James Stewart
555 Main St. W. (Suite 3)
North Bay, Ontario
P1B 2V3 Canada
Ph. (705) 495 – 6325
email: cold6001@gmail.com

The Winding Stair:
Geometry & The Secrets of Nature
By Bro. James C. Stewart

The candidate stands ready to ascend the stairs.

The staircase, we are told, symbolizes both courage and labour. It requires more courage to face the unknown than the known. A straight stair, or ladder, hides neither secret nor mystery; but the winding stair hides each step from the climber. What lies around the next bend remains unknown. Yet still man climbs, labouring step by step, to reach his own middle chamber, and receive his wages, which for the Speculative Fellowcraft are not money, corn, wine nor oil, but rather the knowledge of ultimate Truth. The Middle Chamber, therefore, becomes symbolic of life.

Within the Fellowcraft Degree of Freemasonry we find the fascinating 'Legend of the Winding Stair'. It comes to us from a Biblical description of Solomon's Temple in the First Book of Kings, where it is briefly mentioned in chapter 6, verse 8.

On a Masonic level, the legend illustrates the principle of 'ascent', one of the Craft's great, continuous themes. But like the entire system of symbols in Freemasonry, this explanation is only the outer layer.

The stairs are said to have 15 steps, an odd number. The symbolism was borrowed from the Pythagorean system, in which odd numbers were considered more perfect than even ones. Throughout the Masonic system we find a predominance of odd numbers; and while 3, 5, 7, 9, 15, and 27 are all important symbols, we seldom find a reference to 2, 4, 6, 8, or 10. The odd number of stairs was intended to symbolize the idea of perfection.[1] And while the steps number 15, they are broken up in a series of 3, 5, and 7.

But the explanation given in the modern Work is incomplete, although it does introduce us to one of the more curious bodies of learning in the ancient world—the Science of Numbers. Fragments of this knowledge lay scattered throughout Masonry. It was a system of moral art and philosophy where numbers were given symbolic meaning and the letters of the alphabet were given numerical values. An elaboration of this idea produced the Hebrew Kabala, which Pythagoras reputedly introduced to the Greeks.[2]

According to Aristotle, Pythagoras taught numbers were the "principle of all things, and the organization of the Universe is a harmonic system of numerical ratios."[3] In short, the numbers 3, 5 and 7 have Kabalistic meanings not elucidated in Lodge, and the preservation of this system in our ritual is valuable to us as proof of the antiquity of Masonic symbolism.[4]

But was the number of stairs always 15?

Not according to the eminent Masonic scholar Dr. Albert G. Mackey, who writes in The Symbolism of Freemasonry:

> As to the particular number of the stairs, this has varied at different periods. Tracing-boards of the last century have been found, in which only five steps are delineated, and others in which they amount to seven…[5]

It would seem the number of steps in our Winding Stair is malleable; whereas the staircase itself remains an unbroken constant, and central to the Fellowcraft Degree.

But why?

A prominent position is reserved for Geometry not just in the Second Degree, but within Freemasonry itself. We are told Geometry and Masonry were originally synonymous terms, and Geometry "is of a divine and moral nature, enriched with the

most useful knowledge, so that while it proves the wonderful properties of nature, it demonstrates the more important truths of morality." To anyone except a Freemason the idea of Geometry providing divine moral truth is utterly foreign and incomprehensible. Yet for our early Brethren, this was almost certainly the case. Geometry, and its allied branches of trigonometry, architecture and astronomy, was the only exact science known, and as such it became an emblem of moral perfection.[6]

But let's consider the relationship of Geometry to nature. The study of Geometry is mentioned in the above line as proving "the wonderful properties of nature", and is singled out again in the line, "we may curiously trace nature through her various <u>windings</u> to her most concealed recesses".

Hidden within Geometry there is just such a principle. And remarkably, it does indeed wind.

