

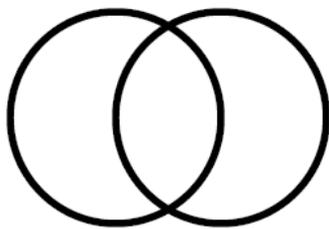
# EGYPTIAN NUMEROLOGY: THE PYTHAGOREAN TRIANGLE AND ITS ESOTERIC MEANING

*Some Historic Notes and Brief Comments on Sacred Geometry  
Antonietta Francini, S.R.C., M.D., with Benefactor Taciturnus, F.R.C.*

**I**t is not always easy to fully grasp the wonder and the depth of Pythagoras's insights and accomplishments with the scarce information that we actually have about his school in the south of Italy and his esoteric teachings. We can, however, explore the inspirations of one of his most famous theorems which still bears his name today, concerning the triangle and its many ramifications.

Most Western mathematical development and architecture derived from Pythagoras's capacity for a deep understanding of the wisdom of even more ancient cultures. Pythagoras, who traveled extensively and dedicated his life to learning the arts and sciences of ancient traditions, was able to synthesize all of this learning into practical aspects of harmony, mathematics, and the art of living.

According to his disciple and follower, Plato, the circle and the interaction of two circles, where the center of each circle lies on the circumference of the other (the so-called *Vesica Piscis*), became the core of all solids. Following this train of thought, Geometry



Vesica Piscis, which literally means  
“the bladder of a fish” in Latin.

becomes Music, and Music becomes Cosmic Harmony and the Music of the Spheres.

As part of this esoteric teaching, the ancient Egyptian right triangle, having a primarily mystical meaning, became the foundation of mathematical calculations and construction.

Here we will consider the history and transformation of the famous Pythagorean Triangle and the mathematical and symbolic importance of the relationships between the numbers 3, 4, and 5, from the viewpoint of modern scholarship, which is deeply imbued with the primordial tradition.

## **Egyptian Numerology**

The Egyptians believed in the importance of numbers.<sup>1</sup> Perhaps the foremost proponent of this reality was the leading student of symbolist Egypt, René Schwaller de Lubicz (1887-1961) from Alsace-Lorraine, France:

“Schwaller de Lubicz's second thesis is mathematical. Both the deliberate use of harmonic proportions in art and architecture and the numerical basis underlying Egyptian myth compelled him to a detailed reconsideration of Pythagoreanism, and to the construction of a system of thought consonant with the masterpieces of Egypt—with the fact of an empire that lasted four thousand years.

“Number is All”, declared the Pythagoreans. What is today called Pythagorean

number mysticism is Egyptian in origin (if not older still) and corresponds to the underlying philosophy behind all the arts and sciences of Egypt. In effect, what Pythagoras did was to un-dramatize myth—a strategy that had the advantage of talking directly to those capable of thinking along these lines.

“The work of Schwaller de Lubicz and the independent but complementary work of a few other contemporary thinkers (J.G. Bennett, for example) has made it possible to re-express Pythagorean theory in a way acceptable to our thinking. When we reapply this to Egyptian myth it becomes clear that these curious tales are based upon an understanding of number and the interplay of number, not upon animism, tribal superstitions, priestly feuds, the raw material of history or dreams.”<sup>2</sup>

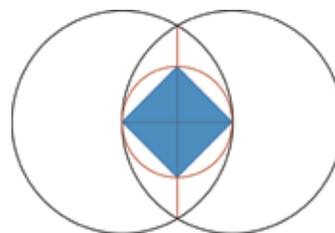
The divine significance of numbers is personified by the goddess Seshat, as the “Enumerator” or “The Lady of Builders.”<sup>3</sup>

The Hymn found in the *Leiden Papyrus* I350 (Old Kingdom 2686-2134 BCE) demonstrates that number symbolism has been practiced since ancient times:

“The Leiden Papyrus consists of an extended composition describing the principal aspects of the ancient creation narratives. The system of numeration in the Papyrus identifies the principle/aspect of creation and matches each one with its symbolic number.”<sup>4</sup>

Ancient Egyptians understood that everything in the universe is animated by life forces. Therefore, each particle is in constant movement and has interactions due to the effect of these life forces. These principles were called *neteru* (gods/goddesses). Numbers designated these energetic aspects of nature. Consequently, the entire universe is animated and vibrant, and each facet is considered either “male” or “female.”

