

Subject Four Mysticism East and West As presented by Stephen M Phillips http://smphillips.mysite.com/the-tree-of-life.html ©AlephTalks, 2022

## The Tree of Life

- The Tree of Life (עץ החיים) is the geometrical representation of Adam Kadmon (אדם קדמון), or 'Heavenly Man.' It is the universal paradigm or blueprint for all holistic systems, whether terrestrial or extra-terrestrial, in the macrocosm or in the microcosm.
- As a tree grows in stages from a seed, so the Tree of Life develops as a series of 10 emanations, or Sephiroth - the 'Divine Qualities.' Geometric forms: Seed of Life, Tree of Life, Flower of Life et al (overlapping circles)
- The first Sephirah is Kether (Crown), God in His primordial subjectivity, the eternal state of divine unity transcending duality.
- Chokmah (Wisdom) is God's creative energy, not yet governed and therefore restricted by laws or principles


## The Tree of Life



## Tree Life

## The Tree of Life

- Binah (Intelligence) is the reaction to the divine, crea impulse, where the possibility of limitation arises, giving rise to the idea of an ontological distinction between subject and object and a rational relationship, or 'logos', between them.
- The Supernal Triad of Kether, Chokmah and Binah, which express the subjective, transcendental aspect of God (the triple Godhead, Trinity, or 'trimurti' of Shiva, Brahma \& Vishnu in Hinduism) is separated by the 'Abyss' of Daath (Knowledge) from the seven objective, Divine Qualities. Called the seven 'Sephiroth of Construction,' they express God's immanence in His Creation.
- The last Sephirah, Malkuth (Kingdom), is the outer, sensory form that the Tree of Life takes, in the manifestation of the physical universe, a holistic system incorporating the Divine archetypes.


## Pythagorean Philosophy

- At the heart of Pythagorean philosophy is the triangular pattern of 10 dots or points called the 'tetractys'. Mathematicians regard it as the fourth of the so-called 'triangular numbers.'
- These are numbers that are the sums of triangular arrays of dots, each denoting the number 1 . For example, $1,1+2=3$, $1+2+3=6$ and $1+2+3+4=10$ are the first four triangular numbers.
- The tetractys, however, meant far more than this to the followers of Pythagoras. In fact, so much did they honour it that they swore to their teacher, who had recognised the meaning and importance of this pattern, an oath of loyalty that mentioned the symbol as his discovery.


## Pythagorean Philosophy



- Triangular numbers



## Pythagorean Philosophy

- Just as the number 1 is the source of all numbers, so the Monad symbolized by a point or dot is the divine origin of all phenomena. Integers increase until they attain their perfect completion in the number 10, the Decad.
- The tetractys is more than just a representation of this number. It symbolizes the 10 -fold nature of Divine Unity as it manifests in existence - physical and superphysical. As such, it is the template for constructing holistic objects that possess sacred geometry.
- By constructing them from tetractyses, objects are revealed to express numbers - the numbers of dots needed to assemble them.


## Pythagorean Philosophy

- When objects possess 'sacred geometry' - not the vacuous label found in many books on the subject but the genuine version, these numbers acquire cosmic, rather than mere human cultural, significance.
- As such, some of them are relevant to science, as will be demonstrated.
- It was this amazing power to reveal certain numbers of universal significance, as well as the mathematical nature of the divine design of nature, that made the tetractys so valuable and sacred to the ancient Pythagoreans.
- That amazing power will be illustrated for the first time in this website (Stephen M. Phillips)


## Pythagorean Philosophy

- The tetractys is a set of four horizontal rows of $1,2,3 \& 4$ dots. The properties of objects possessing sacred geometry can be expressed naturally in terms of these four integers.
- Any dot which is part of a tetractys will be called a 'yod' because this is the name of the tenth letter (') of the Hebrew alphabet, which is shaped somewhat like a dot.
- Such mingling of Hebrew and Pythagorean concepts is not the invention of Stephen M. Phillips. As much as ultra-orthodox Jews may deny it, Pythagorean mathematics influenced early European Kabbalists, who noticed the analogy between the 10 Sephiroth of the Etz Hayim (Tree of Life) and the 10 points of the tetractys.


## Pythagorean Philosophy

- The 10 yods of the tetractys shown opposite consist of the three black yods forming its corners, i.e., marking its shape in a minimal way, and seven red yods, six of which are the corners of a hexagon (assuming the tetractys is equilateral) and the seventh is its centre.
- These seven yods will be called 'hexagonal yods.' This 3:7 division expresses the differentiation of the 10 degrees of freedom symbolised by the 10 yods into three that are preformative and seven that are formative, determining the physical manifestation of holistic phenomena.
- It is important to realise that the seven yods will be called 'hexagonal yods' irrespective of whether the tetractys is actually equilateral. Even if the triangle in a tetractys array is isosceles or scalene, in which case they are not the centres and corners of a hexagon, these seven yods will still be referred to as


## Pythagorean Philosophy



The tetractys and its seven hexagonal yods

## Pythagorean Philosophy

- Bounded by the yods at its three corners, which form an equilateral triangle, the tetractys has six 'hexagonal yods' surrounding its centre that are arranged at the corners of a hexagon or, equivalently, at the tips of a Star of David.
- They lie on the circumferences of six circles whose centres or points of contact with one another or with the central circle are the locations of the white circles symbolizing the 10 Sephiroth of the Tree of Life. It can therefore be said that the tetractys


## Pythagorean Philosophy

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## Pythagorean Philosophy

ine Tree of Life and the tetractys are representations of the 10 -fold nature of holistic systems designed in the biblical 'image of God' (תמונה של אלוהים). The Supernal Triad corresponds to the yods at the corners of the tetractys, the two triads of Sephiroth of Construction:

Chesed-Geburah-Tiphareth Netzach-Hod-Yesod
correspond to the two triangles of white or black hexagonal yods forming a Star of David and Malkuth at the base of the Tree of Life corresponds to the $\oplus$ yod at the centre of the tetractys.

