THE CIRCLE OF INNER HARMONY

A FURTHER TREATISE ON A THEORY OF SHAPE

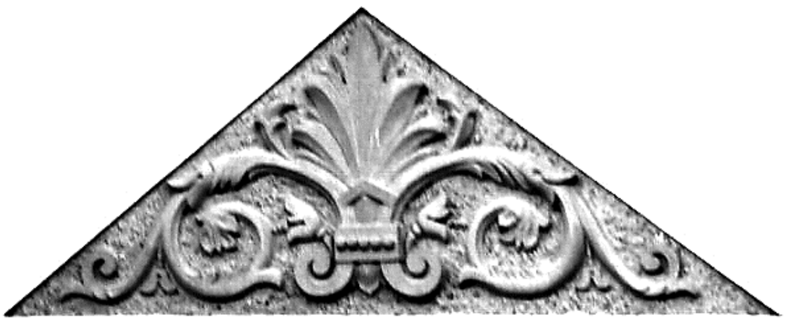
WHO KNEW WHAT & WHEN?
HOW DID THEY KNOW?

A CONTRIBUTION TOWARDS THE THEORY OF EVERYTHING

PART OF AN INTRO TO SUPERSYMMETRY?

By

John Marcus Crombie



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10 9 8 7 6 5 4 3 2 1

EARLY CUNEIFORM
WITH SHAPES AND RIGHT ANGLES

3000BCE

SCIAMVS 1 (2000), 11–48

Mathematical cuneiform tablets in Philadelphia Part 1: problems and calculations

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Introduction

Tablet 11: N 4942

Figure 11: N 4942 obverse (reverse blank)

This tablet shows a numbered diagram of a **semicircle** (Figure 11, Figure 12).

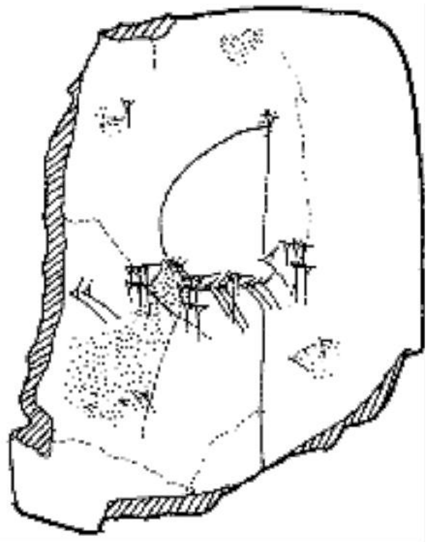


Figure 11: N 4942 obverse

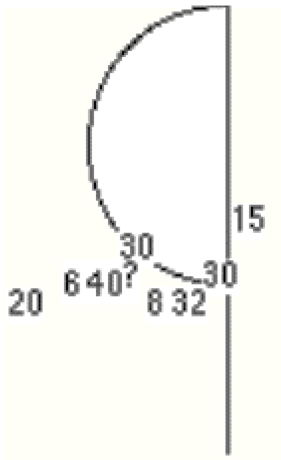


Figure 12: Transcription of the diagram on N 4942

At first sight this looks like the solution to a problem about a semicircle, but none of the relationships are evident in the numbers (cf. Robson 1999: 39).

Area = 0;15 X semicircumference X diameter

Area = 0;22 30 X diameter^2

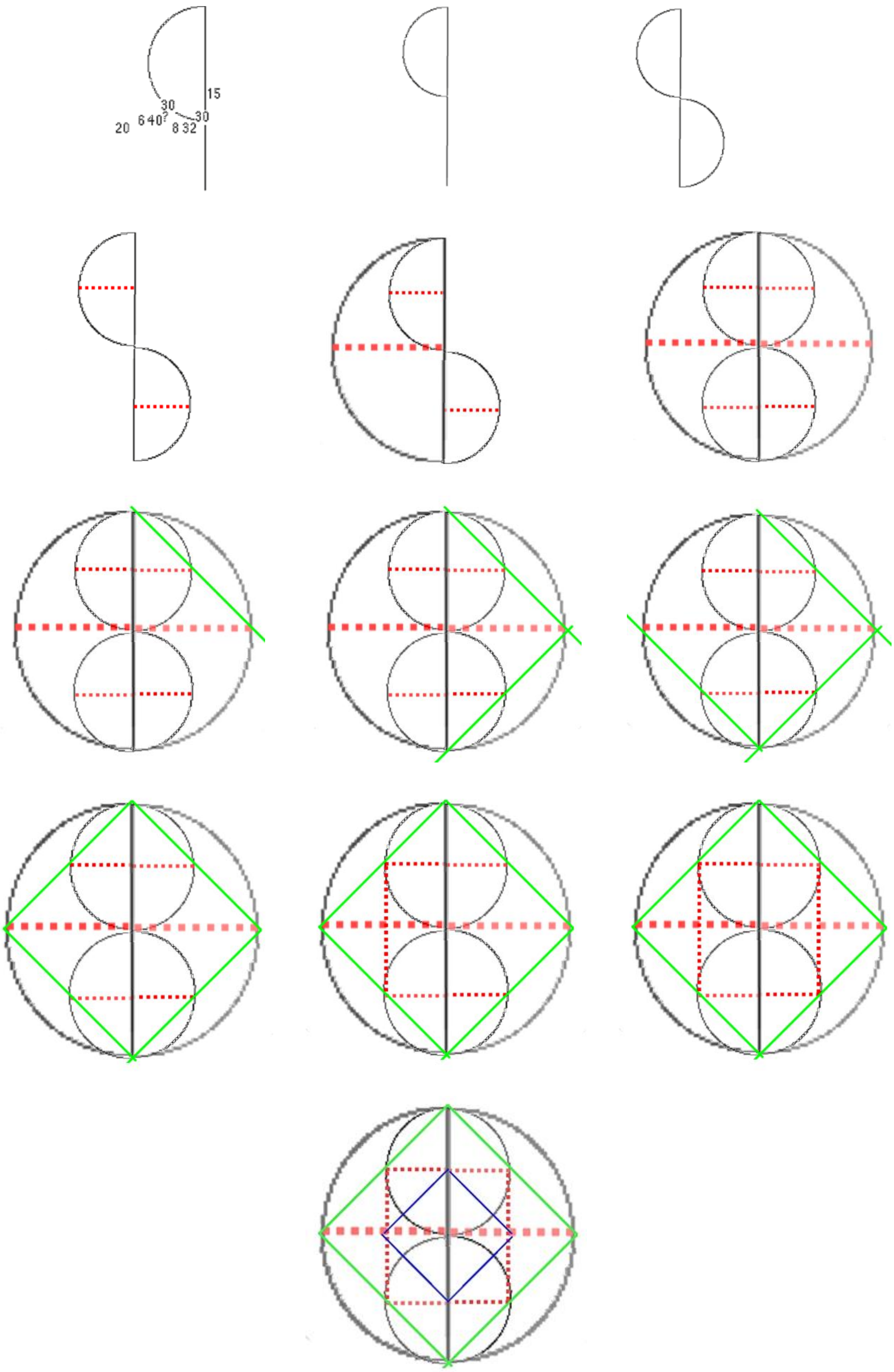
Area = 0;10 X semicircumference^2

Instead we may be dealing with powers of 2:

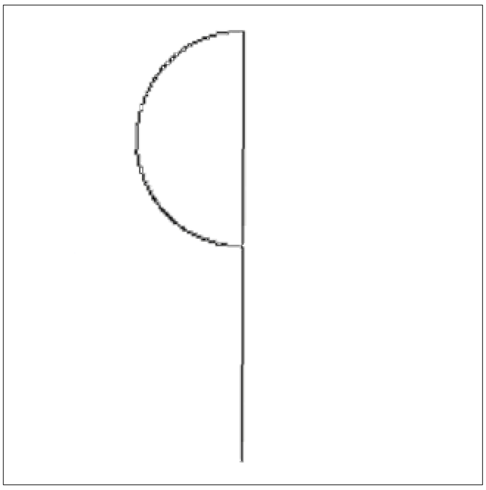
0;30 X 0;30 = 0;15 (i.e. 1/2 X 1/2 = 1/4)

8 32 (= 29) and 0;06 40 (= 1/9).

THIS IS WHAT CAN BE ACHIEVED USING ***GRAPHICAL*** *GEOMETRY* on N 4942*:*

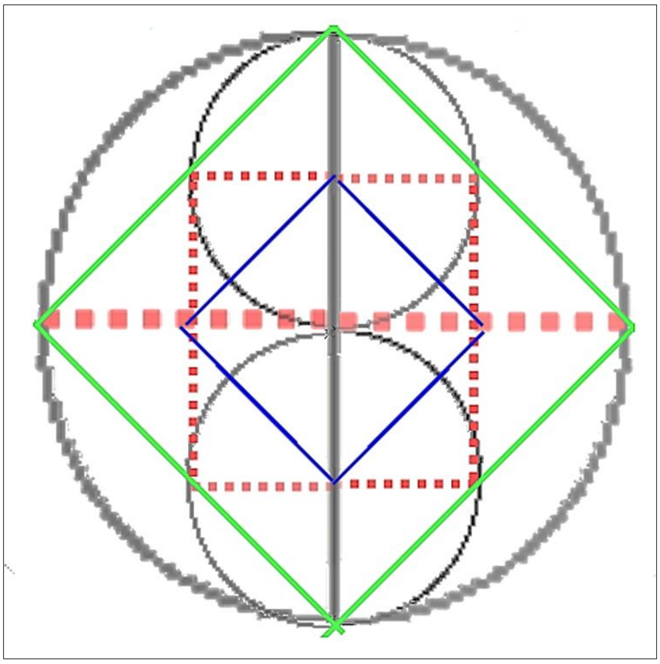


RATIO AND PROPORTION
FROM:



N 4942

TO:



GRAPHICALLY

Refer now to the images on BM15285.

In true Plato's Meno style look at BM15285 and its images without attempting to interpret the cuneiform mathematical exercises. Just look at the images. Just look at the ***Graphical*** Geometry. Compare it to the Graphical Geometry above derived by me graphically from **N 4942**; knowing only that for a square the *long* side equals the *short* side and therefore one can simply find the radius of the semi-circle.

I'm not inferring that they would not do the Maths (even with Sexagesimals) but would you use Sexagesimals if you could simply use ***Graphical*** Geometry?

One does not even have to be an amateur Sherlock Holmes. *(With apologies to Eleanor Robson).*

"What was the extent of the knowledge of Geometry in these ancient times?"

Wikimedia Commons

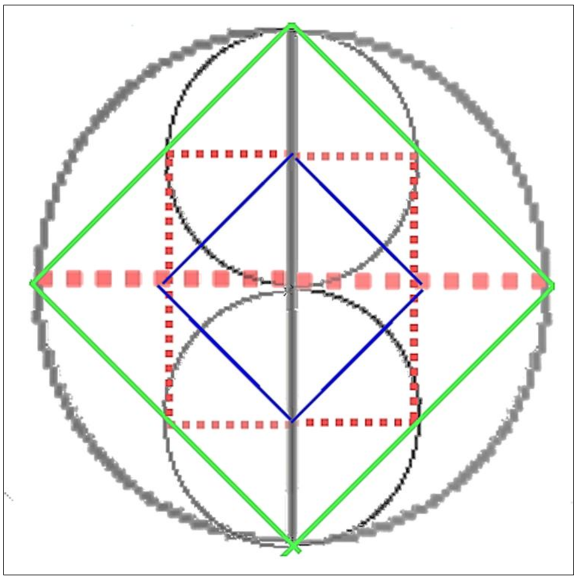
"File:Compilation of plane geometry problems from Larsa.jpg – Wikimedia Commons"

BM15285

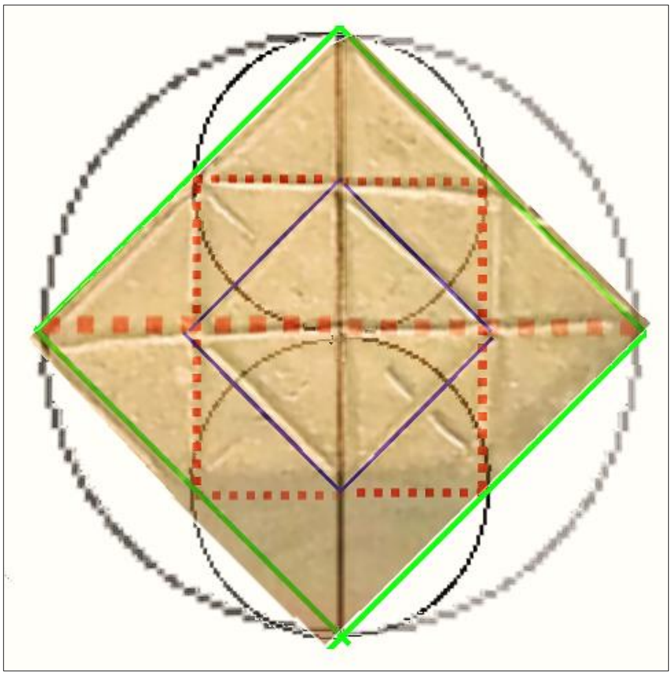
COMPARE
USING GRAPHICAL GEOMETRY

Refer now to the images on BM15285 . . . . . select the last image.
(Pretend you are Plato's Meno. Use the methods suggested to Meno.)
"If you cannot do the Maths then look at the Geometry."

Refer also to SCIAMVS 1 "Mathematical cuneiform tablets in Philadelphia" Tablet 11: N 4942



COMPARING THE RESULTS:



How many Right Angle Triangles are in this graphical image?

MY INSIGHT INTO THE ANALYSIS OF RIGHT ANGLED TRIANGLES

HARMONICS OF PLANE REGULAR SHAPES
AND
THEIR INBUILT RIGHT ANGLE TRIANGLES

OR

HARMONICS OF RIGHT ANGLE TRIANGLES
AND
THEIR FUSION WITH PLANE REGULAR SHAPES

HARMONICS OF PLANE REGULAR SHAPES AND THEIR INBUILT RIGHT ANGLED TRIANGLES

***Re PLATO: "As basis for all of his calculations, leading up to the the construction of 'his number', he uses the Pythagorean triangle"*.**

MY MAGNUS OPUS HYPOTHESIS

It seems that every Plane Regular Shape has a Right Angled Triangle that is constructed by the component parts of its Shape Ratio. (Circumscribing Circle divided by Inscribing Circle.)

- **A to B** *Half the side of the Shape.*
- **B to C** *Half the Diameter (Radius) of the Inner Circle.*
- **A to C** *Half the Diameter (Radius) of the Outer Circle*

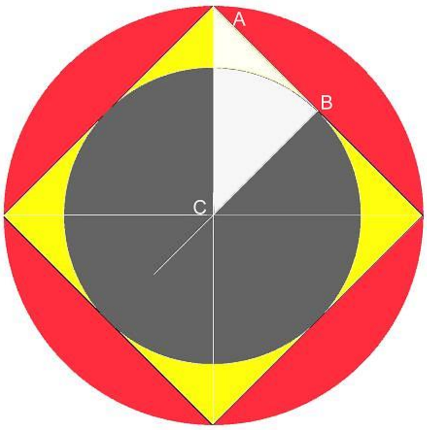
In all cases of plane regular Polygons and Polygrams: $(AB)^2 + (BC)^2 = (AC)^2$

This is known to most as Pythagorus's Theorem.

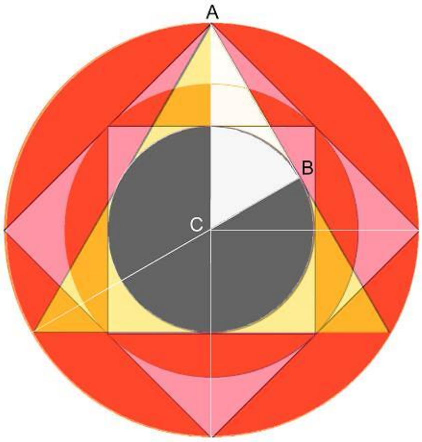
But it was known long before Pythagorus was born.

(Points marked B . . . *where a shape's side is Tangent to its Inner Circle @ 90^0 to the radius*)

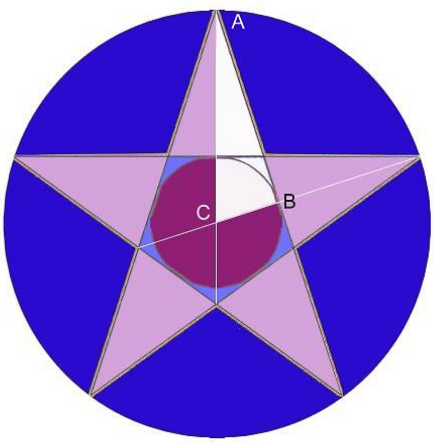
SQUARE



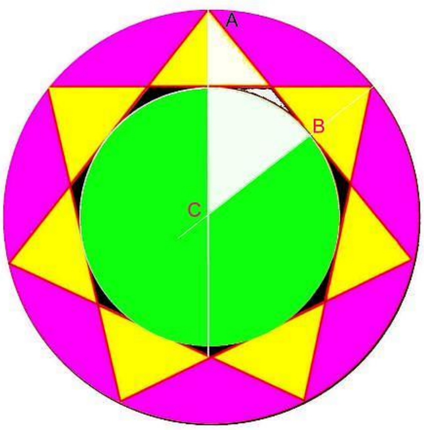
EQUILATERAL TRIANGLE



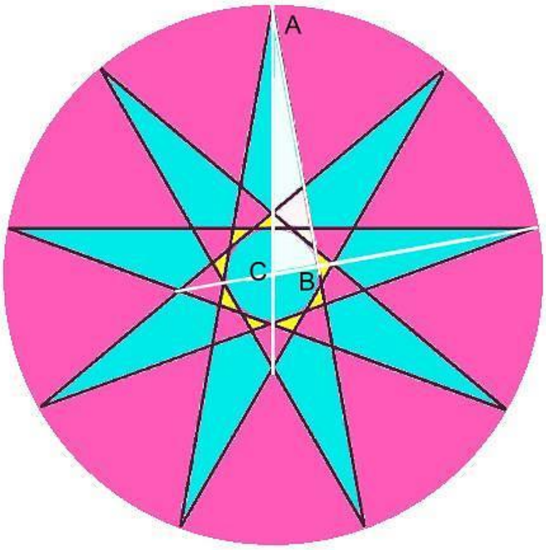
PENTAGRAM



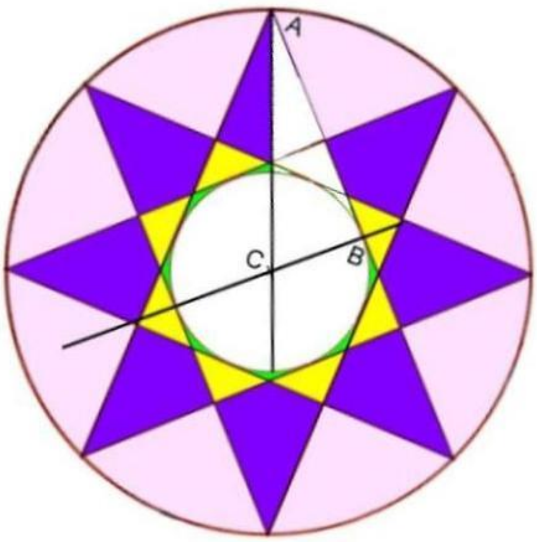
INNER SEPTAGRAM



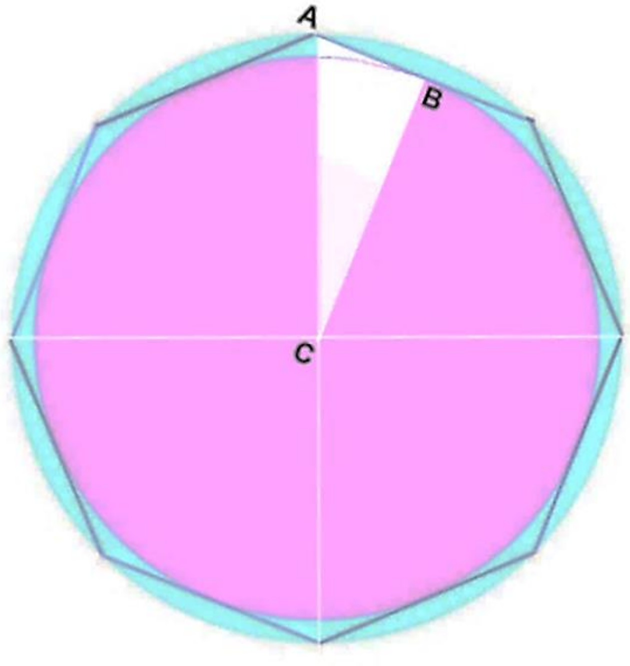
NONOGRAM



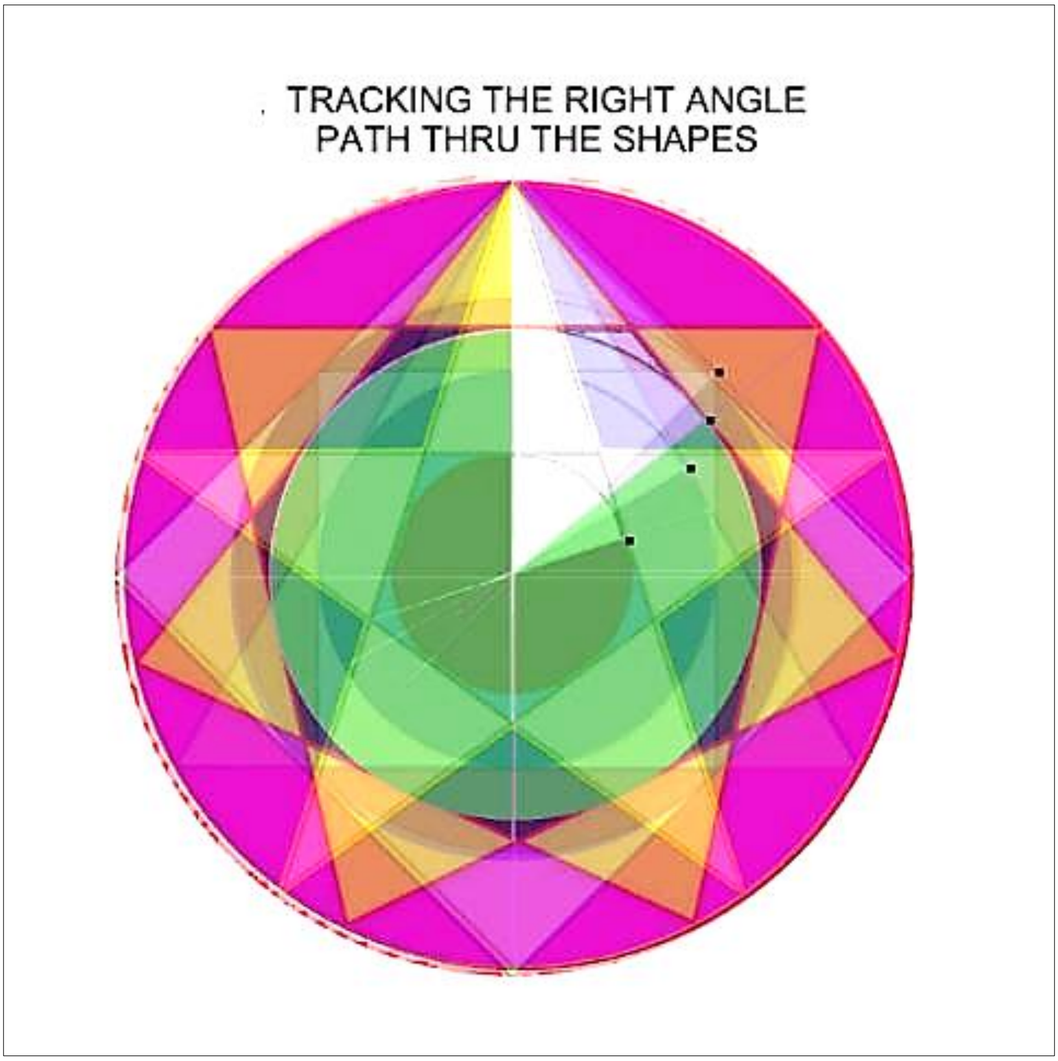
OCTOGRAM



OCTOGON



A to **C** is the radius of the Circumscribing Circle for the shape.
B to **C** is the radius of the Inscribing Circle for the shape.
The Circumscribing Circle divided by the Inscribing Circle gives the Ratio for the shape.
But, for every Plane Regular Shape, **ABC** is a **Right Angle Triangle**.
So the Hypotenuse of the **Right Angle Triangle** divided by the Side of the **Right Angle Triangle** gives the Ratio for the **Plane Regular Shape.** (But which Side of the **Right Angle Triangle**?)
THE LONG SIDE OR THE SHORT SIDE?
Bear in mind also that the Square has sides of equal length; they are neither long nor short.



By making the Shape drawings transparent;

And by applying a **Common Circumscribing Circle** to contain all of the shapes;

And by overlaying the now "Fixed Size" Shapes and their circles;

Keeping always the vertical alignment such that point **A** is common to all;

(*Noting, that in my shape theory,* Point **A** *is allocated the role of "The Singularity"*.)

I was able to discern a possible Loci for the points of the Right Angles that were constructed by the underlying mathematical mechanisms of these shapes; namely, by the side of each shape being a Tangent to its Inscribing Circle thus meeting it's Radius at 90^0.

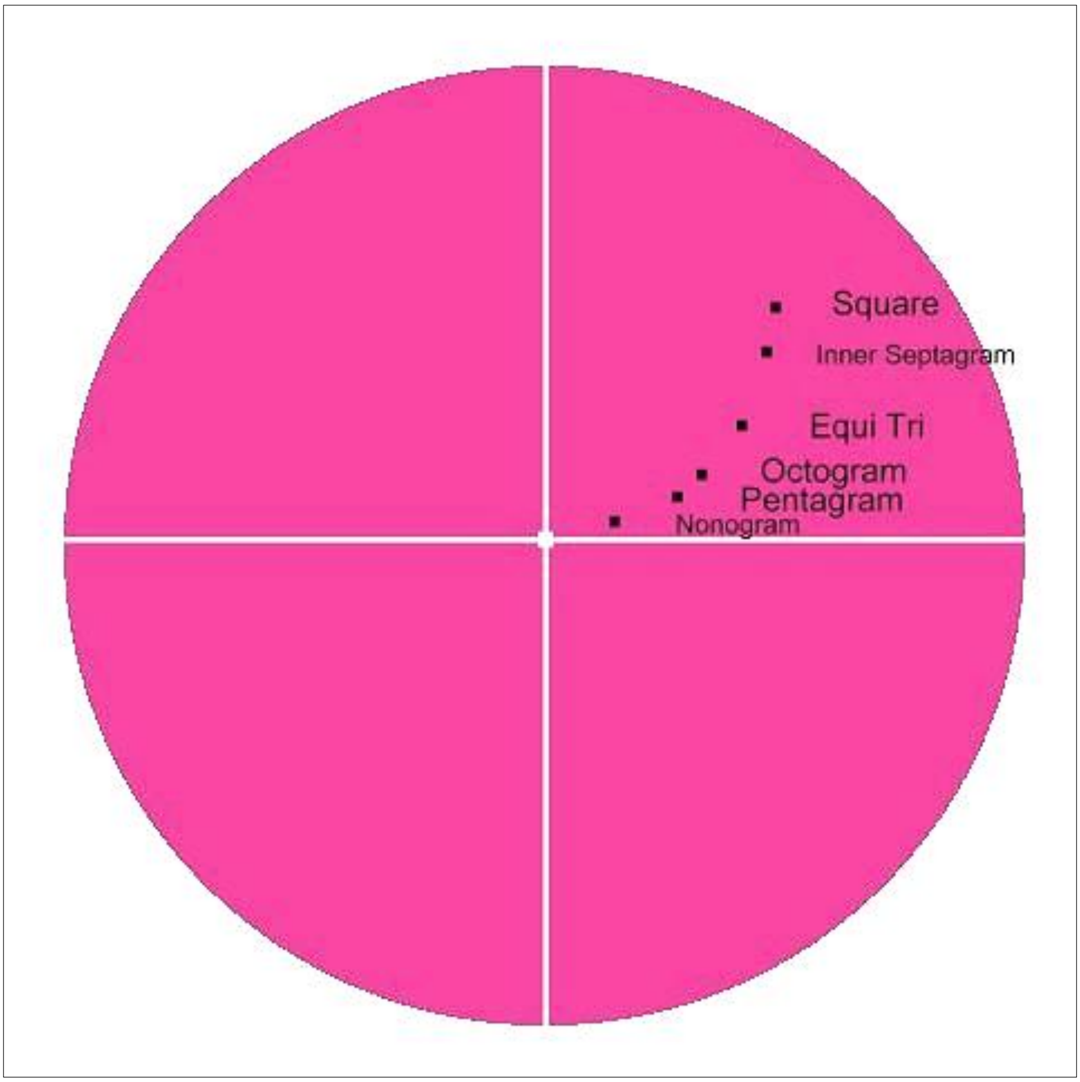
Earlier in my research I had learnt that the ***ratios*** of Plane Regular Shapes bore no association to the overall physical ***size*** of the shapes. A Square with ratio 1.414213562 and the size of a thimble had the same ratio as a square with ratio 1.414213562 the size of the Universe. And yet ***shape ratios***, regardless of the diverse sizes of the shapes could be divided or multiplied to produce a new ***shape ratio*** that represented another shape both mathematically and graphically, regardless of its size.

And yet a Shape's Ratio is unique to that Shape. Does this make discussion of Infinity irrrelevant?

<u>LOCI OF RIGHT ANGLED TRIANGLES LOCATED WITHIN PLANE REGULAR SHAPES</u>

<u>GIVEN A FIXED CIRCUMSCRIBING CIRCLE</u>

(Points . . . *where shapes' sides are Tangents to their Inner Circles.*)

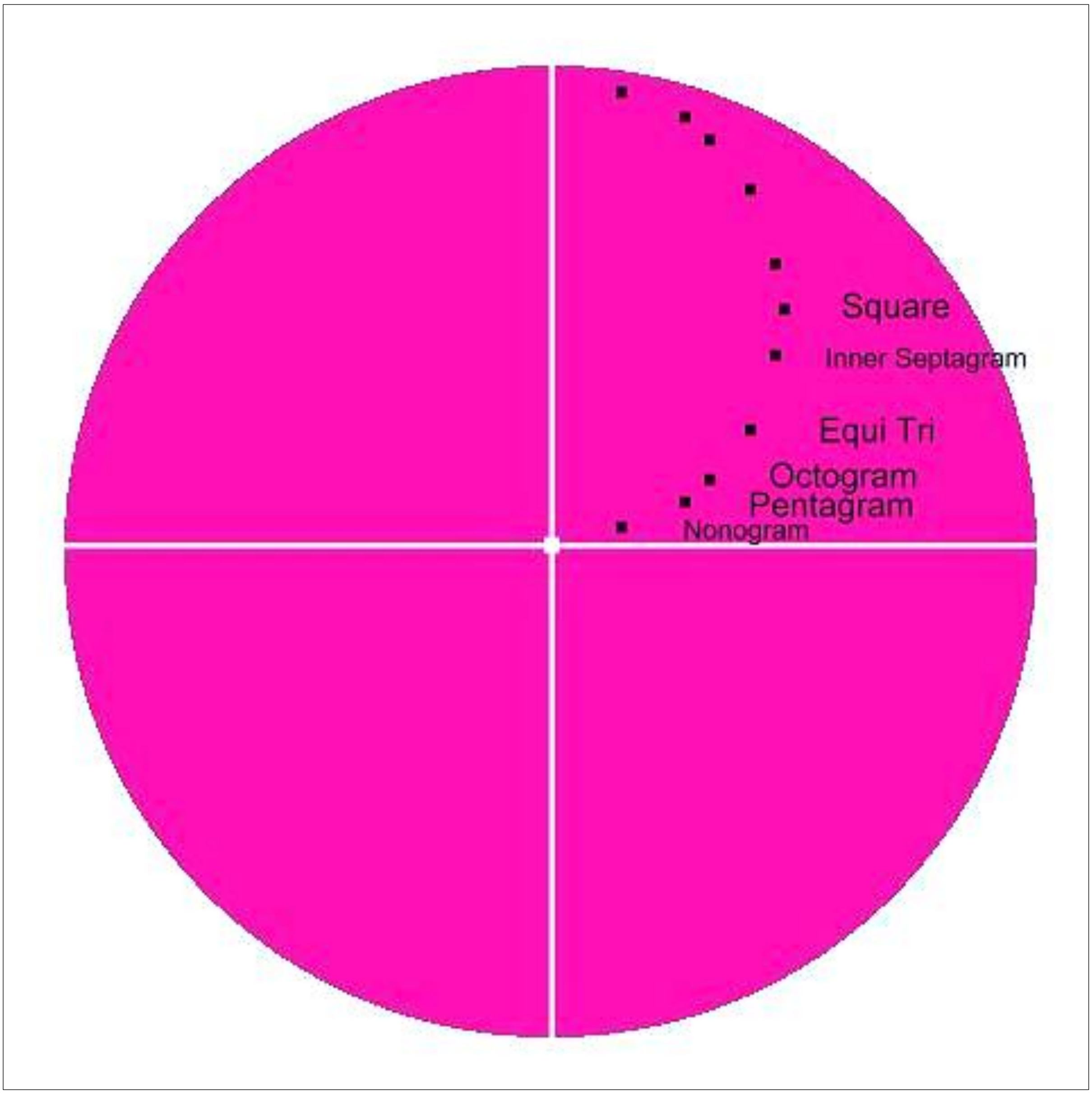


This early work on the Loci of the right angled triangles gives a promising hint of the existence of a "hidden" Circle that is hitherto unknown but which radiates the *'Harmony of Plane Regular Shape'*. This Loci of the Plane Regular Shapes marks out an ***<u>inalienable relationship</u>*** that connects each of these shape with all other Plane Regular Shapes.

I commenced this project in order to search for that which seemed to be:
"The Harmony of Plane Regular Shape".
This harmony is what I believe Plato's student Archimedes meant when he said
"It is first in the senses."
One ***senses*** that this harmony exists in these shapes. They are, after all, the shapes of the Universe. They are the shapes of Nature. And for the believers, they are the shapes of Creation.

