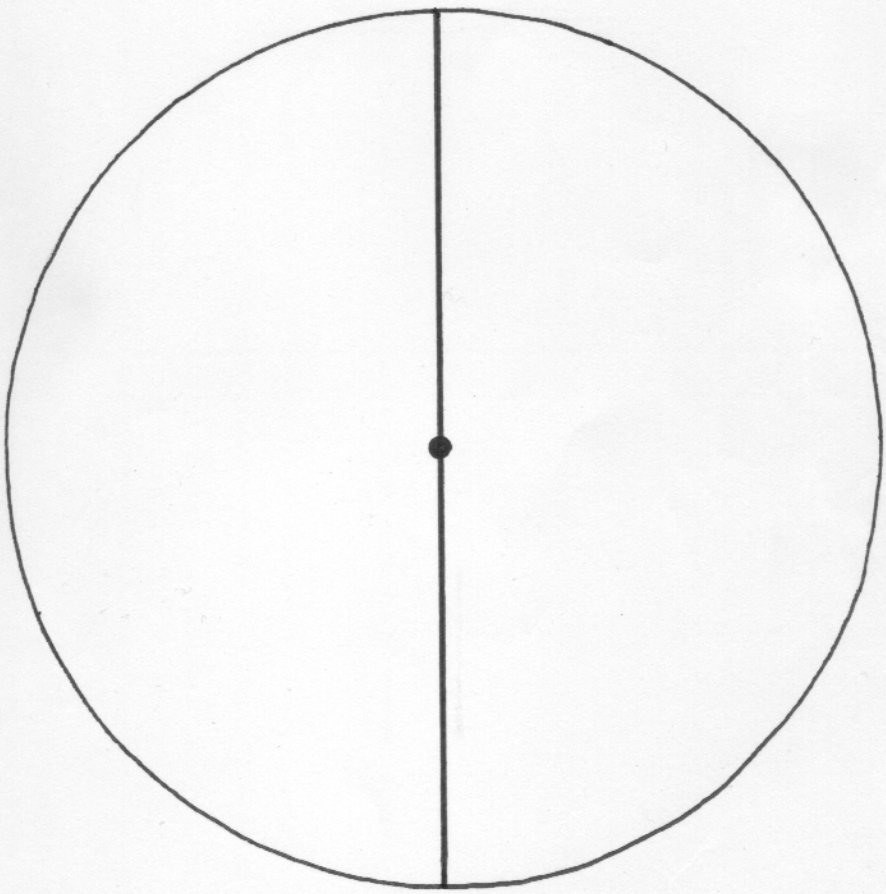
SEPARATING EARTH AND SKY

A MUSICAL HISTORY OF EARLY GREEK PHILOSOPHY

By Siemen Terpstra



A 'dust-jacket' resume of the book:

SEPARATING EARTH AND SKY:
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This groundbreaking study offers a genuinely new paradigm for understanding the earliest phase of Greek philosophy. According to the standard academically-acceptable model, Anaximander and his followers were the first rational scientists who rejected the religious-mythological roots of their own culture and founded the enterprise of European science. They were isolated naïve geniuses whose systems supposedly compete with each other. Moreover, the cosmologists are thought to exhibit some form of intellectual progress toward mature philosophy in Plato and Aristotle. The author rejects this neo-darwinian framework as an outdated leftover of nineteenth century scholarship. Instead, he sees a *unified, religious-scientific movement that was the poetic flowering of an Orphic spiritual milieu*. Differences undoubtedly existed between them, but always within a unified or integrated context of discourse—the common elements vastly outweigh the differences. These intriguing ancient poetical writings consisted of erudite and inspired commentaries on an axiomatic group of common assumptions. The ancients called them *Music*. This archaic term had much wider associations than the modern term *music*. Its colorful language of images, metaphors, and symbols thoroughly permeated early canonics (musical tuning traditions), astronomy-astrology, arithmetic, mathematics and science in general, magic, medicine, cult-religion, mythological lore and more. No fast distinctions were made between these disciplines until the time of Plato and Aristotle when the movement had already died. Philosophy, science, magic, medicine and 'orthodox' religion emerged out of *archaic Music* and only very gradually asserted their own separate independence from its underlying associations and attitudes.

The early philosopher-poets strove to plumb the depths of the Musical paradigm, examining the *fundamental principles* and commenting on their core characteristics. The progressives within the movement inevitably brought forth problematic, paradoxical, and mystical elements of the archaic world-view. The conservatives defended its long sacred traditions. By the era of Plato and especially Aristotle, Music was already fragmenting or 'composting' into its de-coupled by-products. The fertile context-language of Music arose due to the prevalence of a conception of order that favors *sound as the dominant sensorium*—rather than the modern tendency toward the *visual* sensorium. Historically, the visual slowly overcame the audial or oral sensibility as literacy spread. The conceptual orientation of early philosophy was intensely aural, but its very foundations were then for the first time being questioned. The author shows how an archaic *resonance-based* view of reality makes sense of the confusing terminology of early Greek philosophy. He also lays bare the ongoing dynamic of the movement as a development. Each chapter covers one of the major philosophers. Each also includes a segment of (usually) Plato, not only to illustrate influences but also to get a vantage-point on the movement as a whole. Although the main focus lies with such honored names as Heraclitus and Empedocles, the author's sounding encompasses a fresh and highly productive perspective on the whole world of *ancient philosophy, science, and religion*. Continuities between the Greeks, Persians, and especially Indian philosophy are explored with a sympathetic appreciation for their interplay. Moreover, those who share an interest in such later developments as Neoplatonism, Hermetism and even Sufi Islam will also find this study highly relevant. Indeed, this book is food for anyone exploring the deep sonic roots of ancient spirituality.

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comprehension. The first was the utility of the *circle* as a model for cyclical activity. The 'circular graph' allowed me to answer problems concerning sets, permutations, and interval structure. The second was the 'discovery' (I use the term in quotes because it seems that nothing is ever really *new* in the field of music tuning—whatever we discover has generally been done before by some other culture in some other time) that I could record traditional tuning operations by using a 'tri-axial matrix' of beads (the equivalent to the ancient 'pebble arithmetic'). These findings set me 'on the path' and allowed me to tackle such issues as inter-system notation, the structure of irregular temperaments (or well-temperaments), multiple-divisions, and monochord arithmetic. This branch of acoustics is rather vast, and the arithmetic (though only arithmetic) can get rather complex.

Among my various explorations I worked for many years with *monochords* (the ancient traditional means of defining and setting alternative tunings). By the mid '80's I was a recognized expert in the field, and some of my friends used to call me 'Mr. Monochord.' By this time I was actively formulating the underlying principles and concepts of monochord manipulation, aiming to give 'work shops' for students. To my surprise, the conceptual language surrounding monochord work had largely *reproduced* the very conceptual language that lies at the heart of early philosophy! In other words, it was my long work with monochords that cajolled me back to ancient philosophy.

Of course, this connection between music and ancient philosophy did not come as a complete surprise. I had suspected it even in the '70's, but it was then only a mystical hunch with little research to test it. When I attended university, I had bought the standard line concerning music and philosophy. According to the prevailing view-point, there is very little connection between the two. Most books on ancient philosophy devote only a page or two to the topic, and always in association with only one philosopher, Pythagoras. Even he is assumed to be largely ignorant in his understanding of musical tuning (ancient *canonics*), and the whole subject is presumed to be practically irrelevant for a broad comprehension of early philosophy in general. However, by the early '80's I realized that this presumption was dead wrong; in fact, early philosophy and music were highly 'intertwined' in a complex manner, like the strands in a rope. Only slowly over hundreds of years were they 'unravelled' and went their separate ways. I began to see that the writings of the early cosmologists had much greater inner consistency and relevance if we assume that they presupposed a *musical model* (or resonance model) of the cosmos. This musical paradigm is entirely missing in modern interpretations of the ancient evidence, being replaced by an intensely visual-logical approach.

For me, a pivotal turning point came in the early '80's when I came across the two books by Professor Ernest G. McClain: *The Myth of Invariance* and *The Pythagorean Plato* (Nicolas Hayes, 1978). They proved a major influence upon me. Not only were they brilliantly researched and written (and occasionally controversial and speculative), but they confirmed a lot of what I had already found myself. They also provided me with many avenues for further research. Above all, they gave me enough confidence to continue in my own direction without feeling that I was totally 'out in left field.' This

present treatise would have been impossible without his ground work. For this reason, and for his kind efforts to encourage my slow progress, I dedicate this book to him.

By the mid '80's I began to appreciate the value in writing a new history of early philosophy from this changed perspective. I started doing active research on Presocratic philosophy in particular. But the project was still 'on the side' while I continued to write scholarly articles in the field of musicology. My endeavors generally take a long time to come to fruition. I deem not to write an article until the subject has been thoroughly digested, the ambiguities resolved, and I have 'mulled over it' for years. The gestation time is often very long, but once it is over the writing can occur very quickly. An article that I had written in (say) weeks may have taken months or even years of contemplation before I was ready to 'give it birth.' It must first be clear in my understanding before I commit to paper. So it also was with this book. Due to the vast scope of the subject matter, another ten years elapsed before I felt ready to do the actual writing. By about 1995 I was indeed ready. At around the same time, through the help of some generous friends, I acquired a modern computer-word-processor, so that I was no longer so intimidated by the enormity of the project. Of course, the writing of such a major tract took much longer than a few weeks, but considering that the research really began in the '70's, it has progressed rapidly in the last few years.

