

Freemasonry and the Transmission of Geometry

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“Hic incipiunt constitutiones artis gemetriae secundum Eucyldem”

“Here begin the constitutions of the art of geometry according to Euclid”¹

Abstract

This article investigates geometry’s importance within freemasonry and discovers the de facto guardianship provided geometry by operative masons through the Middle Ages. Operative masons passed their geometry and their philosophy from generation to generation via initiation. This paper illustrates the transmission and sometimes startling application of those principles while examining the masonic symbolism of the 47th Proposition of Euclid, the Golden Ratio and the Point within a Circle. Consequently, the study reveals an extraordinary path from the operative to the speculative age. By tracing the history of the Master Mason, or third degree, we gain a deeper understanding of this transition. We find a suggestion the third degree came into common usage in the late seventeenth or early eighteenth century, and an implication the resurrection and/or esoteric modification of masonic geometry occurred during this era. We explore the fascinating intersection of Dr John Theophilus Desaguliers and Sir Isaac Newton at the centre of this intriguing period, and contend these men played a part in not only the modification (or re-creation) of the Master Mason degree, but also in the resurrection of those geometric symbols from the operative age that define present freemasonry.

Keywords: esotericism, freemasonry, geometry, history, symbolism

¹ From the Halliwell Manuscript (sometimes called the Regius Poem) c.1380–1430. The Halliwell MS. is the oldest known record of freemasonry, although line 143 of the MS. suggests a still older document. A full version of the Halliwell MS. (with Roderick H. Baxter’s translation) is available at the website for the Grand Lodge of British Columbia and Yukon:

<http://freemasonry.bcy.ca/texts/regius.html>

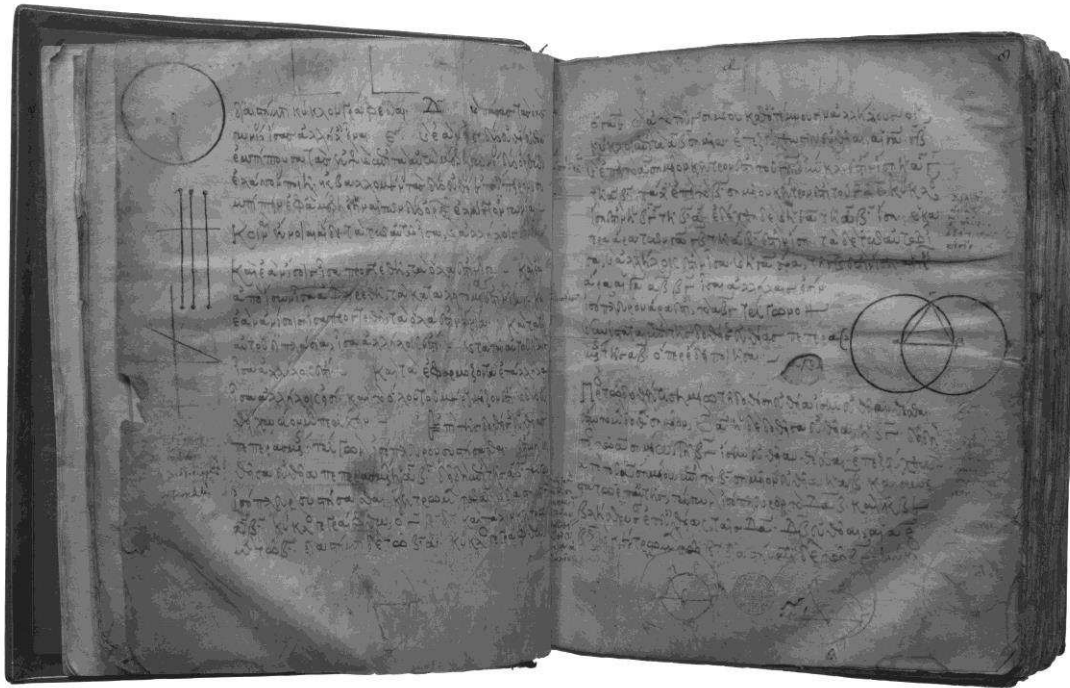


Figure 0. Book 1, Proposition 1 from the oldest surviving manuscript of Euclid's Elements (888 CE). Image: Oxford, Bodleian Library, MS. D'Orville 301, fols. 7v-8r

1. A brief history

“Here begin the constitutions of the art of geometry according to Euclid.”

The opening line of the Halliwell Manuscript, freemasonry's oldest known document, illustrates the significance of geometry within the craft. To this day, some six hundred years later, when passed to the Fellowcraft, or second degree, the candidate is taught masonry and geometry were “originally synonymous terms.”²

The history of freemasonry is a controversial subject, but a shaky consensus³ finds its origins in the operative lodges and guilds of the Middle Ages,⁴ passed on through various ecclesiastical orders from the remnants of the Roman collegia.⁵ Its fingerprints are found in the geometry of the great Gothic cathedrals of Europe, while the art of that geometry was kept a closely guarded secret⁶ that allowed those early masons economic, political and theological influence.

It is important to consider the historical context of these operative brethren. There was no electricity, no running water. Books were available mostly for the privileged and the church. Not that it mattered; few people knew how to read. For

² The Work, The Grand Lodge of Canada in the Province of Ontario, 1999. This is the current ceremonial ritual of freemasons living in the province of Ontario, Canada. No author, publisher, editor or compiler is listed.

³ An example of the debate swirling around the so-called “transition theory” can be found in two articles on the website for the Grand Lodge of British Columbia and Yukon: “Transition Theory” by Dr Wallace McLeod: <http://freemasonry.bcy.ca/history/transition.html> and “The transition theory refuted” by C.N. Batham: <http://freemasonry.bcy.ca/texts/transitiontheory.html>

⁴ Paul Naudon, *The Secret History of Freemasonry* (Rochester, Vermont: Inner Traditions, 1991) p. 2

⁵ Thomas Hope, *An Historical Essay on Architecture Vol 1.* (London: John Murray, 1840) pp. 205-208

⁶ Frederick Apthorp Paley, *A Manual of Gothic Architecture* (London: John Van Voorst, 1846) p. 78

much of the medieval era operative masons became the de facto guardians of geometry, and consequently one source for its diffusion into modern times.⁷

Much has been written concerning the history of geometry and its intriguing intersections with freemasonry. It's worth pausing to examine a few of the more notable examples establishing geometry as the foundation of the masonic system.

In those handwritten documents surviving from the operative age, termed the Old Charges by masonic scholars, the prominence of geometry is made abundantly clear. This is demonstrated first in the ancient Halliwell Manuscript and underscored again in the slightly later Matthew Cooke Manuscript (c.1430-50).⁸

The Cooke Manuscript expands upon the importance of geometry to the craft, the document placing a particular emphasis on the art. In the manuscript, Pythagoras and Hermes bestow geometric knowledge on the human race⁹ and, in relation to the "seven liberal sciences," it suggests all others owe their existence to the first: geometry.¹⁰

Anderson's Constitutions of 1723 continues this tradition into the speculative age. In Anderson's romantic, if not improbable view of masonic history, we find Adam, "our first parent", having geometry inscribed upon his heart by the Great Architect of the Universe.¹¹ A bit of hyperbole, but it is illustrative of the weight given the subject by Enlightenment-era brethren.

