

Creative power of the Flower of Life

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Introduction

This is my second book that intends to discover the history of the Flower of Life symbol. Now my main focus is on the interpretation of the symbol and on meanings attached to it throughout the history, starting from the Near East Bronze Age ¹ until our days.

The reader is expected to be familiar with basics of the Flower of Life geometry ². Elementary knowledge of the ancient Near East history and history of mathematics is helpful. Knowledge of visual arts, geometry, and comparative religion studies are also useful.

I hope that my independent research provides valuable resources for people to further investigate the topic.

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Foreword

The "Flower of Life" is a widely used and deeply fascinating symbol with historical roots stretching back into antiquity. Until now, however, accurate information and serious discussion about the geometric figure has been difficult to find in one place. Frustratingly, the main source of information on the topic has been the works of a certain controversial New Age author, which are far from ideal as sources for serious scholarship. The lack of a well-compiled and well-written survey of the topic has been keenly felt.

Marko Manninen's book redresses this imbalance. This concise yet wonderfully comprehensive monograph is therefore a very welcome addition to the esoteric literature. It approaches the topic afresh, with a clean slate. Refreshingly there is no attempt here to impose any interpretation or agenda on the material. Instead, it simply offers a clear, complete survey of the Flower of Life: the geometry, its origins, and history. Such a survey is long overdue.

Marko brings to this project a combination of rare talents. He is a long-term student of esoteric lore with very wide reading, he has a keen eye for detail, and he is a highly skilled programmer. The book that he has written, and its predecessor, reflect these qualities. The materials are laid out and presented with impeccable clarity. The data has been assembled with an admirable thoroughness, and is fully referenced with many useful citations to other publications. It is comprehensive, yet compact. The result is a catalogue survey of the topic which is brimming with detail but is also a pleasure to read. There will be many readers I am sure who will be very grateful to Marko Manninen for providing this engaging and well-compiled account of the remarkable figure known as the "Flower of Life".

Simon Miles

Researcher and Writer

Preface

This document is written as a complementary material to the two years old research document entitled *Artifacts of the Flower of Life*¹. The former research concentrated more to artifacts and historical occurrences of the Flower of Life symbol. The current document will concentrate more on the creation and the meaning of the Flower of Life symbol (later called by the acronym FOL). This document is meant to shed light not only to the geometrical but also to the archetypical principles as background concepts behind the FOL. This is done by using comparative mythology and etymological studies.

The first part of this document will bring the reader through the traditional geometrical introspection² to the formation of the FOL. This method is a contemplative, an intuitive, and at the same time a systematic way to understand basic definitions of a point, a line, and a plane. These all are fundamental concepts that are needed to deeply understand the Flower of Life motif. Examination of these concepts can reveal what meaning and function people have tried to express with the FOL motif. Even better, contemplation of the basics of geometry can help us to understand how all things in life evolve from one point, how many things are reducible or groupable to a single instance, and how everything is connected to each other no matter how different and distant in time and space they first seem to be.

The downside of the reduction is that everything starts to look the same which is lethal to the intelligible thinking. The philosophical background of the definitions of sameness and difference, oneness and multitude, or chaos and order is not a new topic. A deep realization of the philosophical concept of identity³ greatly helps in understanding the brilliant net of concepts that are imprinted within the FOL symbol.

The second part of this document contains new discoveries of artifacts as well as new observations and symbol associations that will be presented together with a classification proposal for several variations of the FOL. This can be found in [Appendix 1](#). Especially, the ivory whorl from Cyprus, which is dated around 1600 - 1100 BC, deserves a mention as a one of the oldest object having the FOL symbol attached on it. Naming and symbolic cognates of the FOL are discussed further in Part 2.

A strong botanical connection from the ground up to the final formation of the symbol, as shown in Part 1 and Part 2, suggests that the modern name "Flower of Life" is not too far from the intended meaning of the symbol by the ancients. At least, we can see how the Flower of Life can be plausibly defended as its modern name. Yet, it can be seen that Drunvalo Melchizedek, who made the Flower of Life symbol so famous in the late 1990s, was actually insightful with ancient myths when associating the FOL with the sequential

system of a flower, a fruit, and a tree⁴. Unfortunately, his *sources* were mystified by mediumistic character origins and cannot hold the requirement of verification and testing, which is the requirement, I try to maintain throughout my study.

For the dating of the FOL, my conjecture based on cultural, historical, archeological, and etymological evidence is that the first occurrence of the FOL (class 1 and p) must be timed earlier from my previous cautious estimation of 2000 BC, at least to 2500 BC. To support this dating, the Pre-Indus occurrence of the FOL pattern and certain Hittite symbols are presented and discussed in this document.

Also, some notes about phraseology that is used in this document should be explained. First of all, the ideas presented here have roots in my own thinking unless otherwise stated either in the text or in the footnotes. But that does not mean ideas are solely mine. Many people in many fields have been doing similar research, thinking, and contemplation. In addition, I have made a lot of reflection with hundreds of books, documents, articles, and websites so that the result, this complementary document, is somewhat a mixture of the whole process. A collection of resources, that I have found useful in my investigation, is listed at the end of this monograph.

I have deliberately avoided words such as "certainly", "evidently", "must have been", "supposedly", "perhaps", or "maybe" either to convince or to indicate speculative uncertainty of statements. They would just add too much unnecessary repetition to this document. Most sentences in this document could be prefixed with the "possibly" adverb anyway. I have reserved affirmative words only to certain cases where I specifically want to emphasize the truth value of the expression. Every statement should be regarded as a limited expression of the viewpoint of the one sole investigator, thus always open for deeper analysis, corrections, and critics. For the reader, it would be much better if she / he thinks independently by freely weighing the value of the presented ideas.

The third thing I have tried to bear in mind is that when referring to "commonly accepted", "well known", or "supported by most" it is easy to forget relativity of such statements. This kind of imperative or selective phraseology is tempting, sometimes hard to avoid, and it actually can be an important aspect of the presentation. But without specifying a group with details of individuals in it, phraseology like this does not really give much value to the reader. If we do not have specific people and their works to refer to, how do we get into contact with them, or how are we be able to know about their background and the starting point of their interpretation? How can we come up with our own conclusion then? So, I have provided a lot of references to academic sources, websites, and books to show my sources. The outcome, a style of this monograph, is loosely scholarly and I hope it is beneficial for the most of the readers.

By these forewords, I think it is time to plunge into the topic.



Part 1: Introspections

From a point to a line

In the beginning, everything is simple. In a zero-dimensional space, there is only one point (A) which does not need any coordinates¹ to be specified as a point. The point does not even need to exist at this stage. It could only be an idea like an invisible center of a seed which will later produce a tree with myriad variations of branches and leaves. In the example below, the point is made visible by a dot, though we should remember that the dot and the point are different things. The latter is an abstraction, the former is a concretization of the point.

A

Picture 4.1.1: A point

All there was, is, and will be are on a single point because everything is an extension of a point. Dual state of things, simplicity and complexity, reveal its twofold nature when shifting a point of view of the observer. Dive into the point just like the Earth is seen from the outer edge of the solar system 14 billion kilometers away² and we will see the art of nature in its finest details. We can follow sequences of a fabric in space-time to microcosmic levels until we basically reach emptiness. Zoom out, and eventually we will see blinking sources of light, points on a vast darkness. Expand further, and we end to see nothing. This is the other side of emptiness.

Mesocosm

We humans on the Earth are living in a mesocosm³. The mesocosm corresponds to Mesopotamia nicely, remembering to honor that ancient high culture, which is often called the cradle of our civilization. In the mesocosm, we can ruminate a bottomless pit, the microcosm, that opens its mouth beyond the length of Planck⁴, the magnitude of 10^{-35} . In the mesocosm, we can also speculate the other side of the universe, the macrocosm, which is expanding its limits up to the magnitude of 10^{27} . Between these two rivers, the smallest scale and the largest scale objectives, there is a whopping 100 novemdecillion levels to research⁵. Think of 1 and 62 zeroes:

Indeed, between Euphrates and Tigris rivers⁶ inventions and ideas emerged that enabled people to handle, contemplate, and comprehend huge numbers like this. On the side of Ganges, another legendary river further to the East, astronomical numbers were part of the epic around Sita and Rama. The biggest number mentioned in Ramayana⁷ was exactly the same number calculated above, 10^{62} . Valmiki, the writer of the Ramayana epic, even gave a definitive name to the number: *mahaugha*⁸, which means "very mighty".

It is also interesting to note that J.R.R. Tolkien in his legendarium placed men to the area called "Middle-earth". In his letters he writes⁹:

Middle-earth is ... not my own invention. It is a modernization or alteration ... of an old word for the inhabited world of Men, the oikoumene: middle because thought of vaguely as set amidst the encircling Seas and (in the northern-imagination) between ice of the North and the fire of the South.

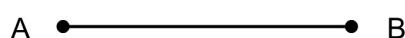
Sharp point

A sharp point, tip of a needle, can be further opened with a certain sub-study of historical linguistics called etymology. Etymology examines the history and origin of particular words. Proto-Indo-European (PIE) syllables *ak-*, *ok-*¹⁰ have many language cognates related to the point and sharpness, and these are spread to numerous Indo-European languages. Of them, an ax, acute, and a peak are obvious in English, but also okra, the pointy plant nicknamed "ladies' finger" fits well to the scene. In the Finnish language, which is the native language of the writer, numeral *yksi* means the number one followed by *kaksi*, the number two with two sharp k-points. In Sanskrit, *eka* means the number one as well.

Finnish *oka* (spike), Latin *acus* (needle), or Greek *acis* (point) and *akesis* (curing that happens by stitching a tissue with needles and threads) are all related by word root. Nowadays we are acknowledged how a hammer behind the auditory canal and the eardrum hits the anvil and makes the world audible to us. That is the mechanics behind the Greek word *akoustikos* (acoustic).

Line and canon

From "nothing to nothing" is a distance that we call the first mathematical dimension or a line. It takes two 0-dimensional points to create the first dimension, a line. Two nothingnesses come into an oscillating relation where the last one, B becomes the first one, A.



Picture 4.1.2: A-B line

Being deliberately paradoxical is not the only fishy thing in this 1-dimensional world what we want to ponder now. Punctures on a line or knots on a rope give a placeholder for different types of canons. The line as a standard measuring rod, a ruler, or a carpenter's tool is called *kanon*¹¹ in Greek. According to Victor Hehn¹², the word *kanon* is derived from a certain cultivated Asiatic bamboo like giant grass called the cane (*Arundo donax*¹³) which was used for many practical objects like walking sticks, measuring rods, and fishing rods. This plant is a root word for a variety of carrying vessels like canisters or even canoes because of the cane's light and tenacious property. The cane was used to make baskets, mats, fishing nets, arrows, flutes, and covers.

