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Greek Philosophers as Theologians

The Divine *Arche*

To my wife, Bogna

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Universiteitsbibliotheek
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as given by Simplicius²⁵ – so that truth (reality) is persuasive, not well-rounded. In this way, “persuasive reality” exhibits “reflective activity beyond time and space.”²⁶ Moreover, a follower of Parmenides, Melissus, explicitly discusses the impossibility for the Being to suffer pain or anguish and to be unhealthy (30B7). Being is thus at least assumed to be sentient, and it is not inconceivable that Melissus’ denials are “the counterpart of a positive belief ... in the divinity of reality.”²⁷

The process of elaborating on the concept of divinity leads from Anaximander’s divine *Apeiron*, the seat of moral law, through the uncompromising monotheism of Xenophanes to the Parmenidean vision of God-Being that is the only reality and only truth, so grand that it is known only to the chosen few. This very naturally leads to Anaxagoras and the concept of the all-powerful, infinite *Nous* that gives birth to the universe from the prime matter. This *Nous* very early was identified with God. Also, from Parmenides’ vision it is not far to Plato’s Demiurge and the idea of the good and then to Plotinus, in particular to his doctrine of One which “is not in place nor is it in time” (*Enneads* 6.9.3), to the doctrine of ecstatic apperception of the One (6.9.11), to his ascetic life leading him to rejection of the sensory world (5.3.17, 5.5.13) and, also, to the image of the sphere (6.9.8, 2.9.17, 5.8.9). There is thus a good reason to say that Plotinus seems to be closest to Parmenides among ancient thinkers.²⁸

²⁵ Coxon, *The Fragments of Parmenides*, pp. 51, 168–169; Mourelatos, *The Route of Parmenides*, pp. 154–157; Mansfeld, *Die Offenbarung des Parmenides*, pp. 122, 157.

²⁶ Coxon, *The Fragments of Parmenides*, p. 216. Earlier, Plotinus mentions Parmenides’ identification of Being with intellectual-principle (*Enneads* 5.1.8).

²⁷ G.S. Kirk, J.E. Raven, and M. Schofield, *The Presocratic Philosophers* (New York: Cambridge University Press, 1983), p. 397; the authors express this possibility in the form of a question.

²⁸ Pierre Somville, *Parménide d’Élée. Son temps et le nôtre* (Paris: Vrin, 1976), p. 82; cf. Fränkel, *Early Greek Poetry and Philosophy*, p. 356 note 17.

Chapter 5

Pythagoreanism and the *Harmonia*

In his *Theology of the Early Greek Philosophers*, Werner Jaeger makes only a few passing remarks about the Pythagorean theology. Gregory Vlastos, in a long paper on Greek theology, finds this fact disconcerting,¹ but he himself offers very little to rectify this omission. Admittedly, the dearth of sources justifies such treatment; however, it is, in fact, disconcerting that the works on theology say very little on the theology of Pythagoreanism, whose founder is known primarily as a religious sage, a diviner, and a prophet and is considered by many to be a god.² The Pythagorean brotherhood is considered to have had primarily a religious character.

Unfortunately, the three surviving *vitae* of Pythagoras authored by Diogenes Laertius, Porphyry, and Iamblichus were written centuries after Pythagoras’ death. The authors refer to their sources, although not always, but, first, oftentimes these sources are suspect, and second, the sources may not necessarily be followed very closely. A disquieting fact is that the later the *vita*, the more detailed it is. However, except for very short references to Pythagoras by early authors (in particular, by Heraclitus, Xenophanes, and Empedocles), these *vitae* have to be treated as a main source of Pythagoras’ life and views. Plato refers to Pythagoras by name only once, saying that he showed others how to live and was a founder of a certain way of life (*Rep.* 600b). Aristotle has also very few direct references to Pythagoras and discusses primarily the views of the Pythagoreans as a group, only sometimes with the qualification that the views are held by some Pythagoreans.

Archai

Pythagoras created a group of staunch followers whose goal was primarily to lead a pure life. The principle of life of this communistic group (“friends have all in common”) was “worship of the gods and respect for the departed, lawgiving, education, control of speech, mercy toward living things, self-control, temperance, alertness of mind and likeness to God” (Iamblichus, *VP* 32). All of human conduct should be “in agreement with the divine. This is the principle; all of life is so ordered as to follow God” (137 = 58D2, 86–87). The principle means that “God is not only

¹ Gregory Vlastos, ‘Theology and philosophy in Early Greek thought’, in D.J. Furley and R.E. Allen (eds), *Studies in Presocratic Philosophy* (New York: Humanities Press, 1975), vol. 1, p. 113.

² He was believed to be in direct communication with the divine which is said to be confirmed by the many miraculous occurrences in his life which made him in the eyes of followers a god, too, an incarnation of the Hyperborean Apollo (Iamblichus, *De vita Pythagorica* (*VP*) 30).

the guardian of the world order, but also can become someone to be approached and imitated."³ It is absurd to seek the good anywhere except from the gods. "Since God exists and is lord of all, obviously we must ask our lord for what is good" (87, 137). That is, God is not only the source of what is good but also the source of knowledge of the good. One way of finding out the will of God is divination, "for that is our only interpreter of the mind of the gods" (138). But everyone cannot be a diviner. The truth can be learned from "those who know and these are few." A teacher should thus be chosen carefully because being such a teacher is a rarity, "for to form correct opinions and to understand belongs to only a few." One should learn from those "who are older and lived nobly" (200 = 58D8).

In particular, the foundation of human justice is established by the rule of the gods. "The divine power exists and is disposed towards the human race" (Iamblichus, *VP* 174 = 58D3); that is, the gods by nature are benevolent beings and as such only the gods can be the source of human legal and moral laws. The recognition of the rule of the gods guarantees that no one will rebel against them. Humans are by nature imperfect – they are "naturally aggressive" and are driven by emotions and desires – and therefore require a superhuman control. This, ideally, should be done through the means of a theocratic government, the unmediated government of the divine over the human sphere. A primary way of submission to such a rule is constant piety and worship of the divine whereby one can "always keep in mind that God watches over human progress" (175 = 58D3). This, however, is a rare gift and thus one should turn to those who know, and, to be sure, Pythagoras is such a one.

For those who are not so advanced as Pythagoras, the obedience to parents and current laws and customs is the second best. The fact that the parental and societal rules are rules makes them faint reflections of divine rules. The worst thing that can happen is rejection of all the rules because "anarchy is the greatest evil." Unconstrained freedom is unacceptable since the imperfection of human nature eventually leads men astray and thus "a man should never be allowed to do as he likes" (Iamblichus, *VP* 203 = 58D8).

In all aspects of life, following God is constantly stressed. If this is so important – most important – then it is obvious that something has to be known about God to make appealing imitating and following him. Who is this God? Unfortunately, no explicit theology was left by Pythagoras or by his immediate followers. In one respect, this problem may not have arisen in some followers of Pythagoras. These followers were divided into two groups, *mathematici* and *acusmatici*: the former group got to fathom the theological mysteries, the latter was to follow the precepts of Pythagoras (Porphyry, *VP* 37 = 18B2). But at least to the *mathematici* the theological problems were real.

