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THE NUMERICAL MYSTICISM OF SHAO YONG AND PYTHAGORAS

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I. NUMERICAL COSMOLOGY

Both Shao and Pythagoras focus on the importance of the quantitative aspect of things. For them, the universe is numbers, things are numbers, and even numbers are things. However, they have different interpretations for numerical entities, such that Pythagoras’s theory of “One to Many,” though similar to Shao’s, is distinctive.

According to Aristotle, the Pythagoreans, animated by mathematics, thought that things are numbers and the whole heaven is a scale and a number. The whole universe is constructed according to a musical scale or a number; it is composed of numbers and is organized numerically and musically. The distances between the bodies revolving round the center are mathematically proportionate; some

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move faster and some more slowly; the sound made by the slower bodies in their movement is lower in pitch, and that of the faster is higher. These separate notes, corresponding to the ratios of the distances, make the resultant sound concordant. Because numbers are the source of this harmony, they form the principle on which heaven and the whole universe are based.³

Pythagoras propounds a numerical metaphysics in terms of the mathematics of nature, the ontological view of mathematics, the musico-mathematical discovery of the cosmic frame, and the numerical explanation of reality. He criticizes the School of Miletus. The School of Miletus' notion that "to be is to be material" becomes the former's idea that "to be is to be numerical"; and the notion that "matter is the constituents of reality" becomes the notion that "form is the constituents of reality." Thus, first, the physical or natural world is numerical. For Pythagoras, quantitative laws of nature must be studied. Physical bodies are based on numbers. Even the entire natural world is based on numbers. The basis of nature is numerical, because solid bodies are built up of surfaces, surfaces of planes, planes of lines, and lines of points, and there is no difference between points and units. The limits of bodies, such as surface and line and point or unit, are substances. There is a threefold way of considering things as numbers—arithmetical units, geometrical points, and physical atoms. These things include both the physical world and its contents, as well as abstractions such as justice and marriage. Similarly, for Shao, all physical objects are based on a numerical arrangement.

Second, ontological being or reality is numerical. For Pythagoras, numbers are the principle of reality, and the ultimate nature of reality is mathematical. Numbers are for all things the cause of their reality. All things can be reduced to numerical relationships. Numbers are the substance of all things, which are sets of units or collections of monads. The universe has numerical structural properties, rather than the dynamic properties of the world. The elements of numbers are the elements of things. Numbers cannot have an existence separated from things. There are five elements in the world: fire, water, air, earth, and the infinite breath. Things imitate or represent numbers. Existing things owe their being to imitation of numbers. The world can be separated from fire and the infinite breath. Similarly, for Shao, there are four elements in the world: fire, water, soil, and stone; fire is the first element as super-hardness.

Third, the cosmological universe is numerical. For Pythagoras, the whole universe is based on numbers and the whole universe can be considered a *harmonia* and numbers. The harmony of the spheres is based on numbers. The universe must have a mathematical center. The cosmic songs can be harmoniously constructed by a profound

study of the nature of numbers. The mathematical ratios of musical scales and planets must be considered. There are ten bodies moving through the heavens, for ten is the perfect number. Aristotle criticizes Pythagoras by asking how numbers can be the causes of things and events in the universe and, at the same time, the constituents of the material cosmos (Aristotle, 990a18). Similarly, for Shao, the whole universe is based on infinite numerical circles. He investigates the positions of the stars or planets relative to one another, albeit in an unscientific way.

Aristotle disagrees with the view that the mathematical center of anything is the most important part. Pythagoreans mistakenly confuse formal and material causes, as well as physical and abstract realities, and ignore entirely the qualitative aspect of things. Aristotle asks: "If everything must partake in numbers, many things will turn out to be the same?" (Aristotle, 1093a1), and "How indeed can qualities—white, sweet, hot—be numbers?" (Aristotle, 1092b15). Perhaps Aristotle was leading science onto the wrong track. As one contemporary scholar remarks, "Today the scientific description of everything in the physical world takes the form of numerical equations. What we perceive as physical qualities—color, heat, light, sound—disappear and are replaced by numbers representing wavelength or masses. A historian of science has claimed that Pythagoras's discovery changed the whole course of history."⁴ For Pythagoras, (1) all things consist of numbers, all physical bodies are made of numbers, and all elements of numbers are the elements of everything; (2) units possess magnitude; (3) numbers are the actual matter of which things are composed. Unity and limit as substances form the basic element of everything else. The mind of Pythagoras is not only mathematically organized but also mystically inclined. The impact of the discovery of an independent numerical order inherent in the nature of things must have been tremendous, even though the Pythagoreans were highly arbitrary and inconsistent in their equation of entities with particular numbers.

Shao was the leading figure of the so-called *Xiangshu* (Theory of Symbols and Numbers) School.⁵ He called himself a student of Heaven and Earth, describing his philosophy as *Xiantianxue* (Learning of that Which Antedates Heaven). According to Chung-ying Cheng, "Shao Yong had developed ancient Chinese cosmology into an ontocosmogonic system, namely a system that traces the evolution or creative process of cosmos to the ultimate reality which is both ontologically and temporarily present."⁶ J. D. Birdwhistell argues: "Shao's philosophy gave central importance to three interrelated concerns: patterns of cosmic order, characteristics of human knowledge, and aims of human life."⁷ Tu Wei-ming claims: "Shao Yong further elaborated on the metaphysical basis of human affairs insisting that

a disinterested numerical mode of analysis was most appropriate for understanding the ‘supreme principles governing the world.’”⁸ Like Pythagoras, Shao really emphasizes the forms, shapes, symbols, and numbers in his numerical mysticism. For him, everything can be deduced from forms, shapes, and numbers; the numerical principle of change penetrates the universe from its beginning to end; and all physical bodies, ontological reality, and the cosmological universe are numerical.

