ARTICLE 35

The Tree of Life Nature of the Sri Yantra and Some of its Scientific Meanings

by

Stephen M. Phillips

Flat 3, 32 Surrey Road South. Bournemouth. Dorset BH4 9BP. England.

Website: http://www.smphillips.mysite.com

Abstract

Revered by Hindus as the most sacred of the yantras, the Sri Yantra is said to represent the process of unfolding of Divine Creation. This article confirms their belief by correlating the Sri Yantra with the Tree of Life. The first three layers of triangles have 168 geometrical elements comprising 84 sides and 84 vertices & triangles. As discussed in many previous articles, this number is the structural parameter of the $E_8 \times E_8$ heterotic superstring. The numbers of different types of sides and vertices in these layers are exactly the same as the numbers of various types of non-zero roots making up the 168 non-zero roots of the superstring gauge symmetry group E_8 that do not belong to its subgroup E_6 . The 48 geometrical elements in the first layer of triangles consist of eight groups of six geometrical elements. This 8×6 pattern has parallels in many other holistic systems discussed in previous articles. The Sri Yantra has 260 geometrical elements, showing how it is prescribed by the Godname YAHWEH, whose gematria number value is 26. There are 260 geometrical elements in the seven overlapping Trees of Life that map the seven planes of consciousness. The Sri Yantra is also equivalent to the inner form of the Tree of Life, which has 260 yods outside its root edge when the sectors of its seven polygons are tetractyses. When each is divided into three triangles, the 14 triangles of the fourth layer have 168 geometrical elements and the 28 triangles of the first three layers have 336 elements. These numbers are the numbers of circularly polarised oscillations in, respectively, a half-revolution and a whole revolution of each curve making up the $E_8 \times E_8$ heterotic superstring. They correspond to the 168 automorphisms of the Klein Quartic and to its 336 automorphisms and anti-automorphisms. There are also 336 yods on the sides of the 42 triangles in the four layers. The 70 vertices of the 2-d Sri Yantra correspond to the 70 yods of the outer Tree of Life constructed from tetractyses. The 236 geometrical elements making up the four layers correspond to the 236 yods on the boundaries of the 14 polygons in the inner Tree of Life. The 2-d Sri Yantra is equivalent to the 120 Polyhedron with 362 geometrical elements in its faces because its four layers of triangles have 362 yods. The 8:6 division of tips of triangles in the fourth layer reflects the eight Pythagorean and six non-Pythagorean notes in the seven musical scales. The numbers in Plato's Lambda appear within in the Sri Yantra in its nine basic triangles regarded as tetractyses. The seven positive and seven negative points of these Shiva and Shakti triangles symbolize the seven Yang and the seven Yin acupuncture meridians. They also signify the seven notes and their complements that make up the seven musical scales.

1. Sri Yantra

The Sri Yantra (Fig. 1) is revered by Hindus as the most powerful and sacred of the yantras, or images used for meditation. Five downward pointing triangles symbolizing the feminine creative energy, or Shakti, intersect four upward pointing triangles symbolizing

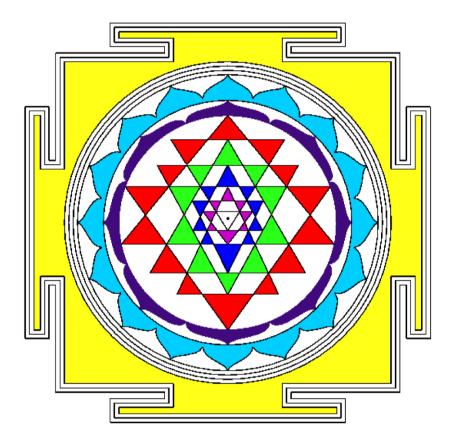


Figure 1. The Sri Yantra.

the masculine creative energy, or Shiva. This generates 42 triangles arranged in four layers of eight, 10, 10 and 14 triangles. They surround a downward pointing triangle whose corners denote the triple Godhead of Shiva, Brahma and Vishnu. At its centre is a point, or bindu, representing the Absolute. Table 1 shows the numbers of vertices, sides and triangles in the Sri Yantra.

	Vertices	Sides	Triangles	Total
Bindu	1	0	0	1
\bigtriangledown	3	3	1	7
Subtotal	4	3	1	8
	2 x 8 = 16	3 x 8 = 24	8	48
	2 × 10 = 20	3 x 10 = 30	10	60
\checkmark	2 × 10 = 20	3 x 10 = 30	10	60
	2 x 14 = 28	3 x 14 = 42	14	84
Subtotal	84	126	42	252
Total	88	129	43	260

Table 1. Geometrical composition of the Sri Yantra.

	SEPHIRAH	GODNAME	ARCHANGEL	ORDER OF ANGELS	MUNDANE CHAKRA
1	Kether (Crown) 620	EHYEH (I am) 21	Metatron (Angel of the Presence) 314	Chaioth ha Qadesh (Holy Living Creatures) 833	Rashith ha Gilgalim First Swirlings. (Primum Mobile) 636
2	Chokmah (Wisdom) 73	YAHVEH, YAH (The Lord) 26, 15	Raziel (Herald of the Deity) 248	Auphanim (Wheels) 187	Masloth (The Sphere of the Zodiac) 140
3	Binah (Understanding) 67	ELOHIM (God in multiplicity) 50	Tzaphkiel (Contemplation of God) 311	Aralim (Thrones) 282	Shabathai Rest. (Saturn) 317
	Daath (Knowledge) 474				
4	Chesed (Mercy) 72	EL (God) 31	Tzadkiel (Benevolence of God) 62	Chasmalim (Shining Ones) 428	Tzadekh Righteousness. (Jupiter) 194
5	Geburah (Severity) 216	ELOHA (The Almighty) 36	Samael (Severity of God) 131	Seraphim (Fiery Serpents) 630	Madim Vehement Strength. (Mars) 95
6	Tiphareth (Beauty) 1081	YAHVEH ELOHIM (God the Creator) 76	Michael (Like unto God) 101	Malachim (Kings) 140	Shemesh The Solar Light. (Sun) 640
7	Netzach (Victory) 148	YAHVEH SABAOTH (Lord of Hosts) 129	Haniel (Grace of God) 97	Tarshishim or Elohim 1260	Nogah Glittering Splendour. (Venus) 64
8	Hod (Glory) 15	ELOHIM SABAOTH (God of Hosts) 153	Raphael (Divine Physician) 311	Beni Elohim (Sons of God) 112	Kokab The Stellar Light. (Mercury) 48
9	Yesod (Foundation) 80	SHADDAI EL CHAI (Almighty Living God) 49, 363	Gabriel (Strong Man of God) 246	Cherubim (The Strong) 272	Levanah The Lunar Flame. (Moon) 87
10	Malkuth (Kingdom) 496	ADONAI MELEKH (The Lord and King) 65, 155	Sandalphon (Manifest Messiah) 280	Ashim (Souls of Fire) 351	Cholem Yesodoth The Breaker of the Foundations. The Elements. (Earth) 168

Table 2. Gematria number values of the ten Sephiroth in the four Worlds.