There are some indications of how the divinity was understood by the early Pythagoreans. A good starting point is the *tetraktys*, whose paramount importance is indicated by the fact that it was included in the Pythagorean oath. The Pythagoreans swore by Pythagoras, that is, "by him who brought *tetraktys* to our kind, in which

³ Leopold Schmidt, *Die Ethik der alten Griechen* (Berlin: Hertz, 1882; reprinted Stuttgart-Bad Cannstatt: Frommann, 1964), p. 167.

is the source and the root of everflowing nature" (SE 7.94; Aetius 1.3.8 = 58A15). The *tetraktys*, or tetrad, is a system of the first four positive integers, 1, 2, 3, and 4. It contains the ratios of musical harmony. "It is no doubt that Empedocles knew the old oath," otherwise he would not refer to the four roots (31B6.1) and the source of all mortal things (31B23.10).⁴ The *tetraktys* was considered to contain the nature of the universe (Theon of Smyrna 154)⁵ and was called *kosmos*, *ouranos*, *pan* (Plutarch, *De Is. et Os.* 75) and also *decad* because the first four integers which add up to 10 (= 1 + 2 + 3 + 4). It represents all harmonies because the four numbers of the *tetraktys* are used in the harmonic ratios of fourth, fifth, and octave. It is also called the oracle of Delphi (Iamblichus, *VP* 85 = 58C4) because it encompasses the truth which – like all Delphic pronouncements – is not immediately apparent.⁶ Although not all the meanings behind the *tetraktys* can be clear to us, and although not all the associations with *tetraktys* have to go back to Pythagoras, its importance for the Pythagoreans is undeniable. One thing is clear, namely that the *tetraktys* refers to the harmonious nature of the world. The world is ordered on all levels. The order can be discovered in the heavens, in the soul, and in music. This orderliness is reflected in numerical proportions and thus the role of a sage is to find in nature the harmony through which nature exists and to reflect this harmony in numbers.

Importantly, the *tetraktys* was also called "the harmony in which the Sirens sing" (Iamblichus, *VP* 82 = 58C4), which is "the universal harmony and the music of the spheres" (65). In the tale of Er recounted by Plato, one Siren was next to each orbit singing a single note, "and the concord of the eight notes produced a single harmony" (*Rep.* 617b). This reinforces the reliability of ascribing to the Pythagoreans the doctrine of the harmony of the spheres or the music of the spheres.⁷ Aristotle tells us that the Pythagoreans believed that the heavenly bodies produce musical notes in their revolutions and that the pitch of the notes depends on the velocities of the bodies; the velocities, in turn depend on the distances of the bodies from the earth, which were according to the same ratios as the consonant intervals of the octave. It is strongly suggested that the fixed stars also participated in this heavenly symphony

⁴ Walther Kranz, 'Kosmos als philosophischer Begriff frühgriechischer Zeit', *Philologus* 93 (1938), p. 438. Walter Burkert, *Lore and Science in Ancient Pythagoreanism* (Cambridge: Harvard University Press, 1972), p. 186, turns the argument around by saying that the second verse of the oath "can scarcely be older than Empedocles," and refers to Kranz giving an impression that it is also Kranz's opinion. Burkert is followed by James A. Philip, *Pythagoras and Early Pythagoreanism* ([Toronto:] University of Toronto Press, 1966), pp. 97–98.

⁵ Theon of Smyrna distinguishes in his *Exposition of Mathematics Useful for Understanding Plato* eleven symbolic meanings of the *tetraktys*; see also Paul Kucharski, *Étude sur la doctrine pythagoricienne de la tétrade* (Paris: Les Belles Lettres, 1952), pp. 31–39. A comprehensive study of the *tetraktys* is given by Armand Delatte, *Études sur littérature pythagoricienne* (Paris: Champion, 1915), pp. 249–268.

⁶ See also Kucharski, *Étude sur la doctrine pythagoricienne de la tétrade*, pp. 75–77.

⁷ The phrase "the harmony of the spheres" is later than Pythagoras, because the use of spheres only begins with Eudoxus; for earlier times, the phrase "the harmony of the heavens" would be more appropriate. Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 351 note 1; Leonid J. Zhmud, *Wissenschaft, Philosophie und Religion im frühen Pythagoreismus* (Berlin: Akademie Verlag, 1997), p. 219.

(Aristotle, *De caelo* 290b12–15). The Pythagoreans were convinced that harmonic ratios govern both music and the cosmos (290b12–291a28; fr. 203). This conviction went so far as to override the testimony of the senses. Because the Pythagoreans were convinced that ten is a perfect number, they introduced an anti-earth to have ten celestial bodies (in addition to the sphere of fixed stars, five planets, the sun, the moon, and the earth), which is a conviction that incensed Aristotle greatly (*Met.* 986a3–12).⁸ Also, because the motion of bodies, particularly large ones, generates sound, the motion of really large celestial bodies also generates sound. However, because we are used to these sounds, we cannot hear them. It takes someone like Pythagoras to be able to hear these sounds (Iamblichus, *VP* 65–66, Porphyry, *VP* 30 = 31B129).

The Pythagoreans did not treat the image of the music of the spheres as a mere metaphor. This was a real phenomenon which caused explanatory problems of its own. How can the ten bodies be related to the octave? Many, not infrequently tortuous, efforts were made to resolve the difficulty.⁹ There was even disagreement about the relative velocities of the celestial bodies movements. According to Philolaus, the closer a planet is to the center of the world, the faster it moves (which is an order followed by Plato, *Tim.* 39a). In the Pythagorean system described by Aristotle (fr. 203), it is exactly the opposite. However, these differences, important as they are from a scientific point of view, are overshadowed by metaphysical assumption of the first order: the world is harmonious, whether we can explain it in terms of musical harmony or not, and our thwarted efforts to explain it accordingly speak not against the assumption but against the efforts. For a Pythagorean, it would just be a matter of time to find a satisfactory explanation of the astronomical phenomena, but the assumption about the existence of harmony stands regardless of the success – or the lack thereof – of scientific attempts to create an astronomical theory. This is undeniably one of the most important legacies of Pythagoreanism. Today's scientist would hardly struggle to provide a theory that reconciles natural phenomena with musical scales,¹⁰ but the same scientist is convinced that an explanation of each phenomenon always exists even if we cannot immediately provide any. This is based on the assumption of the uniformity of nature (cf. Einstein's cosmological principle) and the conviction that natural laws are always the same. In other words, nature is harmonious, regular, ordered.

Because the principles of universal harmony and the inner harmony of the human soul can be found in the musical scale, it is not surprising that Pythagoras was interested in music. This interest has a very practical consequence. The knowledge of proportions that underlie music improves education and leads to the betterment of man. "The original harmony of the soul's powers" can be restored through "songs

⁸ Pythagoras is said to have made the nine Muses from the voices of these nine phenomena. The symphony of the nine Muses he called Mnemosyne of which they are "parts and emanations as from ungenerated eternity" (Porphyry, *VP* 31).

⁹ Anthelme-Edouard Chaignet, *Pythagore et la philosophie pythagoricienne* (Paris: Didier, 1873; reprinted Brussels: Culture et Civilisation, 1968), pp. 150–155; Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 355–356; Gerald E. Tauber, *Man and the Cosmos* (New York: Greenwich House, 1982), p. 41.

¹⁰ Kepler once attempted a reconciliation of musical theory and cosmology.

and rhythms" by "healing human temperaments and passions" (Iamblichus, *VP* 64), and Pythagoras occupied himself with composing songs to destroy appetites (Porphyry, *VP* 34).¹¹ Pythagoras reportedly discovered that the concordant intervals of the musical scale, *harmonia*, can be expressed in terms of simple proportions: 1:2 for the octave, 3:2 for the fifth, and 4:3 for the fourth. The smallest numbers that fit these proportions are 6, 8, 9, and 12, which include the arithmetic mean, 12:9:6, and the harmonic mean, 12:8:6. The existence of such numerical ratios is extrapolated onto the entire world, and the whole world is determined by such ratios. These ratios determine the orderliness in the world, whereby the world is the cosmos, the ordered world.