In a line, the concept of law can be expressed. Similarly, the rule of truth, set of policies in politics or religion as well as arithmetical number sequences, ratios, or human proportions like Polykleitos describes them in his book *The Canon*¹⁴, can be expressed in a line.

Pythagorean monochord, one string instrument with a movable bridge, was called Canon¹⁵. From an Ishango bone, we can find out that already some 20,000 years ago men used to notch and mark counters to a tally stick in the central Africa¹⁶. In a line fishing hooks hang ready to catch monster equations from the eternal dimensionless sea.

Cane

Parallel to this concept of canon is a Karelian folklore that tells about the creation of the Kantele or Kannel, the national music instrument of Finland. This harp-like instrument is played by the central character Väinämöinen whose magical power of singing and playing music is similar to Orpheus in Greek mythology. Kannel resonates and amplifies sound so that it finally carries tunes, a free joy of music for all creatures of nature. *Canorus* (melodious, euphonious) and *candere* (to shine, to illuminate) in Latin vocabulary seem to yield the same idea of blowing out or carrying out either in aural or in a visual way. A verb "to carry" is *kantaa* in the Finnish language and it is associated with durable (*kantava, kestävä*). This brings both the verb and the name of the instrument phonetically very close to the name of the cane, although an etymological relation between *kantaa* and *Kantele* is not often recognized, even less so with the cane. According to the lore, the first Kannel was made of a fishbone¹⁷:

Then old Vainamoinen played,
Leading off with delicate chords
On the pikebone instrument,
On the new-made harp (*Kannel*) of fishbone.
Nimbly rose and fell his fingers
As his thumb moved lightly, lightly.

Now the music rose to joyance
And the joy to high rejoicing;
All the music felt so real,
On from song to song high hymning,
With the twanging of the pike tooth
And the sounding of the fish tail,
All the horsehair strings resounding,
Stallion hairs re-echoing.

So plucked Väinämöinen the five-stringed instrument with his pointy fingers binding ¹⁸ five major vowels of the alphabet (a, e, i, o, u), the most dynamic, durable, and sweetest of the sounds to his singing. Three additional Finnish vowel phonemes (y, ä, ö) gave supreme verbal power to the utterances of the lineage of sages and heroes on the epical swamps of Kalevala. By deeper exploration, one can find worldwide myths in these tales, e.g. how sea-monsters rose up from the primordial waters to teach mankind, in good and in bad. Väinö or Väinä, the root name of Väinämöinen ¹⁹ means "wide, slow flowing river or strait of the sea". The meaning of the name of the Kaleva giant can be derived to Norse sea-god Hler, Aegir which means "sea" according to Mikko Heikkilä on his article *Kaleva and his Sons from Kalanti*²⁰. The imagery of this epic is so strong that J.R.R. Tolkien was inspired to create one of his first novels *The story of Kullervo*²¹ directly borrowing Kalevala.

Triple word clusters

We all either know or have heard how much mathematics and music have to do with each other. A sequence of notes can be expressed on a line, melodies and whole orchestral composition can be expressed on a staff made of horizontal lines. But also carrying is a fundamental concept of the elemental arithmetics ²². The positional number system that was already used in the southern Mesopotamia during the Old Akkadian period 2300 - 2000 BC ²³, carries numbers to the next magnitude depending on the number base which is used (in their case the sexagesimal or a mixture of bases 10 and 6 to be more exact). Carrying is needed in all basic arithmetic operations like addition, subtraction, multiplication, and division.

It is interesting to note how the other PIE root syllable *bha-* serves as a root for Greco-Latin syllables *phos-*, *phor-*, and *phon-*, namely "to shine", "to carry", and "to sound". A similar cluster of meanings than the cane cognates mentioned before is noteworthy. And again, this triple word cluster is in sync with Finnish words: *kaunis*²⁴, *kantaa*, and *kannel* as well as with Latin words: *canorus/candor*, *canalis/canistra*, and *canere* respectively. In many languages it looks like the whole group of concepts (linguists might say "a cluster of cognates") are tied to these two different roots, the cane word and the *bha-* syllable.

Su'bha in Sanskrit means bright and beautiful which are both expressed on one well-known statement that is probably misattributed, but that is rightly so describing the spirit of Plato:

Beauty is the splendor of truth

Moreover, *Bha'rati* is to carry, *bha'jan* is a devotional song, *bha'n* is to speak or to say, and *bha'rtr* is to sustain²⁵. Thus, we see a similar group of concepts emerging from the same Sanskrit root syllable.

Ancient Assyrians wrote Cuneiform²⁶ signs on a waxed training tablet or final clay tablet with a small reed-like stylus²⁷. Tip of the stylus is actually a triangularly shaped wedge and the simplest sign we could make with it is a triangularly shaped "point" or *santakku* in the old Akkadian language. *Santakku* meant wedge, triangle (sometimes concave), and one/ten as a number. Later in this document, we will see how this triangular point idea is right in the heart of the Flower of Life symbol.

In a womb of all written and engraved things, the FOL bears fundamental ideas of breathing out, sounding, beautifully shining rays, carrying, binding, and living.

Although a plethora of concepts has now been opened for introspection, one point and one line are still too limited to express more advanced forms of the FOL explicitly and unambiguously.

From a line to a plane

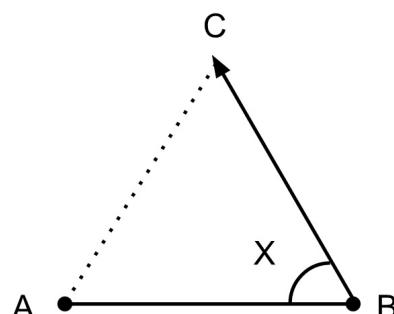


Chinese "Yin and Yang" -figure (on the left) is a beautiful geometrical symbol which contains the idea of opposite seeds. We can see a white seed on the black background and a black seed on the white background in a relationship that enables everlasting change and mutation.

Not only two is apparent on a line, but also two points (A & B) and the relation between them, or one segment with two ends, are giving three "things" at once. Is this the reason why ancient arithmeticians did not regard one and two as numbers at all, but rather said that three is the first real number? A subject, an object, and the relation between them, they all are included simultaneously in the conscious act of the investigator.

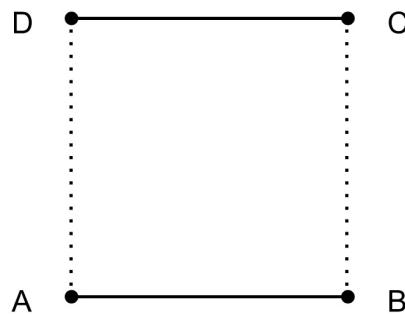
Triangle and square

When the space between two points, A & B is maximized, Prime Mover¹ needs to find new ways to introspect. Instead of increasing what already is a maximum distance from A by moving forward, or decreasing the distance by moving backward on the line, Prime Mover causes a movement to any other direction C with an angle X. And like magic, the first and the simplest of two-dimensional shape between all points (A, B, and C) is created, a triangle:



Picture 4.2.1: Triangle - the simplest two-dimensional shape

The shape of a triangle² can be any and is related to the side lengths and angles of a triangle, but for simplicity and suitability for our theme, we have presented an equilateral triangle as above. Another common way to describe this dimension is by projecting the line CD parallel to the line AB so that it creates a square:

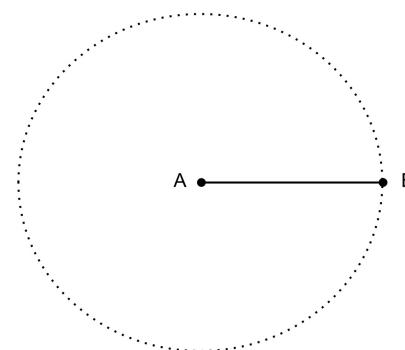


Picture 4.2.2: Projected square

There are several different shapes that four lines can make³, but we will focus mostly on a square and a rhombus.

Circle

Triangular, quadrilateral, or any polygonal shapes exist in this two-dimensional world. And so does the shape that is the source of all mysteries, a circle. Consider a line constructed from points A and B, where A is stationary and B moves. If we take a single direction other than backward or forward, we keep the distance to the stationary point A the same, and we keep moving then a circle will appear:



Picture 4.2.3: Simple circle

By changing a few factors like adding center points or changing the length of the radius, we can draw different types of circles and ellipses.

We do not really know when people have started to use steady or adjustable drafting compasses to draw perfect circles like this. A certain time period of the Indus civilization, the Mature Harappan civilization (2500 - 1900 BC), contains a lot of historical evidence in pottery paintings that certain instruments were used to draw circles⁴. Instead of finding the source of the invention of the compass from rounded pottery and their circle oriented decoration or stone circles from Neolithic times, one could see further to the dawn of

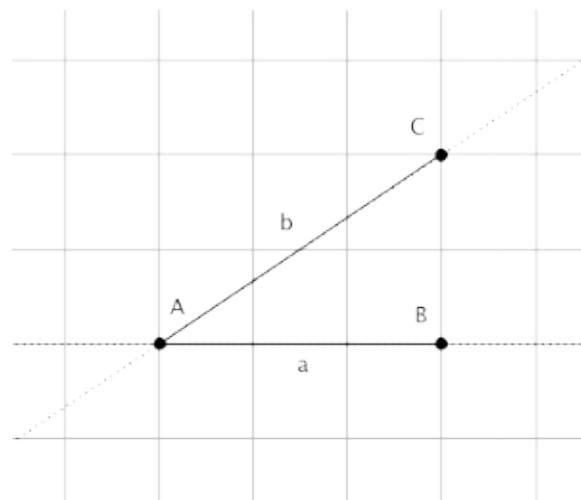
agriculture when animals were domesticated. It was usual that goats and similar animals were tethered to a center pole. When the goat ate grass and stamped the ground around the pole, it can be seen how a circular area was formed⁵. This can be imitated easily on a smaller scale with a center stick, a wire, and a pen.

Anyway, from the formation of a triangle, a square, and a circle we can see how many new things happened and from what started simple is getting more complex now. Still, we should see how everything evolves from a single point, extends to a line, and finally to a plane. Traditionally a plane (a surface) is defined as a line with width and a solid as a plane with height.

Angles rising from...