As the counterpart of the seven Sephiroth of Construction, the seven hexagonal yods symbolize degrees of freedom in holistic systems. They manifest as the seven notes above the tonic, or fundamental, in one octave of the Pythagorean musical scale, the seven higher dimensions of space predicted by what physicists call 'M-theory' and in many other systems, such as what mathematicians call the 'fourth ${ }^{3 / 2 / 2}$ division algebra,' which makes Trusef of tif seven unit imaginary numbers as components of 8-dimensional numbers called "octonions."

## Pythagorean Philosophy

Hexagonal yods symbolize degrees of freedom in a holistic system that are attributable to the Sephiroth of Construction


Correspondence between the Tree of Life and the tetractys

## Pythagorean Philosophy

This fundamental equivalence is a major key to unlocking scientific information about the nature of the physical universe that is encoded in sacred geometries.

In fact, it is the "Rosetta Stone" that enables correlation between the Tree of Life and other sacred geometries. Information that they encode in analogous ways can then be recognised as such and scientifically interpreted.

The presence of common parameters in sacred geometries that are also predicted by a theory is evidence that it is true when they occur too frequently to be due to chance and when they are related in exactly the way that the theory requires.

## Pythagorean Philosophy

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Correspondence between the tetractys, the ten Sephiroth and the Egyptian neteru

## Pythagorean Philosophy

This correspondence between three ancient spiritual traditions should serve to emphasize that the yods of the tetractys are far more than mere dots or mathematical points symbolising the number 1.

They are only such to the modern secular mind that cannot see beyond the exoteric meanings of words and symbols. Yods signify not only the number 1 but the spiritual essence of each Sephirah as a degree of freedom intrinsic to the ten-fold nature of God.

They are not mere mathematical points. They have a spiritual aspect that reveals itself in sacred geometries built from the tetractys.

## Worlds of the Kabbalah

There are four primary stages of transformation of the Divine arદ̊hetypes. They are called 'Worlds' in Kabbalah, but should not be confused with astronomical objects like planets. They are:

1. Atziluth (the Archetypal World). The initial stage of conception of the Divine Ideas. God contemplates His own nature in the archetypes embodied in His Godnames;
2. Beriah (World of Creation). The stage at which God's intentions become formulated broadly by the Archangel assigned to each Sephirah;
3. Yetzirah (World of Formation). In the angelic realms, the abstract, Divine intention is diversified and given form, although still subtle in nature;
4. Assiyah (World of Action). The physical universe where Spirit finally conjoins with Matter and the Divine Ideas become realized in/space and time.

## Worlds of the Kabbalah



The four Kabbalistic 'Worlds'

## Kabbalah Gematria

- Kabbalists assign integers to the 27 letters of the Hebrew alphabet. In the ancient practice of gematria, Hebrew words are turned into numbers by adding their letter values.
- Letter values that are multiples of 10 may sometimes be reduced to those multiples before being added to the values of the remaining letters in a word.
- This contraction leads to differences in a few cases between the standard gematria values of the Sephiroth in the four Kabbalistic Worlds and those listed in the table in the next page.


## Kabbalah Gematria

Number values of the 27 Hebrew letters

| English letter | English name | Hebrew letter | Number value |
| :---: | :---: | :---: | :---: |
| A | Aleph | * | 1 |
| B | Beth | 2 | 2 |
| G | Girnel | 1 | 3 |
| D | Daketh | 7 | 4 |
| H | Heh | - | 5 |
| UorV | Vau | 1 | 6 |
| Z | Zain | \% | 7 |
| Ch | Cheth | $\pi$ | 8 |
| Th | Teth | 0 | 9 |
| Yorlor J | Yod | , | 10 |
| K | Kaph | 5 | 20 |
| L | Lamed | 3 | 30 |
| M | Mern | 8 | 40 |
| N | Nun | 3 | 50 |
| S | Samekh | 0 | 60 |
| $\bigcirc$ | Ayin | y | 70 |
| P | Pe | - | 80 |
| Tz $\mathbf{Q}$ | Tzadd Qoph | 5 | 90 100 |
| R | Resh | 7 | 200 |
| Sh | Shin | \% | 300 |
| T | Tau | n | 400 |
| K | Fnal Kaph | 7 | 500 |
| M | Final Mern | 0 | 600 |
| $\underset{\mathbf{N}}{\mathbf{N}}$ | Fral Nun Final Peh | 3 | 700 800 |
| Tz | Fnal Tzaddi | $p$ | 900 |

## Kabbalah Gematria

- Rather than being seen as an error, such discrepancies indicate that the standard values given in reference works are wrong in these particular cases because they ignore contraction when the letter values are added together.
- The need for this is indicated by Stephen Phillip's research into how sacred geometries embody these Kabbalistic numbers.
- That is why Kabbalists blissfully unaware of the sacred geometrical dimension of these gematria values have remained unaware that in one or two cases these numbers are not the simple sums of the values of the letters of the Hebrew word or words.