In Don Wyatt’s view, Shao’s number affords at least three distinct advantages over principle as an operational concept: (1) number is a tangible entity and its application is a kind of predictive knowledge known, as we indicated above, as the *Xiantianxue*; (2) number is the perfect mode, and its inherent functions are perhaps best demonstrated by the simple act of enumeration; and (3) understanding number is necessary for the most efficient and maximal utilization of the human *Xin* (heart/mind).⁹ According to Alain Arrault, a lot of cosmological diagrams are attributed to Shao such as the “Xiantian Tu,” “Houtian Tu,” “Liushigua fangyuan Tu,” and so on. But in his own work and other contemporary sources, the remarks about the mentioned *Tu* are so vague that it is quite impossible to say what kind of *Tu* he saw. The first representation of these *Tu* is found in Zhu Xi’s work *Zhou Yi benyi*, and he is also ambiguous about their attribution. Chao Yuezhi’s *Songshan wenji* includes a little preface by Shao entitled “Taixuan zhun Yi tu Xu” (Preface to the Diagram of the adjustment of Changes by the Supreme mystery). This *Tu* exists in two collections: one is the *Daozang*, the other the *Siku quanshu*. Alain Arrault discusses these versions and more broadly the problem of the relation between images and printed editions: how can we know what the Song dynasty diagrams actually were?¹⁰ Shao expounds three fundamental concepts: (1) there are supreme principles governing the universe; (2) these principles can be discerned in terms of numbers; and (3) the best knowledge of them is objective knowledge, that is, viewing things from the viewpoint of things.¹¹ The traditional Chinese *Xiangshuxue*, rooted in and stemming from timeless investigations into complex phenomena such as cloudscape, is a symbolic system within the Chinese natural philosophy. Thus, Shao, building on the symmetry of the natural system, brings forth a universal theory about the natural system.¹² Shao believes that forms come from physical shapes, and numbers come from substance. Names come from language, while concepts come from function. All numbers in the world are derived from principle. If principle is violated, they will degenerate into divination techniques. Ordinary people associate numbers with divination techniques and not principle. Leibniz noticed that one of Shao’s charts of the *Yijing* (The Book of Changes) could be con-

strued as describing the numbers 0–63 in binary expression, and he interpreted Shao's arrangement in reverse order, but shared the idea that certain numerical sequences revealed the structure of the cosmos.¹³

The following is the terminology of Shao's ontological and cosmological speculation in his *Tiandi wanwu zhi li* (the Principle of Heaven, Earth, and All Things): *Taiji* (the Supreme Ultimate); *Taiyi* (the Great One); *Tian* (Heaven): *Dong* (Movement)—*Yin* and *Yang*; *Di* (Earth): *Jing* (Quiescence)—*Rou* (Softness) and *Gang* (Hardness); *Liangyi* (Two Forces): *Yin* and *Yang*; *Sixiang* (Four Shapes, Forms, or Symbols): *Yin*, *Yang*, *Rou* (Softness), and *Gang* (Hardness); *Yin*: Super *Yin* (Moon) and Inferior *Yin* (*Chen*¹⁴—Zodiacal Spaces); *Yang*: Super *Yang* (Sun) and Inferior *Yang* (Star); *Rou* (Softness): Super Softness (Water) and Inferior Softness (Soil); *Gang* (Hardness): Super Hardness (Fire) and Inferior Hardness (Stone); *Tian sixiang* (Four Emblems of Heaven): Sun, Moon, Star, and *Chen* (Zodiacal Spaces or Celestial Bodies); *Di sixiang* (Four Shapes of Earth): Water, Fire, Soil, and Stone; *Tianbian* (Heavenly Changes): Sun, Moon, Star, and *Chen* Produce Coldness, Hotness, Day, and Night; *Dihua* (Earthly Transformations): Water, Fire, Soil, and Stone produce Rain, Wind, Dew, and Snow (*Tianbian* and *Dihua* of Eight Shapes produce all things).

In addition, there are Four Emblems of Heaven—Movement: *Taiyin* (Super *Yin*)—Moon = 12; *Shaoyin* (Inferior *Yin*)—Zodiacal Spaces = 12; *Taiyang* (Super *Yang*)—Sun = 10; *Shaoyang* (Inferior *Yang*)—Star = 10. There are also 4 Emblems of Earth—Quiescence: *Tairou* (Super Softness)—Water = 12; *Shaorou* (Inferior Softness)—Soil = 12; *Taigang* (Super Hardness)—Fire = 10; *Shaogang* (Inferior Hardness)—Stone = 10.¹⁵ From the above, we may find: (1) Sun+Star+Stone+Fire = 10+10+10+10 = 40, (2) Moon+Chen+Soil+Water = 12+12+12+12 = 48, (3) Sun = Moon+Star+Zodiacal Spaces = 10+12+10+12 = 44, (4) Fire+Water+Soil+Stone = 10+12+12+10 = 44. Therefore numbers can be classified into the following types: (1) *Tishu* (Substantial Numbers): $4 \times 40 = 160$, $4 \times 48 = 192$; (2) *Yongshu* (Applying Number): $160 - 48 = 112$, $192 - 40 = 152$; (3) *Huashu* (Transforming Numbers): $152 \times 112 = 17024$, for Water, Fire, Soil, and Stone; (4) *Bianshu* (Changing Numbers): $152 \times 112 = 17024$, for Sun, Moon, Star, and *Chen*; (5) *Dongshu* (Moving Numbers) = *Bianshu*; (6) *Zhishu* (Transplanting Numbers) = *Huashu*; (7) *Dongshu* $\times$ *Zhishu* or *Bianshu* $\times$ *Huashu* = $17,024 \times 17,024 = 289,816,576$; (8) *Tongshu* (General Number) = the Product of Moving Number $\times$ Transplanting Number.

Material force is the number “1” that is produced by *Qian* (the principle of heaven). Spiritual force is also the number 1. Through mate-

rial force it changes and transforms and operates freely in the realm of existence and non-existence as well as in the realm of life and death. It has no spatial restrictions and is unfathomable. Heaven differentiates from 1 (Great Ultimate) to 4 (the Four Forms of greater and lesser yin and yang). Earth also differentiates from 1 to 4 (the Four Forms of greater and lesser strength and weakness). Four has *Ti* (physical body), but 1 does not. This is the ultimate distinction of being and non-being. The substance of Heaven numbers 4 (Four forms), but its function numbers only 3 (minus greater *Yin*). Therefore, the one without physical body represents the nature; its non-functional 1 represents *Dao*; and the functional 3 represents Heaven, Earth, and Man.