The Sephiroth exist in the four Worlds of Atziluth, Beriah, Yetzirah and Assiyah. Corresponding to them are the Godnames, Archangels, Order of Angels and Mundane Chakras (their physical manifestation). This table gives their number values obtained by the ancient practice of gematria, wherein a number is assigned to each letter of the alphabet, thereby giving a number value to a word that is the sum of the numbers of its letters. All numbers in the table that appear in the article are written in **boldface**. The 42 triangles in the four levels have 84 vertices and 126 sides. The Godname EHYEH (see Table 2) prescribes the number of triangles because 42 is the **21**st even integer. It prescribes the number of sides because 126 is the sum of the values of all the possible combinations of the three letters A, H & I in AHIH:

$$A = 1, H = 5, I = 10$$

1. A + H + I = 16

AH + HI + AI + HH = 42

 $3. \qquad AHI + HIH + AHH = 47$

4. AHIH = **21**

$$Total = 126$$

The number of vertices is 84, where

$$84 = 1^2 + 3^2 + 5^2 + 7^2.$$

The number of geometrical elements is 252, which is the 126th even integer.

- The first three levels have 84 sides, 56 vertices and 28 triangles, that is, 84 vertices and triangles, totalling **168** geometrical elements. This equal 84:84 division of the number value **168** of *Cholem Yesodoth*, Mundane Chakra of Malkuth, has been encountered in many previous articles. Examples are:
- 1. Article 15,¹ which discussed the 84 permutations of pairs and triplets of octonions belonging to the seven 3-tuples of octonions (e_i, e_{i+1}, e_{i+3}) and the 84 permutations of their inverses;
- Article 18,² which discussed the I Ching table of 64 hexagrams and the 28 hexagrams on either side of its diagonal. Each hexagram is a pair of trigrams, so that each set of 28 off-diagonal hexagrams has (28×2×3=168) lines and broken lines. Each set comprises 84 lines and 84 broken lines;
- 3. Article 21,³ which discussed the 84 hyperbolic triangles in each of the two types of seven similar slices of the Klein Configuration, the diagram whose **168** hyperbolic triangles represent the **168** automorphisms of the equation known to mathematicians as the Klein Quartic;
- 4. Article 16,⁴ which discussed, firstly, the 84 repetitions of the Pythagorean-valued, rising intervals between the notes of the seven types of musical scales and their 84 falling intervals (pp. 17–18), and, secondly, the 84 yods belonging to the first four enfolded polygons enfolded in each half of the inner Tree of Life that either are not centres of polygons or do not coincide with Sephiroth (pp. 23–24).
- 5. Article 33,⁵ which found that the lowest five of the seven polygons formed by vertices of the disdyakis triacontahedron have 84 vertices & triangles and 84 sides.

The 84:84 division is an indication that the Sri Yantra constitutes sacred geometry that is isomorphic to other systems of sacred geometry. This conclusion is spectacularly

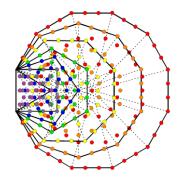


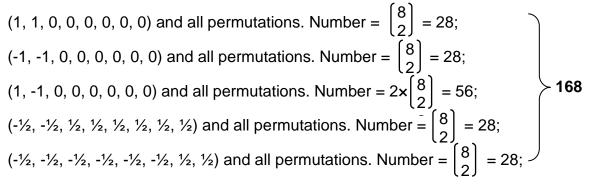
Figure 2. The seven enfolded polygons of the inner Tree of Life have 260 yods outside their shared root edge.

confirmed by the fact that, together with the eight geometrical elements in the central triangle and bindu, the Sri Yantra has 260 geometrical elements. This is the number of yods outside the root edge of the seven enfolded polygons making up the inner form of the Tree of Life when their 47 sectors are turned into tetractyses (Fig. 2). The Godname YAHWEH with number value **26**, which expresses the creative power of God, prescribes how many geometrical elements the Sri Yantra comprises.

The **168** elements of the first three layers comprise 56 vertices, 84 sides and 28 triangles. The 56 vertices consist of 28 that form the bases of the triangles and 28 that are their apices. The 84 sides consist of 28 that are bases of outward pointing triangles and 28 pairs of sides forming their points. Hence, the composition of the **168** elements is:

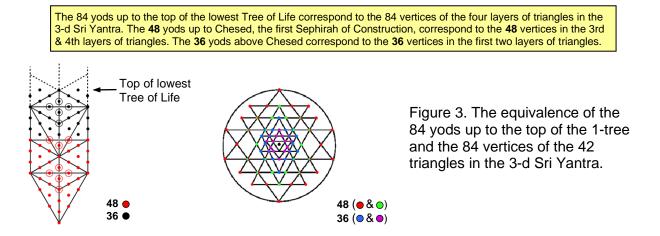
56 vertices = 28 base vertices + 28 apices 28 base sides 28 sides 28 sides 28 triangles

Compare this with the forms of the 8-tuples and their numbers representing the **168** non-zero roots of the superstring gauge symmetry group E_8 that are not also non-zero roots of its exceptional subgroup E_6 :



We find that the numbers of types of geometrical elements making up the first three layers of the Sri Yantra are the same as the numbers of different 8-tuples of non-zero roots belonging to E_8 but not to E_6 . The geometry of the 28 triangles in these three layers is analogous to the permutations of 8-tuples representing these non-zero roots!

The 43 triangles have **129** sides, where **129** is the number value of YAHWEH SABAOTH, Godname of Netzach. The innermost triangle consists of two sides that meet at the middle of an side of the lowest triangle of the fourth layer and one side that joins vertices



of triangles in that layer, which is composed of 24 sides. The 27 sides of the central triangle and first layer therefore divide into (26+1) sides. This means that the 129 sides consist of 26 sides of the central triangle and first layer and 103 sides of the central triangle and other three layers. 26 is the number value of YAHWEH and 103 is the number value of SABAOTH.

The first layer has **48** geometrical elements consisting of eight pairs of vertices, eight triplets of sides and eight triangles, that is, *eight groups of six elements*. **48** is the number value of *Kokab*, the Mundane Chakra of Hod. The third & fourth layers of triangles have

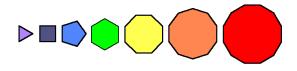


Figure 4. The **48** corners of the seven regular polygons making up each half of the inner Tree of Life.

48 vertices and the first & second layers have **36** vertices (Fig. 3). They correspond to the **48** yods up to Chesed of the 1-tree and the **36** yods above it. The seven separate polygons in the inner Tree of Life have **48** corners and seven centres (Fig. 4). These correspond to the **48** elements of the first layer of triangles and to the seven elements of the central triangles.

The bindu point at the centre of the Sri Yantra is surrounded by **87** vertices of 43 triangles with **129** sides, that is, by (**87+129=216**) vertices and sides. **216** is the number value of Geburah and **87** is the number value of *Levanah*, the Mundane Chakra of Yesod. 126

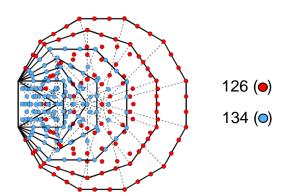


Figure 5. The 126 yods in the last two polygons correspond to the 126 sides of triangles in the Sri Yantra. The 134 yods in the first five polygons correspond to its 134 remaining geometrical elements.

sides and 126 vertices and triangles in the four layers of triangles surround the bindu. Including the innermost triangle, the 260 geometrical elements are made up of 126 sides of the four layers of triangles and 134 geometrical elements made up of 88 vertices, three sides and 43 triangles. This 126:134 division is reflected in the 260 yods outside the root edge of the seven enfolded polygons as the 126 yods in the decagon and dodecagon and as the 134 yods in the first five polygons (Fig. 5). It is further confirmation of the Tree of Life nature of the Sri Yantra. Corresponding to its 88 vertices and **129** sides are the 88 sides of the 47 sectors of the seven enfolded polygons in the inner Tree of Life and their **129** vertices and sides.