The point actually has the second planar dimension in its very etymological nature. Sharp edges of the triangle, corners of the square and degrees of the circle are turning points on a plane that create angles. As we remember, sharp sounding *ak-* and *ok-* PIE syllables are related to the point etymology, whereas softer *ank-* and *ang-* syllables⁶ are often related to corners and angles. Conifer⁷ cones⁸, very ancient and widely used symbol in the Assyrian art, are directly pointing to or carrying these angles and sharp edges in their botanical etymology.

Angle is the new notable feature in the second dimension that should be carefully contemplated. When two lines intersect with each other they form a certain relationship. Say the line *a* is a straight line going through points A and B. The line *a* will act as a reference from now on. The straight line *b* will go via points A and C. Now both lines will meet at the point A, thus forming an intersection point. The special relationship that the lines make at that point is called a slope or a ratio by the fact that for every three horizontal steps (a run) the line *a* takes, the line *b* will increase its vertical value by two (a rise).



Picture 4.2.4: Slope as a ratio / logos



Picture 4.2.5: A four-winged genie in the Bucket and cone motif. Relief from the north wall of the Palace of king Sargon II at Dur Sharrukin, 713 - 716 BC / Public Domain

Thus, the ratio is $\frac{3}{2}$ or its reciprocal ratio $\frac{2}{3}$, depending on which is the property we want to compare to, a width to a height or a height to a width. Generalizing this idea, Thales, the famous mathematician from Miletus (around 600 BC) found out that he can deductively calculate the long forgotten and the impossible to measure the height of the Great Pyramid based on the height of himself, the length of his own shadow, and the length of the shadow of the pyramid at the certain time of a day⁹. This forms the very base of the logic itself because using ratios (that is: defining relations) and proportions (that is: using analogies), logical reasoning is possible. In fact, logic or *logos* as ancient Greeks called it, is an actualized proportion.

...deep waters

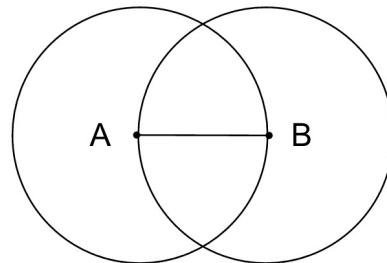
In mythology, divine reasoning or just the law is best described by angling (fishing with hooks) and fishing with nets. The bigger the fishes are, the more cosmic and orderly principles of the creation process they are meant to describe. Half a fish and half a man creatures appear in many ancient cultures. In Mesopotamia and Egypt, Abyss or Ab is the primordial sea (Thalassa¹⁰ in Greek mythology), where Dagon¹¹ or Aptu¹² (transformed Isis in Egypt) rose up to teach mankind. Controversial Flower of Life symbols, which are shown in the previous research, are found from Abydos, Egypt. The Apsamikku (or ab-za-mi), the other "Flower of Life" symbol discussed later in this paper, may refer to a window or to a hole leading to the deepness of the ocean. Order of points in the triangle ABC has a strange correspondence to the name syllable of the deepness ABS / ABZ. This seems to remind us that the alphabetical system has been empowered with the creation principles of the ancient myths.

These are very powerful ideas derived from a geometrical angle. But let us get shortly back to the botanical field. A plain flat and thin surface, or a plane as described in mathematics, has etymological roots in a sacred Western Asian broad-leaved plane-tree, *Platanus orientalis*¹³. As Victor Hehn mentions, it was under the plane-tree where Plato seats his teacher Socrates and Phaedrus for a chat¹⁴. Was it fanciful Plato thinking of himself as a cover and soothing his dear protagonist Socrates and interlocutor known from many dialogues, Phaedrus¹⁵ in a torrid Mediterranean day? We may not know the reason, but we can be sure that it was an ideal place for a conversation of the mastermind and geometry lover, Plato. In one sense Plato further developed the proportional discovery of Thales. Not only was truth reachable by using analogies, but actually the world of logic or *Logos* was the only true world, making the sensible world only a reflection or a shadow of the immaterial world.

On this plane, we can finally draw a plan for the central figure in question, the Flower of Life.

From a plane to the Flower of Life

The formation of the FOL is easy. First, we have one circle (centered at point A) on a plane. Then we interlock another circle (centered at point B) with the first one by intersecting both circles through their centers on the same plane:

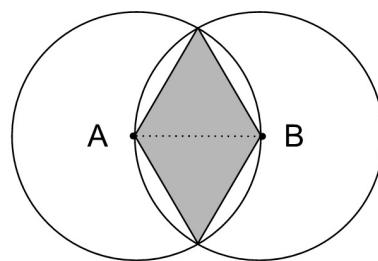


Picture 4.3.1: Two circles intersecting at their centers

This figure is known from Old Babylonian times as an Ox-eye (*igi.gu₄*¹), and it can be seen as a primary generator of well-defined geometric forms. The lens-like part in the middle has various names such as Vesica Piscis (bladder of a fish), womb / female vulva, and mandorla (almond) that brings us back through a botanical connection to the symbology of the formation of the FOL. Symmetrical figures outside of the oval central shape are called lunes² in geometry and they resemble waning and waxing phases of the Moon.

Rhombus

Another geometrical figure constructed to the intersection points in the middle is a quadrilateral rhombus, which is shown below:



Picture 4.3.2: Quadrilateral rhombus

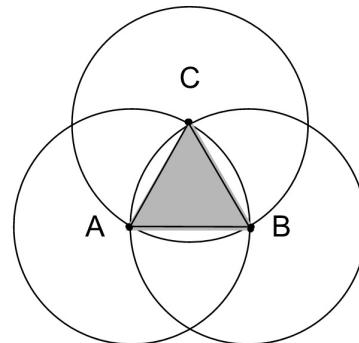
This shape (or thinner lozenge version) has been used on temple mosaics in the ancient Sumerian city of Uruk IV (3400 – 3100 BC) as already mentioned in my previous research³. Rhombus (*gan illar*⁴, a bow as denoted by Old Babylonians) can be seen as two equilateral

triangles face to face. We often can find this symbol often on mosaics and paintings, too. Below is a part of the geometrical work on the walls of the ancient synagogue in Sardis⁵:



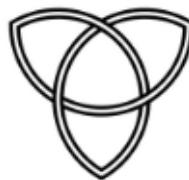
Picture 4.3.3: Rhombus geometry on synagogue wall in Sardis

By adding one circle to the intersection point C, a triangular wedge shape becomes even clearer:



Picture 4.3.4: Equilateral triangle

2300 years ago this figure was studied by Euclid in his book *Elements Book 1*, Proposition 1⁶. From previous etymological notes, we remember how cuneiform language is written with a reed stylus sharpened to a triangular shape in one end. This is why the whole cuneiform writing system is in the center of the early formation of the FOL. The curved triangular shape in the middle is called Reuleaux triangle⁷, which has also been studied by Leonardo da Vinci. What did he not study?!

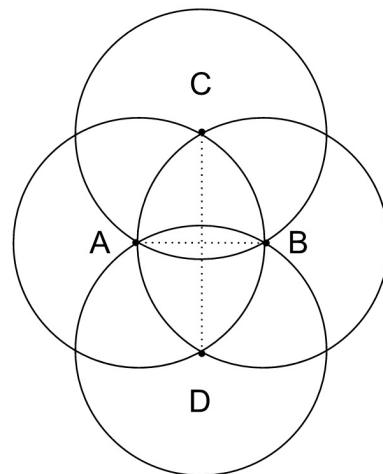


Picture 4.3.5: A simple triquetra symbol / Public Domain

Another shape that is continuously used in religious context in various cultures to symbolize trinity, is an interlaced triquetra⁸, or a trefoil knot which is shown above.

Square root of 3

The further procedure to create the FOL is simply repeating: 1) finding a center for a new circle from the previous circles' intersecting points and 2) adding a new circle on it. Let us add a circle (at point D) to the figure:



Picture 4.3.6: Lens in a lens

We can see two other features appearing at this point. A smaller lens or leaf is at the center of the Vesica Piscis between points A & B. When multiplied these leaves becomes six petals on the rosette. Another feature is a mathematical relationship between lines CD / AB which is known to be the square root of 3 ($\sqrt{3}$) or "a measure of a fish". Origin of the latter term or its possible relation to the allegorical story of 153 fish⁹ in the New Testament¹⁰ has faded to the history. But we know that Archimedes used the ratio $\frac{265}{153}$ as a lower limit estimation for the square root of 3. He used this ratio to further estimate the relationship between a circle's diameter and its circumference - the so famous pi (π) - giving it a practical value of $\frac{22}{7}$ (or $3\frac{1}{7}$).

Already from the Old Babylonian times, it is known that people tended to give descriptive names for all possible geometrical figures. Ideas for names were derived from everyday objects. A good example is a form called Arbelos¹¹ or "Shoemaker's knife" which was studied by Archimedes in 250 BC. Ancients before Archimedes did not have mathematic symbols like we have today. Instead, they used rhetorical algebra¹² and everyday words for geometric shapes, which also often had mystical properties within their belief systems.

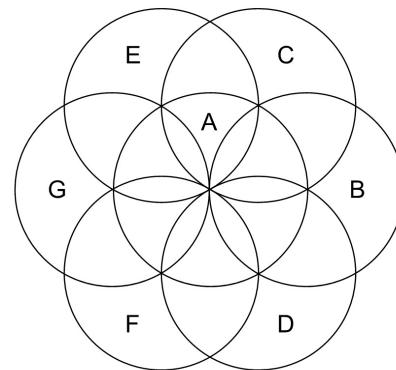


Picture 4.3.7: Arbelos - Shoemaker's knife © Mosmas

Thus, the name and the meaning of the square root of 3 could have been associated with the fishes. Yet, the square root of 2, or halving and doubling, could have been associated with the bread. See for example "grain-field" or "barge" that are terms used in Babylonian mathematics¹³. But more interesting is the fact that the square root of 3 is not only the ratio inside Vesica Piscis, but also the diagonal of the cube compared to the side of the cube. Unfortunately going more deep into the third dimension is not in the scope of this document. This is just another example how ideas of higher dimensions are present in lower dimensions.

Six-petal rosette

The naming of the FOL is speculated later on in the document Part 2, so let us finalize the figure by adding circles with center points E, F, and G:



Picture 4.3.8: Six-petal rosette

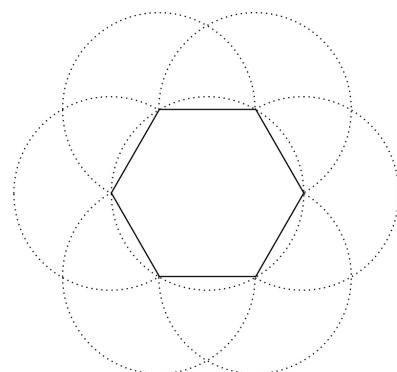
The most apparent new feature, in this stage, is a six-pointed figure in the middle of the geometrical construction. In art and archeology, the figure is called the six-petal rosette. We can now see how easy it is to create it, and this explains why it has been so widely used over the millenniums all the way until our days.

