

The Expositor Series

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Sacred Geometry

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Presented jointly by:

Grand Lodge F&AM of Wisconsin Education Committee



And

Silas Shepherd Lodge of Research #1843



Welcome

My Brothers,

Education on Masonic topics can be divided into two general categories. The first is an understanding of the meaning and application of the symbols and working tools presented to each Mason in his degrees. The second is a deeper and more thorough understanding of the meaning, origins and history of not only the symbols of Freemasonry but also of other topics that are directly or indirectly related to our craft. While most Masons crave the former, more and more Masons also seek the later.

The 'Masonic Study Series', developed in 2015, is intended to help the Mason increase his understanding of the application of our symbols by encouraging discussion about these symbols. The intent of the 'Expositor Series' is to help provide our Brothers that seek that deeper understanding of our mysteries with topics and papers that are written and prepared with that level of understanding in mind.

In the jurisdiction of the Grand Lodge F&AM of Wisconsin we have a unique opportunity as it is the home of Silas H. Shepherd Lodge of Research #1843, one of the premier research Lodges in the nation. By partnering with Silas Shepherd, the 'Expositor Series' not only gained access to more than 30 years of papers that have been written with the Mason seeking that deeper understanding in mind, but also the cooperation of some of the best writers and researchers this jurisdiction has to offer.

While the papers contained within the 'Expositor Series' are presented with the education of the individual Mason in mind, they can be presented within or to a Lodge. Care should be taken, however, to observe the interest of those present at a presentation of the series, and that the members present have obtained the degree in Masonry that the paper applies to.

We hope you enjoy these papers and that they help you attain the level of knowledge and understanding you are looking for.

Fraternally,

Grand Lodge F&AM of Wisconsin Education Committee
Silas Shepherd Lodge of Research #1843

By the square

Solomon's pass and the operative secrets of Freemasons

In the absence of a written language or forms of expression capable of conveying abstract ideas, we can readily comprehend the necessity, among a primitive people, of a symbolic system... It (the symbolic system) thus came to constitute a kind of sacred language, and became invested with an esoteric significance understood only by a few.

(Ephraim George Squier, 1851)

Introduction

As Freemasons we are known by others as a *secret society*. We even allude to this concept, though erringly, to ourselves at the end of the Entered Apprentice lecture where we state “*The whole is a regular system of morality, veiled in allegory, which will unfold its beauties to the candid and industrious inquirer.*” I state *erringly* because we do not state that we hold secrets or that within Masonry there exists a secret doctrine, instead we truthfully state that our teachings are presented through allegory. Therefore through careful observation and studious inquiry an industrious Mason will discover these allegories and their illuminating lessons will present themselves. One such lesson is so important to our craft that it is presented in several different facets and illuminates many different components concerning Freemasonry: the importance of the Master’s word. The Northeast corner, the significance of the Deacon’s rods

and their symbolism, how a lodge is situated, circumambulation, the winding staircase, a “point within a circle,” and ultimately the *sacredness* (or importance) of Geometry all provide allusion to this particular lesson. While this net seems fairly large to maintain its catch, as we become industrious throughout this inquiry, the beauties of these *secrets* will clearly present themselves as candid allegories.

The importance of the master's word

There is a question of logic that often perplexes the newly raised brother which directly deals with this simple exchange:

Jubelum - ...We should like to gain a passage with you, three of us brethren.

Seafaring Man - You can have a passage, I suppose. You appear to be workmen from the Temple at Jerusalem, are you not?

Jubelum - We are.

Seafaring Man - I should be glad of your company. You have King Solomon's pass?

Jubelum - No, we have no pass. We were sent off in a hurry and on urgent business; there was nothing said about giving us a pass; no doubt it was forgotten or not deemed necessary.

Seafaring Man - No pass! You cannot gain a passage with me then, I assure you. It is strictly forbidden!

(MM 2nd Section Ritual)

The question of logic is *if* Solomon's pass, the Master's word, is indeed lost with the death of our Grandmaster Hiram Abif how does this seafaring man know if these suspicious characters have

the correct pass or not? Does this passage not imply that there are men all over the world who know the pass (in order to receive the pass they would have to know what it is) and all master craftsmen who had been given the pass so that they may travel into foreign lands and work and receive master's wages, would thus know this pass. How then with all of these people knowing how to receive the pass can the pass be lost?