The importance of the *tetraktys* is, in fact, an indication of the importance of the ubiquitous harmony. Harmonious order can be found at all levels of reality – in the small and in the large, on earth and above it, in individual life and in social life, in animate nature and in inanimate nature. Its most conspicuous manifestation is in music and in numerical proportions detected in it. Thus, in this sense, the idea of cosmic music "has nothing to do with mathematics or musical theory, but comes from a deeper root"; the idea has everything to do with "a pre-scientific conception of order,"¹² or harmony.

In the face of the importance ascribed to harmony, it should hardly surprise us that Pythagoras is credited with calling the world cosmos for the first time.¹³ Testimonies that make this attribution are sometimes dismissed by pointing to Anaximander. However, the word *kosmos* is used not only in Anaximander's single quotation but also in descriptions of his system (12A9–11). The three descriptions come from the same source, namely Theophrastus, that is, from the time when the use of the word was well entrenched.¹⁴ The three testimonies thus use terminology common in post-Aristotelian times to describe the sixth-century system of Anaximander. It does not mean, however, that the same usage of the word should also be attributed to Anaximander himself.¹⁵ In the fragment, it is stressed that Anaximander introduced the word *arche* as a designation of the originative substance. No such priority claim

¹¹ A Sicilian or Italian man says, according to Plato, that "our bodies are our tombs and that the part of our souls in which our appetites reside is ... open to persuasion" (*Gorgias* 493a).

¹² Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 355, 357.

¹³ "Pythagoras first named cosmos that which surrounds the whole on account of the order in it," Aetius 2.1.1 = 14.21; cf. Iamblichus, *VP* 37, 59, 162; Favorinus in DL 8.48 = 28A44; Photius, *Bibl.* 440a27; Achilles Tatius, *Isag.* 5. It is difficult to accept a brusque statement that "the history of the word ... speaks, however, decisively against the thesis of such a programmatic invention of the concept at the very beginning of Greek philosophy," Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 77.

¹⁴ Also, "the Anaximander quotation is derived from the same doxographic tradition that ascribes to Pythagoras discovery of the concept *kosmos*, where, of course, by discovery we should understand the transfer of this concept onto the whole of the world," Zhmud, *Wissenschaft, Philosophie und Religion im frühen Pythagoreismus*, p. 292.

¹⁵ "No ancient author, it is true, tells us that Anaximander spoke of the world as a *kosmos*," Charles H. Kahn, 'Anaximander's fragment: the universe governed by law', in A.P.D. Mourelatos (ed.), *The Pre-Socratics* (Garden City: Anchor Books, 1974), p. 111.

is made about the word *kosmos*. However, even if Anaximander used this word in reference to the universe, the usage was not as striking and groundbreaking, as, on the one hand, the use of *arche*, and, on the other hand, the use of *kosmos* by Pythagoras. Calling the world the cosmos indicates that the orderliness of the universe was of paramount importance to Pythagoras; so important that it becomes a defining feature of the universe. The ontological significance of harmony is undeniable: harmony is a cosmic principle according to which the world is ordered. Are there any other principles? In an attempt to answer this question we have to turn to Philolaus.

There is no known Pythagorean writing from the sixth century. Therefore, as already observed by Claudianus Mamertus (*De statu animae* 2.3 = 44B22), "the opinion of Pythagoras has to be sought from his successors," among whom "Philolaus of Tarentum was the very most distinguished."¹⁶ This fifth-century writer is regarded as the first Pythagorean to ever publish a book (DL 8.15, 8.85 = 44A1; Iamblichus, *VP* 199 = 14.17).¹⁷

Philolaus considers harmony as a necessary element for creation of the cosmos. The two pre-existing principles, the limiters and the unlimiteds, are "not alike or of the same kind; it would have been impossible for them to be ordered if harmony had not supervened" (Stobaeus 1.21.7d = 44B6), but Philolaus does not say what is the origin of harmony. It simply exists to assure that the universe is ordered. The limiters and the unlimiteds always existed, and they were used to create the cosmos. This creation is only possible if harmony exists; otherwise, only a disorderly and incoherently woven whole would arise, not the cosmos.¹⁸ It must be thus assumed that harmony is coeval with the two principles, the limiters and the unlimiteds, just like the ideas, receptacle, prime matter, and the Demiurge are coeternal in Plato's universe. There are, thus, three principles in Philolaus' universe that are needed to create the cosmos we know: the limiters, the unlimiteds, and harmony, and the first two principles are included in the being (ἔστω).

It is important to remember that Philolaus refers to limiters (περάινοντα) and unlimiteds (ἄπειρα) in the plural: the neuter plural of the adjective ἄπειρος and the neuter plural of the present active participle of the verb περάω. Plato and Aristotle use abstract expressions in the singular: τὸ πέραξ, τὸ πεπερασμένον, τὸ ἄπειρον or even ἡ περάινουσα φύσις – the limiting nature (Aristotle, fr. 47) and ἡ τοῦ ἀπείρου φύσις – the nature of the unlimited (Plato, *Philebus* 24e).¹⁹ This means that the two principles, limiters and unlimiteds, are compound, or they are sets of principles.

What are these two principles? Sometimes, the limit is identified with the one (τὸ ἓν), the unlimited with the dyad.²⁰ But the one, as understood by Philolaus,

¹⁶ See also Charles H. Kahn, *Pythagoras and the Pythagoreans: a brief history* (Indianapolis: Hackett, 2001), p. 36.

¹⁷ Carl Huffman, *Philolaus of Croton* (Cambridge: Cambridge University Press, 1993), p. 15.

¹⁸ "Through harmony – that is to be taken in analogy to the musical [harmony], with which Philolaus begins – can the cosmos, the formed world in its order, emerging from dissimilar principles be formed," Julia Kerschensteiner, *Kosmos: quellenkritische Untersuchungen zu den Vorsokratikern* (Munich: Beck, 1962), p. 217.

¹⁹ Huffman, *Philolaus of Croton*, pp. 39–40; Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 253.

²⁰ August Boeckh, *Philolaos des Pythagoreer Lehren nebst den Bruchstücken seines Werkes*, Berlin: Vossische Buchhandlung 1819, 55.

is fitted together (Stobaeus 1.21.8 = 44B7); that is, it is a derived entity. Also, Aristotle expressly states that the idea of the dyad was introduced by Plato, not the Pythagoreans (*Met.* 987b25–27), unless we agree with Aetius' attribution of the monad-dyad distinction directly to Pythagoras (Aetius 1.3.8 = 58B15).²¹ Moreover, the limit-unlimited pair is identified with the atom-void pair of the atomists,²² but it seems precarious to ascribe to Philolaus an idea of the atom. It seems that the unlimiteds are continua, such as air or water, and the limiters are what is discrete,²³ which excludes an identification of the limit with fire.²⁴ This roughly corresponds to the analogy between limit-unlimited and matter-form.²⁵ They can constitute things in the universe in separation and in conjunction, and the orderliness – the harmony – of the universe apparently requires that the world is not made only out of the limiters, only out of the unlimiteds, or only out of the limiters-unlimiteds unions (Stobaeus 1.21.7a = 44B2). The prime principles can be interwoven separately between things that are made out of them together. Due to harmony, things in the world are proper unions of the limiters and unlimiteds, in proper proportion, and the world as a whole is a harmonious union of harmoniously created things, some of them being pure unlimiteds and pure limiters. In this way, something by itself being unlimited can function as a limiter as it is the case with the void.

