

CALIFORNIA

FREEMASON

SACRED GEOMETRY



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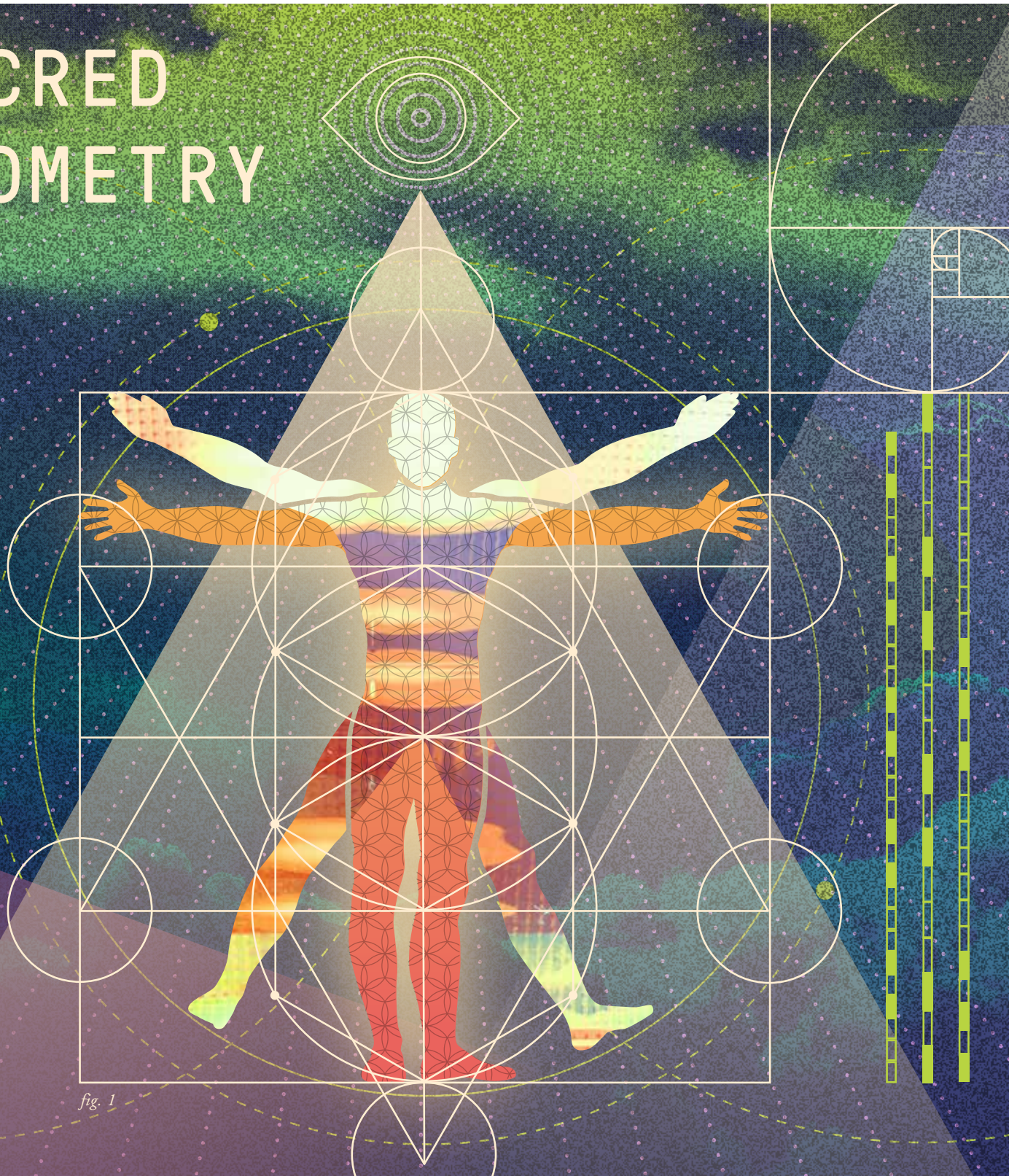


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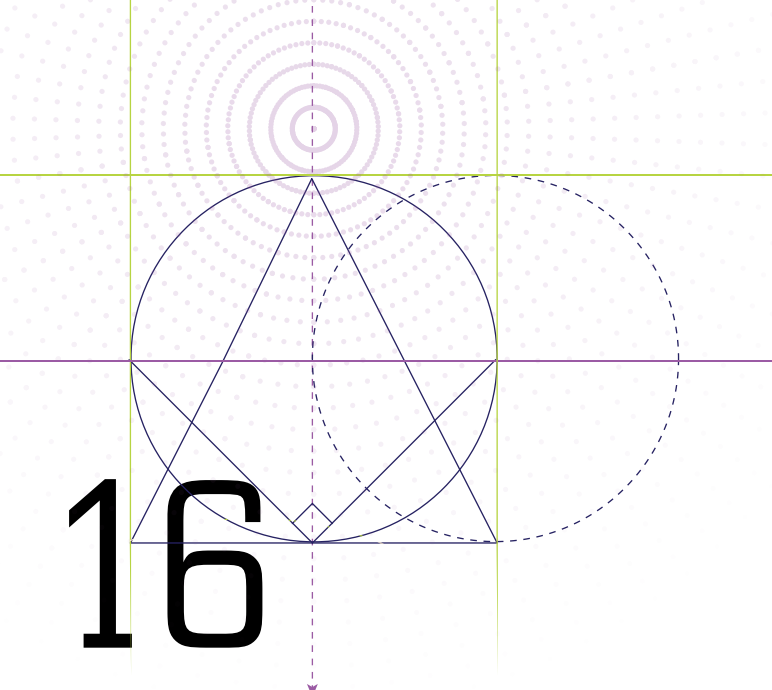
2018 VOL 66 | NO 03



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Twinned interests in Masonic sacred geometry and architecture have brought great meaning and a deep sense of connection to one brother's life and Masonic experience.

EXECUTIVE MESSAGE

THE TOOLS THAT BUILD OUR LIVES

In Masonry, we learn to “walk the straight line.” Through the lessons of the degrees, we discover the crooked line is represented by the rough ashlar; the straight line by the perfect one. As we make conscious decisions to follow our Masonic teachings, we are following the straight line. Of course, this metaphor is rooted in geometry.

Our precious symbol, the square and compass, is also comprised of the tools of geometry. Through our degrees, we learn of the tremendous values associated with it. Along with other architectural tools — the square, compass, plumb, and ruler — we grow into better men with stronger relationships and a deep sense of connection to the world around us.

There are three words that hold great significance within Freemasonry: *time*, *patience*, and *perseverance*. They bring to mind the accomplishments of the ancient architects and our stonemason forefathers who, through geometry, constructed the pyramids and cathedrals that still inspire awe today. And, they are passwords to overcoming nearly every challenge we may face.

Still, the beauty of these structures cannot match the beauty that develops within each of us as we embrace the metaphorical lessons of these simplest tools in our day-to-day and interior lives. To quote our ritual: “Geometry is the first and noblest of sciences and the basis upon which the superstructure of Freemasonry is erected.”

With our brothers beside us, we do stand tall.



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Of a Divine and Moral Nature

UNDERSTANDING MASONIC SACRED GEOMETRY

By James Lincoln Warren

Like Freemasonry, sacred geometry appeals to both the rational and creative mind.

The term “sacred geometry” can be somewhat intimidating: How might geometry be *sacred*, one might wonder. And, how does Masonry fit in?

The core concept of sacred geometry is that geometric order (shapes, curves, and constructs) precedes all physical existence – that geometry was invented by the Great Architect of the Universe as a structure through which to order all of creation. Under this tradition, its symbols take on metaphysical and symbolic meanings. “Geometry, or Masonry, originally synonymous terms, is of a divine and moral nature,” wrote William Preston, a seminal figure in 18th century British Freemasonry. “The contemplation of this science in a moral and comprehensive view, fills the mind with rapture... [and] proves the existence of a first cause.”

For some, *all* of geometry is sacred. At the other extreme, sacred geometry may be regarded as a system of fixed symbols and their relationships. As a coherent system, the origins of sacred geometry in Western civilization can be traced to the sixth century

CONTINUED NEXT PAGE

“By Geometry we may curiously trace nature through her various windings to her most concealed recesses. By it we discover the power, wisdom and goodness of the Great Artificer of the Universe . . .”

WILLIAM PRESTON

BCE philosophical school of Pythagoras. The historical Pythagoras is essentially a cipher, as there are no contemporary accounts of his philosophy. His extensive legend, however, along with the writings of Plato, Aristotle, and his other followers, was transmitted through the centuries and had a direct influence on the development of speculative Freemasonry.

Like Freemasonry, sacred geometry appeals to both the rational and creative mind. While geometric proof is relentlessly logical, the truths it conveys and patterns it reveals within the natural world urge its scholars to contemplate their place in God’s cosmos.

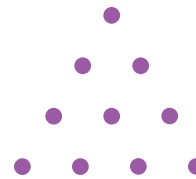
Many sacred geometric applications and symbols are familiar to Masons. First is the *circumpoint*, the **point within a circle**: In Masonry, the point represents an individual, and the circle, the limits of his behavior. In sacred geometry, this symbol is called the *monad*, which represented divinity and the unity of the universe to Pythagoras.