## Kabbalah Gematria

The gematria number values of the ten Sephiroth in the four Worlds

|  | SEPHIRAH | GODNAME | ARCHANGEL | ORDER OF ANGELS | RUNDANE <br> CHAKRA |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Kether (Crown) $620$ | $\begin{aligned} & \text { EHYEH } \\ & (\mathrm{lam}) \end{aligned}$ | Metatron (Angel of the Presence) 314 | Chaioth he Qadesh (Holy Living Crestures) | $\begin{aligned} & \text { Ras hith ha Gilgalim } \\ & \text { First Swirlings. } \\ & \text { (Primum Mobile) } \\ & 636 \\ & \hline \end{aligned}$ |
| 2 | Chokmah (Wiscom) 73 | YAHWEH, YAH <br> (The Lord) <br> 26, 15 | Raziel (Hersld of the Deity) $248$ | Auphanim (Wheels) 187 | Masloth (The Sphere of the Zodiac) 140 |
| 3 | Binah <br> (Understanding) <br> 67 | $\begin{aligned} & \text { ELOHIM } \\ & \text { (God in multiplicity) } \\ & 50 \end{aligned}$ | Tzaphkiel (Contemplation of $G \circ d$ ) <br> 311 | Arslim <br> (Thrones) <br> 282 | Shabathai Rest. <br> (Saturn) $317$ |
|  | $\begin{gathered} \text { Dasth } \\ \text { (Knowledge) } \\ 474 \end{gathered}$ |  |  |  |  |
| 4 | Chesed (Mercy) 72 | $\begin{aligned} & \text { EL } \\ & \text { (God) } \\ & \hline 1 \end{aligned}$ | Tzadkiel (Benevolence of God) 62 | Chesmalim (Shining Ones) 428 | Tzadekh Righteous ness. (Jupiter) $194$ |
| 5 | $\begin{aligned} & \text { Geburah } \\ & \text { (Severity) } \\ & 216 \end{aligned}$ | $\begin{aligned} & \text { ELOHA } \\ & \text { (The Almighty) } \\ & 36 \end{aligned}$ | $\begin{aligned} & \text { Sameel } \\ & \text { (Severity of God) } \\ & 131 \end{aligned}$ | $\begin{aligned} & \text { Seraphim } \\ & \text { (Fiery Serpents) } \\ & 630 \end{aligned}$ | Madim $V$ ehement Strength. (Mars) |
| e | Tiphareth (Beauty) 1081 | YAHWEH ELOHIM <br> (God the Crestor) <br> 76 | Michael <br> (Like unto God) $101$ | Malachim <br> (Kings) | Shemesh The Solse Light (Sun) 640 |
| 7 | Netzach (Victory) 148 | YAHWEH <br> SABAOTH (Lard of Hosts) 129 | $\begin{aligned} & \text { Haniel } \\ & \text { (Graoe of God) } \\ & 97 \end{aligned}$ | Tershishim or Elohim $1260$ | Nogah Glittering Splendour. (Venus) |
| 8 | Hod (Glory) 15 | $\begin{aligned} & \text { ELOHIM } \\ & \text { SABAOTH } \\ & \text { (God of Hosts) } \\ & 153 \end{aligned}$ | Raphael (Divine Physician) 311 | Beni Elohim (Sons of God) 112 | Kckab The Stells Light. (Mercury) $48$ |
| 9 | $\begin{aligned} & \text { Yesod } \\ & \text { (Foundation) } \\ & \mathbf{8 0} \end{aligned}$ | SHADDAI EL CHAI (Almighty Living God) <br> 49, 363 | Gabriel (Strong Man of God) 246 | Cherubim <br> (The Strong) 272 | Levangh <br> The Lunar Flame. (Moon) 87 |
| 10 | Makuth <br> (1/ingdom) $496$ | ADONAI MELEKH (The Lord and King) 65, 155 | Sandalphon (Manifect Messiah) 280 | Ashim <br> (Souls of Fire) <br> 351 | Cholem Yesodeth <br> The Eresker of the <br> Foundations. <br> The Elements. <br> (Earth) <br> 168 |

## Kabbalah Gematria

- Associated with each Sephirah of the Tree of Life is:
- 1. a Godname, which functions in Atziluth, the Archetypal World, and embodies the abstract essence of that Sephirah;
- 2. an Archangel, which functions in Beriah, the World of Creation;
- 3. an Order of Angels, which functions in Yetzirah, the Formative World, and
- 4. a Mundane Chakra, which exists in Assiyah, the World of Action. In an astrological context, it is the astronomical body that has been traditionally thought to manifest the quality of a given Sephirah


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- The Hebrew name of a Sephirah manifesting in each of the four
${ }_{32 / 22}$ Kabbalistic Worlds is equivalentito a number that is the sum of ${ }_{26}$ the number values of its letters. In one or two cases where the


## Kabbalah Gematria

- Sacred geometry - the domain of the Divine Names par excelle - provides such a check. Hence, in the one or two cases where the number listed in this table is not that given in reference works on Kabbalistic gematria, e.g., Godwin's Cabalistic Encyclopedia, it means not that Stephen Phillips has made an error of adding but that, prompted by sacred geometrical considerations, Phillips has taken into account the necessity of contraction, so that the true gematria number value of a few Godnames is not merely the sum of their letter values, as these works assume.
- Such considerations are not ad hoc but motivated by the fact that Godname numbers have a simple, geometrical basis, so that consistency with this necessitates the contraction of the value 40 of the final mem in Elohim to 4. A few other differences in the table arise because Phillips follows traditional, Jewish Kabbalah, not Hermetic societies of the West, such as the Order of the Golden Dawn, which inspired source books like Godwin's Cabalistic Encyclopedia


## Sacred Geometry

- ror the purpose of studying sacred geometries, there are two ways of - transforming their component triangles:
- change them into tetractyses ('1st-order tetractyses'), '2nd-order tetractyses,' in which each yod itself becomes a tetractys, and so on;
- divide each triangle into its sectors, those sectors into three more sectors, etc and then turn each sector into a tetractys. Triangles whose sectors are tetractyses are called 'type A triangles' and triangles whose sectors are divided into three tetractyses are called 'type B triangles,' The numbers in red denote the yod populations of the various, transformed triangles. This division can proceed further into type C triangles, type D triangles, etc.
- Traditionally, the tetractys has been depicted as having the form of an equilateral triangle. In the context of sacred geometry, however, the component triangles that are its building blocks may be isosceles triangles or, indeed, triangles of any shape. They can all be turned 3/2into either tetractyses as triangularoarrays of 10 dots or any higherorder tetractys.