We can deduce the sense of living interactions by the expressions used in the *Rhind Mathematical Papyrus* (ca. 1650 BCE):



Vesica Piscis with figures within

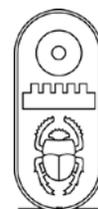
“I go three times into the hekat (a bushel, unit of volume), a seventh of me is added to me and I return fully satisfied.”<sup>5</sup> The same Papyrus also recommends that there are “Rules for enquiring into nature and for knowing all that exists, every mystery, every secret.”<sup>6</sup>

Ancient Egyptians understood that everything in the universe is animated by life forces. Therefore, each particle is in constant movement and has interactions due to the effect of these life forces.

The concept of the relationships between 3, 4, and 5 is as ancient as Egypt, and as old as the Great Pyramid of Giza. This powerful, magnificent structure conceals deeply mystical traditions that only recently have begun to be recognized by archeological research.

We know today exactly why the relationships between the number 3, 4, and 5 are so important, but it was a well-kept secret in ancient times.

“Since the Pythagoreans considered the first ten numbers to be seed patterns for all the principles of the cosmos, a geometer needs only create their shapes to model all the universal rhythms. The first three shapes to emerge from the *vesica piscis*, the triangle, square and pentagon (3, 4, 5) form the only relationship, or ratios, required to generate all the rest (except for sevenness). These relationships called the square roots ... are expressible not as whole numbers but



as never-ending decimals...these ongoing relationships hold the structural pattern for all numbers and shapes that follow.”<sup>7</sup>

The classical numbers 3, 4, 5 are represented in the very structure of the pyramid. The Great Pyramid of Giza was built in approximately 2560 BCE, at the time of the Old Kingdom:

- “The number One is the whole structure itself.
- The triangular faces represent the number 3.
- The square base is the number 4 and finally
- The four corners plus its apex complete the number 5.”<sup>8</sup>

### The Egyptian Triangle

From this image the constant relationships between the One, as the whole structure and 3-4-5 as its indivisible components are clearly shown. These numbers had a profound mystical symbolism that becomes explicit in the explanations related to the Pythagorean triangle.

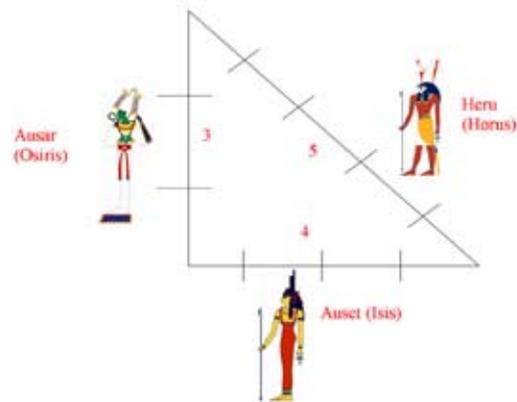
The Egyptian 3-4-5 triangle is first described by Plutarch in *Moralia Vol. V*:



H. Spencer Lewis and the AMORC Egyptian Expedition on the Giza Plateau, 1929. Photo from the Rosicrucian Archives ©1929.

“The upright, therefore, may be likened to the male, the base to the female, and the hypotenuse to the child of both, and so **Ausar** [Osiris] may be regarded as the origin, **Auset** [Isis] as the recipient, and **Heru** [Horus] as perfected result.”<sup>9</sup>

The short side of the right angle triangle is named “Ausar,” which corresponds to Osiris, the Father. The longer side is named “Auset,” corresponding to Isis, the Mother. And finally, the hypotenuse is called “Heru,” or Horus, the Son.<sup>10</sup>



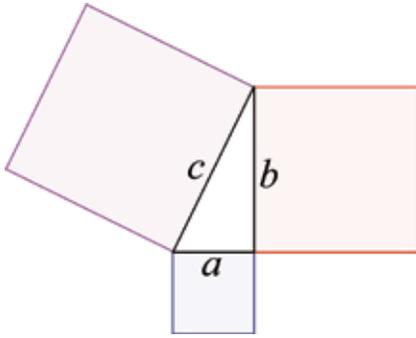
Pythagorean Triangle with Egyptian Attributions. Figures ©2007 by Jeff Dahl/Wikimedia Commons.