2. Sri Yantra with triangles divided into sectors

Suppose that each triangle in the Sri Yantra is divided into its sectors. Table 3 below displays the numbers of resulting vertices, sides & triangles.

	Vertices	Sides	Triangles	Total	
Bindu	1	0	0	1	
\bigtriangledown	3 + 1 = 4	3 + 3 = 6	3	13	
Subtotal	5	6	3	14	
	16 + 8 = 24	24 + 8×3 = 48	8x3 = 24	96	ר
	20 + 10 = 30	$30 + 10 \times 3 = 60$	$10 \times 3 = 30$	120	 ≻;
\bigtriangleup	20 + 10 = 30	$30 + 10 \times 3 = 60$	$10 \times 3 = 30$	120	J
	28 + 14 = 42	$42 + 14 \times 3 = 84$	14x3 = 42	168	
Subtotal	126	252	126	504	
Total	131	258	129	518	

Table 3. Geometrical composition of the 3-d Sri Yantra.

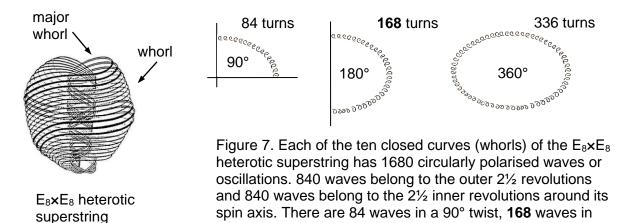
There are **131** vertices, where **131** is the number value of *Samael*, the Archangel of Geburah. This property is prescribed by the Godname ADONAI with number **65** because **131** is the **65**th odd integer after 1. Below the bindu are 130 vertices. Whereas there are 126 sides in the four layers of triangles when the latter are single tetractyses, there are 126 vertices when the triangles are constructed from three tetractyses. There are also 126 triangles. The Godname YAHWEH SABAOTH with number value **129** prescribes the **129** triangles and the 130 vertices because 130 is the **129**th integer after 1.

According to Table 3, the fourth layer of triangles has **168** geometrical elements made up of 84 sides and 84 vertices and triangles. Compare this with its 84 elements when the triangles are single tetractyses and with the **168** elements of the first three layers. What



Figure 6. The (**168+168**) hyperbolic triangles representing the **168** automorphisms and **168** antiautomorphisms of the Klein Quartic.

was in the latter now appears in the fourth when the triangles are divided into three. The first three layers have 336 elements made up of **168** sides and **168** vertices and triangles. This **168**:**168** division appears in the Klein Configuration as the **168** hyperbolic triangles



an 180° twist and 336 waves in one revolution.

representing the **168** automorphisms of the Klein Quartic and the **168** triangles representing its **168** antiautomorphisms.⁶ As discussed in many previous articles, it appears in the $E_{8\times}E_{8}$ heterotic superstring as the **168** circularly polarised oscillations

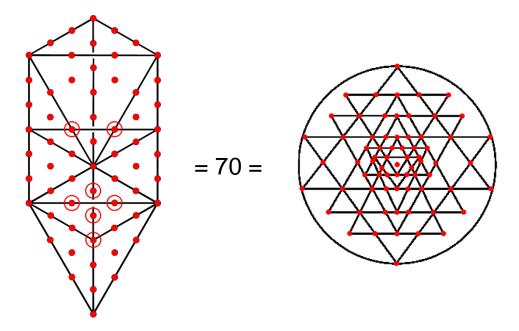


Figure 8. The 70 vertices of the 2-dimensional Sri Yantra correspond to the 70 yods of the Tree of Life.

made in half a revolution of each of its ten curves, the **168:168** division reflecting the distinction between the outer and the inner halves of each curve (Fig. 7). It appears in the disdyakis triacontahedron as the **168** geometrical elements in its faces above the central layer of vertices and their **168** mirror-image elements in its faces below it.⁷

The four layers of triangles have 504 geometrical elements made up of **168** elements in the fourth layer and 336 elements in the first three layers (**168** sides and **168** vertices and triangles). This **168**:**168**:**168** composition manifests (apart from the Tree of Life factor of 10) in the heterotic superstring as the 1680 oscillations in each of the three major

	Vertices	Number of sides	Number of triangles	Total
Bindu	1	0	0	1
\bigtriangledown	1	3	0	4
Subtotal	2	3	0	5
	4 + 8 = 12	8×3 = 24	8	44
	6 + 10 = 16	10x3 = 30	10	56
	2 + 10 = 12	10x3 = 30	10	52
	28	14x3 = 42	14	84
Subtotal	68	126	42	236
Total	70	129	42	241

Table 4. Geometrical composition of the 2-d Sri Yantra.

whorls (the thicker whorls shown in Fig. 7). The geometry of the Sri Yantra encodes that

part of the superstring that is the counterpart of the Supernal Triad of Kether, Chokmah and Binah, or Shiva, Brahma and Vishnu. The counterpart of the 504 geometrical elements in its four layers of triangles is the 504 oscillations in half a revolution of its three major whorls.

If the triangles are divided into three triangles and then each of the latter is three triangles, it is found that the four layers of triangles have 252 vertices, **630** sides and 378 triangles, totalling **1260** geometrical elements. This is the number value of *Tarshishim*, the Order of Angels assigned to Netzach.

If the 3-dimensional Sri Yantra is projected onto a sheet, the numbers of sides and triangles are unchanged but the number of vertices is reduced (Table 4). As before, the fourth layer has 28 vertices. The third layer has 12 vertices instead of 20 vertices, the second layer has 16 vertices instead of 20 vertices and the first layer has 12 vertices instead of 16. The projection of the four layers now comprises 68 vertices instead of 84, that is, 16 fewer vertices. The innermost triangle adds one vertex. Including the bindu, the

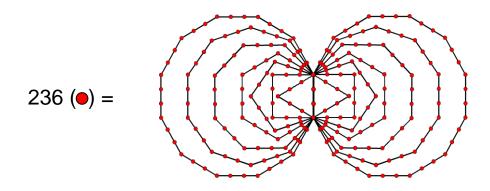


Figure 9. The number of yods shaping the inner Tree of Tree is the number of geometrical elements in the four layers of the Sri Yantra.

projected Sri Yantra therefore has (1+1+68=70) vertices. This is the number of yods in the Tree of Life when its 16 triangles are turned into tetractyses (Fig. 8). It is also the number of corners of the two sets of seven enfolded polygons. The two ends of the root edge correspond to the bindu and the lowest vertex of the central triangle. In each case, the two points do not shape the holistic structure because they represent its seed source, in the latter case the bindu being an isolated point and the lowest vertex being not at a corner of a triangle but at the midpoint of the edge of one. The 68 vertices of the four layers of triangles correspond to the 68 corners of the 14 polygons outside their shared root edge.