## Sacred Geometry



## Sacred Geometry

There are objective criteria for deciding whether a geometrical object possesses sacred geometry.

Firstly, divide all its polygons (they need not be regular) into their sectors, then turn the latter into tetractyses.

Count the numbers of vertices, edges \& triangular sectors/tetractyses.

Also, count the various types of yods - corners, hexagonal yods, yods on edges of tetractyses, etc. If the object is an example of sacred geometry, the Godname numbers will appear amongst these numbers - either explicitly or indirectly, e.g., by defining an odd integer, odd integer after 1 or an even integer that occurs amongst them

## Sacred Geometry

For example, if the number 97 appears, then this is significant because it is the 49th odd integer, where 49 is the number value of El Chai, the Godname of Yesod. If the object is a complete, holistic system, i.e., not merely part of a more complex geometry, then all ten Godname numbers will appear amongst these numbers.

If they do not, then either the presence of these numbers was coincidental because the object lacked sacred geometry (this has to be a matter of judgement, depending upon how many Godname numbers are present) or else the object under examination is mathematically incomplete, being just a component of a more complex object that possesses sacred geometry and which needs to be found. If a real example of sacred geometry, the object will also embody the gematria numbers of the Archangels, Orders of Angels and Mundane Chakras of the 10 Sephiroth, although their presence may require several orders of transformation of the geometry in order to reveal them.

## Sacred Geometry

## Procedures for identifying what is 'sacred geometry'

1. Reconstruct the object from triangles. Turn triangles into 3 triangles, squares into 4 triangles, etc.

2. Count (or calculate) the numbers of vertices, edges \& triangles created.
3. Turn the new triangles into tetractyses.

4. Count (or calculate) the number of yods at corners of tetractyses. Count (or calculate) the number of hexagonal yods. Count also the number of yods lying on the edges of the object and the number of hexagonal yods on the boundary.
5. If ALL 10 Godname numbers are found among these numbers, the object possesses sacred geometry. The number values of the Archangels, Order of Angels \& Mundane Chakras will also be found to quantify its geometry.

Common sense rules out their presence being a coincidence because it is highly improbable that $a / / 10$ numbers could appear by chance.

## Sacred Geometry

Four identical circles overlapping centre to circumference generate at their centres and points of intersection the positions in the Tree of Life of the nine Sephiroth above Malkuth.


## Sacred Geometry

A column of four circles generates not only the Tree of Life but also two columns of similar circles centred upon their points of intersection.


Points of intersection of overlapping circles are centres of similar circles

## Sacred Geometry

The overlapping centre-to-circumference of four similar circles generates eight (red) points of intersection. Their horizontal diameters also have eight endpoints. These 16 points are the generators of the 'inner Tree of Life.' Seven of them coincide with Sephiroth (Chokmah, Chesed, Netzach, Binah, Geburah, Hod \& Tiphareth) and one coincides with Daath. The two vertically displaced circles create the shape (shown shaded) of the Vesica Piscis ("bladder of a fish"), which is a well-known motif of Christian art and sacred geometry.


## Sacred Geometry



The centres of the four circles and the 16 ends of their horizontal and vertical diameters form four crosses and four Vesica Piscis (coloured green, blue, violet \& orange) that surround the central one (shown shaded):


## Sacred Geometry

In this sense, the Vesica Piscis is, truly, the template for the construction of not only the outer form of the Tree of Life from four such vertically-stacked shapes, but also its inner form, as demonstrated on the next page.

It is why this shape should be regarded as sacred geometry. It is not because the Vesica Piscis looks like the Ichthys, an early Christian symbol, or because it is found in medieval Christian manuscripts as the "mandoria," an aureola, or cloud of radiance, that is depicted in Christian art as surrounding Christ or the Virgin Mary.

The notion of 'sacredness' may, historically speaking, have arisen from the context of a particular religion, but sacred geometry is sacred because it expresses an idea whose power transcends the historical origins and beliefs of that religion and their traditional, artistic rendition.

The Vesica Piscis is sacred not because it symbolises dogmas of a particular religion, such as the divinity of Jesus claimed by Christianity, but because it embodies truths that have universal, or cosmic, significance that are at the same time acceptable to any religion. That is not to say that none of these dogmas has universal significance. All that we are saying is that the shape of the Vesica Piscis is/sacred for reasons that are far moreeprofieund than what its early Christian provenance would suggest.

## Sacred Geometry

The two sets of seven regular polygons generated by joining pairs of red points by straight lines have 70 corners. They constitute the "inner form" of the (outer) Tree of Life.


Lines joining pairs of points (o) intersect at the 70 corners of (7+7) enfolded, regular polygons

## Sacred Geometry

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Lines joining pairs of points (o) intersect at the 70 corners of (7+7) enfolded, regular polygons

## Sacred Geometry

Here is an animation that shows the 70 corners of the (7+7) enfolded polygons being created by successive, straight lines that join pairs of white generator points (red dashed lines for dodecagons, orange lines for decagons, yellow lines for octagons, green lines for hexagons, blue lines for pentagons, indigo lines for squares \& violet lines for triangles):


## Sacred Geometry

As the outer form of each descending Tree of Life emanates from its previous one, creating a set of overlapping Trees, so, too, each outer form is accompanied by its inner counterpart of (7+7) enfolded polygons. All the sets of these polygons lie in the plane passing through the Pillar of Mercy and the Pillar of Judgement (the central Pillar of Equilibrium does not lie in this plane). The overlap between polygons belonging to adjacent sets results in only two corners of polygons coinciding with those of polygons in another set, namely, the topmost corner of the hexagon coincides with the lowest corner of the hexagon in the next higher set, whilst its lowest corner coincides with the top of the hexagon belonging to the next lower set

The successive emanation of the outer forms of 10 Trees of Life is accompanied by their inner forms, two sets of 7 enfolded, regular polygons, one set being the mirror image of the other.