The German mathematician Johannes Kepler (1571-1630) wrote: "Geometry has two great treasures; one is the Theorem of Pythagoras; the other, the division of a line into extreme and mean ratio. The first we may compare to a measure of gold; the second we may name a precious jewel."[7]

Although not identifying it as the 'Golden Ratio', around 300 BCE Euclid of Alexandria[8] defined the proportion: "A straight line is said to have been cut into extreme and mean ratio when, as the whole line is to the greater segment, so is the greater to the lesser."[9] The precise value of the 'Golden Ratio' is an irrational number, ('Phi' (Φ) = 1.6180339…), and was considered by the Pythagoreans to be so horrific that its knowledge should be kept secret.

A=B+C

A

B   C
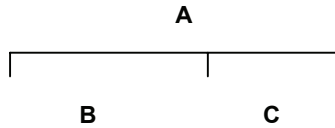
A=1.6180339…
B=1
C=0.6180339…

A/B=B/C
1.6180339/1=1/0.6180339
1.6180339=1.6180339

The 'Golden Ratio', sometimes called the 'Golden Mean' or 'Golden Section', divides a line at a point such that the smaller part relates to the greater as the greater relates to the whole: the ratio of the lengths of the two sides is equal to the ratio of the longer side to the sum of the two sides.

$a/b \quad = b/a+b$
$\qquad = a+b/a+2b$
$\qquad = a+2b/2a+3b$
$\qquad = 2a+3b/3a+5b \; \&c.$

The very program of life itself—the DNA molecule—contains the 'Golden Ratio'. One revolution of the double helix measures 34 angstroms while the width is 21 angstroms. The ratio 34/21 reflects 'Phi', 34 divided by 21 equals 1.619… a close approximation of 'Phi's' 1.618.[10]
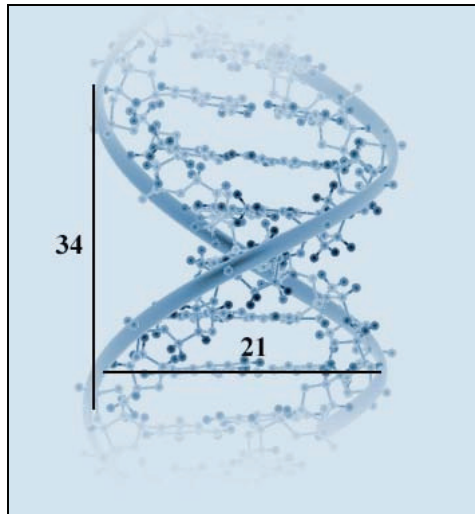
The DNA Coil: Another Winding Stair?

Nature widely expresses the 'Golden Ratio' through a very simple series of whole numbers. The astounding Fibonacci Sequence (named for the 13th century mathematician who introduced the concept to Western culture): 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377…is both additive, as each number is the sum of the previous two, and multiplicative, as each number approximates the previous number multiplied by the 'Golden Section'. The ratio becomes more accurate as the numbers increase, forever closing in on the divine limit.[11]

The 'Golden Ratio' abounds in the solar system. Consider the relationship of Earth and our nearest neighbor. Venus draws a beautiful five-fold rosette around us every eight years. Eight years on Earth is thirteen years on Venus, the Fibonacci numbers 13, 8 and 5 here appearing to connect space and time.[12] The two largest planets, Jupiter and Saturn, also produce a perfect 'Golden Ratio' from Earth. Line them all up toward the Sun and a year later Earth is back where she started. Saturn will not have moved far and

12.85 days later Earth is exactly between Saturn and the Sun. 20.79 days later Earth is found between the Sun and Jupiter. These synodic measures exist in space and time and relate as 1: Φ to 99.99% accuracy.[13]