THE ANCIENT MEANING OF *MUSIC*

My thesis is that, indeed, music and philosophy were inexorably 'mixed together' in the ancient world. In order to understand this statement and its implications, we must distinguish between modern and ancient notions of 'music.' The term had very different associations for them than it does for us. We moderns think of music only as a sonic art form, an entertaining way of organizing sound for diversion or stimulation. It is only one of many separate art forms. At its worst, music today becomes just another industrial product to be packaged, bought, and sold. For the ancients, the term 'music' had a much wider field of associations. It was always conflated with 'the big picture.' Moreover, it was held in great reverence, and the term really should be spelled with a capital 'M.' Among the diverse subjects that were classed or 'confused' with *Music* we must include arithmetic, mathematics in general, astronomy and astrology, medicine, music-theory, science, magic, religion, and even more obscure and 'occult' practices.

Although we moderns can perhaps see the connection between arithmetic and music through tuning theory, the rest is largely incomprehensible to us. But the ancients used a surprisingly similar language of concepts and images, whether they were discussing astronomy or medicine, mythology or magic. This language was dominated by certain associations and correspondences, certain images, notions and symbols that were quite widespread. These poetic metaphors were ruled by a common terminology centered around the Elements, the Forces, fertility imagery, and so forth. This whole domain was the concern of 'Music' and ruled by the gods (the Muses).

In order to contemplate Music, the early writer-poet-singer succumbed to a sort of madness or 'enthusiasm' (possession by the god within) in which the gods revealed some

aspect of Music through the received poem or song or insight. It was an experience akin to revelation, hence the partnership of Music and religion. Early philosophy developed within this cultural milieu, and slowly emancipated itself from it. Song and story formed the heart of ancient cultural activities and histories. Out of this archaic poetic context, philosophy and science emerged.

Although these various 'proto-scientific' disciplines seemingly have no actual connection with each other, perhaps the ancients grouped them together because they each illustrate or presume an underlying sense of order, especially a temporal order. *It was this sonically oriented order itself which is the real meaning of Music.* The harmonic patterns in astronomy or tuning theory were merely instances of this common underlying order or 'process-logic,' which could be explored and understood through various channels. Whether one worked with a monochord or followed the complexities of calendrics, it was assumed that whatever we find points to the same universal pattern of 'law' which is 'demonstrated' by nature. This 'right order' was by its very character holistic and sacred; hence it was always closely tied to cult, ritual, and religion in general. It did not matter whether one studied the tuning sciences, mathematics, or medicine; for the ancients, they all demonstrated a similar model of 'reality.' It is not surprising that any self-respecting cosmologist tended to study all of these disciplines, and more besides, in an effort to understand the mysterious and hallowed secrets of Music.

The ancient musical tuning sciences (*canonics*, modern *harmonics*) had a high status among early cosmologists, both in the east and the west. No wonder, since they afforded an easy route (indeed, the royal route) into the inner secrets of Music. Moreover, the associated arithmetic is relatively simple compared to the arithmetical complexities needed for astronomy. Due to its very simplicity, canonics was probably developed to a sophisticated level long before the intricate mathematics needed to follow the 'dance' of the planets. Hence the earliest astronomy was heavily infused with the conceptual material of canonics, especially the key numbers. The ancient conception of Music, after all, had much to do with music. Consequently, a lot of the cosmological framework of Music has a basis in canonics and its associated language of music theory (the ***genera***, and so on). Out of this firm and demonstrable matrix there evolved an archaic symbolic language of metaphors and correspondences that could be applied to the most divergent contexts. This poetic language is quite alien to us moderns, but my concern in these essays is to make it again transparent. By this means we can read the old texts in a manner that the ancients themselves would have recognized.

It is my working hypothesis that the movement now (rather arbitrarily) called 'Presocratic philosophy' occurred during an age when the scientific nature of astronomy was making great strides, leaving behind the comparatively archaic arithmetic of canonics. As such, the ancient unity between all of these 'proto-scientific' disciplines was beginning to 'mutate' and fragment. The specifically musical aspects of Music were beginning to be left behind amongst the more radical and progressive cosmologists, in favor of the rising star of astrology and its new religions. By the time of Aristotle, the various sciences were clearly distinguished from each other, and each largely went its own direction. In some ways, Aristotle was the first 'modern' philosopher. For even in

Plato, the old syncretism between the various aspects of Music was still alive. He was undoubtedly a conservative defender of the older cosmological standpoint. The beginnings of this 'fragmentation' of Music appear with the early cosmologists themselves. Music eventually disintegrated into philosophy-science, religion, and magic, but this process occurred very slowly over hundreds of years throughout the ancient period. Large features of it were still alive in late Neoplatonism and Hermeticism. In the west, the triumphal rise of mass authoritarian religions and the break-down of the social and educational system at the very end of the ancient period did much to destroy Music; yet chaotic and vague distortions of it continued to survive until the end of the seventeenth century.

The Presocratic movement constitutes the first (and eminently successful) effort in the west to plumb the underlying cosmological *principles* of Music, in order to define them, defend them, examine them, criticize them, and reform them in the light of the new developments of astronomy and other sciences. It is essentially a spiritual-intellectual movement with a strong scientific-religious focus. The purpose of these essays is to follow the slow 'unravelling' of Music through the work of the early philosophers, and to witness the process whereby Music became philosophy, religion, magic, and science.

THE LAYOUT OF THE MUSICAL MATERIALS

The eighteen chapters of this book have been called 'essays' because each one has a certain degree of 'semi-autonomy,' and could be read separately by anyone who has a grounding in the early chapters. Inevitably, this has necessitated a certain amount of repetition between chapters, although it is still kept to a minimum. In general, each chapter covers one of the major philosophers, but some chapters cover two. Occasionally chapters are quite short, for example, chapter 2 (Alcman and Pherecydes), because the available information is slight, and perhaps because the figures are of secondary importance. Some chapters may be very long, reflecting the importance of the philosopher and the richness of historical commentary. Philosophers like Heraclitus or Anaximander demand much discussion over fundamental issues. Altogether around twenty four philosophers are examined, spanning 200 years of history (the sixth and fifth centuries B.C.).

The chapters are arranged more-or-less in chronological order. One major exception to a strict chronological sequence involves the place of Heraclitus and Pythagoras after Xenophanes (chapter 6). In an accurate chronological arrangement, Pythagoras should come before Heraclitus. But I have placed Heraclitus as chapter 7 and Pythagoras as chapter 8 for several reasons. Firstly, Pythagoras, a shadowy figure, left no writings. The earliest extant writings from the Pythagorean School came from the fifth century, namely Philolaus, amongst others. Consequently, his ideas are perhaps better grouped with other fifth century cosmologists. On the other hand, Heraclitus' cosmology seems closer to the Milesians of the sixth century. Secondly, it appears more appropriate to group Heraclitus with the earliest cosmologists, who each in turn made commentaries on at least one of the traditional Elements. Thus we have Thales (**water**), Anaximenes (**air**), Xenophanes (**earth**), and Heraclitus (**fire**). Following these writers we can put

Pythagoras, whose school was famous for posing a 'fifth Element' (**aither**). Thirdly, a prior understanding of Heraclitus aids greatly in the presentation of the elusive but fascinating Pythagoras. I am not alone in making this re-arrangement, since I notice that many other histories have done the same.

Each essay begins with a brief ABSTRACT that summarizes the contents of the chapter. Then the chapter is divided into small 'titled' segments of a few pages each. It is hoped that these 'topics' will make it easier for the reader to find his/her way around. I will refer to places within the text by a double numbering system; for example, 6.44 means page 44 in the sixth chapter or essay. In general, the more difficult aspects of the philosopher's cosmology are presented later in the essay. Also, each chapter has a large section (or two) devoted to an interpretation of a segment of text from later philosophy (usually Plato). The aim here is to demonstrate the deep influence of the Presocratics on later philosophy, and also to show how relevant it is for an understanding of later thought. This approach allows us to see the early philosophy reflected (and distorted) by later writers.

In addition, some of the essays (specifically, the early ones up to chapter 6) have a section or two devoted to some tutorial on the nature of harmony. I feel that this is important in order for the reader to understand *why* a knowledge of harmony is relevant to ancient philosophy. Some of the concepts and terminology of ancient Greek music theory must also be absorbed, so that the reader can see the close connections between archaic music theory and cosmology. However, take heart. Remember that this book is written for a general public and *not* for specialists in canonics and Greek music theory. Consequently, the discussion is kept as non-technical as possible. It is always the underlying fundamental concepts that are important, not the specifics of musical mathematics as such. Yet the reader *should* get used to thinking of numbers in the context of ancient canonics, in order to make sense of the old texts.

Some effort must also be made to distinguish canonics proper from various other number games that 'disguised' themselves as Harmonics during the late ancient period—such procedures as Numerology and Gematria. Various numbers relating to pure astronomy and geometry are also compared with musical numbers. Although there are indeed many numbers in these essays, it is hoped that the reader will not be too intimidated by them. Even if you have no aptitude for arithmetic, I hope and trust that the argument will still be sufficiently transparent.