## Sacred Geometry

Think of the human face. You only need to know what half of it looks like in order to build the image of the whole face because one half is the 'mirror image of the other - or at least approximately so. What is essentially needed to express the whole is really within it as another whole. This is characteristic of holistic geometrical systems like those discussed in this website. Holistic systems are always compounded from other holistic systems: the part contains the whole.

The "inner form" of the Tree of Life consists of two similar sets of seven regular polygons:
triangle-square-pentagon-hexagon-octagon-decagon-dodecagon
Each one is the mirror image of its counterpart in the other set. The seven polygons are enfolded in one another. Their shared side is the 'root edge', so-called because the polygons should be thought of as growing out of it in the order: triangle $\rightarrow$ dodecagon, just as a plant or ${ }^{3}$ /rree develops after its seed has takefhifoot in the soil.

## Sacred Geometry



The inner Tree of Life

## Sacred Geometry

What has been known in Kabbalah since the 15th century as the "Tree of Life" is but its outer form. The two sets of seven enfolded, regular polygons constitute its inner form.

The picture shows the outer form projected onto the plane containing the 14 polygons. It also depicts a column of four white circles overlapping centre-to-circumference.

Two white circles are centred on two of their points of intersection, which coincide with Chesed and Geburah.

The non-Sephirah Daath (dashed circle) and the Sephiroth Chesed, Geburah \& Tiphareth project onto the boundary of a Vesica Piscis in the plane of the 14 enfolded polygons.

It encloses the two violet triangles that are part of the inner Tree of $f_{4}$ Life.

## Sacred Geometry



The Outer and nneli Femmsxatherreeof hilie

## Sacred Geometry

16 separate triangles with 48 corners join together to form the Tree ' of Life. It has 10 vertices and 22 edges of 16 triangles - a total of .48 geometrical elements. The re-appearance of this number is not a coincidence because it is a basic parameter of all geometrical structures that conform to the archetypal Tree of Life pattern, i.e., possess sacred geometry.


The Tree of Life is composed of 48 geometrical elements

## Sacred Geometry

As a 3-dimensional object, the Tree of Life consists of 16 triangles with 10 vertices and 22 edges. The picture depicts it from above its apex, the broken lines indicating Paths that lie behind other Paths. These three numbers have representation in terms of a square and the integers $1,2,3 \& 4$. Such representations are examples of a 'Tetrad Principle' governing holistic systems. This determines parameters of universal (and therefore scientific) significance as either various numbers characterising or belonging to the fourth member of a class of mathematical object (which may, itself, be a type of number) or as the sum of the first four members of a class of numbers. The principle is demonstrated par excellence in the tetractys itself, which symbolizes the number 10 as the sum of the first four integers. This makes it the fourth, so-called 'triangular number' (triangular numbers are those numbers that can be represented by triangular arrays of the number 1 , the nth triangular number being a triangular array with n 1 's along each side).

## Sacred Geometry



3-d Tree of Life

10 corners

$$
10=\square_{4}^{1} \square_{3}^{2}
$$

22 sides

$$
22=\square_{4}^{1^{4}} \square_{3^{2}}^{2^{3}}
$$

16 triangles


## Sacred Geometry

The number 48 is a parameter of holistic systems that display sacred geometry. It manifests in the inner form of the Tree of Life as the 48 corners of its seven separate, regular polygons.


The seven separate, regular polygons have 48 corners

## Sacred Geometry

T.he number 48 is the sum of the first six odd integers after 1.24 is the sum of the first four odd integers after 1. Arithmetically, the number 48 divides naturally into a pair of number 24 's. This division always appears in the holistic parameter 48 displayed by systems of sacred geometry.


As the sum of the first 6 odd integers after 1,48 divides naturally and uniquely into 24 and 24 . This division is displayed by all sacred geometries/holistic systems embodying the divine archetypes.

## Sacred Geometry

Trees of Life can be regarded as overlapping (or, rather, interpenetrating, as they are really 3-dimensional).

Each Tree of Life has its own, identical inner form consisting of two sets of seven enfolded polygons joined at an edge - the path connecting Tiphareth of that tree with Yesod of the next higher tree (this is the so-called "root edge").

Apart from the hexagons, none of the corners of the polygons enfolded in adjacent trees coincide. The topmost corner of a hexagon (blue yod) coincides with the lowest corner of the hexagon enfolded in the next higher Tree.

## Sacred Geometry



Each overlapping Tree of Life has its own inner form

## Sacred Geometry

Viewed separately, the seven regular polygons making up the inner Tree of Life can be divided into their sectors. When the latter are turned into tetractyses, the seven separate polygons have 295 yods, of which 240 are hexagonal yods. Two of the polygons have yod populations that are number values of Godnames - the pentagon with 31 yods (the number of EL, the Godname assigned to Chesed in the Tree of Life) and the octagon with 49 yods (the number value of EL CHAI, the Godname of Yesod).


## Sacred Geometry

When their 47 sectors are changed into tetractyses, the seven separate polygons have 144 yods on their boundaries. Both sets of polygons have 288 boundary yods.

This is also the number of yods in seven polygons that surround their centres. It is characteristic of holistic systems or objects with sacred geometry that their properties are expressed by the numbers $1,2,3 \& 4$ symbolized by the four rows of dots in the tetractys.

The numbers 144 and 288 are such examples. Another example is the fact that 576 yods surround the centres of the two sets of polygons when their 96 sectors are tetractyses, where $576=242=$ $12 \times 22 \times 32 \times 42$.

## Sacred Geometry



Number of yods on boundaries of 7 polygons $=144$

Number of yods on boundaries of 14 polygons $=288$

Number of yods surrounding centres of 7 polygons $=288$

## Sacred Geometry



The sectors of each of the 14 polygons making up the inner Tree of Life can be converted into tetractyses, each with 10 yods. This generates 524 yods in 94 tetractyses.