I have not collected items containing the six-petal rosette simply because they are far too numerous and could fill a whole book. A good source for nearly 300 pictures can be found from the dedicated 6-petal photostream ¹⁴ on flickr.com. Recently, I found this symbol from medieval roof paintings (possibly 1400 AD) in the Porvoo Cathedral ¹⁵, Finland. The symbol is combined with flower and spiral motifs, which can be seen below:

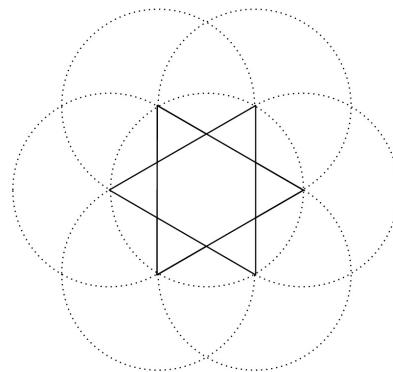


Picture 4.3.9: Floral motives in Porvoo Cathedral

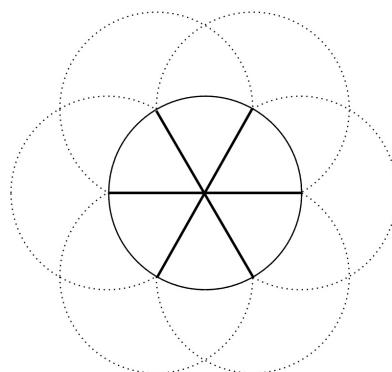
Three more figures worth noting are found when connecting six intersecting points of the previous figure with straight lines. They form the hexagon (picture 4.3.10), the hexagram (picture 4.3.11), and the six-spoked wheel (picture 4.3.12).



Picture 4.3.10: Hexagon



Picture 4.3.11: Hexagram



Picture 4.3.12: Six-spoked wheel

The figure in the middle, the hexagram is also known as the Star of David. The hexagram is often associated with Judaism, but *satkona*, as the hexagram is called in India, has at least equally long history¹⁶. It is still debated if the hexagram is a later pagan association

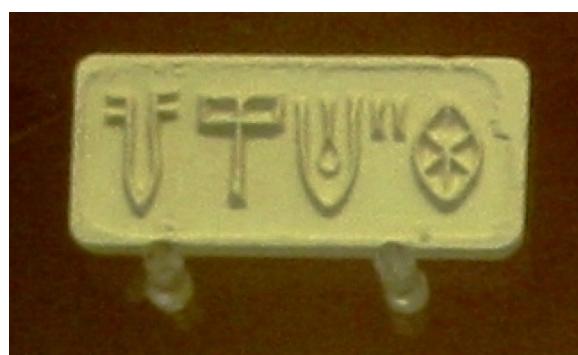
stigmatized to the Judaism, for example into the flag of Israel. It is argued that more ancient and more genuine symbol was a seven-branched candle holder, the Menorah of the Temple. However, it is quite evident that numbers 6 & 7 and symbols like the Star of David and the Menorah were unbreakably tied together. Mixed feelings towards the number six apparently came from early Christian apologists and their apocalyptically oriented facile interpretations of the number 666. Albeit more philosophically oriented Jewish thinkers like Philo Judaeus regarded the number 6 as a perfect number. Philo hardly thought anything evil or imperfect involved in the number six even the praise over the number seven is repeatedly stated in many of his works, for instance, *The Special Laws II*¹⁷:

But Moses, from a most honourable cause, called it consummation and perfection; attributing to the number six the origination of all the parts of the world, and to the number seven their perfection; for the number six is an odd-even number, being composed of twice three, having the odd number for the male and the even number for the female, from the union of which, production takes place in accordance with the unalterable laws of nature. But the number seven is free from all such commixture, and is, if one must speak plainly, the light of the number six; for what the number six engendered, that the number seven displayed when brought to perfection.

The geometric relations presented in this book, PIE and Semitic numerals phonetic intimation^{18 19}, astro-mythical association with the Pleiades, and symbolic attachment presented later in Part 2 shows that there are other natural explanations, which give significance to numbers 6 and 7, $\frac{6}{7}$, or its reciprocal $\frac{7}{6}$ ratio.

Six or seven?

The dominant presence of the six-spoked wheel sign in the Old Indus script from the third millennium BC suggests that the meaning of the six was imprinted deeply into the culture. The world leading specialist and professor emeritus of Indology, Asko Parpola associates the six-spoked wheel with the Sun.



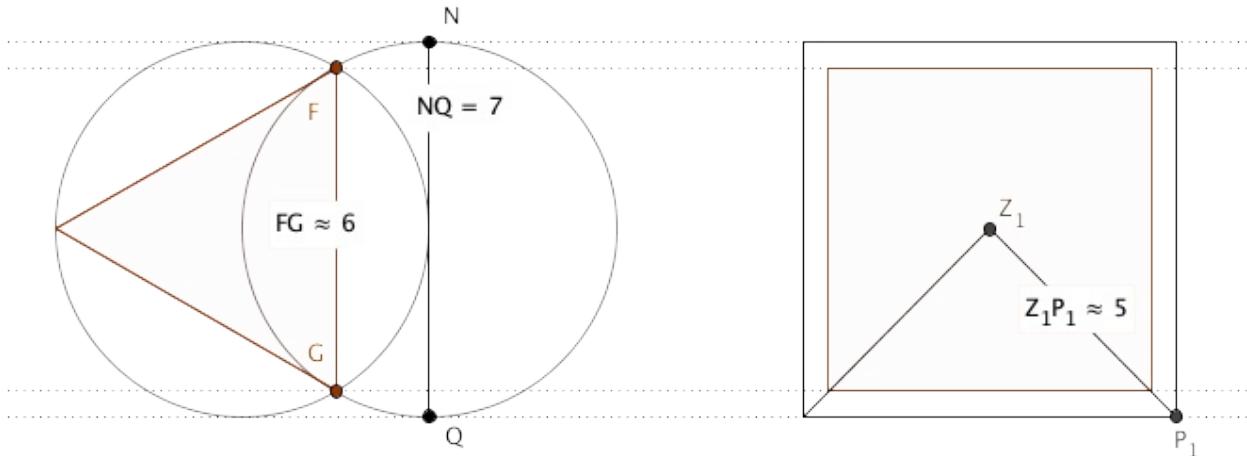
Picture 4.3.13: Seal from the time of the Indus Valley Civilization © World Imaging

Parpola also mentions that there is a group of six vertical lines with a fish symbol²⁰, which he associates with the Pleiades star cluster. The Pleiades was known to be close to the Sun at vernal equinoxes in the 3rd millennium BC. Both eastern and western traditions share the same identifiers of the Pleiades. Once the Pleiades (meaning "plenty" or "to sail") was seven sister stars visible for a naked eye, but then something happened and one of the stars disappeared. According to the Greek legend, Merope²¹, the disappeared star of the Pleiades, was having sexual intercourse with a mortal man and became invisible from shame²². The Pleiades was a crucial sign on the night sky for sailors and a seasonal sign of the spring equinox for farmers at the era of Taurus, the Sacred Bull in 4000 - 1700 BC²³.

It is speculated that there were supernova blasts at the moment of the disappearance of the lost Pleiades star which caused huge disasters in the northern hemisphere of the Earth²⁴. The sudden disappearance of the famous star must have had an impact on different civilizations. Was it a catalyst for changes in ancient civilizations and did it happen at the time of Taurus is just speculation, but strange coincidence with 6 & 7 relation is perfectly fitting to the geometrical progression and historical evanescence of the FOL. According to Biblical chronology, the Great flood and collapse of the Babel tower are dated between 3000 - 2000 BC, which suggests that there has been another dark age that we are not totally aware of.

The importance of six and seven was so deeply imprinted in the cultural communication components (remember the division of cubit measurement units to Royal = 7 palms and Mundane = 6 palms in the Old Kingdom of Egypt or the same with the ancient Israelite long and short cubit) that people already in those times became unconscious of their detailed meaning. The structure of 6 & 7 was an integral part of the communication systems, a tool to be used to understand, control, and measure circumstances, but nothing to be comprehended.

One more figure to illustrate the relationship between 6 & 7 is presented below. If we draw a circle with a diameter 7 (NQ) then the height of the Vesica Piscis (FG) is $\frac{7\sqrt{3}}{2} \approx 6$. Consequently, the area of the brown square is approximately 36. Half of the diagonal of the black square (Z_1P_1) drawn around the circle is $\frac{7\sqrt{2}}{2} \approx 5$ or approximately 10 as the full square diagonal.

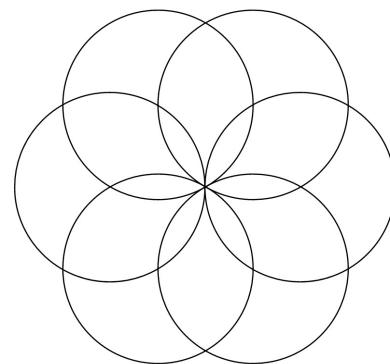


Picture 4.3.14: Six and seven ratio

Close connection to the number 5 or halving factor as opposed to the number 2 as a doubling factor is seen from the square of the 7 which is $7^2 = 49$, just one short of 50 (or 2×5^2). $\frac{7}{10}$ in Egyptian fractions is denoted by $\frac{1}{2} + \frac{1}{5}$.

These whole number values are quite practical and can explain why 6 & 7 had such an enigmatic position in ancient stories. In ancient sexagesimal (base 60) and modern decimal (base 10) number systems numbers divided by 7 $\{n \in \mathbb{N} : n \nmid 7\}$ will give recurring decimal expansion, meaning that the outcome of the numbers divided by 7 are not as easy to handle as others²⁵. Adding that $\frac{22}{7}$ has for long been used for pi approximation, which is why I think there are natural (mathematical and geometrical) reasons why 7 has such an important role in myths. It can be seen as an invisible actor behind fundamental arithmetic relationships.

How does this relate to the study of the FOL? There are six circles around the First One which is in the middle and is connected to all other circles. This First circle is a reminder of the Primum Movens which is about to move to the background very soon leaving people to debate if there ever was such a thing called the First Cause and the Prime Mover. Or maybe there was, but it is not taking any action anymore, maybe it is just passively observing the thrive and the cease of the universe that it once set forth.