Geometry and the esoteric societies of past centuries seem to share a parallel history, perhaps owing in part to the art's previously discussed architectural applications. This tradition stretches back to ancient Greece. One of the more alluring expressions of early Greek religion is the existence of its mystery schools, accessible only through individual initiation and oaths of secrecy. The Greek word *myesis* means initiation, and the related word *mystai* refers to one who is an initiate.¹²

Consider the priests of Dionysius or the legendary architect kings Trophonius, Dadaelus and Agamedes. The architects of this era maintained their priesthoods through initiation. We know the Dionysiasts' organization had a specific initiation ritual, as well as words and signs by which they recognized one another.¹³

And of course Pythagoras, one of geometry's great explorers, also used initiation to enter apprentices into his school of philosophy and mathematics. The Pythagoreans treated silence and secrecy as cardinal principles and, in an interesting synchronicity with modern freemasonry, the order had a series of three degrees. Pupils were divided into *exoterici*, or students of the outer grades, and *esoterici*, after they were accepted into the third.¹⁴

The Pythagoreans were early monotheists and defined God numerically as the Monad or "One that is Everything". They believed the universe is ordered by the

⁷ Matila Ghyka, *The Geometry of Art & Life* (New York: Dover Publications, 1977) pp. 117-118

⁸ A.E. Waite, *A New Encyclopaedia of Freemasonry Combined edition*, Vol. 1 (New York: Random House, 1996) pp. 140-141

⁹ "The Matthew Cooke Manuscript with translation," The Grand Lodge of British Columbia and Yukon. Lines 320-326. <http://freemasonry.bcy.ca/texts/cooke.html>

¹⁰ Cooke MS., Lines 77-140

¹¹ James Anderson, *The Constitutions of the Free-Masons, Containing the History, Charges, Regulation & c. of That Most Ancient and Right Worshipful Fraternity* (London: William Hunter, 1723) pp. 1-2. A digital version can be found here:

<http://www.archive.org/stream/cu31924030299402#page/n7/mode/2up>

¹² Janina K. Darling, *Architecture of Greece* (Westport, Connecticut: Greenwood Press, 2004) pp. 165-166

¹³ Paul Naudon, *The Secret History of Freemasonry*, pp. 6-7

¹⁴ Manly P. Hall, *The Secret Teachings of All Ages* (New York: Tarcher/Penguin, 2003) pp. 194-195

Monad in a geometrically precise manner, a belief which was adopted as a cornerstone of freemasonry.¹⁵ This resulted in one of the Church's many conflicts with the craft. The Church was adamant the universe was ordered by faith, not by geometry or reason.¹⁶

Today, the Pythagoreans are best known for producing the theorem that bears their founder's name, a theorem instrumental to the development of higher mathematical concepts and intrinsic to the philosophy of freemasonry.

2. The symbolic and sacred geometry of freemasonry

An examination of three geometric principles employed in the symbolism of freemasonry provides a window into history, and demonstrates the importance of geometry not just to the craft, but to modern civilization. The placement of these symbols in the masonic system allows us to draw some intriguing corollaries.

2.1 Euclid's 47th Proposition: a Pythagorean legacy

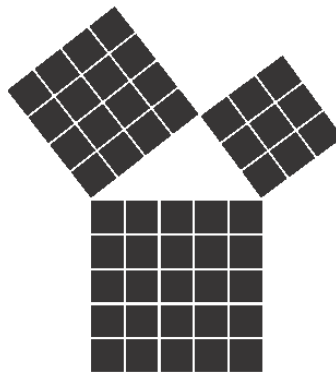


Figure 1. The Pythagorean Theorem (the 47th Proposition): the square of the hypotenuse of a right-angled triangle is equal to the sum of the squares of the two adjacent sides.

The 47th Proposition is a symbol associated with freemasonry almost as frequently as the iconic square and compasses. There is little point dwelling on the history of this famous theorem; the topic has been exhaustively studied. Suffice to say, the Greeks did not express Pythagoras' theorem as we know it today.

In ancient times, the theorem was communicated verbally and geometrically.¹⁷ Around 250 BCE it obtained its secondary name, its first proof and a defined form as Proposition 47 in Euclid's celebrated treatise on geometry, *Elements*.¹⁸ Euclid became

¹⁵ Manly P. Hall, *The Secret Teachings*, p. 194

¹⁶ Pope Pius IX, Encyclical of Pope Pius IX, *Qui Pluribus* "On Faith and Religion," 9 November 1846. Paragraphs 4 to 7. <http://www.papalencyclicals.net/Pius09/p9quiplu.htm>

¹⁷ Ian Stewart, *In Pursuit of the Unknown: 17 Equations That Changed the World* (New York: Basic Books, 2012) p. 4

¹⁸ Euclid, *Elements* (New York: Dover Publications, 1956) Book 1, Proposition 47.

Elements is an original reconstruction of earlier mathematical proofs into an altogether new synthesis superseding all other works in the field up to Euclid's time. It was a major contribution to the philosophical endeavour of attempting to understand the order of the physical universe, and consequently influenced later thinkers (including Sir Isaac Newton) about man's place in the world.

the first modern mathematician by writing arguably the most important mathematical textbook of all time.

Two thousand years later, the 47th Proposition had been reshaped into the algebraic equation

$$a^2 + b^2 = c^2$$

where c is the length of the hypotenuse, a and b are the lengths of the other two sides squared.

This simple equation provided a fundamental key linking algebra to geometry. It set the stage for today's understanding of the geography of our planet and its place in the solar system, and it was the first step toward the trigonometry necessary for map-making, navigation and surveying.¹⁹ Even Einstein was inspired by the equation when, in his general theory of relativity, he used geometry to define the force of gravity stimulating new concepts about the shape of the universe and physical cosmology.²⁰

As a symbol in freemasonry, the theorem's esoteric meanings are plethora. Again, there have been many comprehensive studies dedicated to the subject, but it's worth pausing to explore a few of the more arcane as they illustrate geometry's development within the craft.

Well-known freemason and esotericist Manly P. Hall describes the 47th Proposition in *The Secret Teachings of All Ages*:

The Pythagorean and other schools of philosophy conceived the one divine nature of God to manifest itself in the threefold aspect of Father, Mother, and Child. These three constituted the Divine Family, whose dwelling place is creation and whose natural and peculiar symbol is the 47th proposition of Euclid. God the Father is spirit, God the Mother is matter, and God the Child—the product of the two—represents the sum of living things born out of and constituting Nature.²¹

In short, the symbol is said to represent a union of the spiritual and the material. Alternate definitions suggest it can be viewed as the sun, the moon and the Earth, and its representation is found in the ruling hierarchy of a masonic lodge: the Master, his Senior Warden and his Junior Warden.

Albert Pike gives many and varied interpretations of the 47th Proposition in *Morals and Dogma*, including the Egyptian triad of Osiris, Isis and Horus and Plato's triad of Thought, Primitive Matter and Word. Pike notes similar triads in the Kabala,²² and offers a medieval and alchemical view of the symbol in the philosophical salt of wisdom; the personal aptitude and labour of mercury and the vital energy and ardour of will embodied by sulphur.²³

And in another remarkable twist of mathematics we find the masonic numbers three, five and seven veiled within the geometry of the 47th Proposition:²⁴

¹⁹ Ian Stewart, *In Pursuit of the Unknown*, p. 9

²⁰ Ian Stewart, *In Pursuit of the Unknown*, pp. 225-227

²¹ Manly P. Hall, *The Secret Teachings*, p. 291

²² Albert Pike, *Morals & Dogma* (Richmond, Virginia: L.H. Jenkins Inc., 1947) p. 87

²³ Albert Pike, *Morals & Dogma*, pp. 789-790

²⁴ William Steve Burkle, "The 47th Problem of Euclid: The Veil Lifted," *Pietre-Stones Review of Freemasonry*, http://www.freemasons-freemasonry.com/euclid_unveiled.html

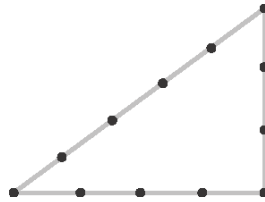


Figure 2. The right-angled triangle of the Pythagorean Theorem shows the sides of 3, 4 and 5. The angle created between the 3 (side) and the 4 (side) is the right angle of the square. The square of 3 is 9. The square of 4 is 16. The sum of 9 and 16 is 25 (25 representing the hypotenuse). The square root of 25 is 5. Therefore, the ratio is written: 3:4:5. When we sequence the numbers starting with the Monad, or one (1, 4, 9 and 16), we see that by subtracting each square from the next, we get 3, 5 and 7:

$$\begin{aligned} &1, 4, 9, 16 \\ &4-1=3 \\ &9-4=5 \\ &16-9=7 \end{aligned}$$

Three, five and seven; these numbers are arguably the framework of freemasonry. Three rule a lodge, five hold a lodge and seven or more make it perfect. Three, five and seven are indicative of the three degrees, and the numbers correspond to the steps in the masonic system: Entered Apprentice, three; Fellowcraft, five; Master Mason, seven.²⁵ Oliver Day Street reminds us that three, five and seven have Kabalistic meanings “not elucidated in lodge”, and the preservation of this numerology in the degrees is valuable to us as “proof of the antiquity of masonic symbolism”.²⁶

Intriguingly, three, five and seven are also equal to the succession of steps in the Winding Stair of the Fellowcraft degree.