Charles Roblee, a past master of Silas H. Shepherd Lodge of Research #1843, addressed this very question in his treatise: *Our ancient Grand Master's staff, the "Rule of Three" and the lost word.* To summarize Brother Roblee the *lost word* is not a word but an object, specifically a blue rod of 5 units. (The Pythagorean fascination with the number 5, the union of the first female number, 2, with the first male number, 3, will lead to discussion of the Golden Ratio. (Yule, n.d.) which will be explained shortly):

"With this in mind, the Hiramic Legend suddenly has an entirely new interpretation. Suppose that the only way our ancient Grand Masters knew to make a right angle was to put together their staffs. That they didn't understand the proportions required, only that their staffs had this "secret" property. Consider, the numerous times it was necessary for the right angle to be established or set in the building of the Temple. At that time, there may have been no such instrument as what today is known as the "square." Certainly there were no surveyors to establish proper angles and lines. Therefore, by the use of the "Grand Master's staff" was the only way to establish a true right angle. If, upon the death of Hiram Abif, his staff was lost, then indeed the Master's secret would be gone

forever. Solomon and Hiram of Tyre could never again hope to make new squares by this method” (Morris, 1982).

This then would be a logical *pass* to have: a rod symbolic of the hypotenuse of a right triangle. This notion is further stipulated in Silas H. Shepherd’s essay *Why by the square?* as well as throughout our ritual where the significance of Pythagora’s Theorem is reviewed and examined. The Pythagorean Theorem, also known as the 47th Proposition of Euclid states: “In every right-angled triangle, the sum of the squares of the base and perpendicular is equal to the square of the hypotenuse,” (Stewart, 2010). The Pythagorean theorem, $a^2 + b^2 = c^2$, while not necessarily considered a “truth,” was known as long ago as the Old Babylonian period ca. 1600 BCE, (Yule, n.d.).

The importance of this mathematical truth is reflected over and over again giving credence to Roblee’s and Morris’ supposition. We as Freemasons are taught repeatedly that Masonry is synonymous with Geometry; it is worth noting that the earliest of all known Masonic documents, the Regius Poem (sometimes called the Halliwell Manuscript) (Shepherd, 1924), 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 Regius Poem to the end of the 14th or the beginning of the 15th century. Interestingly, line 143 of the poem. suggests a still older document: “*By olde tyme wryten y fynde*” (By old time written I find) (Mackey, 1921). There exists many reasons as to why geometry is of such importance but we must remember that early masons were schooled in a very different format when compared with modern day educational practices, (Pynakker, 2012). We also have to keep in mind the use of allegory as a “best practices” method of teaching prior to modern literate education. The student of the history of the ritual is well aware of its evolution

in explanations of forms and ceremonies as given in the work and lectures. The ritual we use in America is practically the reworking of the ritual by William Preston in the last quarter of the 18th century, (Shepherd, 1922). Hints to the exposition of these allegories are patterned throughout the rituals and we will unsheathe their importance as educational tools as opposed to strange antiquated mannerisms presented throughout ritual. This might have resulted from Preston or some other ritual editor not only not wanting to discard an ancient emblem, but also not entirely understanding its significance, or maybe thinking it too well known to need elaboration (Morris, 1982).

The Northeast corner

As an Entered Apprentice we are taught “*On your return to the Lodge, you were placed in the Northeast corner because, in operative Masonry, the first stone of a building is usually laid in the Northeast corner. You were, therefore, placed there to receive your first instruction whereon to build your future moral and Masonic edifice.*” While there are symbolic connotations obviously apparent in this statement a quick review of historic architecture can explain why the first stone is laid in the northeast corner. We must keep in mind that our history as we understand it stems from the perspective of those people north of the equator (a term we will come to understand as *Western Civilization*). This is important to further understanding the importance of the northeast corner. As with a little imagination one can understand the importance and ease of *east*, this is of course where the sun rises over the horizon every morning. If one needed a direction to guide by they simply had to locate the rising sun in the morning and they would know *east* and from there deduce the other cardinal directions. Coupled with these people being north of the equator the sun would always appear to the south as opposed to being directly

overhead (as reminded to us Freemasons by the Junior Warden at every level). There is also significance as to the Senior Deacon's place within the lodge and the symbolism of his jewel that will be revealed shortly. There exists many ceremonial reasons that the northeast corner will become important but if we review this information from purely a practical element we will see a pattern emerge throughout our many rituals.