The other "great treasure" Kepler mentioned is certainly well-known to Masons—
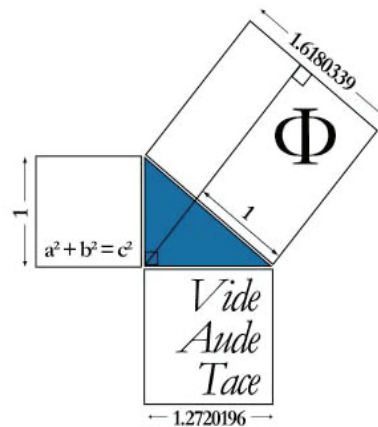
The Kepler Triangle illustrates both the Pythagorean Theorem & the Golden Ratio

The 47th Proposition of Euclid also known as the Pythagorean Theorem: "In every right-angled triangle, the sum of the squares of the base and perpendicular is equal to the square of the hypotenuse."[14]

In Freemasonry the symbolism of the 47th Proposition shows the right-angled triangle representing Man as a union of the Spiritual and the Material. Another

interpretation suggests the base is female, the perpendicular is male and the hypotenuse is child, a product of the two.[15] And these are but two explanations of this extraordinary geometric symbol…but let's leave that for another paper.

In the above figure we see the 'Kepler Triangle' displaying both the 'Golden Ratio' and the 'Pythagorean Theorem' aside the Latin motto of Freemasonry: <u>Aude, Vide, Tace</u> (Hear, See, Be Silent).

Intriguingly, we also notice the 47th Proposition being used to achieve 'Phi' (Φ) by drawing a straight line from the square through the hypotenuse. 'Phi' is also obtained through the 'Golden Rectangle', which has occasionally been called The Face of God, for it shows clear evidence of His design—
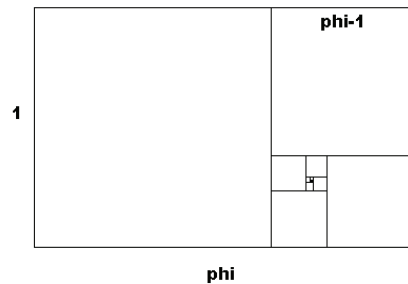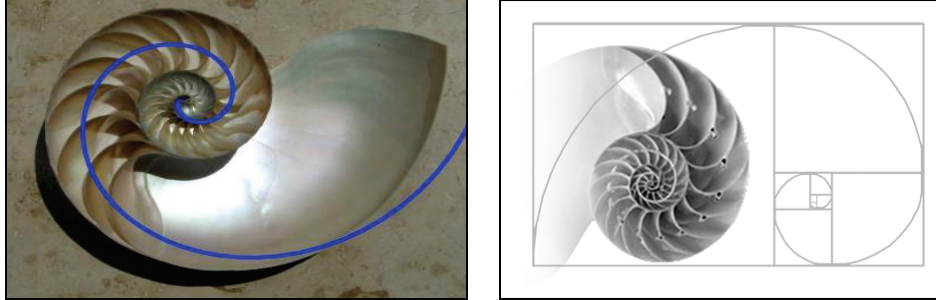

The 'Golden Rectangle' in turn can be used to generate the 'Golden Spiral'—
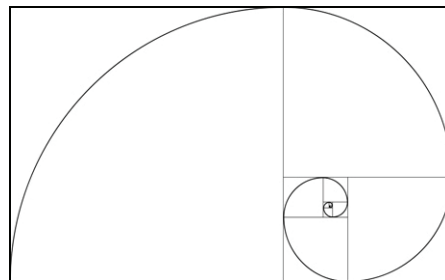
Which we see demonstrated <u>everywhere</u> in the grandeur of nature; its "windings" literally tracing "nature to her most concealed recesses"—

Above we see the 'Golden Spiral' in a shell, though you may also find it curling a wave, winding the horn of a ram or twisting through a plant; the impulse of all movement and all form is given by 'Phi'. In fact, the 'Phi' ratio is interwoven into the very fabric of our existence. The photographs below show the 'Golden Spiral' in all its cosmic beauty—25 million light-year distant galaxy M101 (left) contrasted with Typhoon Rammasun (right).