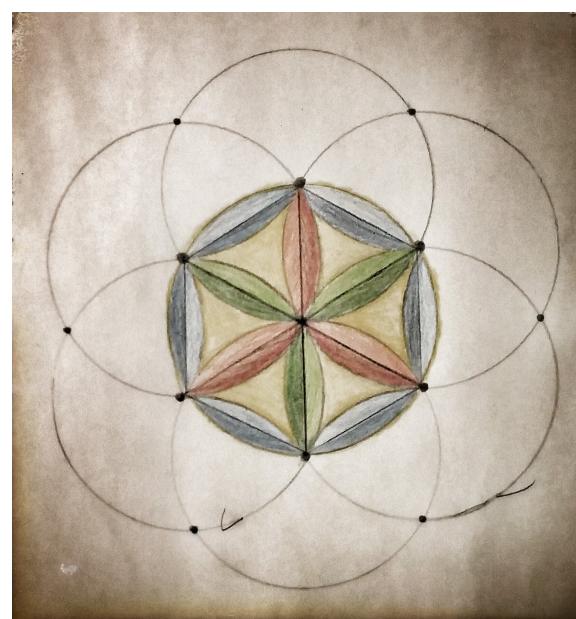


Picture 4.3.15: Six circles

From the illustration above, we can notice how the first circle can be taken away from the center of the construction while still keeping the figure symmetric and complete. Although they are often cited, it is good to meditate these words from Genesis 2:1-3²⁶:

Thus the heavens and the earth were finished, and all their multitude. And on the seventh day God finished the work that he had done, and he rested on the seventh day from all the work that he had done. So God blessed the seventh day and hallowed it, because on it God rested from all the work that he had done in creation.

Number six seems to be the final complete and steady result at this stage, but we know that it was created by the help of the seventh circle in the middle. Thus, we can say that a total of seven circles is the greater base of the FOL while the first two circles forming the Vesica Piscis are the lesser base of the FOL.



Picture 4.3.16: Flower of Life, class 1

When the center circle is included on the motif, FOL class 1 is formed because six more leaves encircling the six-petal rosette become apparent. On the outer edge of the hand-drawn figure above (picture 4.3.16), we can see six more intersecting points that urge us to repeat the procedure over and over again.



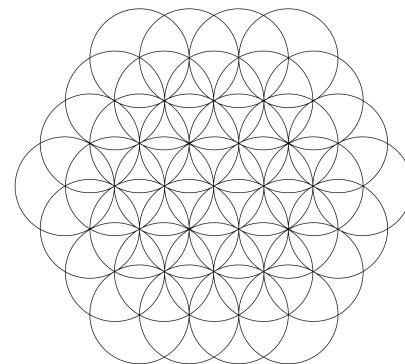
Picture 4.3.17: Flower of Life, class 2

On the above figure (picture 4.3.17) we have finished the second round and encircled the motif with 12 leaves. This is the FOL class 2. Both class 1 and class 2 are common in the ancient mosaic art, ivory items, and wooden carvings.

FOL - symbol and pattern

When more circles and rounds are added, different levels of the FOL with certain mathematical properties will appear. I have classified these levels or stages in [Appendix 1](#). There is practically no limit on levels we can go around and create new petals for the flower. Thus, we can think that the FOL is a dynamic, infinite process of thriving, producing, generating, and spreading. Flowering so to say. Every level holds seeds for the next generation. Seeds, centers of circles, are in the intersecting points at the outer edge of the formation. Intersecting points are wounds on the perimeter. There is a cut on the ground and a new seed is sown. The death and the disappearance of the seed on a planar field enable a new greater manifestation of the FOL.

We can now see the third round of drawing process of the formation of the FOL below:



Picture 4.3.18: Flower of Life, round 3

A very subtle but still important aspect must be noticed here. If the FOL pattern is continued further like this without the finishing step described below, we can rather speak of ornamentation than the symbol itself. If we finish the picture by filling 18 outer leaves of the hexagonal shape of the figure and remove the leftover circular arcs, we will end up getting a well-defined, clearly elaborated, consciously bordered symbol (see picture 4.3.21). This way we can make a distinction between an ornament and a symbol.

But this does not mean that an ornament can't act as a symbol, even if it itself might be constructed from repeated symbols. One can see this ornamentation defined to a higher category, analogical to a decryptable non-verbal sign of intercultural communication as described by Nadezhda Nikolenko²⁷:

The nature of any ornament is twofold: being a sign-index, a direction indicator in the intercultural communication process, at the same time it is a symbol. It contains cultural messages of communicating ethnic groups in a compact form.

...

It means that in order to facilitate the understanding of the symbolic structures' meaning, we should find analogues of the element in the culture of the recipient. For example, some symbols of the nomadic ornament may have analogues in the ornamental culture of settled folks (astral, solar and plant symbols). Then, in the case of effective intercultural dialogue and with the direct participation and leadership of the communicator, the recipient may have a possibility to learn to interpret adequately the transmitted ornamental symbols.

Cow who ate a flower

Knowing the simplicity of the construction of the FOL, it is confusing to find out that the four-petal lattice, the Cownose pattern (akk. *apsamikku*), outscores the FOL by being a far more common in Sumerian and Indus cultures. The popularity of the Cownose over the FOL can

still be witnessed in Greco-Roman mosaics. The Cownose seems to be the most analyzed ancient geometric form by modern researchers as well. In books about Old Babylonian mathematics and geometry, authors tend to use most of the effort (Duncan Melville, Eleanor Robson, Tom Zara, Jöran Friberg) to the Apsamikku (we may follow an endless debate over the name) and $\sqrt{2}$ only casually mentioning the six-petal rosette, Vesica Piscis or $\sqrt{3}$. For an additional example, R. P. Kulkarni mentions Mackay (1948) demonstrating a 12 division base of the four-petal rosette on the Plate XVIII²⁸ which dates to 3rd or 2nd millennium BC Indus culture. The exact dating is hard to deduce from the text. But again, the Cownose gets the full attention.

However, E. Robson in Mesopotamian Mathematics, 2100-1600 BC²⁹ mentions Kilmer (1990), who clearly states that the Apsamikku concept may apply to the three sided geometrical figure as well. Coefficient list on page 50 further shows that *a-pu-sa-mi-ik-ki sa 3* refers to the concave triangle figure. This is probably the closest we can get to the name which ancient Babylonians have used for the FOL-like pattern: **Apusamiikkku**. And this is the standpoint from which I am further developing the theory of the meaning of the FOL in Part 2 of this monograph.

Ancient Edakkal caves in India give an impression of Neolithic people trying to figure out the difference between concepts of dividing a circle to six or to eight parts. Picture below was kindly provided and permitted for use by Tes³⁰:



Picture 4.3.19: Six and eight-spoked wheels in Edakkal caves © Tes

Wiki page states the ancient history of the caves:

Edakkal Caves are two natural caves at a remote location at Edakkal, 25 km from Kalpetta in the Wayanad district of Kerala in India's Western Ghats. They lie 1,200 metres above sea level on Ambukutty Mala, beside an ancient trade route connecting the high mountains of Mysore to the ports of the Malabar coast. Inside the caves are pictorial writings believed to date to at least 6,000 BC, from the Neolithic man, indicating the presence of a prehistoric civilization or settlement in this region. The Stone Age carvings of Edakkal are rare and are the only known examples from south India.³¹

These separate but connected ideas of the binary and the trinary division of wheels are crucial in order to understand the development of the Cownose and the Flower of Life patterns further. Philosophically the sequence of the square root 2 and the square root 3 was developed by Plato in Timaeus, where he speaks of Anima Mundi or World Soul and sets up the concept known as "Plato's lambda". It is a simple right and left handed sequence of numbers starting from:

- a) 1, 2, 4, 8,...
- b) 1, 3, 9, 27,...

These doubling and tripling sequences are nothing but powers of the square root of 2 and the square root of 3. In the Common Era, Philo Judaeus and Didymus the Blind developed these sequences accordingly finding that the seventh item of the sequences, namely 64 and 729, happened to be a square and a cubic number simultaneously³².

Mythologically these two sequences are coherent with roots of the trees better known as the Tree of Knowledge and the Tree of Life. The Tree of Knowledge is an ability to distinct between good and evil, i.e. the difference in existence. The Tree of Life serves as a unifier, i.e. the sameness on existence. Ernest McClain has gone deep to the realm of this idea in his excellent book *The Pythagorean Plato: Prelude to the Song Itself*³³.

Oldest reference to the FOL pattern so far

In his book on pottery styles, Gonzague Quivron presents an interesting collection of floral motives developing from early to mature stage³⁴ in the Indus Valley Civilization chronology. In the figure 16.8, **the FOL pattern (class p) exists already in the Pre-Indus traditions**, before Mature Indus period, i.e. before 2500 BC. But then the FOL disappears from the motif samples while the Cownose motif (16.9) appears practically on every stage. A partial screenshot of the figure 16³⁵ can be seen below:



Picture 4.3.20: Flower motives © Gonzague Quivron

Although not totally satisfactory, because I have not found the actual artifact, nevertheless, this is the earliest reference to the FOL pattern I have found after my earlier research in 2014. I expected to find the earliest references to the FOL at around 2000 BC from Mesopotamia, but instead the earliest reference is the ancient Indus ceramic pottery decorative motif from the middle of the third millennium BC. From now on, it is just a matter of debate between historians and their schools; if we can expect that the FOL ornament was really invented in India, or if it was borrowed from Mesopotamia, thus making the dating of the FOL symbol to be even earlier than 2500 BC. The next occurrence of the FOL in India is the Bedse cave arch decoration³⁶ on a Buddhist temple in Maharashtra, India, 200 BC.

A gap of over 2000 years in the recorded FOL findings in India must be partly because artifact samples are from books and media which are provided by individuals and organizations who have paid no attention to the FOL motif itself. The FOL motives are left out from printed materials, they are just not brought to publicity. Yet, I want to believe.