Pythagoras declares that justice is the number 4 on the ground that justice is essentially reciprocity and reciprocity is embodied in a square number. The first four integers can make the perfect number 10. Shao uses the number as the basis of classification of all phenomena because this number shows some reciprocity, such as four heavenly bodies (sun, moon, stars, and zodiacal spaces), four earthly substances (water, fire, soil, and stone), four creatures (animals, birds, grass, and plants), four sense organs (eye, ear, nose, and mouth), four ways of transforming the world (by truth, virtue, work, and effort), four kinds of rulers, four kinds of Mandate of heaven (correct mandate, accepted mandate, modified mandate, and substituted mandate), and so forth. Shao treats 10 as the perfect number and the sacred symbol. The numbers of Heaven are five (1, 3, 5, 7, 9), the numbers of Earth are also five (2, 4, 6, 8, 10). Together they form ten numbers in all. 10 is the perfect number. The number 10 is divided to become 100, 1,000, and 10,000. It is like the fact that a tree root has a trunk, a trunk has many branches, and branches have many leaves. The larger they are, the fewer they are; the finer they are, the more numerous they are. Taken as a unit, it is one. Taken as diffused development, it is many.

II. NUMERICAL SEMIOLOGY

For the two philosophers, the number is sign and symbol for everything, but they have different applications for numerical symbols. Pythagoras uses geometry as numerical modes and forms; Shao uses *Xiang-Shu* (symbol-number) as numerical modes and forms. For Pythagoras, all things are “Imitation,” “Identification,” or “Representation” of geometrical theorems. For Shao, all things are “Imitation,” “Identification,” or “Representation” of *Xiang-Shu*. Both of them believe that there are inherent numerical properties in everything

that must be understood by an intuitive capacity. Pythagoreanism is a kind of philosophical formalism or formalist philosophy. Numbers are signs of heavenly inspiration. 10 is the sum of the first four integers that acquire supreme significance as a religious symbol. The number of revolving bodies must show forth the perfection of the decade. Shao's framework is also a kind of philosophical formalism. Both of them emphasize three types of numerical semiology or semiotics as follows.

The first is "Semiological Monism." Pythagoras believes in mathematical monism, and "1" is the actual substance of things and the starting point to construct the whole universe. For Shao, "1" is the Supreme Ultimate and the final reality for the entire universe. From Pythagoras's geometry, we may obtain point-line-triangle-pyramid from 1, 2, 3, and 4; point-line-square-cube from 1, 2, 4, and 8. According to Shao's *Xiang-Shu*, we may obtain *Taiyi-Liangyi-Gua-Sixiang* (Great One-Two Modes-Trigrams-Four Emblems) from 1, 2, 3, and 4; *Taiyi-Liangyi-Sixiang-Bagua* (Great One-Two Modes-Four Emblems-Eight Trigrams) from 1, 2, 4, and 8. Obviously, Shao's *Xiang-shu* is more metaphysical, speculative, and mystical than Pythagoras's theory.

The second is "Semiological Dualism." Pythagoras argues on behalf of a mathematical dualism of two forces: (1) the limited (order): masculine qualities—fire and light, and (2) the unlimited (chaos): feminine qualities—complete darkness and disorder. The limited, the unlimited, and One are the actual substance of things, but not simple attribute (Aristotle, 987a15, 990a8). Similarly, Shao subscribes to a mathematical dualism: *Yin* and *Yang*. Pythagoras shows certain Contraries or Pairs of Opposites (Aristotle, 986a22): the limited side covers One, Odd, Light, Good, Right, Straight, Male, Square, Rest; but the unlimited side covers Many, Even, Dark, Bad, Left, Curved, Female, Oblong, Motion. Similarly, Chinese philosophy shows certain Contraries or Pairs of Opposites:¹⁶ *Yang* covers Sunshine or light, Masculinity, Activity, Heat, Dryness, Hardness, Oddness; *Yin* covers Darkness or shadow, Femininity, Passivity, Coldness, Wetness, Softness, and Evenness. As Guthrie remarks, no one can fail to be struck by the superficial resemblance of the *Yin-Yang* doctrine to the Pythagorean table of opposites. All phenomena are produced by the interaction of the two cosmic principles or forces of *Yin* and *Yang*, whose characteristics are listed above. Later members of the *Yin-Yang* school tried to connect the five elements (water, fire, wood, metal, soil) to the *Yang* and the *Yin* through numbers. The numbers of *Yang* are odd, while those of *Yin* are even, and the elements are produced from numbers. Fung Yu-lan notes the remarkable resemblance to Pythagorean theory, but stresses that this Chinese theory

did not appear until later in time.¹⁷ Influenced by the *Yin-Yang* school, Shao emphasized those pairs of opposites.

The third is "Semiological Pluralism." Pythagoras believes that all numbers are "sets of units" or "a collection of monads," such as arithmetical numbers that are monadic and consist of many abstract, incorporeal units. Like Leibniz, Shao and Pythagoras emphasize "mathematical monadism" or "numerical pluralism." Both of them deduce *many* (plurality) from *one* (individuality) and *two* (duality). Pythagoras regards numbers in a threefold manner, as: arithmetical units, geometrical points, and physical atoms. Likewise, Shao regards numbers as: arithmetical units, emblematic signs, and physical implements. For Pythagoras, there are three stages of development of numbers: (1) generation of numbers from their elements, (2) generation of geometrical figures from numbers, and (3) generation of physical bodies from geometrical figures (cosmogony). The objects of geometric knowledge are eternal, not subject to change and decay. Existing things are numbers—not separated existing numbers, but actually composed numbers. Many of the attributes of numbers belong to sensible bodies, and the infinite should be placed among perceptible things.¹⁸ For Shao, there are also three stages in the generation of things from numbers: (1) generation of numbers from their elements, (2) generation of emblematic symbols from numbers, (3) generation of physical implements from emblematic symbols. The difficulty of the Pythagorean model lies in part in its inability to draw a clear distinction between the abstract and the concrete. The model's language suggests that it allots the same number to air and opinion without making it clear that they exist on quite different ontological planes. Even moral qualities can be situated in space. Shao has the same difficulties because he cannot explain the real relationship between *Xiangshu* (symbols and numbers) and *Wanwu* (all things). Pythagoras cannot clearly explain the identification between an abstract geometrical solid and a concrete physical chair. Shao also fails to articulate the identification between an abstract hexagram and a concrete physical implement. Shao stresses numerical intuition, numerical imagination, and numerical abstraction, and calls his *Xiantiantu* (*Diagram of That Which Antedates Heaven*) a book from heaven without words, in that the principles of heaven, earth, and all things are included. He claims that the body is born after Heaven and Earth, but the Mind is produced before them.