2.2 The Winding Stair: phi and freemasonry

At the centre of the Fellowcraft degree, and consequently at the heart of freemasonry, we find the legend of the Winding Stair. This fascinating icon finds its way into the craft from 1 Kings 6: 8 where it receives the briefest of mentions during a biblical description of Solomon’s Temple.

Naturally, it is a symbol of ascent, one of freemasonry’s great and central themes. The candidate finds “stretching out before him a winding stair, which invites him to ascend, and which as a symbol of discipline and instruction, teaches him here commences his masonic labour”.²⁷

The second degree stresses the importance of geometry to freemasonry and, as previously stated, informs us masonry and geometry were “originally synonymous terms”. The candidate is encouraged to extend his “researches into the hidden mysteries of nature and science”, and the study of geometry is said to “prove the wonderful properties of nature”.²⁸

We take a winding path to the altar in the Fellowcraft degree, a path emblematic of the Winding Stair, which is singled out in the line, “we may curiously trace nature through her various windings [emphasis added] to her most concealed

²⁵ The Work, 1999.

²⁶ Oliver Day Street, *Symbolism of the Three Degrees* (Cedar Rapids, Iowa: National Masonic Research Society, 1922) p. 42

²⁷ Albert G. Mackey, *The Symbolism of Freemasonry* (New York: Clark & Maynard, 1869) p. 218

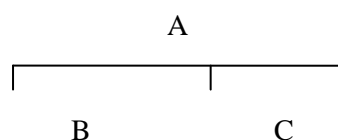
²⁸ The Work, 1999.

recesses.” And again in the third degree, during a retrospect of the previous degrees, the candidate is told his contemplation of nature will allow him to be conducted through the “intricate windings [emphasis added]” of his “mortal state”.²⁹

Freemasonry evidently links life and nature to the Winding Stair. In geometry we find an identical principle in phi, also called the Golden Ratio or the Divine Proportion. The Winding Stair can be viewed as an esoteric connection to this astounding geometric principle,³⁰ a principle winding its way through all of existence.

Table 1. Phi (Φ) also known as the Golden Ratio: the Golden Ratio divides a line at a point such that the smaller part relates to the greater as the greater relates to the whole. The longer segment divided by the smaller segment is equal to the whole length divided by the longer segment. The precise value of the Golden Ratio is an irrational number known as phi or the Greek character, Φ (phi=1.6180339...&c.):

$$A=B+C$$



$$A=1.6180339\dots$$

$$B=1$$

$$C=0.6180339\dots$$

$$A/B=B/C$$

$$1.6180339/1=1/0.6180339$$

$$1.6180339=1.6180339$$

$$\Phi=1.6180339\dots&c.$$

Researchers have suggested the Pythagoreans discovered the Golden Ratio and simultaneously, incommensurability.³¹ It is debatable, but the Pythagorean preoccupation with the pentagram and the pentagon (both generators of phi), coupled with the geometric knowledge in the middle of the fifth century BCE, suggests it is feasible.³²

Regardless, like the Pythagorean Theorem before it, the Golden Ratio received its first clear definition from Euclid of Alexandria. Although not calling it the Golden Ratio, Euclid describes an “extreme and mean ratio” in Elements: “A straight line is

²⁹ The Work, 1999.

³⁰ James C. Stewart, “The Winding Stair: Geometry & The Secrets of Nature,” The Ashlar Issue 49, (March 2013) pp. 62-66. Also available as pdf document from the Grand Lodge of British Columbia and Yukon: http://freemasonry.bcy.ca/symbolism/golden_ratio/stairs.pdf

³¹ Incommensurable: two or more quantities having no common measure; in the case of phi, a ratio that cannot be expressed by whole numbers. The discovery of incommensurability was greeted violently. Iamblichus (c. 300 CE) describes the reaction: “They say that the first [human] to disclose the nature of commensurability and incommensurability to those unworthy to share the theory was so hated that not only was he banned from [the Pythagoreans’] common association and way of life, but even his tomb was built as if [their] former colleague was departed from life among humankind.” Iamblichus quoted by Mario Livo in *The Golden Ratio: The Story of Phi, the World’s Most Astonishing Number* (New York: Broadway Books, 2003) p. 5

³² Mario Livo, *The Golden Ratio*, p.35

said to have been cut in extreme and mean ratio when, as the whole line is to the greater segment, so is the greater to the lesser.”³³

By generating a rectangle and repeatedly cutting it using the ratio (it can be cut ad infinitum) we create the Golden Rectangle, and in turn the Golden Spiral.

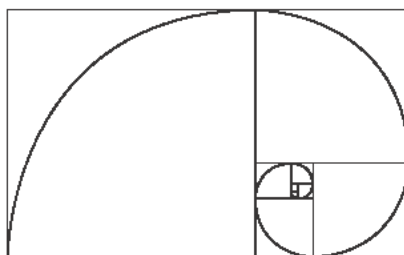


Figure 3. The Golden Rectangle winding a Golden Spiral.

The magnitude of the discovery of the Golden Ratio cannot be overstated; its relationship to nature is fundamental and universal. The impulse of all movement and all form is given by phi, and the cosmic importance of the ratio is self-evident in Figure 4. You can find the Golden Ratio snaking through a plant,³⁴ curling the horn of a ram and twisting the nautilus shell.³⁵ Its proportion can be seen simply by looking at the divisions in your finger.³⁶ The human body abounds with phi right down to its DNA. Each twist of the double helix measures 34 angstroms while the width is 21 angstroms. The Fibonacci³⁷ ratio 34/21 reflects phi, and 34 divided by 21 equals 1.619... a close approximation of phi's 1.618.³⁸

Recent studies have revealed an even greater role for phi in human DNA. Dr Jean-Claude Perez has found the “entire human genome is characterized by three remarkable numbers: 1, 2, and phi ($\Phi=1.6180339$) the Golden Ratio”.³⁹ In addition, he has demonstrated a new kind of duality between “form and substance” running parallel in DNA; “a second layer of embedded hidden structure overlapping the DNA of the whole human genome... involving Golden Ratio proportions”.⁴⁰

³³ Euclid, Elements, Book 6, Definition 3

³⁴ Scott Olsen, *The Golden Section: Nature's Greatest Secret* (New York: Walker & Company, 2006) pp. 14-15

³⁵ Scott Olsen, *The Golden Section*, pp. 24-25

³⁶ Scott Olsen, *The Golden Section*, pp. 20-21

³⁷ The Golden Ratio is reflected in the Fibonacci sequence (named for Leonardo Fibonacci, the thirteenth century mathematician who introduced the concept to Western culture): 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89...&c. is both additive, as each number is the sum of the previous two, and multiplicative, as each number approximates the previous number multiplied by phi. The ratio becomes more accurate as the numbers increase, forever closing in on the divine limit.

