



***Sacred Geometry: The Square and Compasses, the
Pythagorean Triangle, and Phi***

by Todd Connor

September 2, 2022

The Square and Compasses

Why is the most prominent symbol of Masonry the Square and Compasses? Because the Square is the proper emblem of the Master of the Lodge? Because we should circumscribe our desires and subdue our passions in all our dealings with mankind? Or is there more behind that? How does the Square and Compasses relate to the equilateral and right triangles? Why was the right triangle and its dimensions so impressive to Pythagoras that he was inspired to sacrifice a hecatomb?

In his expository book on the symbols of the Symbolic Lodge, *Esoterika*, Albert Pike asserts that all things Earthly may be arranged linearly, squared and measured. Consequently, the Square represents the Earth and all things contained therein. Likewise, the ancient mysteries invariably saw the perpetual, divine model depicting the cycles of birth, life, death, and recreation reflected in heavenly constellations. Ancient astrologers measured and monitored the courses and cycles of the sun, the stars, the zodiacal constellations, and the planets rotating about the Earth in circles and arcs, adducing that these movements may be measured and projected with the Compasses¹. If we pay attention, we can observe instances in art and symbols where applications of these working tools is borne out, for example, the Grand Artificer is depicted with the Compasses in *The Ancient of Days* (figure 1).



Figure 1 – *The Ancient of Days*

Leonardo Da Vinci explicitly shows this to us in his Vitruvian Man (figure 2), where the subject of the image is circumscribed both by a square and by a circle. Notice that the meridian line for the square passes over the groin of the man – which is often correlated to the more dense material sephiroth of Yesod². This would suggest that the man who is ruled by the Square may be subject to the drives of earthly passions and ambition. Look now at the man within the circle and notice that the meridian now passes through the breast of the man, representative of the

higher sephiroth of Tiphareth³. A further note on the Vitruvian Man that the author finds interesting is that the feet of the man within the square are positioned with the heel of the left next to the heel of the right, feet forming the angle of a square...

To ascribe a numerical correspondence to the material and the spiritual, Albert Pike condenses and consolidates myriad ancient esoteric references and symbols, stating that the number three, frequently expressed by a triangle from an esoteric sense, is a reference to the Divine. He further states that the number four – generally expressed by a square, is a reference to earthly qualities⁴. Taking these two statements into consideration, we can now examine the typical representation of the Pythagorean Triangle, with sides of 3, 4 and 5 units (figure 3), and deduce that the hypotenuse is a product of the earthly (four) and the Divine (three). For those readers with an interest in tangential research, you might be able to find what the five is representative of by following this sentence's endnote⁵.

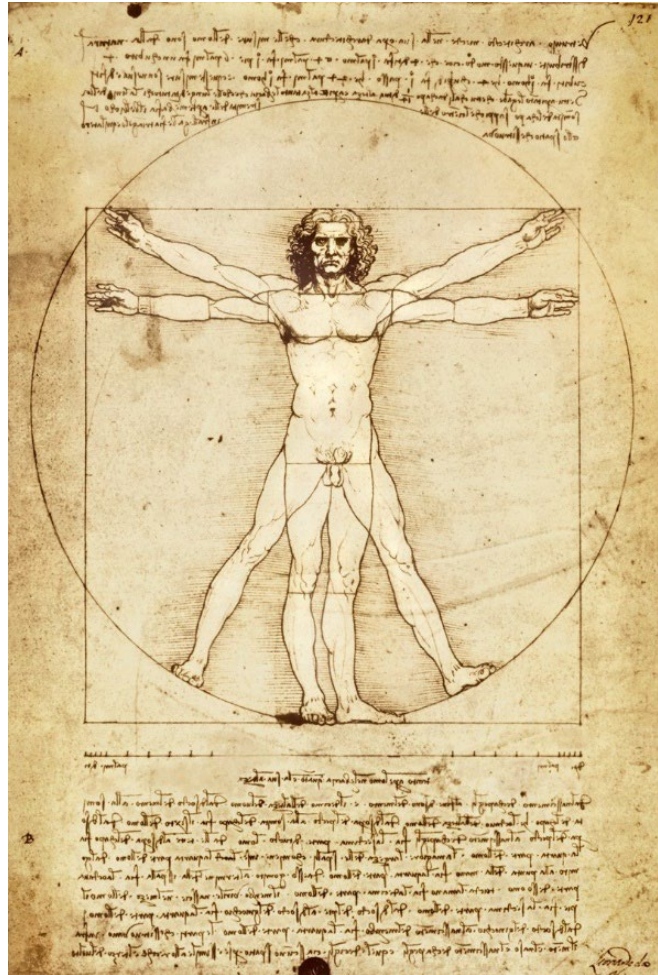


Figure 2 – The Vitruvian Man

Contemplation of the Rebis plate (figure 4) might lend some insight to this analysis as well. Notice that the person depicted in the figure is holding our Masonic working tools.