Philolaus says that "nature in the cosmos was fitted together (harmonized) out of the unlimiteds and the limiters: both the cosmos and all the things in it" (DL 8.85 = 44B1, 44B2). Nature is simply unqualified universe, unlike *kosmos* which is the ordered universe. "Nature in the cosmos" means nature as it manifests itself in the ordered universe. It should not be identified with being,²⁶ which becomes clear when being and nature are put side by side and only being is emphatically pronounced to be eternal: "the being of things is eternal and nature in itself ..." (44B6). That is, nature ("nature in itself") is not eternal and thus is created because the universe is created along with the order in it, so that the universe is also the cosmos.²⁷ Therefore, it is not true that for the Pythagoreans, "every definite unity is produced by the action of Limit

²¹ The Aetius fragment is thought to present Xenocrates' views, Hans J. Krämer, *Der Ursprung der Geistmetaphysik* (Amsterdam: Grüner, 1967), pp. 56–57, 79.

²² Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 259.

²³ Huffman, *Philolaus of Croton*, pp. 47–48, argues that the unlimiteds include continua, and the limiters are "things that set boundaries within a continuum." This seems to be also suggested by the statement that the musical scale is "the imposition of definite proportions on the indefinite continuum of sound," and so it is with limiters and unlimiteds, Giorgio di Santillana, *The Origins of Scientific Thought* (New York: Mentor Books, 1961), p. 59.

²⁴ John Burnet, *Early Greek Philosophy* (London: Macmillan, 1939; reprinted Cleveland: Meridian Books, 1957), p. 109; Burnet's identification of the unlimited with darkness is, however, acceptable.

²⁵ Wilhelm Bauer, *Der ältere Pythagoreismus* (Bern: Steiger, 1897; reprinted Hildesheim: Olms, 1976), p. 220; the *Stoff-Gestaltung* connection is obviously derived from the Aristotelian categories.

²⁶ As conjectured by Huffman, *Philolaus of Croton*, p. 130.

²⁷ Scoon says that being (ἔστω) is just the material substance, and so nature has two aspects, the active *harmonia* and the material *esto*, Robert Scoon, 'Philolaus, fragment 6, Diels, Stobaeus i.21.460', *Classical Philology* 17 (1922), p. 354.

upon the Unlimited, producing a 'harmony' which is essentially numerical."²⁸ The action of the limiters and the unlimiteds is possible because there is an independent *harmonia* that enables the action. The result of putting together the limiters and the unlimiteds is harmonious because *harmonia* caused the combination. Harmony was produced because it was already there at the beginning of the action.

Number

Aristoxenus said that "Pythagoras seems to have honored most of all the study of numbers and to have advanced it in withdrawing it from the use of merchants, likening all things to numbers. For number holds up (ἔχει) all other things and there is a proportion of all numbers to each other ... Monad is the beginning of number and number is the plurality composed of monads" (Stobaeus 1 prooem. 6 = 58B2). A statement like this is an expression of the first reductionism in Western philosophy: everything is reduced to numbers. Probably no one attributed more weight to such a perception of Pythagoreanism than Aristotle who says that the Pythagoreans "construct the [whole of] nature out of numbers" (*De caelo* 300a16 = 58B38; Cicero, *Acad.* 2.118) and that they "bring (or reduce, ἀνάγουσι) all things to numbers" (Aristotle, *Met.* 1036b12 = 58B25). However, there are considerable doubts whether the Pythagoreans really espoused a view that the cosmos is made out of numbers. A convincing case is made for the view that this is just Aristotle's understanding of the essence of the Pythagorean philosophy.²⁹ It is significant, for example, that there are, in fact, at least three different and not quite compatible formulations of this doctrine: things are made out of numbers and so things are numbers (*Met.* 986a16, 987b28, 1083b11–12); things are similar to numbers and are modeled after them (985b27,33); and elements of numbers are elements of things (986a1–2,17–18).³⁰ Even in the course of a few lines, Aristotle uses three disparate views of number: things exist as imitations of numbers (987b11–12), numbers are causes of substance of things (b24–25), and things themselves are numbers (b28) and thus numbers are not separate from things (b29–31). However, it is almost certain that "what Aristotle found in the Pythagoreans was an attempt to relate properties of numbers to properties

²⁸ Hugh Tredennick, Introduction, in Aristotle, *Metaphysics* (London: Heinemann, 1947), p. xvi.

²⁹ W.A. Heidel, 'Pera and apeiron in the Pythagorean philosophy', *Archiv für Geschichte der Philosophie* 14 (1901), p. 393; Cecil C. Crawford, 'The Pythagorean philosophy of number', PhD dissertation (Saint Louis: Washington University, 1950), p. 87; Leonid J. Zhmud, 'All is number?', *Phronesis* 34 (1989), pp. 270–292; Zhmud, *Wissenschaft, Philosophie und Religion im frühen Pythagoreismus*, pp. 261–279; Carl Huffman, 'The role of number in Philolaus' philosophy', *Phronesis* 33 (1988), pp. 1–30; Huffman, *Philolaus of Croton*, pp. 56, 59, 179–180.

³⁰ Bauer, *Der ältere Pythagoreismus*, p. 10; F.M. Cornford, 'Mysticism and science in the Pythagorean tradition' [1922], in Mourelatos (ed.), *The Pre-Socratics*, p. 136; W.A. Heidel, 'The Pythagoreans and Greek mathematics' [1940], in Furley and Allen (eds), *Studies in Presocratic Philosophy*, p. 362; Zhmud, 'All is number?', p. 284; Huffman, *Philolaus of Croton*, p. 60.

of things."³¹ It can be said that Aristotle confuses basic Pythagorean tenets so that he can easily conclude that their theory is not reasonable (988a1–2). But it may well be that the view was not as well crystallized as we would like it to be. It is instructive to look at what Philolaus has to say in his own words to see that Aristotle may have had a reason to see the Pythagorean theory of number in such a manner.

Philolaus says that "all things that are known have number; for it is not possible for anything to be understood or known without it" (Stobaeus 1.21.7b = 44B4). In this, epistemological significance of number is stressed, but this does not exclude the possibility of its objective existence. Philolaus says that there are two kinds of numbers, odd and even, and a third kind, the odd-even, which is "from both mixed together" (Stobaeus 1.21.7c = 44B5). It is difficult not to see in this statement that numbers are ontological entities existing objectively and independently of any cognitive process.³² Numbers are ontological entities that, because of their nature, are indispensable in cognition. Because "nothing could be known if everything were unlimited" (44B3), it may appear that something can be known if it is limited, whereby the number appears to be associated with the limited. However, it seems that number is associated more with harmony than with the limited.³³ Things that are known are fitted together by harmony out of the unlimiteds and limiters. They are ordered, harmonious entities, and this orderliness is accessible to cognition through its manifestation which is numerical proportions; each thing "gives signs" of numbers (44B5). Limitedness enables proportionality, and numbers are its cognitive equivalents. The limited aspect of reality can be grasped through numbers, which are cognitive reflections of harmony. Unlimitedness escapes cognition, or rather, human cognition. It takes an infinite and thus divine mind to tackle infinity. The eternal being and nature of things "admit of divine and not human knowledge" (44B2): the eternal being – we may surmise – because of temporal infinity, and nature because of its undeterminedness; when determined, that is, when limited by *harmonia*, nature becomes accessible, as the cosmos, to human knowledge as well. Numbers are epistemologico-ontological entities.³⁴ They enable cognition because they are part of the cosmos, because things are modeled on them, at least in a sense that things in it are structures made out of proper proportions of the limiters and unlimiteds.³⁵

³¹ Huffman, *Philolaus of Croton*, p. 61.