These essays aim to place early Greek philosophy within the wider context of ancient philosophy in general. Hence, some of the chapters, especially the later ones, have a section or two devoted to early philosophy in India or elsewhere. For example, 7.107-130 puts a focus on Persia. Although the wider picture cannot be covered in any depth, I feel that it is important to note the many similarities (and some differences) between the ancient 'east and west.' To many this may seem to be a diversion from purely 'western' philosophy, but the effort is worthwhile in order to show that philosophy in other parts of Asia also came out of a strongly sonic context. India, for example, had philosophical conceptions analogous to the western Music. Thus we encounter the Vedic

vak (sacred utterance) and the post-Upanisadic ***Nada Brahman*** (Sound is God). It is indeed quite artificial to separate Greek and Asian philosophy as if they were different worlds. They share much in common.

The first chapter is of such over-riding importance that I decided to name the whole work after its title—SEPARATING EARTH AND SKY. It gives an introductory overview of the philosophical movement in relation to its contemporary mythological and cosmological lore. Much of the Musical language of early Greek philosophy is introduced and put into its proper context. It also has important tutorials (and their crucial diagrams) that outline the fundamentals of monochord procedures and its associated fund of musical symbolism. This symbolism at first seems quite remote and arbitrary to the modern novice, but its relevance becomes more and more apparent as we examine the literature. The language of MONAD, DYAD, and the like, emerges directly out of a *sonic orientation* to the sensorium—an orientation appropriate to ancient society, which was still largely non-literate. It comes from a resonance-based (hearing based) conception of order. It is definitely worthwhile to return to these basics every so often.

The reader is also encouraged to set up his own monochord and confirm the 'experiments' (see Appendix 2), but such a commitment is not really necessary. Nevertheless, the first chapter should be thoroughly absorbed in order to better appreciate the later chapters. I decided to put almost all of the 'difficult' or arithmetical aspects of monochord work (the dreaded numbers) right at the beginning (chapters 1 and 3). Get the worst over with right away! Although it is o.k. to pass over the thornier parts, an appreciation of monochord arithmetic (matrix thinking) is crucial for a deeper understanding of the ancient 'mind-set.' The diagrams in chapters 1 and 3 should be reviewed periodically. Only with some appreciation for the musical ***genera*** can we properly comprehend the cosmological ***genera***. Canonics thus functioned as a firm platform on which was built the expansive edifice of ancient Music.

A NOTE ON THE SOURCES

Apart from a small number of actual fragments of the philosophers, which obviously have great weight and importance, most of the evidence concerning early philosophy comes from later writers. Some, for example, Simplicius, were writing a good thousand years after the period. This situation presents endless problems of authenticity. Many scholars have done much fine work in sorting out the 'wheat from the chaff,' but we always face the danger that they have miscalculated at times. Many, if not most, of the ancient references to the Presocratics were made within a different intellectual context, and for varying motives which may have little to do with the original philosophers. The modern interpreter must then 'piece together' a 'most likely story' from the existing evidence. This is difficult, and it is no wonder that we moderns have been 'led astray.'

Most of the later writers were followers of the school of Aristotle, and we can recognize a strong Aristotelian 'filter' in the testimonials. This Aristotelian 'distillation' is then mistaken for the original intentionality and projected onto the earlier writers. The

most famous (and damaging) of such projections is Aristotle's notion that the early philosophers were interested only in the 'material cause,' and the material world in general. According to my exposition, this is a major distortion of the movement, and has prevented a deeper understanding of what early philosophy was all about. Unfortunately, most modern interpreters still largely follow Aristotle's agenda, in the absence of any imagined alternative explanation. This issue will provoke a lot of discussion in these chapters.

Aristotle considered early philosophy only within the context of his own system. Moreover, he presumed that his predecessor's systems were merely 'lisping' attempts to formulate his own philosophy (for example, at *Met.* A10, 993a15). He was also much more sympathetic to some philosophers than to others. For example, he proved distinctly unfair to the Eleatics. Aristotle had a disturbing tendency to take Plato's humorous and ironic remarks and interpret them literally, thus misrepresenting Plato in various ways. Such misunderstandings of Plato's intent indicate that he must also have had similar problems, perhaps worse, with earlier philosophers. Yet, in spite of all these complaints, Aristotle is a valuable source of information on early thought. Especially in his *Metaphysics* and *Physics*, he gave formal surveys of their opinions, and at least attempted some historical accuracy. He is often clear and direct, in spite of his rather obvious bias.

The situation is not so simple with Plato. He also had a 'bone to pick' with his forerunners, and never attempted a systematic review of their ideas. Rather, his approach was closer to polemic. He was defending the Pythagorean 'slant' on early philosophy, and thoroughly opposed to such thinkers as Democritus. And yet Plato is also a valuable source for understanding early philosophy, since his own thinking was much more akin to the old ways. Specifically, he assumed that all of the sciences were aspects of an overarching 'super-science' that essentially preserved the principles and characteristics of Music. In other words, Music was still a dominant aspect of his philosophy. Moreover, he still used the old symbolism with the skill of a virtuoso, but it was thoroughly infiltrated by humor, irony, double entendre, and other obscurities. He himself noted that he never divulged the innermost secrets of '***historia***' (science). Plato is rarely direct and straightforward; rather he is usually oblique, elliptical, and not always serious. He conceived of his dialogues as a form of Musical entertainment that may contain some kernel of Musical 'truth,' but it is up to us to find it and understand it. Consequently, a thorough grounding in the old Musical language is extremely helpful in reading Plato.

Plato is the earliest primary source for information on the Presocratics, except, of course, some references in Euripides, Aristophanes, and other fifth century dramatists and poets. Their perspective is yet closer to the Presocratic world, and should be taken into account. However, Plato and Aristotle are the main early sources. All later commentaries are heavily influenced by their respective 'take' on early philosophy.

The Stoics, especially Chrysippus, paid much attention to early philosophy, but their attitude towards it was an exaggeration of Aristotle's approach. They assumed that such early thinkers as Heraclitus taught doctrines indistinguishable from their own. The situation is rather complex, since the Stoics *did* perpetuate Heraclitean doctrines but

distorted them in their own way. It is often difficult to sort out the 'original' Heraclitus from the 'stoic' Heraclitus. The Skeptics, such as Sextus Empiricus, did likewise. In spite of the complexities, later philosophical movements that were heavily influenced by Aristotle sometimes gave genuinely early views on such topics as knowledge and sensation in support of their own theses. The problems lie is separating out the early and later aspects of the evidence.

Neoplatonists proceeded to further distort the already fractured evidence of Plato. But they also tended to hang on to more aspects of the old 'mystical' notion of Music, and to use its symbolic language, which became increasingly distorted over time. In the later part of ancient history, the old cultural ideals had degenerated, and expertise in such traditional avenues as monochord work had become more and more crude. Moreover, natal astrology and other forms of astral religion became dominant, further fragmenting the canonical basis of the old Musical symbolism. The rise of Hellenistic science and magic also led to a re-evaluation of the old poetic language. All of these factors contributed to the slow disintegration of Music. Nevertheless, the death blow did not come until the western Christian Church closed the schools of philosophy in the sixth century, suppressing the pagan music culture, and imposing an authoritarian orthodoxy which is poison to the open-ended liberalism of the Musical ideal. Yet the Christian Church itself also preserved skewed remnants of the old notion of Music in the west, for example, in the monochord-based doctrine of the 'music of the spheres.' Some of the early apologists for the Christians, such as Clement of Alexandria and Hippolytus, were good sources of information on the Presocratics.

However, the greatest of the late sources for direct quotes and informed comment on the Presocratics was the Neoplatonic writer Simplicius, who lived and worked in sixth century Athens. He had access to the Academy library before it was suppressed. Simplicius made long and evidently accurate quotes, especially of Parmenides, Empedocles, Anaxagoras, and Diogenes of Apollonia. They were mostly embedded in his scholarly commentaries on Aristotle's *Physics* and *De caelo*. Simplicius was evidently a competent scholar and thus an invaluable source of information.

The same could not be said for some writers of superficial histories, such as Diogenes Laertius (*Lives of the Philosophers*) in the third century. In late antiquity, short *epitomes* of philosophical ideas were written, often very shallow and inaccurate, but they indicate how far the spirit of philosophy had degenerated after Plato and Aristotle. In fact, the Presocratic period was the true *creative era* of Greek philosophy. Plato and Aristotle were impossible without them. They were mainly systematizers of material that was already present in the early philosophers.

Theophrastus, a pupil of Aristotle, undertook the task of writing a history of previous philosophy from Thales to Plato, just as Eudemus wrote a history of theology, astronomy, and mathematics, and Menon wrote a history of medicine—all with an Aristotelian slant. Most of the later commentaries on the Presocratics were derived directly or indirectly (at least partially) from Theophrastus, including the work of Simplicius. This situation accounts for the strong Aristotelian bias in the later

commentaries, for example, the assumption that the early philosophers were simple materialists. The many commentators of Theophrastus are now called *doxographers*. I will not pursue here the intricate web of material that constitutes the doxography; it is exhaustively covered in many of the histories of early philosophy.[1] The source material was first collected and organized by the monumental work of Hermann Diels and Walther Kranz (*Die Fragmente der Vorsokratier*, Berlin, 1897). Many of the quotes in these essays refer to a DK number in common use by scholars. Although we have reservations about specific issues, all modern researchers in this field owe them a huge debt and continue to refer to their organizational scheme.