These names were assigned according to specific criteria: the upright side (3) is likened to the “male,” the Father Osiris. The horizontal base (4) is related to the “female,” the Mother Isis, and the hypotenuse (5) corresponds to the Son, Horus. The first is the “origin,” the second is the “recipient,” and the Son is the “result.”<sup>11</sup>

As Plutarch describes: “Three is the first perfect odd number: four is a square whose side is the even number two; but five is in some ways like to its father, and in some ways like to its mother, being made up of three and two. And *panta*, (all), is a derivative of *pente* (five), and they speak of counting as ‘numbering by fives.’ Five makes a square of itself.”<sup>12</sup>

### Pythagoras’s Contribution

Pythagoras’s contribution (sixth century BCE) consisted in translating this concept



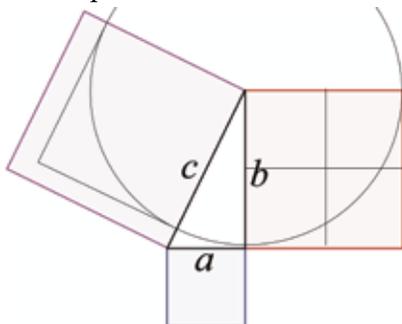
The Pythagorean Theorem:  $a^2 + b^2 = c^2$

into the mathematical statement (as we would write it today)  $a^2 + b^2 = c^2$ , in which the square of the hypotenuse of a right triangle is equal to the sum of the squares on the other two sides. Pythagoras spread this notion by means of his teachings at the school of Crotona in southern Italy.

The geometrical and mathematical demonstration of the Pythagorean theorem is explained by sacred geometrician Robert Lawlor in relation to the gnomonic expansion.<sup>13</sup>

“The contemplation of this figure leads to an understanding of one of nature’s most common forms of growth, growth by accretion or accumulative increase, in which the old form is contained within the new. This is the way the more permanent tissues of the animal body, such as bones, teeth, horns and shells develop, in contrast to the soft tissue which is discarded and replaced.

“This method of figuring the gnomon shows its relationships to the Pythagorean formula. Shown here is the gnomonic increase from the square surface area of 4 to the



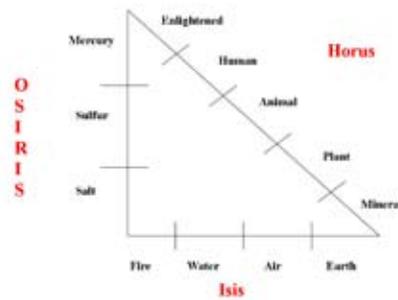
Gnomonic Expansion related to the Pythagorean Theorem.

square of 5, where the gnomon of the larger square 5 is equal to 1/4 of the initial square of 4.

“Kepler, the famous astronomer and formulator of the laws of planetary motion, stated: ‘Geometry has two great treasures: one is the theorem of Pythagoras, the other is the division of a line into mean and extreme ratios, that is *phi*, the Golden Mean. The first may be compared to a measure of gold, the second to a precious jewel.’”<sup>14</sup>

### The Egyptian Alchemical Triangle

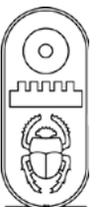
Egyptian concepts of number symbolism were popularized in the West and later became classic formulas among medieval cathedral builders.



Egyptian Alchemical Triangle

The alchemists also elaborated their theories using the same triangle. They assumed that the whole figure represented the all-pervasive First Matter. The vertical side named by Osiris represented the three vital principles: Salt, Sulfur, and Mercury. The long horizontal side named by Isis was the expression of the four basic elements: Fire, Water, Air, and Earth. Finally, the hypotenuse named by Horus showed five divisions, representing the five stages of the development of Life: Minerals, Plants, Animals, Humans, and Enlightened Ones.<sup>15</sup>

The essential feature for the alchemist was that the diagram reflected the vibrations of Spirit manifesting as Matter. From the First Matter, related to Osiris, Life manifested by means of the four elements, into the physical



world of minerals, vegetation, animals, and humans.