³⁸ Jean-Claude Perez, “Chaos, DNA and neuro-computers: a golden link”, *Speculations in Science and Technology*, Vol. 14, No. 1 (1991) pp. 336-346

³⁹ Jean-Claude Perez, “The ‘3 Genomic Numbers’ Discovery: How Our Genome Single-Stranded DNA Sequence Is ‘Self-Designed’ as a Numerical Whole,” *Applied Mathematics*, Vol. 4 No. 10B (2013) p.

37. <http://dx.doi.org/10.4236/am.2013.410A2004>

⁴⁰ Jean-Claude Perez, “The ‘3 Genomic Numbers’ Discovery,” p. 37

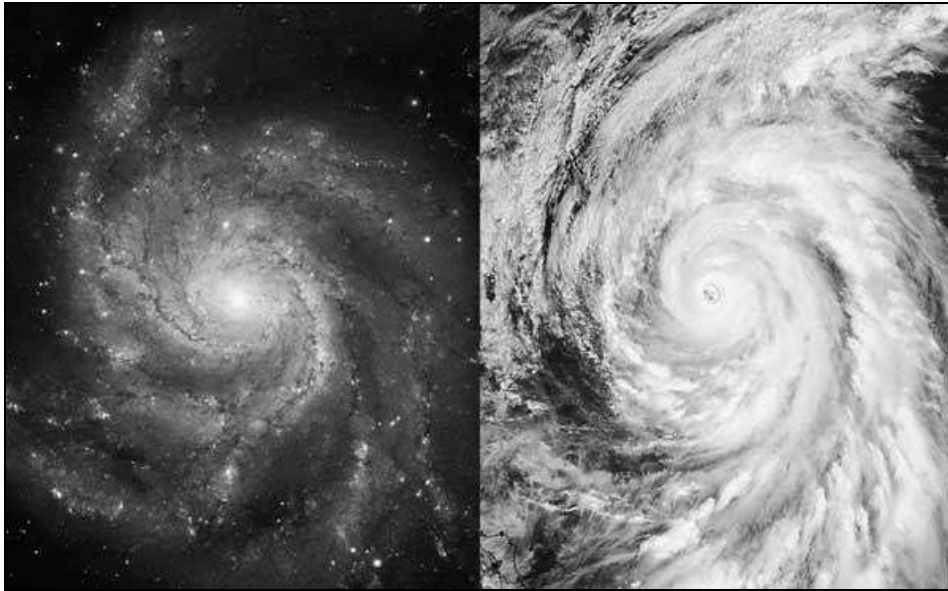


Figure 4. The Golden Spiral in all its cosmic beauty: 25 million light-year distant galaxy M101 (left) contrasted with Typhoon Rammasun (right). Images: M101; ESA/Hubble. Typhoon Rammasun; NASA/JPL.

Equally intriguing is phi's place in the discovery of fractal geometry by Benoit B. Mandelbrot. Fractals are a central concept in the geometry of nature and the theory of highly irregular numbers known as chaos. Mandelbrot proved the world around us essentially consists of replicating patterns, or self-similarity—naturally occurring sequences of motifs repeating themselves within motifs on many scales.⁴¹ Think of the cauliflower; break off smaller and smaller pieces and they continue to look like the whole vegetable. Phi comes into play when looking at the geometry of fractals in nature. Mario Livo gives us this example:

For many fractals in nature, from trees to the growth of crystals, the main characteristic is branching. Let us examine a highly simplified model for this ubiquitous phenomenon. Start with a stem of unit length, which divides into two branches of length $\frac{1}{2}$ at 120 degrees. Each branch further divides in a similar fashion, and the process goes on without bound. If instead of a length reduction factor of $\frac{1}{2}$ we had chosen a somewhat larger number (e.g., 0.6), the spaces among the different branches would have been reduced, and eventually branches would overlap. Clearly, for many systems (e.g., a drainages system or a blood circulatory system), we may be interested in finding out at what reduction factor precisely do the branches just touch and overlap...this happens for a reduction factor that is equal precisely to one over the Golden Ratio, $1/\Phi=0.6180339\dots$ ⁴²

Remarkably, we find Mandelbrot discussing operative masonry in *The Fractal Geometry of Nature* while examining the artistic frontispiece of a Bible Moralisée circa 1250, depicting Christ setting compasses to creation. He observes, “In the age that built the Gothic cathedrals, to be a Master Mason was a very high calling. Thus

⁴¹ Mario Livo, *The Golden Ratio*, pp. 214-215

⁴² Mario Livo, *The Golden Ratio*, pp. 218-219. Italics are Livo's.

the ‘Bible Moralisée illustrées’ of that time often represent the Lord holding mason’s dividers.”⁴³ And what is it that has caught Mandelbrot’s attention in the frontispiece?

We perceive three different kinds of form in the newly created world: circles, waves and ‘wiggles.’ The studies of circles and waves benefited from colossal investments of effort by man, and they form the very foundation of science. In comparison, ‘wiggles’ have been left almost totally untouched. The goal...is to face the challenge of building a Natural Geometry of certain ‘wiggles’ to be called ‘fractals.’⁴⁴

Phi is a principle unifying geometry and nature through the language of mathematics. It is fascinating to discover the Golden Spiral concealed as the Winding Stair at the centre of the Fellowcraft degree, a degree instructing us to explore geometry and the hidden secrets of nature.

It also raises some interesting questions.

2.3 “...a point from which the Master Mason cannot err...”⁴⁵

In the Master Mason, or third degree, we discover the “centre”, or the “point from which a Master Mason cannot err”. When asked what the “centre” is, the mason’s response is geometric, “That point within a circle from which every part of the circumference is equally distant”.⁴⁶

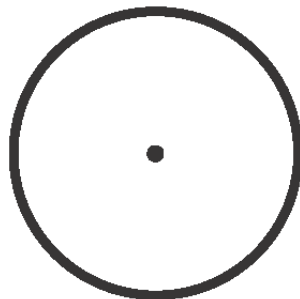


Figure 5. The point within a circle.

Masonry is a progressive science, each degree leading into the next, each degree building upon the lessons of the previous. In keeping with this tradition, our geometric symbol from the third degree incorporates and demonstrates the geometry of the previous two.

It would seem no conversation concerning geometry is complete without a mention of Euclid of Alexandria, and our point and circle make an appearance in the first book as the first proposition of Elements.⁴⁷ It’s notable the first principle

⁴³ Benoit B. Mandelbrot, *The Fractal Geometry of Nature*, “A Book-Within-The-Book, In Colour” (New York: W.H. Freeman and Company, 1983) p. C2

⁴⁴ Benoit B. Mandelbrot, *The Fractal Geometry of Nature*, p.C2 For a view of the frontispiece Mandelbrot is discussing: http://upload.wikimedia.org/wikipedia/commons/8/8c/13th-century_painters_-_Bible_moralis%C3%A9e_-_WGA15847.jpg

⁴⁵ The Work, 1999.

⁴⁶ The Work, 1999. Placement of the Point within a Circle in international ritual may vary.

⁴⁷ Euclid, *Elements*, Book 1, Proposition 1

documented by Euclid is a demonstration of his methodology for the creation of an equilateral triangle (Figure 6).

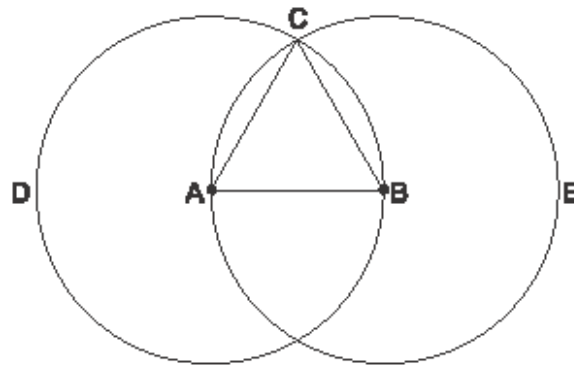


Figure 6. Euclid's construction of an equilateral triangle: on a given line segment (A and B) with radius equal to D, draw circles centered on A and B. They intersect at C, and joined with A and B, complete an equilateral triangle.