The **standalone circle**, being without end, symbolizes divinity and heaven. It is created using a compass and defined by three points. These points can be interpreted as the three principal tenets of Freemasonry – brotherly love, relief, and truth (the last of which is often described as “a divine attribute”). As a divine symbol, these points can also be interpreted to correspond with St. Paul’s theological virtues of faith, hope, and charity. These virtues are said to originate in God, and they are evoked in the celestial first-degree description of the covering of a lodge as heaven itself.

The circle’s complement is the **square**. Bound by four finite sides, it represents the limits of the physical world and our mortal existence. In Masonry, the square represents the perfect ashlar – a perfectly shaped square block without faults that is strong and steadfast, capable of supporting the blocks around it. Masons work to emulate this square;

to be men of good character who are honest and reliable members of our communities. The square is reflected in the shape of the lodge room. The room’s sides correspond to the four cardinal points of the compass, and thus to a map of the Earth. It contains the four cardinal virtues adapted from Plato’s “Republic” which originate in man – temperance, fortitude, prudence, and justice.

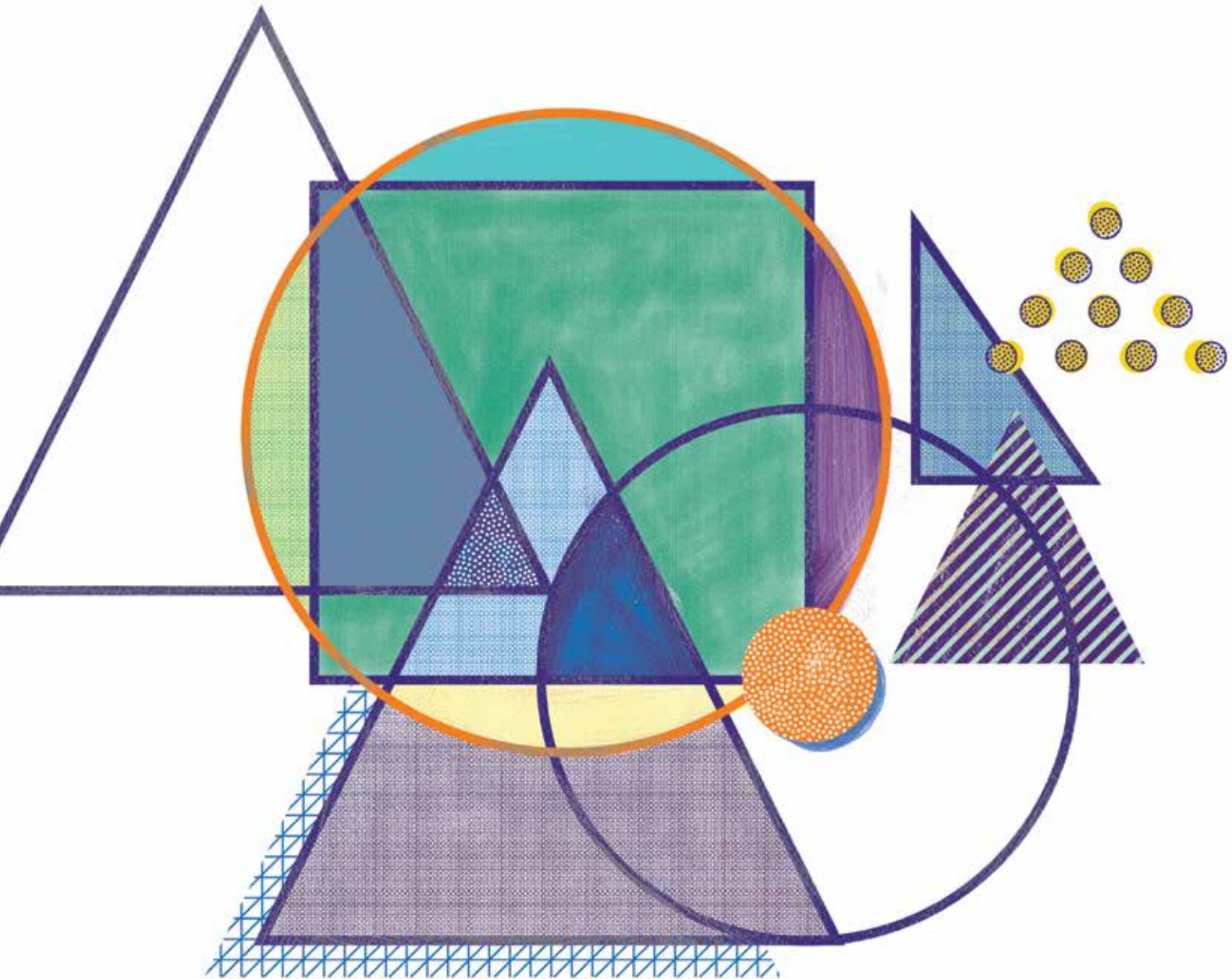
A slightly more complex symbol is the Pythagorean *tetractys*, an equilateral triangle formed by 10 dots, which has a prominent role in the Scottish Rite:



This has many symbolic meanings, but an important one is *perfection*, or completeness, derived from the symbolic significance of the number 10.

The **3:4:5 right triangle**, which displays the 47th Problem of Euclid as explained in the third degree, “teaches Masons to be general lovers of the arts and sciences.” Operative masons used a length of rope divided into 12 equal segments (three plus four plus five) to make this triangle. It provided them with a swift and accurate method of creating a right angle, to be used as a template for the Mason’s square. (Learn how to create this yourself on page 22.)

Sacred geometric symbolism, which can be very complex, is only touched on lightly in the three degrees. Its most prominent place is in the second degree, where the candidate is urged to study the liberal arts and sciences, “especially of the noble science of Geometry.” As with all profound Masonic lessons, the instruction conveyed in the



ritual is the beginning of wisdom to be discovered on this subject, not its culmination: There are profound depths ready to be plumbed.

The study of sacred geometry is a means by which “to view with reverence and admiration the glorious works of the Creation,” and to inspire a Mason “with the most exalted ideas of the perfections of his Divine Creator.” Although one understanding of sacred geometry is that its forms are divine manifestations in the natural world, one must take time to scrutinize the natural world in order to deduce them and marvel at their presence.

Preston wrote with lyrical awe on the beautiful geometry in nature, from the most elegant seashell and flower to the vastness of space. As he professed, in words forever enshrined in Masonry,

“By Geometry we may curiously trace nature through her various windings to her most concealed recesses. By it we discover the power, wisdom, and goodness of the Great Artificer of the Universe... A survey of nature, and the observation of her beautiful proportions, first determined man to imitate the Divine plan, and to study symmetry and order.”

This is the true objective of sacred geometry and its symbols: Finding further light within Masonry. ✧

DONOR PROFILE

AN ANALYTICAL MIND

MEET DURWARD C. AYRE
MASON FOR 43 YEARS
HIRAM AWARD RECIPIENT
GRAND MASTER CIRCLE DONOR

Durward “Dee” Ayre has always loved to understand how things work. Give him an electronic circuit, and he’s likely to take it apart and rebuild it just for fun. He’ll probably improve the design, too. That comes from years as a naval engineer and teacher.

When he was initiated at Pensacola Lodge No. 42 in Florida, Ayre’s mechanical mind started whirring. “I saw the working tools of Masonry, and they’re all geometry; they’re all math. I related them to my own knowledge.”

Other strong interests include anthropology and archaeology. He travels the world photographing ancient ruins with an eye for sacred geometry. “I’ve seen Masonic emblems in Turkey, Greece, Rome, the Middle East. I always wonder: Why are they there? How did they get there?”

As a Grand Master Circle donor, helping the fraternity support child literacy through Raising A Reader is one of Ayre’s priorities. “I want kids to have the maximum opportunity to learn,” he says. “It’s the best thing in the world you could do for another person.” ✦

Read more: freemason.org/Mar18Ayre

PHOTOGRAPHED AT
THE GRAND TEMPLE
AT ROSICRUCIAN PARK,
SAN JOSE, CALIFORNIA





THE PYRAMID OF KUKULCAN
CHICH'EN ITZA, MEXICO





SOUL OF THE TEMPLE

SACRED GEOMETRY IN SACRED ARCHITECTURE

By Laura Benys

Truly arresting architecture is two things at once: mathematics and poetry. When designed for a place of worship or sacred space, it also becomes an opportunity to say something, on a grand scale, about how the universe works.

Sacred geometry is part and parcel of this. The very outlines of a temple can sketch symbols rich with meaning. The proportions of an archway can evoke the perfection of the divine. Well-executed symmetry can offer a glimpse into infinity.

And of course, it's not just Freemasons and their forebears who have used sacred geometry; it's been turning up in architectural treasures for centuries upon centuries, in cultures the world over. From the Maya to the Byzantines to the Buddhists, sacred geometry has been used to give architecture its soul.