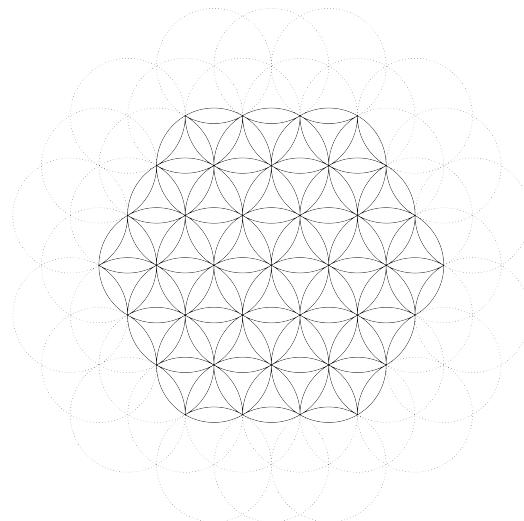
Another historical reason for the lack of interest toward the FOL might be that the FOL pattern became part of an esoterizing phenomenon, where certain intellectual structures related to subtle angulation of 60 degrees, confusing 6 & 7 parity, the disappearance of the seventh star of the Pleiades, etc. altogether perished from the radar of the public eye. These structures, rather than disappearing totally from the culture or becoming a subject of secretive speculation, became an integral part of cultural communication systems, myths, and tools. They were not an object of investigation, they had become banal, too apparent and close for people to be astonished about anymore.

Another innate reason for Cownose being more common is the straight edge appearance and origin of the symbol. Setting lines on a 90 degrees' angle, crossing them like \times is easier to do than the subtler 60-degree angle. We could find out the right angles roughly with our eyes, the right angle will lock in and please us immediately. Right angled forms like swastikas can be traced back to 10,000 BC. Eight-spoked ivory wheels from Sungir suggest that 2-fold rotational symmetry was appreciated even 30,000 years ago!³⁷ For a triangular orientation, some tools, calculation, or practice must be done in order to come up with a precise solution. There is more struggle with it. Trisecting an angle is a very famous ancient Greek geometric problem that is impossible to solve by a straightedge and a compass³⁸. Thus, my theory is that the quest to find a 60-degree angle is a result of further development of the structural understanding of the world, the sign of higher resolution capacity of the human mind. Although, as a geometric construction, a triangle comes first from the intersection point of the first circle and the second circle perimeters, the human knowledge and the comprehension evolve later to understand triangularity.

But now it is time to complete the FOL class 3.

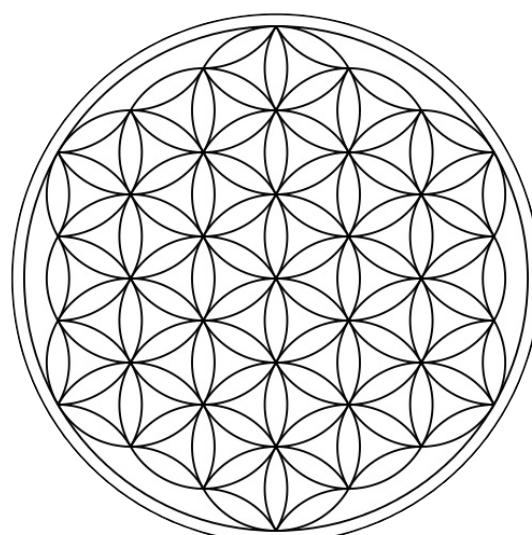
FOL class 3

In the picture below, leftover and erasable arcs are faded by gray dotted lines leaving 18 outer petals as a border of the hexagonally shaped symbol. Black solid lines present the final symbol, the Flower of Life class 3:



Picture 4.3.21: Flower of Life class 3

Although sometimes used as an ornament and as a pattern (particularly on [class p artifacts](#)), my take is that the FOL also has a strict symbolic form. This comes apparent by enclosing arcs, which are notable for [class 1](#), [class 2](#), and [class 3](#) illustrations. We can often see the final symbol placed on a circular object, to places such as the bottom of goblets, vases, and whorls. Or alternatively, the FOL symbol might be encircled with a deliberate border, like on mosaics. In his books ³⁹, Drunvalo Melchizedek pays a great attention to the limiting additional circle around the symbol. Seemingly, the border that is used will affect some mathematical ratios that we can see in the FOL. In the picture below, the bigger interior circle around the motif is in contact with the six outermost smaller circles. The bigger exterior circle finalizes the symbol as it was described by D. Melchizedek. This concludes the formation of the symbol in Part 1 of this complementary document focusing on the formation of the FOL symbol.



Picture 4.3.22: Flower of Life / Public Domain



Part 2: Meaning of the symbol

Since my research in autumn 2014, a lot has happened. In the summer of 2015, I made another research trip to Cyprus and Malta. This is because these islands were mentioned on many occasions when I read about the history of Neolithic cultures and their use of geometrical art and symbols. Although not as numerous as in the previous research document, the new items discovered on my new trips are still interesting and valuable for further speculation. Especially, the old ivory item found from Cyprus with the FOL class 2 motif on a pitted background gives evidential weight for an argument for the wider existence of the symbol in around 1500 BC. In the summer of 2016, I visited museums in Latvia, Poland, and Great Britain, which confirmed the later progressions of the FOL symbol in wood carving works.

I have prepared a classification system for different variations of the symbol to improve categorization and in order to better define discussion field for the topic. This new classification is already used in this complementary document. I have placed all previous items from the original research document (2014) to the new classification system presented in this document to help to see interrelations between them.

Previous work

Due to some publicity, I got via channels where the research was published, a few persons interested in the topic gave me more FOL items to catalog. Flower of Life mystery¹ WordPress site is still the main blog type site for this research. The Flower of Life history Pinterest² board is continuously used to collect new pictures of items containing the FOL. A Facebook page³ created for the FOL community actions was kindly promoted a few times by Jamie Janover who works on the Resonance project⁴. In addition to these, my first book was published on academia.edu⁵ and issuu.com⁶. All channels together have given previous research document around 10000 views for the during the past year.

The Wikipedia page that I was referring to two years back as a source for collecting occurrences of the Flower of Life symbol was deleted by Wikipedia moderators on May 2015, and the site is now having a totally different content related to Manga comic. The reason for deletion is given on the discussion page as "delete due to a lack of notability"⁷. Supposedly, the page was seen as a promotion page for the controversial ideas of D. Melchizedek, but it still was a very valuable source on the FOL topic. Now gone, but only from the space of Wikipedia. For curious readers with referential interest, the archive.org⁸

site has somewhat readable version of the old page. Also more recently, Wikipedia moderators accepted to use part of the old Flower of Life Wikipedia content as a part of the Overlapping circles Wikipedia page⁹.

The FOL symbol is found all around the modern world on T-shirts, jewelry¹⁰, lamps, decoration, and even on technological inventions. The FOL pattern as well as the Cownose pattern¹¹ was studied by Leonardo da Vinci and hopefully my research can show it was studied by ancient people already 3500 - 4000 years ago. Maybe not exactly with the name "Flower of Life", but because people are already using that popularized name, it would be a shame if Wikipedia could not provide exact information about the symbol using the most commonly used term. I am sure that alternative names that have been formally constructed like **concave equilateral triangle tiling** or just **intersecting circles** will never be as conducive.

Pondering the name

In Part 1 of this document, I have specified the geometrical base components with some etymological ideas around the FOL, and I have repeatedly made notes about a similar geometrical shape from Old Babylonian times called the Cownose (akk. *apsamikku*). I also proposed that Akkadian term *apusamiikku* could be used as an ancient name for the Flower of Life in Mesopotamia. Now, it is time to move forward and give more descriptive ideas of the FOL symbol so that future investigators could identify possible naming conventions for the FOL.

The basic idea of "flowering" is too evident for it to be ignored as a possible ancient name for the six-petal rosette base of the pattern. The first thing is to find out what kind of words ancients used as:

- a general noun for flower or specific six-petal flower species ¹ like lilies, lotuses, roses and such that have been notable for a long time in the history
- adjectives that are related to general or specific flower shapes, colors, smells or other more abstract descriptions (for example white, shining, colorful, elite, innocent, aromatic, six-petaled, cupped)
- verbs related to flowers like "to blossom", "to prosper", "to thrive"

Other objects, adverbs, and verbs that should be considered are:

- nets, filters, covers, and holders such as: fishing, hair, spider nets, fields and planes having triangular, rhombic or hexagonal patterns, perimeter, sieve, etc.
- descriptive terms like: bindable, collectible, strong, durable, curved, concave, circular, eternal, angular, etc.
- verbs like: "to collect", "to hold", "to bind", "to surround", "to catch"

At first, the task seems overwhelming and impossible. The FOL decoration has been found from various geographies at different times during a period that is roughly 4500 years long. Origin of the FOL goes probably beyond civilizations and cultures to the time when the modern writing system had not developed but only ideogrammatic writing and oral communication were established. We should be able to read dictionaries, understand texts, and find etymological traces in many peculiar languages that disappeared for two thousand years, like Egyptian hieroglyphs or Assyrian cuneiform scripts, that then got deciphered again only two hundred years ago. Not to forget some of the cultures which have left remarkable FOL artifacts but now are totally gone and lost in the history like Marlik, a culture that is not mentioned in any ancient texts. So far, there is no ancient document found describing how the exact FOL symbol or ornament is made, so we can only simulate the

creation of it. We have goblets, pyxes, ivory items, whorls, discs, vessels, funerary objects, and mosaics having the FOL ornament on them, but only guesses on how and why they were done.

To make a comparison, a very famous motif of the ancients, the Tree of Life², is in a similar position. Although so extensively used by various cultures, there are no ancient texts that really explain what was meant with the motif. The Tree of Life symbolism can be seen as an example of symbolic tradition where we can mainly use analogies, comparative, and intuitive methods to find out possible meanings of the motif.

After a second look at the task of determining the name and the meaning we, however, have a bit more to say about the FOL. We have been able to find contexts where and when items having the FOL symbol existed. Previous knowledge of the cultures also greatly helps in getting at least a general idea of the ongoing development of the collective mathematical and geometrical intelligence of ancient people. For example goblets from Marlik have strikingly similar mythological scenes with Mesopotamian myths at that time³. We also have old mathematical documents describing specifically the geometry and coefficients of the square root 2 and the square root 3 or the ratio of the diagonal of the square per its side and the height of the equilateral triangle per its base respectively. What we have are leads that are good enough for us to be able to make some sophisticated conjectures, if not definite answers.

Hittite sun discs

To get convinced of the Near East Bronze Age origin of the geometrical ideas of squares and equilateral triangles, we can take a look at the Pre-Hittite religious standards.

Excavations started in the 1910s by a German archaeology team in Alacahöyük¹, central Turkey, and later continued by a Turkish team whose work was personally funded by Mustafa Kemal Atatürk, revealed objects known as the Hittite Sun.