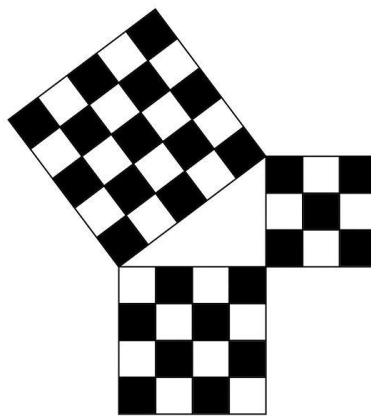


Figure 3- The Pythagorean Triangle



Figure 4 - Rebis

Fibonacci

In 1202 AD, an Italian fellow named Leonardo Bonacci, Leonardo of Pisa, Leonardo Bigollo Pisano - or more popularly, Fibonacci, composed a book *Liber Abaci* (meaning "Book of Calculation")⁶. In this composition, he describes a certain pattern of numbers routinely occurring in nature – a pattern where a numeral is generated by summing its two predecessors, to wit: 1, 1, 2, 3, 5, 8, 13, 21, et cetera. By graphing this we observe a peculiar pattern laid out (figure 5). This pattern has may be observed in many examples

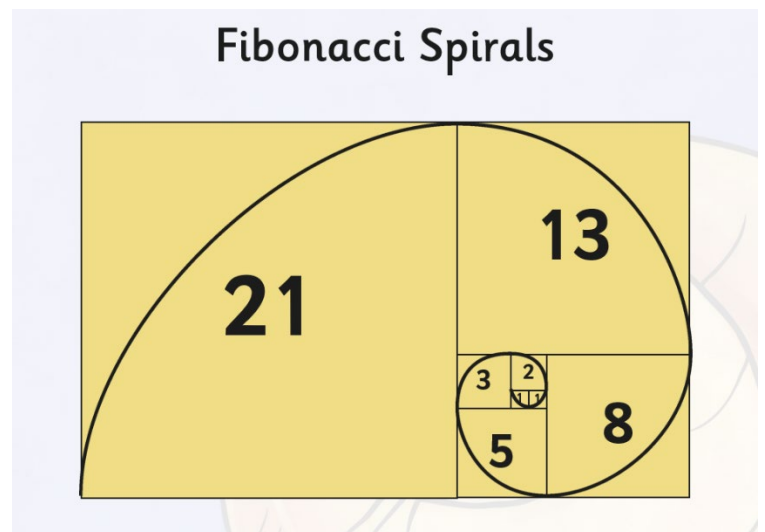


Figure 5-Fibonacci spirals

that are seen recurring in Nature, such as the spiral of the nautilus, sunflower, and myriad other graceful and beautiful patterns in our natural world (figure 6).



Figure 6 - Fibonacci spirals in nature

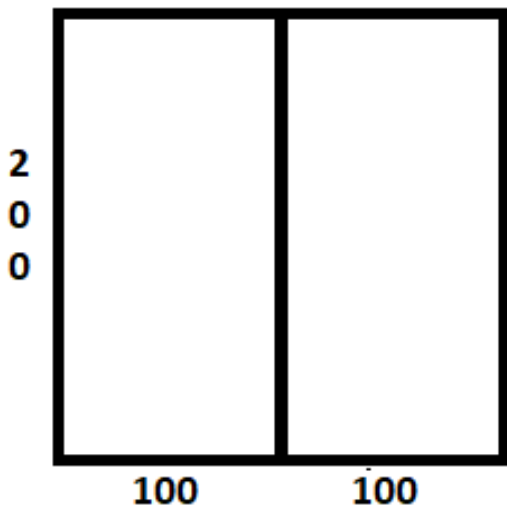
Now, let's look back at our Fibonacci sequence of numbers (e.g. 1, 1, 2, 3, 5, 8, etc). We can divide a numeral by its immediate predecessor and find a pattern emerging with the quotient – for example, $5 \div 3 = 1.666$, $8 \div 5 = 1.6$, $13 \div 8 = 1.625$, and so on. Advancing a few steps down the sequence, divide 144 by 89 and our quotient is 1.6179. Eventually, this pattern converges to the Golden Ratio or Phi: 1.618.