The five sections demonstrated the theoretical distance separating the different realms. One fifth is the evolution from mineral to plant, one fifth from plant to animal, one fifth from animal to human, but the true fulfillment of the full humanity needs the last fifth of the scale to be completed.

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The distance separating the evolution of plant to human is the same as the one needed by an average human being to attain the high level of an adept. Similarly, the neophyte, aspiring to become an adept, has a difficult road to climb before coming close to the vertex, or highest point that represents the desired union with the Divine.

The alchemist considered this diagram as a teaching tool for explaining the rules of discipline, meditation, renunciation, and silence that were imposed on the aspirants before they were considered ready for the most sacred and profound teachings.

This same diagram also indicated the need to be humble and patient, since the first steps on the path did not justify a superiority of the neophyte over an ordinary human being. Only a long and serious preparation would permit true fulfillment of the desired union with the Divine:

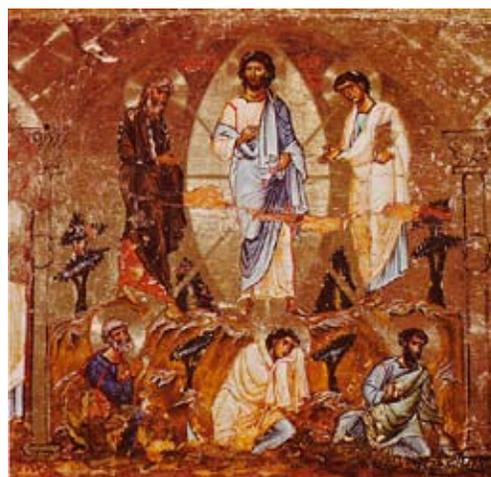
“Above the natural human being is the one who has made himself [or herself] the subject of the Great Work, who is adept, master and Magus. The Human being who

completes the Great Work by becoming one with the Father, even as the line of Horus in this triangle, completes itself by arriving at the point whence the line of Osiris descends.”<sup>16</sup>

The line of Osiris shows three alchemical divisions:

- The first division of the Osiris line corresponds to Mercury, since this represents the higher consciousness—pure knowing—which is the first emanation from the one source of being.<sup>17</sup>
- The second division of the Osiris line shows the symbol of Sulfur. Sulfur is related to self-consciousness. With respect to this symbol, Bernard Trevisan reminds us: “Gold is nothing else but quicksilver congealed by its Sulfur.”<sup>18</sup>
- The third division of the vertical line is represented by the symbol of Salt. The basis of the Great Work is balance. By its symmetry, the symbol of Salt represents the ancient adage, “As Above, So Below.”<sup>19</sup>

The line of Isis shows four alchemical divisions. They are the well known symbolical elements that are the building blocks of all manifestation: Fire, Air, Water, and Earth.



The Christ in a Vesica Piscis of Light: *The Transfiguration of Christ*. From an iconostasis in the Constantinople style, mid-twelfth century, Saint Catherine's Monastery, Sinai (Egypt).



The shape of the human eye itself is a Vesica Piscis. The spiritual significance of “seeing eye to eye” to the “mirror of the soul” was highly regarded by numerous Renaissance artists who used this form extensively in art and architecture.



The fivefold symmetry of the hypotenuse symbolizes the development of life in its evolution toward the Light. It is related to the basic aspects of the fourfold symmetry of elemental nature represented by the line of Isis.