In these essays direct quotes, from whatever source, are given in *italics*. I have also avoided or minimized the use of ancient Greek terms, partly because I have no expertise in the language, and partly in order to make this material more accessible to the modern reader. Hence I am inevitably dependent on translations, which themselves can cause problems. However, these problems are usually not serious, since many good translations of the fragments exist. In the main, the controversial issues of ancient philosophy do not arise from alternative translations; rather, they come from the modern climate of interpretation of the existing evidence. It is here that a comprehensive paradigm shift is necessary in order to regain the perspective of the early philosophers.

A NOTE ON THE TRANSLATIONS

My usual method is to compare several translations of a given fragment, then choose the translation that is the most direct, straightforward, and clear. In this way I can get a decent idea of what the passage was all about. It is impossible to list all of the many diverse sources from which I have extracted translations over the years. However, a few of them stand out as particularly noteworthy.

The text: *The Presocratic Philosophers, A Critical History with a selection of texts*; by the authors G. S. Kirk, J. E. Raven, and M. Schofield (2nd edition, Cambridge University Press, 1957, 1983) has been particularly helpful, since the translations (in comparison with other sources) have generally been very good. The vast bulk of the translations of the fragments were derived from this source. Their commentary is also pleasingly concise, yet admirably comprehensive in covering the most important issues. A lot of information is packed into a concise format. In addition, the authors offer straightforward arguments in support of the standard (what I have labelled 'orthodox') interpretation of early philosophy. Hence they serve admirably as a convenient 'foil' for my comprehensive 're-visioning.'

The classic text by John Burnet: *Early Greek Philosophy* (Meridian Books, 1958, first edition published 1892) also excels in the clarity of the translations. In spite of its age, the superior quality of his scholarship shines through, and I have noticed that most modern authors still refer to his work. He says more with fewer words than any writer I have encountered, and my old copy of his text is almost worn out from extensive use over

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[1] For a good overview, see Jaap Mansfeld's article *Sources* that forms chapter 2 of: *The Cambridge Companion to Early Greek Philosophy*, edited by A. A. Long (Cambridge U. Press, 1999) p. 22-44.

the years. His erudition is brilliant, but he also suffers from the preconceptions of his age, in his Eurocentrism, racism, and 'intellectual imperialism.' But at least he is generally quite open about his bias, a refreshing change in that a lot of modern scholars in the classics perpetuate these same attitudes in a less forthright manner.

Another good source has been J. Barnes: *The Presocratic Philosophers* (two volumes, London, 1979) and his more concise *Early Greek Philosophy* (Penguin, 1987). Also, I should not omit W. K. C. Guthrie: *A History of Greek Philosophy*, Volume 1 (The earlier Presocratics and the Pythagoreans) and Volume 2 (the Presocratic traditon from Parmenides to Democritus) (Cambridge University Press, 1962, reprint 1997). I found his work to be a bit verbose and rather uneven. He glosses over some important issues, but gives good insights into others. Sometimes his translations are preferable over Kirk, but not too often. The complaint of verbosity can be made for many of the recent writers. It seems that modern writers are having trouble finding anything *new* to say, because they are stuck within a particularly restrictive paradigm of interpretation. This myopic perspective is so widespread that I have felt the need to counter it—to show that it *is* possible to make a fresh and useful exegesis of the movement from a different viewpoint.

The texts quoted above are *general works* that cover the whole field of Presocratic philosophy. This is also the aim of my effort. Obviously, I have also found numerous special studies on individual philosophers to be a help. I could not even begin to list them all here. Credit is given in the footnotes of the essays themselves for special sources. There is also a *bibliography* at the end. Many of the special studies tend to distort the relation of the 'favorite philosopher' to the movement as a whole, as well as preserving the predominantly 'a-musical' interpretation of ancient thought. This book, on the other hand, aims to understand the early philosophers not only in relation to each other, but also together in relation to Music. It is thus a *general study* that strives for an overall understanding of the movement. Consequently, some detail has been sacrificed in order not to make it overly long. Even so, some readers may be intimidated by the sheer size of the text. It is simply impossible to say anything at all comprehensive about such a complex philosopher as Heraclitus in only a few pages. I hope that the reader will find the text sufficiently clear in spite of the difficulties of the subject. I trust that a more integrated perspective on the movement *as a whole* will emerge from my efforts.

CHRONOLOGY OF ANCIENT PHILOSOPHICAL FIGURES

As reference material, our introduction should include an extensive table displaying prominent *names and dates* for figures associated with ancient philosophy, science, culture, religion, and the arts, including poetry and music. Accompanying the name sit three columns: the birth-date, the *floruit* (conventionally the age of 40), and the date of death. In order to gain perspective, the names of important Chinese, Indian, Persian and Levantine figures are also included, but they are written in *italics*. Very prominent figures, who command an entire chapter of the book (such as Anaxagoras), or who are referred to often (such as Plato), are written in **bold**. A few key historical events (such as a pair of entries concerning Mesopotamian astronomy) are also included for reference and marked with an asterisk (*).

Many of the dates should be judged as somewhat tentative. This is indicated by the use of a question mark, but even those without these marks should be given some leeway. Many entries are omitted altogether for lack of evidence. Various controversies over the dates are covered in the essays themselves; here we have only the most likely overall scenario. An exception has been made for Plato's dating of Parmenides and Zeno, but I have placed them in brackets. The table is intended to give a feel for the *general chronology* of the major philosophers rather than a definitive last word on all the controversies. Hence the most important date column is the middle '*floruit*' column, even though it is by its very nature somewhat tentative.

Originally, I had intended to end the chronology with the closure of the philosophical Schools by the emperor Justinian in 529 A.D.--a convenient date for the final curtain to drop over ancient Greek philosophy. However, I decided to continue the chronology in order to record the proper end of the ancient philosophical period in India (with *Shankara*) and in China (with the great syncretic systematizer *Chu Hsi*), whose floruit was in 1170. This decision then enabled me to include the great Arabic scientists as well as the Christian-Aristotelian synthesizer Thomas Aquinas. These late western figures, however, are properly classed as *medieval* rather than ancient. The chronological table ends with a rather arbitrary date in the fourteenth century, but we must remember that the period of Presocratic philosophy covers only the sixth and fifth centuries before Christ. The fourth century gave us many Sophists, plus Plato and Aristotle. The rest of the chronology is useful mainly in order to see just when various ancient commentators of early philosophy actually lived.

In addition, the table gives an indication of contemporaries between the various 'regions' of ancient philosophy. It is meant to show that the flowering of philosophy in China and India extended over a much longer period of time than it did in Greece. Indeed, the peak of ancient Chinese philosophy occurred when Europe was in the 'dark ages.' European philosophical discourse was choked off by the developing authoritarianism of western Christianity. Islam, on the other hand, was more tolerant and absorbed many more aspects of ancient Music (through Hermeticism). Arabic science worked toward a new synthesis which was as influenced by India and Mesopotamia as it was by Greek philosophy. Medieval Arabic science had a strong toehold on Europe in southern Spain. Moreover, the Crusades and other historical developments resulted in the 'infiltration' of philosophical discourse back into Europe, as the west cautiously moved out of its intellectual 'dark ages' and developed its brilliant Christian medieval civilization.

The philosophy of Aquinas attempted a vast reconciliation of Aristotle with Christian dogma, but henceforth western philosophy was to be dominated by its battle with religious orthodoxies. This dichotomy between science and religion, however, was peculiar to the developing European scene. It essentially did not exist for the medieval Arabic scientists, nor for the ancient technologists of China, nor the explorers of the inner science of yoga in India. Needless to say, the dichotomy also did not exist for Aristotle, Plato, or Parmenides. In the ancient world, religion and science were 'co-defenders' of

Music, and only came into conflict late in ancient history due to specific historical trends. By that time Music, like the old Egyptian religion, had fragmented, attenuated, and diluted itself almost out of existence, becoming only a shadow of its former glory. Late ancient history was the very twilight of Music. Nevertheless, we should credit Plotinus with the last great effort to marry Music and religious philosophy. He represents the final western statement in the transmutation of Music into high metaphysics. As such, he was the last of the great ancient western philosophers directly connected to the same Musical tradition as Anaximander.

THE TABLE:

NAME	BIRTH	FLORUIT	DEATH
Principal Upanishads: *Uddalaka, Yajnavalkya, Balaki, Svetaketu, Sandilya*	850? bc	to	700? bc
Homer		850?	
Elijah and Elisha		850?	
Parsvanatha	872?	832?	772?
Amos, Hosea		760?	
Hesiod		750?	
**Neo-babylonian astronomy*: *Eclipse tables, decent ephemerides*		747	
Isaiah, Mica		730?	
Orpheus? Musaeus?		700?	
Linus, Hyagnis, Marsyas, Olympus, Terpander		700?	
Tyrtaeus of Sparta		670?	