Picture 5.3.1: The most famous Hittite sun disc standard

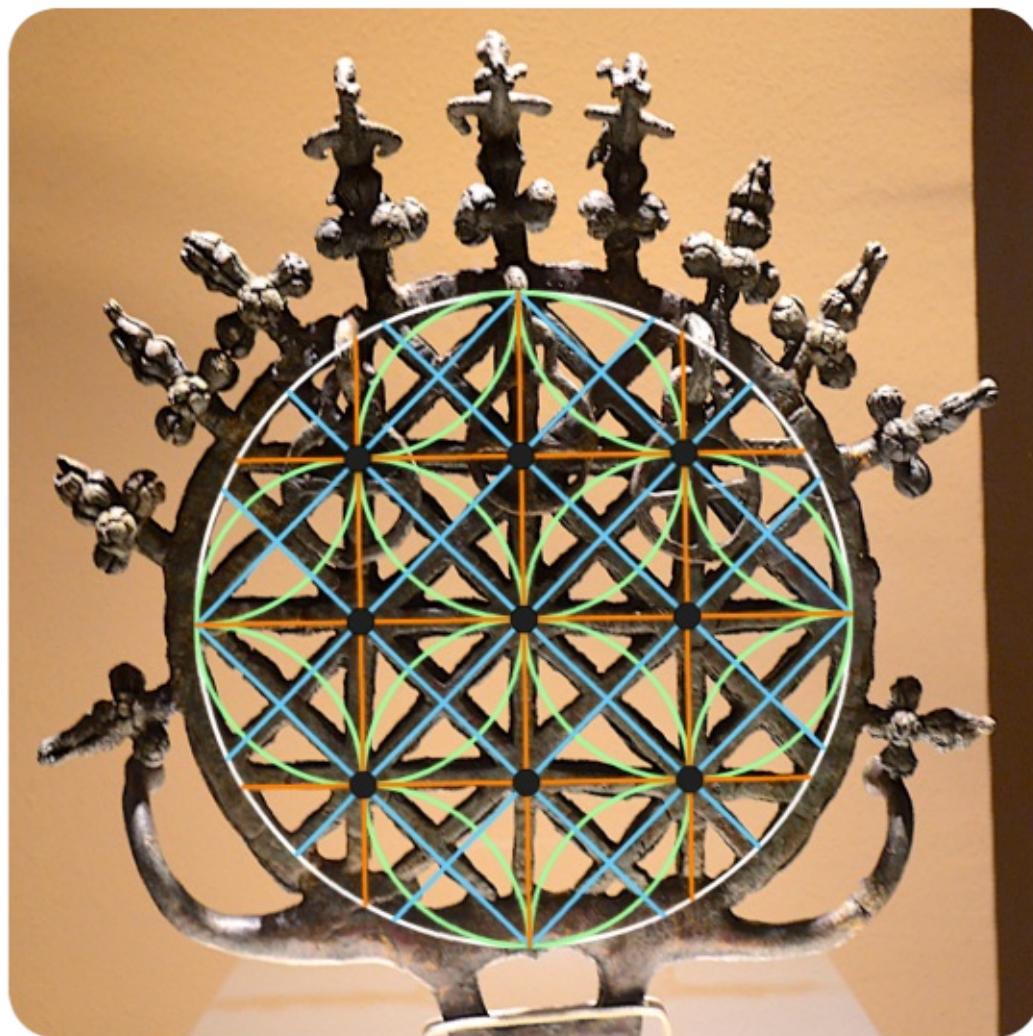


Picture 5.3.2: Rarely presented Hittite sun disc standard

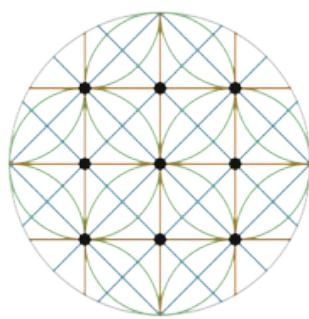
These objects are visible in the Anatolian Civilization Museum, Ankara, Turkey. Eventually, the Hittite Sun symbol became the emblem of Ankara University itself.

Dating of the objects goes back to the Pre-Hittite civilization called Hattusa during the Early Bronze age, around 2500 BC. Again, there are no written texts telling the meaning of the discs. The earliest mentions of Hattis and their history comes from later Hittite sources in the second millennium BC. The most apparent motif in the Hittite Sun disc is a bull symbol that has symmetrical horns. This is imitated on many other related objects² found from the archaeological site. The disc as a symbol of the Sun looks like the most suitable association. Sometimes a half crescent disc above the head of the bull was also symbolizing the Moon.

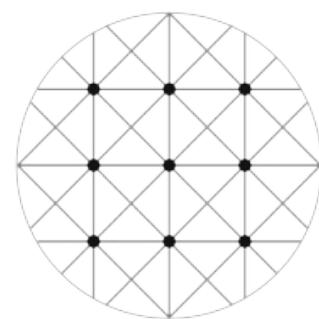
But what interests us the most, is the geometrical formation inside the disc. The most famous Hittite sun disc standard seems to get its form from the square lattice model, which in turn can be found in the Cownose model as described below.



Picture 5.3.3: Hittite sun disc standard with a rectangular geometric design

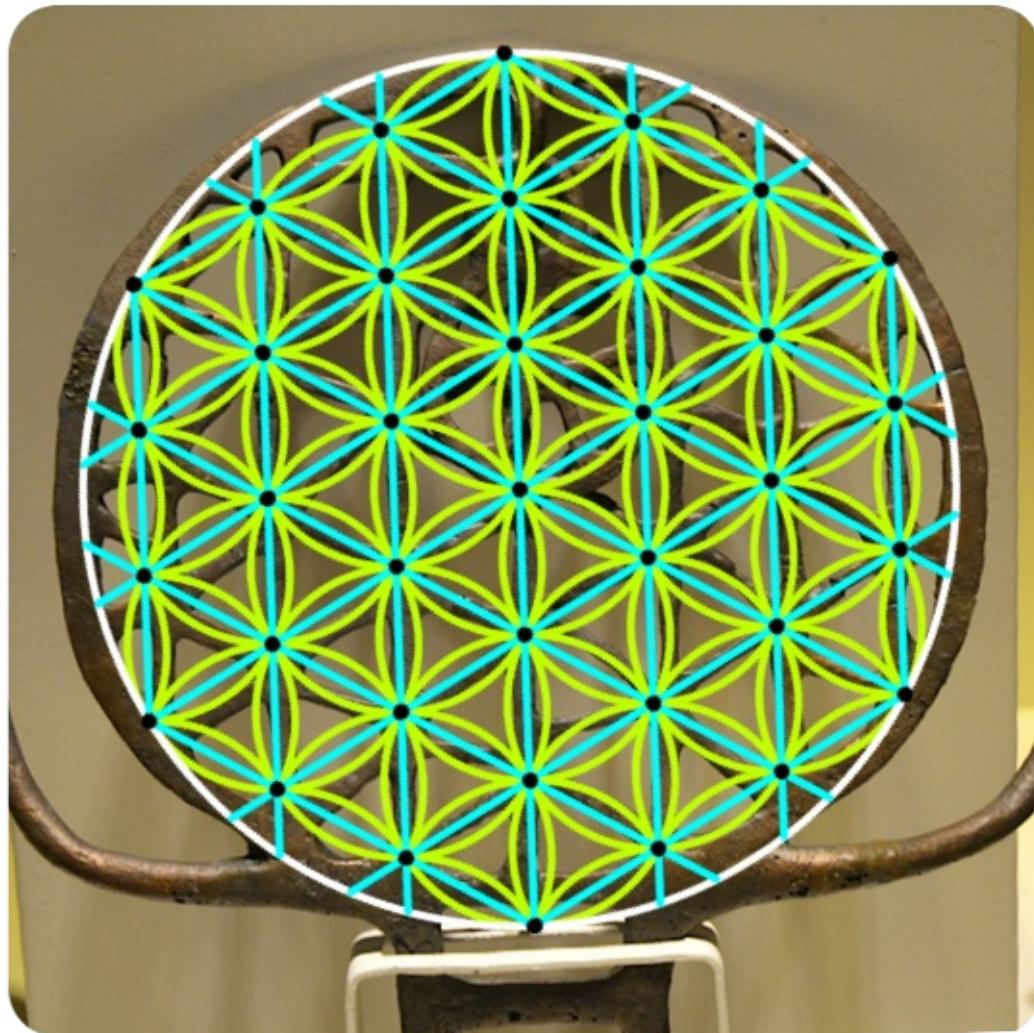


Picture 5.3.4: Apsamikkum (Cow nose)

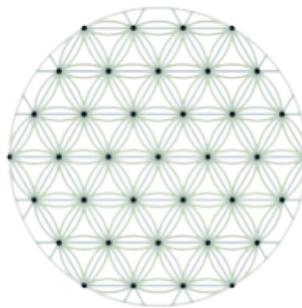


Picture 5.3.5: Equilateral rectangle lattice

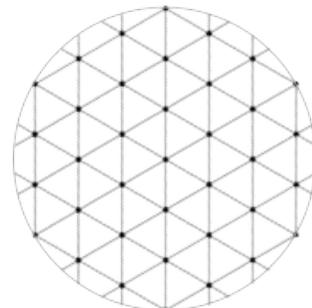
Other, although not so famous, Hittite sun disc contains a hexagonal grid, which can be found from the overlapping circles model, the Flower of Life, as presented below.



Picture 5.3.6: Hittite sun disc standard with a hexagonal geometric design



Picture 5.3.7: Flower of Life



Picture 5.3.8: Equilateral triangle lattice

A nearly perfect round shape of the first disc indicates that the circular form was intentional. Maybe aging and rust have distorted the exact formation of the latter hexagonal disc, or the formation exceeded the skills of the Bronze Age blacksmith. In any case, I think it is notable

that these two formations based on the square root of 2 and the square root of 3 geometry co-existed so early and also, in this case, the square root of 2 formation is far more common.

Of the several dozens of sun disc standards, I have found that only the above is following a hexagonal pattern. If the model that was used to form the latter disc was based on the overlapping circles, then it would be the earliest perfect FOL (class 3) available. Yet, the exact date of the FOL in Abydos still remains unconfirmed and could change this fact. If the overlapping circles model was used, indeed, it would mean that the FOL was known both in Indus valley and in Hattusa in the middle of the third millennium BC.

To get more textual data for investigation we need to move from the Bronze Age to the second and to the first millennium BC. My particular interest here is to examine some Semitic and Greek tales and mytho-religious accounts, which may relate to the FOL symbolism.