CONTINUED NEXT PAGE

THE PYRAMID OF KUKULCAN CHICH'EN ITZA, MEXICO

In the lost jungle city of Chich'en Itza, the Pyramid of Kukulcan holds court. Built by the pre-Columbian Maya civilization sometime between the 9th and 12th centuries CE, it once served as a temple to the serpent god Kukulcan. Since its rediscovery and ongoing restoration, it has been named one of the New Seven Wonders of the World.

This is known as a step-pyramid: a monument made up of nine square tiers, culminating with a top platform that holds a temple. A broad, steep staircase marches up the center of each side, rising at an exact 45 degrees to the horizontal. The square and the Pythagorean triangle, those familiar symbols of sacred geometry, are on impressive display.

So are numerous other symbols, central to the Maya culture. There are four sides for four seasons, 91 steps in each staircase to represent the 91 days in each season, and, including the top platform, a total of 365 steps for the days in a year. The pyramid is aligned so that, at every fall and spring equinox, the setting sun illuminates seven connected isosceles triangles against the north staircase, creating the effect of a serpent's body slithering down the length of the pyramid. It ends in a massive carved serpent's head. Geometry, and a mastery of the sun's movements, work together to hail a deity.

TAJ MAHAL AGRA, INDIA

Another of the world's New Seven Wonders, the Taj Mahal was built in the 17th century by the emperor Shah Jahan for his favorite wife. The design, which blends Persian, Islamic, and Indian styles, is widely seen as the greatest achievement in Indo-Islamic architecture. In nature, the golden ratio occurs commonly, from the spiral of the spiral galaxy to the curve of a snail's shell, suggesting its fundamental importance to the very building blocks of the universe. It also appears in the design of the Taj Mahal. The door frame of the main entrance forms a golden rectangle. The proportion of the grand central arch to the building width, and of the height of the windows inside the arch to the height of the main section below the domes, also follow this divine ratio.

The Taj Mahal gets a reputation as a monument to love — and it is — but it is also an extended symbol for paradise. In its crenellated wall, expansive gardens, and inside the

mausoleum, the use of symmetry renders a sensation of infinity: Because the viewer has no single reference point to cling to, they feel spaceless — part of an endless, greater whole.

HAGIA SOPHIA ISTANBUL, TURKEY

"O, Solomon, I have outdone thee!" As the story goes, these were Emperor Justinian's words in 537 CE, as he beheld the completed Hagia Sophia. Whether or not he bested Solomon and his legendary temple, the basilica — later repurposed as a mosque, and now a museum — is today considered a Byzantine architectural masterpiece.

Using their mastery of geometry and complex mathematical formulas, its architects pioneered new concepts that influenced architecture throughout the world, and made possible the whopping 182-foot-tall dome on Hagia Sophia. It took nearly 800 years for another dome (the Duomo, in Florence) to surpass it in size.

One of the techniques they created was the pendentive, a curved triangular piece that braces a round dome on a square frame, allowing for an enormous open space beneath the dome. The startling effect is of the dome simply hanging, suspended, in the air.

To inspire appropriate awe for the divine, they relied on sacred symbols. The open space of the dome's interior, vaulted by the triangular pendentives, forces the viewer's eye upward to a seemingly boundless heaven. The square that the dome rests on, bound by its four finite sides, can be seen as representing the limits of the physical world and our mortal existence. Earth below, heaven above.

GREAT MOSQUE CÓRDOBA, SPAIN

Known locally as *Mezquita-Catedral*, "Mosque-Cathedral," the Great Mosque of Córdoba evolved from the time its first section was built, in 785–786 CE, as a Muslim prayer hall, to its present-day use as a Catholic cathedral. In the centuries between, numerous rulers and cultures made additions and changes. But the prevailing style is that of Moorish architecture, a variation of Islamic architecture known for its horseshoe arches, intricately carved masonry, plant-inspired designs, and decorative tiles. The Great Mosque is one of its most stunning examples.

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TAJ MAHAL
AGRA, INDIA



HAGIA SOPHIA
ISTANBUL, TURKEY



GREAT MOSQUE
CÓRDOBA, SPAIN





From the placement of orange trees, palms, and cypresses in the enclosed courtyard to the octagonal dome of the inner *mihrab*, sacred geometry appears throughout the Great Mosque. But probably the most famous example is the massive hall of arches: Some 850 slender, graceful columns (the most columns in any building) support an interlocking expanse of red-and-white, double-tiered arches. Each row is identical, superimposed over the next. The effect is of never-ending rows of columns and arches — like looking down an endless tunnel. Within the finite boundaries of a rectangular floor plan, geometry has been used to teach a lesson about infinity, and clear the mind for prayer.

BOROBUDUR TEMPLE JAVA, INDONESIA

Flanked by two volcanoes in Java's Kedu Valley, the Temple of Borobudur, built around 800 ce, is roundly considered one of the greatest Buddhist monuments of the world. Two million blocks of volcanic stones were used in its construction.

A tiered, square pyramid forms the base, followed by a cone of circular terraces, spiked all over with 72 openwork *stupas* (bell-shaped domes used in Buddhist architecture). Crowning the temple is one more monumental stupa.

Sacred symbols abound: The numbers five and three, which appear throughout Buddhist teachings, are used in the five tiers of the square pyramid and the three circular tiers of the cone, as well as the three sections — pyramid, cone, and crowning stupa — of the complete temple. The symbol of the square, representing the physical realm, forms an earthly base. Only after visitors have climbed this realm can they reach the circular terraces, an allusion to divinity and heaven.

The temple's most striking interpretation is as a three-dimensional, life-sized mandala, a wheel-shaped geometric design that symbolizes the universe. Pilgrims circumambulate nearly three miles of open-air corridors while ascending the terraces, guided by ordered lessons carved into reliefs along the way. Like the winding staircase in Masonry, they are symbolically spiraling upward from the everyday world as we know it, toward an ever-greater enlightenment above. ✧

**BOROBUDUR TEMPLE
JAVA, INDONESIA**

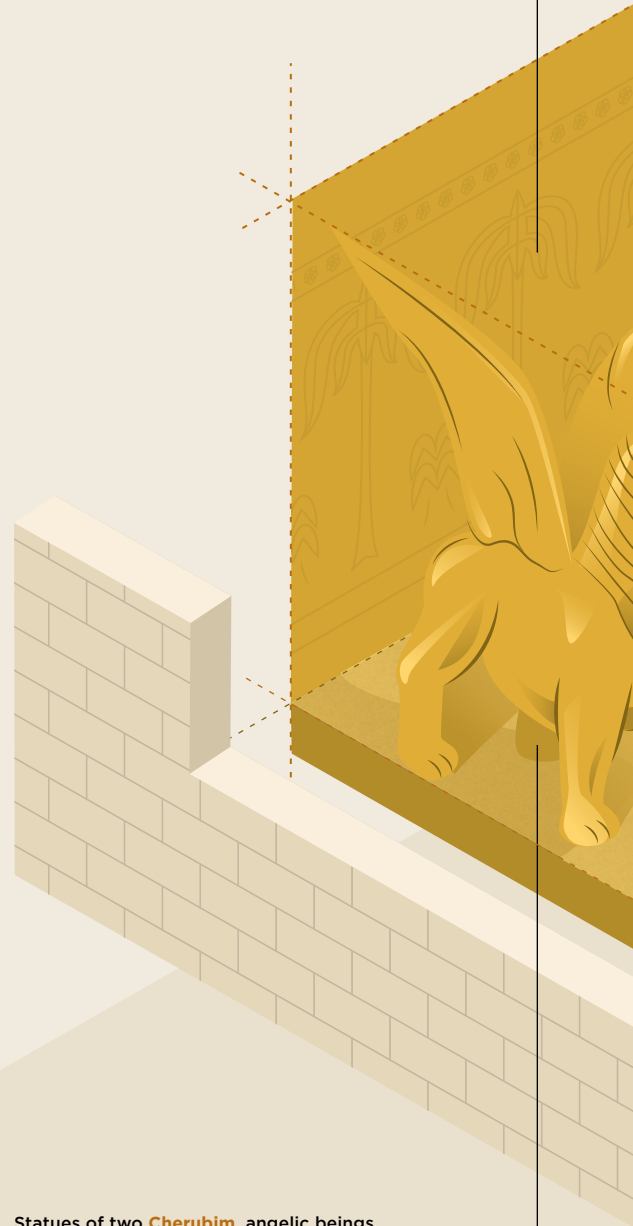
Solomon's Sacred Geometry

UNDERSTANDING FREEMASONRY'S CENTRAL ARCHITECTURAL SYMBOL

By Jay Kinney

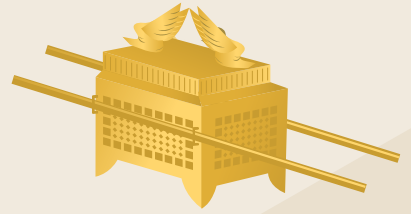
Solomon's Temple holds a central place in Masonic symbolism and ritual. Biblical accounts describe in detail the components and measurements of the Temple, as well as the great care taken in its construction and embellishment. Some Masons and researchers have theorized that such a sacred temple must have employed sacred geometry in its layout and design. Theologian and physicist Sir Isaac Newton — an instrumental figure in the 17th century scientific revolution that preceded the Enlightenment — famously spent much time pondering whether the measurements and ratios of the Temple might offer insights into the hidden laws of nature. Here are a few speculative suggestions about sacred geometry and symbolism within Solomon's Temple.