Kuan Chung			645?
Archilochus of Paros		650?	
Semonides of Amorgos, Hipponax		650?	
Kapila		650?	
Callinus of Ephesus, Mimnermus		650?	
Ardalos, Polymnestus, Thaletas		640?	
Sappho of Lesbos, *Jeremiah*		620?	
Periander of Corinth	657	617	585
Thrasybulus of Miletus		610	
Josiah	640	610	
Alcman of Sparta		600?	
Solon of Athens, Stesichorus, Theognis of Megara, Alcaeus, Arion		595?	
**Jewish exile, Ezekiel*		587	
Zarathustra (Zoroaster)	628?	588?	551?
Thales of Miletus	624	584	546
Onomacritus of Athens, Orpheus of Croton,		580?	
Sakadas of Argos		575	
Anaximander of Miletus	610	570	546
Nearchus, Xenocritus		555?	
Pherecydes of Syros	600?	550?	
The Deuteronomist		550?	
Anaximenes of Miletus	588	548	526
Exekias, Ibycus		540?	
Mahavira		540	480?
*Cyrus of Persia, Pisistratus of Athens		540	
*Foundation of Elea		540	
**Jewish return to homeland*		539	
Xenophanes of Colophon	570	530	470
Epigonus of Sicyon, Democedes of Croton		530	
Pythagoras of Samos	570	530	490?
Maskarin Gosala		530	
The Buddha Gautama	563	523	483
Lasus of Hermione		520	
*Darius the Great of Persia	585	520	486
Haggia and Zechariah		520?	
Bacchylides, Pratinas		520	
Hecataeus of Miletus	550?	510?	
Simonides of Cheos	550	510	
Anacreon	550	510	465
Lao Tzu		510?	
Confucius	551	510	479
Heraclitus of Ephesus	540	500	475?
Parmenides of Elea	540	500	470
*Battle of Marathon		492	

Aeschylus	525	485	456
Hippasus of Metapontum		480?	
Pindar of Thebes	518	475	438
(Parmenides, Platonic dating)	515	475	445?
Zeno of Elea	515?	475?	
Alcmaeon of Croton	510?	470?	
Epicharmus		470	
Pericles of Athens	500	460	429
Anaxagoras of Clazomenae	500	460	428
Lieh Tzu		450?	
Sophocles	496	456	406
Empedocles of Acragas	492	452	432
(Zeno, Platonic dating)	490	450	
Herodotus	485	445	425
Protagoras of Abdera	485	445	415
Ion of Chios	485	445	425
Archelaus of Athens	485?	445?	
Euripides	480	440	406
Melissus of Samos	480	440	
Antiphon of Athens	480?	440?	411?
Oenopides of Chios		440	
Georgias of Leontini	480	440	380
Phrynis, Acron, Herodicus		440	
Mo Tzu	479	440	438
Nehemiah		440?	
Hippias of Elis	475	435	390?
Leucippus, Zopyrus of Heraclea		435?	
Philolaus of Croton	470	430	
Socrates of Athens	470	430	399
Meton		430	
Critias of Athens	470	430	
Melanippedes		430	
Cratylus		425?	
Prodicus of Ceos	465	425	388
Hippocrates of Cos	460	420	375?
Ctesias, Euryphon		420	
Democritus of Abdera	460	420	370
Thrasymachus, Callicles, Hippo, Echecrates		420	
Diogenes of Apollonia	460	420	
Ezra		420?	
Thucydides	460	420	400
Antisthenes of Athens	455	415	360
Diogenes of Sinope, Ecphantus, Damon		415	
Cinesias		410	
Aristophanes	450	410	385

Timotheus of Miletus	446	405	357
*Beginning of Greek cultural decline		400	
Yang Chu	440	400	360
Aristippus of Cyrene	435	395	386
Isocrates	436	395	338
Philoxenus	430	390	380
Archytas of Tarentum	428	385	
Plato of Athens	428	385	348
**advanced Mesopotamian astronomy: 19-year Luni-solar calendar*		380	
Cleinias, Thymaridas		370	
Diogenes the Cynic	412	370	323
Speusippus	407	360	339
Eudoxus	408	360	
Shen Pu-hai		360	337
Kung-sun Yang		360	338
Chuang Tzu	399	360	295
Xenocrates, *'The Jewish Chronicler'*		350?	
Aristotle of Stagira	384	345	322
Hui Shih	380	340	305
Kung-sun Lung	380	340	300
Kuo Hsiang		330	312
Mencius	371	330	289
Theophrastus	372	330	287
Eudemus of Rhodes, Demetrius of Phaeleron		330	
*Alexander the Great conquers	336	to	323
Pyrrho of Elis	360	320	270
Aristoxenus of Tarentum	350	310	
Shen Tzu	350	310	275
Androcydes, *Canakya Kautilya*		300	
Euclid		300	
Zeno of Citium	340	300	270
Timaeus of Taormina		300	
Epicurus of Samos	341	300	270
Megasthenes, Strato		300	
Cleanthes of Assos	331	290	232
Berossos, Aratus, Aristarchus		275	
Arcesilaus of Pitane	315	275	241
Ho Yen		270	249
Hsun Tzu	298	260	238
Tsou Yen	305	260	240
Timos of Phlius		259	
Han Fei Tzu		250	233
Wang Pi	266	249	249
Chrysippus of Soli	280	240	207

Apocrypha, Septuagint	280	to	130
Archimedes, Neanthes		240	
**Ashoka rules in India*	268	to	232
Eratosthenes	276	235	196
King Fang		235	
Hermippus of Smyrna, Sotion, Plautus, Terrence, Hippobotus		200	
Jaimini		200?	
Carneades of Cyrene	213	175	129
Satyrus		160	
Panini, Katyayana		160?	
Polybius, Scipio, Panaetius of Rhodes		150?	
Hipparchus, Cato		150	
Patanjali, Bolus of Mendes		150?	
Apollodorus of Athens		140	
Huai-nan Tzu		140	122
Tung Chung-shu	179	140	104
Aenesidemus of Cnossus, Theognetus		100	
Ssu-ma Ch'ien	145	100	86
Poseidoneus	135	95	51
Essenes, Pharisees	130 bc	to	68 ad
Varro	116	75	27
Lucretius	96	60	55
Catullus		60	
Cicero	106	60	43
Cleonides, Nigidus Figulus		50	
Virgil	70	30	19
Horace, Ovid, Livy		30	
Yang Hsiung	53 bc	10 bc	18 ad
Philo Judaeus	20 bc	20 ad	50 ad
Jesus the Nazarene	4 bc	30 ad	30 ad
St. Paul		40? Ad	67? Ad
Seneca	4 bc	40 ad	65 ad
Aristides Quintilianus, Lucan, Petronius		50 ad	
Didymus		55?	
Pliny the Elder, Apollonius of Tyana		60	
Wang Ch'ung	27	65	100
Heron, Pliny the Younger		75	
Josephus	37	77	100?
Plutarch	46	90	120
Epictetus	50	90	138
Valerius, Tacitus, Flaccus		100	
Kanishka Ashvaghosha	78	100	123
Nicomachus	100	140	
Ptolemy		150	

Origen, Justin Martyr, Irenaeus, Arnobius		150	
Marcus Aurelius	121	160	180
Apuleius	125	165	
Suetonius		165	
Athenagoras		170	
Galen	130	170	200
Clement of Alexandria		170	
**Collapse of the old Egyptian religion*	130	to	230
Numenius	150	190	200
Sextus Empiricus		200	
Tertullian, Alexander Aphrodisias, Athenaeus of Naucratis		200	
Bharata		200?	
Nagarjuna		200	
Hippolytus, Aetius		230	
Plotinus	204	245	270
Anatolius, Achilles Tatius		250?	
Mani the Prophet	216	250	276
Diogenes Laertius		250?	
Porphyry	232	270	305
Iamblichus	250	290	325
Eusebius Pamphili	260	300	340
Fa-shen	286	320	374
Pappus		340	
Diophantus		350	
Tao-an	312	350	385
Chin Tao-lin	314	350	366
Epiphenius	315	355	402
Theon of Smyrna		360	
Yu Fa-k'ai		365	
St. Basil	330	370	378
Fa-wen		374	
Tao-I		380	401
Hui-yuan	334	370	416
St Jerome	340	380	420
St. Ambrose	340	380	397
Kumarajiva	344	380	413
St John Chrysostom	345	385	407
St. Augustine	354	390	430
Fa-Hsien	370	400	
Ho-Tcheng-tien	370	410	447
Hypatia of Alexandria		415	415
St. Cyril	376	415	444
Seng-chao	384	420	420
Bhartrhari		430	

Proclus	410	450	
Martianus Capella, Censorinus		450?	
Ishvararishna		450	
Ashanga	410	450	500
Vasubandhu	420	460	500
John Stobaeus		470	
Dharmapala	439	480	507
Seng-yu	445	485	518
Bodhidharma	460	500	534
Simplicius	470	510	
Boethius	480	520	524
Cassiodorus	485	530	
*Closure of the philosophical Schools		529	
Chih-I	538	580	597
Gregory the Great	540	580	604
Chi-tsang	549	590	623
Tu-shun	557	595	640
Isadore of Seville		600	636
Vyasa		600	
Mohammed the Prophet	570	610	632
Hsuan Tsang	595	635	664
Hung-jen	601	640	674
Shen-hsiu	605	645	706
Prabhakara		650	
K'uei-chi	632	670	682
Hui-neng	638	670	713
Fa-tsang	643	680	712
Zalzal the lutanist		680	720
Lakshminkara Devi	650	700	750
Kumarila-Bhatta		700	
Shen-hui	670	710	762
Matanga		750	
Li Ao		798	
Jabir ibn Hayyam	721	761	815
Han Yu	768	800	824
Shankara	788?	825	850?
Mandana Misra		850	
John Scotus Erigena	815	855	877
Hucbald	840	880	930
Vacaspati		900	
St Odo of Cluny		900 942	
Al-Farabi	870	910	950
Ibn Masarra	883	923	931
Al-Kindi		940	
Udayana, Utpala		950	