Instead of having 252 geometrical elements (see Table 1), the four layers of triangles now have 16 fewer, i.e., 236 elements. This is the number of yods on the boundaries of both sets of seven enfolded polygons (Fig. 9). As in the 3-dimensional case, the four layers of triangles in the 2-dimensional Sri Yantra have 126 sides of 42 triangles. Now, however, it has (68+126+42=236) geometrical elements. The central triangle adds one vertex and three sides but not a triangular area because it has a point at its centre. Including this bindu, the 2-dimensional Sri Yantra has (236+1+3+1=241) geometrical elements. In other words, 240 geometrical elements surround the bindu. **168** of these are either sides or triangles (see Table 1) and the remaining **72** elements consist of the 68 vertices of the 42 triangles, the single vertex of the central triangle unshared with other triangles, its three sides and the bindu. This property is remarkable because the division: 240 = 72 + 168 corresponds in the superstring gauge symmetry group E₈ to the 72 non-

zero roots of E_6 and the remaining **168** non-zero roots of E_8 . The geometrical composition of the 2-dimensional Sri Yantra therefore reflects the root composition of E_8 and its subgroup E_6 .

Seven overlapping Trees of Life have 47 Sephirothic emanations (called "Sephirothic levels," or SLs). There are 43 SLs up to Chesed of the seventh tree, the formative, starting point of the emanation of the seven Sephiroth of Construction, each mapped by a tree. This is the number of triangles in the Sri Yantra (Fig. 10). Each triangle symbolizes

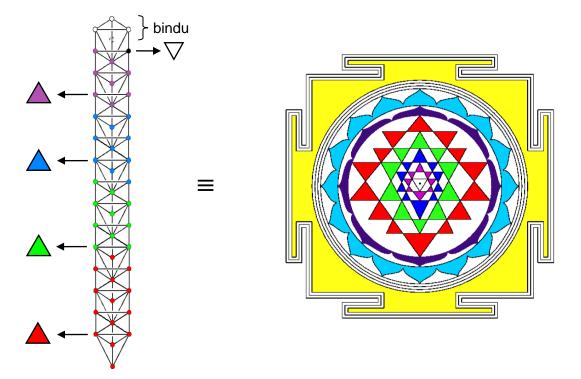


Figure 10. Equivalence of the Sri Yantra and the seven Trees of Life that map the seven planes of consciousness.

one of the seven-fold differentiations of the seven Sephiroth of Construction. Each tree maps one of the seven planes of consciousness: physical, astral, mental, buddhic, atmic, anupadaka and adi plane. As all the spiritual realms as varieties of consciousness symbolized by triangles emerge from the Absolute symbolized by the bindu, so successive SLs emanate from the Supernal Triad of the highest tree. The central triangle symbolizes the commencement of 'objective' existence — not in a physical sense but in the metaphysical sense of separation from the subjective unity of God symbolized by the bindu point of the Sri Yantra and by the Supernal Triad at the top of the first Tree of Life.

Spectacular confirmation that the Sri Yantra is equivalent to seven overlapping Trees of Life comes from considering the geometrical composition of a set of n overlapping Trees:

Number of vertices of triangles $\equiv S(n) = 6n + 4$. Number of sides of triangles $\equiv E(n) = 16n + 6$. Number of triangles $\equiv T(n) = 12n + 4$. Number of tetrahedra $\equiv t(n) = n + 1$.

Number of geometrical elements in n Trees of Life = S(n) + E(n) + T(n) + t(n) = 35n + 15. Hence, seven Trees of Life have 260 geometrical elements made up of 46 vertices (S(7)), 118 sides (E(7)), 88 triangles (T(7)) and eight tetrahedra (t(7)). Compare this with the composition of the Sri Yantra indicated in Table 1: 260 geometrical elements comprising 88 vertices, **129** sides and 43 triangles. Amazingly, both the Sri Yantra and seven Trees of Life have the same number of geometrical elements! The latter has 252 vertices, sides and triangles — the same number that the four layers of triangles have. The eight elements possessed by the bindu and innermost triangle correspond to the eight tetrahedra in the seven Trees of Life. The number 88 applies to vertices in the Sri Yantra and to triangles in the seven Trees of Life. What is so significant here is not only that both structures have the same *number* of geometrical elements but also that this number is 260 — the number of yods in **26** tetractyses and the *number of yods needed to construct the inner form of the Tree of Life, starting from the root edge* (see Fig. 5). This is additional evidence that the Sri Yantra represents the seven Trees of Life mapping the seven planes of consciousness.

In my book "The Universal Nature of Sacred Geometry and its Scientific Meaning,"⁸ I showed how, when considered separately, the seven polygons making up the inner Tree of Life have, when constructed from tetractyses, as many yods as there are SLs up to the first Sephirah of Construction of the **49**th Tree. In other words, the seven enfolded polygons encode seven overlapping Trees and the seven separate polygons encode **49** overlapping Trees. Each plane of consciousness mapped by a Tree of Life has seven subplanes that, too, can be mapped by a Tree of Life, making (7×7=**49**) Trees. The Sri Yantra is a map of the seven planes of consciousness that can be mapped both by seven Trees and by **49** Trees. The latter is simply the seven-fold differentiation of the former.

3. Yod composition of the Sri Yantra

Suppose that each of the 43 triangles in the Sri Yantra is turned into a tetractys. Table 5 shows the numbers of yods in each layer.

	Vertices	Hexagonal yods on sides	Yods inside triangles	Total
Bindu	1	0	0	1
\bigtriangledown	3	3×2 = 6	1	10
Subtotal	4	6	1	11
	8x2 = 16	8×3×2 = 48	8	72
	10x2 = 20	$10 \times 3 \times 2 = 60$	10	90
	10x2 = 20	$10 \times 3 \times 2 = 60$	10	90
	14x2 = 28	14×3×2 = 84	14	126
Subtotal	84	252	42	378
Total	88	258	43	389

Table 5. Yod population of the 3-d Sri Yantra (triangles as tetractyses).

The four layers of triangles have 378 yods, of which (378–42=336) yods lie along their 126 sides. The latter yods are made up of 84 vertices, 84 hexagonal yods on the 42 sides of the fourth layer and **168** hexagonal yods on the 84 sides of the first three layers. Once again, we encounter the superstring structural parameters 84, **168** and 336. The number 336 is the number of yods needed to form the boundaries of all 42 triangles in the four layers. It has the same **168:168** division as found earlier for the geometrical elements composing the first three layers of triangles. The number 336 defines the shapes of the triangles in the four layers, confirming its shape-defining character vis-à-vis the heterotic superstring as the number of times each of its ten curves oscillates during one complete revolution as it spirals around its spin axis. This result is very satisfying, for it not only confirms the validity of Besant's and Leadbeater's account of superstrings over a century

ago but confirms the nature of the Sri Yantra as the blueprint for matter.

The number of yods on the sides of the 14 triangles is **112.** This is the number value of *Beni Elohim* ("Sons of God"), the Order of Angels assigned to Hod. The first layer of triangles has **64** such yods, **48** being hexagonal ones. **48** is the number value of *Kokab*, the Mundane Chakra of Hod. **64** is the number value of *Nogah*, the Mundane Chakra of Netzach, the Sephirah preceding Hod in the Tree of Life. There are **87** corners of the 43 triangles. **87** is the number value of *Levanah*, Mundane Chakra of Yesod. **168** — the number of sides and triangles in the four layers — is the number value of *Cholem Yesodoth*, the Mundane Chakra of Malkuth. This demonstrates how the number values of the Mundane Chakras of the last four Sephiroth define properties of the Sri Yantra.

Now consider each triangle constructed from three tetractyses. Table 6 displays the number of yods in each layer.