The **Holy of Holies** is the innermost sacred space within the Temple. It is separated from the Holy Place by a veil and ornate doors, and is so sacred that the high priest may only enter once a year. It is a perfect cube - 20 cubits in length, width, and height. For Masons, the symbol of the cube represents the polished ashlar that emerges from the rough ashlar of one's being.

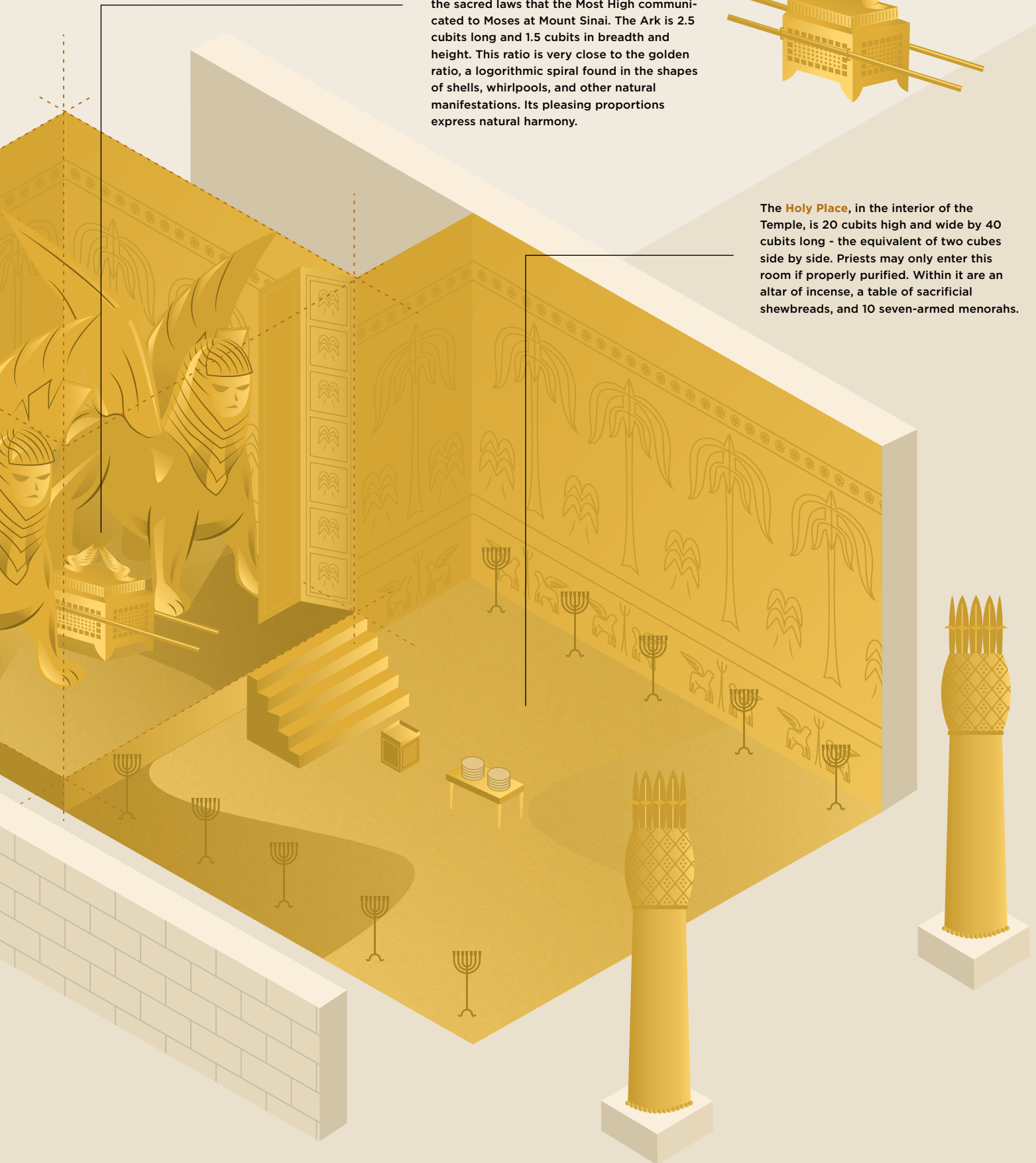


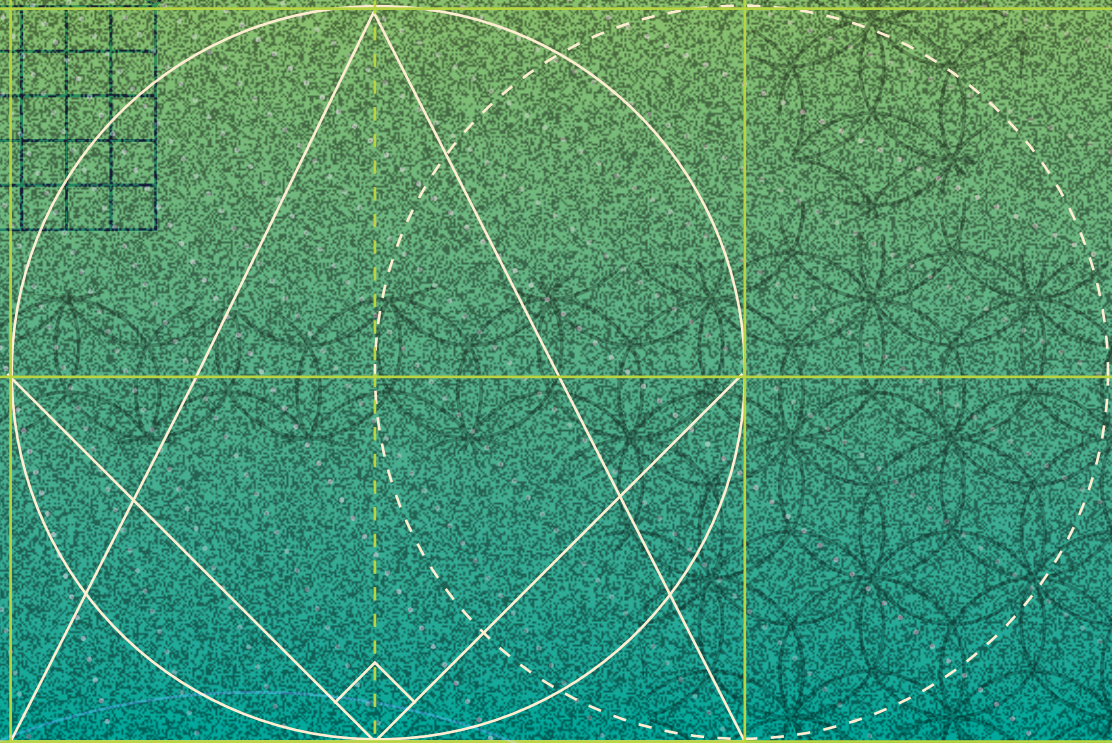
Statues of two **Cherubim**, angelic beings, stand guard over the Ark of the Covenant. Each has a wingspan of 10 cubits (two five-cubit-long wings) and is 10 cubits tall. This may be interpreted as another representation of a perfect cube.

The Holy of Holies houses the **Ark of the Covenant**, an ornate gilded case that contains the sacred laws that the Most High communicated to Moses at Mount Sinai. The Ark is 2.5 cubits long and 1.5 cubits in breadth and height. This ratio is very close to the golden ratio, a logarithmic spiral found in the shapes of shells, whirlpools, and other natural manifestations. Its pleasing proportions express natural harmony.



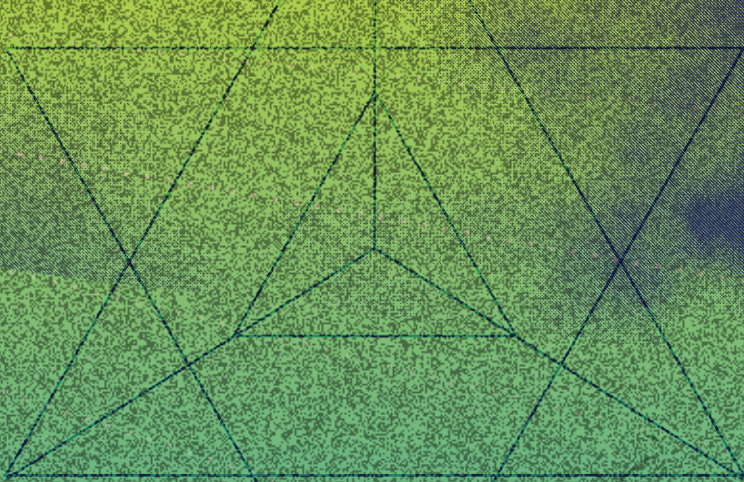
The **Holy Place**, in the interior of the Temple, is 20 cubits high and wide by 40 cubits long - the equivalent of two cubes side by side. Priests may only enter this room if properly purified. Within it are an altar of incense, a table of sacrificial shewbreads, and 10 seven-armed menorahs.





“God constantly
geometrizes!”