## Godnames and Sephirah



A' Godname is assigned to each Sephirah. It encapsulates the essence of the meaning of the corresponding Sephirah. Assigned to Chokmah are YAH and YAHWEH, the former being the older version of this Godname. Each Godname has a gematria number value. It quantifies the sacred geometry of the outer and inner forms of the Tree of Life (indeed, all forms of sacred geometry) in a way that conforms to the metaphysical meaning of the corresponding Sephirah.

Table of the Godname numbers

| Sephirah | Godname | Number <br> value |
| :--- | :--- | :---: |
| Kether | EHYEH | 21 |
| Chokmah | YAH, YAHWEH | 15,26 |
| Binah | ELOHIM | 50 |
| Chesed | EL | 31 |
| Geburah | ELOHA | 36 |
| Tiphareth | YAHWEH ELOHIM | 76 |
| Netzach | YAHWEH SABAOTH | 129 |
| Hod | ELOHIM SABAOTH | 153 |
| Yesod | EL CHAI | 49 |
| Malkuth | ADONAI | 65 |

## Tree Of Life

A corner of each triangle in the inner Tree of Life is the centre of a hexagon.

A corner of each pentagon is the centre of the decagon. This means that only five of the seven centres of each set of polygons are independent, for the two other centres in each set are part of polygons.

The outer Tree of Life essentially consists of 10 points (the Sephiroth) and the point at which the non-Sephirah 'Daath' is located. The outer and inner Trees of Life therefore comprise, respectively, ( $10+1$ ) points and ( $5+5$ ) points, i.e., 21 points.

This is the number value of EHYEH (Hebrew: AHIH), the Godname of Kether. The numbers 1,5,10 \& 5 denote the respective values of the letters A, H, I \& H making up the Hebrew word for this Divine ${ }^{3}$ Name.

## Tree Of Life

$21=$


A H I H = 21
15105
$1(\circ) 5(\circ) \mathbf{1 0 ( \circ ) 5 ( \circ )}$
There are $(10+1)$ points in the Tree of Life and $(5+5)$ independent centres of polygons

$$
21 \text { = number value of EHYEH }
$$

## Tree Of Life

When the 47 sectors of the seven enfolded polygons are turned into tetractyses, they have 264 yods, that is, 260 yods outside their shared side, or root edge, which has four yods.

This is the number of yods in 26 tetractyses. YAHWEH with number value 26 determines the number of yods needed to construct the seven enfolded polygons from tetractyses, starting with their root edge.

The 7 polygons have 260 yods outside their root edge
26 = number value of YAHWEH

## Tree Of Life

When the 47 sectors of the seven enfolded polygons are turned into tetractyses, they have 264 yods, that is, 260 yods outside their shared side, or root edge, which has four yods.

This is the number of yods in 26 tetractyses. YAHWEH with number value 26 determines the number of yods needed to construct the seven enfolded polygons from tetractyses, starting with their root edge.

The 7 polygons have 260 yods outside their root edge
26 = number value of YAHWEH

## Tree Of Life

Whien considered separate, one set of seven polygons is separated from the other set by the root edge. Its endpoints can be regarded formally as corners, for the root edge can be thought of as the endresult of a polygon that has collapsed onto one of its edges. The seven polygons have 48 corners. The root edge and seven polygons therefore have 50 corners. They constitute a complete (i.e., holistic) sequence prescribed by the Godname ELOHIM, which has the gematria number value 50 .


The 7 separate, regular polygons and their root edge have 50 vertices

50 = number value of ELOHIM

## Tree of Life

Four of the 36 corners of the seven enfolded polygons coincide with the projection of Sephiroth of the Tree of Life onto the plane containing the polygons. One corner (an endpoint of the root edge) coincides with the projection of Daath onto the plane of the polygons. There are therefore $(36-5=31)$ corners of polygons that do not coincide with the projections o Sephiroth or Daath, i.e., 31 corners that are intrinsic to the inner Tree of Life. 31 is the number value of EL, the Godname assigned to Chesed.


The 7 enfolded polygons have 31 corners not coinciding with Sephiroth (o) or Daath ()

31 = number value of EL

## Tree of Life

 cacil of the Godnames mathematically characterizes the geometry of the inner Tree of life in a manner that matches the meaning of its Sephirah. The number value of ELOHA, the Godname of Geburah, is 36. This is the number of corners of the seven enfolded polygons that give them their shape. In keeping with the formative aspect of the Pillar of Judgement to which this Sephirah belongs, its Godname prescribes the form of the inner Tree of Life. The prescription by ELOHA contains the sense of a minimal, shape-determining limit because the 36 corners of the seven enfolded polygons simply demarcate their complete shape and therefore define the form of the inner Tree of Life in the simplest, possible way.The 7 enfolded polygons have 36 corners

## Tree of Life

The seven separate polygons have 48 corners. Their 48 sectors have $(48+7=55)$ vertices. They also have $(48 \times 2=96)$ edges. They have ( $55+96=151$ ) vertices \& edges. 151 is the 76th odd integer, where 76 is the number value of YAHWEH ELOHIM, the Godname of Tiphareth.


The 48 tetractyses in the 7 separate polygons have 151 corners \& sides, where $151=76$ th odd integer

76 = number value of YAHWEH ELOHIM

## Tree of Life

The seven enfolded polygons have 36 corners and 42 edges. They have seven centres, two of which coincide with corners. Their 47 sectors have 46 edges other than edges of polygons. They have $(36+42+5+46=129)$ corners \& edges. 129 is the number value of YAHWEH SABAOTH, the Godname of Netzach.