	Vertices	Hexagonal yods on sides	Yods inside triangles	Total	Boundary yods
Bindu	1	0	0	1	1
\bigtriangledown	3	3x2 = 6	10	19	16
Subtotal	4	6	10	20	17
	8×2 = 16	8×3×2 = 48	8×10 = 80	144	$144 - 8 \times 3 = 120$
	10x2 = 20	$10 \times 3 \times 2 = 60$	$10 \times 10 = 100$	180	$180 - 10 \times 3 = 150$
\mathbf{A}	10x2 = 20	$10 \times 3 \times 2 = 60$	$10 \times 10 = 100$	180	$180 - 10 \times 3 = 150$
	14x2 = 28	14×3×2 = 84	$14 \times 10 = 140$	252	$252 - 14 \times 3 = 210$
Subtotal	84	252	420	756	630
Total	88	258	430	776	647

Table 6. Yod population of the 3-d Sri Yantra (triangles as three tetractyses).

There are 776 yods, of which 88 yods are vertices of the Sri Yantra before it is constructed from tetractyses. (776–88=688) extra yods are needed to build it. The fourth layer of 14 triangles has 210 yods on their boundaries, showing how the Godname EHYEH with number value **21** prescribes the last layer. Suppose, however, that we regard the central triangle as not transformable into a tetractys or three tetractyses because it signifies the triple Godhead. As before, there are 88 vertices, but now there are 252 hexagonal yods on the sides and 420 yods inside triangles, totalling 760 yods. The Godname YAHWEH ELOHIM ("God the Creator") with number value **76** prescribes the number of yods needed to construct the Sri Yantra because it can be built from the

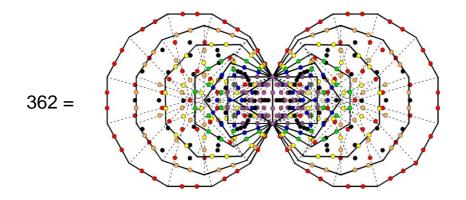


Figure 10. The 2-d Sri Yantra is constructed from as many yods as the 14 polygons have yods on sides of tetractyses that are not corners of polygons.

yods in 76 tetractyses — further evidence that it represents the creative design of God.

The number of vertices of the 126 tetractyses in the four layers of 42 triangles = 84 + 42 = 126. The bindu and central triangle (undivided into tetractyses) have four vertices, so that the Sri Yantra has 130 vertices. This is the **65**th even integer, showing how ADONAI with number value **65** prescribes the form of the Sri Yantra. It illustrates the *shape-defining* nature of this Godname of Malkuth, the Sephirah signifying the 'body' of Adam Kadmon, or the outer form of the Tree of Life.

The 42 triangles in the four layers have 756 yods, that is, (756-84=672) yods other than their 84 vertices. Their 126 tetractyses have 126 vertices and (756-126=630) hexagonal yods. As each triangle has nine hexagonal inside it, there are $(9\times42=378)$ hexagonal yods inside the triangles and 252 hexagonal yods on their sides. Table 5 indicates that

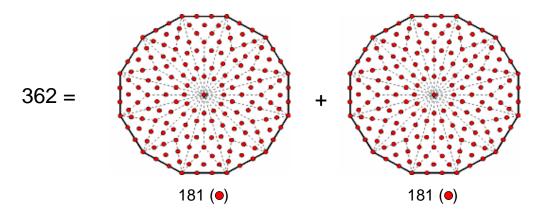


Figure 11. The two separate dodecagons contain as many yods as are needed to construct the four layers of triangles in the 2-d Sri Yantra.

the first three layers of 28 triangles have **168** hexagonal yods on their 84 sides and **280** yods inside them. **280** is the number value of *Sandalphon*, the Archangel of Malkuth, whose Mundane Chakra has the number value **168**. This conjunction of two numbers belonging to the same Sephirah illustrates how Godnames, Archangelic Names, etc collectively define an object like the Sri Yantra that embodies the divine archetypes.

Let us next consider the projection of the Sri Yantra onto a sheet. Firstly, we will analyse the case where the triangles are single tetractyses. Table 7 lists the numbers of yods.

	Vertices	Number of yods on sides	Number of yods Inside tetractyses	Total
Bindu	1	0	0	1
\bigtriangledown	1	3×2 = 6	0	7
Subtotal	2	6	0	8
	4 + 8 = 12	8×3×2 = 48	8	68
	6 + 10 = 16	$10 \times 3 \times 2 = 60$	10	86
	2 + 10 = 12	$10 \times 3 \times 2 = 60$	10	82
	28	14×3×2 = 84	14	126
Subtotal	68	252	42	362
Total	70	258	42	370

Table 7. Yod population of the 2-d Sri Yantra (triangles as tetractyses).

The 84 vertices of the 42 triangles now become 68 vertices, i.e., 16 fewer. The four layers of triangles now have 362 yods instead of 378 yods. This is the number of yods other

than corners of polygons needed to create the sides of the 94 tetractyses in both sets of seven polygons in the inner Tree of Life (Fig. 10). 362 is also the number of yods in the two dodecagons when their 24 sectors are divided into three tetractyses (Fig. 11). Most

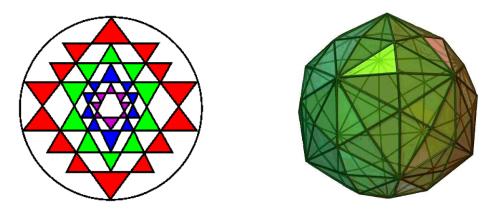


Figure 12. The 362 yods making up the 42 triangles in the 2-d Sri Yantra correspond to the 362 geometrical elements in the faces of the disdyakis triacontahedron.

significant of all, it is the number of geometrical elements making up the faces of the disdyakis triacontahedron, which has **62** vertices, 180 edges and 120 triangular faces. This connects the Sri Yantra with this polyhedron, for both are parameterized by the

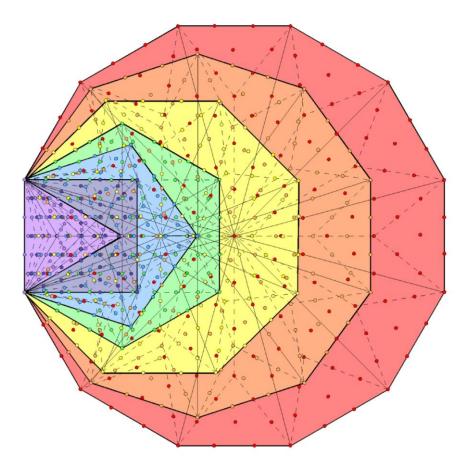


Figure 13. The 687 extra yods needed to construct each triangle in the Sri Yantra from three tetractyses is the number of yods in the seven enfolded polygons when their sectors are constructed from three tetractyses.

same number of bits of information — yods or geometrical elements.

Consider next the 2-d Sri Yantra with their triangles constructed from three tetractyses. Table 7 indicates that, Instead of 756 yods (see Table 6), the 42 triangles now regarded

	Vertices	Number of yods on sides	Number of yods Inside tetractyses	Total
Bindu	1	0	0	1
\bigtriangledown	1	3×2 = 6	9	16
Subtotal	2	6	9	17
	4 + 8 = 12	8×3×2 = 48	8×10 = 80	140
	6 + 10 = 16	$10 \times 3 \times 2 = 60$	$10 \times 10 = 100$	176
	2 + 10 = 12	$10 \times 3 \times 2 = 60$	$10 \times 10 = 100$	172
	28	14×3×2 = 84	$14 \times 10 = 140$	252
Subtotal	68	252	420	740
Total	70	258	429	757

Table 8. Yod composition of the 2-d Sri Yantra (triangles as three tetractyses).

as in one layer have 740 yods. Instead of **630** boundary yods, they have 614 yods. The number of yods other than the 68 vertices of triangles is 672. If the central triangle is divided into three tetractyses, it has **15** yods other than vertices. The 2-dimensional Sri Yantra therefore has (672+**15**=687) yods other than vertices. 687 extra yods are needed to construct each of its 43 triangles from three tetractyses. Amazingly, the seven enfolded polygons of the inner Tree of Life have 687 yods! (Fig. 13).