³² As expressed in overly lofty terms, already for Pythagoras, "numbers are not mathematical concepts anymore, but purely speculative [concepts], images of essences, hieroglyphs for god-concepts and their attributes that have only accidental relation to particular numbers," Eduard Baltzer, *Pythagoras: der Weise aus Samos* (Nordhausen: Förstemann, 1868; reprinted Walluf: Sändig, 1973), p. 154.

³³ It was suggested that the etymological connection between words ἀριθμός and ἀρμονία may have facilitated the emergence of the number-philosophy, Alister Cameron, *The Pythagorean Background of the Theory of Recollection* (Menasha: George Banta, 1938), p. 26.

³⁴ Bauer, *Der ältere Pythagoreismus*, p. 203, note 1, recognizes the fact that Philolaus' teaching about number is not purely epistemological, but it is debatable whether – as Bauer states – they constitute a "fermenting transition stage from dualism and monism."

³⁵ "Having numbers" in B5 means "having structure that can be described mathematically," Huffman, *Philolaus of Croton*, p. 71.

Philolaus, however, says practically nothing about the connection between his three principles – limiters, unlimiteds, and *harmonia* – and numbers.

In a short cosmogonic statement, Philolaus says that “the first thing fitted together (harmonized), the one in the center of the sphere, is called the hearth” (44B7). We can see in it an expression of a conviction that the first act in the creation of the cosmos was a creation of the one, an act of *harmonia* which used limiters and unlimiteds to that end. If we also agree with the statement that the one is the source of numbers, then numbers are ontological entities. To create the one, and consequently numbers, *harmonia* may have used super-numerical principles that constitute its nature. But later, what is, is made out of numbers in the sense that numbers are harmonious combinations of limiters and unlimiteds. The role of *harmonia* is not ended because numbers that are embedded in the limiters-unlimiteds combinations are insufficient; their configurations or structures are affected directly by *harmonia*. For example, number 28 can be considered a material that consists of properly proportioned stuffs, say, 7 parts of limiter₁, 3 parts of limiter₂₁, and 18 parts of unlimited₂₃ (but also 6 parts of limiter₁, 10 parts of unlimited₇, 8 parts of unlimited₂₃, and 4 parts of unlimited₂₉, and so on), and a particular object would be an offshoot of number 28, that is, a properly molded structure made from the number-material 28.³⁶ This lends credibility to the view that the teaching about oppositions was first, and it was followed by the teaching of numbers.³⁷

The creation of the one out of the limiters and unlimiteds marks the beginning of creation, the beginning of fitting together the world.³⁸ At that moment, as the Pythagoreans say, that is, “when the one had been formed – whether from planes or surfaces or sperm or from principles even they themselves cannot account for – instantly the nearest parts of the infinite were drawn in [as a breath] and defined by the definite” (*Met.* 1091a15–18 = 58B26). We do not know whether Philolaus himself endorsed this view, but it is not inconsistent with what he stated. The one comes from the principles that are simply assumed to exist, and in that sense they are unaccounted for.

Other details are not inconsistent with the image delineated so far. Pythagoras says, according to Aristotle, that “the heaven is one and from the unlimited are brought in [into heaven] time, breath, and the void that always separates the spaces of all [things]” (Stobaeus 1.18.1c = 58B30). And again, “the Pythagoreans also said that there was a void and that it enters heaven from the unbounded breath,³⁹ [heaven] also inhaling this void which separates (διορίζει) the natures [of things], the void being some kind of division and separation (διορίσις) of things [that come] one after another. This holds first in the numbers, for the void separates their nature” (*Phys.* 213b22–27 = 58B30). Because διορίζει means “keeps the units apart from

³⁶ Empedocles posits a somewhat similar theory by requiring that all things are mixtures of the four roots (elements) in proportions based on number eight. Cf. Aristotle’s interpretation: “the substance of flesh or bone is number only in this way, ‘three parts of fire and two of earth’” (*Met.* 1092b17–19).

³⁷ Bauer, *Der ältere Pythagoreismus*, p. 205.

³⁸ Cf. Philip, *Pythagoras and Early Pythagoreanism*, pp. 50–51, 61, 66–68.

³⁹ Retaining πνεύματος instead of the emendation πενύμα (Diels) or πνεύμα (Heidel).

each other”⁴⁰ and the void is “a boundary between things,” the void is a principle of discontinuity by which “the well-delimited individuality of things” was ensured.⁴¹ The created one does not incorporate all the limiters and unlimiteds. The one is a fulcrum of the cosmos and its core, the central place around which the cosmos is spun. It becomes larger and more elaborate by including the unlimiteds and fusing them with limiters. In this process, unlimited void fills the space between things and this filling function endows it with a positive, limiting aspect: an unlimited plays the role of a limiter due to the presence of limiters or limited things.

Is this also the view of Pythagoras himself? This is not impossible. As reported by Alexander Polyhistor, “the beginning of all things is the monad (ἀρχὴν τῶν ἀπάντων μονάδα). From the monad there arises the indeterminate dyad which then serves as passive material to the monad, while the monad serves as active cause. From the monad and indeterminate dyad there arise numbers; from numbers, points; from points, lines; from lines, plane figures; from plane figures, solid figures; from solid figures, perceivable bodies compounded of the four elements, fire, water, earth, air” (DL 8.25 = 58B1a).⁴² We read that the monad gave rise to numbers and the numbers gave rise to geometric entities, and they were used to shape the four elements into things. But what about the four elements? They may be assumed to pre-exist as unlimiteds. The monad, or the one,⁴³ is the *arche* of all things, but not in the absolute sense. The monad itself is woven out of unlimiteds and limiters. It leads to the creation of numbers and thus the presence of numbers and numerical proportions can be found in all things in the cosmos. Without numbers, the cosmos would not exist, numbers would not exist without the monad, and so it can be called the *arche*. It is the *arche*, the first beginning of the organized, structured nature: the cosmos. In this sense, “numbers and proportions (symmetries) in them” are also called *archai* and harmonies by Pythagoras. The monad is “among the principles” (Aetius 1.3.8 = 58B15). That is, the monad is not an absolute *arche*, but only as much a principle as it is the beginning of numbers and

⁴⁰ Burnet, *Early Greek Philosophy*, p. 108.

⁴¹ Theo G. Sinnige, *Matter and Infinity in the Presocratic Schools and Plato* (Assen: Van Gorcum, 1968), p. 60.

⁴² It is frequently assumed that the excerpt of a Pythagorean memoir (DL 8.24–33 = 58B1a) is really late and dated to the end of the third century BC (Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 53; Kahn, *Pythagoras and the Pythagoreans*, p. 75, 79–83; cf. Bruno Centrone, ‘L’VIII libro delle “Vite” di Diogene Laerzio’, in W. Haase (ed.), *Aufstieg und Niedergang der römischen Welt*, (Berlin, 1992), Band II.36.6, p. 4197), but a strong case can be made that “the Pythagorean character of most of the doctrines that are presented there” is irrefutable, Armand Delatte, *La Vie de Pythagore de Diogène Laërce* (Brussels: Lamertin, 1922; reprinted New York: Arno Press, 1979), p. 198; cf. Marcel Detienne, *Xénocrate et démonologie pythagoricienne*, *Revue des Études Anciennes* 60 (1958), pp. 274–275; Christoph Riedweg, *Pythagoras* (Munich: Beck, 2002), p. 39. I assume that the memoir for the most part reflects a genuine Pythagorean doctrine, frequently rendered in non-Pythagorean terminology.