Containing our triangle is the vesica piscis (meaning “fish bladder” in Latin), the intersection of two identical circles, such that the centre of one circle lies on the circumference of the other.⁴⁸ The history of the vesica piscis is largely unknown. It may be familiar to some as the form of a basic Venn diagram, which in symbolic logic represents the intersection of two or more sets of data.⁴⁹ But this is a modern interpretation.

It appears to have been used as a code among early Christians in the familiar form of the fish (or in Koine Greek, Ichthys), and the symbol has been found sculpted onto the sarcophagi of Christians in the catacombs of Rome.⁵⁰

The principle was utilized by operative masons of the medieval era as demonstrated in the Gothic architecture of the cathedrals they built. In fact, it has been argued the vesica piscis was the most common symbol used in the Middle Ages. It can be found in religious sculptures, in stained-glass windows, on encaustic tiles and on seals of various ecclesiastical bodies of the era.⁵¹

⁴⁸ Eric W. Weisstein, “Vesica Piscis” From MathWorld, A Wolfram Web Resource <http://mathworld.wolfram.com/VesicaPiscis.html>

⁴⁹ Ian Stewart, *Another Fine Math You've Got Me Into...* (New York: Dover Publications, 1992) p. 52

⁵⁰ John Henry Parker, *A Glossary of Terms used in Grecian, Roman, Italian and Gothic Architecture* (London: Charles Tilt and Oxford University, 1840) p. 229

⁵¹ John Henry Parker, *A Glossary of Terms*, p. 229

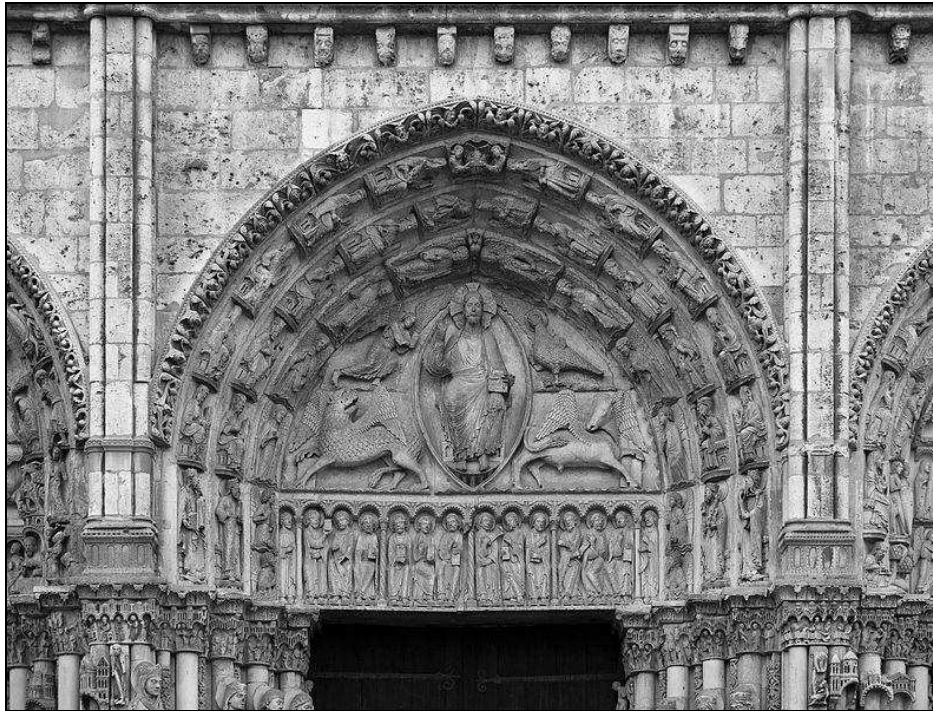


Figure 7. An example of the vesica piscis in the masonry of the Middle Ages. Chartres Cathedral: western facade, central tympanum. Chartres, France. Image: Guillaume Piolle 2009.

As a masonic symbol, the principle's roots run deep. George Oliver describes the vesica piscis in *Discrepancies of Freemasonry*:

...this mysterious figure, the Vesica Piscis, possessed an unbounded influence on the details of sacred architecture; and it constituted the great and enduring secret of our ancient brethren. The plans of religious buildings were determined by its use; and the proportions of length, breadth, and height were dependent on it alone.⁵²

It is not uncommon in medieval art to find Christ depicted emerging from a vesica piscis, a portrayal of the transcendent form entering the physical world and made flesh. The vesica piscis often signifies the womb; in Christianity, the womb of the Virgin from which Christ emerges.⁵³

Some cultures combine the images of sun and moon in the form of a vesica piscis. The sun and moon convey balancing polarities of light and dark, the vesica piscis illustrating the joining of two distinct entities reminiscent of a Taoist yin and yang, or two extremes completing and depending upon one another for existence in a geometric representation of the celestial eternal.⁵⁴

⁵² George Oliver, *Discrepancies of Freemasonry* (London: John Hogg & Co., 1875) p. 109. Italics are Oliver's.

⁵³ Rachel Fletcher, "Musings on the Vesica Piscis," *Nexus Network Journal* Vol. 6, No. 2 (2004) p. 97
A pdf of the paper can also be found here:

http://download.springer.com/static/pdf/662/art%253A10.1007%252Fs00004-004-0021-8.pdf?auth66=1379957121_b8257d385ecb805bb1bf42009864b471&ext=.pdf

⁵⁴ James Wasserman, *Art and Symbols of the Occult* (Rochester, Vermont: Destiny Books, 1993) p. 89

And as stated, the symbol proves and incorporates our previous symbols. The Point within a Circle can be used to construct both a right-angled triangle and the principle of phi.⁵⁵ We see this demonstrated in Figure 8.

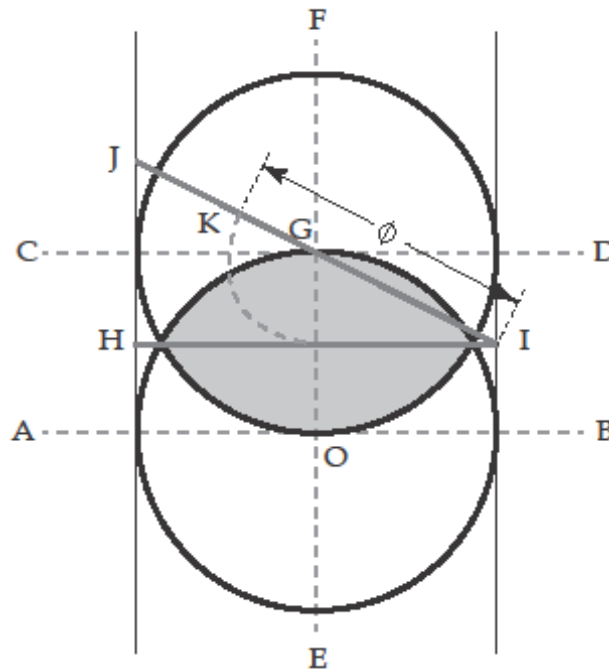


Figure 8. A vesica piscis is created using two equal circles arranged around points O and G. A right-angled triangle is formed by points H, I and J, while the line segment I-K equals phi.

Using the vesica piscis, the geometry of freemasonry reveals the right-angled triangle so useful to Euclid’s 47th Proposition, and simultaneously the Golden Ratio of the Winding Stair.