Φ

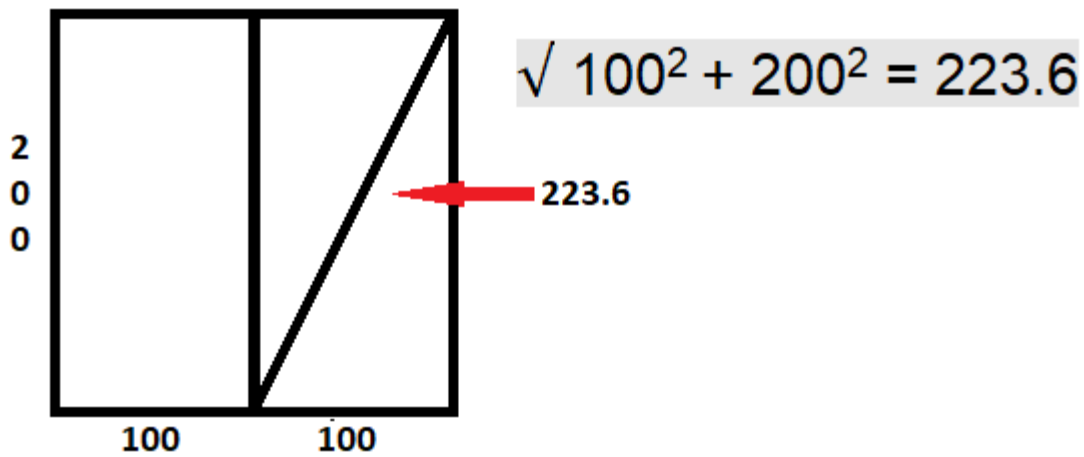
Phi and the Square and Compasses

Returning back to our Masonic Working Tools - if you're still wondering why Pythagoras was so excited about his triangle, you may have figured that it was because of its implications to speculative Masonry as we discussed previously – which may, perhaps, have been part of his reason, however his triangle also provided a means by which our operative forebearers could arrive at this same Golden Ratio that Fibonacci did. With a simple square and compasses, the Mason was now enabled to construct the most beautiful works of creation, infusing his plans with the wisdom of the Divine Architect of the Universe. This is demonstrated as thus: With the right triangle, the builder may contrive a perfect 90 degree angle, and from that a perfect square. In the following figures, arbitrary numbers are used as a means of proving the theorem.

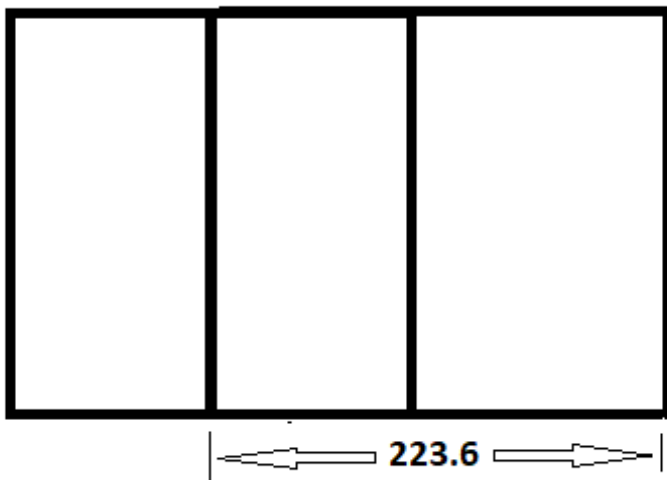
Starting with a perfect square, we first divide it in half. In this example, we would start with a 200 cubit by 200 cubit figure.



We next split the square in half, so that a rectangle of 200 cubits by 100 cubits is produced. We now will figure the hypotenuse of one of the halves of the square: in this example, the hypotenuse calculates to 223.6 cubits.



Now, we will extend the short side of the right triangle by the length of the hypotenuse, so that the dimensions of the figure is 323.6 cubits by 200 cubits as shown in the figure below.



Finally, we divide the total length of the resulting figure, which is 323.6 by its height of 200. The quotient that we arrive at is our Golden Ratio. Phi. 1.618.

Now look back at figure 5 and notice how the proportions align to the graphed depiction of the Fibonacci spiral and realize now why that hecatomb may have been sacrificed: Pythagoras discovered a way to use the working tools of a Mason to imbue the creations of man with the inspiration of the Divine, thus blurring the line of demarcation between the speculative and the operative Mason.

EUREKA!

¹ Albert Pike, *Esoterika – The Symbolism of the Blue Lodge Degrees of Freemasonry*, (Scottish Rite Research Society, Washington, DC, 1959), 95-96

² Dion Fortune, *The Mystical Qabalah*, (Weiser Books, San Francisco, CA and Newburyport, MA, 2000) (Originally published: Williams and Norgate, London, 1935) 235-237

³ Dion Fortune, *The Mystical Qabalah*, (Weiser Books, San Francisco, CA and Newburyport, MA, 2000) (Originally published: Williams and Norgate, London, 1935) 174-177

⁴ Albert Pike, *Morals and Dogma of the Ancient Accepted Scottish Rite of Freemasonry*, 2nd annotated edition, 2nd printing, (Supreme Council, AASR SMJ, Washington, DC, 2016), 129

⁵ Albert Pike, *Morals and Dogma of the Ancient Accepted Scottish Rite of Freemasonry*, 2nd annotated edition, 2nd printing, (Supreme Council, AASR SMJ, Washington, DC, 2016), 970

⁶ Wikipedia contributors, "Fibonacci," Wikipedia, The Free Encyclopedia, <https://en.wikipedia.org/w/index.php?title=Fibonacci&oldid=1106207869> (accessed August 28, 2022).