POSSIBLE HARMONICS OF LOCI OF RIGHT ANGLED TRIANGLES
IN PLANE REGULAR SHAPES
GIVEN A FIXED CIRCUMSCRIBING CIRCLE

Points marked B — *"Where the shape's side is a Tangent to its Inscribing Circle".*
"Where the radius of the Inscribing Circle meets the Tangent".
"Where the Radius and the Tangent meet at Right Angles".

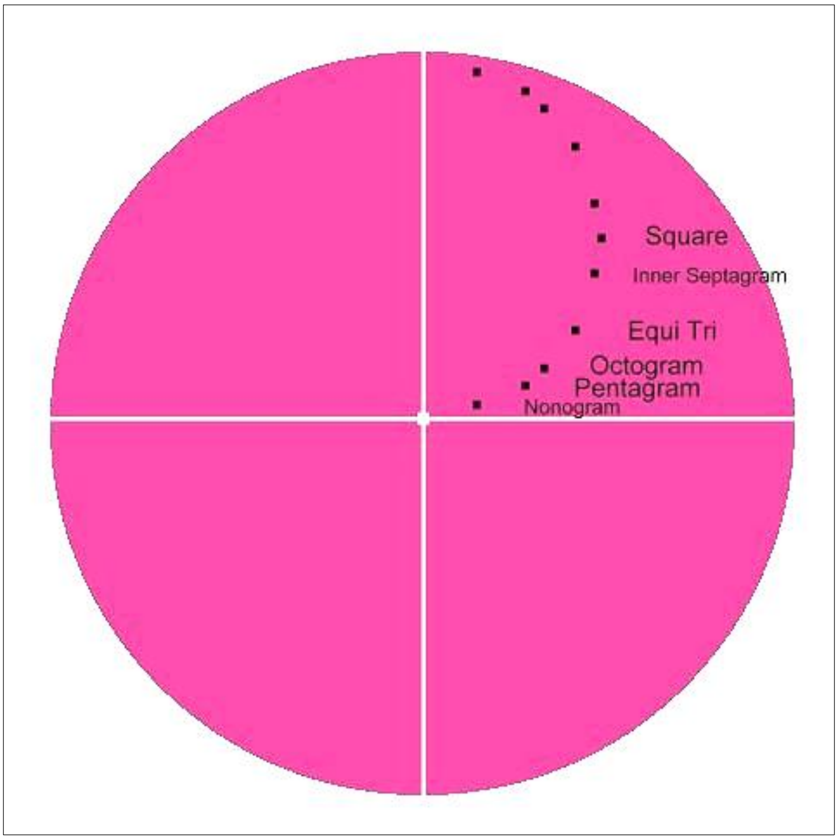


Is this the origin of what is known to us today as *"Thales Theorem"*?
If *"Thales Theorem"* was known to them was this *Hidden* Circle also known?

POSSIBLE ***HARMONICS OF LOCI OF RIGHT ANGLED TRIANGLES IN PLANE REGULAR SHAPES***

GIVEN A FIXED CIRCUMSCRIBING CIRCLE

(Points marked B . . . *where a shape's side is Tangent to its Inner Circle*)



SHAPE RATIOS

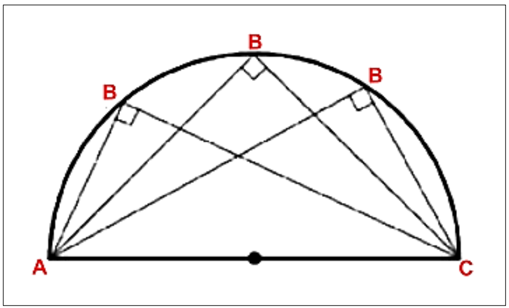
IN THESE FEW EXAMPLES WE CAN SEE THE WAY THAT THE RATIOS APPEAR TO ORGANIZE THEMSELVES IN HARMONY.

SHAPE	RATIO
SQUARE:	1.414213562373100
INNER SEPT:	1.618033988749890
EQUI TRIANGLE:	2.000000000000000
OCTOGRAM:	2.613125929752760
PENTAGRAM:	3.236067977499790
NONOGRAM:	5.656854249492380

THE **RATIOS** OF THE SHAPES APPEAR IN **ASCENDING** ORDER GOING FROM TOP TO BOTTOM.

CONVERSELY:

THE **APEX ANGLES** OF THE SHAPES ARE IN **DESCENDING** ORDER GOING FROM TOP TO BOTTOM.



Is this *hidden* circle related to *Thales Theorem*?

Basically: An inscribed triangle in a semicircle with the diameter as its base is a right angle triangle.

So, nothing new there!

Refer to "THALES OF MILETUS c.626 – 548bc"

So, all plane regular shapes have inbuilt right angled triangles!

"Thales of Miletus is the first well-known ***Greek*** *philosopher, mathematician, and astronomer. His advice, "Know thyself," was engraved on the front facade of the Temple of Apollo in Delphi.". . . Wikipedia.*

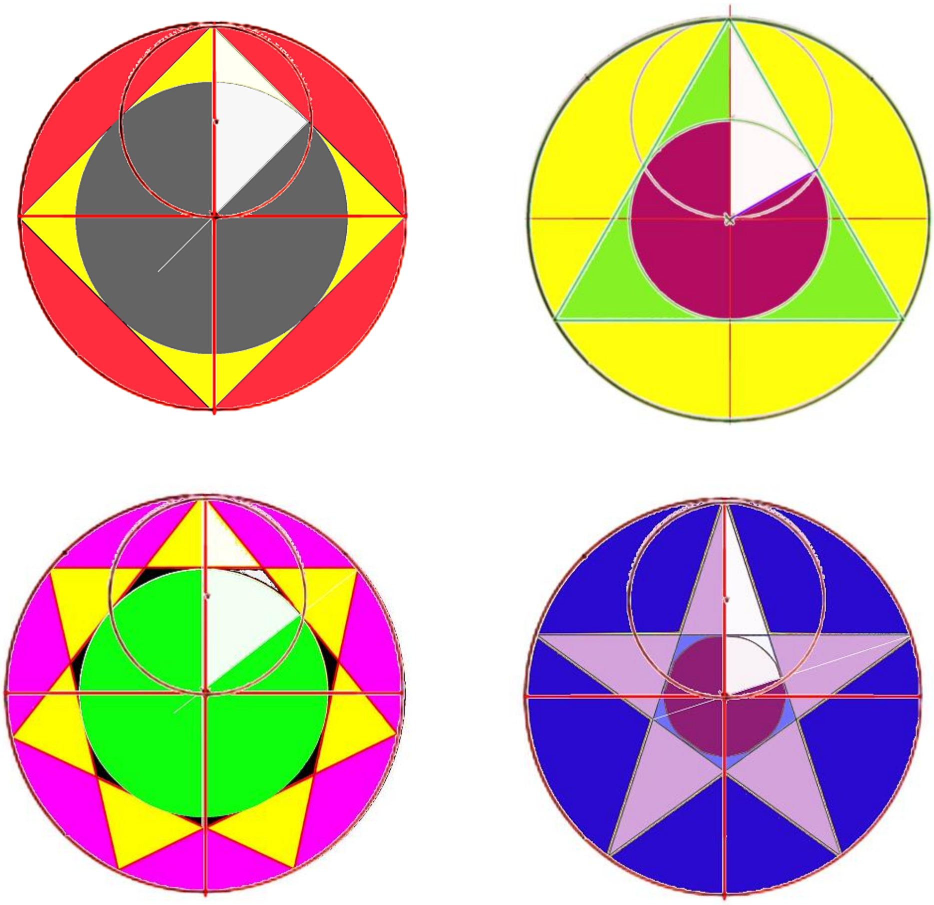
"Thales was the first to go to Egypt and bring back to Greece this study."

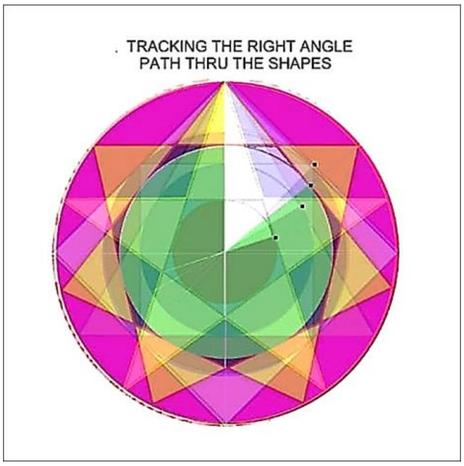
"The evidence for the primacy of Thales comes to us from a book by Proclus who wrote a thousand years after Thales but is believed to have had a copy of Eudemus' book. Proclus wrote "Thales was the first to go to Egypt and bring back to Greece this study."[26] He goes on to tell us that in addition to applying the knowledge he gained in Egypt" *"He himself discovered many propositions and disclosed the underlying principles of many others to his successors, in some cases his method being more general, in others more empirical*."[26]

MORE ABOUT SHAPES AND THEIR INBUILT RIGHT ANGLED TRIANGLES:

Through the very method of producing *plane regular shapes* by using continuous tangents to an inscribing circle, commencing at the circumference of a concentric circumscribing circle, we naturally introduce a right angled triangle into each and every such shape.

Tangents to Inscribing Circles are always at right angles to that circle's Radius from its centre point to the Tangential Point on the Circumference.



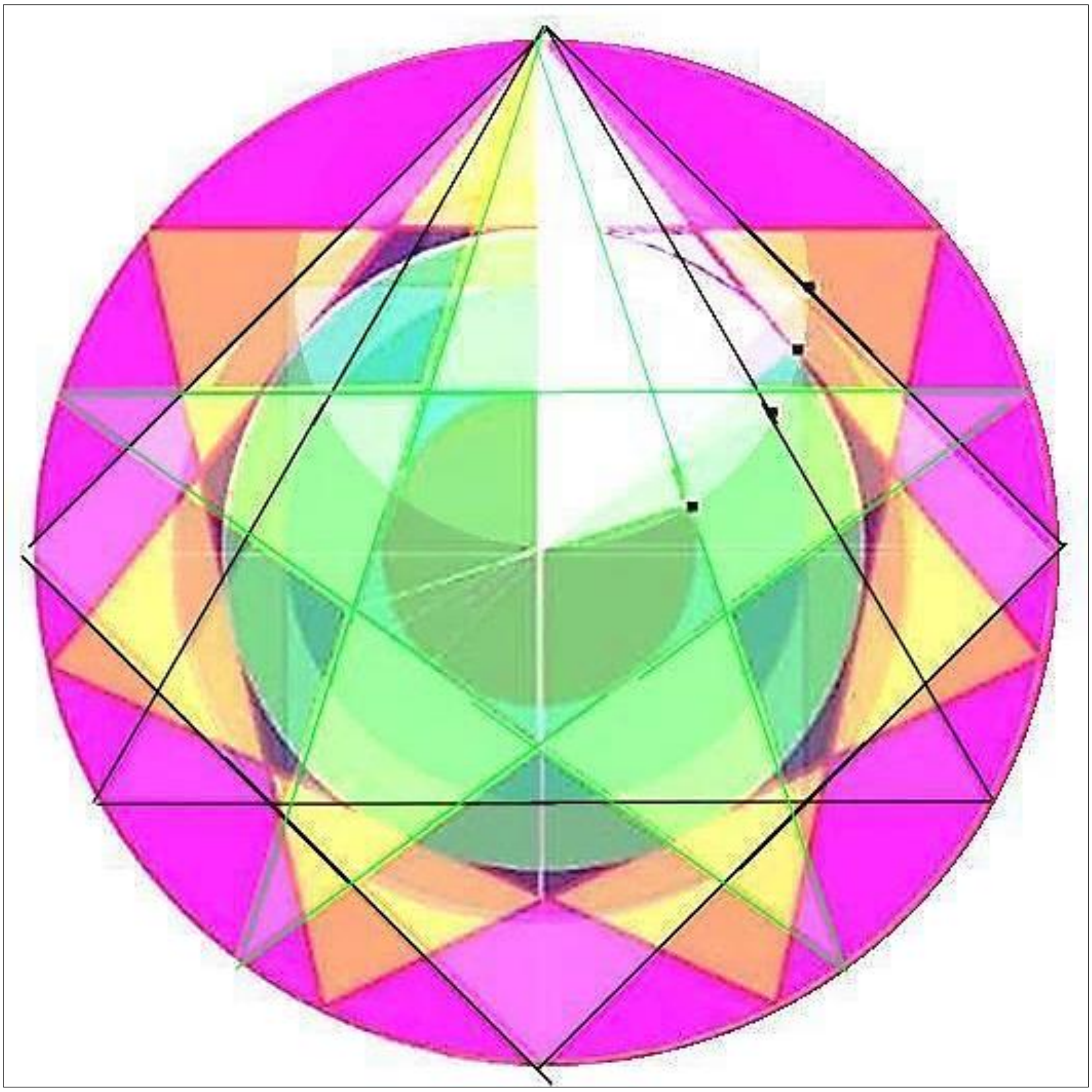


This part of my theory was only revealed to me because I had an impulse to overlay several such shapes over each other in a transparent manner in order to track the path of the right angles.

Put simply, the result was an obvious arc of points that traced out a semi-circle; from the concentric centre of the forming circles to the common point of origin of the shapes at the top of the common circumscribing circle.

IS THIS ANOTHER THEOREM?

If it is, it cannot be a new one. It is probably a corollary to the oldest theorem in the world. - ***Thales Theorem***.



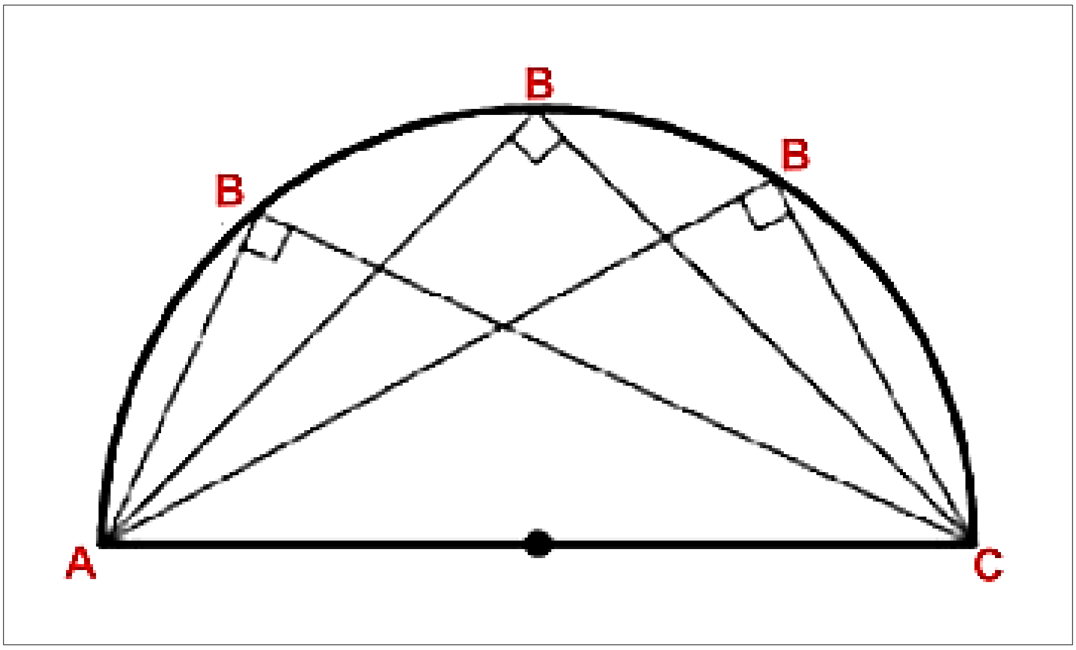
MY FIRST HINT OF THE EXISTENCE OF THE LOCI OF THE INNER CIRCLE OF HARMONY
*THE PREVIOUSLY **HIDDEN** INNER CIRCLE OF HARMONY.*

Testing the waters.

I did not apply this "hidden" circle to my experiment.
I was previously unaware of its existence.
The experiment revealed the hidden Circle to me.
This Circle is not man made, nor planned nor designed.
It is a product or tool of Nature and Nature has revealed its existence to me.

But, it was only revealed to me after I had applied a "Fixed Circumscribing Circle" to my Plane Regular Shapes to enable experimentation with them.

AND THAT BRINGS ME TO THALES THEOREM



If a hemisphere or Semi-Circle contains many Right Angle Triangles is it possible that this same Hemisphere can contain **all** possible denominations of Right Angled Triangles if they are scaled to fit.i.e. If each Hypotenuse is scaled to equal the diameter of this Semi-Circle and if the lengths of the remaining sides remain in the same ratio to each other.

But, would this not just be a technique of viewing Right Angle Triangles expressed as a *Ratio*?

IN EFFECT:

The Angles in each of these *"Scaled Right Angled Triangles"* would remain the same and would not be altered by the scaling process.
The sides would be altered in actual physical length.
The ***Ratio*** of the Sides to each other in each triangle would remain the same.
The ***Ratio*** of the triangle remains the same regardless of its overall physical size.
Just as the ***Ratio*** of a Plane Regular Shape remains the same regardless of its physical size.

The semi circle in Thales Theorem could therefore be seen to contain **all** *Right Angled Triangles if we can include those "Scaled"* to fit.

WILDBERGER AND MANSFIELD UNI NSW:

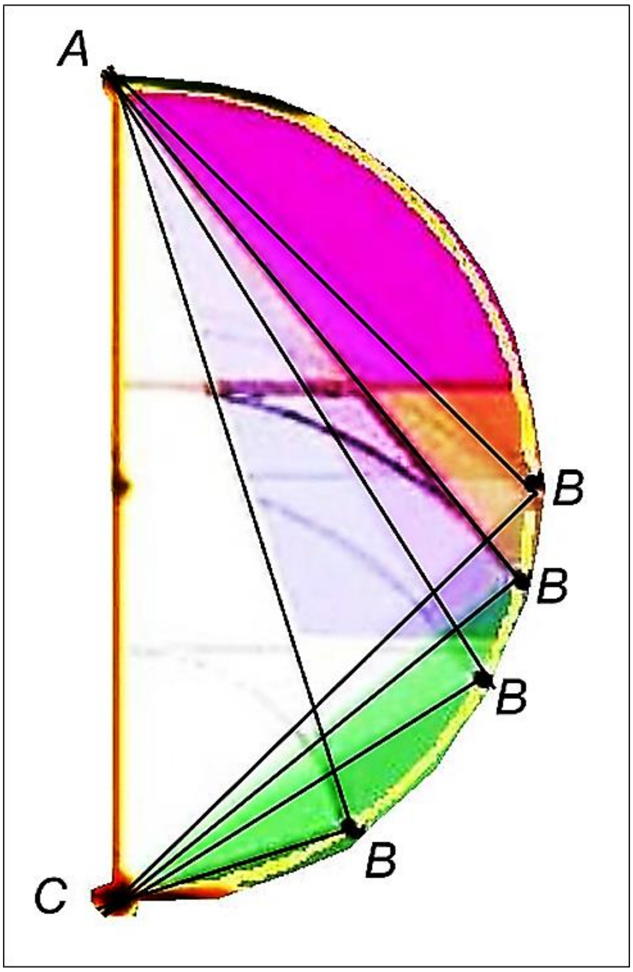
*"The surviving fragment of Plimpton 322 starts with the Pythagorean triple 119, 120, 169. The next triple is 3367, 3456, 4825. This makes sense when you realise that the first triple is almost **a square** (which is an extreme kind of rectangle), and the next is slightly flatter. In fact the right-angled triangles are **slowly but steadily getting flatter** throughout the entire sequence."*

"So the trigonometric nature of this table is suggested by the information on the surviving fragment alone, but it is even more apparent from the reconstructed tablet.
*This argument must be made carefully because **modern** notions such as **angle** were not present at the time Plimpton 322 was written. How then might it be a trigonometric table?"*

How then did Akhenaten manage to control the Rays of his Atens without angles in 1365bc?

SHAPE THEORY

MY CIRCLE OF INNER HARMONY



This image has been extracted from that titled *"TRACKING THE RIGHT ANGLE PATH THROUGH THE SHAPES".*

BUT IN **'THALES THEOREM'** ABOVE WE DEDUCED:

"If a hemisphere or Semi-Circle contains many Right Angled Triangles is it possible that this same Hemisphere is containing all possible Right Angled Triangles, if they are scaled to fit.i.e. if their Hypotenuse is scaled to equal the diameter of this Semi-Circle."

Can Right Angled Triangles be viewed as *Ratios?*

CAN WE SIMILARLY DEDUCE FOR **PLANE REGULAR SHAPE**?

If Plane Regular Shapes are expressed as *Ratios?*

This Ratio would vary as the angle at point A varies.
The Shape also varies as this same angle varies.

Thales Theorem as extended by this theory places **all** Right Angled Triangles within a Semi Circle.
This theory can place **all** the Right Angled Triangles in Plane Regular Shapes within the same Semi Circle.

We have deduced that **all** Plane Regular Shapes contain Right Angled Triangles. Can we further deduce that **all Right Angled Triangles can be also containable within Plane Regular Shapes**? Are they countable?

We have also deduced that **all** Plane Regular Shape Ratios will fit between point **A** (The Singularity) and point **C** (Infinity).

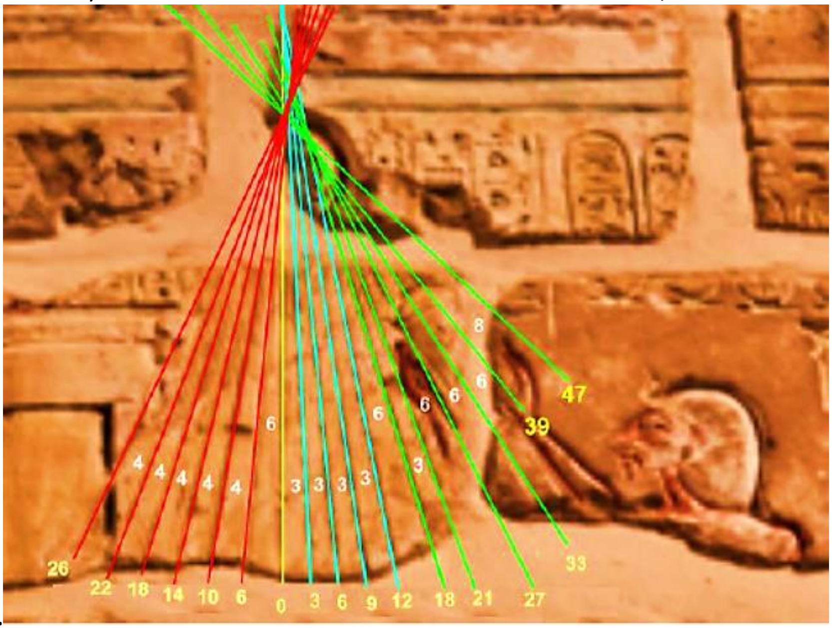
In both Thales Theorem and Shape Theory the Right Angle is always at point **B** wherever it is located along the arc A-B-C; somewhere between the Singularity at **A** and Infinity at **C**.

The angle at point **C** varies with each Shape or Right Angle.

The angle at point **A** varies similarly and it can determine which shape is being formed; even though it was the Ratio of the Circumscring Circle (**AC**) to the Inscribing Circle (**BC**) that I used to develop my Theory. So it was actually the sides of the Angle at point **C** that I used to develop my Theory. The line **AC** is the radius of the Circumscring Circle and the line **BC** is the radius of the Inscribing Circle; the ratio **AC / BC** became the identifying ratio for each shape. The bonus was that this Ratio accurately represented the shape both graphically and mathematically.

TWO SIMILAR BUT HORIZONTALLY OPPOSED ATENS

AN ATEN (Three Focal Points) FROM THE TALATAT WALL AT GEM-PA-ATEN, KARNAK



With Left facing Pharoah.

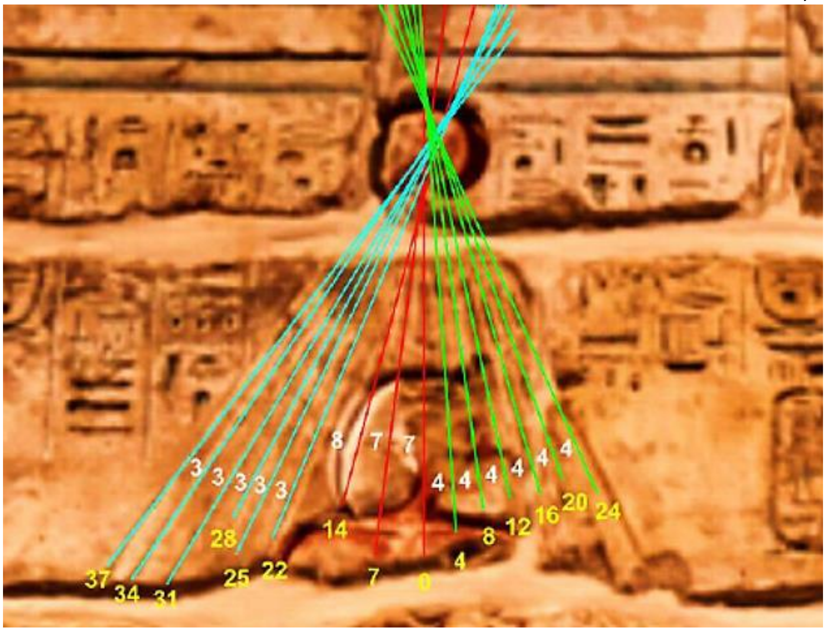
GAPS BETWEEN THE RAYS: **4, 4, 4, 4, 4,** 6, **3, 3, 3, 3,** 6, **3,** 6, 6, 6, **8,** DEGREES

THREE FOCAL POINTS - Each Focal Point has a **set** of Rays which are the same angle apart.

Pale Blue are **3**^{0} apart; Green are **6**^{0} apart; Red appear to be **4**^{0} apart.

BUT THERE ARE TWO SETS OF RAYS TO THE RIGHT OF 0^0 **AND ONLY ONE SET (4**^{0}**) TO THE LEFT.**

AN ADJACENT ATEN FROM THE TALATAT WALL AT GEM-PA-ATEN, KARNAK (Three Focal Points)



With Right facing Pharoah

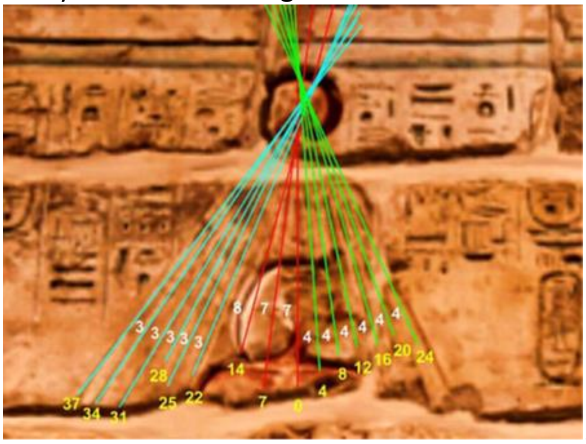
THREE FOCAL POINTS – ALL ON THE ATEN.

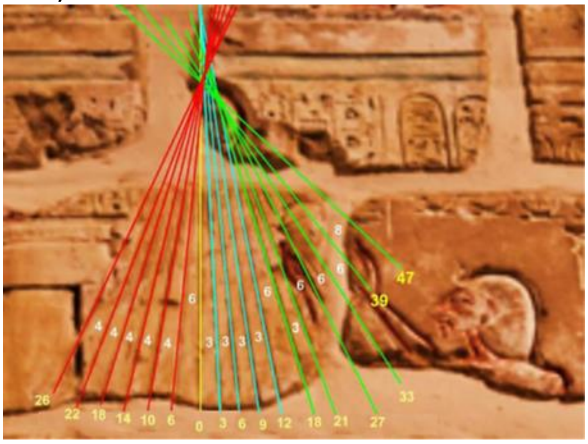
Each Focal Point has its own **set** of Rays which are the same angle apart.

Pale Blue are **3**^{0} apart; Green are **4**^{0} apart; Red appear to be **7**^{0} apart.

BUT THERE IS ONLY ONE SET OF RAYS (4^0**) TO THE RIGHT OF 0**^{0} **AND TWO SETS OF RAYS TO THE LEFT.**

Only one bundle on **Right** of 0^0 and these are 4^0. . . . Only one bundle on **Left** of 0^0 and these are 4^0.



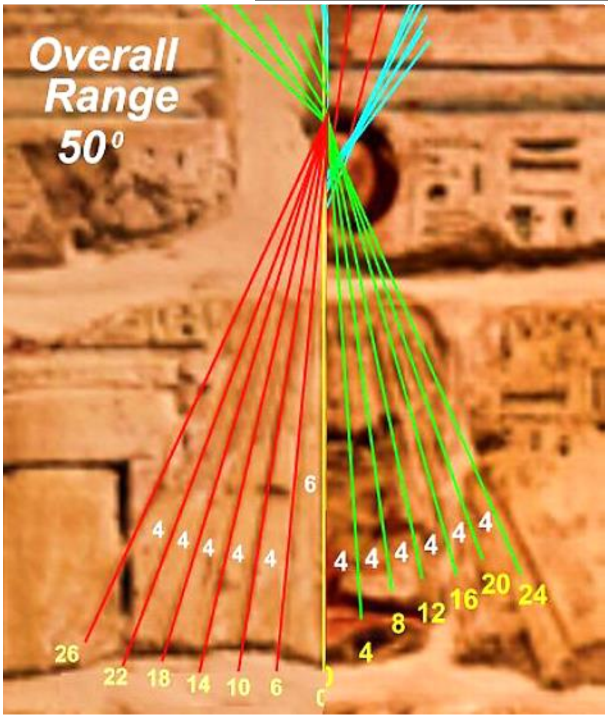


. . .

- The $\mathbf{4^0}$ (green) set on the left hand image seem to share a Focal Point located in the same place on the Aten as the $\mathbf{4^0}$ (Red) set on the right hand image. Could this be just a coincidence?

- But, if the right hand half of the left hand image is combined with the left hand half of the right hand image by dividing each image along the ray for $\mathbf{0^0}$ the result is amazing for a period around 1500bc. To me, it indicates the true nature of Akhenaten's *God Given* beliefs and man's knowledge of angles.

<u>HALF OF ONE IMAGE AND HALF OF THE OTHER, COMBINED</u>:



At first the one and only 6^0 between 0^0 and 4^0 on the left hand side seems to be out of place in this ***composite*** image until one takes into account the sequence of all the ***composite*** angles (marked yellow) available commencing at 4^0 at the right hand side of 0^0 and then alternating the remainder between each hemisphere.

Thusly:
4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, degrees.

Could this be just another coincidence?

Can Two Atens combine their features to try to address certain maths or angular or geometrical requirements?

Can angles be ***composite*** copies of several rays from several Atens and even from two hemispheres of the same or different Atens?

Rays & angles could be traced and/or combined onto Papyris or clay tablets.

Perhaps Atens were meant to combine their individual attributes to address specific angular requirements, but their individual contents were kept secret, even to this day. Was there a need for all knowledge of the Angles to be kept secret at that time? Was this a case of "Knowledge is Power"? Could other parts of the Talatat Wall that are not Atens be similarly associated by selecting parts from one area and associating them with parts from another area?

<u>Akhenaten did manage to control the Rays of his Atens with angles in 1365bc</u>?

ANCIENT SUMMERIANS, SHAPES, & RIGHT ANGLES

If ancient Summerians were unaware of any theories relating to Plane Regular Shape why did they place examples of these shapes in honoured places on their steles and other monuments?

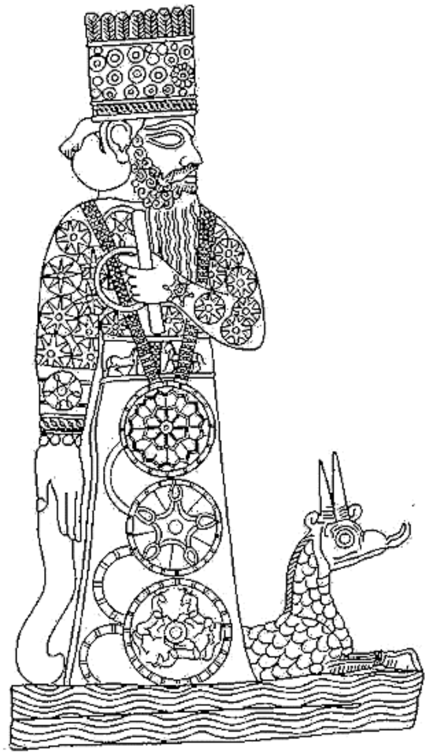
Why were specific Plane Regular Shapes allocated to each of their gods and goddesses?
For Maat it was the Pentagram as also with Osiris.

THE PENTAGRAM & OSIRIS

THE PENTAGRAM & MAAT

THE OCTOGRAM & INANNA

ISHTAR'S 11 POINT STAR



“Because Nimrod was a rather vague character without clear history, he could easily be used in folk tales (cf. Kreon in Greek tragedies). In about 40 CE, Philo of Alexandria identified him as the builder of the Tower of Babel (the Etemenanki).[note] Half a century later, Flavius Josephus described "Nebrod" as a tyrant.[note]

At about the same time, an author known as Pseudo-Philo described a conflict between Nimrod and Abraham.[note] **While Nimrod was building the Tower of Babel**, some pious people refused to take part in it, including Abraham. The king wanted to throw the rebel into a fiery furnace but Abraham was miraculously saved.”

Nimrod has copious Circles and contained Shapes.

“The eight-pointed star was Inanna/Ishtar's most common symbol.[71][72] Here it is shown alongside the solar disk of her brother Shamash (Sumerian Utu) and the crescent moon of her father Sin (Sumerian Nanna) on a boundary stone of Meli-Shipak II, dating to the **twelfth century BCE**.”

Unknown artist - Jastrow (2005)

Kudurru (stele) of King Melishipak I (**1186–1172 BC**) taken to Susa in the 12th century BC as war booty. Kassite period.

- The king presents his daughter to the goddess Nannaya.

- The crescent moon represents the god **Sin**,
- the sun the **Shamash**
- And the star the goddess **Ishtar**.

THE GOD SHAMASH

Mesopotamian Gods Facts

"The crescent moon represents the god **Sin.**

The sun the god **Shamash**

And the star the goddess **Ishtar**."