But possibly one of the more striking references to the Point within the Circle, at least for the purposes of speculative masonry, comes from Robert Samber’s unusual preface and dedication in the curious volume *Long Livers*.⁵⁶ Writing under the pen name Eugenius Philalethes, Jun., Samber hints at what will come to be known as the “point from which a Master Mason cannot err”:

But alas! My Brethren, what are we and our little Globe below, to that stupendous Celestial Masonry above! Where the Almighty Architect has stretch’d out

⁵⁵ William Steve Burkle, “The Point within a Circle: More Than Just an Allusion? Construction of A Right Triangle Using The Point Within A Circle,” *Pietre-Stones Review of Freemasonry*, http://www.freemasons-freemasonry.com/point_within_circle.html

⁵⁶ Robert Samber’s laboriously titled *Long Livers: A Curious History of Such Persons of both Sexes who Have Liv’d Several Ages and grown Young again: with the Secret of Rejuvenescency [sic] of Arnoldus de Villa Nova, and a great many approv’d and invaluable Rules to prolong Life: As also, How to prepare the Universal Medicine* was published by J. Holland in London in 1722. It is a translation of Harcouet de Longeville’s *Long Livers*, originally published in 1715. Samber’s strange preface is actually a dedication to the Grand Master and brethren of Great Britain and Ireland. His pseudonym Eugenius Philalethes, Jun., is thought to be a reference to the alchemist and poet Thomas Vaughan (1622-1666) who also used the alias Eugenius Philalethes.

the Heavens as a Curtain, which he has richly embroidered with Stars, and with his immortal Compasses, as from a Punctum, circumscribed the mighty ALL; is himself the Center of all Things, yet knows no Circumference? Who lets down his golden Balance, and weighs all Things according to eternal incorruptible Justice, and where Actions of the best of Men are frequently found too light; who has created infinite Worlds, for what we know, above us; and those vast Luminaries within our Ken, to which he has given Laws, and allotted them their peculiar Influences, Intelligences and Daemons.⁵⁷

This is indeed a strange reference. First, though *Long Livers* was published in 1722, at the conclusion of his dedication, Samber puts the date 1 March 1721. This puts the writing two years prior to *Anderson's Constitutions of 1723*. And it's fascinating to discover not only this odd mention of the Point within a Circle, but in the last sentence a display of Enlightenment philosophy recorded as an early speculation concerning the possibility of life on planets beyond our own. This manner of thought was seriously discouraged by the theological powers of the era, which considered humanity and faith in Christ the centre of all creation.

Present day technology allows for a dramatic view of our Point within the Circle and its vesica piscis in the galactic display of a solar eclipse (Figure 9), a cosmic expression of universal and sacred geometry.

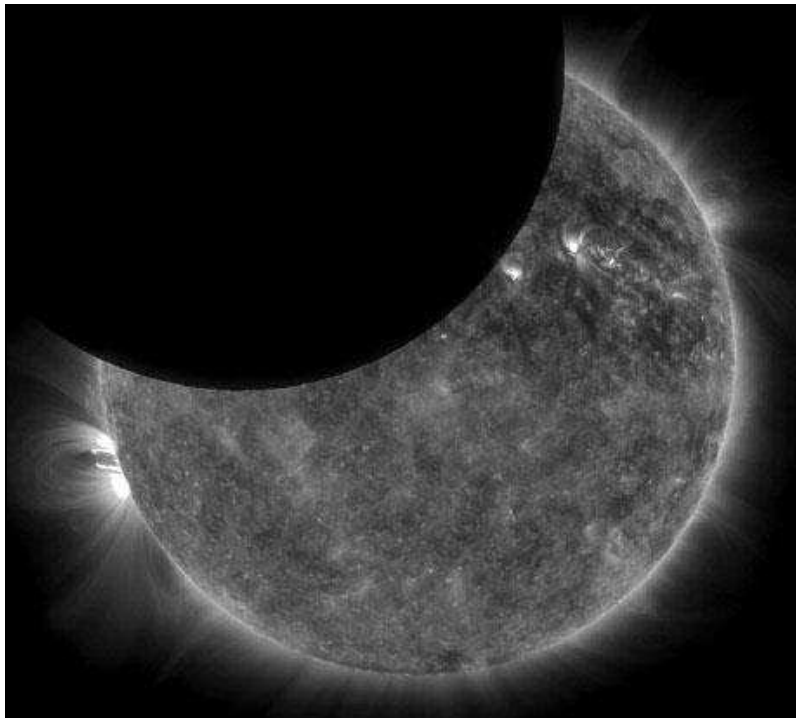


Figure 9. A celestial vesica piscis: The European Space Agency's Proba-2 satellite captures a partial solar eclipse. Image: ESA/Proba-2.

While it has been shown freemasonry and geometry share several historic intersections, the incorporation of the geometric principles of the 47th Proposition, the Golden Ratio and the Point within a Circle as iconic symbols within the speculative masonic system raises some fascinating questions.

⁵⁷ Robert Samber, *Long Livers*, p. viii

Were these devices figurative as well as a practical in operative masonry? Or were they resurrected and esoterically modified by the grafting of speculative masonry onto the operative system?

Matila Ghyka 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 travelled via occultist and Rosicrucian circles...they also travelled in other (politico-esoteric) trajectories from the Pythagorean Society to modern Freemasonry...⁵⁸

Perhaps we “cannot insist”, but we can theorize.

3. Transmission: origins of the Master Mason degree

Given the history described in the Old Charges, it is clear geometry was of an almost spiritual importance to the operative masons, and an understanding of the art would have been critical to the building of their structures. As an example we’ve seen the vesica piscis make a medieval appearance in the architecture of the Gothic cathedrals. But this doesn’t necessarily explain the symbolic presence of our principles in speculative freemasonry.

A deeper understanding of eighteenth century speculative masonry can be found when examining the origins of the third degree and the legend of Hiram Abiff. A relatively concise history, description and rundown of the legend’s competing symbologies can be found in George Oliver’s *Discrepancies of Freemasonry*:

Some assert that the [Hiramic] legend refers to the absolute and bona fide death of Hiram the architect; others trace it to the legend of Osiris or Ihammuz; and refer its hidden meaning to that curious opinion of the ancient heathens respecting the two mysterious predicaments to which all mankind are subject, viz., Sleep and Death. The former by producing dreams and visions which are unfathomable to the clearest intellect, and a mystery to the wisest men, were termed the Lesser or exoteric Mysteries; and the latter being the precursor of an after-state of existence, which, in the absence of revelation, was still more abstruse, they denominated the Greater or esoteric Mysteries. Others believe the legend was added after the Christian era, and that H.A.B. [Hiram Abiff] was intended to be a type of the death and resurrection of Christ. Some refer its origin to Oliver Cromwell and his Independents; and those who adopt the Ashmolean [a reference to Elias Ashmole] origin of Masonry refer it to the murder of King Charles. Others assign to it an astronomical signification, and think that the death and restoration of H.A.B. refer to the sun sinking at the autumnal equinox into the depth of winter darkness, and emerging into the summer light at the vernal equinox...⁵⁹

Further, the eminent Sufi scholar Idries Shah discusses freemasonry at length in his renowned volume *The Sufis*, contending there are uncanny similarities between freemasonry and an ancient Sufic order known as “The Builders”, or al-Banna, which means “mason” in Arabic.⁶⁰ Shah argues, “That the Sufi tradition continued in respect

⁵⁸ Matila Ghyka, *The Geometry of Art & Life*, pp. 118-119

⁵⁹ George Oliver, *Discrepancies of Freemasonry*, p.90

⁶⁰ Idries Shah, *The Sufis* (New York: Anchor Books, 1971) p. 206

of the Dome of the Rock is evidenced by the fact its later interior decorations contain Sufi symbolic designs. Templar churches and other indications show the influence of the Saracen version of the Solomonic Temple.”⁶¹

Shah proposes a band of early Sufis became dedicated to the Temple of Solomon, and when Jerusalem fell to the Arabs, one of their first acts was to occupy the Temple for Islam.⁶² Shah suggests:

Some late hand has reshaped the Arabic origins of the craft into a form more acceptable to people with a Judeo-Christian tradition; and we can safely assume[...]it was to just such a community the modern form of Masonry as we know it in the West was addressed.⁶³

An alternate theory for the origins of the Hiramic legend is built upon these suppositions. It holds the murder is not that of Hiram, but rather of the Sufi builder Mansur el-Hallaj (858-922 CE), who was executed by Abbasid Caliph Al-Muqtadir for refusing to reveal the Sufi secret.⁶⁴

There’s no way to know for certain when the sublime degree of a Master Mason was added, but there is reason to believe it developed gradually, and was possibly refined or re-created for speculative purposes following the 1717 formation of Grand Lodge.