⁴³ The identification of the one and the monad is explicitly made by Archytas and Philolaus, according to Theon of Smyrna 20.19 (= 44A10 = 47A20). Only later Platonists contrasted the one with the monad, and this distinction was frequently ascribed to the Pythagoreans as well.

organization of the world. However, this does not mean that the prerequisites for the monad are ruled out, namely limiters, unlimiteds, and *harmonia*.⁴⁴

Soul

The idea of immortality of the soul and its transmigration belongs to the core ideas of Pythagoreanism from its very inception.⁴⁵ The problem is whether this view is generally held by the Pythagoreans, and in particular by Philolaus.

Four principles define a rational animal, according to Philolaus: brain, heart, navel, and genitals.

The head [is the principle] of intellect, the heart of soul and sensation, the navel of rooting and first growth, the genitals of depositing of seed and generation. The brain [is] the principle of man, the heart that of animal, the navel that of plant, the genitals that of all together, for all things flourish and grow from seed. (*Theol. arith.* 25.17–26.3 = 44B13)⁴⁶

The seed appears to be a package that incorporates the unlimiteds, the limiters, and the *harmonia*. Each living being's growth and development is incorporated *in nuce* in the seed. On the other hand, Pythagoras and Philolaus are said to espouse the view that the soul is harmony.⁴⁷ This is said to be in conflict with Philolaus' view of the four principles of the living being in which the soul is consigned to one part of the body and is apparently limited to the animal life only.⁴⁸ But the fact that the soul-*harmonia* is in the heart does not necessarily limit its harmonizing impact onto the whole of body. The fact that the soul is located in the pineal gland was no obstacle for Descartes to see it as the living and rational principle of man. Animal body requires harmonizing as much as human body, and it would be very natural for a Pythagorean to see the soul as the center of such harmonizing activity. The problem is with other entities: plants and inanimate beings. But this can be resolved thus: There is no need

⁴⁴ Incidentally, a Philolaic fragment considered spurious may be authentic after all. Philolaus says that the "one is the beginning of all things" (ἐν ἀρχᾷ πάντων, Iamblichus, *In Nic.* 77.8 = 44B8), not an absolute beginning, but the beginning in the world that is being organized, fitted together by *harmonia* from the pre-existing limiters and unlimiteds. Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 257 note 90, briefly remarks that "ἐν ἀρχᾷ πάντων ... can be interpreted as referring to the πρῶτον ἀρμυσθέν (fr. 7)."

⁴⁵ Dicaearchus ap. Porphyry, *VP* 19 = 14.8a; Claudianus Mamertus, *De statu animae* 2.7 = 44B22; *Carm. aur.* 5.70; Ion of Chios 36B4; Herodotus 4.95 = 14.2; Xenophanes 21B7; Aristotle, *De anima* 407b22–23 = 58B39.

⁴⁶ The Philolaic triad νοῦς–ψυχή–αἴσθησις corresponds to the triad φρένες–νοῦς–θυμός which, according to Alexander Polyhistor, originated with Pythagoras who also says that the soul spreads between the brain and the heart (DL 8.30 = 58B1a). Cf. Delatte, *La Vie de Pythagore de Diogène Laërce*, pp. 222–223; Burkert, *Lore and Science in Ancient Pythagoreanism*, pp. 74–75.

⁴⁷ Macrobius, *Somn. Sc.* 1.14.19 = 44A23. The view is ascribed to the Pythagoreans by Plotinus 4.7.8.4 and Philoponus, *In De anima* 70.5–7. However, see also H.B. Gottschalk, 'Soul as *harmonia*', *Phronesis* 16 (1971), pp. 192–193.

⁴⁸ Huffman, *Philolaus of Croton*, p. 308.

to ascribe a soul to a house to see harmony and organization in it. The harmony comes from the outside, from the builders. Similarly, plants and inanimate objects can be seen as harmonized from the outside, as well. By whom? This is a question that Philolaus does not address in the fragments considered genuine. We may venture to guess that there is a cosmic *harmonia* that plays that role. It is interesting that *harmonia* is mentioned by him in singular, whereas limiters and unlimiteds only in plural. It may indicate that *harmonia* plays the role of the world-soul that is an organizing principle of the universe.⁴⁹ The individual *harmoniai* to be found in the hearts of animals and humans would be just individualized offshoots of the cosmic *harmonia*, much as they are later in the Stoics.

If a soul is the *harmonia* of a body, how can it be a *harmonia* of another body as required by the Pythagorean doctrine of the transmigration of the soul? It is said that "this soul belongs to this body, was for it predestined and can never make harmony of another body, different from that one." So it is harmony of the body only for the newborns and for the souls that enter a body for the first time. Thus, at least in the case of some newborns, new souls have to be created that are clean.⁵⁰ This view, however, sees soul as fitting into an existing configuration of limiters and unlimiteds forming a particular body. But the soul is a harmonizing principle, it makes the body what it is; therefore, a particular soul can fare as well or as badly in one life as it did and will do in another life. Soul is somehow embedded in a seed and then flourishes – or, rather, it makes a body flourish after the seed germinates. In fact, the germination process is probably also the doing of the soul that is in the seed. The role of the world *harmonia* would be limited to making a seed germinate in a particular time and place. Therefore, there does not appear to be any contradiction between the view of the immortality of the soul and its transmigration.

Philolaus explicitly distinguishes three principles: unlimiteds, limiters, and *harmonia*. They can exist independently from one another, which may pose an epistemological problem, but not an ontological one. Things can be just limiters or unlimiteds, and *harmonia*'s independent status is marked by the phrase, "in whatever way it does" (B6). Only when *harmonia* is seen as synthesis of opposing elements, it cannot precede them nor succeed them, just as *harmonia* cannot exist without the lyre, as argued by Plato in the *Phaedo*. *Harmonia* in general, and the soul in particular, is not an entity existing due to the conjunction of the other two principles as their structure, as it were, but exists independently. Whether it is an immaterial principle is, well, immaterial. The Pythagoreans did not raise this problem. It is as material or immaterial as unlimiteds and limiters and coexisting with them. Therefore, Plato's argument does not demolish the soul's immortality, notwithstanding the embarrassment of a Pythagorean Echebrates with whom Socrates argues.⁵¹

Can transmigration ever end? An *acusma* states: "What are the Isles of the Blest? The sun and the moon" (Iamblichus, *VP* 82 = 58C4). It is thus possible that

⁴⁹ Cicero, *ND* 1.27; Chaignet, *Pythagore et la philosophie pythagoricienne*, pp. 176, 180–181. Moreover, the world soul can be identified with God, Boeckh, *Philolaos*, p. 151.

⁵⁰ Bauer, *Der ältere Pythagoreismus*, pp. 165, 167, 171.

⁵¹ Cf. Cameron, *The Pythagorean Background of the Theory of Recollection*, pp. 45, 50.

the transmigration process has its end. And, in fact, the intricate body of various everyday-life precepts would indicate that such a prospect exists.

Because "pleasures are in every way evil" (Iamblichus, *VP* 85 = 58C4) and "no other experience has more power to trip us up and land us in error" (204), one should always fight pleasures by not attempting to fulfill our desires, except natural desires (defined as movements of the soul, 205) and only to an indispensable extent, such as desire to eat by not eating too much. A general precept is self-control. In the speech to the youths of Croton, Pythagoras recommends temperance (self-control, *σωφροσύνη*) arguing that the lack of self-control brought down Troy (41–42). Self-control is self-limitation, and limit is good. Luxury (indulgence) and arrogance bring destruction to the house and to the state (171).

It is difficult to imagine that even the members of the *mathematici* group would be sufficiently motivated to follow these precepts if they did not believe that the cycle of transmigration can be broken. Otherwise, why follow any teaching, why be a vegetarian and lead almost an ascetic life?