PLATO



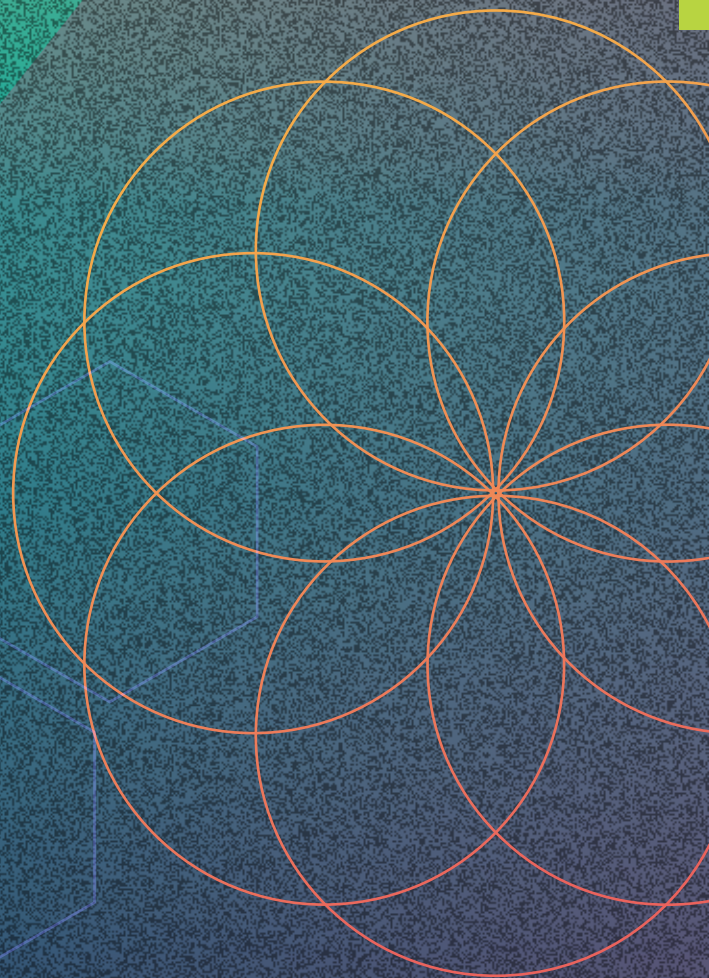
MASONIC SACRED GEOMETRY:

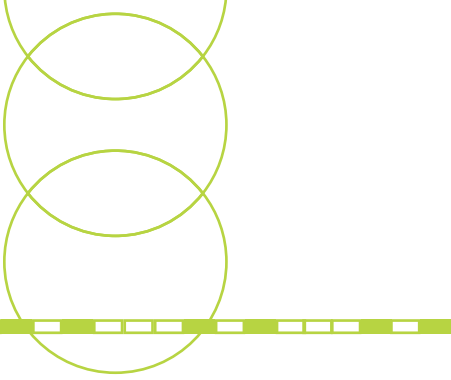
Hidden Mysteries in the Ordinary World

By Mark Stavish

Sacred geometry gives order and meaning to the cosmos. It offers perspective, allowing us to discern relationships between the physical and spiritual dimensions, and provides a mechanism of near universal proportions for understanding complex philosophical concepts and metaphysical ideas.

Freemasonry is often referred to as “a peculiar system of morality veiled in allegory and illustrated by symbols” whose purpose is to lead each Mason to discover for himself the “hidden mysteries of nature and science.” Whereas the first part of the phase applies primarily to the role of the Entered Apprentice degree, it is in the second part – discovering the “hidden mysteries of nature and science” that we find the heart of Masonry within the work of the Fellow Craft degree. This work can be understood as the practical application of numerology – otherwise described as sacred geometry.





A MEANINGFUL SILENCE

Philosophically, the Entered Apprentice Mason is viewed as “one who can keep silent.” Some suggest that this phrase is related to secrecy, but it actually goes beyond not speaking publicly of what goes on in lodge meetings. It implies a deep connection to the mystery schools of Pythagoras, wherein candidates were required to be silent for one year after admittance. While Masonry makes no such demands, the notion of silence holds an important role: One must listen to his superiors so that he may learn the work to which he has voluntarily submitted himself. In this silence, like the apprentices of old, Masonic candidates learn how to take directions and know what questions to ask when needed. The real work of the individual Mason — beyond learning the ritual — is outlined in the Fellow Craft degree, wherein the candidate is introduced to the most important numbers and ideas within the craft. All relate in some manner to sacred geometry.



TO BE STEADFAST, AND YET FLEXIBLE

The 47th Problem of Euclid can be understood as one of the most important “secrets” of Freemasonry. On the surface, this equation provides the method for forming a right angle, thereby allowing craftsmen to build a structure that stands upright. The measurements used to determine if the angle is true, and from which the craftsman creates the square that is the perfect cornerstone, are three and four. Added together, they yield a sum of seven.

Seven is itself significant, as it is the number of stages or “days” of creation referenced extensively in classical mystical and philosophical literature. These seven stages

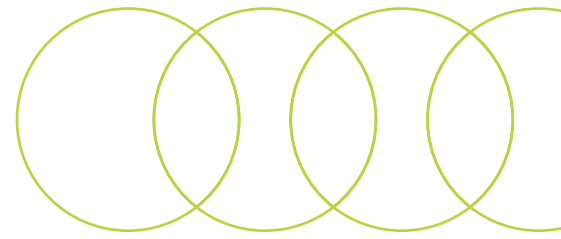
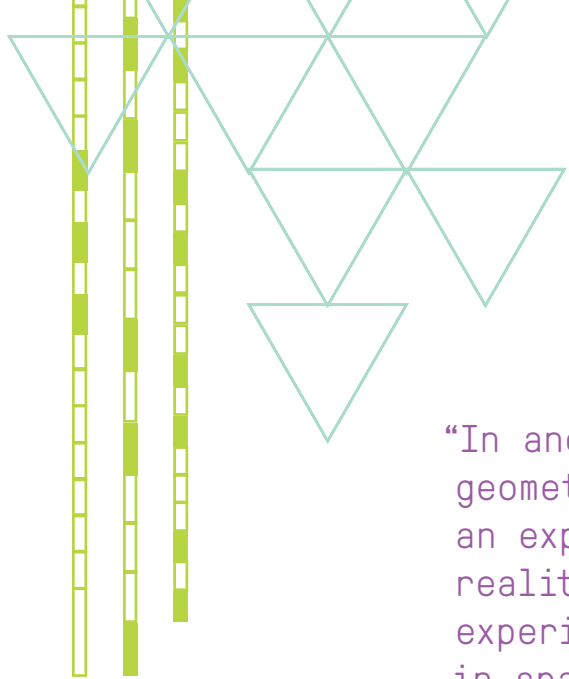
are found on the second degree tracing board, where they represent, in part, the seven liberal arts and sciences. In the ritual, these are the final intermediary steps that a Mason must study to improve himself so that he may ascend further on the upward spiral. It is only through these steps that he may enter the *Sanctum Sanctorum*, the Holy of Holies, above which is written the name of God in Hebrew, *Yod-Heh-Vau-Heh*.

The staircase illustrated on the Trestleboard is depicted in a spiral. The advancing Mason must demonstrate courage in his progress, as his view is limited to what is only directly before him — a departure from the ladder of the first degree, which provides a clear view ahead. In this “middle chamber,” the Mason has farther to go in the work of self-perfection. He must still strive to turn the rough ashlar of his being into a smooth ashlar. It is only when the ashlar’s angles form a perfect square that it will fit in for use anywhere in the building of the Temple. This lesson provides an interesting dichotomy: While the perfect ashlar symbolizes the Mason’s ability to be both reliable and dependable, its conformity and uniformity represent his flexibility to serve in whatever role he is called upon by the Great Architect to serve.



TO MASTER ONE’S SENSES

There are 15 steps on the spiral staircase, and often they are depicted in three groups of three, five, and seven. The first group of three steps represents the blue lodge degrees and how they relate to life: The Entered Apprentice degree corresponds with youth, the Fellow Craft with adulthood, and the Master Mason with old age. The second set pairs with the five physical senses; reminding the advancing



“In ancient, medieval, and Renaissance times, geometrical forms and relationships were seen as an expression of the deep, archetypal structure of reality, and students of geometry were taught to experience geometric processes as the unfolding, in space and time, of spiritual realities.”

JOHN MICHAEL GREER

candidate that if he relies solely on his senses, he can be blinded to the spiritual realities that Freemasonry suggests. He must master his senses, while not being limited by them.

To overcome being ruled by his sensory perceptions, the candidate must employ the powers of the mind through education and the discipline and self-reflection it requires. The final set of seven steps represents this education through the study and practice of the seven classical liberal arts and sciences. It is at this set of steps on his journey, that the full meaning of Freemasonry begins to become known to the candidate. As quoted by Masonic scholars Jay Kinney and Richard Smoley in “Hidden Wisdom: A Guide to the Western Inner Traditions”:

Freemasonry is a system of morality, veiled in allegory, illustrated by symbols. Not a religion but religious in character, it is a philosophy of ethical conduct which imparts moral and social virtues and fosters brotherly love. Its tenets have endured since man turned the first pages of civilization. They embody the understanding by which man can transcend ordinary experience and build “a house not made with hands” in harmony with the Great Architect of the Universe.