Constructed from three tetractyses, the 42 triangles surrounding the central one have 740 yods that comprise 110 vertices (68 vertices of triangles) and **630** hexagonal yods. The total number of vertices is **112**. This is the number value of *Beni Elohim*, the Order of Angels assigned to Hod. The fourth set of triangles has 252 yods (42 vertices & 210 hexagonal yods). 42 hexagonal yods are centres of the 42 tetractyses, leaving (210–42=**168**) hexagonal yods lining the sides of these tetractyses. The superstring structural parameter **168** defines the shape of the 42 tetractyses in the 14 triangles, showing how superstring structure is embodied in the Sri Yantra.

4. The Sri Yantra defines the seven musical scales

As shown in Article 14,⁹ the seven types of musical scales have 14 different notes with tone ratios:

1 256/243 9/8 32/27 81/64 4/3 1024/729 729/512 3/2 128/81 27/16 16/9 243/128 2

(Numbers in red denote notes not belonging to the Pythagorean scale (C-scale). Including the tonic, they consist of seven pairs that, as intervals, span an octave. In order of increasing pitch, they are:

1.	1	2	1×2 = 2
2.	256/243	243/128	<mark>256/243</mark> ×243/128 = 2
3.	9/8	16/9	9/8× <mark>16/9</mark> = 2
4.	32/27	27/16	<mark>32/27</mark> ×27/16 = 2
5.	81/64	128/81	81/64× <mark>128/81</mark> = 2
6.	4/3	3/2	$4/3 \times 3/2 = 2$
7.	1024/729	729/512	1024/729×729/512 = 2

The seven notes in the first column consist of four Pythagorean notes and three non-

Pythagorean notes; similarly for their complements in the second column. The 14 notes therefore consist of eight Pythagorean notes and six non-Pythagorean notes.

Compare this division of types of notes in the seven musical scales with pattern of triangles in the first layer of the Sri Yantra. Each of the seven triangles in the upper half has its counterpart in the lower half (not every pair, however, is, literally, a pair of mirror images, for only the four triangles joined across the central, horizontal line are identical).

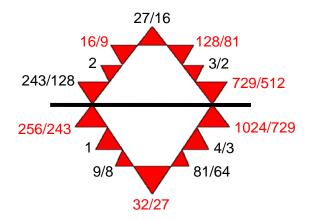


Figure 14. Assignment of the seven pairs of notes and their complements to the 14 triangles in the first layer of the Sri Yantra. The tonal complement of a note is its reflection across the central horizontal line.

Six of the 14 triangles touch the circumscribing circle. They can be thought of as corresponding to the six non-Pythagorean notes, whilst the eight triangles whose apices do not touch the circle correspond to the eight Pythagorean notes (Fig. 14). Each note assigned to the point of a triangle has a complement assigned to the point that is its mirror image. The pattern of the fourth layer of triangles differentiates between not only the notes and their complementary partners but also the Pythagorean and non-Pythagorean notes!

5. Connection between the Sri Yantra and Plato's Lambda

According to Plato, the demiurge measured the World Soul with the harmonic proportions of the Pythagorean musical scale by taking a strip of it and dividing its length into portions measured by the first four numbers of the two geometric series: 1, 2, 4, 8, ... and 1, 3, 9, 27, However, these seven numbers are but members of a tetractys array of ten

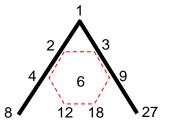


Figure 15. The Lambda tetractys.

numbers (Fig. 16) whose ratios define the tone ratios of the notes of the Pythagorean scale.¹⁰ Their sum is 90, the sum of the integers at the corners of the tetractys is **36**, the sum of the seven integers arranged at the centre and corners of a hexagon (shown in Fig. 15 by dashed lines) is 54 and the sum of the integers forming the hexagon is **48**. These numbers define the tone ratio 3/2 of the perfect fifth because 54/36 = 3/2 and the tone ratio 4/3 of the perfect fourth because 48/36 = 4/3.

The Sri Yantra is formed by the intersection of nine triangles. Let us regard each triangle as a tetractys. The nine tetractyses have 90 yods, of which **36** are corners or centres and 54 are hexagonal yods surrounding their centres. The **36**:54 division of yods corresponds to the two sums of numbers at the corners of the Lambda tetractys and at the centre and

corners of the hexagon. The sum of the nine integers surrounding the central one in the Lambda tetractys is 84. According to Table 1, this is the number of vertices of the 42 triangles formed by the intersection of the nine triangles. Moreover, the first and second layers have **36** vertices and the third and fourth layers have **48** vertices. The former is the sum of the numbers at the corners of the Lambda tetractys and the latter is the sum of the numbers arranged in a hexagon. The first two layers therefore are the counterpart of the corners of the Lambda tetractys and the last two layers are the counterpart of the hexagonal array of six integers.

42 of the 84 vertices are the tips of the 42 triangles and the other 42 vertices are points where triangles join. The 42:42 division of vertices has its counterpart in the Lambda tetractys as the sums of the two pairs of diagonal rows of numbers:

1+2+4+8+27 = 42, and 3+12+9+18 = 42.

These correspondences demonstrate that the Lambda tetractys is arithmetically equivalent to the Sri Yantra. The reason for this is that the former is an archetypal array of numbers that generate by combination the properties of the Tree of Life.

The **36**:54 division was found¹¹ in the disdyakis triacontahedron as the 360 tetractyses needed to construct each of its 120 triangular faces from three tetractyses and the 540 internal tetractyses needed to construct the 180 interior triangles formed by its 180 edges when each is built from three tetractyses.

A tetractys defines the Sri Yantra in another way. The number 84 is the sum of the squares of the first four odd integers:

 $84 = 1^2 + 3^2 + 5^2 + 7^2.$

As

$$1^{2} = 1$$

$$3^{2} = 1 + 3 + 5$$

$$5^{2} = 1 + 3 + 5 + 7 + 9$$

$$7^{2} = 1 + 3 + 5 + 7 + 9 + 11 + 13,$$

$$84 = 4(1) + 3(3+5) + 2(7+9) + 1(11+13) = 4 \times 1 + 3 \times 8 + 2 \times 16 + 1 \times 24$$

$$24$$

$$16 \quad 16$$

$$= 8 \quad 8 \quad 8$$

$$1 \quad 1 \quad 1 \quad 1 \quad .$$

84 is naturally expressed as a tetractys array of 10 integers. Moreover, the central integer 8 denotes the innermost eight vertices of the first layer of triangles and the nine surrounding integers add up to **76**, which is the number of vertices surrounding them. **76** is the number value of YAHWEH ELOHIM, Godname of Tiphareth, the centre of the Tree of Life. The number value **26** of YAHWEH is the sum of the integers at the corners of the tetractys and the number value **50** of ELOHIM is the sum of the six integers arranged in a

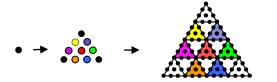


Figure 16. The next higher-order tetractys has 84 yods surrounding its centre.

hexagon. This is a remarkable conjunction of sacred geometry and number. The sum of either diagonal row of integers is **49**, which is the number value of EL CHAI, the

Godname of Yesod.