Pythagoras asserts the numerical existence of an inherent order or an inner numerical order of nature, and believes that the objects of geometrical knowledge are internal, not subject to change and decay. Similarly, Shao divides forms and numbers into two types: (1) inter-

nal ones that exist naturally and cannot be changed, (2) external ones that exist artificially and can be changed. Only a sage can investigate the first type that is identified with Heaven. Change can also be divided into internal and external forms: the former are principles and numbers while the latter refer to individual, concrete, and unchanging objects. Ordinary people can only know the external forms, numbers, and changes in physical or material objects. For Pythagoras, numbers explain and symbolize the physical world, moral qualities, and all other abstractions. For Shao, numerical change seems to have a physical form or shape; it is a symbol by which physical form is manifested. Actually change itself has no physical form. Shao constructs nine important concepts to illustrate changes, and their manifestations and forms: (1) *Ti*—the final mystical being or substances behind the Heaven, Earth, Sun, Moon, and all things; (2) *Lei*—the types, classes, or categories; (3) *Xiang*—the emblems, symbols, forms, or shapes such as *Taiji*, *Yin* and *Yang*, *bagua* (the Eight Trigrams); (4) *Shu*—the numbers, digits, figures, or amounts, such as 1–64, 1–10,000; (5) *Qi*—all concrete objects or implements of the physical world such as Heaven, Earth, Sun, Moon, stars, fire, water, soil, stone, etc.; (6) *Guanti*—observing the final mystical being or substances; (7) *Tuilei*—deducing types; (8) *Shunguan*—irreversible or forward observation; (9) *Nitui*—reversible or backward deduction. The mystical being or substances behind the Heaven, Earth, Sun, Moon, and all things can be reached by irreversible observation and defined by *xiang* (emblems or symbols), *Taiji*, *Yin* and *Yang*, and *Bagua* (eight trigrams). The types, classes, or categories of those *Xiangs* can be deduced by the numbers. The combination of *Shunguan* (the irreversible observation)¹⁹ and *Nitui* (reversible deduction) lead to the apprehension of cosmic becoming and the changing of all things. Only the perfect man can penetrate the minds of others because he is based on the One.

Shao's epistemology is a kind of intuitive mysticism. Man is central in the universe, and the mind is central in man. Forms and numbers in the universe can be calculated, but their wonderful operations cannot be fathomed. The universe can be fully investigated through principles but not through physical forms. Therefore the universe cannot be fully investigated through external observation. By viewing things is not meant viewing them with one's physical eyes but with one's mind. Viewing with one's mind will penetrate the principle inherent in things. There is nothing in the universe without principle, nature, and destiny. These can be known only when principle has been investigated to the utmost, when nature is completely developed, and when destiny is fulfilled. The knowledge of these three is true knowledge. As Chan Wing-tsit points out, Shao's philosophy can be highly

rational. Indeed later Neo-Confucians minimized the occultist elements discernible in his system so that later Neo-Confucian thought became more rational in substance and tenor.²⁰

III. NUMERICAL THEOLOGY

Both Pythagoras and Shao embrace numerology and geomancy. For them, numerical harmony characterizes the ultimate—the world of the gods in the case of Pythagoras, and *Taiji* (the Supreme Ultimate), *Taiyi* (the Great One), or *Shen* (spirit) in the case of Shao—and also enables the efficient communication between man and the ultimate. They believe that direct knowledge of supernatural being, spirituality, or ultimate reality must be achieved through intuitive, numerical understanding. According to Hippolytus, “Pythagoras showed the monad to be god, and having made a profound study of the nature of numbers, he asserted that the cosmos sings and is harmoniously constructed, and he was the first to reduce the motion of the seven planets to rhythm and melody.”²¹ For the Pythagoreans, numbers have two sides: the religious and the scientific. Numbers are the basis of a theology, such that 10 is a religious symbol. The numerical transmigration of man toward god and the assimilation of man to god is the end of human life, and the monad can be shown as god. Human life is in numerical relation to eternity. In other words, human life is defined by the connection between mathematical interests and religious devotion. “The inner nature of all things” is in theological and numerical relation to Divine Law from the Immortal Gods. The One is the first principle and is divine. The unit begins the number-series and is a product of the higher sacred principles. Ethics, based on these principles, is centered on the idea of harmony in the soul.