The process described by sacred geometer Robert Lawlor can be summarized succinctly: “at the origin and end all differentiation merges toward unity.” An object *a* and its human perceiver *b* are contained within an all-pervasive unity, that can be symbolized by the number 1. This can be expressed by the formula:  $a:b = b:1$ , in which the object is related to the human, as the human is related to the whole.<sup>20</sup>

Lawlor suggests that this is a proportion upon which the “experience” of knowledge can be formulated and that this is “the goal of dynamic meditation.”<sup>21</sup>

### The Profound Secret of the Pythagorean School

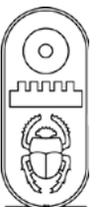
The profound secrets of the Pythagorean School can now be discussed in simple diagrams. We can consider this as a graphic demonstration of the Divine Light embedded into the human body. The explanation must begin by showing the square root of 3, or the Vesica Piscis (Latin: “bladder of a fish”).<sup>22</sup>

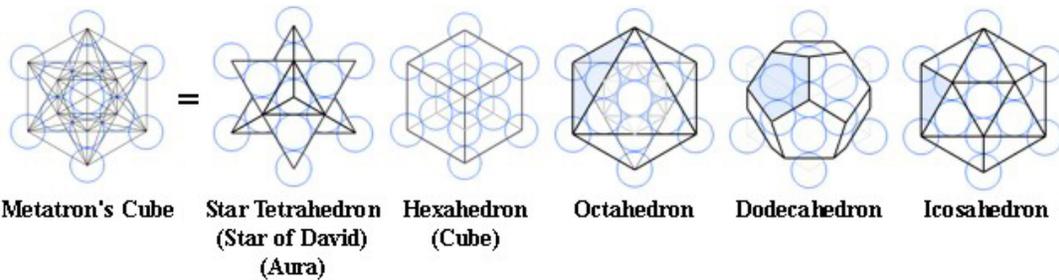
The Vesica Piscis is formed by the intersection of two circles or spheres whose centers intersect in such a way that each center’s circle lies on the circumference of the other circle. It was known in the early civilizations of Mesopotamia, Africa, and Asia, and frequently used in Christian iconography. It is revealed in the construction of ancient doors and portals.<sup>23</sup>

“It has been the subject of mystical speculation at several periods of history, perhaps first among the Pythagoreans. The mathematical ratio of its width (measured to the endpoints of the ‘body,’ not including the ‘tail’) to its height was reportedly believed by them to be 265:153 (namely 1.73203...). The geometric ratio of these dimensions is actually the square root of 3, or 1.73205... (since if straight lines are drawn connecting the centers of the two circles with each other, with the two points where the circles intersect, two equilateral triangles join along an edge). The ratio 265:153 is an approximation to the square root of 3, with the property that no better approximation can be obtained with smaller whole numbers.”<sup>24</sup>



*Hindu Goddess Kali and God Bhairava in Union in a Vesica Piscis*, 18th century. Watercolor from Nepal, gift of Dr. and Mrs. Robert S. Coles to Los Angeles County Museum of Art





Platonic Solids and other images contained in Metatron's Cube, created by Sloth Monkey/Wikimedia Commons

Modern researchers have commented on the significance of this deeply symbolic form:

“This symbolic intersection represents the ‘common ground,’ ‘shared vision,’ or ‘mutual understanding’ between equal individuals. The shape of the human eye itself is a Vesica Piscis. The spiritual significance of ‘seeing eye to eye’ to the ‘mirror of the soul’ was highly regarded by numerous Renaissance artists who used this form extensively in art and architecture. The ratio of the axes of the form is the square root of 3, which alludes to the deepest nature of the triune which cannot be adequately expressed by rational language alone.”<sup>25</sup>

“This almond space is the crucible of the creating process.”<sup>26</sup>

“The first three shapes to emerge from the vesica piscis, the triangle, square and pentagon (3,4,5) form the only relationship, or ratios, required to generate all the rest

(except for sevenness)...these ongoing relationships hold the structural pattern for all numbers and shapes that follow.”<sup>27</sup>