The 47 tetractyses in the 7 enfolded polygons have 129 corners \& sides

129 = number value of YAHWEH SABAOTH

## Tree of Life

The 14 enfolded polygons have 70 corners and 83 edges, i.e., 153 corners \& sides. The shape of the inner Tree of Life is prescribed by ELOHIM SABAOTH, the Godname of Hod, which has the number value 153.


The (7+7) enfolded polygons have 153 corners \& sides
153 = number value of ELOHIM SABAOTH

## Tree of Life

Each endpoint of the root edge counts formally as a corner. Each set of seven polygons has 48 corners. One endpoint can be associated with each set. Associated with the root edge and with each set of polygons are 49 corners. 49 is the number value of EL CHAI, the Godname of Yesod.


Each endpoint of the root edge is associated with 7 regular polygons that have 48 corners

$$
49 \text { = number value of EL CHAI }
$$

## Tree of Life

I he $/ U$ corners of the two sets of seven enfolded polygons lie in a plane. When the 3-dimensional Tree of Life is projected onto this plane, the projection of seven Sephiroth (Chokmah, Binah, Chesed, Geburah, Tiphareth, Netzach \& Hod) coincide with corners of polygons.

Although not a Sephirah, the projection of Daath onto the plane of the polygons coincides with one end of the root edge. This means that 8 corners of the 14 polygons denoted by black dots are shared with Sephiroth or Daath of the outer Tree of Life and 62 corners are unshared with it. Three Sephiroth - Kether, Yesod \& Malkuth - are located at corners of triangles whose projections also do not coincide with any corners of polygons.

These 65 unshared, independent corners shown in red are prescribed by ADONAI, the Godname of Malkuth, which has the namber value 65.

## Tree of Life



The Tree of Life and the (7+7) enfolded polygons have 65 corners unshared with one other

$$
65 \text { = number value of ADONAI }
$$

## Tree of Life

The next higher-order version of the tetractys is the 2nd-order tetractys. It has 70 hexagonal yods (shown as black dots). They correspond to the 70 yods needed to construct the Tree of Life when its 16 triangles are turned into 1st-order tetractyses (see \#36). In conformity to the Tetrad Principle proposed in Article 1, the numbers of different classes of yods are the sums of the first four members of various classes of numbers.
As $40=12,41=22,42=24$ and $43=82$, the number of yods in the 2nd-order tetractys $=85$
$=40+41+42+43$
$=12+22+42+82$

## Tree of Life

The number of corners of the 10 tetractyses $=15=1+2+4+8$.
This shows how the first four terms in the geometric series $1,2,4$, $8, \ldots$. determines properties of the 2 nd-order tetractys. The number of yods surrounding its centre $=84=22+42+82$.

The number of hexagonal yods $=70=84-14=(22-2)+(42-4)+$ (82-8).

This demonstrates how properties of the 2nd-order tetractys are determined by the integers 2,4 \& 8 making up the number 248, which is the number value of Raziel, the Archangel of Chokmah, and the dimension of E8, the rank-8, exceptional Lie group at the heart of superstring theory.

## Tree of Life

## $70(\bullet)=$



Number of yods $=85=4^{0}+4^{1}+4^{2}+4^{3}$.
Number of yods at corners $=15=3+5+7+9$.
Number of yods surrounding centre $=84=1^{2}+3^{2}+5^{2}+7^{2}$.
Number of yods on boundary $=36=(1+3+5+7)+(2+4+6+8)$.

## Tree of Life

This reveals a deeper level of correspondence between the Tree of Life and the first higher-order tetractys.

The 10 Sephiroth of the former, which as points define its shape, correspond in the latter to the centres (shown in white) of the 10 tetractyses with their corner yods not displayed. This type of yod formally symbolizes Malkuth, the outer form of the Tree of Life. The Tree of Life has 60 hexagonal yods shown in black. Their counterparts in the higher-order tetractys are the 60 hexagonal yods (shown in black) that are arranged at corners of hexagons in its 10 tetractyses.

The Godname ELOHIM with number value 50 prescribes the number 70 as the 50 th composite number (composite numbers contain one or more divisors other than 1 and itself, i.e., they are not prime numbers).

## Tree of Life



Correspondence between the higher-order tetractys and the $(10+60)$ yods of the Tree of Life

## Tree of Life

Kether, the Sephirah at the apex of the Tree of Life, is the seed source of all things that participate in the Divine Life. It is represented by a point. The horizontal path with Chokmah and Binah at its ends constitutes a straight line. Chesed, Geburah \& Tiphareth are at the vertices of a triangle. Netzach, Hod, Yesod \& Malkuth are at the vertices of a tetrahedron.

The point, line, triangle and tetrahedron constitute the 'trunk' of the Tree of Life. The remainder of the Tree of Life, represented by the dotted lines and the triangles that they form, constitutes its 'branches'. The trunk is therefore the essential, geometric representation of the integers $1,2,3 \& 4$, symbolized by the four rows of yods in the tetractys.

## Tree of Life



## The trunk of

 the Tree of Life(dashed lines are its branches)

## Tree of Life

The vertex of a tetractys denotes the mathematical point.
The pair of dots denotes the endpoints of a straight line.
The three dots denote the three vertices of a triangle and the four dots in the last row of the tetractys denote the four vertices of a tetrahedron, the simplest regular polyhedron.

The tetractys therefore symbolizes the mathematical sequence of a point, line, triangle \& tetrahedron.

They are the basic building blocks of geometry in spaces with, respectively, zero, one, two \& three dimensions.