Note:

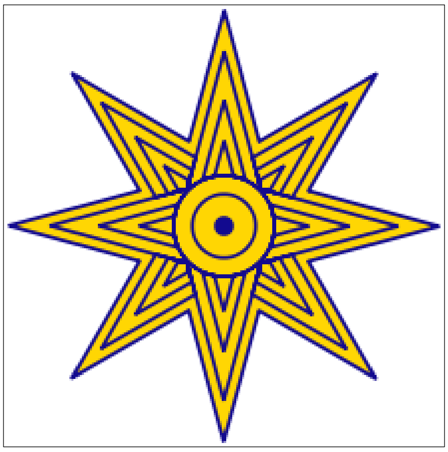
- The Shen Ring (and separate Tangent)
- The polygrams
- The Circles.

If the Sun represents the Shamash and the Sun sends out Rays to send "benefits" to recipients, then perhaps the the Shen Ring (and separate Tangent) may be indicative of these "benefits".

I believe that my "Ankh Circle" is evidence of these "benefits". If the Circle was to indicate eternity then why was it accompanied with the Rod (Tangent)?

Star of Ishtar

From Wikipedia, the free encyclopedia



Star of Ishtar

The **Star of Ishtar** or **Star of Inanna** is a Mesopotamian symbol of the ancient Sumerian goddess Inanna and her East Semitic counterpart Ishtar. The owl was also one of Ishtar's primary symbols. Ishtar is mostly associated with the planet Venus, which is also known as the morning star.

"Depiction of the star of Ishtar (left) on a *kudurru* of Meli-Shipak II (12th century BC)

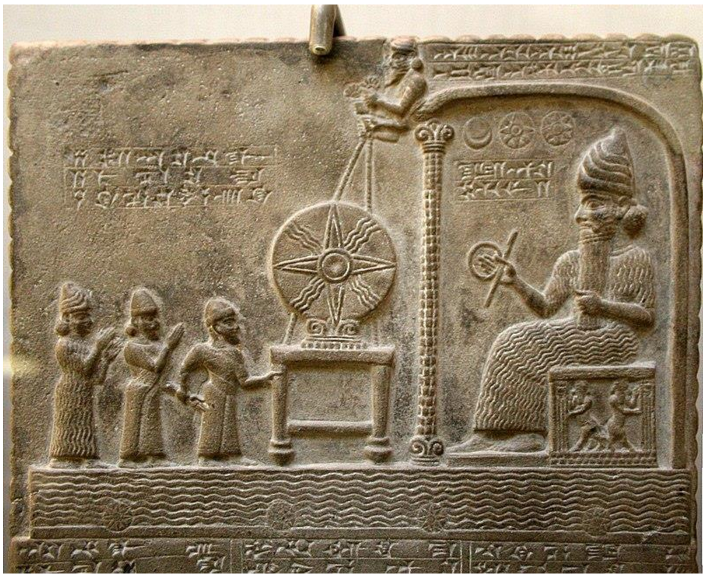
The star of Inanna usually had eight points,[1] though the exact number of points sometimes varies.[2] Six-pointed stars also occur frequently, but their symbolic meaning is unknown.[3] The eight-pointed star was Inanna's most common symbol,[1] and in later times became the most common symbol of the goddess Ishtar, Inanna's East Semitic counterpart.[1] It seems to have originally borne a general association with the heavens,[1] but, by **the Old Babylonian Period**, it had come to be specifically associated with the planet Venus, with which Ishtar was identified.[1] Starting during this same period, the star of Ishtar was normally enclosed within a circular disc.[3]

During later times, slaves who worked in Ishtar's temples were sometimes branded with the seal of the eight-pointed star.[3] On boundary stones and cylinder seals, the eight-pointed star is sometimes shown alongside the crescent moon, which was the symbol of Sin, god of the Moon, and the rayed solar disk, which was a symbol of Shamash, the god of the Sun.[4][2]

The rosette was another important symbol of Ishtar which had originally belonged to Inanna.[5] During the Neo-Assyrian Period, the rosette may have actually eclipsed the eight-pointed star and become Ishtar's primary symbol.[6] The temple of Ishtar in the city of Aššur was adorned with numerous rosettes".[5]

What was the symbol of Ishtar?

"The main symbols associated with Ishtar were **the lion and the eight-pointed or sixteen-pointed star**. The goddess was also associated with the planet Venus and, because Venus can be seen in the morning and near the evening, she was sometimes referred to as the goddess of the morning and the evening star".1 Jan 2022



"Relief image on the **Tablet of Shamash**, British Library room 55. Found in Sippar (Tell Abu Habbah), in Ancient Babylonia; it dates from the **9th century BC** and shows ***the sun god Shamash*** on the throne, in front of the ***Babylonian king Nabu-apla-iddina*** (888-855 BC) between two interceding deities. The text tells how the king made a new cultic statue for the god and gave privileges to his temple."

(Nannar, patron god of Ur, & his moon crescent symbol, as with Islam today,
& **the 8-pointed star symbol** of Anu, later given to Inanna, his daughter)

(Utu, Nannar's son, Commander of the Space Ports)

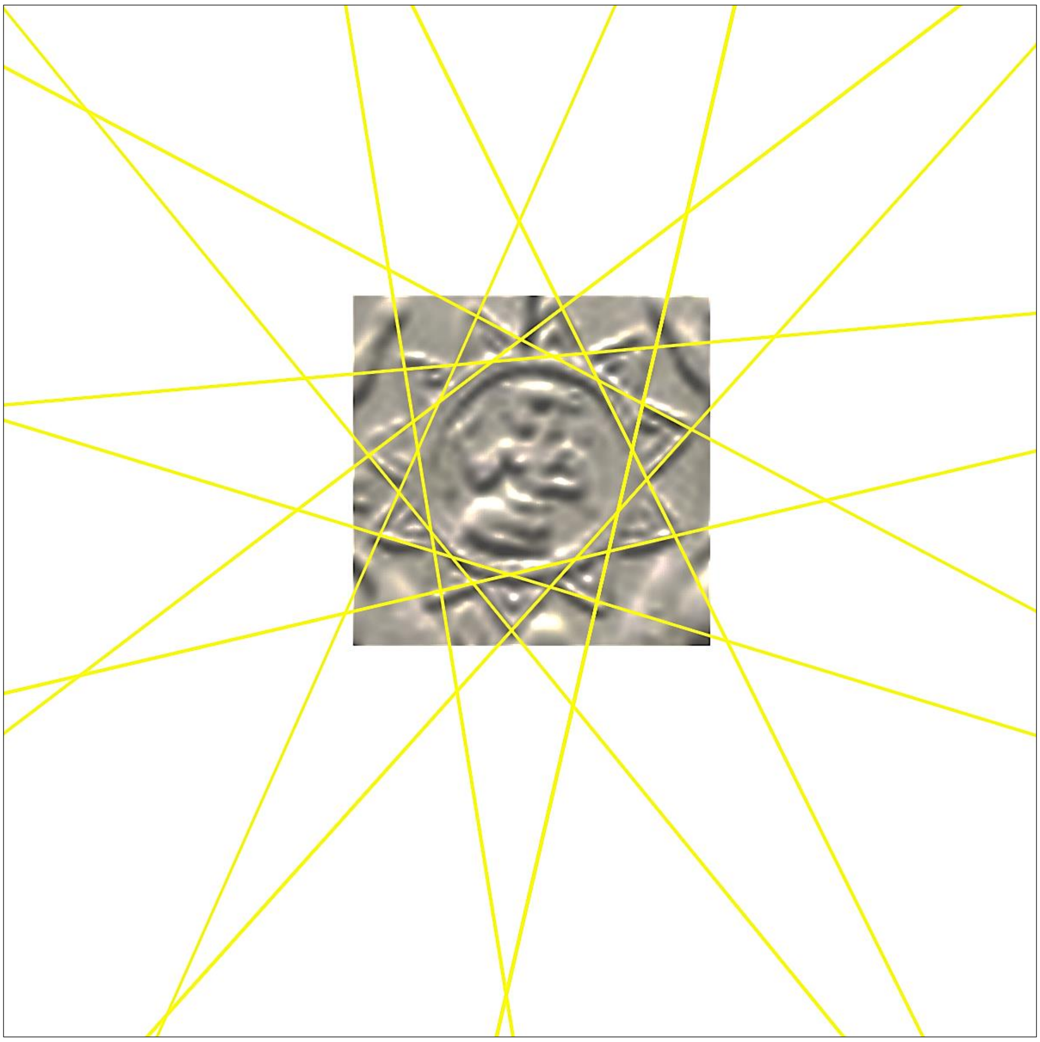
A TRIBUTE TO RIGHT ANGLES

(Inanna in flying disc above mountains, bottom: unidentified, Nannar, & Ningal)

NOTE: 11 POINTED POLYGRAM

Nannar and his Moon symbol.

11 POINT POLYGRAMS RELATED TO ISHTAR'S 11 POINT STAR



11 Point Polygram with 81.81818181 degrees in each inner point.

SOME 11 POINT POLYGRAM RATIOS REVEALED BY MY RESEARCH

Deg	Shape	Ratio
147	147.375deg 11sided	1.047142857000000
114	**11pts 114.545454 deg**	**1.190710563000000**
81	**11pts 81.818181deg**	**1.527864046000000**
49	**11pts 49.0909090909**	**2.423290987000000**

147.375 degrees are for the Polygon.

AND WE ARE CONSTANTLY TOLD THAT:

"THEY HAD NO CONCEPT OF ANGLE."

THE PREVIOUSLY HIDDEN CIRCLE

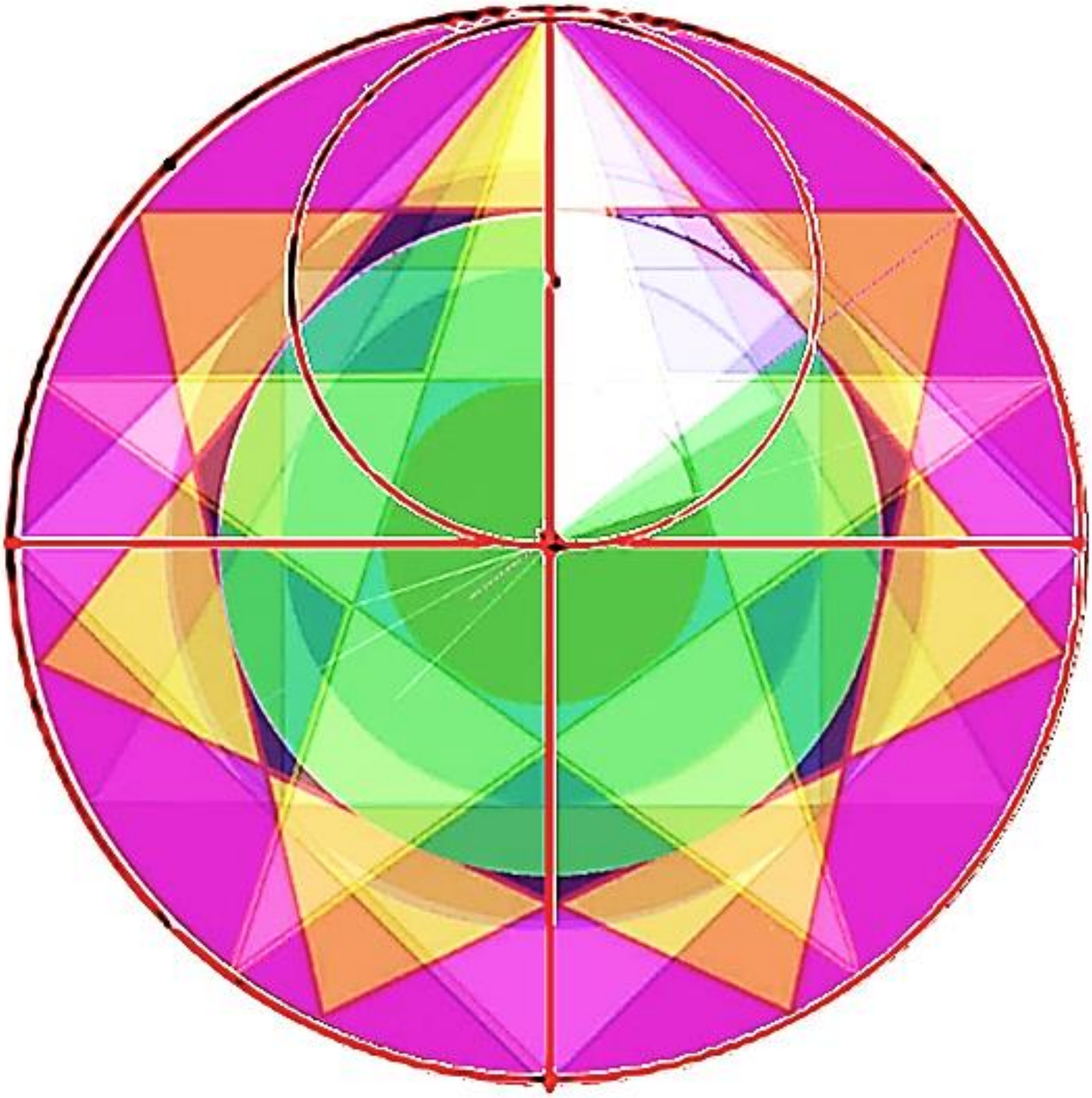
'THE CIRCLE OF INNER HARMONY'

CONTAINING

ALL FEATURES AND DETERMINANTS

OF

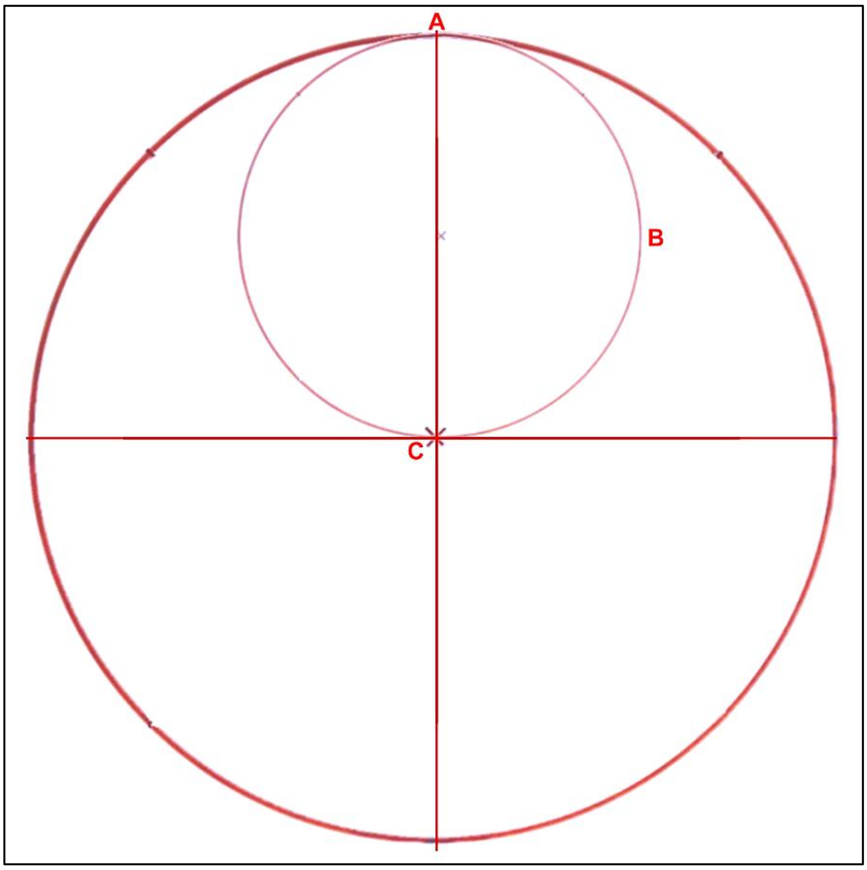
PLANE REGULAR SHAPES



WITH HIDDEN INNER CIRCLE OF HARMONY REVEALED

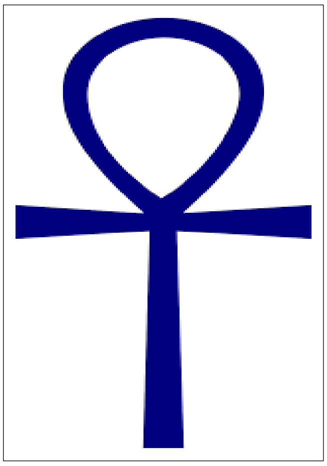
Biting the Bullet.

THE THEORY



This image contains a previously *hidden* inner circle that may be used to encompass and illustrate the whole theory of Plane Regular Shape. Every Plane Regular Shape has its source in the hemisphere denoted in true *Thales Theorem* style by **A B C** in the above image.

It is not a circle that immediately reveals itself as being necessary for the development and portrayal of Plane Regular Shapes and yet, after further consideration, investigation and explanation, it will be seen to be totally essential for the existence of such shapes.



I consider it to be that for which I commenced this quest; that for which I had searched from the beginning of my quest.

'The Harmony of Plane Regular Shape'.

As I have never seen this circle before in the Literature I have taken the liberty to baptise it:

"The Circle of Inner Harmony" or alternatively "The Ankh Circle".

Was it the prototype for *THE EGYPTIAN ANKH?*

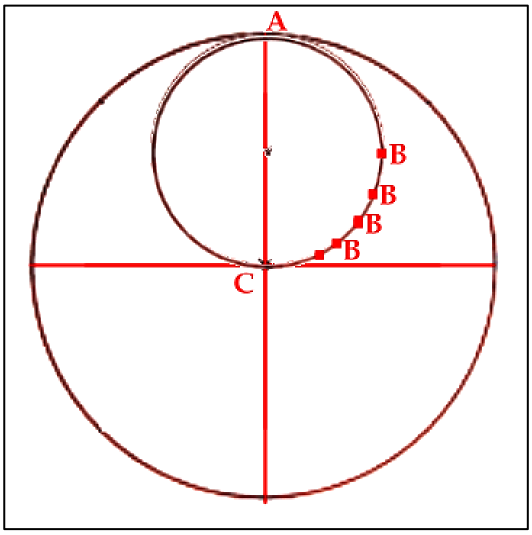
The Ankh is not dissimilar in shape to this *Hidden Circle* image.

<u>From my theory so far I have been able to deduce</u>:

- **A = the uppermost points in both the Circumscribing Circle and the Circle of Inner Harmony.**
- **A = point of commencement of the continuous shape-forming tangents from the outer to inner circles.**
- **A = point of negative infinity – the shape ratios diminish to one & below.** *(There is no zero in this theory).*
- **A = the singularity – the ratio at A is 1.000000000 ------ The outer circle = the inner circle**
- **A to C = always the radius of the shape's Circumscribing Circle.**
- **A to C = the <u>arc</u> is the Loci of points B**

- **B = always the location of the right angle in triangle A B C** (refer here to Thales Theorem).
- **B = always located along the arc A – C**
- **B = always the point of intersection of the circle of inner harmony with the shape's inscribing circle.**
- **B to C = always the radius of the shape's inscribing circle**
- **B = always the variable end of the radii of the Inscribing Circles.**

- **C = point of positive infinity – the shape ratios increase towards an infinite realm.**
- **C = the concentric centre of the shape forming circles (and thus of the Shape).**
- **C = the fixed end of the radii of the Inscribing Circles.**



<u>THALES THEOREM (Right Angle Triangles):</u>
Any point B along the arc A -C. will form a right angle with points A and C.

<u>MY THEORY: (Plane Regular Shape).</u>
The <u>line</u> A to C is the hypotenuse of each right-angled triangle.

B is the location of the right angle in each shape.

The <u>line</u> B to C is the Radius of the Shape's Inscribed Circle.

The Inscribed Circle will always intersect the *"Hidden Circle" at* this variable point B

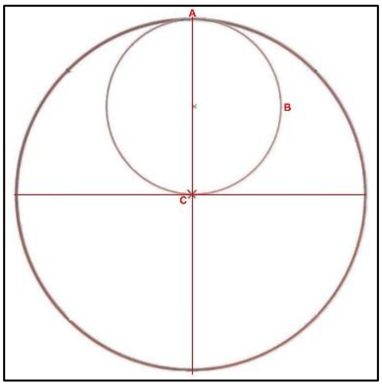
<u>BC, THE RADIUS OF THE INSCRIBING CIRCLE</u>

In all respects, **BC**, the radius of the Inscribing Circles, with regard to The Inner Circle of Harmony, is the equivalent of Ptolemy's Chords.

By his methodology, outlined in his *'ALMAGEST', Ptolemy* would view that length which would become the radius of the Inscribing Circles (**BC**) with respect to The Inner Circle of Harmony as a subtended "CHORD".

Ptolemy was effectively dealing with but was unaware of Shape Ratio Theory. He used different terminology.

THE METHODOLOGY OF THE CIRCLES

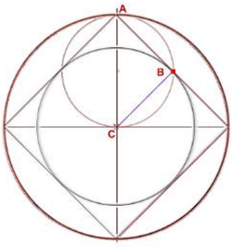


THE CIRCLE OF INNER HARMONY

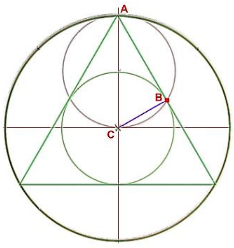
Embodying points A, B, and C along **arc ABC.**
Points **A** and **C** give the Radius of the (fixed) Circumscribing Circle.

Point **B** is the siting of the tangent (the side of the shape) on the shape's Inscribing Circle, whilst at the same time it is **also** the point of intersection of the Inscribing Circle with the Circle of Inner Harmony. This is a critical point in the scheme of things. Point **B** is the only variable when points **A** and **C** are **fixed.** The variable siting of Point **B** along this *'hidden'* circle governs the length of the radius **B** to **C** of the inscribing circle and thus the ratio and denomination of whatever shape is being formed. (A Dynamic method.)

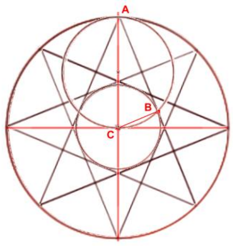
Points of intersection of the Circle of Inner Harmony with the Tangents & Inscribed Circles:



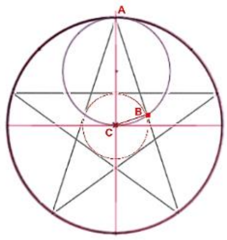
SQUARE



EQUILATERAL TRIANGLE



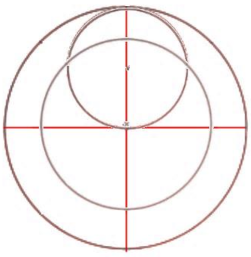
OCTAGRAM



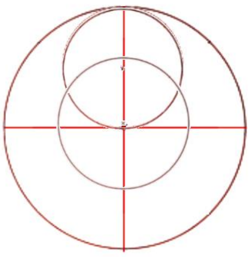
PENTAGRAM

The Harmonic model not previously revealed:
It is only through the presence of The Circle of Inner Harmony that this part of the concept is made visual.

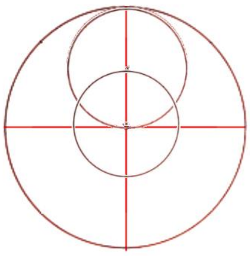
The POINTS of INTERSECTION of the Circle of INNER HARMONY with the Inscribed Circles:



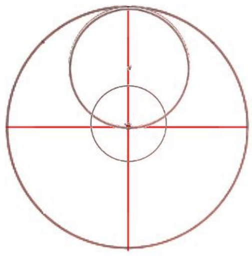
SQUARE



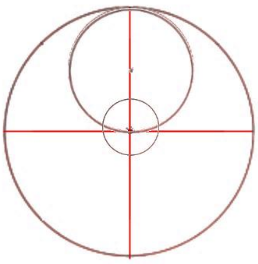
EQUILATERAL TRIANGLE



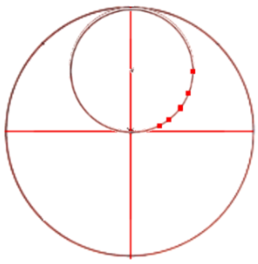
OCTAGRAM



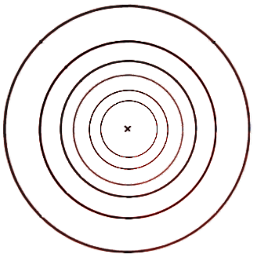
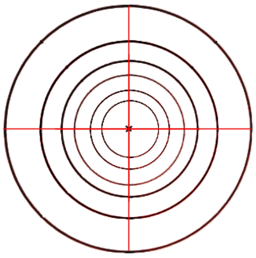
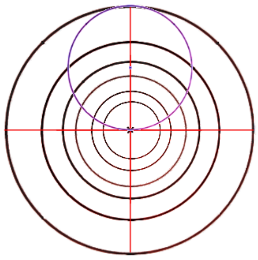
PENTAGRAM



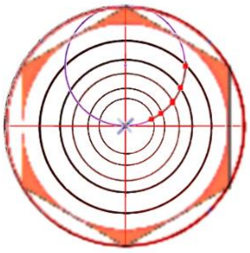
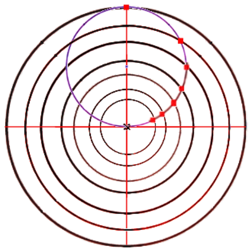
SEPTAGRAM



Harmony of the Points of Intersection as they lay along the circumference of this previously hidden circle.

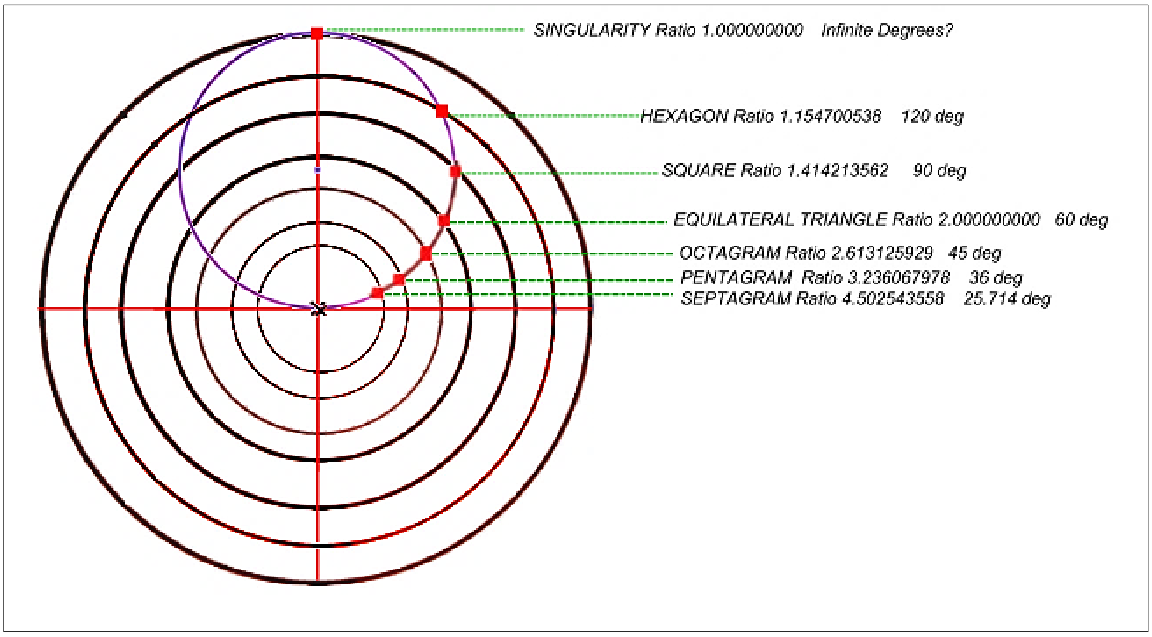




The Circles . . . Up, Down and sideways . . . add Circle of Harmony . . .

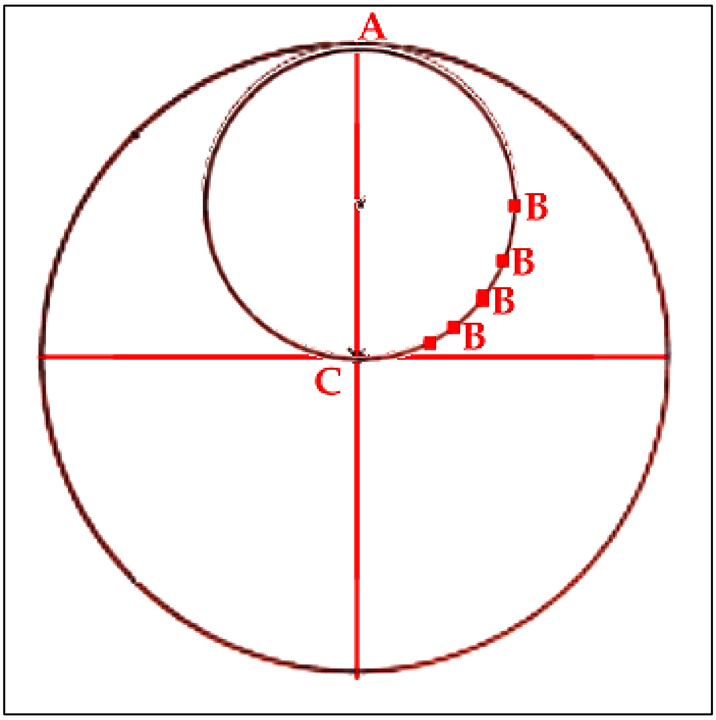
Add a Polygon's Circle . . . Note Intersections . . .

This diagram indicates the points of intersection of the Circle of Inner Harmony with the Inscribing Circles for the Plane Regular Shapes given, of course, the use of a ***fixed constant Circumscribing Circle*** for all the shapes.



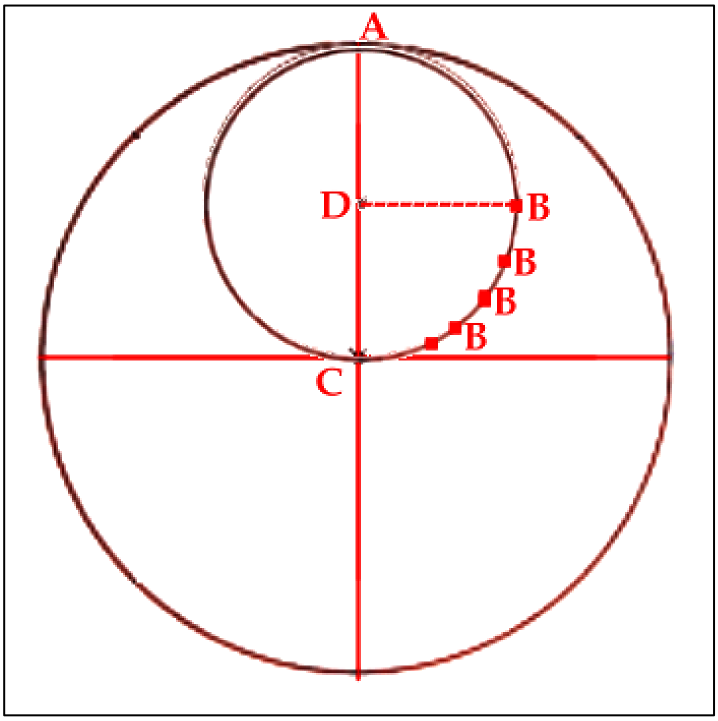
What in our world could cause the Circumscribing Circles to be a constant size? A black Hole? Add to all these suggestions my *"Stonehenge Theorem".* There are, as a result, more shapes hidden in these diagrams than you can point a stick at. We have seen that ***any pair*** of these circles will give us a shape. ***Any adjacent*** pair of these circles will also produce a shape. The ***Common*** Circumscribing Circle will produce a shape with any other circle. (This includes the Inner Circle of Harmony as its ratio to the ***Common*** Circumscribing Circle is found to be 2.000000000, the same as the ratio for the Equilateral Triangle.)

PURE SHAPE. COULD THIS HAVE A HINT OF SUPERSYMMETRY?



This ***Circle of Inner Harmony,*** or as I prefer, this *Ankh Circle* contains everything we see as necessary to produce all or any Plane Regular Shape.

- It can control ***the angle*** of the shape's side from the apex angle (at point **A**) to the point where it is ***a tangent*** to the shape's inscribing circle (at whatever point **B** is applicable);
- It can control the selection of the Angle and thus the Shape;
- By intersecting the Inscribing Circle of the shape (at point **B**) it controls the length of the radius of the Inscribing Circle and therefore the shape's ratio and ***the denomination of the shape*** itself.
- The Point **B** on the Ankh Circle that is on the same horizontal plane as the centre point of this Ankh Circle will produce ***the Square***;



AD = CD = BD

Any point **B** **above** that for the square will produce a right angle triangle (Thales Theorem) whose side **AB** will be the *Short Side* as described in Plimpton 322 analysis.

Any point **B** **below** that for the square will produce a right angle triangle (Thales Theorem) whose side **BC** will be the *Short Side* as described in Plimpton 322 analysis.

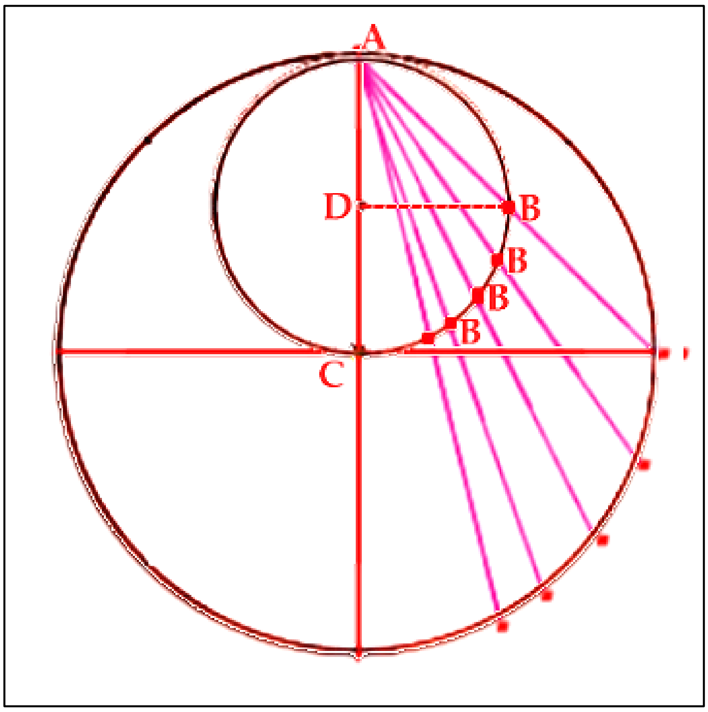
Any point **B** **below** that for the square will produce a right angle triangle (Thales Theorem) whose side **AB** will be the *Long Side* as described in Plimpton 322 analysis.