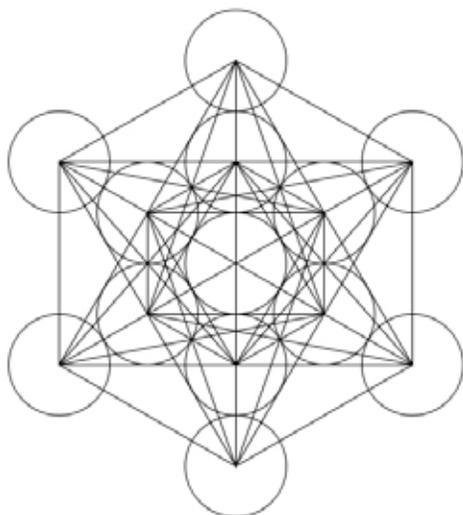
### The Metatron Cube

Understanding the ratios of the triangle, square, and pentagon permits us to grasp the importance of a more complex figure, such as the Metatron's Cube, which contains two-dimensional images of the Platonic Solids<sup>28</sup> and many other primal forms.<sup>29</sup>

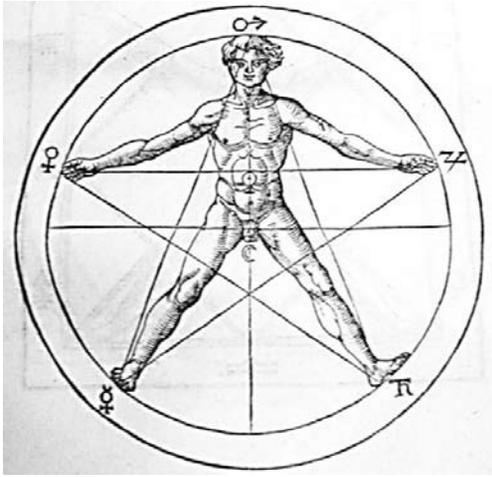
The two large triangles form a hexagram that is symbolic of the harmony of the opposites. One triangle points downwards and one points upward. This is popularly called the *Star of David* and is symbolic of infinite celestial light. We can imagine that this light is all pervasive and circumscribes everything and every form inside it. The diagram shows that this infinite light is also manifested light, as it is symbolically included in a hexagon, a six sided figure. In Qabala, six is the number of the sephira Tiphereth, and therefore this hexagon represents the beauty and spiritual love manifested in the natural universe. At first glance, we can perceive that the whole universe is permeated by this well balanced divine light symbolizing peace and harmony.

Inside, at the very core of the construction we can detect another pentagon in which a pentagram is inscribed. The pentagram is the symbol of humanity manifested, as many traditions relate five to the human person.

In the Metatron's Cube, the central circle is white and empty, but we can easily mentally draw another hexagram inside it using the points where the surrounding



Metatron's Cube



Heinrich Cornelius Agrippa, Image of a human body in a pentagram from *Libri Tres de Occulta Philosophia*, 1531-33. Symbols of the sun and moon are in center, while the other five classical “planets” are around the edge.

circles touch each other. The symbolism of this inner balance of opposites manifests the potentiality of the human beings of bringing to shine inside themselves the same Light of Peace and Harmony that surrounds them:

“Horus is above me, at my right side,  
 at my left side,  
 Horus is in front of me, behind me,  
 below me  
 Horus is everywhere around me,  
 Horus is inside me.”<sup>30</sup>

### A Divine Scheme of Supreme Conception

H. Spencer Lewis, former AMORC Imperator, wrote:

“Time has proven that many of these ideas were correctly formed.... If we agree with the early philosophers that the whole universe can be explained according to geometrical laws and principles, then, we should not be surprised to find the numbers to have a peculiar significance, as Pythagoras taught.

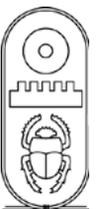
“It is quite evident that the earliest thinkers were determined to find law and order and a mathematical basis for the

systematic manifestations of natural laws. This proves that the early thinkers did not look on life as being filled with accidental occurrences and uncontrolled; rather they are a Divine or perfect scheme of supreme conception.”<sup>31</sup>

The images we have described in this brief introduction, and many others derived from these mystical proportions are always available for our meditation and inspiration. Their power is undiminished over the centuries, and concentration upon them as mandalas can yield deep insights. As the spirit of Pythagoras is very much alive in the Rosicrucian Order, we can find in these “images as mandalas” a path for discovery of the supreme conception of the cosmic whole, which is a perfect scheme in which everything is in order, and is beautiful, both above and below.