Ibn Sina	980	1020	1037
Alberuni		1030	
Guido of Arezzo	995	1035	1050
Michael Psellus		1050	
Gorakhnath, Laksmana Desika		1050?	
Shao Yung	1011	1050	1077
Chou Tun-i	1017	1060	1073
Chang Tsai	1020	1060	1077
Ch'eng I	1033	1070	1107
Ch'eng Hao	1032	1070	1085
Hsieh Liang-tao	1050	1090	1103
Ramanuja	1050	1090	1137
Peter Lombard	1095	1135	1160
Hildegard von Bingen	1098	1140	1179
Nimbarka	1120	1160	1200
Ibn Rushd (Averroes)	1126	1166	1198
Chu Hsi	1130	1170	1200
Lu Hsiang-shan	1139	1180	1193
Leoninus		1180?	
Perotinus	1160	1200	1235
Ibn Arabi	1165	1205	1240
Albertus Magnus	1193	1233	1280
Madhva	1199	1240	1294
Jalluladin Rumi	1207	1247	1273
Roger Bacon	1214	1254	1292
St. Bonaventure	1221	1261	1274
Alfonso the Wise	1221	1261	1284
St. Thomas Aquinas	1224	1264	1274
Shivananda	1225	1265	1275
Franco of Cologne		1275?	
Meister Eckhart	1260?	1300	1327?
John Duns Scotus	1265	1305	1308
Dante	1265	1305	1321
William of Ockham	1285	1325	1349
Jean de Muris	1300	1340	1351
Guilliame de Machaut	1300	1340	1377
Marchettus da Padua	1300?	1340	
Petrarch	1304	1344	1374
Madhava		1350	
Giovanni Boccaccio	1313	1353	1375
Nicolas Flamel	1330	1370	1418

THE PRINCIPLES OF MUSIC, A SUMMARY

At the risk of writing something incomprehensible to the reader, it is worthwhile early in the proceedings to delineate the fundamental conceptual tenets of ancient Music. These statements constitute presuppositions exhibited by the entire movement of Presocratic philosophy. A number of Greek terms ubiquitous within the movement have also been included (in brackets and bold italics). If some of these terms and concepts are unclear to the reader, be assured that they will become more and more transparent in the text. The core ideas underpinning ancient Music can be summarized briefly in ten statements:

1. Since time beyond imagining, everything is *in motion* and *vibratory* in its character.

2. We recognize a *Unity* within the *diversity* of the world—an interplay or 'dance' between the One and the Many.

3. This diversity has the nature or essential property (***physis***) of exhibiting *relatedness* (***logos***) with the Unity, thereby establishing a set of numerical *hierarchies* (***harmonia***)—a pattern of temporal *order* (***kosmos***) based on *resonance* (***sympatheia***). This universal order is the demonstrable result of the ordering principles of *Time* (***chronos***).

4. This diversity *emanates* (births) itself from the Unity (the One) by an orderly *process* of division or differentiation (***apokrisis***), described in terms of a sexual-numerical *generation* (the ***genesis*** of the ***genera***). It proceeds from an *egg* or *seed* (***gonimon***), the Orphic cosmic Egg. Dissolution is balanced with coming-to-be, all 'ruled' by the inherent *cyclical* nature of Time—a patterning of *necessity* (***anangke***) and an affirmation of *justice* (***dike***).

5. The principle of *sympatheia* interconnects the diversity with itself and with the Unity, within a universal framework of *wholes within wholes*, a matrix of musical relatedness based on three suppositions: A: like is attracted to like but also 'feeds' on unlike; B: vibratory movement is eternal and interactive; and C: analogical *correspondences* exist between disparate things. These conditions set up a sifting process (***apokrisis***) or a rotary *vortex* (***dine***) of interactive relations.

6. *Unity* (the one, ***to hen***) is the true *source* (***arche***) of the vibratory world, but the initial process ('taking the middle path') and its resultant *products* (the *Roots* or *Elements* of harmony) are themselves 'ancestors' or 'parents' (***archai***) for further *families* of complexity-diversity. A hierarchy of manifestation is '*birthed*' consisting of the prime Elements (***stoicheia***) or Roots (***rhizomata***) and their composite '*children*' (the gods as numbers and harmonies). These generators are also described more abstractly as *qualities* or *powers* (***dynameis***) inherent in the 'material.'

7. The manifestation is self-willed by a cosmic *intelligence* (***nous, phren***) or made by a *craftsman* (***demiurgos***), who establishes a 'play' of opposition (the *opposites,*

enantia) between polarized *Forces* ***(dynameis)*** ruled by ***Eros*** (love-hate, like-unlike, harmony-disharmony, simplicity-complexity).

8. This architectonic *Whole* (the All, ***to pan***) supports the analogical identification of the *microcosm* with the *macrocosm*, generally described as the *cosmic man* or the initial *sacrifice*. The One is sacrificed through division in order to birth the Many, but the Many maintain the integrity of the One as a vibratory entity or '*being*.'

9. The primacy of *Time* is emphasized in three ways: A: the ancient high status of canonics, rhythmics, and calendrics; B: the focus on *number*, measurement, and its limits; and C: the ubiquitous search for important 'musical numbers' which *integrate* (accommodate) many sub-cycles into a 'grand cycle' (a master harmony or *Great Year*).

10. The natural world, both physical and non-physical, is presumed to be a ***kosmos*** akin to this musical order. Even the non-physical or subtle realms of *soul* (***psyche***) or *breath* (***pneuma***) or *life-essence* are akin to a harmony. This universal order pervades all living things and is *identified with life itself*.

An impartial investigation soon reveals that this conception of a universal order is entirely consistent with and supported by traditional canonics, as well as any other discipline involving *the measurement of cyclical time*. It is thus inherently musical in its orientation; indeed, it could have arisen directly out of monochord work or any extended contemplation on the nature of a sonic sense or order. As I said earlier, the ancient notion of Music had much to do with music. These principles form the inner core of a belief system that was quasi-religious and universally applied. Presocratic philosophy operated within this matrix of beliefs and proceeded to examine its own basis carefully.

A musical conception of order elevates certain key numbers to a high status. It is these very numbers (such as 60, 72, 360) which are seen everywhere within ancient cosmology, astronomy, and mythology. Astronomy is a discipline classically (and rightfully) related to music because it involves the measurement of cyclical temporal phenomena. However, as calendrical astronomy became more and more exact, the 'messy' nature of astronomical numbers began to leave behind the comparatively simple numbers of practical canonics. We witness a gradual shift toward a more visual (as opposed to aural) sense of order. This shift required many hundreds of years to become integrated within the culture. Meanwhile, the old musical order outlined above was never completely thrown out; it was simply overlaid by new material which was more visually based and often had little connection to the older resonance paradigm. Eventually the sonic fundamentals were also largely forgotten for various historical reasons.

We can see these developments in the Hermetic literature late in the ancient period. Within Hermeticism the old Musical principles of Unity within diversity, the relation between the microcosm and macrocosm, and so on, were still alive. However, it was conflated or overlaid with aspects of astrology, numerology, and other purely *visual* or *spacial* conceptions of numbers, which can only confuse the ancient musical basis of

Number. The shift is most readily seen in the altered conception of the Elements. They were no longer the Roots of harmony (the vibratory hypostases), but rather they became largely spacial-visual images connected mainly to astrology. For various historical reasons, Music had fragmented into the mutually independent disciplines of astronomy, geometry and religion. Thus Hermeticism presented a particularly 'baroque' or decadent version of Music, a version in which Music was partly subsumed within the newly emerging more-visually-based astrological religions. In spite of this situation, fundamental aspects of it were still preserved, even a certain neo-Orphic reverence which connects Music with the sacred. It was still Music, but ever so refined and attenuated.

Presocratic philosophy presents a less 'diluted' version of Music, in which the underlying 'truths' are more transparent. Consequently it tends to have a less distracted understanding of the core features, and it offers deeper insights into the fundamentals. It is also better placed to suggest criticisms of the paradigm itself, although there was never a move to abandon it until the rise of extreme scepticism in the fourth century. The era of Presocratic philosophy constitutes the (western) zenith in the high status and deep understanding of Music as a force in culture. Not surprisingly, historians also note that the sixth and fifth centuries formed the very *peak of achievement* in the history of the ancient Greek music culture. This connection is probably not simply a co-incidence. We are examining the most musical (and Musical) phase of that culture. Of course, the high musical culture in Greece was very old. It must have had many historical 'ups and downs.' Some of the frescoes from archaic Crete display quite sophisticated concert lyres, hinting at a cultural peak long before the time of Thales. Yet the era of the philosophers was special—the time during which the old harmonic paradigm articulated and defended itself and ultimately transcended itself.

SYNOPSIS OF THE PHILOSOPHICAL MOVEMENT

Ancient cosmology grew out of a cultural matrix of story telling and song. Over a very long period of time, the story-tellers evolved an imaginative poetic language of images and processes which was heavily influenced by a sonic conception of order. This 'language of discourse' slowly became Music, and it permeated religion, medicine, the arts, and the sciences. Probably its main tenets were mostly sub-conscious, hardly realized, or only implied over a long period of history. As the visual sciences made great strides, the sonic sense of order began to become more self-conscious and defend itself. Orphism, a religious reform movement, was implicated in these developments. Early philosophy came out of this same cultural context and had considerable ties to Orphism.