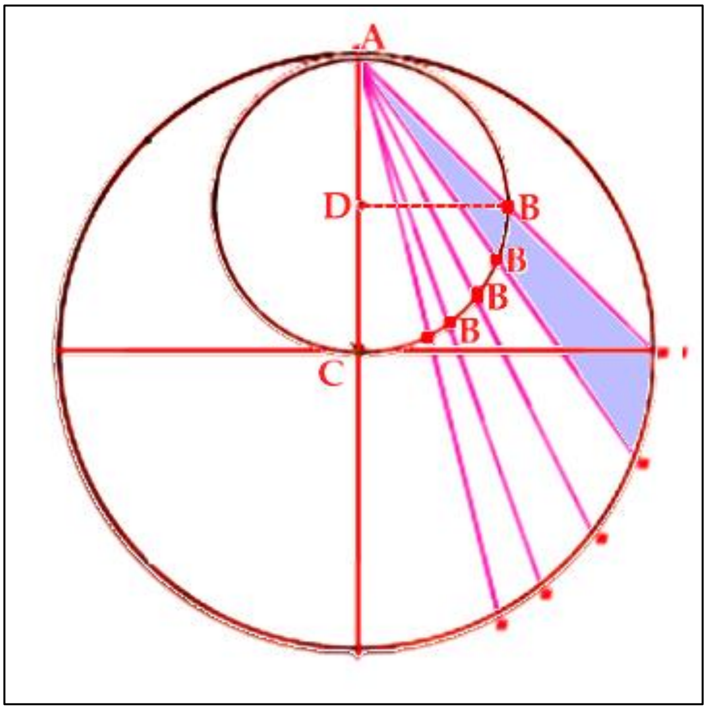
BD is the radius of the *Hidden* or *Ankh* circle, as are **AD** and **CD**.

It seems a natural thing to describe the sides of right angled triangles as *Short Side* and *Long Side* if one is using Thales Theorem and the Ankh Circle. So the triangle **ABC** will always be a right angle. (*Thales*)

As all the angles for the Plimpton 322 Right Angled Triangles all fall below 45^0 (or 90^0 for the Square) and above 30^0 (or 60^0 for the Equilateral Triangle) the question of *Long Side* or *Short Side* does not really come up as the range of the triangles has been pre-determined.

SOME SHAPE SIDES THAT ARE TANGENTS TO INSCRIBING CIRCLES WITH RADIUS **BC**.
AND **ABC** IS A RIGHT ANGLE IN EACH (Thales) CASE.





The 15 Plimpton 322 Right Angled Triangles are for shapes whose tangents lie in the blue shaded zone only and that is for shapes ***between but not including*** the Equilateral Triangle and the Square.
(Between Ratios 2.0 and √2)
Not bad for Ancient Mesopotamian Mathematicians.

POLYGONS & THE SINGULARITY

APPROACHING THE SINGULARITY

SHAPES IN CIRCLE OF HARMONY & POLYGONS

Deg	Shape	Ratio	Points
25	septagram 25.7142857	4.576491223248880	7
36	36 deg pentagram	3.236067977499790	5
45	octogram	2.61312592975276 0	8
60	Equilateral Triangle	2.000000000000000	3
72	10pts decagram	1.732050808000000	10
77	7pts ф 77.14285714deg	1.618033989000000	7
90	Square	1.414213562373100	4
97	13pts 96.923deg	1.335402142000000	13
100	100deg inner nonogram	1.309016994000000	9
108	108deg pentagon	1.236067977499790	5
120	hexagon	1.154700538379250	6
128	7pts 128.5714 septagon	1.104854344000000	7
135	8pts octogon	1.082392200292390	8
140	9pts nonogon	1.059016995000000	9
144	10pts decagon	1.053333300000000	10
147	147.375deg 11sided	1.047142857000000	11
150	12 sided gon	1.038092722000000	12
	RATIOS NOT CORRECTED:		
152	152.5deg 13sided	1.033333000000000	13
154	154.28157deg 14sided gon	1.031027796+/-	14
156	15 sided gon	1.030+/-	15
157	157.5 deg 16 sided gon	1.020156458000000	16
162	20 sided gon	1.0133333+/-	20
163	163.636363deg 22gon		22
172	45 sided gon		45
180	straight line - SINGULARITY	1.000000000000000	1

The Ratios shaded in yellow are indicated on my Circle of Harmony images.

- The ratios, as they approach the Singularity (1.000000000) are all for Polygons.
- Polygons are naturally arrayed in numerical order. – This does not apply to Polygrams.
- Polygons are the first parts of images produced in Cymatics experiments.
  (Possibly depending on the equipment used.)

There are always Polygons at the centre of Plane Regular Shapes regardless of denomination.

- Extension of a Polygon's sides will eventually produce the *related range* of Shapes.
- This includes what I refer to as *Construction Harmonics* and *Mathematical Harmonics*.

A MOMENT OF MATHEMATICAL CONCEPTS:

*GIVEN: If we **fix the size** of the Circumscribing Circle for all calculations of shape ratios.*

*Then, the length of the Radius **A** to **C** will be **fixed and constant for all calculations**.*

Then, Shape Ratios will depend solely upon the size of the Inscribing Circle and its Radius.

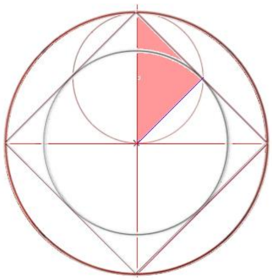
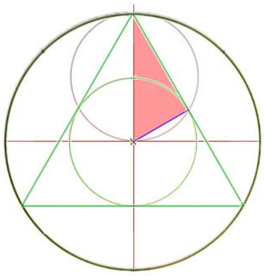
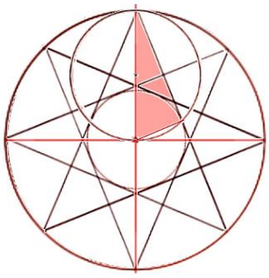
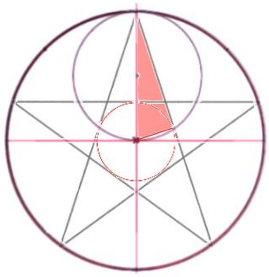
*Then, the whole **Harmonics of Plane Regular Shape** should be indicated by the relative sizes of the Inscribing Circles and their Radii;*

GIVEN: That each Plane Regular Shape is formed by a Continuous Tangent from the Circumscribing Circle to the Shape's Inscribing Circle;

That Tangents to Inscribing Circles meet the radius of the Circles at **90^0** *making each triangle **A** – B – C a right angled triangle.*

*THEREFOR each and every Plane Regular Shape has an inbuilt **Right Angled Triangle**.*

*THEN, the length of the **Radius** of the Inscribing Circle from the Centre (point* **C***) to the point of the Tangent (point* **B***) is **the only variable** left to be calculated.*

 . . .  . . .  . . . 

1.414213562	2.000000000	2.613125929	3.236067978
	SHAPE'S APEX ANGLE:		
90^0	60^0	45^0	36^0
	HALF / APEX ANGLE:		
45^0	30^0	22.5^0	18^0
	ANGLES IN THE RIGHT ANGLED TRIANGLES		
45^0 - 45^0 - 90^0	30^0 - 60^0 - 90^0	22.5^0 - 67.5^0 - 90^0	18^0 - 72^0 - 90^0

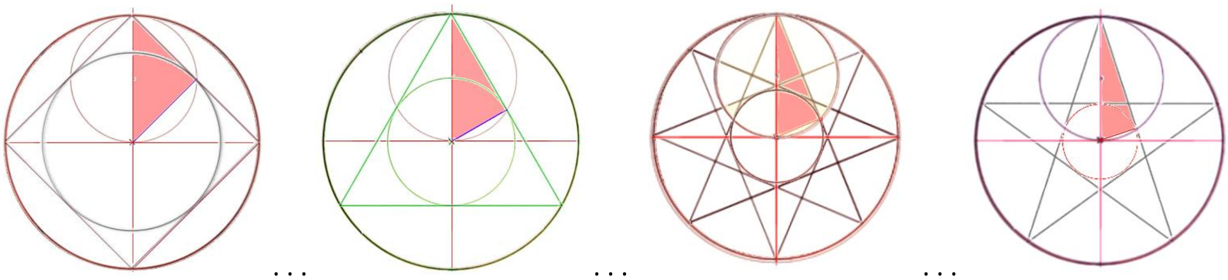
GIVEN THAT: *Physical Size of the shape is irrelevant to shape ratio calculations.*
BUT *We need some constancy to enable a study of Shape in order to quantify the dimensions.*
THEN: *We can allocate whatever number we wish to the Radius of the Circumscribing Circle.*
Providing all the Circumscribing Circles are of equal size.
Therefore **A** to **C** is the same in all these Shape calculations.
The *number* I have chosen to use for the Radius (**A** to **C**) of the Circumscribing Circle is √2.
AND *We know from previous experimentation, the possible shape ratios.*
The calculation of the circumference of the Circumscribing Circle is 2πr.
The calculation of the circumference of the Inscribing Circle is 2πr.
(2π *is common to both calculations*)

The Ratio is therefore merely the Radius of the Circumscribing Circle / the Radius of the Inscribing Circle.

SHAPE RATIOS: (= AC / BC) Outer Circle radius / Inner Circle radius.

GIVING MATHEMATICAL VALUES TO SHAPES' RATIOS:

SHAPE RATIOS: (= AC / BC)   Outer Circle radius / Inner Circle radius.



SHAPE RATIOS (AC / BC):

SQUARE	EQUILATERAL TRIANGLE	OCTAGRAM	PENTAGRAM
1.414213562	2.000000000	2.613125929	3.236067978

And In all cases BC is the radius of the Inscribing Circle

AC / BC = 1.414213562   AC / BC =2.000000000   AC / BC = 2.613125929   AC / BC = 3.236067978

BUT if AC is 1.414213562 (√2) FIXED in all cases:
AND as AC / BC gives us the shape's ratio:
AND THEREFORE the shape's ratio / AC = BC

And as $AC^2 = AB^2 + BC^2$ in Right Angled Triangles:
THEN:

SQUARE	EQUILATERAL TRIANGLE	OCTAGRAM	PENTAGRAM
AB = 1.000000000	AB = 1.499999999	AB = 1.707106780	AB = 1.809016993
AND:			
BC = 1.000000000	BC = 0.707106781	BC = 0.541196100	BC = 0.437016024

SHAPE'S SIDE (AB x 2)

= 2.000000000	= 3.000000000	= 3.414213560	= 3.618033987

In this exercise all hypotenuse are the same length. All Radii of the Circumscribing Circles are equal.
The length of the remaining side C to B in each image **is** the Radius of the Inscribing Circle.

BUT: we know that shape ratios are derived from Circumscribing Circle Radius / Inscribing Circle Radius.
We know the lengths of the Inscribing Radii will be The Shape's Ratio / the Known fixed Hypotenuse
AND, we know from experimentation, the shape ratios.
AND, the third side A to B is half the length of the shape's side. (A tangent to the concentric inscribed circle).
AND, they all are tangents to the Inscribed Circle at the point where the "Hidden Circle" bisects their Inscribed Circle.

*AND SO,:-***What is the length of B to C in each case?**

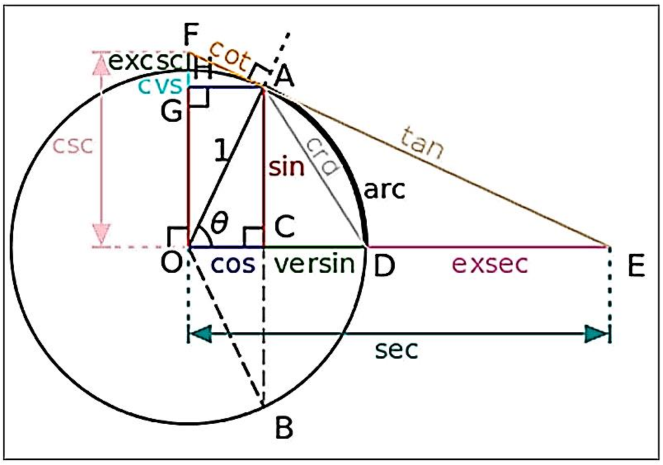
*"**THEN, the length of the Radius of the Inscribing Circle** from the Centre to the point of the tangent is the only variable left to be calculated."*

ON MATHEMATICAL METHODS

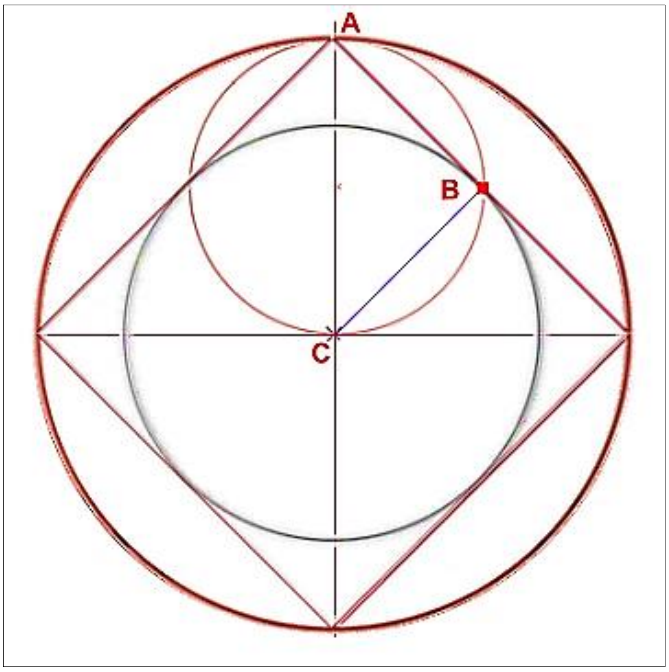
When I entered upon this adventure into the mysticism of *"Shape"* I vowed that I would never use any type of maths drilled into us at school by Machiavellian masochistic educators. I believed that in order to find something new one had to avoid at all costs any existing mathematical theories or methods.

My major avoidance was concentrated upon trigonometry which I viewed as a nemesis; a cause of angst and anguish; a method of analysing certain mathematical problems by using inexplicable methods requiring the application of endless unintelligible, incoherent terms which had never before been mentioned and do not appear elsewhere in the English language. It did not seem to contribute anything of beauty to shapes.

TRIGONOMETRIC FUNCTIONS



MY CIRCLE OF INNER HARMONY

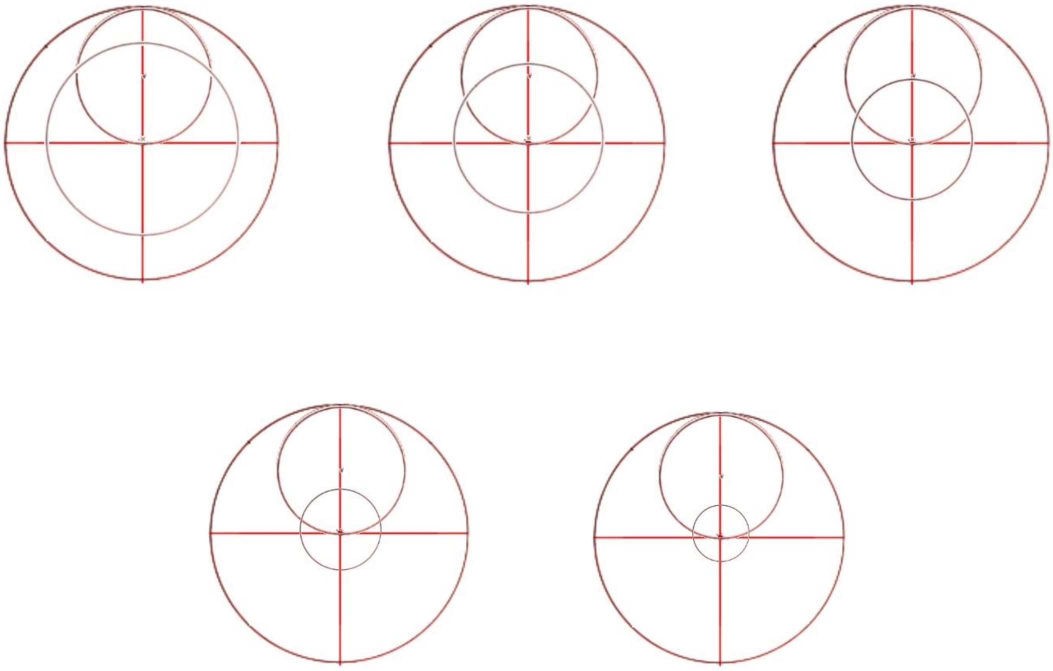


There is too much similarity between these two diagrams to give me comfort. Have I become a masochist? Have I simply introduced yet another variable into the hitherto conglomerated method that is trigonometry?

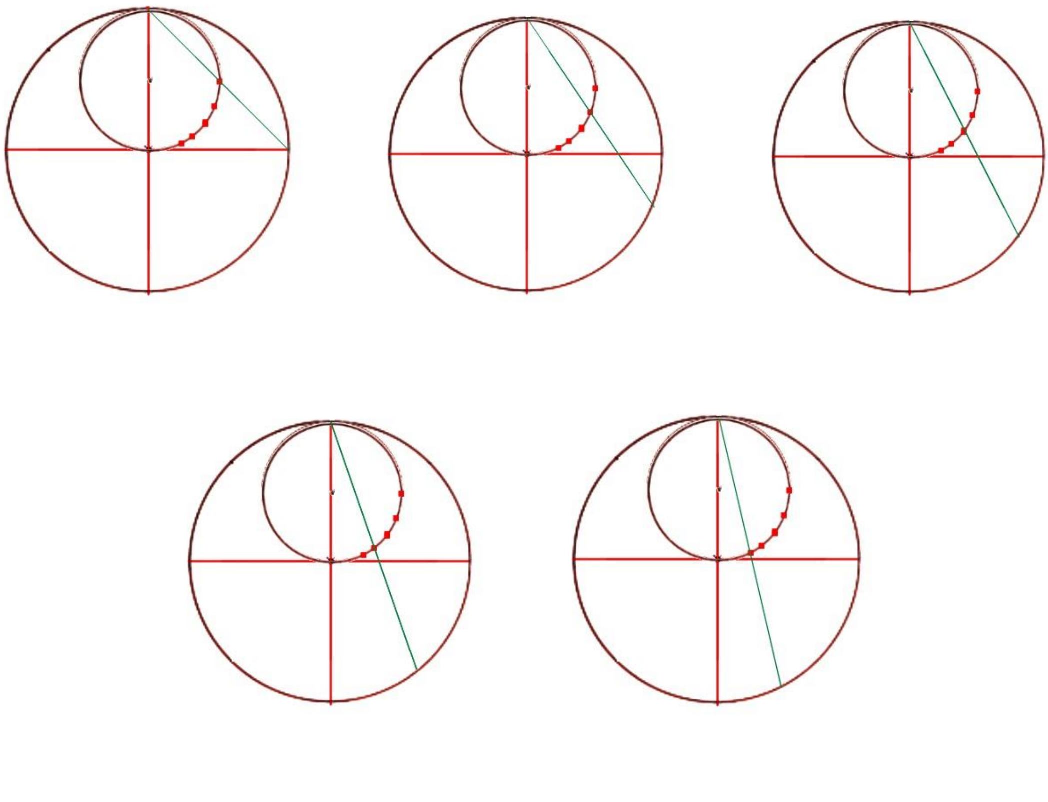
RIGHT ANGLED TRIANGLES
AND
PLANE REGULAR SHAPE
AND
THE CIRCLE OF INNER HARMONY

AND
PYTHAGORUS' THEOREM

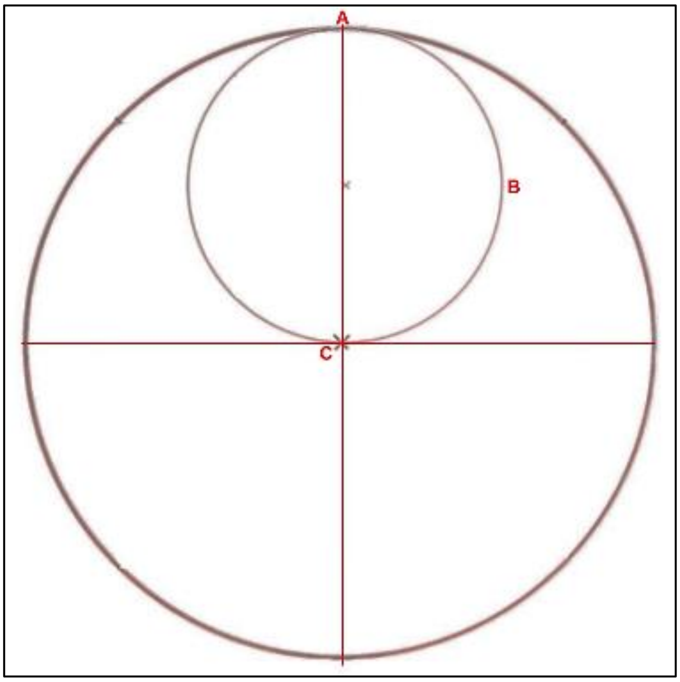
*<u>MY CIRCLE OF INNER HARMONY being intercepted by **Inscribing Circles for Shapes**</u>:*



*<u>MY CIRCLE OF INNER HARMONY being intercepted by **Sides of Shapes**</u>*



IS THERE TOTAL CORRELATION BETWEEN RIGHT ANGLED TRIANGLES AND PLANE REGULAR SHAPES?



If only there was a simple way to find the magical point **B** along the arc **A**-**B**-**C** for each and every Right Angled Triangle and/or Plane Regular Shape.

The main contribution to the location of a specific point along this arc is the ***Angle*** at point **A** that exists **both** in the Right Angled Triangles and in the Plane Regular Shapes.

In Right Angled Triangles the ***Angle*** at point **A** governs the allocation of all other angles and ultimately its '*denomination'*. Is it for example a 3:4:5 triangle or a multiple of this denomination?

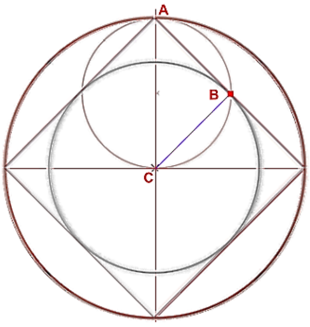
With Plane Regular Shape, the ***Angle*** at point **A** governs the actual shape that will be produced by the continuous Tangents to the Inscribing Circle of the shape given that point **B** is also the point of intersection of the Inscribing Circle of the shape with the Circle of Inner Harmony thus setting the length of the Radius of this Inscribing Circle.

For each Apex Angle there is a corresponding Point B on the Circle of Inner Harmony.

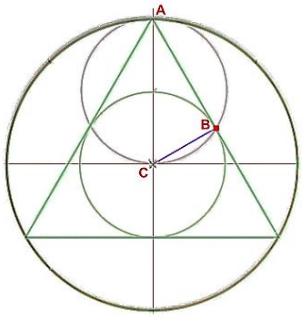
And what about Plimpton 322?
Do the 15 Right Angled Triangles actually signify the existence of 15 corresponding Plane Regular Shapes?

Plane Regular Shape is an Infinite Set.
Can Right Angle Triangles also be an Infinite Set?

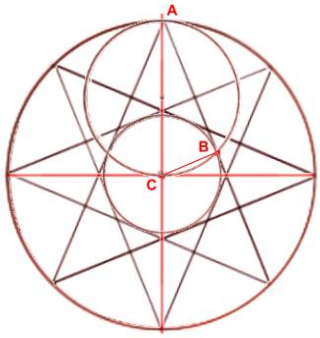
<u>Common Points of intersection (points B) of the Circle of Inner Harmony</u>
<u>Intersecting with the Shapes' Tangential sides & Inscribing Circles</u>:
<u>Intersecting the Shapes' sides at their midpoints.</u>



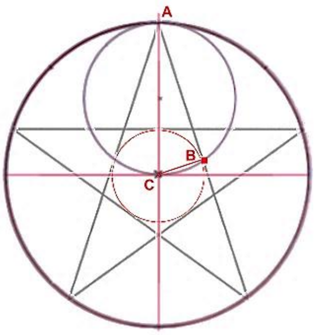
SQUARE



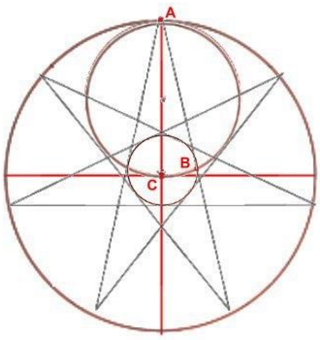
EQUILATERAL TRIANGLE



OCTAGRAM



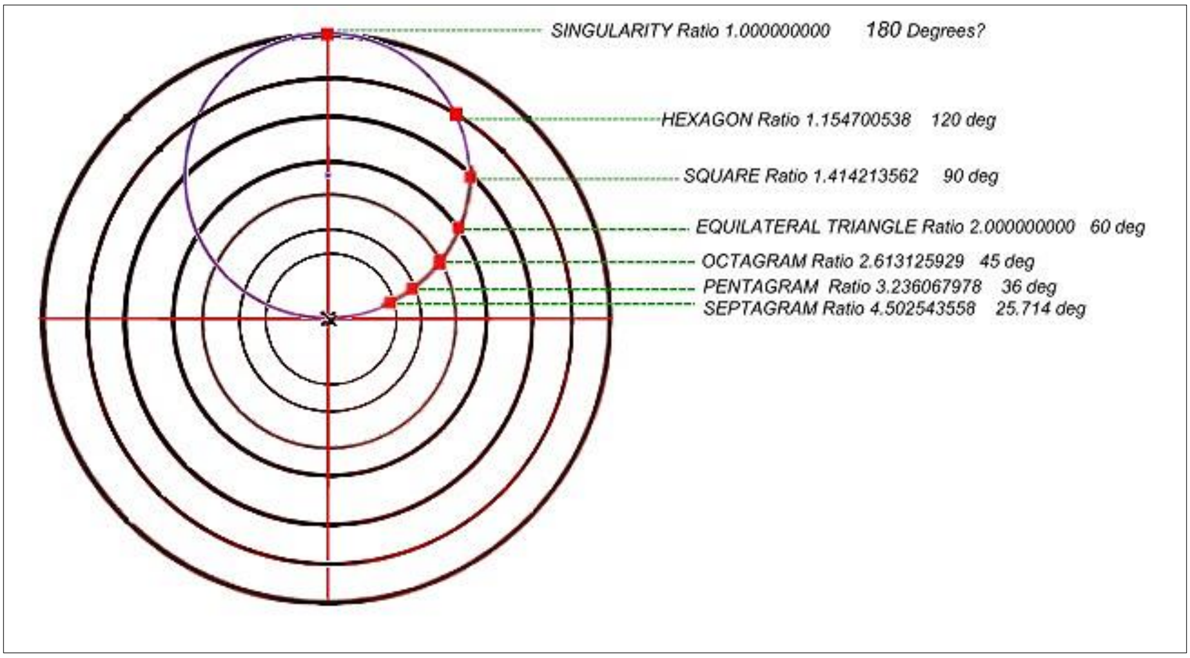
PENTAGRAM

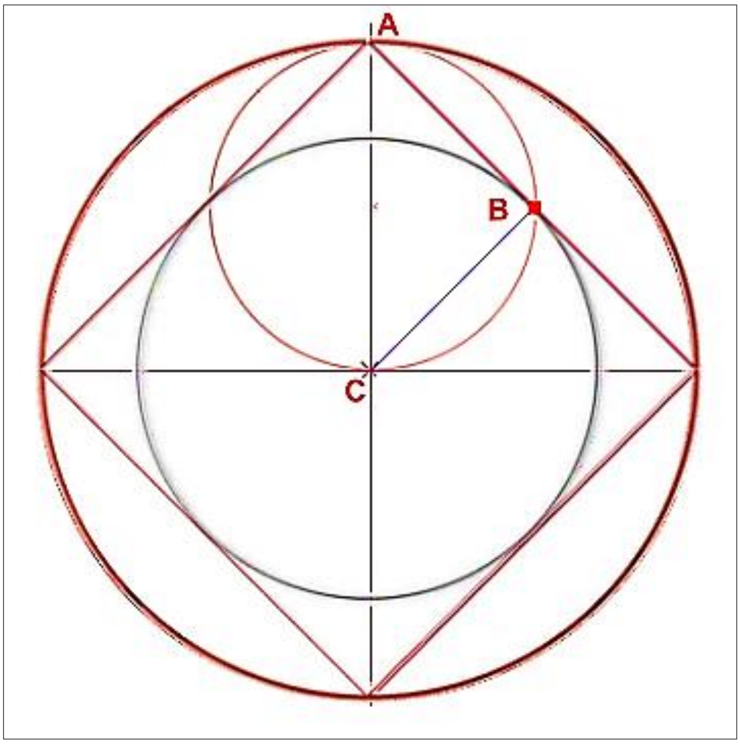


SEPTAGRAM

THE DYNAMIC SYSTEM THAT IS THE HARMONY OF PLANE REGULAR SHAPE

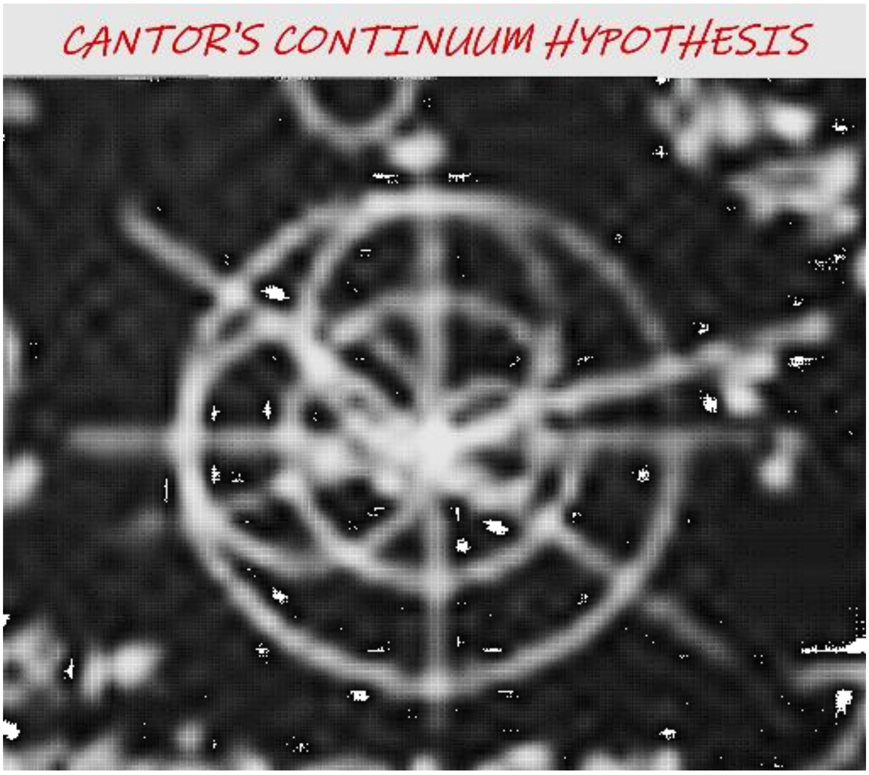
ALSO INDICATING THE SINGULARITY (Where the Inner Circle = the Outer Circle)





THE SQUARE where the short side equals the long side.

Did Cantor know about my Hidden Circle of Harmony? It seems to exist within his conglomerate of circles in this image. Along with other smaller circles and a common Circumscribing Circle he has two *"Inner Circles of Harmany"* in the image.

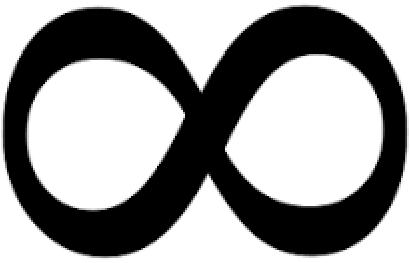


__ORIGINAL IMAGE ASSOCIATED WITH CANTOR'S CONTINUUM HYPOTHESIS__:

What is Cantor's theory of infinity?

"Cantor created modern set theory and established the importance of one-to-one correspondence between sets. For example, he showed that the set of all integers can be put into one-to-one correspondence with the set of all fractions and so these two sets have the same infinity."

What is Cantor's paradox of infinity?



"The paradox states that you can still fit another infinite number of guests in the hotel because of the infinite number of rooms. If the rooms were full, then there is a last room, which means that the number of rooms is countable. To solve this paradox, we must first make it clear that infinity is not a number.19 Feb 2014"

CERN'S STANDARD MODEL
&
'THE CIRCLE OF INNER HARMONY'

CERN AND PARTICLE PHYSICS

"What are the forces that govern their interactions?"

THE STANDARD MODEL

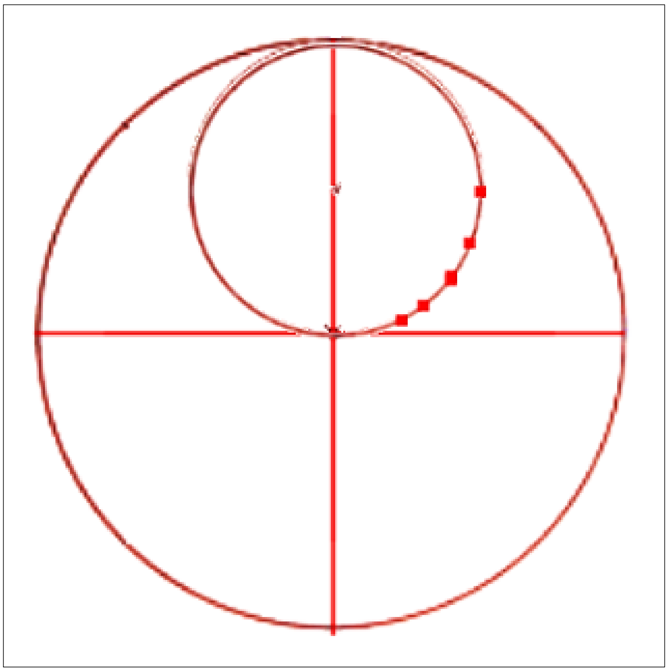
A 'CERN' IMAGE:

"The Standard Model also describes the fundamental forces of Nature and how they act between fundamental particles."