It is important to understand there is no mention of the third degree or Hiramic legend in the Old Charges, and the first mention of Solomon’s Temple in freemasonry is found in the Cooke Manuscript (c.1430-50),⁶⁵ which seems more concerned with biblical tales like the story of Noah. The first mention of a third degree even remotely resembling the ritual as we know it today is found in a jewel of Irish freemasonry known as the Trinity College, Dublin, Manuscript of 1711.⁶⁶ It includes a description of the Five Points of Fellowship and a mangled, but recognizable, version of the Master Mason’s word.⁶⁷

The Trinity Manuscript is the square peg in the round hole of post-1717 third-degree creation theories. While not proving the Master Mason degree was ubiquitous, the Trinity Manuscript clearly demonstrates the idea was in existence and in practice in 1711. Notably, in his Constitutions of 1723 beneath the title “Charges of a Free-Mason,” Anderson briefly mentions he “extracted” the charges from the records of lodges in “England, Scotland and Ireland”.⁶⁸ But when he wrote the Constitutions of 1738, he included a history of freemasonry in Ireland from 430 CE until 1730.⁶⁹

It should be remembered the late seventeenth and early eighteenth century was a very different world. Freemasonry was fragmented. Pre-1717, there was no Grand Lodge. It is questionable how often, or even if, lodges communicated with each other,

⁶¹ Idries Shah, *The Sufis*, p. 212

⁶² Idries Shah, *The Sufis*, p. 212

⁶³ Idries Shah, *The Sufis*, p. 207

⁶⁴ Mohamad A. Yatim, “Freemasonry and the Mystic Schools of the East,” *The Working Tools Magazine*, Issue 58 (November 2012) p. 25

Available as a pdf: <http://www.hawthornefortitude200.com/MoandMatt.pdf>

⁶⁵ Cooke MS., Lines 548-575

⁶⁶ The Grand Lodge of Ireland: A History. Part 1, Section D. “The Trinity MS. of 1711,”

<http://www.irishmasonicjewels.ie/overview22.html#%28D%29>

⁶⁷ Harry Carr, “Six Hundred Years of Craft Ritual,” *The Grand Lodge of British Columbia and Yukon*, p. 9 http://freemasonry.bcy.ca/history/600_years.pdf

⁶⁸ James Anderson, *The Constitutions of Free-Masons*, p.49

⁶⁹ James Anderson and W.J. Hughan, *Anderson’s Constitutions of 1738* (Whitefish, Montana: Kessinger Publishing, 2010) pp. 91-96

as communication would've been in the form of letters that may or may not have reached their destinations. Travelling was a difficult and time-consuming process. In that hazy age between the operative and the speculative, it is conceivable whole lodges—each with their own rituals and creations—may have come and gone without ever conveying their presence.⁷⁰ It is also possible such a lodge developed an early version of the third degree which was later modified to include the presence of Hiram.

In fact, it's not until 1730 we find a mention of the Hiram legend, including the murder, the discovery and the raising, in Samuel Prichard's *Masonry Dissected*.⁷¹

And while there are several mentions of Hiram Abiff in *Anderson's Constitutions of 1723*,⁷² there is no mention of the third degree or the Hiram legend. But given the secretive nature of freemasonry, it is impossible to say if the degree existed. However, Anderson (or some unknown writer, the theories are plethora) defended the third degree in 1730 in "A Defence of Masonry" (a response to Prichard's *Masonry Dissected* of the same year) enclosed with *Anderson's Constitutions of 1738*.⁷³ A.E. Waite shines some light on the subject in an entry on J.T. Desaguliers, one of masonry's brightest stars, in *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.⁷⁴

3.1 Desaguliers

Dr John Theophilus Desaguliers (1683-1744), natural philosopher and engineer, was a research assistant and protégé of Sir Isaac Newton, who sponsored him into the Royal Society in 1714.⁷⁵ A prodigious lecturer and publisher, Desaguliers contributed to the consolidation of Newtonian philosophy and its establishment as a fundamental component of British culture. Fluent in English, French and Latin, he assisted in spreading Newton's ideas abroad, and is considered a key figure in the rise of science during the first half of the eighteenth century.⁷⁶

Desaguliers' contributions to freemasonry are equally as important. He was the archetypal speculative mason, elected Grand Master of the Grand Lodge of England in 1719, and was Deputy Grand Master for at least three terms in later

⁷⁰ Evidence of such a lodge does exist. In the year 1702 a little group of Scottish gentlemen decided to create a lodge in their own backyard. They were all notable landowners in the area, and decided to form a lodge in the village of Haughfoot near Galashiels. The result was the Lodge of Haughfoot, the first recorded speculative lodge, 34 years prior the Grand Lodge of Scotland, and 17 years prior to the Grand Lodge of England. Only their first minute book, and with it the "Haughfoot fragment" (29 words of ancient ritual), survive as a record. "The Origins of Haughfoot Lodge," Haughfoot Lodge, <http://www.haughfoot.co.uk/background.htm>

⁷¹ Samuel Prichard, *Masonry Dissected: Being a Universal and Genuine Description of All its Branches from the Original to This Present Time* (London: Charles Corbett, 1770) pp. 19-22. 20th edition, first edition published in 1730.

⁷² James Anderson, *The Constitutions of Free-Masons*, p. 11; pp. 14-15; p.27; p. 81

⁷³ James Anderson and W.J. Hughan, *Anderson's Constitutions of 1738*, pp. 224-226

⁷⁴ A.E. Waite, *A New Encyclopaedia of Freemasonry Vol. 1*, p. 182

⁷⁵ Patricia Fara, "Desaguliers, John Theophilus (1683–1744)," *Oxford Dictionary of National Biography*, Oxford University Press, 2004; online edition, May 2009

<http://www.oxforddnb.com/templates/article.jsp?articleid=7539&back=#top>

⁷⁶ Patricia Fara, "Desaguliers, John Theophilus (1683–1744)"

calculus. Born to a poor farming family, Newton was sent to Cambridge to become a preacher. Instead, inspired by the work of Euclid,⁸¹ he studied mathematics.

In response to a letter from Robert Hooke (publisher of *Micrographia* in 1665, the first treatise on microscopic principles and observations), Newton suggested a particle, if released, would spiral into the centre of the Earth. Hooke wrote back, claiming that the path would not be a spiral, but an ellipse.⁸² Newton, not to be bested, worked out the mathematics of orbits, but did not publish his calculations. It was Edmund Halley, discoverer of the comet bearing his name, who finally convinced Newton to expand and make known his work.⁸³

The result was the 1687 publication of one of the most important and influential works on physics of all time, *Philosophiae Naturalis Principia Mathematica* (Mathematical Principles of Natural Philosophy), often shortened to simply the *Principia*. Closely modelled on the style and structure of Euclid's *Elements*,⁸⁴ the volume laid the cornerstone of classical mechanics, proved mathematics could find patterns in nature and reveal the simplicities behind the complexities of reality, and gave us Newton's laws (primarily the law of universal gravitation, but also laws of inertia, action, reaction and acceleration proportional to force).