Shao conflates the process of moral cultivation with mathematical study construed as a religious pursuit. *Taiji* (the Supreme Ultimate) or *Taiyi* (the Great One) can be called *Shen*²² (God or Spirit); *Shen* does not stay in one place, and does not have any fixed forms. The following points concerning *Taiji*, *Taiyi*, or *Shen* are significant: (1) *Taiji* is a great unity (one), which does not move but produces a duality (two) which is *Shen*; (2) there are these interlocking circular relations: from *Taiji* to *Shen*, from *Shen* to *Shu* (number), from *Shu* to *Xiang* (symbol or emblem), from *Xiang* to *Qi*²³ (article or implement), finally from *Qi* back to *Shen* again; (3) *Shen* produces *Shu* (number), *Shu* produces *Xiang* (symbol), and *Xiang* produces *Qi* (article); (4) *Shen* is anywhere and yet nowhere, because it is “the Great One”; (5) *Shen* can make the connection between a man’s mind and other minds; (6) *Shen* is perforce called *Dao* and One; *Dao* and

One are the name of *Shen*; (7) *Shen* is the master of change, and change is the function of *Shen*; (8) *Shen* of Man is the same as *Shen* of Heaven and Earth. Compared with Pythagoras, *Shen* (Spirit) in Shao's philosophy is more metaphysical than theoretical, more impersonal than personal, more speculative than concrete, and more ambiguous than clarified. We may argue that *Shen* has two meanings: one is personalized gods, the other is akin to Hegel's the Absolute Spirit. Man can be divided into three parts: *Xing* (body), *Qi* (energy), and *Shen* (spirit), but *Shen* is the ruler of *Xing* and *Qi*.²⁴ The three parts can be called the *Dao* of Three. *Shen*, as the supreme supernatural being, determines all natural beings and human beings.

IV. NUMERICAL TELEOLOGY

For the two philosophers, numbers represent and realize social, historical, and moral purposes, but they have different explanations for numerical politics, history, and ethics. Pythagoras's virtues—Love, Friendship, Justice, and Health—and Shao's virtues—*Dao*, *De*, Good, and Evil—are all based on numbers. Both of them try to realize the unification of the social, the natural, and the supernatural orders, and, also, they seek to combine the political and the religious dimensions into one. Both of them want to develop the divine numerical harmony and complete proportion in man's physical, moral, and intellectual life. For Pythagoreans, numbers have shapes and personalities: masculine or feminine, complete or incomplete, beautiful or ugly. Numerical speculation is an end in itself. Numbers explain the physical world, and also symbolize and stand for moral qualities and other abstractions. Numbers are applications of moral ideas and they have value properties. For instance, "10" is the perfect number and contains the first four integers 1, 2, 3, and 4—these, written in dot-notation, form a perfect triangle. "10," being perfect, contains in itself the whole nature of numbers, which represents the harmonies in the soul. Evil is a form of the unlimited, while good is a form of the limited. Numbers determine marriage, justice, and other abstract things. Love, Friendship, Justice, and Health are based on numbers, for example, justice = 4 and 9 (the first square number), opportunities = 7, marriage = 5, and misfortune = 13. The science of harmonies must be studied, because harmony is the principle of goodness and order. Numbers are responsible for harmony, especially for musical harmony. There exists an inherent order, a numerical organization within the nature of sound itself. Musical tunes can be expressed according to numerical ratios. *Kasmos*—order and beauty—is imposed on the chaotic range of sound by means of the first four

integers 1, 2, 3, and 4. Aristotle criticizes Pythagoreans as follows: (1) they unjustifiably reduce the virtues to numbers as justice is *not* a square number; (2) for them, opinion and opportunity are located in a certain quarter, such as justice or injustice, but each of these abstractions is rendered into a number which is the same as the one in the physical universe; (3) they claim that any agreements can be found between number and harmony, and any changes and divisions of the universe and the whole order of nature can be collected and applied, but if something is missing, they nevertheless insist on their system's coherence (Aristotle, 986a3).

Like Pythagoras, Shao advocates a sort of numerical moralism, and places his moral virtues on a mathematical basis. A man may remain in himself, but he can also surpass 10 men, 100 men, 1,000 men, 10,000 men, 100,000 men, 1,000,000 men, and even 10,000,000 men. Man is the highest among physical objects, and a *Shengren* (the sage) is the highest among men. A sage can observe 10,000 different minds through his one mind, 10,000 different bodies through his one body, or 10,000 generations through his one generation. Shao also advances a theory of numerical historicism by dividing time into four periods: *Shi* (generation, such that 1 *Shi* = 30 years), *Yun* (revolution, such that 1 *Yun* = 12 *Shi* = $30 \times 12 = 360$ years), *Hui* (epochs, such that 1 *Hui* = 30 *Yun* = $30 \times 12 \times 30 = 10,800$ years), and *Yuan* (circle, such that 1 *Yuan* = 12 *Hui* = $30 \times 12 \times 30 \times 12 = 129,600$ years). One *Yuan* has 12 *Hui*, wherein the first six *Hui* are growing and developing, and the second six *Hui* are declining and destroying.²⁵ Shao also shows the so-called 12 Cosmological Changes as follows: 1st *Hui* (*Zi Hui*) = 10,800 years = Hexagram #24 = Heaven is becoming; 2nd *Hui* (*Chou Hui*) = 0,801–21,600 years = Hexagram #19 = Earth is becoming; 3rd *Hui* (*Yin Hui*) = 1,601–32,400 years = Hexagram #11 = human being is becoming; 4th *Hui* (*Mao Hui*) = 2,401–43,200 = Hexagram #34 = human society is developing; 5th *Hui* (*Chen Hui*) = 3,201–54,000 years = Hexagram #43 = society is developing continuously; 6th *Hui* (*Si Hui*) = 4,001–64,800 years = Hexagram #1 = society is achieving the highest period of full bloom; 7th *Hui* (*Wu Hui*) = 4,801–75,600 years = Hexagram #44 = human society is starting to decline; 8th *Hui* (*Wei Hui*) = 5,601–86,400 years = Hexagram #33 = human society is declining; 9th *Hui* (*Shen Hui*) = 6,401–97,200 years = Hexagram #12 = human society is declining continuously; 10th *Hui* (*You Hui*) = 7,201–10,800 years = hexagram #20 = human society is closer to destruction; 11th *Hui* (*Xu Hui*) = 0,801–118,800 years = Hexagram #23 = ten thousands things are destroyed; 12th *Hui* (*Hai Hui*) = 18,801–129,600 years = Hexagram #2 = Heaven and Earth are ending. According to Shao, one *Yuan* is a complete process from becoming to destroying a universe, and then a new *Yuan* will start a new complete process from becom-

ing to destroying a universe. 30 *Yuan* are *Yuan zhi Shi*; 12 *Yuan zhi Shi*, *Yuan zhi Yun* ($30 \times 12 = 360$ *Yuans*); 30 *Yuan zhi Yun*, *Yuan zhi Hui* ($30 \times 12 \times 30 = 10,800$ *Yuans*); 12 *Yuan zhi Hui*, *Yuan zhi Yuan* ($30 \times 12 \times 30 \times 12 = 129,600$ *Yuans*; $129,600$ years $\times 129,600$ *Yuans* = 16,796,160,000 years). *Yuan zhi Yuan* will make a qualitatively higher level of world changes. The transformation of an old *Yuan* and a new *Yuan* is infinite and endless; it follows the *Dao* of Heaven, and only *Shengren* (the sage) can be one with this *Dao*.