"Possible discoveries at the LHC could validate models, such as those incorporating Supersymmetry, where the forces unify at very high energies."

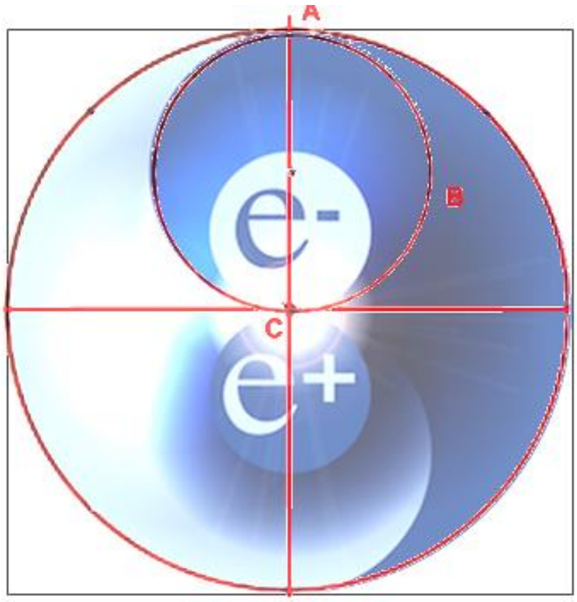
NOTE THE FAINT INNER CIRCLE!

MY IMAGE:
'THE CIRCLE OF INNER HARMONY'



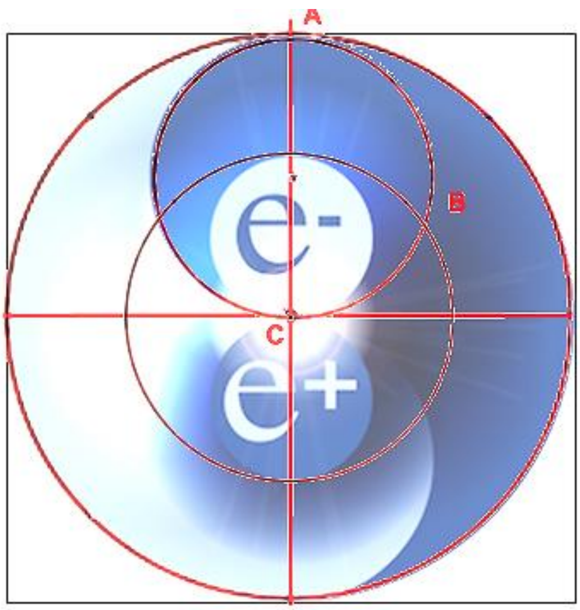
"Supersymmetry, where the forces unify at very high energies".

CERN'S STANDARD MODEL & 'MY CIRCLE OF INNER HARMONY'



I was amazed at how much the CERN Image titled 'The Standard Model' had in common with my image for a Harmonic Mechanism for the production of shape.

Finally, I can relate Einstein's **e = mc²** to shape. There it is in "Cern's Standard Model Logo.



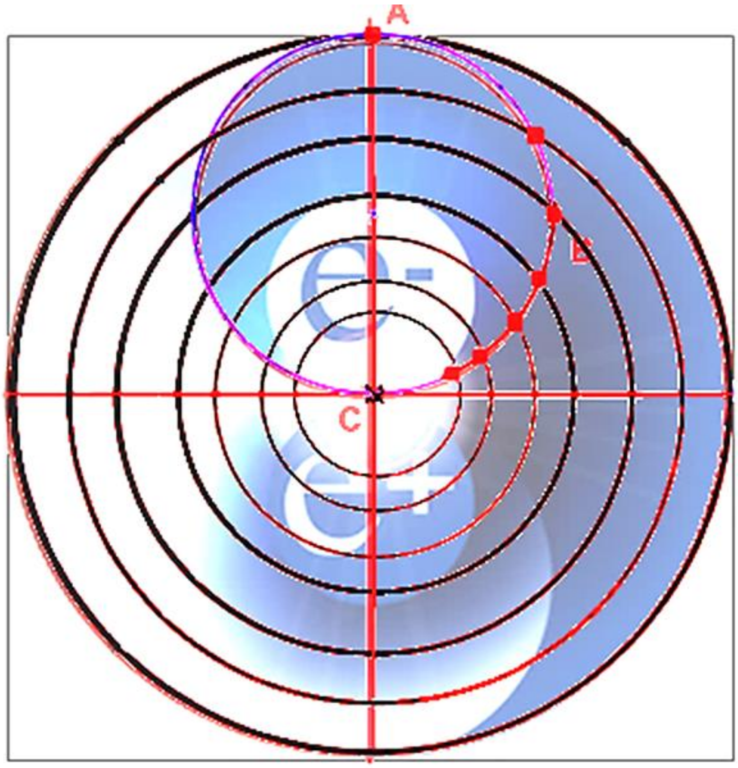
As **B** approaches **C**, in my theory, the Shape Ratios are ascending (in Clockwise manner). They can approach Infinity which, effectively, is at or beyond my point **C**. But, infinity is not a destination and so should not be identified as a point on a diagram. But, if Infinity is in fact unattainable, then progress past **C** along this 'Ankh' Circle in a clockwise manner must also be unattainable.

As **B** approaches **A** (in Anti - Clockwise manner) in my theory, the Shape Ratios are descending. If **B** persists in this direction the Shape Ratios approach 1.000000000, my Singularity (at **A**), (where Inner Circle = Outer Circle).

Ratio 1 / 1 =1

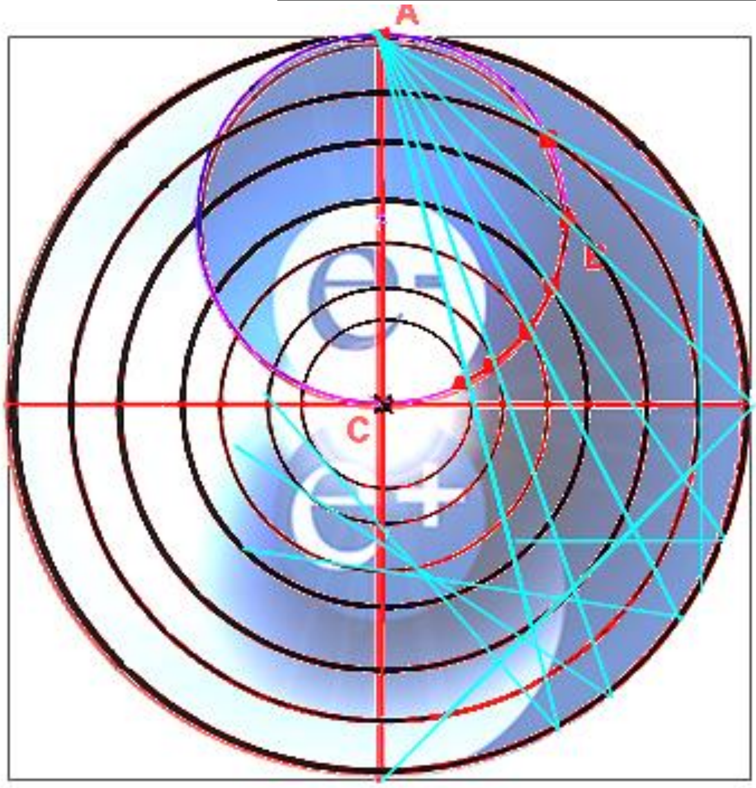
Below 1.000000000 (**A** anticlockwise to **C**) my Matrix results indicate the prospect of ratios of **reciprocal value** to those that formed shapes above 1.000000000. With tongue in cheek I call these "reciprocal ratios" Dark Matter for want of a more informed name. So, to enter the hemisphere to the left of the diameter **A C** one has to travel anti-clockwise past the singularity at **A** where the ratio is 1.000000000 into the area of reciprocal values. But that hemisphere is totally full of reciprocal values; perhaps dark or anti matter.

Travelling **clockwise** will only take one towards **Infinity**.
Travelling **anti-clockwise** will only take one to the **Singularity** and beyond and thus to the shapes formed by the reciprocal values, possibly our original Regular Shapes but inside out. (Refer *Moellering & Rayner 1980).*



These are just some of the various Inscribing Circles of some various shapes giving us their various Points of Intersection with this Inner Circle of Harmony, thus tracing out the tangential points where the sides of the shapes meet, at Right Angles, the ends of the Radii of the shape forming Inscribed Circles.

PLANE REGULAR SHAPE AND THE STANDARD MODEL:



Given a fixed Circumscribing Circle:
These are the just some shape forming tangents from point **A** to the various Inscribing Circles of the various shapes giving us the various points **B** at their tangential points which, along with point **C**, markout the radius of the various Inscribing Circles which define the various Regular Shapes.

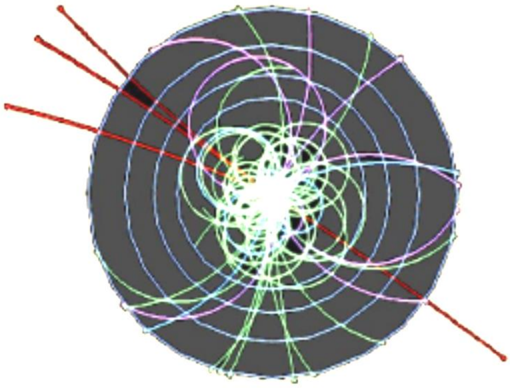
This is not unlike the results of a CERN particle experiment. Except my trajectories are from continuous shape forming tangents reflecting constantly at the Angle of Incidence.

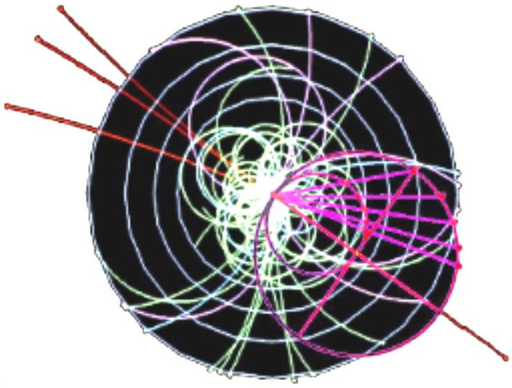
Could not Shape Theory become an applicable part of the Standard Model that has always disappointed me as it only seemed to provide for shapeless answers?

For many years I have asked
Where is the provision for shape in $\boldsymbol{e = mc^2}$*?*

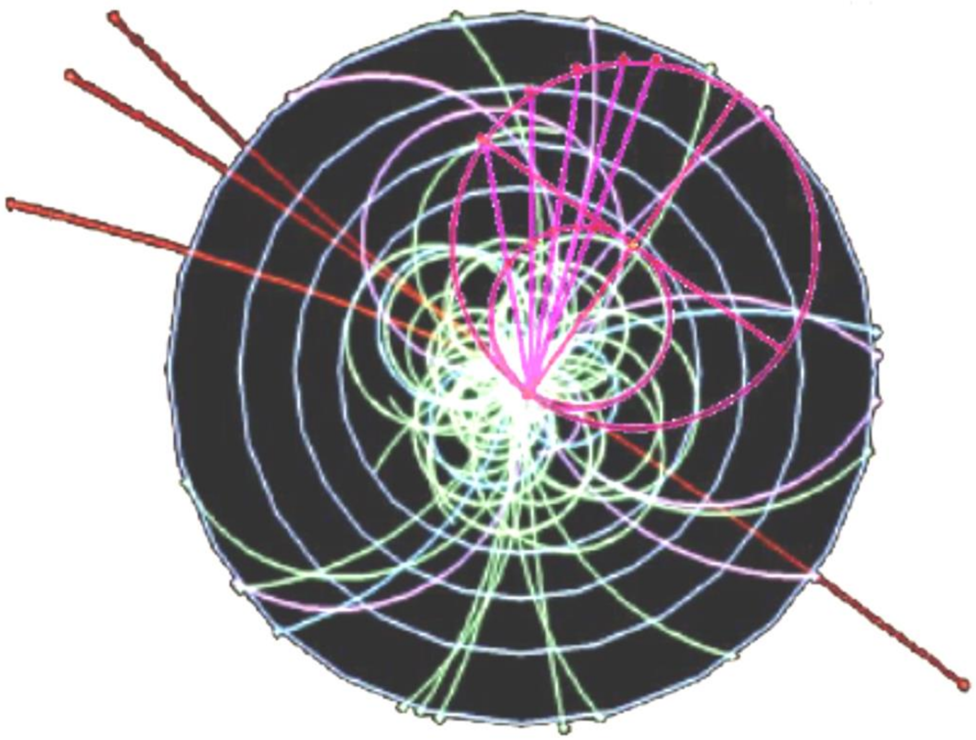
MY ATTEMPT AT ALIGNING MY ANKH CIRCLE WITH CERN'S ATLAS IMAGE WHILST COMPLYING WITH THE LOCATION OF 'THE SINGULARITY'

BUT, I WILL TRY:-



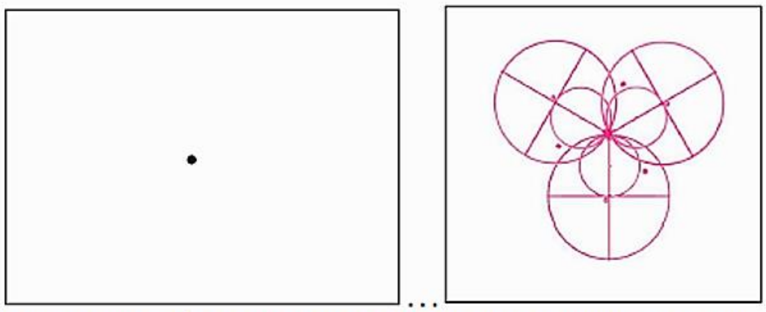


My mathematics and the Shape Ratios guide me in aligning the 'Singularity' in my graphics theory using the 'Ankh Circle' with what is possibly the 'Singularity' in this CERN 'Atlas' image.
(Assuming that the 'Singularity' resides at the point of collision of the particles.)
Assuming also that the particles could have something to do with entities of Nature, such as Shape and Music ratios (which correlate, given a minute harmonic differential.)

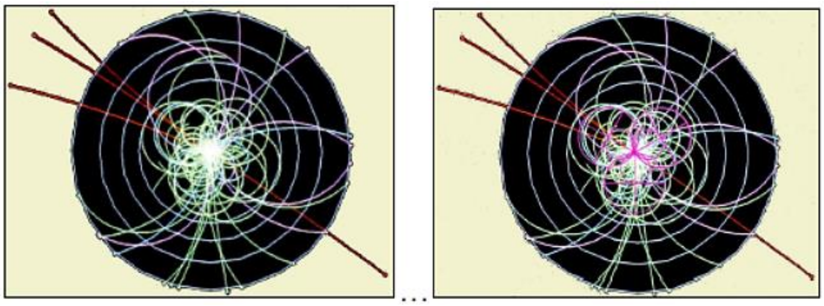


Another possible alignment using a CERN-formed circle as my 'Ankh Circle'.
Some of these CERN Circles could be pairs of *Circumscribing & Ankh* circles.
(Say I with tongue in cheek.)

ALIGNMENT ATTEMPTS

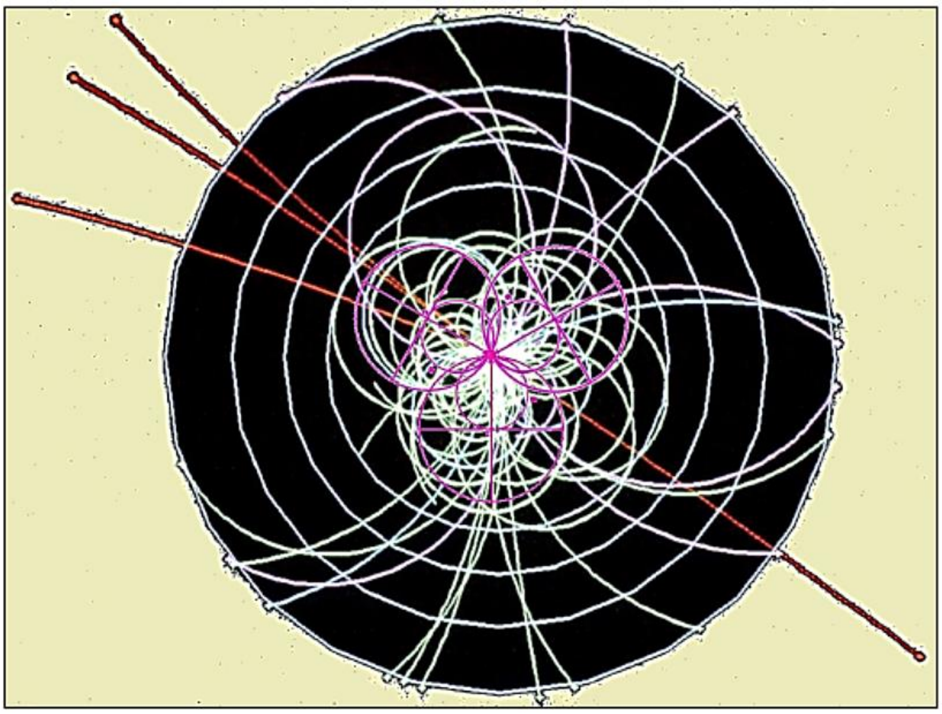


THE SINGULARITY and THE ANKH CIRCLE ALIGNED WITH IT in various orientations.



CERN's SINGULARITY and THE ANKH CIRCLE ALIGNED WITH IT in various orientations

CERN's IMAGE ENLARGED



CERN's SINGULARITY and THE ANKH CIRCLE ALIGNED WITH IT in various orientations

A 1980 publication that deserves mention here, at this point:

"The Harmonic Analysis* of *Spatial Shapes Using Dual Axis Fourier Shape Analysis (DAFSA)"

Harold Moellering and John N. Rayner

INDICATING:
SHAPES TURNED INSIDE OUT AT THE SINGULARITY

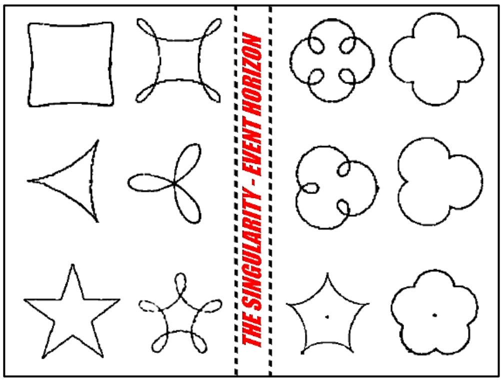
A 1980 publication that deserves mention here, at this point:

"The Harmonic Analysis of Spatial Shapes Using Dual Axis Fourier Shape Analysis (DAFSA)"

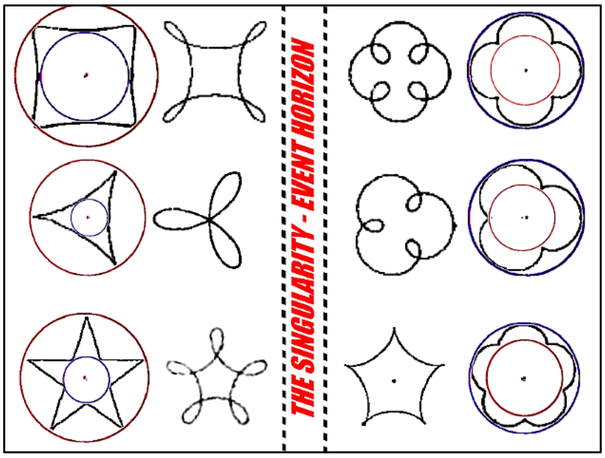
Harold Moellering and John N. Rayner

From a perusal of their work done in 1980 using an oscilloscope and varying Frequencies the results of which appear to show shapes that have been turned inside out.
The Inner Circle is on the outside whilst the Outer Circle is on the inside.

TURNING SHAPES INSIDE OUT AT THE EVENT HORIZON – THE SINGULARITY



AT THE EVENT HORIZON:
THE RED ***OUTER*** CIRCLE BECOMES THE RED ***INNER*** CIRCLE.
THE BLUE ***INNER*** CIRCLE BECOMES THE BLUE ***OUTER*** CIRCLE.



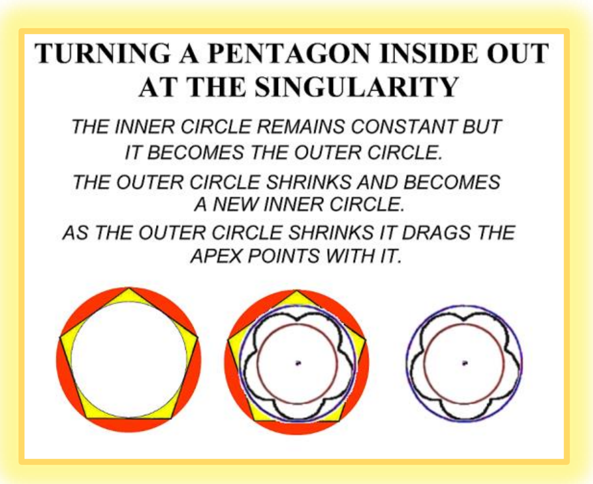
THE RED CIRCLES ARE STILL CONTACTING THE APEXES;

THE BLUE CIRCLES ARE STILL CONTACTING THE CENTRES OF THE SHAPE SIDES (*Tangents*)

AT THE SINGULARITY OR EVENT HORIZON:

- THE RED OUTER CIRCLE HAS BECOME THE RED INNER CIRCLE
- THE BLUE INNER CIRCLE HAS BECOME THE BLUE OUTER CIRCLE

BUT THE SHAPE IS INSIDE OUT!



BUT IS THIS INVERTED SHAPE A PENTAGON OR A PENTAGRAM?

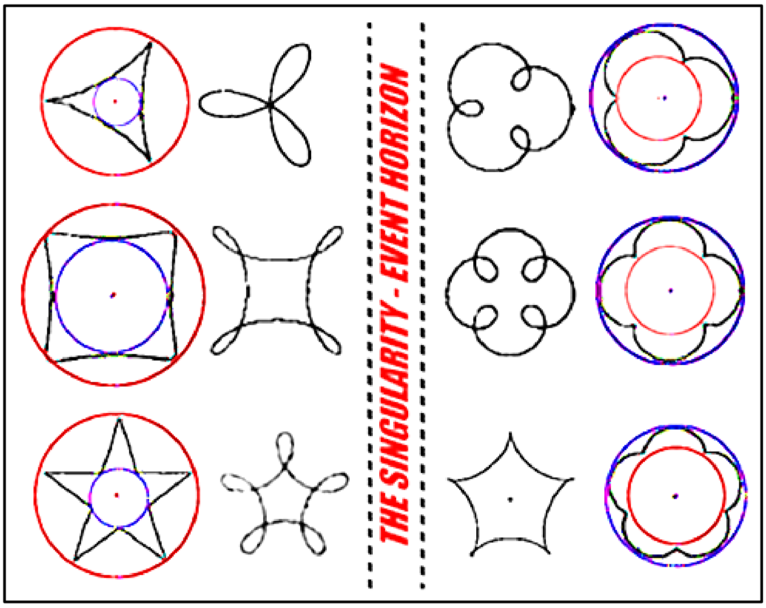
BEFORE THE SINGULARITY:
SHAPE RATIOS WERE CALCULATED BY DIVIDING THE OUTER CIRCLE BY THE INNER CIRCLE;
THE PENTAGON'S RATIO WAS **1.236067978** (√5 – 1).

AFTER THE SINGULARITY;
Shape ratios are the reciprocals of those before the singularity; and the shape is inside out.

AT THE EVENT HORIZON

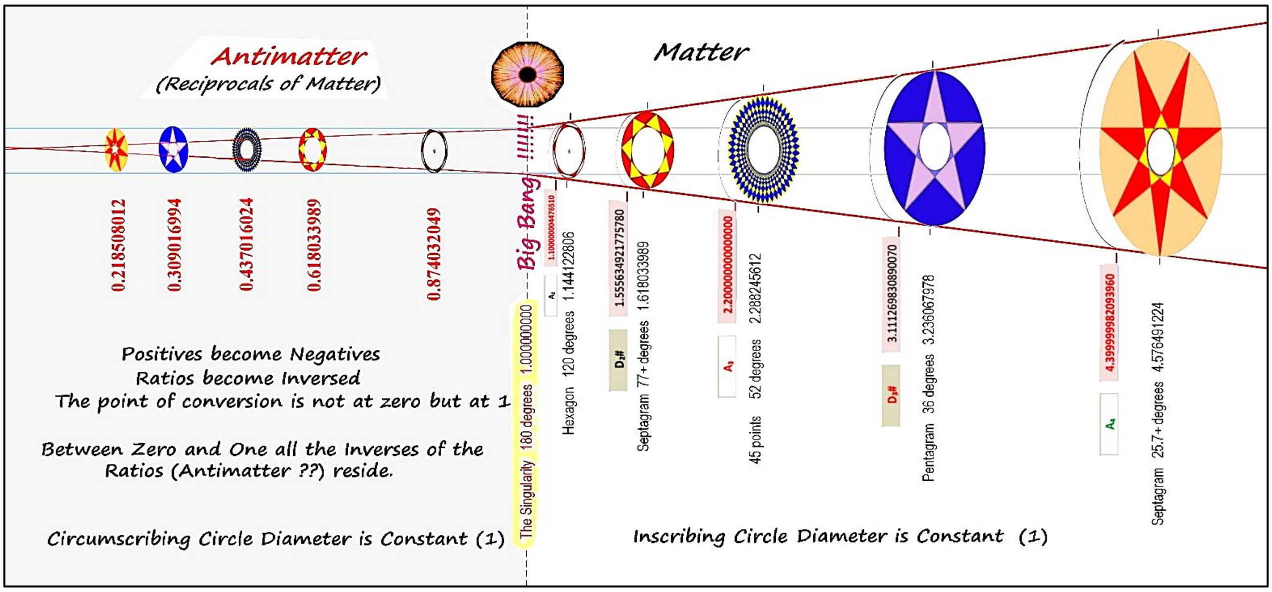
IF THE STRONG FORCE BECOMES THE WEAK AND VICE VERSA

THE RED ***OUTER*** CIRCLE BECOMES THE RED ***INNER*** CIRCLE.
THE BLUE ***INNER*** CIRCLE BECOMES THE BLUE ***OUTER*** CIRCLE.
SHAPE IS TURNED **INSIDE OUT**.



Individual Image components adapted from
'The Harmonic Analysis of Spatial Shapes Using Dual Axis Fourier Shape Analysis (DAFSA)'
By Harold Moellering and John N. Rayner

"ALWAYS WAS AND ALWAYS WILL BE". . . THERE IS NO ZERO – JUST INFINITY EITHER SIDE OF THE SINGULARITY.



Note the positioning of the outer and inner circles and how they change places at the Singularity.
Ratios to the left of the Singularity are ***reciprocals*** of the Shape Ratios to the right.
If the shapes to the left of the Singularity reverse the original circles orientation but retain their own orientation to these circles then outer circles become inner circles and inner circles become outer circles and the shapes are therefore inside out. (Refer *Harold Moellering and John N. Rayner* image).

MATRIX EFFECTS ON SHAPE RATIOS & THE SINGULARITY:

Ratios are multiplied and divided – not added and subtracted:
How shapes can coalesce to form other shapes: (Shape X Shape = Shape)

A "Multiplication Matrix" with Shape Ratio interactions should form other shapes.

REFINING THE RATIOS ASSUMING THAT THE SHAPE THEORY HOLDS .. AND THE RATIOS ARE CORRECTED TO 15 PLACES

MULTIPLICATION MATRIX		octogon 1.082392200292390	HEXAGON 1.154700538379250	pentagon 1.236067977499790	inner nonogram 1.306562964876380	Square 1.414213562373100
octogon	1.082392200292390	1.171572875253800	1.249838856415130	1.337910337876970	1.414213562373100	1.530733729460360
HEXAGON	1.154700538379250	1.249838856415130	1.333333333333330	1.427288359092360	1.508688958969150	1.632993161855460
pentagon	1.236067977499790	1.337910337876960	1.427288359092360	1.527864045000420	1.615000641470880	1.748064097795290
inner nonogram	1.306562964876380	1.414213562373090	1.508688958969140	1.615000641470880	1.707106781186560	1.847759065022580
Square	1.414213562373100	1.530733729460350	1.632993161855450	1.748064097795280	1.847759065022580	2.000000000000010
DECAGRAM	1.732050807568880	1.874758284622690	2.000000000000000	2.140932538638540	2.263033438453720	2.449489742783190
16pts	1.847759065022580	1.999999999999990	2.133608387176710	2.283955810409360	2.414213562373100	2.613125929752760
equilateral triangle	2.000000000000000	2.164784400584780	2.309401076758500	2.472135954999580	2.613125929752760	2.828427124746200
30pts	2.472135954999580	2.675820675753920	2.854576718184720	3.055728090000840	3.230001282941750	3.496128195590580
octogram	2.613125929752760	2.828427124746180	3.017377917938290	3.230001282941750	3.414213564179140	3.695518130045160
Pentagram	3.236067977499790	3.502694738461740	3.736689435850860	4.000000000000000	4.228126573460210	4.576491222541490

Shapes can also divide to form others – Those less than 1 are perhaps dark matter?
A "Division Matrix" where some Shape interactions can form Dark Matter.

REFINING THE RATIOS ASSUMING THAT THE SHAPE THEORY HOLDS .. AND THE RATIOS ARE CORRECTED TO 15 PLACES

DIVISION MATRIX		octogon 1.082392200292390	HEXAGON 1.154700538379250	pentagon 1.236067977499790	inner nonogram 1.306562964876380	Square 1.414213562373100
octogon	1.082392200292390	1.000000000000000	1.066804193588360	1.141977905204680	1.207106781186560	1.306562964876390
HEXAGON	1.154700538379250	0.937379142311345	1.000000000000000	1.070466269319270	1.131516719226860	1.224744871391600
pentagon	1.236067977499790	0.875673684615435	0.934172358962714	1.000000000000000	1.057031642805910	1.144122805635370
inner nonogram	1.306562964876380	0.828427124746185	0.883769530761575	0.946045472532386	1.000000000000000	1.082392200292390
Square	1.414213562373100	0.765366864730177	0.816496580927725	0.874032048897642	0.923879532511289	1.000000000000000
DECAGRAM	1.732050807568880	0.624919428207563	0.666666666666666	0.713644179546180	0.754344479484574	0.816496580927729
16pts	1.847759065022580	0.585786437626902	0.624919428207564	0.668955168938483	0.707106781186549	0.765366864730182
equilateral triangle	2.000000000000000	0.541196100146195	0.577350269189625	0.618033988749895	0.653281482438190	0.707106781186550
30pts	2.472135954999580	0.437836842307718	0.467086179481357	0.500000000000000	0.528515821402954	0.572061402817686
octogram	2.613125929752760	0.414213562373093	0.441884765380788	0.473022736266194	0.500000000264489	0.541196100146198
Pentagram	3.236067977499790	0.334477584469240	0.356822089773089	0.381966011250105	0.403750160581293	0.437016024448823

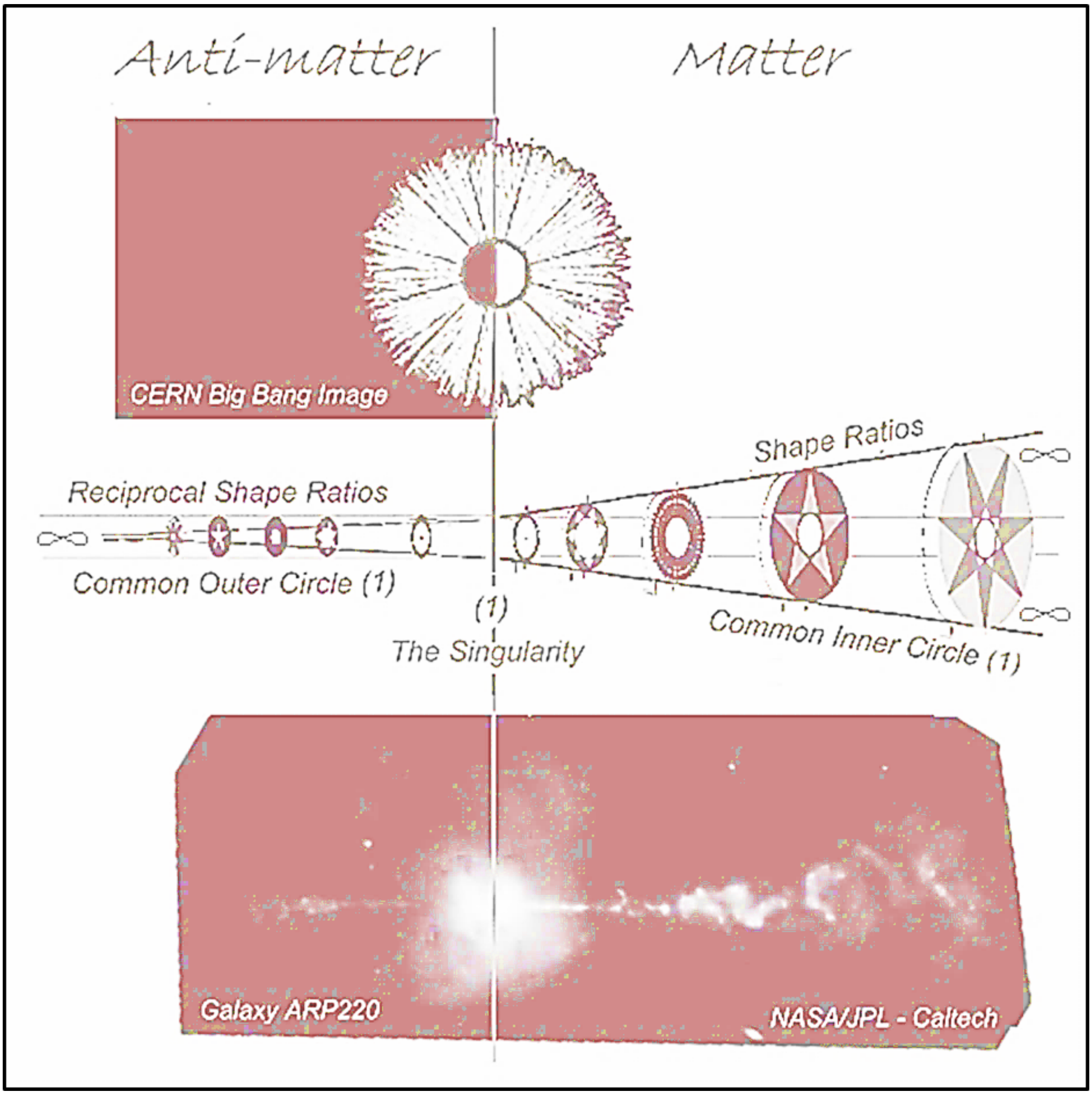
Reciprocals of 'dark matter' ratios above reveal shape ratios hidden therein.