What is this final stage of the soul which is released from the reincarnation cycle? We can only guess an answer. And the answer is: harmony. It is quite likely that "the soul is not sooner released from the body until it achieves a complete mastery of the desires of the body, i.e., until the will of man is fully free and enabled to truly moral activity."⁵² By mastering desires and appetites, the harmony of the soul-body union is brought to completion, harmony is established in earthly life, and thus the soul can continue to live in the harmonious way in the afterlife, in "the sun and the moon," immersed in the cosmic harmony, listening to the everlasting music of the Sirens.⁵³ But being itself harmonious in this celestial abode, the soul contributes to the cosmic harmony, although it is an overstatement that "in Pythagoreanism, the final end sought is not so much personal salvation as the harmony of the cosmos."⁵⁴ The final state is as much about personal well-being as about cosmic harmony. But the former is accomplished by subordination to the latter, to moral rules which are of the divine origin.

God-harmonia

Pythagoras' statements are saturated with religion, with the constant awareness of the presence of the divine, and with a necessity to maintain best connection with it, whether through sacrifices, oracles, music, or scientific research.

The view of the highest divinity is summarized in two *acusmata*: "What is the wisest? Number ... What is most beautiful? Harmony" (Iamblichus, *VP* 82 = 58C4). How can numbers be wise? For a Greek, the wisest are the gods, therefore, number would signify divine knowledge, knowledge expressed in terms of numbers,

⁵² Bauer, *Der ältere Pythagoreismus*, pp. 175.

⁵³ Cf. Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 364.

⁵⁴ Edwin L. Minar, *Early Pythagorean Politics in Practice and Theory* (Baltimore: Waverly Press, 1942), pp. 128–129.

knowledge expressed by numerical relations.⁵⁵ Also, God is to be followed in everything. But only what is best, both in an ethical and aesthetic sense, and what is most beautiful is worth pursuing, and the beauty is best expressed in order, in good arrangement of all things, in harmony. Therefore, harmony is a divine prerogative, a divine mark which manifests itself through numbers. According to the aphorism Pythagoras is said to have repeated most often, "all things resemble numbers (*ἀριθμῷ πάντ' ἐπέοικεν*)" (162). Detecting numbers and numerical proportions in nature is detecting God's presence. Everything resembles numbers because everything was fitted together by God, who used the divine law of harmony to that end. This lofty view of harmony was accompanied by a keen interest in science, science conducted not for science's sake, but to find the presence of God in nature.

Philolaus is very restrained in theological questions. He limits himself primarily to metaphysical and cosmogonic problems without any attempt to find in them a theological significance. Philolaus is reported to have said that "all things are encompassed by God as if in prison" (Athenagoras, *Legatio pro Chr.* 6 = 44B15).⁵⁶ God should probably not be understood as physically encompassing all things, because outside the cosmos there is the realm of the unlimiteds, unless "all things" are the things in the cosmos. More important here is the image of God-harmonia who is in control of all things, where "all things" can be understood in an unqualified manner. Due to the action of God-harmonia, the limiters and the unlimiteds are fitted together into the cosmos. If the reference to a prison is also Philolaus', the prison can be taken to mean the set of laws which are imposed onto the limiters and the unlimiteds, the laws which make the world harmonious.

One testimony also reports that Philolaus locates "the *hegemonikon* in the central fire, which the demiurgic God set down under the sphere of the whole like a keel" (Aetius 2.4.15 = A17). The authenticity of the fragment is questioned because the use of the Stoic *hegemonikon* and the Platonic "demiurgic God." But *hegemonikon* "is probably derived from the rubric heading in the doxographers,"⁵⁷ and although the phrase "demiurgic God" may be in doubt, the reference to God should not be doubted.⁵⁸ The existence of God is stated here explicitly. God, to be sure, is active in the cosmogonic process beginning with the center of the world (B7).

We cannot turn to Aristotle in order to find more about Philolaus' theology.⁵⁹ Aristotle discusses at some length Pythagorean views, in which he is supposed to

⁵⁵ And thus number can be understood in the *acusma* as the key to the world, Riedweg, *Pythagoras*, p. 104.

⁵⁶ Huffman, *Philolaus of Croton*, p. 407, provides very unconvincing arguments for the inauthenticity of this saying.

⁵⁷ Huffman, *Philolaus of Croton*, p. 400; Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 246 note 38.

⁵⁸ It is primarily because of this reference that the fragment is discarded by Huffman, *Philolaus of Croton*, p. 401; however, see Boeckh, *Philolaos*, p. 97.

⁵⁹ There is one passage quoted by both Lydus, *De mensibus* 2.12 and Philo, *De opificio mundi* 100 (= B20): "there is a ruler and leader of all, one God, eternal, constant, unmoved, similar to himself, [different from other things – this ending is only in Philo]." The fragment is considered doubtful by Diels-Kranz and also by Bauer, *Der ältere Pythagoreismus*, p. 29, and rejected by Burkert, *Lore and Science in Ancient Pythagoreanism*, p. 249, and Huffman,

have relied on Philolaus' writings, but often in an unsympathetic, not to say, mocking, manner. No theological issues are raised, either. However, this is to be expected in a philosopher to whom theological problems are only of tangential interest. Therefore, it is hard to expect that Aristotle would be sensitive to the theological pronouncements of the Pythagoreans. Moreover, it is possible that in his discussion of Pythagoreanism, "Aristotle is not directing his arguments against any one person or school, but rather against the whole character and trend of thought at Athens in his day – against the mathematization of philosophy,"⁶⁰ so that no references to theological issues needed to be made.

What is the connection between God and the three principles? That is, what is the connection between Pythagoras' religion and Philolaus' metaphysics? No explicit answer can be found anywhere, and only a tentative answer can be ventured.

For Pythagoras, God is the source of harmony and order, and God shaped the world out of infinite substance. Having listened to Anaximander, Pythagoras would have no problem with the assumption that such substance exists. Is this substance – considered divine by Anaximander – itself the source of the cosmos? Pythagoras, with his insistence on the role of harmony, may have separated God from the infinite substance, making God the seat of *harmonia*. He may have introduced the limiters, as well. It is a pure speculation whether he saw the limiter(s) and unlimited(s) as coeternal with God or as generated by God. For Philolaus, limiters and unlimiteds are uncreated. Also, eternal *harmonia* is fitting them together. In view of his references to God as an active principle, it is possible that for Philolaus *harmonia* is simply God, or at least an attribute of God. The *harmonia* aspect in the divine is what is Pythagorean in the two great Pythagoreans.

As Aristotle states, according to the Pythagoreans, "the whole universe is a *harmonia* and number" (*Met.* 986a2–3). If *harmonia* is God, then the statement can be interpreted as an expression of pantheism.⁶¹ It seems, however, that the statement simply means that the universe is harmonious, and thus the cosmos. It is the cosmos as the work of *harmonia*, but does not – and should not – have to be identified with *harmonia* itself. *Harmonia* brings the cosmos into existence from pre-existing limiters and unlimiteds and is present itself in the world because the world is structured and proportional. To a large extent, the work of *harmonia* is continued

Philolaus of Croton, pp. 337–339. The primary reason is that Lydus attributes it to ὁνήτωρ (or ὁ νήτωρ) that is corrected to ὁ ῥήτωρ, a (Tarentine) rhetor, which fits Philolaus – mentioned earlier by Lydus (1.15) – who was from Tarentum, but his being rhetor is considered doubtful. Another proposal is to read ὁνήτωρ as a name, Onetor, strange name as it is, and then state that Philo misattributes the quotation taken from the same source as Lydus. The arguments are very tenuous and unconvincing. The main argument against this quotation appears to be that it is a "seemingly monotheistic saying" (Burkert) and that Philolaus was unable "to construct his metaphysical *Urprinzip* to such a strong theological setting" (Bauer). However, the fragment is considered authentic by Chaignet, *Pythagore et la philosophie pythagoricienne*, p. 54 and Karl Reinhardt, *Parmenides* (Frankfurt am Main: Klostermann, 1959), p. 248 note 2.