The significance of the Deacon's rods and their symbolism

The jewel of the Senior Deacon whose place is not so coincidentally in the Northeast corner of the lodge is a square and compass encircling a sun.



placed atop a rod held by the Senior Deacon. The Junior

Often this jewel is

square and compass encircling a moon ,



again placed atop the rod. (The Junior

Deacon's place in the southwest corner

is also of significance which will be

addressed later.) The next hint is understood with a rudimentary understanding of surveying. Our

deacons and stewards are taught to hold their rods with the jewel facing out, as opposed to

having it sideways. If we view the rod as a survey tool it is simple to see the corresponding

significance. If the Senior Deacon were to align his rod with the rising sun (in the east) and the

Junior Deacon, at some distance off in the west, were to orient (which is another term for finding

east) his rod with the Senior Deacon's (as referenced by the moon and in the west) these two

Masons would sight along two points, thereby by geometry *sighting a line* that would run

directly east to west "*I have traveled from the east to the west.*" In operative masonry this would

be a means for surveying prior to building a wall. Without geometry one could haphazardly stack

rocks to form a shelter, but with geometry one can build cathedrals and this seems to be the

importance of understanding the lodge building or temple. For our purposes we now have a wall

which *runs* true east to west. By aligning our Senior Deacon's rod in the east we could

reasonably estimate by the shadow cast a line extending north from the same rod, which perhaps may have been the case early on with the ancients. But in Freemasonry we stress Euclid's 47th Problem (an explanation on Pythagora's Theorem) as well as the "missing" Master's Word. This theorem has been called the root of all geometry and the cornerstone of mathematics. The practical applications alone are worthy of the high esteem that Masonry affords it. And this is the interpretation of the lecture that is most considered when masons speak of it but the meaning of this hieroglyphic symbol does not stop there.

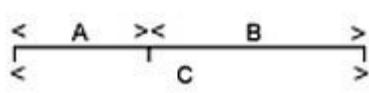
The emblem we are usually presented is in this fashion: the vertical line is of 4 units, the and the hypotenuse is of 5 units. Our attention is called to this geometrical figure throughout the Master Mason degree (Lovewell, 2012). The significant point about the use of the 47th Problem is the 3-4-5 right triangle that is most often depicted. This might be because the 3-4-5 triangle is the simplest example of the theorem, or it might be because *this was the way operative masons made their squares*. By taking three strings or rods, one each of lengths 3, 4, and 5, and putting them together to form a triangle, you will *always* have a 90 degree angle. Still today, foundations of buildings are laid out with strings in the 3-4-5 ratio. Again, we can demonstrate a simple, effective, and essential "secret" of the operative builder (Morris, 1982).



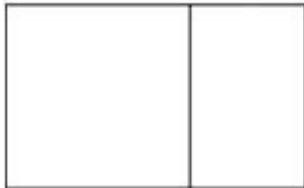
the 3,4,5 right triangle
horizontal is of 3 units,

By implementing Pythagora's Theorem we can with exactitude form an easterly wall running south from our existing wall with an angle of ninety degrees. More importantly if our east to west wall is based on four units of length and our new easterly wall is built based on three units in length not only do we have the beginning proofs of Pythagora's theorem but we have the inkling of the *Golden Ratio* which will again demonstrate its importance throughout. Although not naming it the *Golden Ratio*, around 300 BCE Euclid of Alexandria 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," (Yule, n.d.). The precise value of the *Golden Ratio* is an irrational number, known as Phi (1.618). The *Golden Ratio*, divides a line at a point

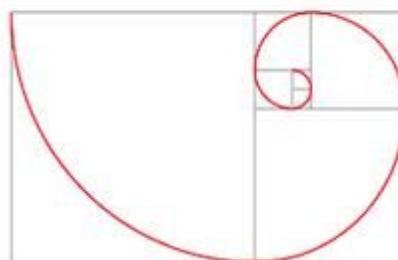
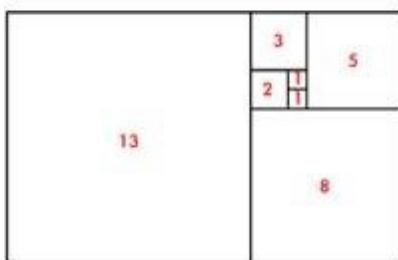