CONCLUSION

There are fourteen *similarities* between Shao and Pythagoras: (1) conceive the universe, nature, society, and mind on the basis of numbers; (2) combine mathematics and mysticism; (3) emphasize the symbols, forms, shapes, and relations among things rather than things themselves; (4) combine monism, dualism, and pluralism; (5) reduce abstract things, such as moral virtues, to numbers; (6) fuse forms and matter, and concrete and abstract things; (7) frame a numerical circle for historical development; (8) deduce all things from a priori or innate knowledge;²⁶ (9) overlook qualitative aspects of things; (10) stress an intuitive rationalism; (11) advocate a harmony of universe; (12) combine music and numbers;²⁷ (13) uphold an idealistic objectivism or objective idealism;²⁸ (14) overlook human affairs so that their philosophy is more metaphysical than humanistic.²⁹ There are also seven *differences*, in relative terms, between Shao and Pythagoras: (1) Shao's mathematical application vs. Pythagoras's mathematical theorization, (2) Shao's dialectic numerology vs. Pythagoras's mechanical numerical circulation,³⁰ (3) Shao's numerical occultism vs. Pythagoras's numerical religionism, (4) Shao's impersonalized numerical divinity vs. Pythagoras's personalized numerical divinity, (5) Shao's arbitrary numerical imagination vs. Pythagoras's stricter numerical designation, (6) Shao's emphases on time vs. Pythagoras's emphases on space, (7) Shao's emphasis on the historical vs. Pythagoras's emphasis on the ethical.

In the philosophical universe of Shao and Pythagoras, both mysticism and scientism could be reduced to numbers. Their philosophies prominently feature a combination of a refined numerical mysticism and a naive scientism. Generally speaking, the two philosophers make a mystification of numbers in their worldviews, moral values, and thought patterns. In the process, Pythagoras inaugurated a new tradition in philosophy. According to R. S. Brumbaugh, Western thought is indebted to the Pythagoreans in the following manner: (1) the discovery of pure mathematics; (2) a sharpening of the notion of math-

ematical proof and the awareness that form and structure give things their individual identities,³¹ as the Pythagoreans discovered three kinds of basic patterns—numbers, shapes, and harmonies for human being, natural being, and supernatural being; (3) all things can be reduced to these three patterns and their relations or proportions. According to Guthrie,³² the scientific description of everything in the physical world takes the form of numerical equations. Today, more and more popularized computerization in our world proves the importance of Pythagoras's contribution to social development. Similarly, Shao started an unorthodox direction in Chinese Philosophy also. In the words of Zhu Xi, the *Daoxue* master: "In his field of knowledge, the whole Universe, from its beginning to its end, the past and the present, was covered. This is the reason why he possesses such a vast mental horizon. Who, in the present generation, can compete with him?"³³ Small wonder that the modern scholar, Carsun Chang, remarks: "There is no doubt that Shao will be more and more appreciated in this age of scientific and philosophical progress."³⁴ Chung-ying Cheng sums up the contributions of Shao well: "Shao Yong's philosophy contributed to the overall development of the Neo-Confucian philosophy and shows how an interpretation of the *Yijing* may provide a base for the development of later Neo-Confucian philosophy such as that made by Zhu Xi."³⁵

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ENDNOTES

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1. Zhu Xi treated Shao as one of the five founders of *Daoxue*. In the *Philosophical Records of the Song and Yuan Dynasties* (SongYuan xue'an), Shao was described as "unorthodox." In the *Zhengyitang*, Zhou Dunyi's work tops the list, followed by that of the Cheng brothers, but there is no work by Shao. In the *Daotong lu* (Line of succession of the Tao), Mencius is followed by Zhou Dunyi, the Cheng brothers, and Zhu Xi, but Shao's name is missing. This collection is limited so strictly that the writings of Lu Jiuyuan and Wang Yangming are also omitted. The reason for Shao's exclusion is different from that of the other two, who were expelled for their idealistic tendencies. Shao's rejection was because of his relation to Daoism. In a part of the *Zhengyitang*, entitled *LianLuo fengya* (Anthology of Poems from the School of Lianji and Luoyang), some of his works are included, but they are poems. This indicates that Shao's literary attempts were appreciated, although his philosophical efforts were regarded by the editor as not up to the standards of Confucianism. Hou Wailu thinks that Shao was influenced by Daoism and Buddhism (*History of Chinese Ancient Thought*, 521). Shao learned his numerology from the Daoist Chen Tuan. Shao's main work, the *Huangji jingshi* (Chronology of the Supreme Ultimate), was selected in *Dao zang* (Collected Daoist Scriptures). D. J. Wyatt says: "Even those who knew Shao Yong intimately and studied under him for some duration considered his philosophy