⁶⁰ Philip, *Pythagoras and Early Pythagoreanism*, p. 86.

⁶¹ "It can hardly be doubted that the Pythagorean system was a pantheism," according to Crawford, 'The Pythagorean philosophy of number', p. 185; similarly, Chaignet, *Pythagore et la philosophie pythagoricienne*, p. 16.

by numbers as already properly proportioned limiters and unlimiteds, but *harmonia* does not withdraw like Plato's Demiurge who leaves the continuation of the work on the world to the gods.

Pythagorean theology is hardly pantheistic. "All things are arranged according to harmony," says Pythagoras, because, we may add, all things are arranged by *harmonia*. And by giving signs of numbers, things give signs of *harmonia*; their orderliness is a manifestation of the *harmonia* that stands behind their existence. By pointing to *harmonia*, things can, in a sense, be identified with it because they stem from it, and thus, we read that "virtue is harmony and so are health and all good things and God himself" (DL 8.33 = 58B1a). All good things are expressions of *harmonia*, but *harmonia* itself can be found in God because God is its source, God is *harmonia*.⁶²

Anaximander constructed the concept of deity by retaining in it what is essential. God is immortal, and thus infinite, at least in the temporal aspect, which is summarized in the name of the first principle, the *Apeiron*. God is also uncreated because he is the source of the universe. The universe is not created *ex nihilo*, but separated from the substance of God.⁶³ Moreover, God is the source of the moral law. Pythagoreans rectified the concept of divinity even further. God is not infinite and, although not the source of infinity, he is independent of it. God is neither infinite nor finite, God surpasses the limitations of the two: God is beyond the finite and the infinite. This was motivated by a negavite view of infinity. Could God be infinite if infinity was evil? The negative view of infinity is, in turn, motivated by the prominence of the number and numerical proportions. Therefore, for Pythagoreans it was more important that God is the source of harmony than that he is – or is not – infinite. Divinity is the ultimate source of harmony and orderliness in the universe.

The view that harmony manifests itself best through numbers leads to a generalization that harmony is numerical harmony and numerical proportions. In particular, moral laws are also numerical laws, and ethics is only a branch of mathematics. Anaximander's *Apeiron* is in charge of the universe by steering its events and presumably the *Apeiron* does it in orderly fashion. But Anaximander himself does not bring this element of orderliness to the fore. The Pythagoreans make harmony the centerpiece of divinity, thereby reshaping the concept of divinity. Anaximander's God-*Apeiron* is an infinite creator and the source of morality. The Pythagorean God is a harmonious creator, harmony itself. God-*harmonia* becomes, then, the author of numbers, which is a material shaped by numerical proportions, and of ethics, which are also numerical laws.

From the two attributes that Anaximander ascribes to God – infinity and the source of moral law – the Pythagoreans retain the second. God is a source of moral law. But this is a subsidiary attribute to God's being the source of harmony and order.

⁶² Lucian's Pythagoras says that "God is number and mind and *harmonia*," *Vitarum auctio* 4.

⁶³ It is thus only one step to the claim that the *Apeiron* "cannot signify anything else but the contrary of *peras* capable of containing some unlimited diversity of numbers – all [being] limited things, whereas the *apeiron* itself is without limit from the standpoint of the diversity of the numbers contained [in it]," Bohdan Wiśniewski, "Apeiron' d' Anaximandre et de Pythagore", *Studi italiani di filologia classica* 31 (1959), pp. 177–178.

The existence of moral law is just one way that harmony is expressed. In Western thought, the Pythagoreans are the first to vocalize "the almost universal conviction that reality is ordered ... It is a divine Reality, say most of the human traditions."⁶⁴

The emphasis put on *harmonia* is a lasting contribution of Pythagoreanism. Later, the proof of the existence of God from design is going to become one of the strongest proofs. In fact, it is the first proof that was used in Western philosophy. It was first used by Socrates and then by the Stoics. Also, the Pythagorean concept of God who surpasses the infinite is later expressed by Augustine and most prominently by the founder of set theory, Georg Cantor.⁶⁵ This view is carried even further by elevating God above being, which is the view made already by Plato in a passing remark (*Rep.* 509b), then by Speusippus and most prominently by Plotinus.

⁶⁴ Raimundo Panikkar, *The invisible harmony: a universal theory of religion or a cosmic confidence in reality*, in Leonard Swidler (ed.), *Toward a Universal Theology of Religion* (Maryknoll: Orbis Books, 1987), p. 144.

⁶⁵ Adam Drozdek, 'Beyond infinity: Augustine and Cantor', *Laval théologique et philosophique* 51 (1995), no. 1, pp. 127–140.

Chapter 6

Empedocles and the Holy *Phren*

Elements and forces

According to Empedocles, the universe is an evolving system made out of four eternal and imperishable roots or elements – air, fire, water, and earth – that are molded by two conflicting and equally eternal and undying forces, love and strife. The evolution is a recurrent development from the phase of total dominion of strife, resulting in total separation of the elements, to the total dominion of love, resulting in a perfect mixture of the elements in the cosmic sphere, and then back to the total dominion of strife. The intermediate phases in the evolving universe are the result of the interplay between love and strife. When the universe evolves from the one to the many, the world as we know it results, but this world has a tendency to disintegrate. Organisms that are at first well-fitted together from separate parts are broken into separate parts that may unite into monstrous combinations. But eventually, because of the weakness of the force of love, the parts cannot be combined into anything and are themselves broken down to the level of the four elemental components. On the other hand, when the universe evolves from the many to the one, at first, separate parts are composed under the guidance of love and then these parts are put together into disharmonious wholes. These monstrous combinations are not lasting, and then harmonious organisms emerge from, this time, well-organized combinations of parts. However, when love gains in strength, these organisms are destroyed so that the elemental materials constituting them can be homogeneously mixed together to form the sphere.¹

In this universe, love and strife have no moral connotations. They are cosmic forces. Love is a force that aims at uniting elements, strife at separating them. However, love is just as destructive as strife, which was already observed by Aristotle who said that "in collecting things into the one it [love] destroys all other things" (*Met.* 1000b11–12). The result of the activity of love is a perfect union of the elements in the homogeneous sphere. This state is possible when love completely prevails, leaving strife on the outside of the sphere. At the opposite end of the world evolution, strife prevails, forcing love to the outside of the sphere. In that phase, the four elements are separated from each

¹ The traditional view of the cosmic cycle is reaffirmed in recently published new Empedoclean fragments, Alain Martin and Oliver Primavesi, *L'Empédocle de Strasbourg* (Berlin: de Gruyter, 1999), pp. 179, 219–220. The view of the evolutionary sequence in the world of increasing strife repeated in the reverse order in the world of increasing love is found in Edwin L. Minar, 'Cosmic periods in the philosophy of Empedocles', *Phronesis* 8 (1963), pp. 140–145, and Denis O'Brien, *Empedocles' Cosmic Cycle* (Cambridge: Cambridge University Press, 1969), p. 199. O'Brien, however, assumes that in the latter world people are eventually "assumed into the blissful Sphere," p. 3. It seems that only the material substrate into which people are dissolved is assumed there.