Outside of his official capacity, Newton was performing what can only be described as unorthodox research. Again, it is important to remember the context of the man's times. In less than a century there was a transition from magic to science, from alchemy to chemistry, from myth to experimentation. It was a natural evolution and Newton led it through a crucial period.

Newton was appointed Warden of the Royal Mint in the spring of 1696, and became Master in 1699; a position he occupied until his death in 1727.⁸⁵ Two centuries later, a collection of Newton's papers was discovered at the Mint and put up for auction. The papers were purchased by the British economist John Maynard Keynes in 1936. Keynes discovered not only an enormous number of scientific papers, but several alchemical works revealing Newton was not only the first physicist, but in Keynes words, the "last magician".⁸⁶ Keynes sent shock waves through the scientific community when he described Newton as an esoteric magician with one foot in the Middle Ages, a blend of Copernicus and Faustus for whom alchemy was as important as physics.⁸⁷

Indeed, Newton developed ideas which in his era would have been considered heretical. At the same time he was creating new mathematical theories, he was researching ancient chronologies, Solomon's Temple and biblical prophecies. Newton became convinced a fraud had perverted the legacy of the early church, and considered the worship of Christ in place of God to be idolatrous.⁸⁸ Owing to his belief accepted interpretations of Christ's holy status were wrong, Newton received a royal exemption from his obligation for Cambridge Fellows to be ordained by the

⁸¹ Eric W. Weisstein, "Newton, Isaac (1642-1727)," *Eric Weisstein's World of Biography*, Wolfram Research, <http://scienceworld.wolfram.com/biography/Newton.html>

⁸² Eric W. Weisstein, "Newton, Isaac (1642-1727)"

⁸³ Eric W. Weisstein, "Newton, Isaac (1642-1727)"

⁸⁴ Patricia Fara, *Newton: The Making of Genius* (New York: Columbia University Press, 2002) p. 59

⁸⁵ The Royal Mint, "The Life of Isaac Newton," <http://www.royalmint.com/olympic-games/explore-your-coin/isaac-newton>

⁸⁶ Alain Bauer, *Isaac Newton's Freemasonry: The Alchemy of Science & Mysticism* (Rochester, Vermont: Inner Traditions, 2003) pp. 59-60

⁸⁷ Patricia Fara, *Newton: The Making of Genius*, p. 28

⁸⁸ Alain Bauer, *Isaac Newton's Freemasonry*, p. 63

Anglican Church.⁸⁹ However, established in the orthodox university where his master Isaac Barrow defended the trinity, Newton did not express his views publicly.⁹⁰

Newton became president of the Royal Society in 1703. He held the post until his death.⁹¹ Of the society's two hundred members in 1723, the year Anderson published his Constitutions, about forty were freemasons, making up a fifth of the total.⁹²

Interestingly, Newton studied Pythagorean harmonics⁹³ and wrote extensively about the Temple of Solomon, dedicating an entire chapter in *The Chronology of Ancient Kingdoms* to his observations.⁹⁴

Newton died in March 1727. He is buried at Westminster Abbey. Curiously, it was arranged to have a large number of Newton's books and documents burned following his death,⁹⁵ making the alchemical papers discovered in the Royal Mint collection even more intriguing.

4. Theories

No record exists of Sir Isaac Newton having been a freemason. And it should be noted his devoted disciple and protégé Desaguliers makes no mention of Newton's membership, a statement the masonic promoter, prolific lecturer and Grand Master of 1719 would surely have enjoyed making. Perhaps evidence of Newton's membership was burned at the time of his death alongside other presumably controversial papers. Unfortunately, it is unlikely we will ever know.

This being said, the synchronicities bear examination.

As we've seen, Newton was inspired to study mathematics by his admiration for Euclid, an admiration he extended to the *Principia*, which was modelled after Euclid's *Elements*. And it's worth mentioning the original motivation behind the *Principia* was to prove a particle spirals. There is evidence Newton studied the work of Pythagoras, and dedicated extensive time and research to King Solomon's Temple, which concurrently came to prominence within freemasonry.

Newton's interest in the esoteric is well-documented. If Desaguliers, a zealous collector of old manuscripts, brought operative masonry and its hagiography of Euclid to Newton's attention, it's fair to say Newton would have had some opinions.

And even if he wasn't a freemason, is it inconceivable to see Newton and his assistant Desaguliers, the Grand Master of England, having discussions concerning the topics? Given Desaguliers' unique position at the creation of speculative masonry, is it possible history and fate conspired to have the fruit of these theoretical conversations end up as key components in the masonic system? Alain Bauer certainly believes so 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

⁸⁹ Patricia Fara, *Newton: The Making of Genius*, p. 7

⁹⁰ Alain Bauer, *Isaac Newton's Freemasonry*, p. 63

⁹¹ Alain Bauer, *Isaac Newton's Freemasonry*, p. 57

⁹² Alain Bauer, *Isaac Newton's Freemasonry*, p. 73

⁹³ Patricia Fara, *Newton: The Making of Genius*, p. 3

⁹⁴ 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.

⁹⁵ Alain Bauer, *Isaac Newton's Freemasonry*, p. 59

Freemasonry. If Freemasonry were a religion, Newton would be Christ the Messiah and Desaguliers his prophet.⁹⁶

Bearing in mind Newton's theological leanings, is it also a coincidence we find in speculative freemasonry, as we would have three hundred years ago at its birth, a system built on a tolerance that crosses all religious boundaries and brings together men from every race, country and sect? Freemasonry asks only that a man believe in God, but refuses to define that God. Consider the first charge in *Anderson's Constitutions of 1723*:

A Mason is obliged by his tenure, to obey the moral Law; and if he rightly understands the art, he will never be a stupid atheist, nor an irreligious libertine. But though in ancient times masons were charged in every country to be of the religion of that country or nation, whatever it was, yet 'tis now thought more expedient only to oblige them to that religion in which all men agree [a belief in a deity], leaving their particular opinions to themselves; that is, to be good men and true, or men of honour and honesty, by whatever denominations or persuasions they may be distinguished; whereby masonry becomes the Center of Union, and the means of conciliating true friendship among persons that must else have remained at a perpetual distance.⁹⁷

This 1723 charge is virtually unchanged in the ritual of today. It is read aloud in lodges before every ballot of initiation as a reminder of speculative freemasonry's founding and cornerstone principles. It also affords a glimpse into the Age of Enlightenment, an age fuelled by the scientific revolution, a time in history to which Newton and Desaguliers had front row seats.

5. Conclusion

An examination of symbologies provided by the 47th Proposition, the Golden Ratio and the Point within a Circle reveals an extraordinary path from the operative to the speculative age. The history of freemasonry demonstrates the craft protected and maintained geometry through the Middle Ages, its symbols passed from generation to generation through initiation. It illustrates the arcane and sometimes startling application of those symbols, suggesting they were resurrected and/or esoterically modified during the transition from operative to speculative masonry.

By tracing the history of the Master Mason, or third degree, we gain a deeper understanding of this transition. We find a compelling if not obscured past, and a suggestion the third degree came into common usage in the late seventeenth or early eighteenth century. Evidence to this effect is persuasive.

We find such fascinating characters as the reverend-historian James Anderson, Mr. Bauer's "deus ex machina" of speculative freemasonry Dr John Desaguliers, and possibly the greatest scientist who has ever lived, Sir Isaac Newton, intersecting at the centre of this intriguing period. It has been argued Anderson and Desaguliers share responsibility for speculative masonry, but there is also the blurred inference of Newton's fingerprint. Based on the evidence, coincidental and circumstantial though it may be, we contend it is plausible these three men played a part in not only the modification (or re-creation) of the Master Mason degree, but also in resurrecting those geometric symbols from the operative age of that define present freemasonry.

⁹⁶ Alain Bauer, *Isaac Newton's Freemasonry*, p. 70

⁹⁷ James Anderson, *The Constitutions of Free-Masons*, p. 50

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