- too abstruse. Moreover, especially upon his death, a tendency to regard Shao's teachings as novel and ungrounded in precedent emerged and hence this caused successive generations of scholars to have even less incentive for perpetuating his philosophy." (Yao, *RoutledgeCurzon Encyclopedia of Confucianism*, 541.)
2. Shao has been criticized as an "objective idealist" and "superstition supporter" by scholars in mainland China.
 3. Aristotle, *Metaphysics*, 985b32ff.
 4. Guthrie, *A History of Greek Philosophy*, 238.
 5. Shao's main thought is from *Guanwu pian* (*Treatise on the Observation of Things*. Beijing: Wenwu Press, 1996), which includes *Neipian* (*Inner Treatise*) and *Waipian* (*Outer Treatise*).
 6. Yao, *Encyclopedia of Confucianism*, 456.
 7. Cua, *Encyclopedia of Chinese Philosophy*, 683.
 8. Tu, *Confucianism in an Historical Perspective*, 29.
 9. Yao, *Encyclopedia of Confucianism*, 541.
 10. Alain Arrault, "Diagrams of Northern Song Dynasty: The Case of Shao Yong," paper presented in the 9th International Conference on the History of Science in East Asia, Singapore, August 1999.
 11. Wing-tsit Chan, *A Source Book in Chinese Philosophy*, 481.
 12. Zineng Ke, "Bei Song Shaoyong Maths School and the Annotation of Some No-dimensional Constants," *Journal of Chinese University of Science and Technology*, Vol. 3, 43–50, 1999.
 13. *The Cambridge Dictionary of Philosophy*, Robert Audi (ed.). 1999. Cambridge: Cambridge University Press. 733–734.
 14. *Chen* has four meanings in Chinese: (1) The fifth of the Twelve Earth Branches; (2) Celestial bodies—stars; (3) Any of the traditional twelve 2-hour periods of the day; (4) Time or day. Fung Yu-lan points out that *Chen* is zodiacal spaces which are the spaces or division of the sky at which the sun and moon come into conjunction, and thus are somewhat analogous to our signs of the zodiac. See Ren, *History of Chinese Philosophy*, 456.
 15. "10" from *Tiangan* (the Ten Heavenly Stems); "12" from *Dizhi* (the Twelve Earthly Branches).
 16. Fung Yu-lan. 1997. *A Short History of Chinese Philosophy*. New York: Free Press, Reissue edition. 1138, 140.
 17. Guthrie, *History of Greek Philosophy*, 251–252.
 18. Aristotle, *Physics*, 203a6.
 19. Shao uses *Fanguan* (to observe in a reversed manner) to mean that one should not observe from the usual standpoint of self, but from that of other creatures. He says, "He [the sage] views things as things view themselves; that is, not subjectively but from the view point of things." Chan, *A Source Book in Chinese Philosophy*, 488.
 20. Chan, *A Source Book in Chinese Philosophy*, 488.
 21. Guthrie, *A History of Greek Philosophy*, 298.
 22. In Chinese, *Shen* has six meanings: the personalized gods, deities, or divinity; the impersonalized supernatural being; soul or spirit; mind; miracle or magic; and energy.
 23. *Qi* represents two Chinese Characters: one means articles, wares, utensils, implements, or any man-made things; the other means energy, vitality, or other substantial but intangible forces.
 24. Mystical Daoism believes that there are more than 36,000 gods in a human body. Influenced by this, Shao thinks that *Shen* can be in man's heart, liver, kidney, and spleen.
 25. For Shao, 1 year = 12 months, 1 month = 30 days, 1 day = 12 two-hour periods.
 26. Shao thinks that sense-knowledge is unreliable.
 27. Shao also emphasizes that musical harmony consists of a numerical proposition in the lengths of musical strings. See Chang, *The Development of Neo-Confucian Thought*, 160.
 28. According to Shao, to contemplate the manifoldness of things from the non-egoist point of view means to look at them from the standpoint of things. This view of things from the things themselves destroys the view from the ego.

29. Like Pythagoras, Shao overlooked social issues, "He was not as much concerned with social and moral problems as his fellow Neo-Confucians. It was primarily because of this that he exercised little influence on his contemporaries and had no followers and that his doctrine has not been propagated by later Neo-Confucians." See Chan, *A Source Book in Chinese Philosophy*, 483.
30. Influenced by the *Yijing*, Shao emphasizes *Bian* (change) and *Wanbian* (10,000 changes). His dialectics, like Hegel's, can be covered in a circle or an infinite series of circles finally.
31. R. S. Brumbaugh. 1981. *The Philosophy of Greece*. Albany: State University of New York Press, 30.
32. W. K. C. Guthrie, 1981. *A History of Greek Philosophy*. Cambridge: Cambridge University Press, 299.
33. Zhu Xi, 2003. *Complete Collection of Zhu Xi*. Shanghai: Shanghai Classical Works Press, Vol. 11, 58.
34. Carsun Chang. 1962. *The Development of Neo-Confucian Thought*. London: Vision Press, 167.
35. Xingzhong Yao (ed.). 2003. *Encyclopedia of Confucianism*. London and New York: Routledge, 456.

REFERENCES

- Aristotle, 1999. *Metaphysics*. Joe Sachs (trans.). Santa Fe, NM: Green Lion Press.
- Aristotle, 1961. *Physics*. Richard Hope (trans.). Lincoln: University of Nebraska Press.
- Arrault, A. 2002. *Shao Yong (1012–1077)*. Paris: Collège de France.
- Birdwhistell, A. D. 1989. *Shao Yung on Knowledge and Symbols of Reality*. Stanford: Stanford University Press.
- Boxing, Zhang. 1958. *Zheng Yi Tang Quan Shu* (Complete Collection of the Hall of Rectifying Way). Taipei: Yiwen Press.
- Boxing, Zhang. 1981. *Dao Tong Lu* (Record of the Transmission of the Way). Beijing: Zhonghua Press.
- Chan, Wing-tsit. 1973. *A Source Book in Chinese Philosophy*. Princeton: Princeton University Press.
- Chang, Carsun. 1962. *The Development of Neo-Confucian Thought*. London: Vision Press.
- Cua, A. S. 2003. *Encyclopedia of Chinese Philosophy*. London: Routledge.
- De Bary, W. T. 1997. *Sources of Chinese Tradition*. New York: Columbia University Press.
- De Bary, W. T. 1975. *The Unfolding of Neo-Confucianism*. New York: Columbia University Press.
- De Bary, W. T. 1989. *The Message of the Mind in Neo-Confucianism*. New York: Columbia University Press.
- Feng, Yu-lan. 1989. *A Short History of Chinese Philosophy*. New York: Free Press.
- Guthrie, K. S. 1991. *The Pythagorean Sourcebook and Library*. York Beach: Phanes Press.
- Guthrie, W. K. C. 1981. *A History of Greek Philosophy*. Cambridge: Cambridge University Press.
- Hamlyn, D. W. 1997. *A History of Western Philosophy*. New York: Viking Press.
- Hou, Wailu. 1997. *A Comprehensive Chinese Intellectual History*. Beijing: People's Press.
- Hou, Wailu. 1997. *History of Song and Ming Idealist Confucianism*. Beijing: People's Press.
- Huang, Zongxi. 1986. *Philosophical Records of the Song and Yuan Dynasties* (Song Yuan Xue An). Beijing: Zhonghuashuju Press.
- Huffman, C. A. 1993. *Pythagorean and Presocratic*. Cambridge: Cambridge University Press.
- Jin, Luang. 1939. *Lian Luo Feng Ya* (Anthology of Poems from the School of Lianxi and Luoyang). Shanghai: Business Press.
- Kahn, Charles H. 2001. *Pythagoras and the Pythagoreans*. Cambridge: Hackett Pub Co.
- Ke, Zineng. 1999. "Bei Song Shaoyong Maths School." *Journal of Chinese University of Science and Technology*, 3: 43–50.