RECIPROCALS OF ABOVE RESULTS

1.000000000000000	0.937379142311345	0.875673684615435	0.828427124746185	0.765366864730174
1.066804193588360	1.000000000000000	0.934172358962714	0.883769530761575	0.816496580927722
1.141977905204680	1.070466269319270	1.000000000000000	0.946045472532386	0.874032048897639
1.207106781186560	1.131516719226860	1.057031642805910	1.000000000000000	0.923879532511286
1.306562964876380	1.224744871391590	1.144122805635370	1.082392200292390	0.999999999999996
1.600206290382540	1.500000000000000	1.401258538444070	1.325654296142360	1.224744871391580
1.707106781186560	1.600206290382530	1.494868485113630	1.414213562373090	1.306562964876370
1.847759065022580	1.732050807568880	1.618033988749890	1.530733729460360	1.414213562373090
2.283955810409360	2.140932538638540	2.000000000000000	1.892090945064770	1.748064097795280
2.414213562373110	2.263033438453720	2.114063285611810	1.999999998942050	1.847759065022570
2.989736970227260	2.802517076888150	2.618033988749890	2.476779200682580	2.288245611270730

DARK MATTER or ANTI-MATTER and SHAPE

A CONCEPT



At the Singularity and Below the Singularity:

- Ratios become their Reciprocals and each is less than 1 and 1 is the Singularity;
- Shapes are turned inside out:
- Positives become Negatives;
- Odds become Evens and Evens become Odds;
- Outer Circles become Inner Circles and Inner Circles become Outer Circles;
- At the Singularity, Strong Forces equal the Weak Forces then become the Weak Forces;
- And, physical size is still irrelevant to Shape Ratios; or becomes restricted?

LIST OF SOME SHAPE RATIOS IN SHAPE ORDER

SHAPE RATIOS IN SHAPE ORDER

Deg	Shape	Ratio	Points
180	straight line	1.000000000000000	1
60	Equilateral Triangle	2.000000000000000	3
90	Square	1.414213562373100	4
36	36 deg pentagram	3.236067977499790	5
108	108deg pentagon	1.236067977499790	5
120	hexagon	1.154700538379250	6
25	septagram 25.7142857	4.576491223248880	7
77	7pts ϕ 77.14285714deg	1.618033989000000	7
128	7pts 128.5714 septagon	1.104854344000000	7
45	octogram	2.613125929752760	8
135	8pts octogon	1.082392200292390	8
20	20 degrees nonogram	5.656854249492380	9
100	100deg inner nonogram	1.309016994000000	9
140	9pts nonogon	1.059016995000000	9
72	10pts decagram	1.732050808000000	10
144	10pts decagon	1.053333300000000	10
16	16.363636deg 11, 22pts	6.992256376953460	11
49	11pts 49.0909090909	2.423290987000000	11
81	11pts 81.818181deg	1.527864046000000	11
114	11pts 114.545454 deg	1.190710563000000	11
147	147.375deg 11sided	1.047142857000000	11
30	12pts	3.853220324000000	12
150	12 sided gon	1.038092722000000	12
14	13.84615385deg 13pts	8.000000000000000	13
41	13pts 41.53846154deg	2.828427124746190	13
69	13pts 69.23076923deg	1.748064098502690	13
97	13pts 96.923deg	1.335402142000000	13
125	13pts 124.75 deg	1.13333 +/-	13
152	152.5deg 13sided	1.033333000000000	13
51	51.42857 deg 14pts	2.334368543059490	14
74	14pts	1.704632419133890	14
102	102.857142deg 14pts	1.306562966	14
103	14 pt polygram	1.272019649514070	14
154	154.28157deg 14sided gon	1.031027796+/-	14
167	167.142857deg 14pts		14
12	15 pt 12deg	9.152982445082920	15
84	84 degrees 15pts	1.497676197000000	15
132	15pts	1.100+/-	15
156	15 sided gon	1.030+/-	15
22	16pts 22.5deg	5.236067977499790	16
67	16pts 67.5deg	1.847759066000000	16
112	16pts 112.5deg	1.205357143000000	16
157	157.5 deg 16 sided gon	1.020156458000000	16
31+	17pts 31.76470588deg	3.629305232154990	17
40	18pts	2.936169615	18
80	80 degrees 18pts	1.530733729000000	18
18	18deg 20pts	6.472135954999560	20
54	54deg 20pts	2.212962963000000	20
126	126deg 20pts	1.121516995000000	20
162	20 sided gon	1.0133333+/-	20
32+	32.72727272deg 22pts		22
98	22pts 98.181818deg	1.323746919000000	22
131	22pts 130.909090deg		22
163	163.636363deg 22gon		22

SHAPE RATIOS IN SHAPE ORDER

Deg	Shape	Ratio	Points
39	23 pts 39.13043478deg	2.995352398905860	23
75	75deg 24pts	1.650647824000000	24
79.20	25pts	1.564801117651930	25
27.5?	26 pts	4.410256410000000	26
83	83.07692308deg 26pts	1.491769547 dbt.	26
43	29pts 43.44827586deg	2.772542489	29
24	24 degrees 30pts	4.846581983000000	30
48	48 deg 30pts	2.472135954999580	30
96	30pts	1.349166667	30
29	31pts 29.032258deg	4.000000000000000	31
71	33pts 70.909090deg		33
70	35pts		35
10	10deg 36 pts	10.472135954999500	36
50	36pts	2.380952381000000	36
70	36pts	1.740000000000000	36
110	110deg 36pts	1.211645495722230	36
34	34 degrees 37pts	3.427050986000000	37
19-	18.947 deg 38pts	6.111456184000000	38
37.8947	38pts	3.129602235303950	38
23	39pts 23.07692308deg	4.944271909999160	39
27	40pts	4.236067978000000	40
63	40pts	1.926610162000000	40
99	40pts	1.315789474000000	40
117	117deg 40pts	1.167184270000000	40
57	57deg 41pts	2.118033990000000	41
21	20.93023256deg 43pts	5.545084971874640	43
28	45pts	4.176904000000000	45
52	52 degrees 45pts	2.288245610000000	45
68	45pts	1.814652616077490	45
76	76 degrees 45pts	1.632993161855450	45
87	22.5deg series 45pt	1.448274121000000	45
88	45pts . . . 11 index no.		45
92	45pts est ratio	1.386271242968660	45
124	45pts est ratio	1.131319763600000	45
148	45pts	1.040719200441880	45
164	45 pts		45
172	45 sided gon		45
31+	31.30434783deg 46pts	3.695518130000000	46
19+	19.1489deg 47pts	5.990704773432200	47
15	56 holes at Stonehenge	7.404918347287620	56
31	56/29pts 31.03448deg	3.702459175000000	56
66	66 deg 60pts	1.851229586000000	60
78	60pts	1.572302755514850	60
95	71pts (95.0704)	1.362319110000000	71
35	72 point polygram	3.464101616000000	72
55	72pts	2.180232558000000	72
65	72pts	1.888543820000000	72
44	90pts (from Index No 11)	2.618033989000000	90
64	90pts in shape creations	1.900212314000000	90
33	33 degrees 120pts	3.496128197000000	120
61	121pts 60.99173554deg	1.960483592934090	121

REMARKABLY EACH ONE OF THESE SHAPES IS FORMED AROUND A RIGHT ANGLE TRIANGLE SITUATE WITHIN AN INNER CIRCLE OF HARMONY.

A PRECIS OF MY JOURNEY DOWN THE RABBIT HOLE & THRU THE LOOKING GLASS & OVER THE RAINBOW

SHAPE- PLANE REGULAR SHAPE

SACRED GEOMETRY
- SQUARE ROOTS
- MUSIC
- STONEHENGE
- CLAY TABLETS
- THE SHAPE THEOREM:
  - SHAPE X SHAPE = SHAPE
- THE MATRIX
- RATIOS AND THEIR RECIPROCALS

THE ATEN & AKHENATEN'S GEOMETRY
- ANCIENT KNOWLEDGE OF ANGLES

RIGHT ANGLES AND THALES THEOREM
- HIDDEN CIRCLE OF INNER HARMONY
- PLIMPTON 322
- PLANE REGULAR SHAPE

RIGHT ANGLES AND PLANE REGULAR SHAPES

CERN AND ATLAS EXPERIMENTS

A LIST OF SOME SHAPE RATIOS IN 'DEGREE, SHAPE, RATIO' ORDER

1^0 - 90^0

Deg	Shape	Ratio	Points
1			
2			
3			
4		16.000000000000000	
5		14.809836694575200	
6		13.708203932499200	
7			
8			
9		11.313708498984800	
10	10deg 36 pts	10.472135954999500	36
11			
12	15 pt 12deg	9.152982445082920	15
13		8.472135954999500	
14	13.84615385deg 13pts	8.000000000000000	13
15	15deg 24pts	7.404918347287620	56
16	16.363636deg 11, 22pts	6.992256376953460	11
17		6.854101966249600	
18	18deg 20pts	6.472135954999560	20
19-	18.947 deg 38pts	6.111456184000000	38
19+	19.1489deg 47pts	5.990704773432200	47
20	20 degrees nonogram	5.656854249492380	9
21	20.93023256deg 43pts	5.545084971874640	43
	20.93023256deg 43pts	5.449276441012450	
22	16pts 22.5deg	5.236067977499790	16
23	39pts 23.07692308deg	4.944271909999160	39
24	24 degrees 30pts	4.846581983000000	30
25	septagram 25.7142857	4.576491223248880	7
27.5?	26 pts	4.410256410000000	
26		4.321452107803630	40
27	40pts	4.236067978000000	26
28	45pts	4.176904000000000	45
29	31pts 29.032258deg	4.000000000000000	31
30	12pts	3.853220324000000	12
31	56/29pts 31.03448deg	3.702459175000000	56
31+	31.30434783deg 46pts	3.695518130000000	46
31+	17pts 31.76470588deg	3.629305232154990	17
32+	32.72727272deg 22pts		22
33	33 degrees 120pts	3.496128197000000	120
34	34 degrees 37pts	3.427050986000000	37
35	72 point polygram	3.464101616000000	72
35	35deg 72pts	3.301295647999910	
36	36 deg pentagram	3.236067977499790	5
37		3.172129089521840	
37.8947	38pts	3.129602235303950	38
38		3.055728092000000	
39	23 pts 39.13043478deg	2.995352398905860	23
40	18pts	2.936169615	18
41	13pts 41.53846154deg	2.828427124746190	13
42	41.785714290	stonehenge	
43	29pts 43.44827586deg	2.772542489	29
	3.853220324 / √2	2.724638221	
44	90pts (from Index No 11)	2.618033989000000	90
45	octogram	2.613125929752760	8

Deg	Shape	Ratio	Points
46			
47			
48	48 deg 30pts	2.472135954999580	30
49	11pts 49.0909090909	2.423290987000000	11
50	36pts	2.380952381000000	36
51	51.42857 deg 14pts	2.334368543059490	14
52	52 degrees 45pts	2.288245610000000	45
53		2.243033990000000	
54	54deg 20pts	2.212962963000000	20
55	72pts	2.180232558000000	72
56	??	2.160726055	
57	57deg 41pts	2.118033990000000	41
58	2.936169614 / √2	2.076185445	
59			
60	Equilateral Triangle	2.000000000000000	3
61	121pts 60.99173554deg	1.960483592934090	121
62			
63	40pts	1.926610162000000	40
64	90pts in shape creations	1.900212314000000	90
65	72pts	1.888543820000000	72
66	66 deg 60pts	1.851229586000000	60
67	16pts 67.5deg	1.847759066000000	16
68	45pts	1.814652616077490	45
69	13pts 69.23076923deg	1.748064098502690	13
70	36pts	1.740000000000000	36
71	33pts 70.909090deg		33
72	10pts decagram	1.732050808000000	10
73		1.713525493000000	
74	74deg 14pts	1.704632419133890	14
75	75deg 24pts	1.650647824000000	24
76	76 degrees 45pts	1.632993161855450	45
77	7pts ф 77.14285714deg	1.618033989000000	7
78	60pts	1.572302755514850	60
79.20	25pts	1.564801117651930	25
80	80 degrees 18pts	1.530733729000000	18
81	11pts 81.818181deg	1.527864046000000	11
82			
83	83.07692308deg 26pts	1.491769547 dbt.	26
84	84 degrees 15pts	1.497676197000000	15
85		1.489638238559210	
86	2.076185445 / √2	1.468084807000000	
87	22.5deg series 45pt	1.448274121000000	45
88	45pts . . . 11 index no.		45
89			
90	Square	1.414213562373100	4

LIST OF SOME SHAPE RATIOS IN ‘*DEGREE, SHAPE, RATIO*’ ORDER

91^0 - 180^0

Deg	Shape	Ratio	Points
91			
92	45pts est ratio	1.386271242968660	45
93			
94			
95	71pts (95.0704)	1.362319110000000	71
96	30pts	1.349166667	30
97	13pts 96.923deg	1.335402142000000	13
98	22pts 98.181818deg	1.323746919000000	22
99	40pts	1.315789474000000	40
100	100deg inner nonogram	1.309016994000000	9
101			
102	102.857142deg 14pts	1.306562966	14
103	14 pt polygram	1.272019649514070	14
104			
105			
106	105.88239deg 34pts	1.253914971405500	
107		1.249431391	
108	108deg pentagon	1.236067977499790	5
109			
110	110deg 36pts	1.211645495722230	36
111			
112	16pts 112.5deg	1.205357143000000	16
113			
114	11pts 114.545454 deg	1.190710563000000	11
115		1.189207115002720	
116			
117	117deg 40pts	1.167184270000000	40
118			
119			
120	hexagon	1.154700538379250	6
121		1.144122806000000	
122			
123		1.127838485561680	
124	45pts est ratio	1.131319763600000	45
125	13pts 124.75 deg	1.13333 +/-	13
126	126deg 20pts	1.121516995000000	20
127		1.111785940502840	
128	7pts 128.5714 septagon	1.104854344000000	7
129		1.337777777792640	
130			
131	22pts 130.909090deg		22
132	15pts	1.100+/-	15
133		1.090507732665260	
134			
135	8pts octogon	1.082392200292390	8

Deg	Shape	Ratio	Points
136		1.080363026950910	
137			
138		1.069636763408670	
139		1.061997403745260	
140	9pts nonogon	1.059016995000000	9
141		1.058198208485710	
142		1.054412604487850	
143			
144	10pts decagon	1.053333300000000	10
145			
146			
147	147.375deg 11sided	1.047142857000000	11
148	45pts	1.040719200441880	45
149			
150	12 sided gon	1.038092722000000	12
151			
152	152.5deg 13sided	1.033333000000000	13
153			
154	154.28157deg 14sided gon	1.031027796+/-	14
155		1.030532582573330	
156	15 sided gon	1.030+/-	15
157	157.5 deg 16 sided gon	1.020156458000000	16
158			
159		1.014438521517910	
160		1.014242384554290	
161			
162	20 sided gon	1.0133333+/-	20
163	163.636363deg 22gon		22
164	45 pts		45
165			
166			
167	167.142857deg 14pts		14
168			
169			
170			
171			
172	45 sided gon		45
173			
174			
175		1.082392200342570	
176			
177			
178			
179			
180	straight line	1.000000000000000	1

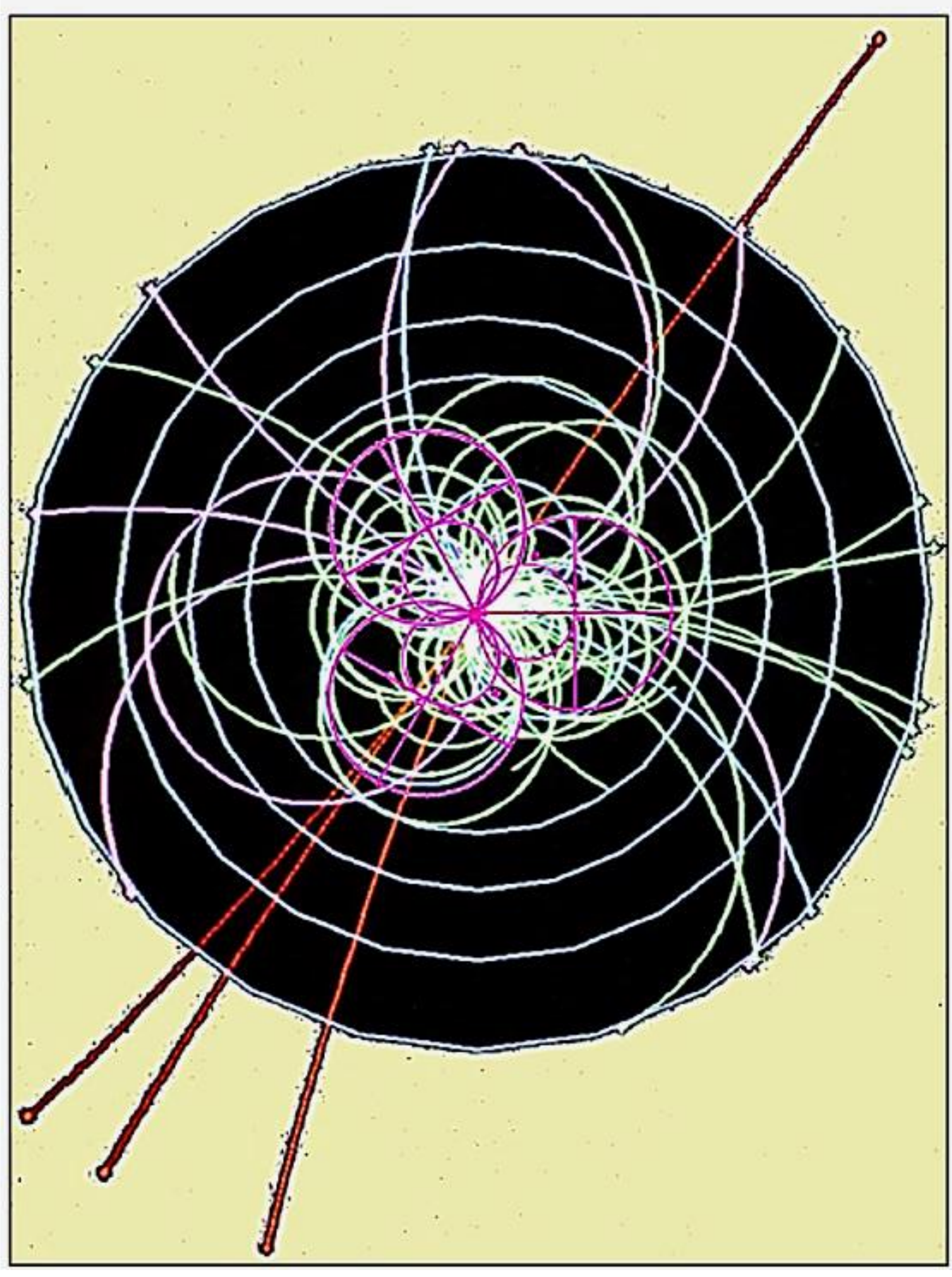
AND SHAPE X SHAPE = SHAPE.

EACH ONE OF THESE SHAPES IS FORMED AROUND A RIGHT ANGLE TRIANGLE SITUATE WITHIN AN INNER CIRCLE OF HARMONY.

PERHAPS ‘AI’ CAN COMPLETE THIS TASK UNLESS INFINITY OR A BLACK HOLE CAUSES IT TO DISAPPEAR UP ITS OWN REAR.

***SHAP*E and e=mc^2**

ALIGNING THE SINGULARITIES.



THE MATHS

BEYOND

MY SINGULARITY

THE 'DIVISION' MATRIX

Ratios can also divide to form others – Those less than 1 are perhaps dark matter?

A "Division Matrix" where some Shape interactions can form Dark Matter.

REFINING THE RATIOS ASSUMING THAT THE SHAPE THEORY HOLDS .. AND THE RATIOS ARE CORRECTED TO 15 PLACES

DIVISION MATRIX		octogon	HEXAGON	pentagon	inner nonogram	Square
		1.082392200292390	1.154700538379250	1.236067977499790	1.306562964876380	1.414213562373100
octogon	1.082392200292390	1.000000000000000	1.066804193588360	1.141977905204680	1.207106781186560	1.306562964876390
HEXAGON	1.154700538379250	0.937379142311345	1.000000000000000	1.070466269319270	1.131516719226860	1.224744871391600
pentagon	1.236067977499790	0.875673684615435	0.934172358962714	1.000000000000000	1.057031642805910	1.144122805635370
inner nonogram	1.306562964876380	0.828427124746185	0.883769530761575	0.946045472532386	1.000000000000000	1.082392200292390
Square	1.414213562373100	0.765366864730177	0.816496580927725	0.874032048897642	0.923879532511289	1.000000000000000
DECAGRAM	1.732050807568880	0.624919428207563	0.666666666666666	0.713644179546180	0.754344479484574	0.816496580927729
16pts	1.847759065022580	0.585786437626902	0.624919428207564	0.668955168938483	0.707106781186549	0.765366864730182
equilateral triangle	2.000000000000000	0.541196100146195	0.577350269189625	0.618033988749895	0.653281482438190	0.707106781186550
30pts	2.472135954999580	0.437836842307718	0.467086179481357	0.500000000000000	0.528515821402954	0.572061402817686
octogram	2.613125929752760	0.414213562373093	0.441884765380788	0.473022736266194	0.500000000264489	0.541196100146198
Pentagram	3.236067977499790	0.334477584469240	0.356822089773089	0.381966011250105	0.403750160581293	0.437016024448823

Reciprocals of 'dark matter' ratios reveal shape ratios hidden therein.

RECIPROCALS OF ABOVE RESULTS

1.000000000000000	0.937379142311345	0.875673684615435	0.828427124746185	0.765366864730174
1.066804193588360	1.000000000000000	0.934172358962714	0.883769530761575	0.816496580927722
1.141977905204680	1.070466269319270	1.000000000000000	0.946045472532386	0.874032048897639
1.207106781186560	1.131516719226860	1.057031642805910	1.000000000000000	0.923879532511286
1.306562964876380	1.224744871391590	1.144122805635370	1.082392200292390	0.999999999999996
1.600206290382540	1.500000000000000	1.401258538444070	1.325654296142360	1.224744871391580
1.707106781186560	1.600206290382530	1.494868485113630	1.414213562373090	1.306562964876370
1.847759065022580	1.732050807568880	1.618033988749890	1.530733729460360	1.414213562373090
2.283955810409360	2.140932538638540	2.000000000000000	1.892090945064770	1.748064097795280
2.414213562373110	2.263033438453720	2.114063285611810	1.999999998942050	1.847759065022570
2.989736970227260	2.802517076888150	2.618033988749890	2.476779200682580	2.288245611270730

CONUNDRUMS

All of this theory seems perfectly logical until we remove the concept of constraining the overall physical size of a shape, a method I employed for the purposes of illustrating the interaction of shapes. We can clearly see and illustrate this theory whilst we are assuming that **constant** Inner Circles or **constant** Outer Circles actually exist in the real world. We need to understand that these constants have been used merely to allow the comparative illustrations of the shapes. These shapes in the real world can adopt any size at all whilst retaining the same ratio. A bit hard to rationalize? A bit hard to visualize? A bit hard to graphically nest? A bit hard for experiments? Perhaps a Black Hole would place some type of a control on a shape's size.

Even though we have no constraint on the overall physical size of a shape we can still do the **mathematics** with its ratio. Mathematics with ratios is totally independent of the physical size of the shapes. With all artificial constraints of constant size removed it becomes almost impossible to visualize or formulate the physical interaction of shapes in the universe. Theoretically, ***interaction should be able to occur even if one shape is the size of a thimble and the other the size of the Universe*** . . . and physical size does not affect the ratio of the shape perhaps giving us another point of view of ***The Butterfly Effect***.

But would not *Black Holes* provide a perfect constraint on size?

Does this mean that my illustrations are merely theoretical, size-limited, conjured illuminations of the harmonic relationships between the mathematical ratios?

If the Strong and Weak or other forces are involved in the graphical formation of shape then comparative size could be subject to any constraints such forces could permit.

If, as in cymatics, Audible Frequency has been shown to be able to produce shape, plane regular shape, can frequency or its amplitude place a constraint on the overall size of a shape? Why does Audible Frequency produce Plane Regular Shape?

If Frequency is shown to produce shape and if the Strong and Weak or other Forces are shown to influence the production of shape in nature how does Frequency relate to the Strong and the Weak or other Forces?

NATURE AND MATHEMATICS

Is *Mathematics* a physical entity existing within and derived from Nature or an external ethereal measure of the physics of Nature? If *Mathematics* by itself cannot be a physical entity what gives it impetus? What carries out its precise instructions? What is its link to a physical world? If correlation exists between Music Note (audible) Frequencies and Plane Regular Shape Ratios (and Square Roots of Integers) then is *Frequency* the causal part of Nature that carries the Maths Coding which enables *Mathematics* to form entities of Nature?

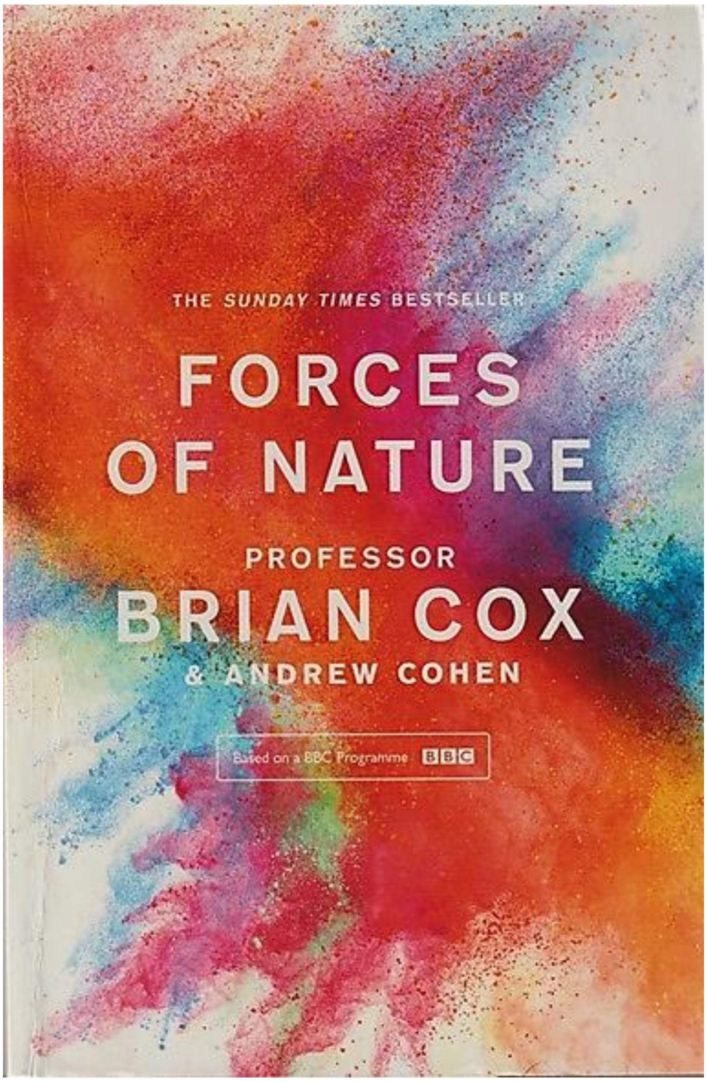
As correlation can be shown between Shape and Music (Plato's two Harmonies) can the internal harmonics of a music note designate the internal harmonics of its corresponding shape? The harmonics of a musical note are said to be **integer** multiples of the base frequency whilst all my shape ratios are **incommensurable** numbers and yet music and plane regular shape correlate, but with minor differentials in harmonic sets!

With Plane Regular Shape, it can be seen from the graphics that the Construction Harmonics are **integer** multiples of the base shape.

"The methods of theoretical physics should be applicable to all those branches of thought in which the essential features are expressible with numbers."

Paul Dirac

BRIAN COX & ANDREW COHEN



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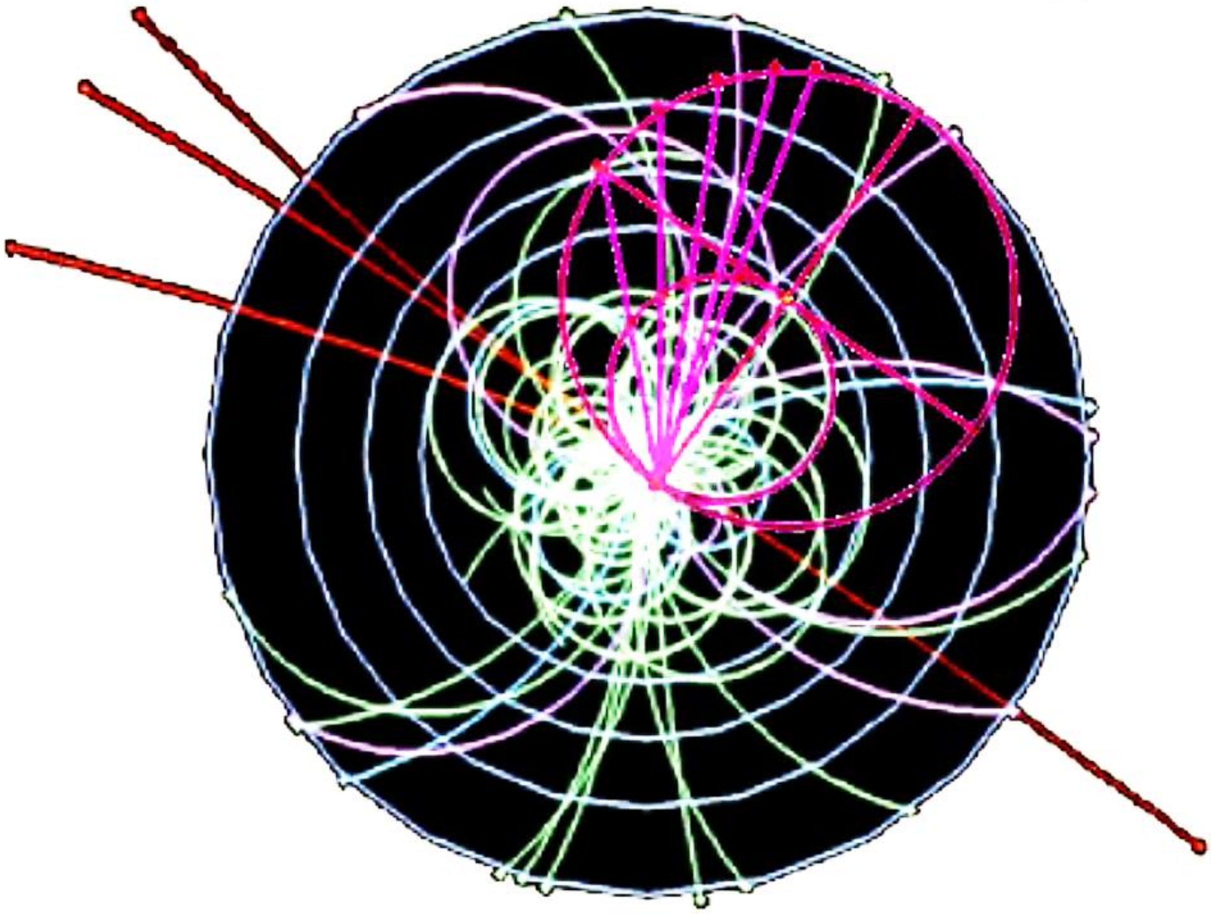
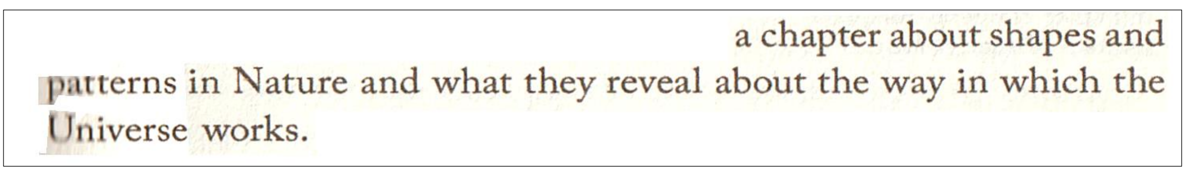
This isn't intended to be a complete course on particle physics, much as I'd like to deliver that; rather, it is a chapter about shapes and patterns in Nature and what they reveal about the way in which the Universe works.

If the Singularity exists on the edge of a Black Hole can reciprocals of Shape Ratios be reversed to once again become Ratios of Plane Regular Shapes?

Can reciprocals of Shape Ratios react with each other to possibly forge new positive shape ratios?

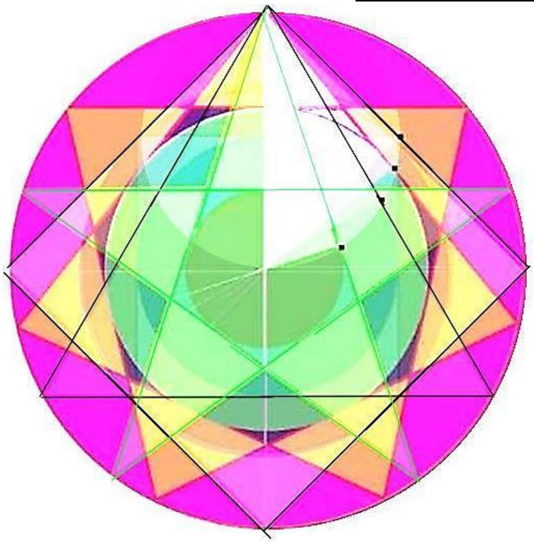
Can reciprocal shape ratios overcome their reciprocity?