The successive differentiations of divine unity are symbolised by the point, or Pythagorean Monad (0th-order tetractys), the 1st-order tetractys, the 2nd-order tetractys,

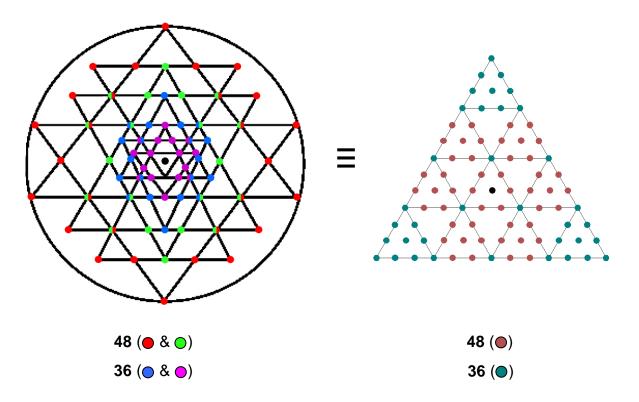


Figure 17. Equivalence of the Sri Yantra and the 2nd-order tetractys. Circles with coloured halves denote two vertices belonging to adjacent layers.

etc. The next higher order tetractys after Pythagoras's well-known one is the 2nd-order tetractys (Fig. 16) with 85 yods, where

$$85 = 4^0 + 4^1 + 4^2 + 4^3.$$

84 yods surround its centre. **36** yods lie on its boundary and **49** yods lie inside it, **48** of them surrounding its centre (Fig. 17). Compare this with the fact that the first two layers of

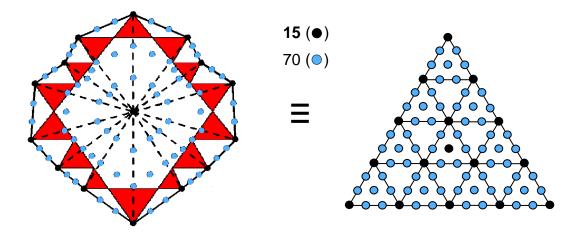


Figure 18. The 14-sided polygon formed from the vertices in the fourth layer of the Sri Yantra is equivalent to a 2nd-order tetractys.

triangles in the Sri Yantra have **36** vertices and the last two layers have **48** vertices. The Sri Yantra is equivalent to the 2nd-order tetractys.

The number of yods in an n-sided polygon whose n sectors are tetractyses is 6n + 1. The tips of the 14 triangles in the fourth layer of the Sri Yantra may be regarded as defining the vertices of a 14-sided polygon (not regular). It contains ($6\times14 + 1 = 85$) yods (Fig. 18). 84 yods surround its centre. The 85 yods comprise 70 hexagonal yods and **15** vertices. This is identical to the pattern of 70 hexagonal yods and **15** vertices in the 2nd-order tetractys. Not only is the whole Sri Yantra equivalent therefore to a 2nd-order tetractys but also the 14-sided polygon marked out by the tips of the 14 triangles in the last layer! Wholeness within wholeness.

The yod populations of the four polygons whose vertices are the tips of triangles are shown below:

	Number of hexagonal yods	Number of yods
1st layer: 8-sided polygon	40	49
2nd layer: 10-sided polygo	n 50	61
3rd layer: 10-sided polygor	n 50	61
4th layer: 14-sided polygor	n 70	85
	Total = 210	Total = 256

The total number of yods needed to construct the 42 tetractyses in the four polygons is $256 = 4^4$. This is a remarkable illustration of the Tetrad Principle governing holistic patterns.¹² The Godname EHYEH with number value **21** prescribes the number of hexagonal yods. The number of yods surrounding the centres of the polygons in the first three layers is **168** and the number surrounding the centre of the 14-sided polygon is 84. It is remarkable that *both* these superstring structural parameters are embodied in the four polygons. What more convincing evidence that the Sri Yantra encodes the physics of superstrings could one ask for?

When their sectors are divided into three tetractyses, the yod populations of the four polygons are:

	Number of hexagonal yods	Number of yods
1st layer: 8-sided polygon	104	121
2nd layer: 10-sided polygo	n 130	151
3rd layer: 10-sided polygor	า 130	151
4th layer: 14-sided polygor	n 182	211
	Total = 546	Total = $\overline{634}$

There are **630** yods surrounding the centres of the polygons. **630** is the number value of *Seraphim*, the Order of Angels assigned to Geburah. In the 2-dimensional Sri Yantra, all the centres coincide, so that **630** yods surround their common centre. The number of yods needed to create the four layers of triangles other than their outermost 14 tips is (634-14=620). This is the number value of Kether ("Crown").

The four polygons have 546 hexagonal yods. Of these, 126 are centres of 126 tetractyses, leaving 420 hexagonal yods on 210 sides. Including their 88 vertices, there are 508 yods on the sides of the tetractyses. In the 2-dimensional Sri Yantra, 16 vertices of the four polygons merge with other vertices and three centres merge with the fourth, leaving (508–19=489) yods. There are (489–15=474) yods other than the centre and the 14 vertices of the outermost polygon. This is the number value of Daath ("knowledge). It is the number of yods, starting with the bindu, needed to delineate the shapes of the

tetractyses composing the 2-dimensional Sri Yantra until the vertices of the last polygon are left.

As Table 9 shows, 474 geometrical elements are needed to construct the four sets of triangles in the 2-d Sri Yantra until its outermost tips are left.

	Vertices	Sides	Triangles	Total
Bindu	1	0	0	1
\bigtriangledown	1	6	3	10
Subtotal	2	6	3	11
	4+8+8 = 20	8x3 + 8x3 = 48	8x3 = 24	92
	6+10+10 = 26	10x3 + 10x3 = 60	$10 \times 3 = 30$	116
	2+10+10 = 22	$10 \times 3 + 10 \times 3 = 60$	$10 \times 3 = 30$	112
	14+14+14 = 42	14x3 + 14x3 = 84	14x3 = 42	168
Subtotal	110	252	126	488
Total	112	258	129	499

Table 9. Geometrical composition of the 2-d Sri Yantra (triangles as three tetractyses).

The four sets of triangles have 488 geometrical elements, that is, (488-14=474) elements other than the 14 outermost tips of the triangles in the fourth layer. Including the central triangle and the bindu point, the 2-dimensional Sri Yantra has 499 elements. Suppose, however, that the central triangle and bindu are regarded as floating above the planar group of 42 triangles. Instead of adding one vertex according to Table 9, the former would add three vertices because its two other corners no longer coincide with corners of the innermost group of eight triangles, so that 500 (=50×10) elements surround the bindu. This shows in a remarkable way the primary way in which ELOHIM, the Godname of

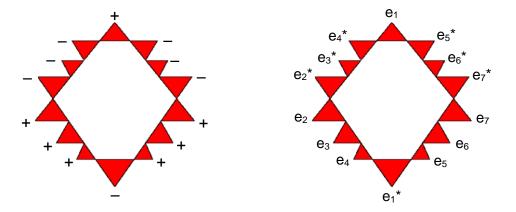


Figure 19. The seven (+) vertices of the four 'Shiva' (male) triangles correspond to the seven imaginary octonions. The seven (–) vertices of the five 'Shakti' (female) triangles correspond to their seven conjugates.