such that the smaller part relates to the greater as the greater relates to the whole: the ratio of the lengths of the two sides is equal to the ratio of the longer side to the sum of the two sides (Burkle, 2007). Pythagoras is credited with the discovery of the *Golden Rectangle*. The *Golden Rectangle* is built on the *Golden Ratio*. To get a *Golden Rectangle*, you simply turn the larger segment of the line into a



square. If you add a square to the long side of the *Golden Rectangle* you will get a larger *Golden Rectangle*. If you continue to add squares in this fashion, you will see the basis for nature's logarithmic spiral patterns (Lovewell, 2012). The golden proportion appears in numerous places in nature and in art and architecture. It forms the basis for Leonardo Da Vinci's "Divine Proportion," the ideal illustrated in his drawing Vitruvian Man. The face of the Parthenon in Athens is a perfect *Golden Rectangle*. The shell of the nautilus is a famous example of a spiral based on the golden mean, as is the spiral of the human DNA molecule (Yule, n.d., Lovewell, 2012). To put it simply, a

The Fibonacci Rectangle (or Golden Rectangle) is used to create the Fibonacci Spiral which can be seen throughout the natural world.



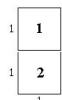
Golden Rectangle is a rectangle divided in such a way as to create a square and a smaller rectangle that retains the exact same

proportions as the original rectangle.

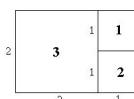
Circumambulation

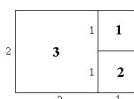
Antiquity records that *circumambulation* is a rite of *purification* resulting in the movement or turning to the right. Masonic lodge ritual claims that this is so that the officers of the lodge may readily inspect a candidate for preparedness, (Mackey, 1921). But there is another symbolic measure that becomes apparent when we take into account the operative secrets for structurally forming a lodge. A candidate for the Entered Apprentice degree begins his ritual of circumambulation in prayer suggestively at the altar. He then is conducted about the lodge turning to the right until as a Master Mason he has made this journey in three spirals (again that rule of three rises from the ash of antiquity). A curious point is that the Entered Apprentice is told that his apprenticeship will take seven years to complete. The number seven is a curious number of years for an apprentice to serve his duties but if we rethink the process and structure of masonry as a tool of operative education we can see some apparent revelations. To examine

this let us begin at the altar and place a square of 1 unit  upon the floor, then turning to the

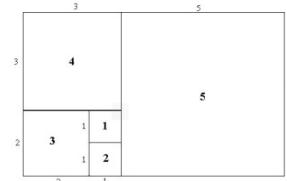
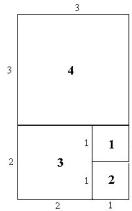


right, place another square of 1 unit  next to it. We now have in Masonic terms an *oblong square*, one which follows the golden ratio. We continue this process with a third step by turning to the right and placing another square equal to the two squares we have, thus a square of 2 units,

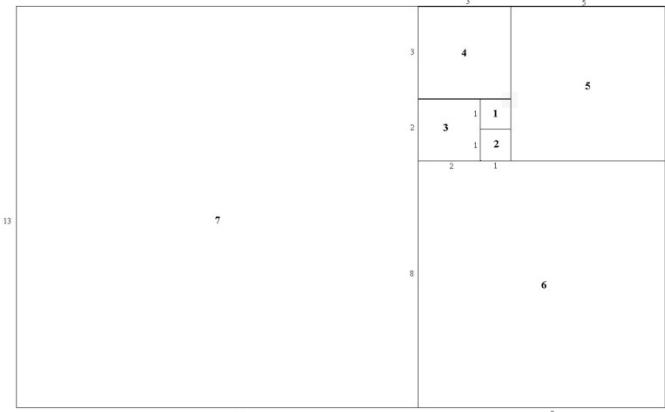


and by definition a *Golden Rectangle*.  Again turning to the right of our figure add

another square equal to the new sides (1 and 2) and we have in the fourth step a square of 3 units,