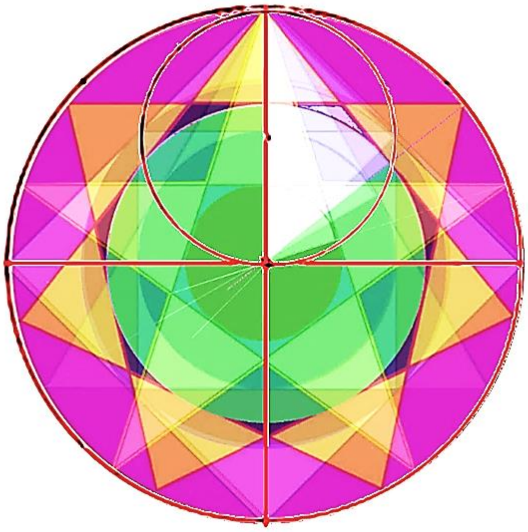



a chapter about shapes and patterns in Nature and what they reveal about the way in which the Universe works.

Brian Cox

EVOLUTION OF A THEORY





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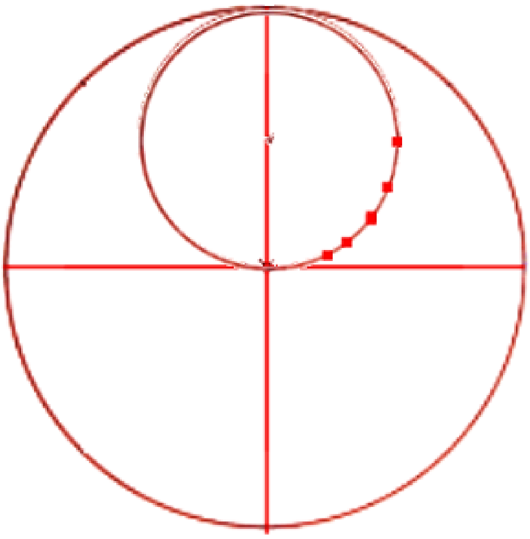
THE SEARCH *THE FINDING*



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THE HIDDEN CIRCLE THE STANDARD MODEL, -- *A 'CERN' IMAGE:*

"There must be some local hidden variables at work in order to account for the behavior of entangled particles."

"For example, if one knew the details of all the hidden variables associated with a particle, then one could predict both its position and momentum."

"The Standard Model also describes the fundamental forces of Nature and how they act between fundamental particles."

"Possible discoveries at the LHC could validate models, such as those incorporating **Supersymmetry**, where the forces unify at very high energies."

THE HIDDEN INNER CIRCLE OF HARMONY organises and controls the production of Plane Regular Shapes.

WHAT ARE THE ODDS OF:-

DISCOVERING THE SYSTEM OF PLANE REGULAR SHAPE RATIOS.
DISCOVERING THE MECHANISM: THE THEOREM: *SHAPE X SHAPE = SHAPE.*

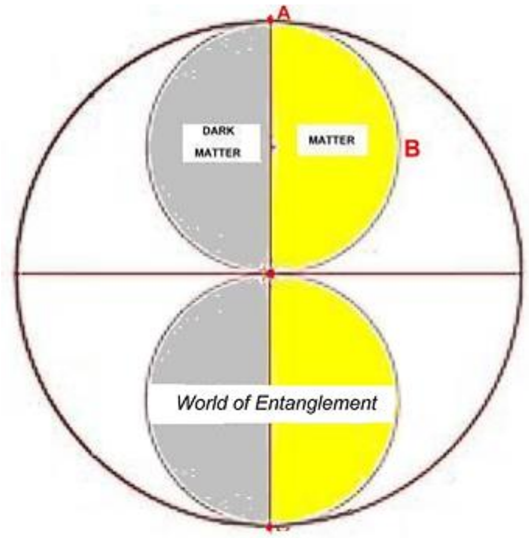
FINDING THE HIDDEN CIRCLE OF INNER HARMONY.

UNCOVERING AKHENATEN'S GEOMETRY PROWESS.
STONEHENGE'S DEPICTION OF PLANE REGULAR SHAPE THEORY
RECONCILING PARTICLE ENTANGLEMENT
THE MATHS SURROUNDING BLACK HOLES

AND FINDING THAT THEY ARE ALL RELATED?

AND FINDING THAT THE HIDDEN CIRCLE OF INNER HARMONY IS POSSIBLY A MISSING LINK IN QUANTUM ENTANGLEMENT THEORY.

WHICH BEST ILLUSTRATES ENTANGLEMENT?



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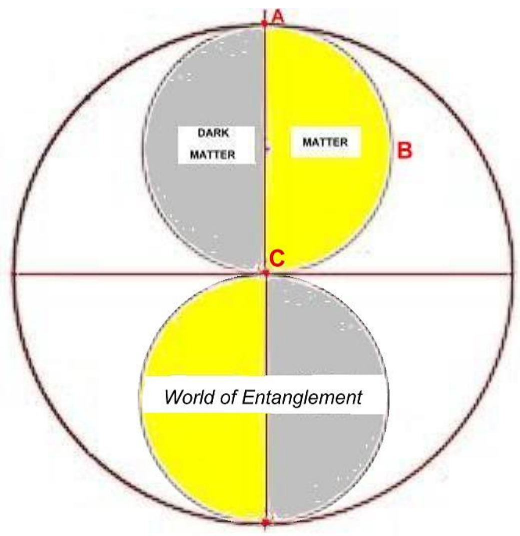
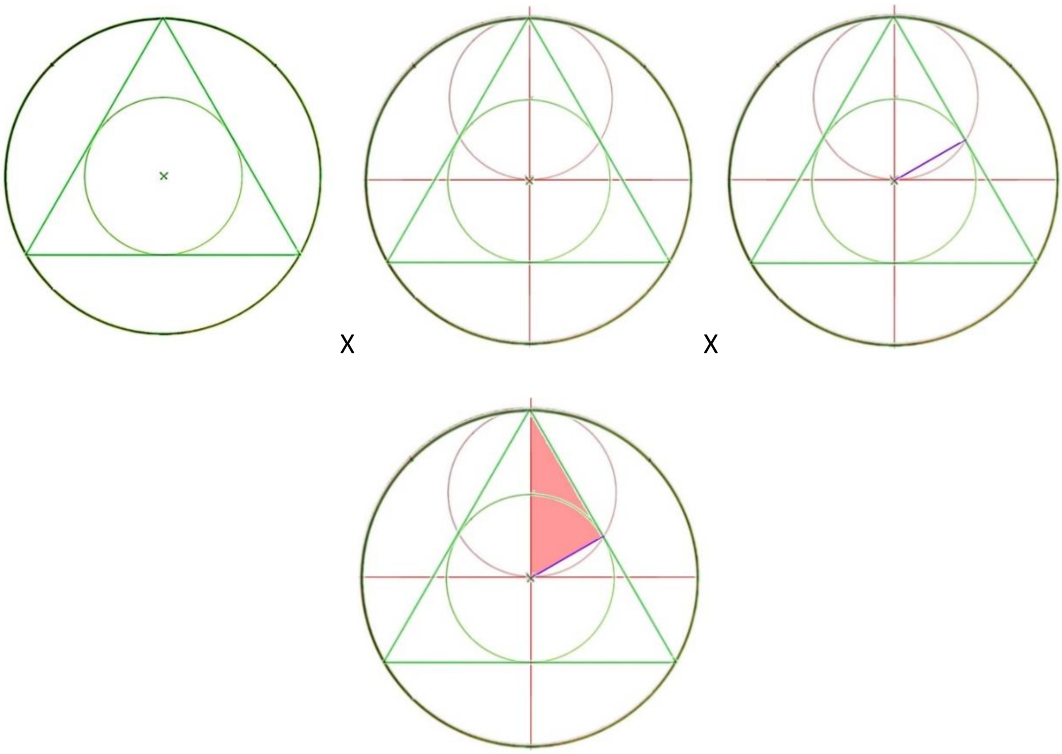
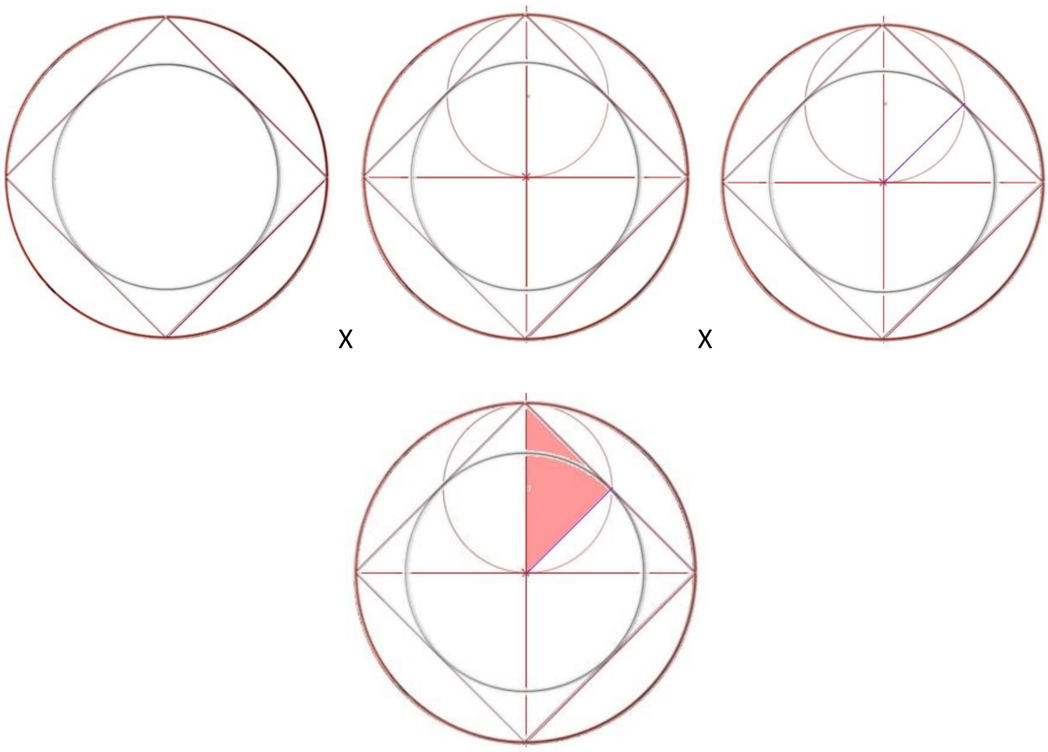


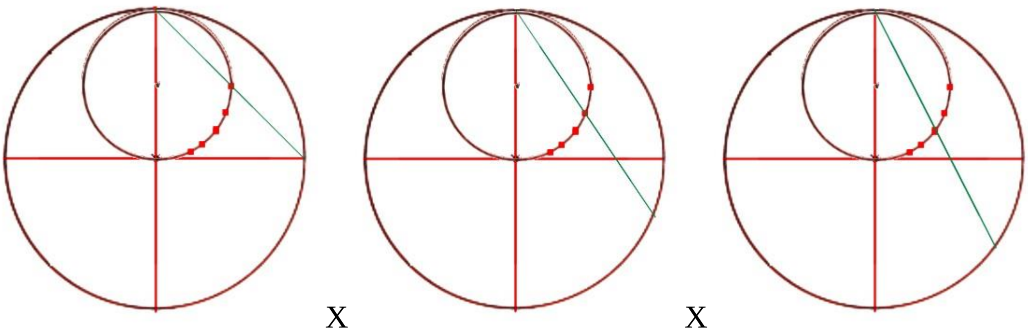
THE WORKINGS OF THE HIDDEN INNER CIRCLE OF HARMONY





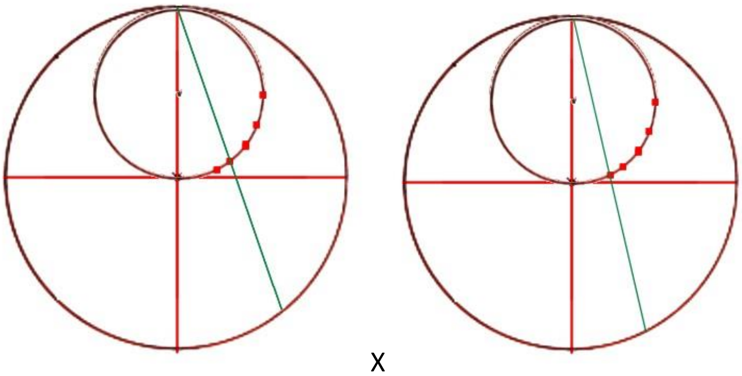
How a Right Angle Triangle can define a Plane Regular Shape.
How a Plane Regular Shape can define a Right Angle Triangle.

THE WORKINGS OF THE HIDDEN INNER CIRCLE OF HARMONY



X X

I illustrate my theory using about five (5) shapes.



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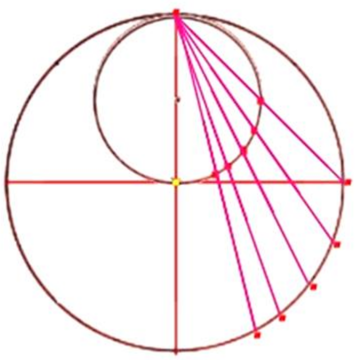
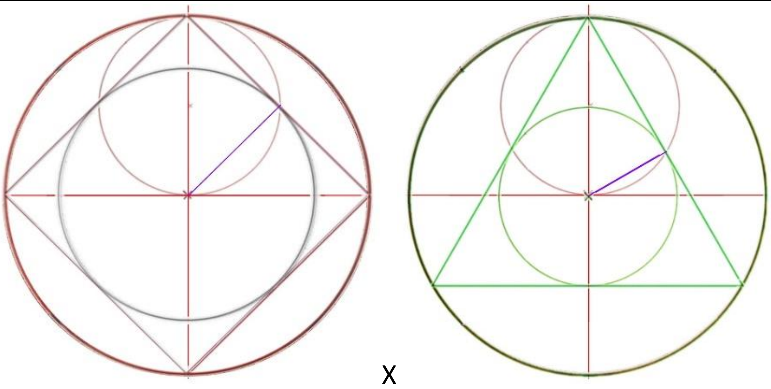
But, there are possibly an Infinite number of Plane Regular Shapes originating from this Semi Circle. Actually, this Semi Circle stretches from the Singularity at **A** to Infinity at **C**.
But, this is only a mythical portrayal of the actuality we live in. A shape's ratio is constant regardless of its physical size; and that stretches from $^{+}\infty$ to $^{-}\infty$.
The only way to examine the shapes and to compare them was to make them a constant size.
But, for me, this constancy is merely an arbitrary tool employed to enable examination, comparison and measurement. It may be other things for other people.

THE WORKINGS OF THE HIDDEN INNER CIRCLE OF HARMONY



<u>THE WORKINGS OF THE HIDDEN INNER CIRCLE OF HARMONY</u>



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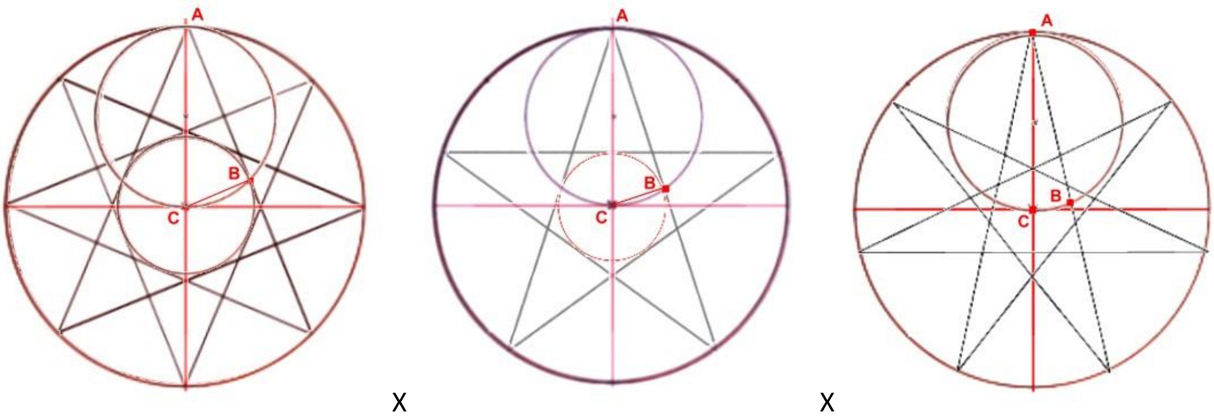


X X

It's as simple as ABC.

"There must be some local hidden variables at work in order to account for the behavior of entangled particles."

"If one knew the details of all the hidden variables associated with a particle, then one could predict both its position and momentum."

THESE INNER CIRCLES OF HARMONY WERE DESIGNED AND SUPPLIED BY NATURE.
THEY ARE NOT MAN MADE OR DESIGNED OR EVEN CONTEMPLATED BY MAN.
THEY ARE AN ABSOLUTE DISCOVERY.

HAD I NOT DECIDED TO OVERLAY MY SHAPE IMAGES IN A TRANSPARENT MANNER WITH A FIXED SIZE CIRCUMSCRIBING CIRCLE I WOULD NEVER HAVE ARRIVED AT A LOCI FOR THE RIGHT ANGLE TRIANGLES WITHIN THE CONSTRUCTORS FOR THE PLANE REGULAR SHAPES.
I WOULD NEVER HAVE KNOWN OF THE EXISTENCE OF THIS HIDDEN CIRCLE OF HARMONY.

*THE CURRENT **STATIC** APPROACH TO THE ANALYSIS OF RIGHT ANGLED TRIANGLES*

DANIEL MANSFIELD AND NORMAN WILDBERGER

"The ancient surveyors who made Si.427 did something even better: they used a variety of different Pythagorean triples, both as rectangles and right triangles, to construct accurate right angles," Dr Mansfield says.

However, it is difficult to work with prime numbers bigger than 5 in the base 60 Babylonian number system.

"This raises a very particular issue – their unique base 60 number system means that only some Pythagorean shapes can be used," Dr Mansfield says.

"**It seems that the author of Plimpton 322 went through all these Pythagorean shapes to find these useful ones**.

"This deep and highly numerical understanding of the practical use of rectangles earns the name 'proto-trigonometry' but it is completely different to our modern trigonometry involving sin, cos, and tan."

The Plimpton 322 tablet

Daniel Mansfield an Associate Lecturer in Mathematics at UNSW and Norman Wildberger

OPINION: The ancient Babylonians – who lived from about 4,000BCE in what is now Iraq – had a long forgotten understanding of right-angled triangles that was much simpler and more accurate than the conventional trigonometry we are taught in schools.

25 AUG 2017

DANIEL MANSFIELD AND NORMAN WILDBERGER

Daniel Mansfield and Norman Wildberger say a 3,700-year old Babylonian clay tablet is the world's oldest and most accurate trigonometric table.

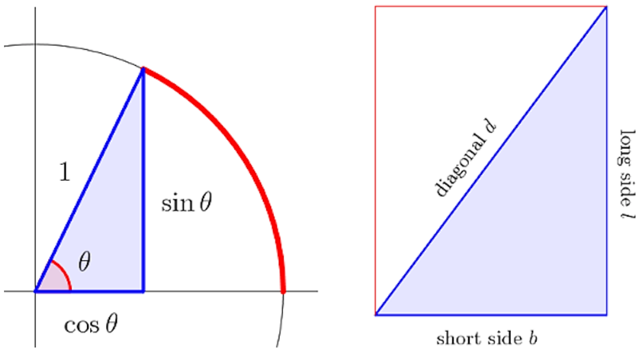
Our new research, to be published in Historia Mathematica, shows that the Babylonians were able to construct a trigonometric table using only the exact ratios of sides of a right-angled triangle. This is a completely different form of trigonometry that does not need the familiar modern concept of angles.

At school we are told that the shape of a right-angled triangle depends upon the other two angles. The angle is related to the circumference of a circle, which is divided into 360 parts or degrees. This angle is then used to describe the ratios of the sides of the right-angled triangle through sin, cos and tan.

But circles and right-angled triangles are very different, and the price of having simple values for the angle is borne by the ratios, which are very complicated and must be approximated.

THE ***STATIC*** APPROACH TO THE ANALYSIS OF RIGHT ANGLED TRIANGLES

They were able to construct a wide variety of right triangles using only exact ratios.

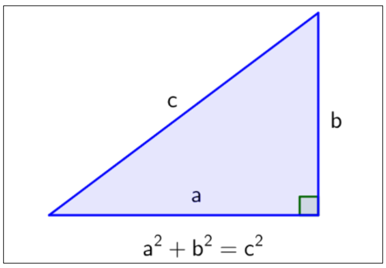


The Greek (left) and Babylonian (right) conceptualisation of a right triangle. Notably the Babylonians did not use angles to describe a right triangle. *Daniel Mansfield, author provided*

"We now know that the Babylonians studied **trigonometry** **because** we have a fragment of a one of their **trigonometric** tables.

Plimpton 322 is a broken clay tablet from the ancient city of Larsa, which was located near Tell as-Senkereh in modern day Iraq. The tablet was written between 1822-1762BCE.

This is the fundamental relationship of the three sides of a right-angled triangle, and this discovery proved that the Babylonians knew this relationship more than 1,000 years before the Greek mathematician Pythagoras was born."



The fundamental relation between the side lengths of a right triangle.

In modern times this is called Pythagoras' theorem, but it was known to the Babylonians more than 1,000 years before Pythagoras was born.

This makes sense when you realise that the first triple is almost **a square** (which is an extreme kind of rectangle), and the next is slightly flatter. In fact the right-angled triangles are **slowly but steadily getting flatter** throughout the entire sequence

So *the trigonometric nature* of this table is suggested by the information on the surviving fragment alone, but it is even more apparent from the reconstructed tablet.

This argument must be made carefully because **modern notions such as angle** were not present at the time Plimpton 322 was written. How then might it be a trigonometric table?

Fundamentally a trigonometric table must describe three ratios of a right triangle.

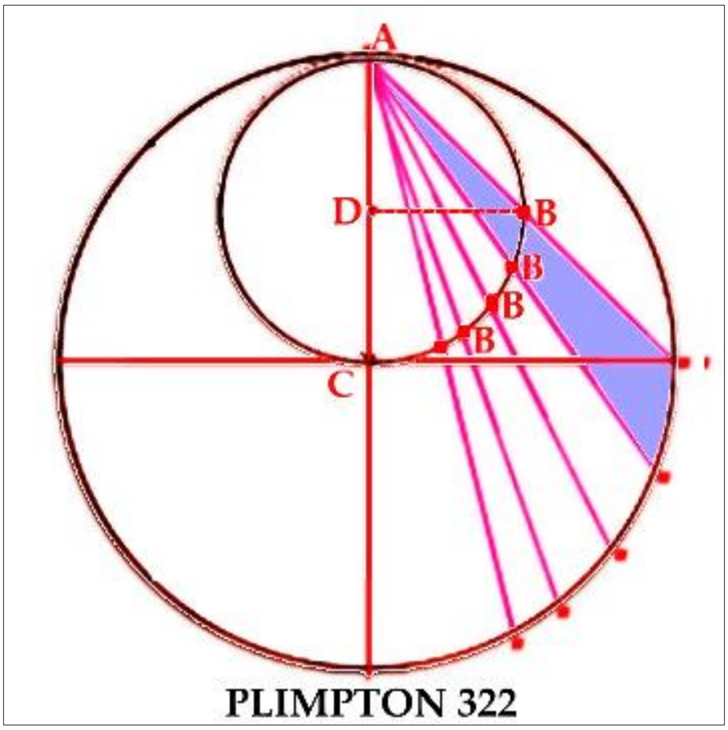
The most remarkable aspect of Babylonian trigonometry is its precision. Babylonian trigonometry is **exact**, whereas we are accustomed to **approximate** trigonometry.

The Babylonian approach is also much simpler because it only uses exact ratios. There are no irrational numbers and no angles, and this means that there is also no sin, cos or tan or approximation.

<u>A **DYNAMIC** APPROACH TO THE ANALYSIS OF RIGHT ANGLE TRIANGLES</u>

<u>INTRODUCING MY CIRCLE OF INNER HARMONY TO THE INVESTIGATION.</u>

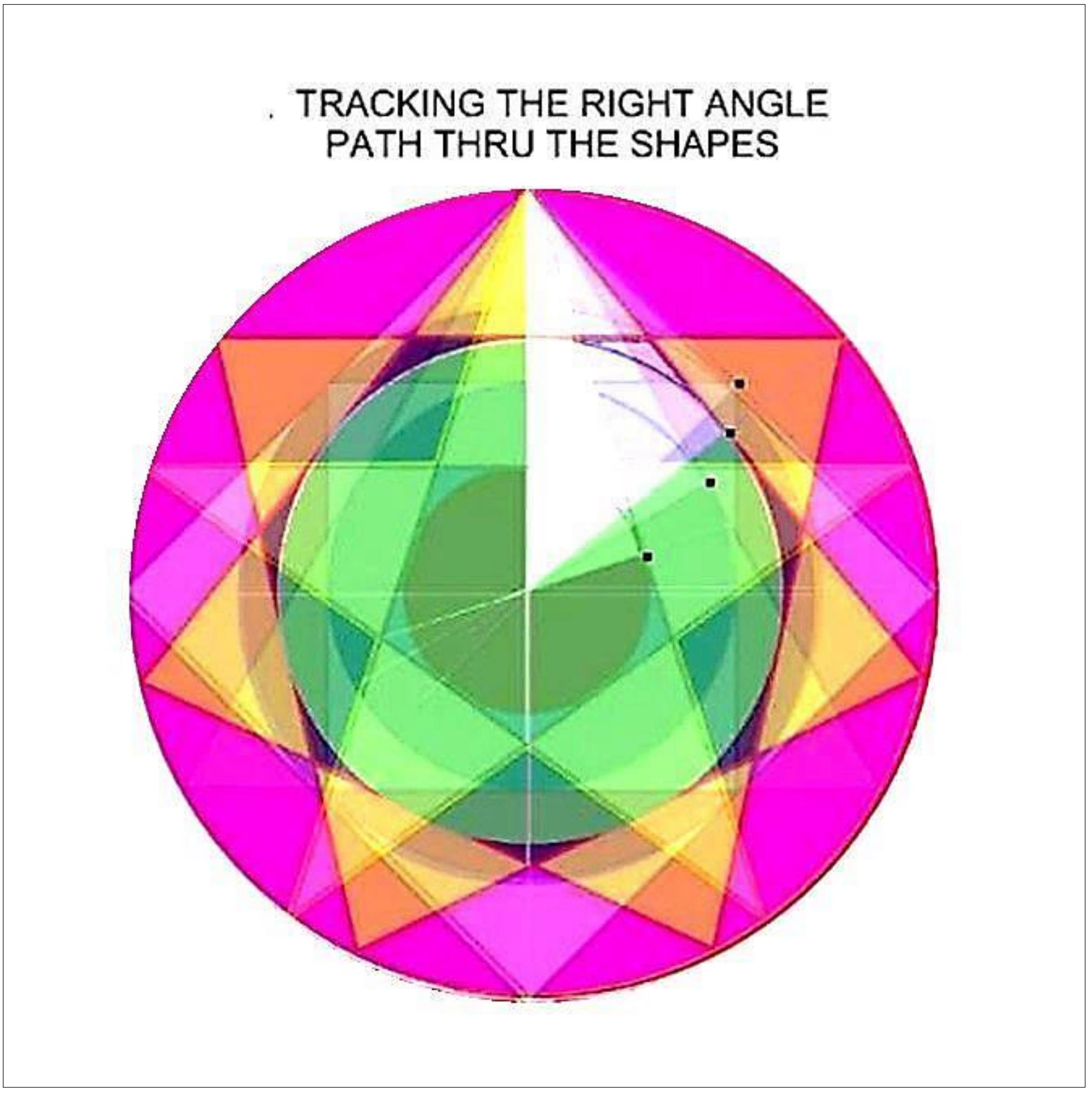
<u>REFER ALSO TO THALES THEOREM</u>.



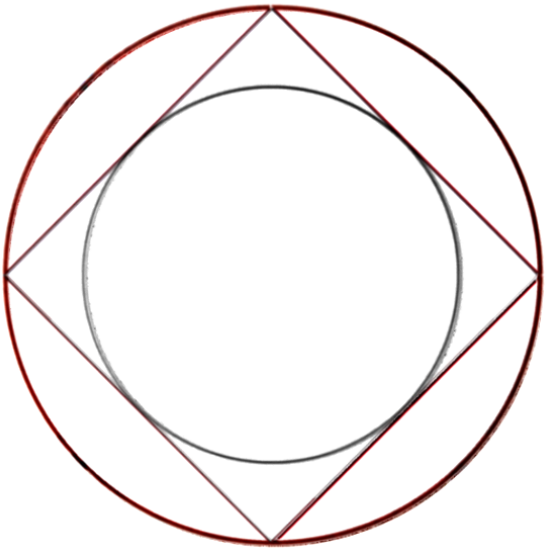
REGULAR SHAPE RATIOS				Plimpton 322		VARIANCE
				DIAGONAL / SHORT SIDE OUTER / INNER CIRCLES 'SHAPE RATIOS'		
Deg	Shape	Ratio	Points			
90	Square	1.414213562373100	4	1.420168067226890	1	1.004210470760730
88	45pts . . . 11 index no.		45	1.433026433026430	2	
87	22.5deg series 45pt	1.448274121000000	45	1.445120625950880	3	1.002182167351630
86	2.076185445 / √2	1.468084807000000		1.458887402628060	4	1.006304396319670
83	83.07692308deg 26pts	1.491769547 dbt.	26			
84	84 degrees 15pts	1.497676197000000	15	1.492307692307690	5	1.003597451597940
				1.507836990595610	6	
				1.545613269314710	7	
79.20	25pts	1.564801117651930	25	1.563204005006260	8	1.001021691756520
78	60pts	1.572302755514850	60			
77	7pts ф 77.14285714deg	1.618033989000000	7	1.598752598752600	9	1.012060271403120
76	76 degrees 45pts	1.632993161855450	45			
75	75deg 24pts	1.650647824000000	24	1.645031243700870	10	1.003414269680680
				1.666666666666670	11	
70	36pts	1.740000000000000	36	1.744490768314470	12	0.997425742574257
				1.795031055900620	13	
65	72pts	1.888543820000000	72	1.823263692828910	14	1.035803996661510
64	90pts in shape creations	1.900212314000000	90	1.892857142857140	15	1.003885750792450
60	Equilateral Triangle	2.000000000000000	3			

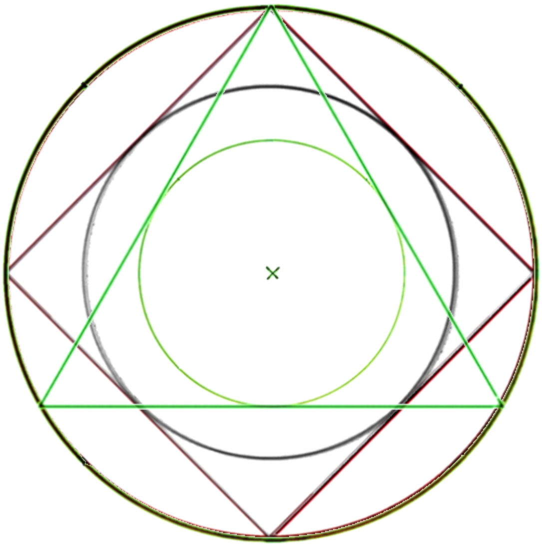
		RECIPROCAL
0.997425742574257		1.002580901330160

THALES THEOREM *. . . BEFORE 600BC.*
THE ANKH CIRCLE *. . . BEFORE 2000BC.*
THE ATEN *. . . . . BEFORE 2000BC*
THEY REALLY HAD KNOWLEDGE OF ANGLES.



