famous. Perhaps he is demonstrating the methods of the sophists, who could smoothly argue that 'black is white' if need be. Perhaps he is painting the Eleatic visitor as a 'trouble-maker,' like Xenophanes, Parmenides, and Zeno. Perhaps none of this is really meant to be taken seriously, and it is rather to be viewed as satire (in honour of Xenophanes?) instead of serious philosophy. The wonderful thing about Plato's writings is his ability to be ambivalent about these matters. After all, he is using a dialogue form, which conveniently separates the thought of the characters from that of Plato himself. How much of Plato himself is actually present?

The suspicion that this discussion consists mainly of anti-Eleatic polemic is heightened in the following passage, which gives hints of referring to Xenophanes. At 246a we read:

*'VIS: It seems that there's something like a battle of gods and giants among them* [the early philosophers], *because of their disputes with each other over* ***being.***

*THE: How?*

*VIS: One group drags everything down to* ***earth*** *from the heavenly region of the invisible, actually clutching rocks and trees with their hands. When they take hold of all these things they insist that only what offers tangible contact is, since they define* ***being*** *as the same as* ***body.*** *And if any of the others say that something without a body is, they absolutely despise him and won't listen to him any more.*

*THE: These are frightening men you're talking about. I've met quite a lot of them already.*

*VIS: Therefore the people on the other side of the debate defend their position very cautiously, from somewhere up out of sight. They insist violently that true being is certain nonbodily* ***forms*** *that can be thought about. They take the bodies of the other group, and also what they call the truth, and they break them up verbally into little bits and call them a process of* ***coming-to-be*** *instead of* ***being.*** *There's a never-ending battle going on constantly between them about this issue.'*

This 'other group' which he shortly calls '*gentler people*' are Pythagoreans who posit *forms* based on harmonic archetypes. The first group is Eleatic and potentially Xenophanes, with his emphasis on the **earth**. He later calls them '*native earthborn giants.*' The statement about '*clutching rocks*' possibly refers to Xenophanes' famous comment on fossils. Yet Xenophanes' thought is severely distorted, since the visitor implies that the Eleatic philosopher does not recognize the non-physical or the soul. Later, at 249a, the visitor is more explicit about this accusation: *'But for heaven's sake, are we going to be convinced that it's true that change, life, soul, and intelligence are not present in* ***that which wholly is****, and that it neither lives nor thinks, but stays changeless, solemn, and holy, without any understanding?'* That being is changeless, motionless, and holy is a mainstay of the Eleatic position. Hence, although it is not stated directly, Plato (through the Eleatic visitor) is surely attempting to undermine the Eleatic camp, and Xenophanes in particular. Many more examples scattered throughout the dialogue could be cited, but perhaps this is enough for the reader to get some idea of Plato's reaction to Xenophanes.

## CONCLUSIONS

Xenophanes is one of the most mistreated of the early philosophers. Plato distorted him, even though he must have been enormously influenced by him. Plato tended to blame the Eleatics for providing the intellectual foundation for the scepticism of the sophist movement. To a certain extent this is true. Eleatic radicalism emphasized the paradoxical elements of Music which, in the long run, began the devaluation of the old musical model. However, Plato often went overboard in his criticisms, as has been shown in the last

section. His treatment of the Eleatics, and Xenophanes in particular, was often unfair and polemical. He was quite willing to undermine them by devious means. We can legitimately ask whether Plato actually understood the import of Xenophanes' thought. Xenophanes' writings were certainly not straight-forward and transparent. Plato could not avoid confronting Xenophanean issues and he did so, especially in his late dialogues, but he never gave Xenophanes any credit for his contributions.

Aristotle side-stepped Xenophanes because he did not know where to place him within his own monumental philosophical system. For him, Xenophanes (like Anaximander) was an enigmatic figure who did not fit into his neat categories. Consequently he devalued him and largely ignored him. Aristotle's enormous influence on later ancient thought hastened the demise of Xenophanes' reputation, and furthered the dissappearance of his writings. To a large extent, Aristotle's bias is still operative today.

Modern scholarship has judged Xenophanes to be a peripheral figure isolated from the mainstream of the movement as a whole. He is usually seen as merely a poet who was confused about philosophical issues and incapable of any deep thought. Nevertheless, they generally champion him as a 'rational scientist' whose main (or only) aim was to discredit the polytheistic gods. Any other accomplishments are usually denied to him. A sub-group of modern scholars has wanted to interpret him as a monotheistic theologian who 'advanced' the evolution of a new and more 'proto-Christian' notion of god (or God). But this religious interpretation is difficult to reconcile with the 'rational scientist,' adding to the confusion in interpretation. The standard treatments of Parmenides and Pythagoras have also aided in squeezing Xenophanes out of the picture. Most amazing of all is the modern insistence that Xenophanes had no connection to the Eleatic school of philosophy, even though all of the ancient evidence points to the opposite conclusion. All of the ancient sources make Xenophanes the teacher of Parmenides and the founder of the Eleatic perspective. Modern scholarship has denied the evidence through the most tortured and convoluted of arguments, because it 'threatens' the orthodox position of Parmenides in their scheme of the movement as a whole. Xenophanes *must* be treated as a primitive thinker incapable of the paradoxical 'logic' of Parmenides.

The fragmentary evidence points to the conclusion that Xenophanes was a very complex character who absorbed the implicit paradoxical radicalism of Anaximander and proceeded to make it more explicit. This radicalism then became the mainstay of the Eleatic philosophers. The paradoxical implications of the continuum and infinite divisibility were already hinted at in Anaximander. In Parmenides they were made quite explicit in the notion of the *Whole* negating the *void*. Xenophanes provided the link between these two important philosophers.

Xenophanes' radicalism did not, however, make him an outsider within his intellectual community. The evidence indicates that he was an aristocratic figure living the good life, travelling widely, and interacting with everyone. Perhaps his 'non-philosophical' fragment 22 tells it best:

*'This is the way to speak around the fire*

*In winter, on a soft couch, belly full,*
*Drinking sweet wine, and crunching hazelnuts:*
*'Now tell us, sir, your name and home and age.*
*How old were you the year the Mede appeared?''*

Philosophy was an aspect of the good life, along with 'wine, women and song.' He was nevertheless a high-minded member of his society, conscious of his social and moral obligations. His philosophical progressivism probably did not make him a reactionary or a revolutionary. Moderation was the key, as illustrated by his fragment 4: *'Nor would a man mix wine in a cup by pouring out the wine first, but water first and wine on top of it.'* Xenophanes illustrates how tolerant his society was toward progressive ideas.

Perhaps the best way to end this essay is to quote his fragment 5. Diels suggested that this fragment was a satirical attack on the poet Simonides, whose greed was proverbial. However, it can also be seen as an illustration of the good life, and the importance of music within it:

*'Thou didst send the thigh-bone of a kid*
*and get for it the fat leg of a fatted bull,*
*a worthy guerdon for a man to get,*
*whose glory is to reach every part of Hellas*
*and never pass away, so long as Greek songs last.'*

-written September-November, 1998, Amsterdam