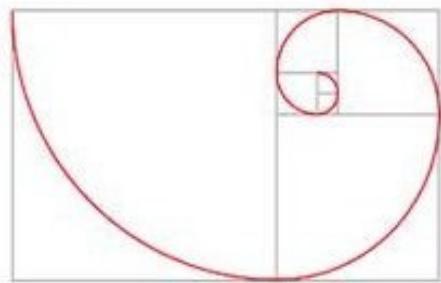
we continue this process through step five,



step six and finally step through step seven

which gives us a *Golden Rectangle* of 21 units in length and 13 units in width. Perhaps this is mere coincidence but a rectangle of 21 units when divided by the rule of 3 gives us 7 steps, coincidence or not by the use of a square and following the golden ratio and basic circumambulation we can create a perfect rectangle which may explain why our lodges are set east to west in the form of an *oblong square* (which is to denote two squares joined together to form a rectangle). But the use of circumambulation does not end here but rather is expressed throughout nature itself everywhere. The Fibonacci Spiral, also known as the *Spira Mirabilis*, or Wonderful spiral, was researched by Jacques Bernoulli (1654-1705) and found that this logarithmic curve features self-similarity: as its size increases, its shape remains the same. It is found in the shell of the chambered nautilus, the horns of rams, and also sunflowers, hurricanes

and giant spiral galaxies. This spiral can be drawn by drawing curves inside a *Golden Rectangle*.



The winding staircase

According to the eminent Masonic scholar Albert G. Mackey, who writes in *The Symbolism of Freemasonry*, (1886):

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...

Seven steps, seven years, seven officers in the Entered Apprentice degree, the importance of seven cannot be overlooked and coupled with what we know of the golden ratio and ritual of circumambulation can these matters merely be the whim of coincidence?

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.*” (FC Charge). The study of Geometry is mentioned in the above line as proving “the wonderful properties of nature,” again we have this allusion to the *Spira Mirabilis* a mathematic anomaly found throughout all of nature and reinforced in the form of the lodge as well as in the ritual of circumambulation. This relationship with nature is singled out again in the line, “*we may curiously trace nature through her various windings to her most concealed recesses,*” (FC 2nd Section Ritual).

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, (Stewart, 2010). The winding staircase continues on the precepts of circumambulation and further delineates geometry and a study of the liberal arts, meaning a plentiful studying of education as a means to further educate the industrious inquirer. As apparent through Preston’s reworking of the rituals and MacKey’s understanding 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 (Stewart, 2010).

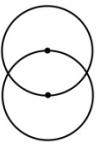
A “point within a circle”

In computer programming, as well as other disciplines, there exists a programming code referred to as a “checksum.” A checksum is a fixed-size datum computed from an arbitrary block of data for the purpose of detecting accidental errors that may have been introduced. The integrity of the data can be checked at any time by recomputing the checksum and comparing it with the stored one. This concept of a checksum is a redundancy program to make sure that the code entered is free of errors. While the *checksum* is relatively new historically through the use of programming code the concept dates back to time immemorial. An interesting point is to be made by Mark Tabbert, (2005), who points out that as Freemasonry developed in the *new world* there were two avenues by which the material was delivered. Some lodges preferred the conferring of the degree through historical lectures while others followed a more esoteric ritualistic manner to present the information. As often cited by educators there is no one way to teach an individual and as Freemasonry became more influential in America discussion was made as to which method would be best to present the craft information. As can be deduced this

discussion left many to argue for one way or the other which left modern American Freemasonry with the redundancy of both methods presented when conferring a degree. This redundancy is so ingrained in modern Freemasonry that many masons do not realize that the ritual was performed in any other manner. In essence these two methods of education are their own built in *checksum* code to make sure that the Mason is thoroughly and accurately informed.

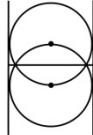
But as stated earlier the concept of the *checksum* is nothing new and to the careful observer it reveals itself within the Masonic ritual. This leads to the Masonic teachings that a point within a circle, "*... is represented in every regular and well governed Lodge ...*" Why should *every* Lodge contain this curious symbol? Perhaps it is the understanding that a point within a circle can *prove* the right angles and can be used to *try* a square (Morris, 1982). With a compass and a straight edge one can geometrically create a rectangle thereby creating a ninety degree angle and thus developing a *square*, not only that but by using simple geometry one can determine if their tool the *square* is true. Which again is referenced in the ritual as the Senior Warden states that he will be tried by the square as to *try* a square is to determine if it is true.