H. Spencer Lewis and his wife Martha on the AMORC Grand Tour of Egypt, 1937. Photo from the Rosicrucian Archives ©1937.



## ENDNOTES

- <sup>1</sup>See works of René Schwaller de Lubicz, especially *A Study of Numbers: a Guide to the Constant Creation of the Universe* (Rochester VT: Inner Traditions, 1986); *The Temple of Man: Apet of the South at Luxor*, 2 vols (Rochester VT: Inner Traditions, 1998).
- <sup>2</sup>John Anthony West, *Serpent in the Sky* (New York: The Julian Press, 1987), 42, 44. See also Carmen Blacker and Michael Loewe, eds.; with contributions by J.M. Plumley et al., *Ancient Cosmologies* (London: Allen & Unwin, 1975), 24.
- <sup>3</sup>Moustafa Gadalla, *The Egyptian Sacred Numerology*, published online at: [www.egypt-tehuti.org/articles/sacred-numerology.html](http://www.egypt-tehuti.org/articles/sacred-numerology.html).
- <sup>4</sup>Ibid.
- <sup>5</sup>Ibid.
- <sup>6</sup>Ibid.
- <sup>7</sup>Michael S. Schneider, *A Beginner's Guide to Constructing the Universe* (New York: HarperCollins 1994), 35.
- <sup>8</sup>Paul Foster Case, *The Esoteric Keys of Alchemy* (Vancouver: Ishtar Publishing, 1932), 54.
- <sup>9</sup>Plutarch, "On Isis and Osiris," 56 *Moralia Book 5*. Translated by Moustafa Gadalla, *The Egyptian Sacred Numerology*. See endnote 3.
- <sup>10</sup>Triangle and discussion after description in Moustafa Gadalla, *The Egyptian Sacred Numerology*. See endnote 3.
- <sup>11</sup>Ibid.
- <sup>12</sup>Plutarch, "On Isis and Osiris," 56 *Moralia Book 5*. Translated by Moustafa Gadalla, *The Egyptian Sacred Numerology*. See endnote 3.
- <sup>13</sup>Robert Lawlor, *Sacred Geometry, Philosophy and Practice* (London: Thames and Hudson, 1982), 64. Image based on description by Lawlor.
- <sup>14</sup>Ibid., 53, 64.
- <sup>15</sup>Triangle image and discussion from a description in Case, *Esoteric Keys*, 55.
- <sup>16</sup>Ibid.
- <sup>17</sup>Ibid., 79.
- <sup>18</sup>Bernard Trevisan, quoted in Case, *Esoteric Keys*, 85.
- <sup>19</sup>Case, *Esoteric Keys*, 93
- <sup>20</sup>See Lawlor, *Sacred Geometry*, 42, 46.
- <sup>21</sup>Ibid., 46.
- <sup>22</sup>Bruce Rawles, *Sacred Geometry* home page, [www.geometrycode.com/sg/index.shtml](http://www.geometrycode.com/sg/index.shtml).
- <sup>23</sup>Ibid.
- <sup>24</sup>"Vesica Pisces" at *Wikipedia*, [http://en.wikipedia.org/wiki/Vesica\\_piscis](http://en.wikipedia.org/wiki/Vesica_piscis).
- <sup>25</sup>Rawles, *Sacred Geometry* home page.
- <sup>26</sup>Schneider, *Beginner's Guide*, 32.
- <sup>27</sup>Ibid., 35.
- <sup>28</sup>See "Platonic Solids," at *Wikipedia*, [http://en.wikipedia.org/wiki/Platonic\\_solids](http://en.wikipedia.org/wiki/Platonic_solids).
- <sup>29</sup>Rawles, *Sacred Geometry* home page.
- <sup>30</sup>Julie Scott, Grand Master of the English Grand Lodge of AMORC, during meditation in Egypt, December 2008.
- <sup>31</sup>H. Spencer Lewis, "Mystical Numbers" in *Essays of a Modern Mystic*, 6th ed. (San Jose: Rosicrucian Order, AMORC, 1978), 171.