The placement of these symbols within Freemasonry is not accidental, nor is its allusion to them. As Matila Ghyka writes in The Geometry of Art and Life:

> We cannot insist here on the continuous chain, transmitting rites, passwords, symbols, which stretches from the Pythagorean Brotherhood and the Greek Mysteries (Eleusis) to these Operative Masons Lodges, then to Speculative Masonry; we will only remark that while geometric symbols traveled via occultist and Rosicrucian circles…they also traveled in other (politico-esoteric) trajectories from the Pythagorean Society to modern Freemasonry…[16]

And while there is no verifiable proof Sir Isaac Newton was ever a Freemason, Newton's research assistant Dr. John Theophilus Desaguliers, who Newton sponsored into the Royal Society in 1714,[17] most certainly was. In fact, he was the Grand Master of the Grand Lodge of London in 1719.[18] It was an esoteric time in history, critical to the development of modern Freemasonry and the Renaissance. Alain Bauer, in Isaac Newton's Freemasonry:

> After his election as the curator of experimentation for the Royal Society, Desaguliers appeared as the deus ex machina of the creation of Speculative Freemasonry. If Freemasonry were a religion, Newton would be Christ the Messiah and Desaguliers his prophet.[19]

A bold statement; but it accurately sums up Desaguliers' staggering contributions to Freemasonry. And is it simple coincidence Newton studied and wrote extensively upon the Temple of Solomon, dedicating an entire chapter in The Chronology of Ancient Kingdoms to his observations?[20]

It is a fascinating concurrence some of the earliest and most illustrious 17th and 18th century members and Masters of modern Speculative Freemasonry (Elias Ashmole,[21] Christopher Wren[22] and John Desgauliers to name but a notable few) were architects, mathematicians and men with a deep and abiding interest in the physical sciences. We can only speculate here, as we have no substantive source, but could the upheaval experienced

by Freemasonry during the opening decades of the 18th century have witnessed 'The Legend of the Winding Stair' transformed into a symbol used to "mysticize" the 'Phi' spiral?[23]

It should be noted Man did not invent Geometry. He merely <u>discovered</u> Geometry. Geometry is the language of God, the Grand Geometrician of the Universe. Does the Winding Stair, along with the candidate's coiling walk to the altar and the oblique references to the "windings of nature", allude to the 'Phi' spiral? Whether by coincidence or by design we find the Winding Stair (Golden Spiral) at the center of the Fellowcraft Degree, a degree which instructs us to explore Geometry and the "hidden secrets" of nature. If it is merely coincidence, it's quite incredible to find this particular symbol, which is emblematic of a unification of nature and Geometry, concealed within Freemasonry.

Notes:

[1] Dr. Albert G. Mackey, M.D., *The Symbolism of Freemasonry* (New York: Clark & Maynard, 1869) p. 219

[2] Oliver Day Street, *Symbolism of the Three Degrees* (Cedar Rapids, Iowa: National Masonic Research Society, 1922) p. 42

[3] Aristotle, *The Metaphysics* (New York: Cosimo, 2008) Book 1, 986a30, p. 14

[4] Oliver Day Street, *Symbolism of the Three Degrees*, p. 47

[5] Dr. Albert G. Mackey, M.D., *The Symbolism of Freemasonry*, p. 219

[6] Oliver Day Street, *Symbolism of the Three Degrees*, p. 53

[7] Wooster Woodruff Beman and David Eugene Smith, *A Brief History of Mathematics: An Authorized Translation of Dr. Karl Fink's Geschichchte Der Elementar-Mathematik* (Chicago: Open Court Publishing, 1900) p. 223

[8] It is worth noting the earliest of all known Masonic documents, the Halliwell Manuscript (sometimes called the Regius Poem), opens with the line "*Hic incipiunt constituciones artis gemetriae secundum Eucyldem*" (Here begin the constitutions of the art of Geometry according to Euclid). The majority of Masonic scholars date the Halliwell MS. to the end of the 14th or the beginning of the 15th century. Interestingly, line 143 of the MS. suggests a still older document: "*By olde tyme wryten y fynde*" (By old time written I find). Translation: Roderick H. Baxter, Past Master of Quatuor Coronoti Lodge, No. 2076, reproduced by Mackey in his *Encyclopedia of Freemasonry*.