Let us begin with a simple circle  we have a center point where we place one end of our compass and the other some point in space, we then pivot about that first point thereby creating a circle. If we take another point, any point, on that newly drawn circle and create

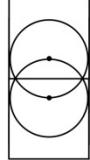
 another circle we have a design that will lead us into two exacting areas. First by taking our straight edge and aligning it on the outer edge of both circles we will create the foundation of



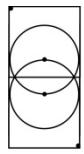
a rectangle (two parallel lines). We then use our straight edge and draw a line where the



two circles intersect. We now have four right angles and if we use the length of our new bisecting line, (one unit), to extend our parallel lines we will find that once again we have an



oblong square. Coincidentally if we revisit the stations of our Senior and Junior Deacons



and connect them with our straight edge



we again have two *right triangles*, or the

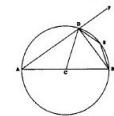


tool we refer to as a *square*. Secondly, if we take our circle



and using our straight edge we

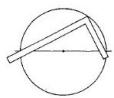
draw a line through the point and bisecting both sides of the circle



we can utilize Euclid's

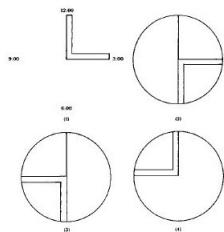
proposition 31 which states "...in a circle the angle in the semicircle is right..."

Or in an operative sense by placing the outer edges of a square where our line intersects the circle we



can try a square.

Plus let us not forget "...an angle of ninety degrees or the fourth part



of a circle,"

which is another method for trying a square.

Within our ritual we have several methods demonstrating the importance of the square, how to utilize the square to create an *oblong square*, how to try a square and how to incorporate the *golden ratio* into a building. We also have a built in redundancy code to make sure that we can check our square or *try* it to make sure that our dimensions are true.

The sacredness (or importance) of Geometry

"The Square appears to have been one of the earliest geometrical figures which was applied to any practicable purpose. And hence it became of great importance with the first Masons, which it still retains in our lodges, and is an emblem of morality and justice."

(Shepherd, 1987)

Let us finalize this discussion by considering just exactly what sort of secrets an apprentice could learn in a medieval freemason's guild. These secrets were presumably trade or technical secrets, relating, for example, to the designing of an arch, or to the way in which a stone should be laid so that its grain ran, as far as possible, as it did in its native bed in the rock (Morris, 1982). And let us not forget the importance of the square: not everyone knows how to make a square. Four centuries ago, one could not walk down to the local hardware store and buy a square. It required a special "secret" to make a square, and further "secrets" to test one to be sure it was true (Morris, 1982).

Everything must be presented in context for further learning to take place. I am often reminded of my own interactions with a seasoned Mason who helped enlighten my specific Maspnic journey when I struggled with my role as a Junior Deacon (memory work not being one of my strong suits). He would advise me to not *memorize* the work but rather *explain* the duties. The process here being that once I knew what I was doing the words would make more sense to

me, thus instead of trying to recite memorized verbiage I would be explaining my duties in eloquent speech. I thought about this in my role as a Junior Deacon and instead of trying to recall the often eloquent and tongue tripping words I started to visualize my role within context of my motions and actions: I was to let the Tiler know that the Master of the lodge was ready to begin and that he was to attend to his duties, I explained how this was made possible, I instructed new candidates and made sure they were properly prepared before entering the tiled lodge, I delivered messages between the Senior Warden and the Master of the lodge and so on. As my progression throughout Masonry continued I realized that what we consider esoteric or ritual work is actually rife with these lessons and to further understand their properties one needed to view them within context.

If we take into account that Freemasonry evolved from the operative guilds of an earlier age we can understand that an important aspect to our craft is the magnificent property of the humble square. Without of which simple buildings could not be designed, nor constructed much less cathedrals. And with the importance of the square comes about the refinement of such a tool: determining if it is an accurate tool, (tried and true). All throughout our lessons we are reminded of the importance of the square and how to use it properly in both operative and speculative Masonry. We are reminded of this in the sacredness of Geometry and the issuance of a charge to further enlighten ourselves liberally in understanding the arts and sciences. We discover the need to begin our journey at a point and from that point we can establish our morality within due bounds and further circumscribe our own ideals as well as our journey. We are taught that even the simplest skill of how to hold our tools correctly is an integral part in our development for if we try to create without the knowledge of proper tools we can get lost in the minutiae of excess. We are taught to derive meaning from our endeavors so that the designs laid out before us are not

secret incantations understood by some magi. Rather we are craftsmen who know how to execute a plan and build up from a humble foundation a majestic temple worthy of the admiration of a Grand Architect.

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