A strongly aural foundation can be discerned within the ancient mythological stories about the gods, their relations, marriages, and so on. But typically Musical notions are most transparently seen in *cosmogonies*—stories of how the ordered world began. A number of images symbolically representing the archetypal emanation of the Many from the One are grouped around the central metaphor of the separation of **earth** and **sky**, the primary musical Elements. The old stories tell of such fundamental concepts of Music as the primary Elements generating the composite children (the complexity of the world), the opposing Forces which obey the law that like attracts like, the hierarchical nature of

the world which mirrors a harmony, and the special relation between the microcosm and the macrocosm. These ideas were deeply imbedded in the culture.

There was no abrupt dichotomous shift from a 'pre-rational religious' cosmology to a 'rational scientific' one. The early Greek philosophers accepted the old fundamental tenets of Music, but they were more conscious of them, explored their hidden secrets, deepened the symbolism, and increasingly aired difficult, problematic, and paradoxical aspects of the paradigm. Such growing issues constituted the vanguard or progressive wing of Presocratic cosmology. The more conservative wing of the movement staunchly defended the fundamental attitudes and traditional notions of Music. Nevertheless, we should not assume that the two factions were necessarily in conflict. They both operated within a common descriptive language of discourse that was intensely Musical. Only by the end of the fifth century did various sophists 'drum up' controversies between Milesians, Eleatics, Pythagoreans, and Atomists—beginning to undermine certain suppositions of the old paradigm. The fourth century saw a shift toward relativism, skepticism, and polemic over many issues, often fueled by misunderstandings and deliberate re-interpretations of the older philosophers. The fourth century also saw the beginnings of the decline in ancient Greek culture. In Plato and Aristotle Music was already fractured and the sciences were fast gaining their independence from each other.

The vagueness of the line between mythology and philosophy is witnessed in the earliest sixth century writers who treated cosmogonical issues—Alcman, Pherecydes, and Anaximander. The latter two wrote the earliest books about the 'gods' in prose, possibly a sign that they were mostly interested in digging out fundamental principles. Alcman and Pherecydes are problematic figures, since so little reliable information about them has survived. On the other hand, Anaximander is a seminal figure in whom very important issues pivotal to the whole movement are already addressed. All three writers present a cosmology that is entirely consistent with the spirit of Orphism.

Interestingly enough, the general classification of the philosophers into 'conservative' and 'progressive' is already evident in this earliest phase of the nascent movement. Pherecydes can perhaps be grouped together with the enigmatic figures of Thales and Pythagoras in representing a more conservative cosmological perspective. On the other hand, the intriguing fragment of Alcman points more to the progressivism of Anaximander, and on to Xenophanes and Parmenides. The 'frontiers' of the beginning of Greek philosophy could probably be pushed back further if there were only more surviving literary fragments. Indeed, it is possible to argue that the true roots of the philosophical movement were already found in Hesiod during a previous century. Homer was obviously a major influence, and early Greek philosophy had deep Musical roots in the mythological poets.

Greek philosophy 'proper' began with the three great Milesians Thales, Anaximander, and Anaximenes. They lived close enough together in place and time that they could all have studied with each other and influenced each other. Later history speaks of a Milesian School that influenced philosophers right through the fifth century. It is not unreasonable to talk of a common Milesian cosmology, even though all three

figures had very different personalities. Thales was elusive and esoteric (like Pythagoras in an upcoming generation). Anaximander was brilliant, profound, and progressive. The youngest of the three, Anaximenes, was catholic, syncretic, and highly influential as the most explicitly developed representative of the entire School. Later generations equated Milesian philosophy with Anaximenes, and not without reason. Yet Anaximander remains a more difficult and important figure.

Evidently Thales had a profound influence on both Anaximander and Anaximenes, but he did not write a book at all. Like Pythagoras, he apparently studied in Egypt. Thales stood at the head of the Greek development of 'sacred geometry' and the mathematical arts in general—a long line of creative geometers which included Pythagoras and Democritus, and culminated in the third century compilation of Euclid. The geometrical theorems that have traditionally been assigned to Thales are the very ones needed to generate the *Geometrical Mean*, and other esoteric constructions associated with *Golden Section* geometry and the monochord implementation of *musical temperament*. In addition, he made commentaries on the most symbolically multifarious and difficult of the Musical Elements, namely **water**. Clearly he must have been a major figure, although he was later known simply as a 'figurehead' for everything related to astronomy and mathematics. His formulative ties to the Pythagoreans were quite close, and it is reasonable (though conjectural) to assume that he represented the conservative wing of early cosmology. Yet in Thales the important issue of *rational versus irrational ratios* appears full blown, an issue of immense consequence in Presocratic philosophy. In this regard, he could also be grouped with the progressives. Already in him we see the Milesian doctrine of the *World-soul*, which was so important in Anaximenes and later Greek philosophy. In spite of our meager information concerning Thales, he must have been a highly influential figure—the first great Greek philosopher.

In Anaximander, much of the language of Musical imagery used throughout the Presocratic period is already evident. The relations between the Elements are described in terms of 'weather' dominated by the medial Elements **air** and **water**. The ***kosmos*** has its origins (***arche***) in the 'separating off' (***apokrisis***) of the primal *opposites (**enantia**)*, which can be derived from the primary or 'prior' Elements **heaven** and **earth**. The birth (***genesis***) of the Many from the One proceeds or *grows* as if from an *egg* or *seed* (***gonimon***), like the Orphic cosmic egg. Motion is eternal and generates the *vortex* (***dine***) of relations, in which *like seeks like*. The physical world analogically 'imitates' the architecture of the vibratory world. The planets form *rings* around the **earth** which is properly in the *center* of the ***kosmos***. *Time* is the ruler of the cosmic order, which is characterized by '*justice and injustice*,' balanced and *cyclical*. Innumerable alternative ***kosmoi*** or harmony-systems are possible. Coming-to-be and dissolution follow orderly cyclical patterns that are commanded by *necessity*. In all of these issues (and more) Anaximander shows that he had a firm grasp of the underlying principles of Music. Indeed, it appears that his main aim was to expose and define those very fundamental issues themselves.

Yet there is more to Anaximander than a straightforward description of Music's features. He was also willing to face deeper and more problematic aspects of the

paradigm. Specifically, he moved away from the traditional *digital* conception of the harmony toward a progressive *analog* perspective. The old digital (number based) Elements were generalized in order to include the possibility of innumerable worlds (infinite alternative harmony-systems, both rational and irrational). The cosmic polarity of the initial Elements **heaven** and **earth** was re-described as a 'mixture' of '*hot and cold*.' This 'harmony-space' was reconceived as a *continuum* or *plenum* of elements expressed in abstract terms as *the All*. He emphasized the possibility of *infinite divisibility* and innumerable systems; hence his key word is ***apeiron*** (infinite, unbounded). He explored the 'give and take' relations between alternative systems, establishing 'justice and injustice' as essential features of the world-harmony. Although the many implications of the *plenum* and ***apeiron*** were not explicitly stated (or perhaps lost) by Anaximander himself, his followers throughout the Presocratic movement gradually made them explicit. Hence he is a key figure in the history of the movement.

Anaximenes' cosmology was entirely consistent with that of Anaximander, a refinement of the same world-view. His book was cherished throughout the millennium of ancient Greek philosophy. Anaximander's '*hot and cold*' was further refined to '*rarefaction and condensation*.' The metaphorical language of 'musical meteorology' reached a high level of development. The special properties of the medial Element **air** were emphasized. Anaximenes sought to go beyond the traditional Elements in order to describe the continuum, using the appropriately 'plastic' Element of **air** as a convenient 'super-element' to describe the *phase-changes* within the continuum bounded by the original *opposites*. Thus he supported the progressive analog tendencies seen in Anaximander's conception of the Elements, even though he preserved the traditional descriptive language of the older digital Elements. This compromise or 'softened radicalism' gave his cosmology great power and influence, and later generations equated it with the Milesian School as a whole. Anaximenes also explored the related meanings between **air**, *wind*, *breath*, and *soul*. He emphasized the mystical Orphic doctrine of a *World-soul*, and commented on the relations between the *microcosm* and the *macrocosm*. He was thus an eclectic and syncretic figure who wielded an enormous influence on later philosophers, especially Pythagoras, Heraclitus, Anaxagoras, and Empedocles.

The language, the concepts, and the problematic of Presocratic philosophy was already set by the Milesians. Later philosophers made implicit aspects of it more explicit, and they proceeded to 'spin out' the various implications that were already evident early in the movement. Some were more conservative and defended the older traditional digital (numerical) basis of harmony. Others were more radical and emphasized paradoxical, analogical, mystical, and/or irrational features of the Musical paradigm.

The philosopher-poet Xenophanes was a complex character who served as a link between the progressivism of Anaximander and the more extreme radicalism of Parmenides. He absorbed the cosmology of the Milesians, but he also put a new emphasis on problematic and paradoxical features of the Musical concept of *Wholeness*. Using logical arguments, he showed that the very concept of *the Whole* implies an *a-temporal* perspective at odds with the temporal perspective on harmony championed by the Milesians. As such, he was the initiator of the radical Eleatic School of philosophy. He

also brought out various paradoxical features of the Elements, especially **earth** and **water**. As a poetic satirist, he made witty and humorous comments on Homer and Hesiod, seeking a more rigorous conception of the ineffable divine aspects of nature. He commented on the limitations of human knowledge concerning the divine, and generated the earliest extant fragments in the field of ethics. Xenophanes represented the radically progressive tendencies within the movement, just as his contemporary Pythagoras represented the more conservative tendencies. As such, Xenophanes influenced the growth of Scepticism in the fifth century, and, through the Eleatics, the eventual corrosion of the old Musical paradigm.