[9] Euclid, *Elements* (New York: Dover Publications, 1956) Book 6, Definition 3

[10] Dr. Jean-Claude Perez, Ph.D., "Chaos & Neuro-computers: A Golden Link", *Speculations in Science and Technology*, Vol. 14 , No. 1 (1991)

[11] Dr. Scott Olsen, Ph.D., *The Golden Section: Nature's Greatest Secret* (New York: Walker & Company, 2006) p. 10

[12] Ibid., p. 46

[13] Ibid.

[14] Euclid, *Elements*, Book 1, Proposition 47

[15] Albert Pike, *Morals & Dogma* (Richmond, Virginia: L.H. Jenkins Inc., 1947) p. 87

[16] Matila Ghyka, *The Geometry of Art & Life* (New York: Dover Publications, 1977) p. 118

[17] Patricia Fara, *Newton: The Making of Genius* (New York: Columbia University Press, 2002) p. 91

[18] *Anderson's Constitutions of 1738* (Whitefish, Montana: Kessinger Publishing) p. 110

[19] Alain Bauer, *Isaac Newton's Freemasonry: The Alchemy of Science & Mysticism* (Rochester, Vermont: Inner Traditions, 2003) p. 70

[20] Sir Isaac Newton, *The Chronology of Ancient Kingdoms* (Middlesex: Echo Library, 2007) Chapter 5
The first edition was published posthumously in 1728 in limited numbers.

[21] C.H. Josten, "Elias Ashmole, FRS (1617-1692)", *Notes & Records of the Royal Society of London*, Vol. 15 (July 1960) pp. 221-230
In addition to his enormous contributions to the study of antiquities, Elias Ashmole's scientific interests were broad, and included alchemy, astrology, astronomy and botany. He was a founding member of the Royal Society, a key institution in the development of experimental science.

[22] *Anderson's Constitutions of 1738*, p. 106
According to *Ars Quatuor Coronatorum*, Sir Christopher Wren was a gifted mathematician, scientist and architect. Another founding member of the Royal Society, his many accomplishments included the designs for St. Paul's Cathedral after the Great Fire of London in 1666. He personally oversaw the work from 1675 to completion in 1710. He leaves behind 50 churches, and many buildings at Oxford and Cambridge to remind us of his legacy. (*A.Q.C.*, Vol. 78, 1965, p. 188; pp. 201-6)

[23] The beginning of the 18th century saw vast changes to Freemasonry, changes leading directly to the formation of the Craft as we know it today. Not the least of these was the addition of the Master Mason, or Third Degree. There's no way to know for certain when this sublime degree was added, but we can narrow it down. In *Anderson's Constitutions of 1723* there is absolutely no mention of, or allusion to, the Third. However, Anderson (or some unknown writer, the theories are plethora) defended the Third Degree in 1730 in "A Defence [*sic*] of Masonry" enclosed with *Anderson's Constitutions of 1738*. A.E. Waite narrows it down even further in an entry on Desaguliers from *A New Encyclopaedia of Freemasonry*: "…Desaguliers has been credited also as the chief instrument in the grafting of Speculative Masonry 'upon the old Operative system.' The view was dwelt upon by the late Henry Sadler, who moreover indicated the years 1723 and 1725 as those during which there is some ground for supposing that the work was done." Henry Sadler has been credited as "the first Grand Librarian" (*Masonic Quarterly* Issue 5, 2003).