Binah with number value **50**, determines the geometrical composition of the Sri Yantra. The justification for treating the central triangle and bindu as outside the plane of the triangles would be that they symbolize the Absolute and the triple Godhead, which stand outside of Creation represented by the rest of the yantra.

Returning to the discussion of the polygons formed by vertices of triangles, there are 489 yods on sides of tetractyses in the 2-dimensional Sri Yantra, i.e., 488 boundary yods surround the bindu. If the central triangle is constructed from three tetractyses, there are

 $(488+12=500=50\times10)$ boundary yods other than the bindu and the corners of the triangle symbolizing the triple Godhead. This shows how ELOHIM with number value 50 prescribes the population of yods that *shape* the 2-dimensional Sri Yantra.

6. The Sri Yantra defines the octonions

Seven triangles in the fourth layer of the Sri Yantra are tips of three downward pointing triangles said by Hindus to represent the 'Shakti (female) energy of creation. Seven triangles are tips of upward pointing triangles that represent the 'Shiva' (male) procreative energy. Seven tips therefore have a positive polarity and seven have a negative polarity. The seven pairs of positive and negative tips have its counterpart in the fourth (and last) class of numbers known as the octonions, or Cayley numbers. The former correspond to the seven imaginary octonions e_i (i = 1-7) and the latter correspond to their conjugates e_i^*

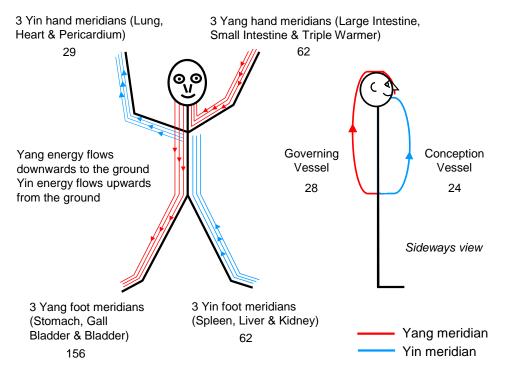


Figure 20. The flow of qi, or chi, in the hand and foot meridians. The numbers are the number of acupoints in the sets of three meridians.

= $-e_i$, where $e_ie_i^* = 1$ (Fig. 19). The seven imaginary octonions form seven 3-tuples (e_i , e_{i+1} , e_{i+3}), each having six permutations of pairs and six permutations of all three. This means that the seven 3-tuples have (7×6=42) permutations of pairs and 42 permutations of three octonions.¹³ This is symbolized in the Sri Yantra as the 42 vertices formed by the convergence or intersection of two sides of the nine triangles and the 42 vertices created by the intersection of three sides, as the following table of numbers of vertices proves:

	Two sides	Three sides
Layer 1: 8 triangles	9	7
Layer 2: 10 triangles	6	14
Layer 3: 10 triangles	7	13
Layer 4: 14 triangles	20	8
-	Total = 42	Total = 42

A vertex formed by the convergence or intersection of two sides symbolizes a permutation of two imaginary octonions and a vertex formed by the intersection of three

sides symbolizes a permutation of three octonions. This has significant implications that will not be pursued here.

7. The Sri Yantra defines the 12 acupuncture meridians

The five downward triangles symbolize the feminine (Shakti) energies of creation and the four upward triangles symbolize the male (Shiva) energies. In Taoist philosophy, they are the Yin and Yang polarities. Another interpretation of the seven positive, or Yang, polarities and seven negative, or Yin, polarities associated with the tips of the triangles in the fourth layer is that the former symbolize the seven Yang meridians and the latter symbolize the seven Yin meridians known in Chinese acupuncture.¹⁴ The upper part of the human body has three Yang hand meridians, three Yin hand meridians, the

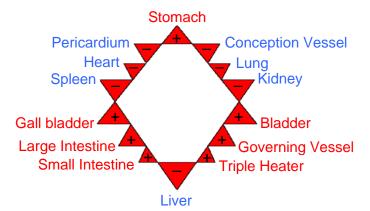


Figure 21. The seven (+) triangles in the fourth layer of the Sri Yantra symbolize the seven Yang meridians (red). The seven (–) triangles symbolize the seven Yin meridians (blue).

Governing Vessel, which is Yang, and the Conception Vessel, which is Yin (Fig. 20). The lower half of the body has three Yang foot meridians and three Yin foot meridians. The upper and lower halves of the body therefore divide the 14 meridians into eight that belong to the former and six that belong to the latter. As with the seven musical scales, the 8:6 division appears in the meridians. The eight triangles of the fourth layer whose tips do not touch the circumscribing circle symbolize the eight meridians in the upper part of the body and the six triangles whose tips touch the circle represent the six foot meridians (Fig. 21). Notice that these triangles are the tips of two intersecting Shiva and Shakti triangles forming a Star of David or Sign of Vishnu. This corresponds to the three Yang foot meridians (Stomach, Gall Bladder and Bladder) and to the three Yin foot meridians (Spleen, Kidney and Liver).

References

- ¹ Phillips, Stephen M. Article 15: "The Mathematical Connection Between Superstrings and Their Micro-psi Description: a Pointer Towards M-theory," http://www.smphillips.mysite.com/article15.pdf, p. 13.
- ² Phillips, Stephen M. Article 18: "Encoding of Planetary Distances and Superstring Structural Parameters in the I Ching Table," http://www.smphillips.mysite.com/article18.pdf, p. 19.
- ³ Phillips, Stephen M. Article 21: "Isomorphism Between the I Ching Table, the 3×3×3 Array of Cubes and the Klein Configuration," http://www.smphillips.mysite.com/article21.pdf, pp. 3–4.
- ⁴ Phillips, Stephen M. Article 16: "The Tone Intervals of the Seven Octave Species and Their Correspondence with Octonion Algebra and Superstrings," http://www.smphillips.mysite.com.
- ⁵ Phillips, Stephen M. Article 34: "The Seven Layers of 'A' Vertices in the Disdyakis Triacontahedron Encode the 206 Bones of the Human Skeleton, the Superstring Symmetry Groups E₈ and E₈×E₈ and the Superstring Structural Parameters 168, 336, 840 & 1680," http://www.smphillips.mysite.com/article34.pdf, p. 12.
- ⁶ Ref. 1, pp. 24–26.
- ⁷ Ref. 5, p. 23.

- ⁸ Phillips, Stephen M. "The Universal Nature of Sacred Geometry and its Scientific Meaning" (Anthony Rowe Publishing, UK, 2009).
- ⁹ Phillips, Stephen M. Article 14: "Why the Greek Musical Modes are Sacred," http://www.smphillips.mysite.com/article14.pdf, p. 8; also ref. 4, p. 12.
- ¹⁰ Phillips, Stephen M. Article 11: "Plato's Lambda Its Meaning, Generalisation and Connection to the Tree of Life," http://www.smphillips.mysite.com.
- ¹¹ Phillips, Stephen M. Article 26: "How the Seven Musical Scales Relate to the Disdyakis Triacontahedron," http://www.smphillips.mysite.com/article26.pdf, p. 29.
- ¹² Phillips, Stephen M. Article 1: "The Pythagorean Nature of Superstring and Bosonic String Theories," http://www.smphillips.mysite.com/article01.pdf, p. 5.

¹⁴ Phillips, Stephen M. Article 32: "Derivation of the Bone & Classical Acupoint Compositions of the Human Body and Their relationship to the Seven Musical Scales," http://www.smphillips.mysite.com.

¹³ Ref. 1, p. 11.