In order to transcend ordinary experience, one must be privy to extra- or non-ordinary experiences. This is attained though training the mind, shaping and building character through education. For this reason, the three

legs of the craft are fraternity, charity, and philosophy — a philosophy shaped by personal development, education, reflection, and civil discussion.

“The staircase is among the most complicated of the craft’s symbols,” writes W. Kirk MacNulty in “Freemasonry - A Journey Through Ritual and Symbol.” “In the most general terms the winding staircase defines seven ‘levels of consciousness,’ from consciousness of the physical body at the bottom to consciousness of the spirit and divinity at the top. By summarizing a large body of ritual and lecture we can say that the stairs assign a step or level of consciousness to each of the seven officers of the lodge.”

By pairing subjects with Masonic officers, scholars like MacNulty often suggest that the tiler is associated with grammar, inner guard with logic, junior deacon with rhetoric, senior deacon with arithmetic, junior warden with geometry, senior warden with music, and master with astrology — later changed to astronomy. These subjects are divided into two groups known as the *trivium* (grammar, logic, and rhetoric) and the *quadrivium* (mathematics, geometry, music, and astrology). During the medieval period they were often illustrated as rays extending from a seven-pointed star, which shone forth from or around the goddess Sophia, or wisdom, as mentioned in the first paragraph of the Opening Charge as the true guardian of Freemasonry.

CONTINUED NEXT PAGE

“Mind and matter are not opposites. They are orthogonal. The right angle is the basis for a geometry of meaning.”

ARTHUR M. YOUNG

DEFINING SACRED GEOMETRY

Of the seven arts and sciences, it is geometry which stands out as the foundation upon which mathematics is practically applied in daily life — and with it, the construction of all of the classical civilizations. But what is geometry? And what is “sacred geometry”?

According to author John Michael Greer, sacred geometry is “geometry as it was practiced throughout the Western world from ancient times until the coming of the Scientific Revolution.” “In ancient, medieval, and Renaissance times,” writes Greer, “geometrical forms and relationships were seen as an expression of the deep, archetypal structure of reality, and students of geometry were taught to experience geometric processes as the unfolding, in space and time, of spiritual realities.”

Following this logic, through geometry, “spiritual realities” can be expressed in personal philosophy and objectively in architectural forms. In doing so, the reality of the union of heaven and earth is realized. Through a sacred understanding of geometry and its uses, the Hermetic axiom found in the Emerald Tablet, “as above, so below; as below, so above” transforms from a theory into fact. Masonic scholar Robert Lawlor writes,

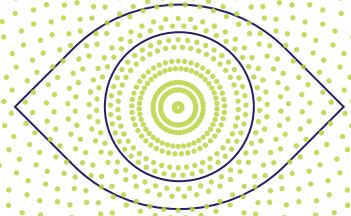
Geometry is the study of the special order through the measure and relationships of forms. Geometry and arithmetic, together with astronomy, the science of temporal order through the observation of cyclic movements, constituted the major intellectual disciplines of classical education. The fourth element of this great

fourfold syllabus, the quadrivium, was the study of harmony and music. The laws of simple harmonics were considered to be universals which defined the relationship and interchange between temporal movements and events of the heavens and the spatial order and development on earth.

The implicit goal of classical education was to enable the mind to become a channel through which the “earth” (a level of manifested form) could receive the abstract, cosmic life of the heavens. The practice of geometry was an approach to understanding how the universe is ordered and sustained. Geometric diagrams can be contemplated as still moments revealing continuous, timeless, universal action that is generally hidden from sensory perception. A seemingly common mathematical activity can become a discipline for intellectual and spiritual insight.”

CONSCIOUS REALIZATION

While it is easy to dismiss such notions as some form of mystical idealism, many scientists and philosophers agree that mathematics — geometry in particular — can provide us with deep insights into the nature of our very selves, and even into nature itself. One is Arthur M. Young, a Princeton University graduate who dedicated himself to two projects: establishing a scientific model of



the universe that would include consciousness, and solving the problem of vertical flight. Young is credited with receiving the first commercial helicopter license in 1946 for his invention of the Bell Model 47 helicopter.

In his book, “The Reflexive Universe,” he writes, “Mind and matter are not opposites. They are orthogonal. The right angle is the basis for a geometry of meaning.” It was the right angle that provided Young with the secret to controlling the helicopter’s flight, and for Young, this meant that the right angle, the angle of the observer, is critical to understanding our role in the universe. This is in many ways the very basis of sacred geometry when it is applied in practical affairs. An example of this is the art of placement — classical interior and exterior design. Another is the popular understanding of quantum theory, wherein the observer effects the outcome of an experiment.

It is critical to understand these theories because sacred geometry is a tool and science of personal transformation. To ignore these perspectives and points of interchange is to reduce it to a set of abstract philosophical theories and occult ideas. It is more than that and can lead each Mason to discover the deepest meaning of life and to express that meaning in the here, as well as hereafter.

COMMUNING WITH THE DIVINE

Sacred geometry provides a way of thinking about the world in which we live as sentient beings intimately connected with a larger, more dynamic, and even invisible reality — a reality that through self-discipline and dedication we have the potential to experience. The physical

world is perceived of as holy, and fully dedicated to the divine. In fact, it is the fullness of the divine manifest for all to see. If this were not so, then the very notion of any “sacred measuring of the earth” would not be possible. Sacred geometry is the means whereby we experience the imminent presence of deity.

This is clearly stated in the “Corpus Hermeticum,” Book Five: 10–11, wherein we read:

1. *“All is within you, all comes from you. You give everything and take nothing. For you have everything and there is nothing you do not have.”*
2. *“You are all things and there is nothing else. Even what is not you are. You are all that has come into being; you are what has not come into being. You are Nous, and what is apprehended by Nous; you are Father as you create. God as you are in every action, the Supreme Good as you are the cause of all.”*

Sacred geometry has the potential to be a powerful working tool in the hand of each Freemason. Through its lens, the relationship between the visible and invisible aspects of the divine become clearer and even visceral. In seeking a means to participate in that harmony which it teaches, we find our place in the Temple, and through it, realize that the Temple is everywhere and nowhere, and there is no place that God is naught. ✧

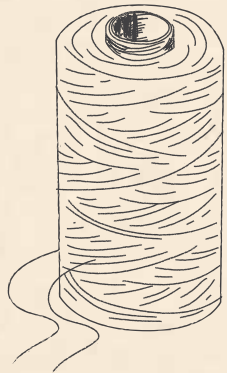
Editor’s note: Bro. Mark Stavish, M.A. is the author of “Freemasonry — Rituals, Symbols and History of the Secret Society,” and over two-dozen books on traditional Western esotericism and spiritual practice.

MASONIC DIY

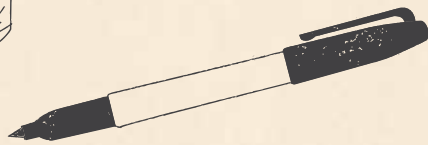
Create a Perfect Square

Sacred geometry is a complex concept. But immersing yourself in the lessons of geometry can actually be quite simple. Learn how to create a perfect square in the same way as our Masonic forefathers, using the simplest of tools — sticks and a string!

HERE'S WHAT YOU NEED:



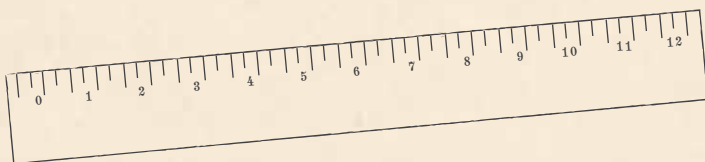
40 INCHES OF STRING*



BLACK MAGIC MARKER



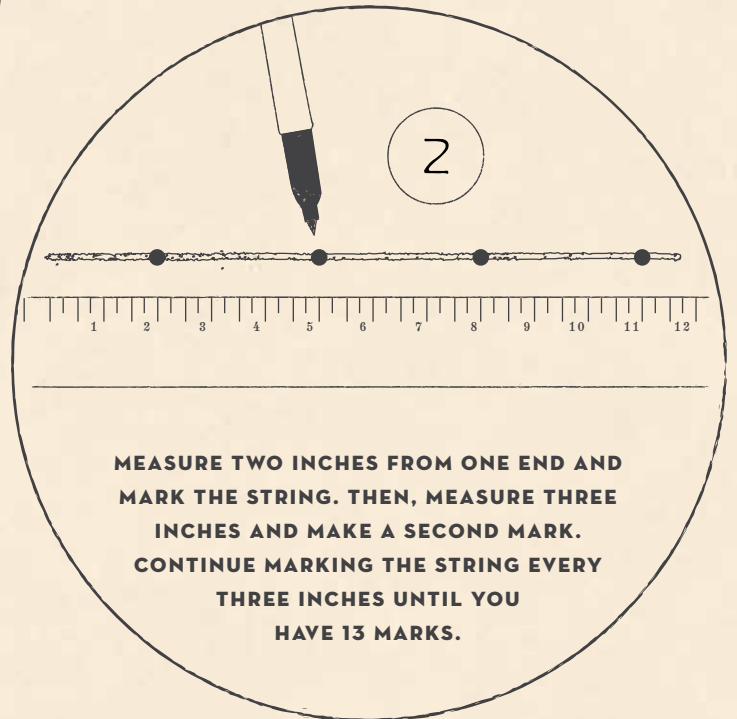
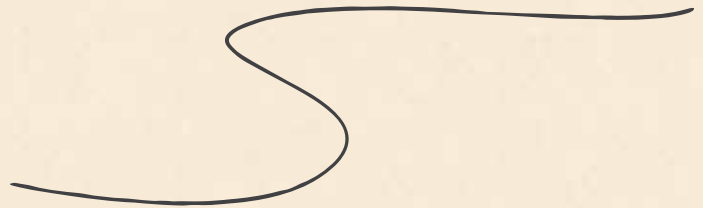
FOUR THIN STICKS
(STRONG ENOUGH
TO PLANT IN SOFT SOIL)