## Tree of Life



The four rows of the tetractys symbolize a point, a line, a triangle \& a tetrahedron

## Tree of Life

.The 70 corners of the 14 polygons consist of 35 corners (denoted by black yods) associated with one set of seven polygons and 35 corners (denoted by red yods) associated with the other set. Constructed from tetractyses, the outer Tree of Life, likewise, is made up of 70 yods, 35 of which (red yods) belong to its trunk, the remaining 35 black yods belonging to its branches. This differentiation and its counterpart in the inner form of the Tree of life has a profound, fundamental significance. Loosely speaking, it signifies the metaphysical distinction between 'physical' and 'superphysical' aspects of any holistic system designed according to the universal blueprint of the Tree of Life (a human being, for example). In superstring theory, where the holistic system in question is what is known as the 'E8×E8' heterotic superstring,' the two mirror-image halves of the inner Tree of Life appear as the distinction the theory makes between ordinary matter and so-called 'shadow matter'. This is because, as will be seen in the Superstrings as sacred geometry section, one half encodes the physics of superstrings making up ordinary matter, whilst the other half encodes the physics of shadow matter superstrings, their mirror symmetry explaining why the unified force of each type of superstring is described by the same symmetry group E8.

## Tree of Life



The 35 ( $\odot$ ) yods belonging to the trunk of the Tree of Life correspond to the 35 ( $\circ$ ) corners associated with one set of 7 enfolded, regular polygons.

One half of the inner Tree of Life denotes the trunk of its outer form. Its other half denotes its branches.

## Tree of Life

In a set of overlapping Trees of Life, the lowest one is made up

- of 80 yods when its 19 triangles are turned into tetractyses. The 94 triangular sectors of the two sets of seven enfolded polygons have 80 corners. Transforming the Tree of Life to the lowest of a sequence of overlapping Trees of Life adds 10 yods. They correspond to the 10 corners of sectors that are not corners of polygons


The lowest Tree of Life has as many yods (80) as the 94 triangular sectors of the (7+7) enfolded, regular polygons have corners

## Tree of Life

The lowest of any set of overlapping Trees of Life has 80 yods. 80 is the number value of Yesod, the penultimate Sephirah.

The number value 73 of Chokmah is the number of yods up to, and including, the yods in the horizontal path joining Chokmah and Binah.

The number value 67 of Binah is the number of yods below Binah of the lowest Tree of Life.

Here is clear evidence of the geometrical basis of the gematria number values of the Sephiroth, for how likely is it that the numbers of Chokmah and Binah could by chance be the number of yods determined by the positions of these two Sephiroth in the Tree of Life?

## Tree of Life



The number value 73 of Chokmah is the number of yods up to the Chokmah-Binah Path

The number value 67 of Binah is the number of yods below the Chokmah-Binah Path

## Tree of Life

We saw earlier that the outer Tree of Life has 48 vertices, lines \& triangles and that its inner, polygonal form has 48 corners. With its triangles turned into tetractyses, the lowest Tree of Life has 48 yods up to Chesed, the first Sephirah of Construction, the part of the Tree of Life marking the commencement of objective manifestation of the Divine Life.

Surrounding the centre of the 2nd-order tetractys are 48 red yods symbolizing 7 -fold differentiations of the seven Sephiroth of Construction, which are denoted by the seven tetractyses arranged at the centre and corners of a hexagon.

The number 48 always characterizes holistic systems possessing sacred geometry (such as the Tree of Life) as the minimum ${ }_{32}$ number of degrees of freedom needed to express their form.

## Tree of Life

## Outer Tree of Life



48 vertices, edges \& triangles
Inner Tree of Life


2nd-order tetractys

## Tree of Life

.The subset of the set of 14 polygons consisting of the two mirrorimage sets of the first six enfolded polygons also constitutes a Tree of Life system because the 12 polygons have 48 corners outside their shared root edge. This 48:32 division of corners of the 94 sectors of the 14 enfolded polygons corresponds in the lowest Tree of Life to the 48 red yods up to Chesed (1st Sephirah of Construction) and to the 32 black yods that are above it (see previous diagram).


48 (o) outside the root edge as corners of the first ( $6+6$ ) polygons
$32(\bullet)$ at centres, at ends of the root edge or as corners of the two dodecagons

## Tree of Life

When its 19 triangles with 11 corners are tetractyses, the 1 -tree contains 80 yods. This is the number of Yesod, the penultimate Sephirah of the Tree of Life.

When its triangles are Type B, each having four internal corners of triangular sectors, the number of corners of the $(19 \times 9=171)$ sectors $=$ $19 \times 4+11=87$. This is the number of Levanah, the Mundane Chakra of Yesod.

The yod population of the 1-tree is the gematria number value of Yesod, whilst the number of corners of triangles in its 16 Type B triangles is the number value of the Mundane Chakra of this Sephirah.

It is highly implausible to attribute this pair of properties to chance. Instead, it serves to illustrate the tetractys/geometrical basis of the gematria values of the 10 Sephiroth in the four Worlds of Atziluth, Beriah, Yetzirah \& Assiyah

## Tree of Life



The 1-tree embodies the number values of Yesod and Levanah, its Mundane Chakra

## Tree of Life

The triangles that are the basic building blocks of sacred geometry can be considered not only as pure triangles (what we may call "Oth-order triangles") but also as triangles divided into their three sectors ("Type A triangles," called here "1st-order triangles").

If each sector of the Type $A$ triangle is then divided into its three sectors, it becomes a "Type B triangle," or a "2nd-order triangle." It is composed of ( $32=9$ ) 0th-order triangles.

The next division into three sectors of each 0th-order triangle in a Type B triangles generates a "Type C triangle" ("3rd-order triangle") with (33=27) 0th-order triangles, and so on.

An nth-order triangle is the result of $n$ successive divisions of a Othorder triangle into $3 n$ Oth-order triangles:

## Tree of Life


$80=$ shared hexagonal yods
178 - unshared with (7+7) enfolded polygons 442 coloured hexagonal yods outside root edge
Subtotal $\mathbf{= 6 2 0}$ hexagonal yods
100 corners of 142 tetractyses

$$
\text { Total = } 720 \text { yods }
$$