OVERLAYING THE SHAPE OUTLINES





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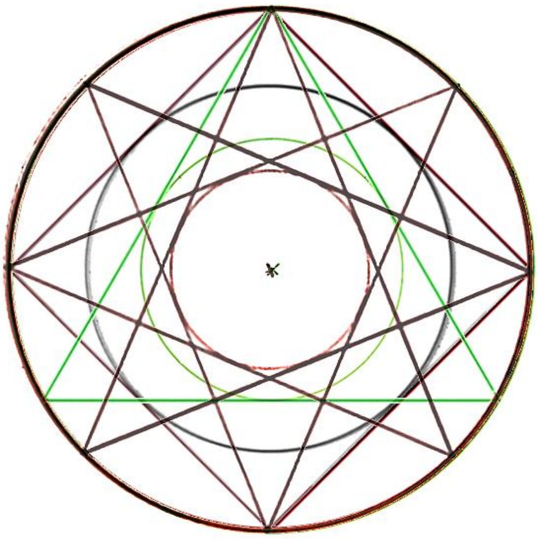
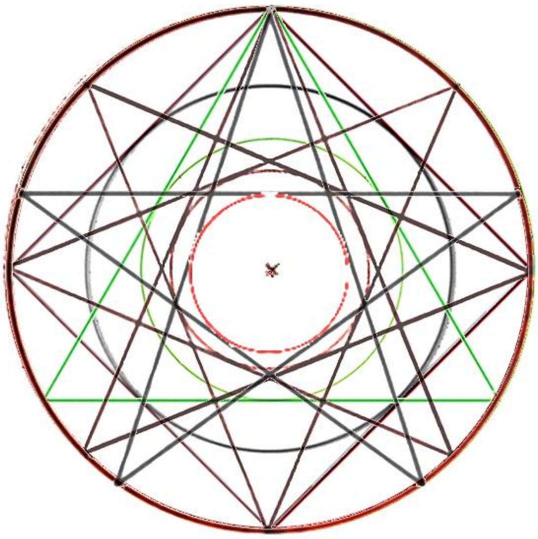
SQUARE

EQUILATERAL TRIANGLE





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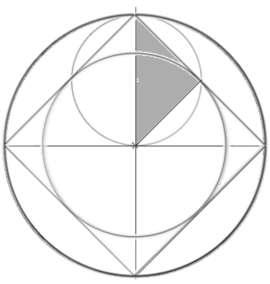
OCTAGRAM

PENTAGRAM

A DYNAMIC ANALYSIS OF RIGHT ANGLED TRIANGLES

DISCLOSING THE INVISIBLE & HIDDEN INNER CIRCLE OF HARMONY



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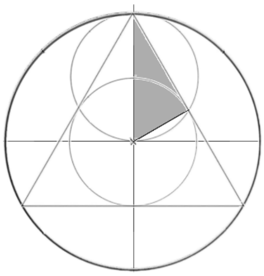

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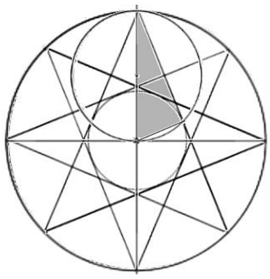

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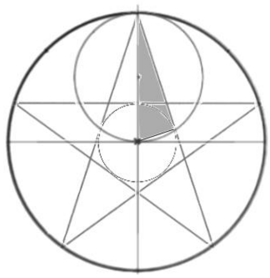
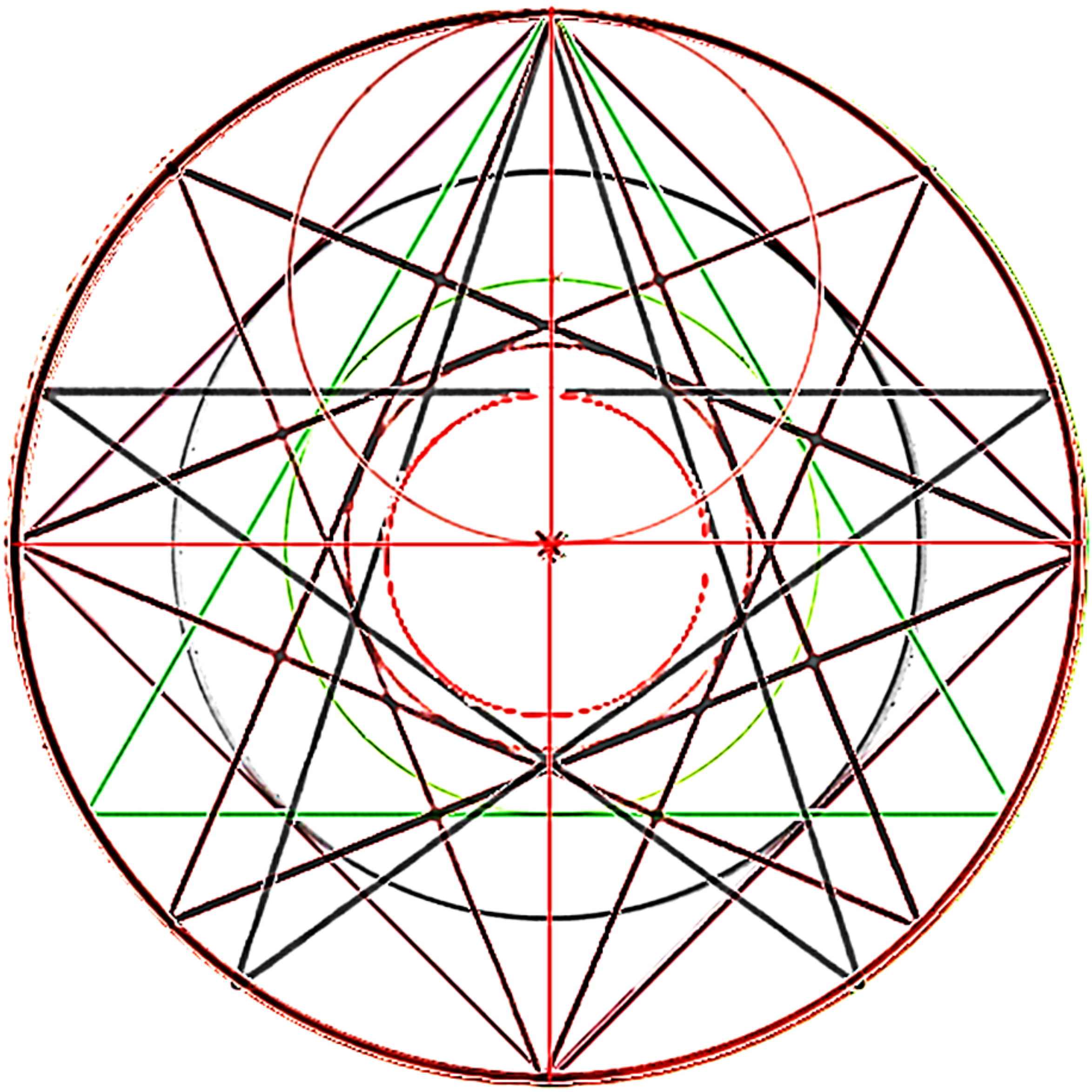


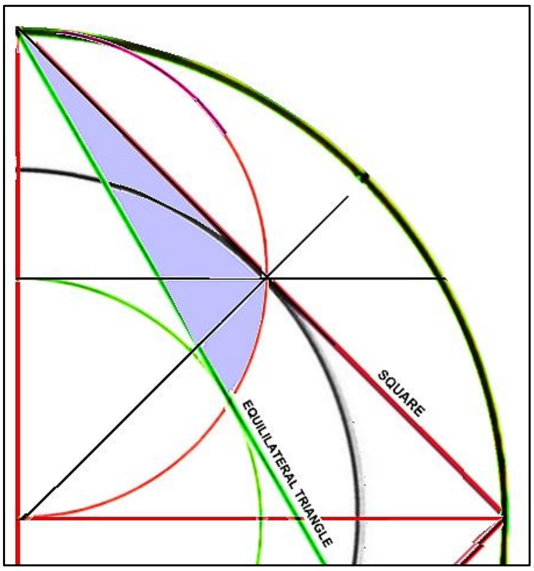


THE RANGE OF PLIMPTON 322

BETWEEN (but not including) 30^0 AND 45^0 ON TRIANGLES IN THALES THEOREM SEMICIRCLE.
BETWEEN SHAPE ANGLES 60^0 AND 90^0.
BETWEEN THE EQUILATERAL TRIANGLE (60^0) AND THE SQUARE (90^0).
BETWEEN SHAPE RATIOS 2.000000000 AND 1.414213562.

{\displaystyle d^{2}/\ell ^{2}} or {\displaystyle s^{2}/\ell ^{2}}	**Short Side {\displaystyle s}**	**Diagonal {\displaystyle d}**	**Row #**	**DIAGONAL / SHORT SIDE OUTER /INNER CIRCLES SHAPE RATIOS**	
(1).9834028	119	169	1	1.420168067226890	
(1).9491586	3,367	4,825	2	1.433026433026430	
(1).9188021	4,601	6,649	3	1.445120625950880	
(1).8862479	12,709	18,541	4	1.458887402628060	
(1).8150077	65	97	5	1.492307692307690	
(1).7851929	319	481	6	1.507836990595610	
(1).7199837	2,291	3,541	7	1.545613269314710	
(1).6927094	799	1,249	8	1.563204005006260	
(1).6426694	481	769	9	1.598752598752600	
(1).5861226	4,961	8,161	10	1.645031243700870	
(1).5625	45	75	11	1.666666666666670	
(1).4894168	1,679	2,929	12	1.744490768314470	
(1).4500174	161	289	13	1.795031055900620	
(1).4302388	1,771	3,229	14	1.823263692828910	
(1).3871605	56	106	15	1.892857142857140	

THE RANGE OF PLIMPTON 322



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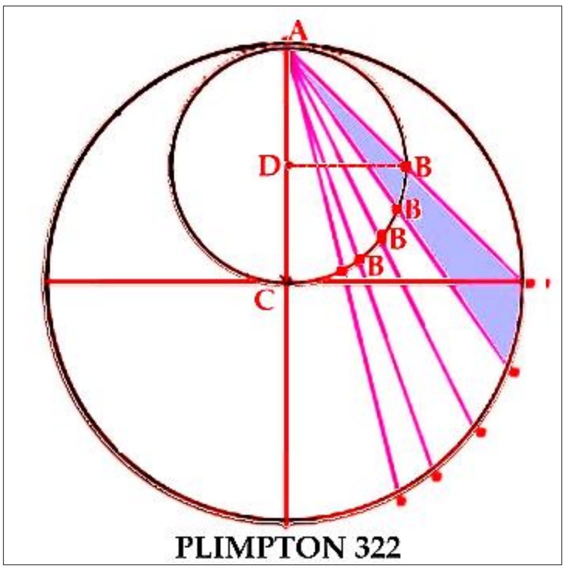


TESTING IF THE 3:4:5 RIGHT ANGLE TRIANGLE IS COMPATIBLE WITH SHAPE RATIOS

IF THE SHAPE THEOREM "SHAPE X SHAPE = SHAPE" IS GOOD:

R/A TRIANGLE RATIOS reacting to PLANE REGULAR SHAPE RATIOS						*IF SHAPE X SHAPE = SHAPE* *THESE RESULTS SHOULD BE SHAPE RATIOS*		
A	B	C	D		E	F	G	H
Short	*Long*	*Hypotenuse*	C/A (*hypotenuse / Short*)			D/E or DxE	F2/F1 etc	
RIGHT ANGLED TRIANGLE			R/A TRIANGLE RATIO		PLANE SHAPE RATIO			
3 :	4 :	5	1.666666666666660	/	1.618033989000000	1.030056647757270	F2/F1 etc	F2/F1
3 :	4 :	5	1.666666666666660	x	1.618033989000000	2.696723314999990	2.618033989559250	1.144122805812220
3 :	4 :	5	1.666666666666660	x	1.414213562373100	2.357022603955150	F1/F2 etc	F2/F1
3 :	4 :	5	1.666666666666660	/	1.414213562373100	1.178511301977570	2.000000000000000	1.144122805812220
3 :	4 :	5	1.666666666666660	/	1.144122806114060	1.456720080886590	F2/F1 etc	
3 :	4 :	5	1.666666666666660	x	1.144122806114060	1.906871343523430	1.309016995470310	

F Sorted	Differential	
D/E or DxE	F2/F1 etc	
2.696723314999990		***ALL***
2.357022603955150	1.144122805812220	
1.906871343523430	1.236067976982630	***SHAPE***
1.456720080886590	1.309016995470310	
1.178511301977570	1.236067976982630	***RATIOS***
1.030056647757270	1.144122805812220	

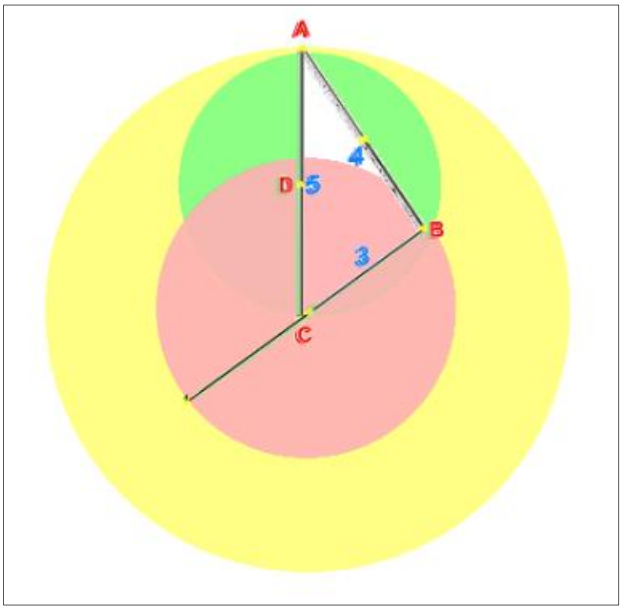
DOES THIS MAKE 1.66666666666· A SHAPE RATIO?

SO DOES THE 3:4:5 RIGHT ANGLE TRIANGLE HAVE A CORRESPONDING SHAPE?

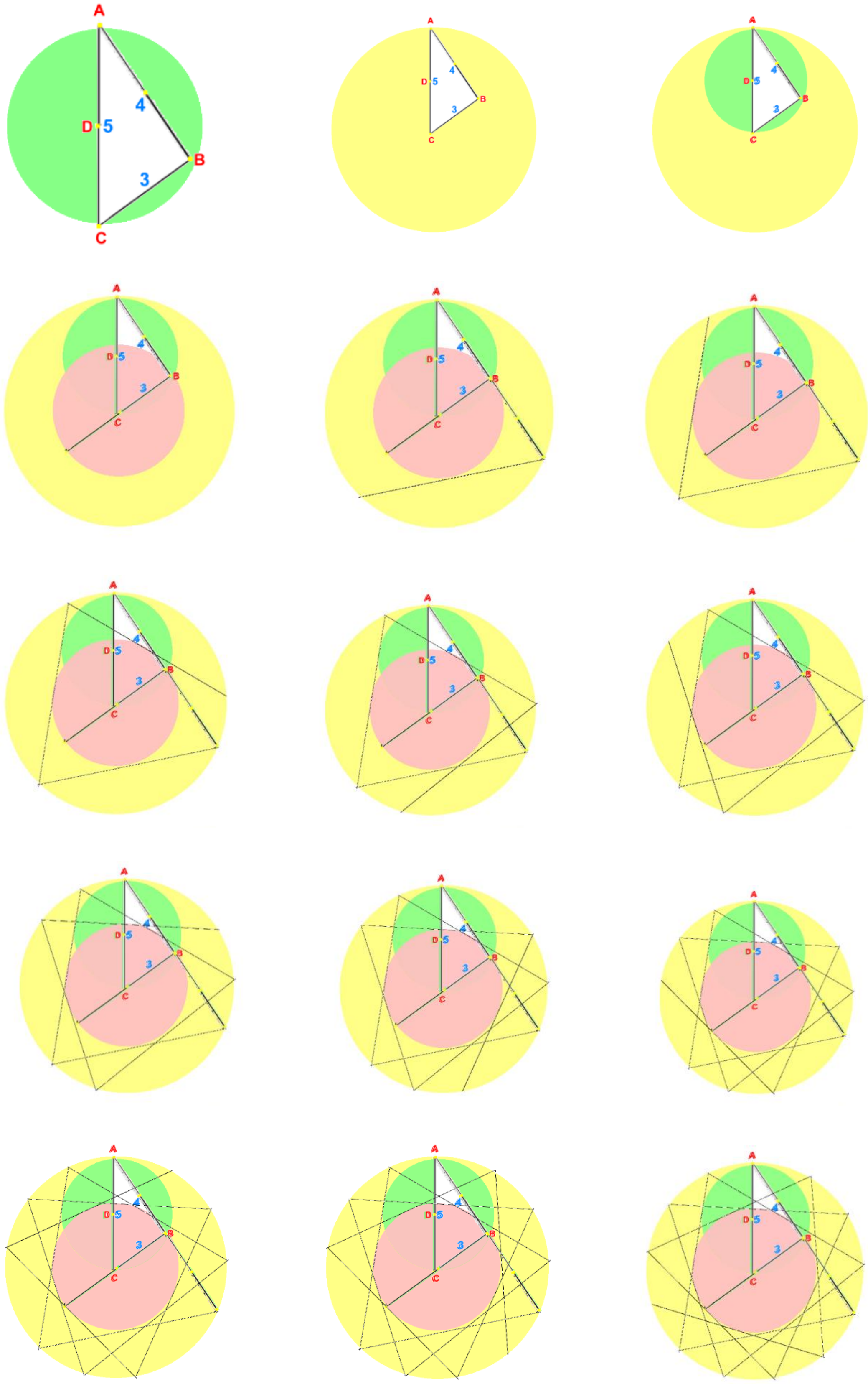
- **AC** IS THE RADIUS OF THE SHAPE'S CIRCUMSCRIBING CIRCLE.
- **BC** IS THE RADIUS OF THE SHAPE'S INSCRIBING CIRCLE.
- **AB** IS HALF THE SIDE OF THE SHAPE.
- **C** IS THE CONCENTRIC CENTRE OF BOTH CIRCLES.
- **D** IS THE CENTRE POINT FOR THE INNER CIRCLE OF HARMONY.

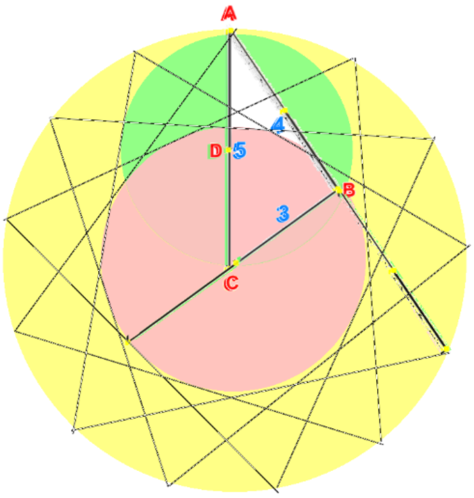
THEN:

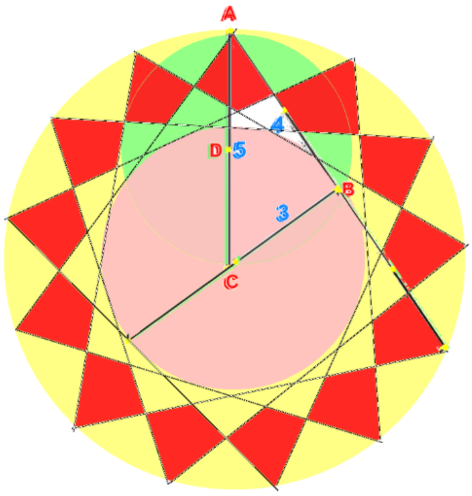
- **AC / BC** (or CIRCUMSCRIBING CIRCLE / INSCRIBING CIRCLE) IS A SHAPE RATIO.
- WHAT SHAPE? WHAT DO WE KNOW?

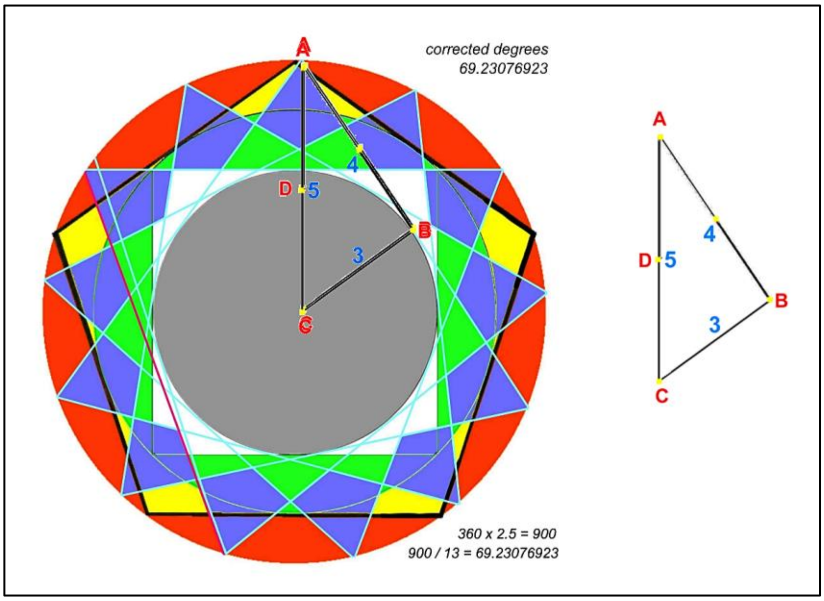


3:4:5 TRIANGLE PRODUCES A 13 POINT PLANE REGULAR SHAPE WITH RATIO 1.666666666667.



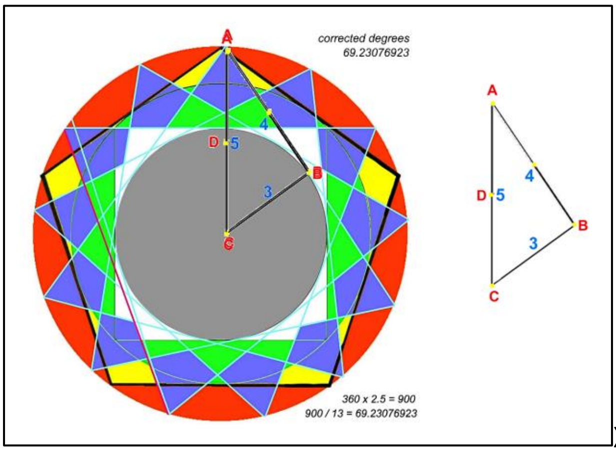






<u>GRAPHICAL MATHS & GRAPHICAL GEOMETRY AT WORK</u>:

A DYNAMIC APPROACH:



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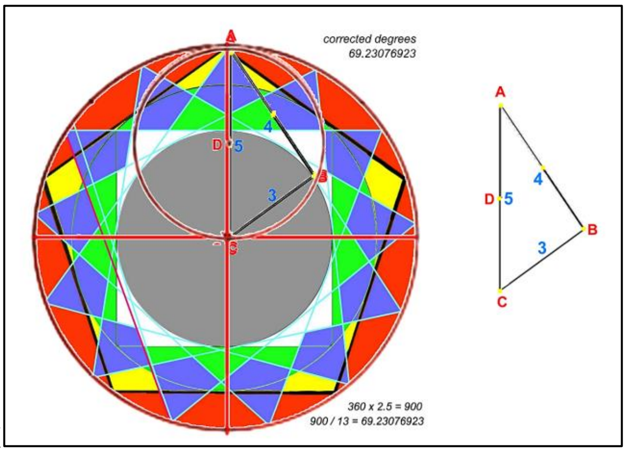


WHAT ABOUT THE REST OF THE PLIMPTON 322 RIGHT ANGLES? ARE THEY ALL RESIDENT IN SHAPES?

PLIMPTON 322				SHAPE RATIO
{ d^{2}/\ell ^{2}} or {s^{2}/\ell ^{2}}	Short Side {s}	Diagonal {d}	Row #	DIAGONAL / SHORT SIDE OUTER / INNER CIRCLES SHAPE RATIOS
(1).9834028	119	169	1	1.420168067226890
(1).9491586	3,367	4,825	2	1.433026433026430
(1).9188021	4,601	6,649	3	1.445120625950880
(1).8862479	12,709	18,541	4	1.458887402628060
(1).8150077	65	97	5	1.492307692307690
(1).7851929	319	481	6	1.507836990595610
(1).7199837	2,291	3,541	7	1.545613269314710
(1).6927094	799	1,249	8	1.563204005006260
(1).6426694	481	769	9	1.598752598752600
(1).5861226	4,961	8,161	10	1.645031243700870
(1).5625	45	75	11	1.666666666666670
(1).4894168	1,679	2,929	12	1.744490768314470
(1).4500174	161	289	13	1.795031055900620
(1).4302388	1,771	3,229	14	1.823263692828910
(1).3871605	56	106	15	1.892857142857140

PLIMPTON 322			
Long Side {l}	Short Side {s}	Diagonal {d}	Row #
120	119	169	1
3456	3,367	4,825	2
4800	4,601	6,649	3
13500	12,709	18,541	4
72	65	97	5
360	319	481	6
2700	2,291	3,541	7
960	799	1,249	8
600	481	769	9
6480	4,961	8,161	10
60	45	75	11
2400	1,679	2,929	12
240	161	289	13
2700	1,771	3,229	14
90	56	106	15

<u>*PYTHAGORUS'S THEOREM*</u>:

A^2	*plus* B^2	*equals* C^2

Long ^{2} *+ Short* ^{2} *= Hypotenuse* ^{2}

ACTUAL PHYSICAL SIZE OF SIDES OF THE TRIANGLES, SQUARED.

PLIMPTON 322

	A^2	*plus* B^2	*equals* C^2	
long side	*Long Side (Squared)*	*Short Side (Squared)*	*Diag. (Hypot.) Squared*	Row
120	14400	14161	28561	1
3456	11943936	11336689	23280625	2
4800	23040000	21169201	44209201	3
13500	182250000	161518681	343768681	4
72	5184	4225	9409	5
360	129600	101761	231361	6
2700	7290000	5248681	12538681	7
960	921600	638401	1560001	8
600	360000	231361	591361	9
6480	41990400	24611521	66601921	10
60	3600	2025	5625	11
2400	5760000	2819041	8579041	12
240	57600	25921	83521	13
2700	7290000	3136441	10426441	14
90	8100	3136	11236	15

- But, note how the majority of the *Long Sides* end in zeros.
- And thus all the zeros in the *Long Side Squared* column.

- And note how most of the tails in the *Hypotenuse Squared* and *Short Side Squared* columns end in one (1).

By expressing <u>*the sides of a triangle as a ratio*</u> one is able to deal with the relative dimensions of the triangle when it is compared to other triangles.

Just as with Plane Regular Shape where, regardless of actual physical size of a shape, its ratio remains the same, this *'Ratio Theory'* can also be applied to Right Angled Triangles. Regardless of the physical size of the triangle its *Ratios* remain the same if all angles remain the same.

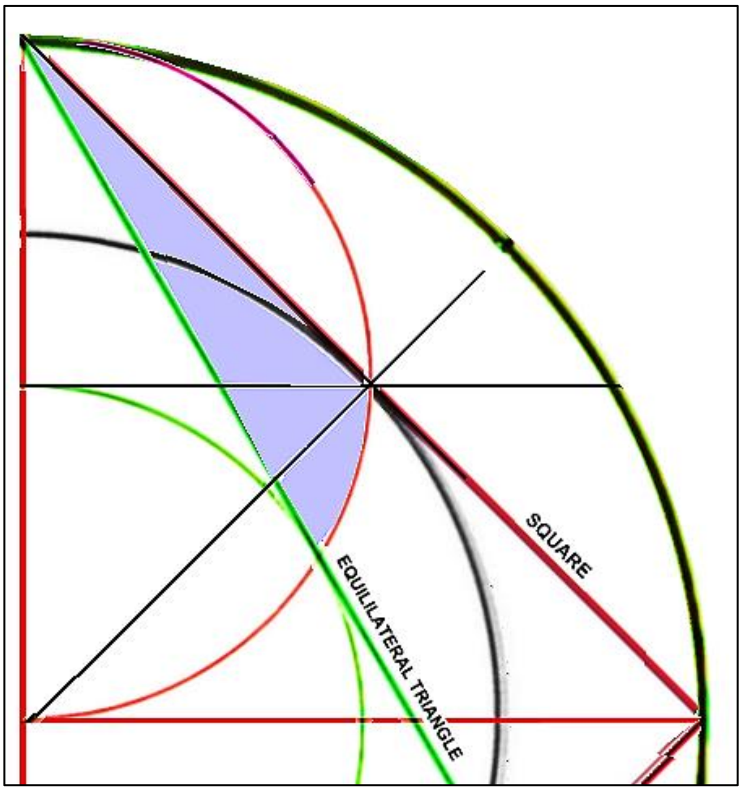
To do this exercise I have borrowed a concept from Thales Theorem and have introduced a constant Diagonal or Hypotenuse. In order to maintain each triangle's ratio I have calculated a "Multiplier" by dividing each triangle's 'Diagonal' by 75, the constant diagonal required. This Multiplier, as it is calculated for each triangle, enables us to reduce each of the other sides but still keeping the *Ratios* of that triangle.

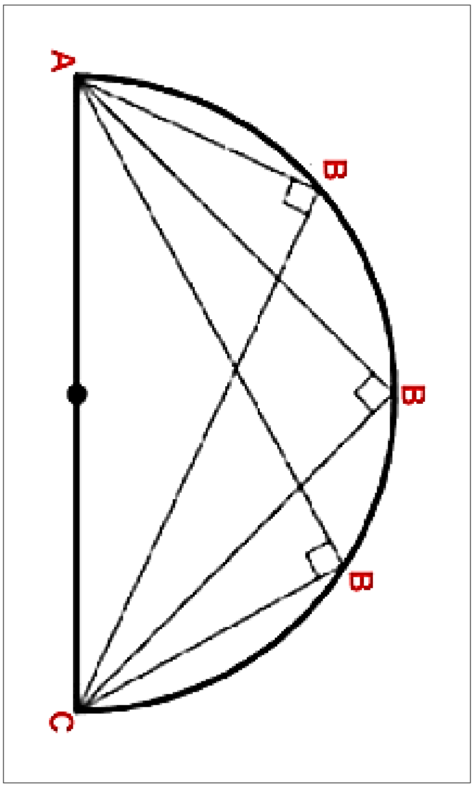
RIGHT ANGLE TRIANGLES AS RATIOS WITH COMMON DIAGONAL OF 75			
		THALES	MULTIPLIER
Long Side	**Short Side**	**Diagonal**	**Diagonal**
{l}	**{s}**	**constant 75**	**{d}**
60	45	75	
55.67010309	50.25773196	75	1.293333333
63.67924528	39.62264151	75	1.413333333
53.25443787	52.81065089	75	2.253333333
62.28373702	41.78200692	75	3.853333333
56.13305613	49.74012474	75	6.413333333
58.51755527	46.91157347	75	10.25333333
57.64611689	47.97838271	75	16.65333333
61.4544213	42.9924889	75	39.05333333
62.71291421	41.13502632	75	43.05333333
57.18723524	48.52442813	75	47.21333333
53.72020725	52.33678756	75	64.33333333
54.14348022	51.89878177	75	88.65333333
59.55152555	45.59183924	75	108.8133333
54.60870503	51.40903943	75	247.2133333

When, in Thales Theorem style, the hypotenuse for each right angle triangle is given the same value, (in this case I have chosen 75 as it is the lowest '*hypotenuse'* value of all the triangles) I was able to produce a Multiplier for each of the Triangle's sides. In this manner I was able to reduce the size of the dimensions for each triangle whilst still keeping the ratios of the sides constant and the hypotenuse for all identical.

Each triangle has a separate Multiplier. If all dimensions of each triangle are reduced by the same multiplier for that triangle then the angles in the triangle remain the same as do the ratios of the sides.

THE RANGE OF PLIMPTON 322 IN MY HIDDEN CIRCLE OF HARMONY (& THALES):





A PERFECT FIT GRAPHICALLY

AND

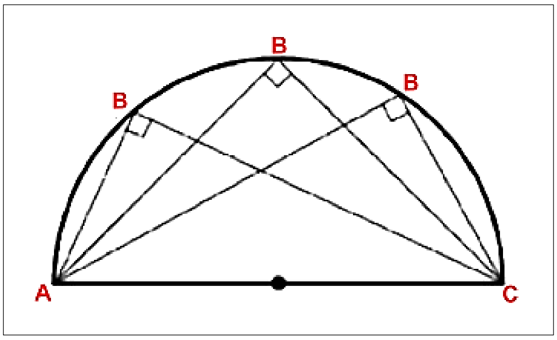
A PERFECT FIT MATHEMATICALLY:

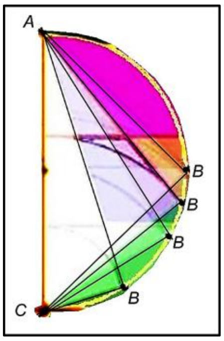
	Long Side	Short Side	Diagonal	Diagonal divided by Short Side	IDENTIFYING SHAPE RATIOS	
A	B	C	D			
1	53.03300859	53.03300859	75	1.414213562	A SQUARE	
2	53.25443787	52.81065089	75	1.420168067		RANGE OF PLIMPTON 322
3	53.72020725	52.33678756	75	1.433026433		
4	54.14348022	51.89878177	75	1.445120626		
5	54.60870503	51.40903943	75	1.458887403		
6	55.67010309	50.25773196	75	1.492307692		
7	56.13305613	49.74012474	75	1.507836991		
8	57.18723524	48.52442813	75	1.545613269		
9	57.64611689	47.97838271	75	1.563204005		
10	58.51755527	46.91157347	75	1.598752599		
11	59.55152555	45.59183924	75	1.645031244		
12	60	45	75	1.666666667	13 POINT POLYGRAM	
13	61.4544213	42.9924889	75	1.744490768		
14	62.28373702	41.78200692	75	1.795031056		
15	62.71291421	41.13502632	75	1.823263693		
16	63.67924528	39.62264151	75	1.892857143		
17	64.95190528	37.5	75	2.000000000	EQUILATERAL TRIANGLE	

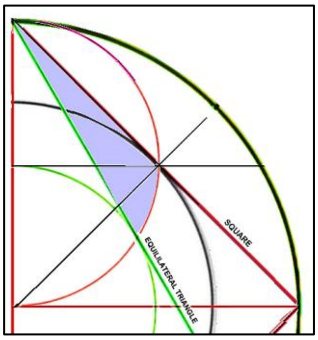
AS THE LONG SIDE EXPANDS THE SHORT SIDE SHRINKS

PLIMPTON 322 TRIANGLES EXPRESSED AS RATIOS.
ANGLES REMAIN THE SAME.
A CONSTANT HYPOTENUSE ENABLES COMPARISON WITH THALES THEOREM.

IMAGES IDENTIFYING THE RANGE of RIGHT ANGLED TRIANGLES on PLIMPTON 322:







PLIMPTON 322 TRIANGLES EXPRESSED AS RATIOS ENABLING COMPARISON WITH EACH OTHER:
And applying the "Pythagorean" equation:
The 'Long Side' squared plus the 'Short Side' squared equals the 'Diagonal' squared:

In this way, using the Multipliers, each triangle's ***ratio*** is maintained regardless of its ***size***.

*RIGHT ANGLE TRIANGLES **AS RATIOS** WITH COMMON DIAGONAL OF 75*

Long Side {l}	Short Side {s}	THALES Diagonal constant 75	MULTIPLIER Diagonal {d}	Long Side squared PLUS Short Side squared	SQUARE ROOT
60	45	75			
55.67010309	50.25773196	75	1.293333333	5625	75
63.67924528	39.62264151	75	1.413333333	5625	75
53.25443787	52.81065089	75	2.253333333	5625	75
62.28373702	41.78200692	75	3.853333333	5625	75
56.13305613	49.74012474	75	6.413333333	5625	75
58.51755527	46.91157347	75	10.25333333	5625	75
57.64611689	47.97838271	75	16.65333333	5625	75
61.4544213	42.9924889	75	39.05333333	5625	75
62.71291421	41.13502632	75	43.05333333	5625	75
57.18723524	48.52442813	75	47.21333333	5625	75
53.72020725	52.33678756	75	64.33333333	5625	75
54.14348022	51.89878177	75	88.65333333	5625	75
59.55152555	45.59183924	75	108.8133333	5625	75
54.60870503	51.40903943	75	247.2133333	5625	75