RULER

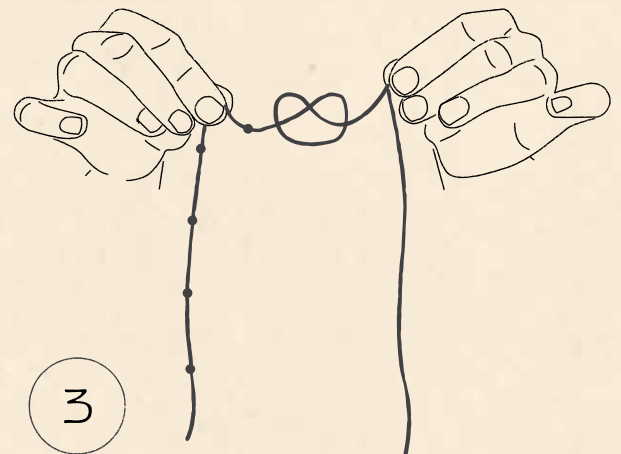
1

SPREAD THE STRING OUT ON THE GROUND.



2

MEASURE TWO INCHES FROM ONE END AND MARK THE STRING. THEN, MEASURE THREE INCHES AND MAKE A SECOND MARK. CONTINUE MARKING THE STRING EVERY THREE INCHES UNTIL YOU HAVE 13 MARKS.

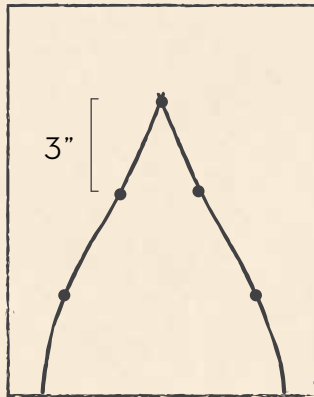


3

BEGINNING AT THE SECOND LINE AND CONTINUING UNTIL THE SECOND TO LAST LINE, TIE A KNOT AT EACH MARK. (THERE SHOULD BE A TOTAL OF 11 KNOTS.)

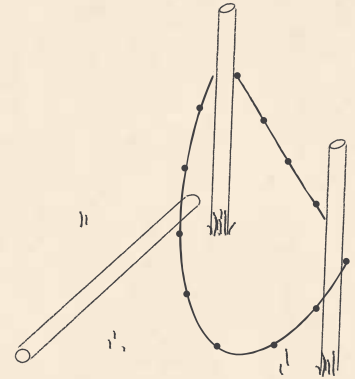
4

BRING THE ENDS OF THE STRING TOGETHER SO THAT THE FIRST AND LAST MARKS ARE TIED TOGETHER TO CREATE ONE ADDITIONAL KNOT. (THE DISTANCE BETWEEN THE KNOTTED END AND THE NEXT KNOTS ON EITHER SIDE WILL ALSO BE THREE INCHES APART.)



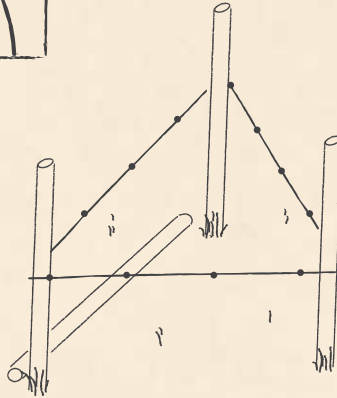
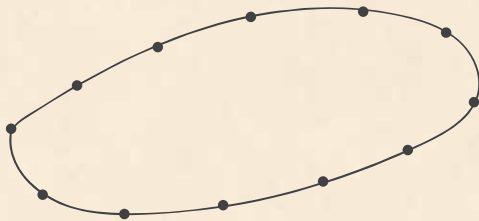
8

STRETCH THREE KNOTS AWAY FROM IT IN ANY DIRECTION (NINE INCHES) AND INSERT THE THIRD STICK IN THE GROUND.



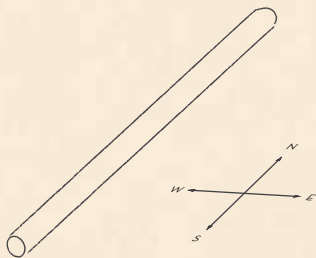
9

PLACE THE FOURTH STICK SO THAT IT FALLS ON THE KNOT BETWEEN THE FOUR AND FIVE-PARTS DIVISION (12 INCHES). THIS WILL CREATE A 3:4:5 RIGHT TRIANGLE – A PERFECT SQUARE ANGLE.



5

CUT OFF THE EXCESS STRING ON EITHER SIDE OF THE CENTER KNOT. YOUR STRING IS NOW A CIRCULAR SHAPE WITH 12 KNOTS AND 12 DIVISIONS BETWEEN THE KNOTS.

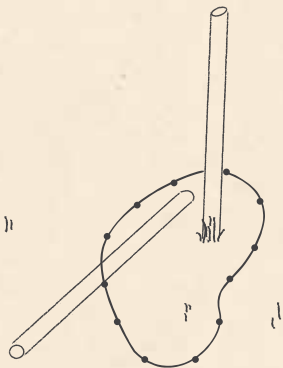


6

PLACE YOUR FIRST STICK FLAT ON THE GROUND SO THAT ITS ENDS POINT NORTH AND SOUTH.

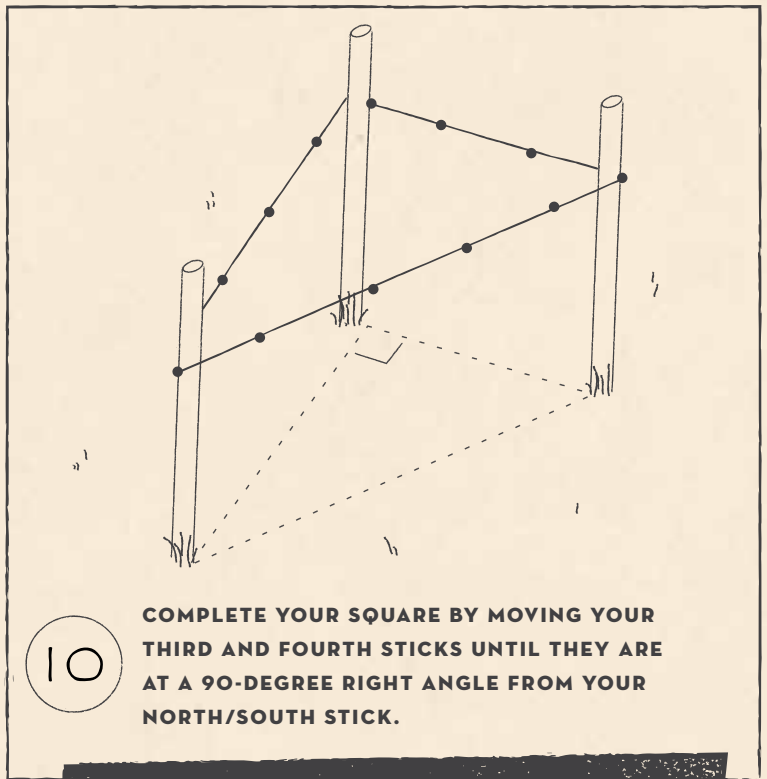
7

PLANT YOUR SECOND STICK IN THE GROUND AT EITHER END OF YOUR NORTH/SOUTH STICK. ARRANGE A KNOT AT THE STICK.



10

COMPLETE YOUR SQUARE BY MOVING YOUR THIRD AND FOURTH STICKS UNTIL THEY ARE AT A 90-DEGREE RIGHT ANGLE FROM YOUR NORTH/SOUTH STICK.



Congratulations!
YOU CAN NOW SQUARE A SQUARE AND LAY A GEOMETRICALLY CORRECT CORNERSTONE FOR A NEW FOUNDATION.

*Note: If you use rope rather than string, you'll need more length to account for the larger knots. For this method, begin with a longer length. Measure the three-inch division, tie your knot, and then measure your next segment, rather than marking the entire rope at once.