- Liao, Mingchun. 2001. *Zhouyijingzhuan Yu Yixueshixinlun*. Jinan: Qilushushe Press.
- Lin, Zhongjun. 1998. *Developmental History of Xiangshu and Yixue*. Jinan: Qilushushe Press.
- Lubicz, R. A. 1986. *The Study of Numbers*. Rochester, VT: Inner Traditions Intl. Ltd.
- Raven, J. E. 1981. *Pythagoreans and Eleatics*. Chicago: Ares Publication.
- Ren, Jiyu. 1966. *History of Chinese Philosophy*. Beijing: People's Press.
- Ryan, J. A. 1996. "Leibniz's Binary System and Shao's *Yijing*" *Philosophy East and West*, 46: 59–90.
- Scharfstein, B. 1998. *A Comparative History of World Philosophy*. Albany: SUNY.
- Shao, Yong. 2003. *Complete Collection of Shao Yong* (Kang Jie Shuo Yi Quan Shu). Shanghai: Xuelin Press.
- Shao, Yong. 2003. *Shao Zi's Mystical Numbers*. Beijing: Chinese Xiju Press.
- Shi, Zhongwen. 1995. *History of Chinese Thought*. Beijing: People's Press.
- Strohmeier, J. 2003. *The Life and Teachings of Pythagoras*. Berkeley: Berkeley Hills Books.
- Swetz, F. J., and Kao, T. 1977. *Was Pythagoras Chinese?* University Park: Pennsylvania State University Press.
- Tang, Mingbang. 1998. *On Shan Yong*. Nanjing: Nanjing University Press.
- Thom, J. C. 1995. *The Pythagorean Golden Verses*. Leiden: E. J. Brill.
- Tu, Wei-ming. 1989. *Confucianism in an Historical Perspective*. Singapore: National University Press.
- Wertheim, M. 1995. *Pythagoras Trousers*. New York: Times Books.
- Wyatt, D. J. 1996. *The Recluse of Loyang: Shao Yung & the Moral Evolution of Early Sung Thought*. Honolulu: University of Hawaii Press.
- Yao, Xinzhong. 2003. *RoutledgeCurzon Encyclopedia of Confucianism*. London and New York: RoutledgeCurzon.
- Zhang, Jiyu (ed.). 2004. *Huang Ji Jing Shi* (Chronology of the Supreme Ultimate), in *DaoZang* (Collected Deoist Scriptures). Beijing: Huaxia Press.
- Zhang, Qicheng. 2000. "Shao: From Physical to Life Studies." *Study of Confucius*, 5: 55–63.
- Zhu, Bokun. 1995. *History of Yixue*. Beijing: Huaxia Press.

CHINESE GLOSSARY

Bagua	八卦	Gua	卦
Bian	变	Guanti	观体
Bianshu	变数	Guan wu bian	观物辨
Chen Hui	辰会	Guanwulun	观物论
Chengshi Xiongdi	程氏兄弟	Guan wu nei bian	观物内辨
Chou Hui	丑会	Guan wu wai bian	观物外辨
Daozang	道藏	Hai Hui	亥会
Di	地	Hou Wailu	候外卢
Dihua	地化	Huang ji jing shi	皇极经世
Di Si Xiang	地四象	Huashu	化数
Dizhi	地支	Hui	会
Dong	动	Jing	静
Dongshu	动数	Lei	类
Fanguan	泛观	Liangyi	两仪
Gang	刚	Lu Jiuyuan	陆九渊

Mao Hui	卯会	Tishu	体数
Nitui	逆推	Tongshu	通数
Qi	器	Tuilei	推类
Qi	气	Wanbian	万变
Qian	乾	Wang Yang	王阳明
Rou	柔	Wanwu	万物
Shaogang	少刚	Wanwu zhi li	万物之理
Shaorou	少柔	Wei Hui	未会
Shaoyang	少阳	Weixue	纬学
Shaoyin	少阴	Wu Hui	戊会
Shao Yong	邵雍	Xiang	象
Shen Hui	申会	Xiangshu	象数
Shen	神	Xiantiantu	先天图
Shengren	圣人	Xiangshuxue	象数学
Shi	世	Xing	形
Shu	数	Xu Hui	戌会
Shunguan	顺观	Yang	阳
Si Hui	巳会	Yin	阴
Sixiang	四象	Yin Hui	寅会
Taigang	太刚	Yongshu	用数
Taiji	太极	You Hui	酉会
Tairou	太柔	Yuan	元
Taiyang	太阳	Yuan zhi hui	元之会
Taiyi	太一	Yuan zhi shi	元之世
Taiyin	太阴	Yuan zhi yuan	元之元
Ti	体	Yuan zhi yun	元之运
Tian	天	Yun	运
Tianbian	天变	Zhishu	植数
Tian Di	天地	Zhou Dunyi	周敦颐
Tiangan	天干	Zhu Xi	朱熹
Tian Si Xiang	天四象	Zi Hui	子会

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