If one surveys the whole millennium-long history of ancient Greek philosophy from Anaximander to Plotinus, the two most influential of the early philosophers (before Plato) were undoubtedly Pythagoras and Heraclitus—Pythagoras through the various Neoplatonists and Neopythagoreans, and Heraclitus through the Stoics. Democritus was also influential, but he came from a much later generation. Parmenides extended the mystical and paradoxical tendencies already evident in Xenophanes. Meanwhile, Heraclitus was a uniquely eclectic and syncretic figure who exquisitely blended the essential features of Anaximander, Anaximenes, Pythagoras, and Xenophanes into a balanced whole. While Parmenides imparted the most poetically explicit version of the radical Eleatic tendency in the movement, Heraclitus bestowed a most integrated and refined expression of the 'process philosophy' that had its roots with the Milesians. Both Parmenides and Heraclitus were strongly Orphic-religious figures, as were their forebears from the previous generation: Pythagoras and Xenophanes. These four philosophers deserve a special place in the very core of the movement. At the heart of Presocratic philosophy there laid a religious impulse concerning the divine relations between *the One* and *the All*.

Chronologically speaking, Heraclitus and Parmenides both sit around the middle of the movement—if we assume that its duration was the sixth and fifth centuries. They also represent the 'peak,' the highest expression of the Presocratic problematic. In addition, these two momentous philosophers form a peculiar, polarized relation to each other: Heraclitus emphasized 'eternal motion' while Parmenides insisted on 'no movement.' Influences on each other could have flown in either direction, but the uncertainly over Parmenides' historical dates makes it possible that he was somewhat younger than Heraclitus. Hence influences are more likely to move from Heraclitus to Parmenides. The meaning of Parmenides' magnificent poem can more pointedly be traced to his poetic teacher, Xenophanes. Meanwhile Heraclitus, using the most concentrated and efficient expression, divulged the essential core of the early philosophical vision—such concepts as ***logos***, ***harmonia***, and ***kosmos***. He was truly extra-ordinary, a seminal figure with an uncanny ability to convey so much meaning through the use of so few words. In Heraclitus we have a prime candidate for the distinction of being judged the greatest single Presocratic philosopher.

Heraclitus wrote in a purposely oracular and paradoxical style—cryptic, multi-layered, and concentrated with Musical imagery. Taking this technique (inherited from Xenophanes) to virtuosic heights, he made profound commentaries on the transformation

of the Elements, the Unity of Opposites, the Great Year, the nature of ***harmonia*** and ***logos***, the symbolic importance of **fire**, and the relation between the One and Many. His 'physiology' and 'psychology' were intricately intertwined, so that the transformation of the Elements is also related to the transformation of consciousness ('waking and sleeping'), the states of the soul, reincarnation, and other Orphica. Although the gravity of his statements are unparalleled in early philosophy, the doctrines themselves are not original. For example, Heraclitus' ***harmonia*** is the same conception already seen in Pythagoras; his *Opposites* were already stated by Anaximander; moreover, his 'pathway up and down' was already evident in Anaximenes and even Alcman. He is thus distinguished not for his 'originality' of doctrines but rather for his ability to integrate into a seamless whole the partial viewpoints bequeathed by his predecessors. He expertly 'fused' the 'co-relative angles' of Anaximander, Anaximenes, Pythagoras, and Xenophanes in such a way that we gain a much greater understanding of all of them. Indeed, through him the movement as a whole is greatly clarified. Like Anaximenes in a previous generation, he also sits in the middle of the 'ideological' spectrum between conservative and progressive. Heraclitus represents the mainstream of the movement.

Heraclitus' (probably direct) teachers from the previous generation were Xenophanes and Pythagoras—both of them complex personalities. Pythagoras was particularly elusive (comparable to Thales), because he did not write a book, preferring an exclusively *aural method* of teaching. This highly musical vehicle was further refined and demonstrated by the explicit use of a musical monochord and a description of the ***harmonia*** using a 'pebble-pattern' matrix. Just as Thales became a 'repository' for endless stories regarding astronomy and geometry, so Pythagoras became *even more* a mouthpiece for all thing musical and Musical. He was renowned for his vast knowledge of the ***harmonia*** and his prowess with monochord arithmetic. Over time these abilities were exaggerated and focussed upon him alone. The Neoplatonists of late antiquity further converted him into an ethical sage, almost a saint. His importance thus became magnified all out of proportion, partly due to the strong bias within Plato's Academy. Pythagoras became the 'patron saint' of Music.

The actual historical Pythagoras is less certain than the late writers lead us to believe. On the basis of the overall evidence, I have concluded that he actually formed the historical middle 'communication link' between three generations: Anaximenes-Pythagoras-Heraclitus. The three of them share much in common, especially Anaximenes and Heraclitus. Pythagoras represented a generational 'swing to the right' but within a common shared paradigm. He emphasized the older, digital aspects of ***harmonia*** and downplayed the radical analog examination of the problematic *continuum*. In him the numerical aspects of the Milesian 'process philosophy' were brought to the fore. It is impossible to conclude exactly how Pythagoras related to his followers, but indications support the conclusion that he was a conservative force. However, the Pythagorean 'clubs' that he fostered soon fragmented into a conservative and a progressive wing—the ***acusmatici*** and the ***mathematici***. In other words, the Pythagorean 'brotherhood' itself exhibited the same cosmological spectrum between 'digital and analog' that the Presocratic movement as a whole displayed. Moreover, considerable controversies (both ancient and modern) have raged over which philosopher is a genuine 'Pythagorean' and

which is not. It has become almost impossible to separate out Pythagoras himself from the political-religious-scientific movement that he started.

Again, Pythagoras is like Thales in that arguments can be made supporting *both* a conservative stand (the support of Number) and a progressive stand (in the possible inclusion of irrationals). Mimicking Thales, Pythagoras was mysterious and intimated that wisdom exists on at least two levels: the prosaic and the esoteric. Moreover, he belonged to the tradition of geometer-astronomers whose first figurehead was Thales. Finally, he was like Thales because both of them had more than a hint of *magic* about them, an aura of shamanic power derived from secret knowledge. Pythagoras was the most straightforwardly Orphic of all the early philosophers. Like Heraclitus, he was closely allied with the Mysteries.

In late antiquity Pythagoras and his School became the 'dumping ground' for any traditional story or notion relating to Music. He thus became the most *famous* of the early philosophers, almost a figurehead for the whole movement itself. Only Heraclitus (and Empedocles) could compete with him in the ability to invoke reverence. Unfortunately, his fame probably outstripped his actual profundity. What we know of his doctrine ties him closely to Anaximenes, who is certainly a far more significant and influential figure within the Presocratic movement itself. It was only long after the demise of the movement (and through the ongoing influence of the Academy) that Pythagoras was 'promoted' to the top. He was a convenient figure for this 'occupation,' since he did not write a book; consequently, any desired position could be attributed to him. Nevertheless, Pythagoras must have been a considerably gifted philosopher, having close ties with the two giants Anaximenes and Heraclitus. Certainly he had a good reputation right from the start. Through him the 'process philosophy' of the Milesians was *explicitly* demonstrated by using a monochord. Through him we get a glimpse of how the monochord can be used to 'justify' traditional concepts of Music. Through him we are reminded that the *Arithmetic Mean* is the very foundation of ancient canonics, and the '*taking of Means*' the very process whereby the vibratory One becomes the Many.

The poet-philosopher Parmenides is an extremely complex character, arguably the most difficult of the old philosophers. Most of his poem admirably restates the old Milesian 'process philosophy,' the Musical philosophy of *Becoming*. But embedded within it is an extensive passage best described as cryptic and paradoxical. Later known as the *Way of Truth*, it defines a philosophy of *Being* transcendent of Time altogether. Making explicit the inference of 'the All' as 'the Whole' already present in Xenophanes, Parmenides drew out the implications of 'the Whole' as the 'all-at-once.' It is a solid plenum or continuum, utterly beyond any particular numerical expression, rational or irrational. It is the conceived analog union of Anaximander's 'innumerable worlds,' the All as the One. As such its characteristics are paradoxically unmusical: no motion, no beginning or end, no Many. Yet Parmenides (like Xenophanes) intended his very unmusical philosophy of Being to coexist quite happily with the musical philosophy of Becoming. Moreover, the categories of Being and Becoming are bound up with the widely prevalent distinction between divine and human knowledge, truth and seeming, reason and sensation, immortals and mortals and other poetic themes. Such issues and

more are addressed as a revelation from his poetic muse: the goddess of the middle path, who is also equated with cosmic intelligence or ***nous***.

The power of Parmenides' expression is derived from the context of the old Musical paradigm. Although he worked solidly within it be brought out a difficult aspect that is paradoxically unmusical or even anti-musical. As such he drove a wedge into the old doctrine that later philosophers used to undermine the entire edifice. His quasi-logical methods were eventually employed (later in the fifth century by sophists, sceptics) to 'disprove' every conceivable doctrine. Thus he was instrumental in undermining the Milesian synthesis at the heart of the philosophical movement. However, such 'damage' was not his intention; rather, he strove to express an ineffable feature of Music utterly transcendent of Time (who is, naturally enough, the ultimate ruler in a musical conception of order). Although his arguments took the trappings of logic (perhaps satirically like his master Xenophanes), his aim was mystical and revelatory.

(to be continued)

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