The Freemason's Gambit

IN SEARCH OF THE SACRED
IN THE GAME OF CHESS

By Laura Benys

Chess has a way of making other games seem small. By comparison, checkers are folksy; cards a bit shifty; dominoes, a barroom cacophony. But chess is the game of kings. The word itself suggests the hush of nobility.

And yet, in the words of chess grandmaster Bobby Fischer (that other kind of grandmaster), chess is also “war over the board.” So day after day, when Dean Arnell takes a seat across from his oldest and fiercest adversary, they do not shake hands. They do not exchange pleasantries. For the next hour — or less, depending how things go — it is kill or be killed. In all but one of their encounters, Arnell has been the one killed. His opponent, a desktop computer, is merciless.

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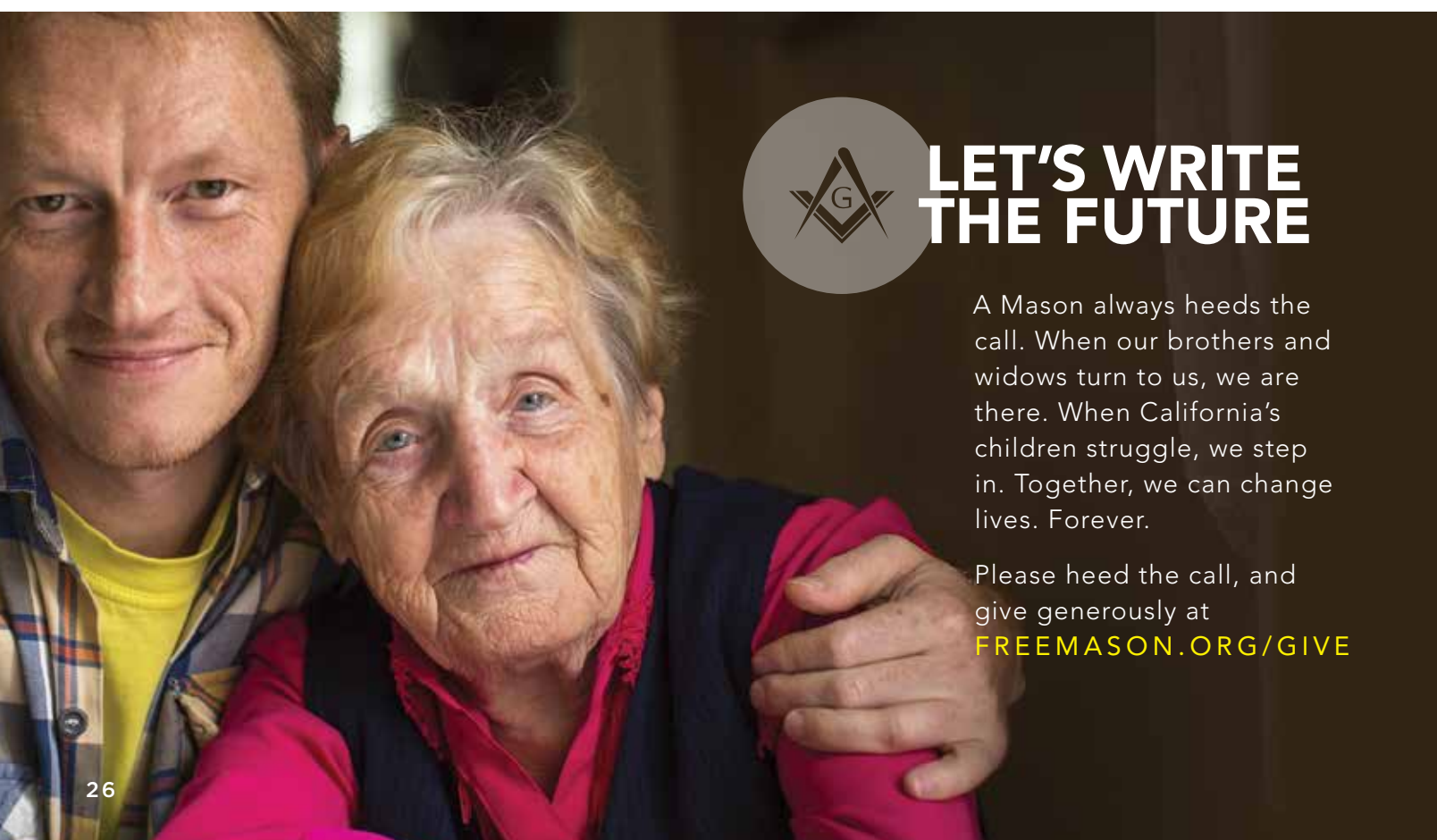
If you've ever played chess, you know the routine: two players on a checkerboard, 16 pieces each, rules governing how each piece can move. The goal is to capture your opponent's king. This can be a complicated business, slogging on for days, or it can all collapse in a few deft moves. You must step over your opponent's strategic minefields, and through some rather counterintuitive loopholes. (See, castling: You can jump over the king with your rook — very un-rook-like behavior — but only once, and only if neither piece has made any moves yet, and if several other prerequisites check out.)

At first, this can be bewildering. But with a little time and practice, a sense of order emerges. If you could crawl inside the head of a chess master and visualize the game as they do, you would see it plain as day: geometry. The key isn't in the pieces — it's in the patterns that they make. Consequently, when chess masters look at a queen, they see the diagonals and perpendiculars that she might traverse across the board. When they look at a knight, they see a studded circle of possibility. The squares that a bishop might move to make an X; the rook a cross; and so on.

The geometry is unmistakable. And for some minds more than others, it comes naturally.

This was the case for Sequoyah Dawes, a resident at the Masonic Home at Covina. He learned chess as a shy 12-year-old while spending Saturdays at the public library in Joplin, Missouri. He immediately began trouncing the older kids. "It came to the point where the older kids would have to cheat to beat me," he says. "That's when I quit playing at the library." He never quit playing altogether, though sometimes it was hard to rustle up a willing opponent. Although he never read a strategy book, or had a coach other than the Joplin library superintendent, he became known among friends for winning in four moves. "I was pretty good," he admits.

Like sacred geometry, chess requires a mastery of activities associated with both the right and left brain — logic and precision, as well as leaps of intuition and creativity. (It also requires no small amount of memory, both long- and short-term.) Dawes went on to become a minister, a role that famously draws on all of these abilities. It's no surprise, then, that when he was raised at Lexington Lodge No. 104 in El Monte, he immediately stepped into the role



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of chaplain. "In a sense, it was a continuation of the ministry," he says. "I simply stood at the front of the lodge and led them in the ritual." Freemasonry came as naturally as chess.

Dean Arnell, the gentleman who wages war daily against his computer, approaches chess with the precision of the technically-minded. Arnell, a 36-year Mason and also a Covina resident, enjoyed a long career as an electronics engineer, beginning in 1957. "I worked for IBM in Los Angeles when they introduced their first mini-computer, which was the size of a cathedral organ and had maybe 1/100th of the memory of a cellphone," he says. For another employer, he built and maintained a computer network. Which is all to say: When he plays chess against a computer, he knows exactly what he's up against.

"The computer is the most formidable opponent I've ever faced," Arnell says. "In a matter of microseconds, it can examine a hundred possible moves, whereas the human brain has a limitation." The best he's ever done is a draw — once. "That was a great victory for me," he admits with good humor. "The longer the game runs before I lose, the more satisfaction I get. To get the computer to make what I consider a foolish move — that's a real hot point."

Arnell was in his early 20s when introduced to chess, and, like Sequoyah Dawes, he took to it right away. "Being technically inclined, I liked the challenge of the thought process and thinking ahead several moves into the future," he says. Today, he sees it as the perfect complement to the Masonic Home's emphasis on successful aging. "As far as keeping the brain alive, I think it's probably one of the most challenging things that a person can do as they age."

He also sees something sacred in its geometry — a parallel to that other passion, Masonry.

"Each piece on the chessboard has certain limits. It can only move in a particular direction," he says. "As individuals, Freemasonry teaches us that if we are to live a respectable life, we must move within the parameters of decency and morals. Certain rules apply to chess pieces and certain rules apply to mankind. We all have rules." ❖



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MEMBER PROFILE

ENVISIONING HARMONY

MEET CARLOS M. DIEZ JR.
MASON FOR 6 YEARS
GRAND STANDARD BEARER
INTERIOR ARCHITECT

By Michelle Simone

Carlos Diez joined Masonry to find a greater meaning in life. Today, the past master and junior warden of Solomon's Staircase Lodge No. 357 immerses himself in Masonic spirituality and philosophy, advanced Masonic degrees through the Scottish Rite, and Kaballah – an ancient esoteric school of thought. "I find these subjects to be mentally nourishing," he says.

Just as Masonic symbolism links metaphysical and physical life experiences, so do Diez's interests range from the ephemeral to the tangible. A commercial interior architect, he is equally comfortable sketching in his home studio as revising plans at a worksite on the fly. Every day, he feels connected to sacred geometry and Masonic principles. "Geometry creates the harmonious environment that people need to be creative and thrive."

"When I first joined Freemasonry, I spent workdays studying how buildings were held up and my time in lodge contemplating personal spiritual structure. I really understood the work I needed to do there on a deep level." ✦

Read more: freemason.org/Mar18Diez



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