Fleur-de-lis as a part of the Tree of Life

When two years back I wrote that the Fleur-de-lis¹ and the Tree of Life should not be mixed with the Flower of Life, I should have been more precise and more careful with my wording. Although those symbols are seemingly different by shape, they seem to be connected by sharing very similar origins in the past. So similar that the Tree of Life can be seen as a more sophisticated and complex form of a sacred flower with all components: roots, stem, branches, leaves, buds, fruits, and seeds. In Appendix A of *The Assyrian Tree of Life*², Simo Parpola demonstrates how the simple flower and complex tree ideograms can actually describe the same ideological motif. Note also how the Fleur-de-lis is present on the picture 4.2.5, at the top of the head of the winged genie who is carrying water in a bucket and reaching the Conifer cone from the Tree of Life. In a private discussion, Parpola mentions how the middle knots on the Tree of Life depicts the Fleur-de-lis and by that the innocence and purity of Ishtar in Mesopotamian tradition. Eight and six-petalled rosette symbols are both in balance with the same ideology.

In Jewish tradition, the Tree of Life was symbolized with a six-branched candlestick called the Menorah³. The seventh center stem of the candle is called *shamash* (the Sun) and it brings structure to the familiar 6 and 7 divisions mentioned in the previous Part 1.

A relief that is on the Arch of Titus in Rome⁴ has a depiction of the Menorah that stands on a hexagonal podium. There is a fascinating association of the Menorah to the oval shaped mandorla/almond symbol (i.e. the Vesica Piscis) which is present in the FOL, as we have learned. Quote from Exodus 25:32-33⁵ says:

Six branches are to extend from the sides of the lampstand - three on one side and three on the other. Three cups shaped like almond flowers with buds and blossoms are to be on one branch, three on the next branch, and the same for all six branches extending from the lampstand.

The burning bush talking to Moses is said to be an almond tree. The miraculous rod of Aaron, which was stored in the Ark of the Covenant in Tabernacle, was said to blossom with flowers of an almond tree. Bitter or sweet almonds were used as omens and signs for Aaron the Patriarch, the brother of Moses, when he directed Israelites in the wilderness. Although a nut of an almond tree is a great fit for the FOL symbol, and it is recognized by Orthodox and Catholic iconography in the oval shaped aureole of Saints, there are other plants of even greater interest.

The most famous and the oldest flower decorations are probably similar to lotuses, lilies, crocuses, and roses. They can be found from Mesopotamian art since 3500 BC, and they were extensively used in Crete and in Egypt around 2000 BC and from that time on. Lilies,

although we can't always be certain of the exact species, are mentioned many times in the Old Testament. Etymology of the lily (the Egyptian water lily *hrr.t ssn⁶* being the most central) is a good example of a compound root word that has spread to different languages and that has been applied to several general and specific flower species, smells, colors, female names, etc. This multipurpose usage of the word root is very similar to the story of the cane plant shown on Part 1.

Partnership between lilies and pomegranates

What makes the lily interesting is a six-petal appearance of it. In the Hebrew language, the female name Susannah (hbr. *Shoshannah*), the lily flower (hbr. *shoshana*) and the number six (hbr. *shesh*) are possibly from the same root word. The lily is often presented with another plant that is dear and meaningful for the people in the Near East and in India, i.e. the pomegranate fruit (*punica granatum*¹). Especially in Israel, the pomegranate often has six petals first on the flower development stage and consequently at the other end of the fruit's life span, as a ripe fruit, a six shaped persistent calyx or crown is formed.

Lilies (as different types of palmettes) and pomegranates are both almost exclusively present on the ancient hybrid Tree of Life illustrations, and they are common among buried funerary items. According to the Books of Kings², capitals of the two pillars that stood in the front of Solomon's Temple in Jerusalem were engraved with pomegranates and lilies. Two pillars in the temple of Solomon made of silver and gold (pillars of cloud and fire) represent a similar change in light and darkness. In the book of Judges, the Samson (day) was taken over by Delilah (night, de'lily'h), but after a while, Samson took over Delilah again by breaking apart the two pillars of the temple of the fish-god Dagon³. Gold bells and pomegranates were attached to the hem of the robe of the Jewish High Priest, as we can read from the Exodus⁴.

There is evidence that the six-spoked pomegranate was used as a religious symbol in Israel already in the 14-13th century BC. The picture 5.5.1 is a thumb size object made of ivory representing the pomegranate⁵. The picture 5.5.2 is a reverse side of a coin issued by the Jewish rebels in 68 AD⁶ and it has three pomegranates in the middle of it.



*Picture 5.5.1: Ivory pomegranate sculpture
with six pegs and a paleo-Hebrew
inscription/ Public Domain*



*Picture 5.5.2: Three pomegranates in a coin
/ Classical Numismatic Group, Inc.
<http://www.cngcoins.com>*

This is a good example how only half of the pegs are shown on each pomegranate, when they are depicted from the side view. But, if you would look at them from the top view, in a row the pegs would make a row of 6+6+6. The same applies to the lily symbol. According to Dr. Ze'ev Goldmann⁷:

The Shoshanim had to be full-size as seen from above, that is six-petalled, as the pillars stood free in front of the Temple, while the capitals of the two engaged pillars in the vestibule had to be tri-petalled, as seen from the side. In its six-petalled form, as well as in the tri-petalled side-view, the Lily came to be the paramount ornament of Jewish art and especially of Jerusalem's ossuary decoration.



Picture 5.5.3: Fleur-de-lis / Public Domain

Harum-scarum or just provocative, Pope Paul VI (1968-1978) was entitled "Flos Florum" or Flower of Flowers and his coat of arms contained three lilies (see Fleur-de-lis in the picture 5.5.3 above and at the top of the head of the winged genie on the picture 4.2.4), again resulting in 6+6+6. A small clarification here might be in place. My intention is not to agitate hexakosioihexekontahexaphobia. Through careful analysis, religious-mystic history seems to show, that 6, with its multiples, was not considered exclusively evil, bad, or unlucky. Rather, it should be regarded similar to a dancing seed in the Yin-Yang symbol, where opposites relatively oscillate relative to each other and alter their positions constantly.

Below, we can see lily flowers from the side (picture 5.5.4) and the top view (picture 5.5.5). These pictures further visualize the idea of six originally being the original three plus the mirror of three together.



Picture 5.5.4: Lily from a side view



Picture 5.5.5: Lily from a top view

The Greek mythology shares the very same mysticism for the number six. Hera, a very prominent figure in the ancient Greek art, is said to have held the pomegranate and the lily in her hands. Boeotians called both the lily and the pomegranate with the same name: sida/side⁸ giving a name to the famous fermented pear/apple drink and the ancient town in Antalya, Turkey. Both the pomegranate and the lily were called "water plants". In Ethiopian and Western Slavic languages numbers six and seven starts with a "sid-/sed-" phonemes which might intermix the numerical connection with these two plants⁹. Moreover, Persephone¹⁰, on her trips between the two worlds, finally ate six seeds of the pomegranate, although the number of seeds varies in different versions of the story.

Seasons of the year are said to correlate with her coming and going so that during the six autumn/winter months Persephone lives down with Hades / Pluto and during the six spring/summer months she makes the Earth bloom with Demeter. Cyclical association of the pomegranate fruit is discussed, for example by, Matt Bennett in his journal article: *The Pomegranate: Marker of Cyclical Time, Seeds of Eternity*¹¹.

Life and death drama

Both the lily and the pomegranate have something to do with life and death that is: with a seasonal change of light and darkness, the Sun, which is the source and the Moon, which is the reflector. The lily flower has kept its twofold meaning until our days. It is still the flower of death and the most common fragrance in funerals, after possible aromatic incenses, of course. But at the same time the lily, especially the Madonna lily is a symbol of purity, radiance, and innocence, possibly in the way that Leonardo wanted to use it on his Annunciation painting¹ carrying the old tradition of the scene.

Although lilies and multiple "sixes" are taken as a symbol of death, we cannot think of them symbolizing only the sad annihilation side of the fleshy existence of man, but also as a moment of rebirth, resurrection, and initiation. A willful baptism rite, a ritual bath before service in a large basin with a brim that was *like the calyx of a lily*², is a transmutation process where a man becomes a fish by diving deep into the ocean of chaos and then comes back to life as a perfected man of cosmos ready to enter the temple. If this happens, and a human being is fortunate to experience it while alive, he becomes half a fish, and half a man, or just a fisherman. If not physical, the effect of death may spiritually have been total and irreversible so that the initiated human being has lost the false sense of self and retained true selfless servanthood and altruism. Just before the Current Era, we can see this kind of allegorical and ideological thinking getting to new heights. In the Christian community in the Current Era, it was already common to speak about the second death or spiritual death of an ego³ and that meant that common symbols of physical death or afterlife were associated also with psychological and spiritual death and rebirth.

The symbology this major drama scene is rather consistent over the ages and cultures. The play of life (sanskr. *lila*) is smartly played in a small story of *The Fairy Tale of the Green Snake and the Beautiful Lily*⁴ by Goethe. When the fair Lily, accompanied with her ever pleasing harp playing (resembles Väinämöinen), was just about to leave, the green Snake caught the last lines of the song:

*What can these many signs avail me?
My Singer's Death, thy coal black Hand?
This Dog of Onyx, that can never fail me?
And coming at the Lamp's command?*

*From human joys removed forever,
With sorrows compassed round I sit:
Is there a Temple at the River?
Is there a Bridge? Alas, not yet!*

Once the temple is ready and arisen from the river, the snake was praised, and the ending of the story incorporates the familiar scene of the Hawk and the Sun, or winged sun disk⁵, as it is better known⁶:

At this instant the Hawk with the mirror soared aloft above the dome; caught the light of the Sun, and reflected it upon the group, which was standing on the Altar. The King, the Queen, and their attendants, in the dusky concave of the Temple, seemed illuminated by a heavenly splendour, and the people fell upon their faces.

Sweet, fresh, and salty waters

According to Mesopotamian myths, special flowers/trees were often associated with the water element, underworld streams and lakes originating to the creation of the world.

Underworld sea/god, Apsu¹ was believed to be a source of all rivers and fresh waters, as well as a source a nourishing liquid of sacred plants, trees, and fruits. Somewhere from the deep waters came up seven wise men² who taught knowledge and civilized arts to humankind and then disappeared again. But there was also another kind of sea, the salty sea of Tiamat goddess (or Thalassa in Greek), who was the serpent of Chaos, the great Dragon. It is always too daring to talk in the mouth of the ancients, but there may have been people who understood that these two forces are but two sides of the One force³, and a mixture of them is the creation of the worlds. Raise of the monotheism, on the other hand, supports this view of the One principle. But on the other hand, monotheism did not stop people competing and violently promoting the strongest, the highest, and the latest ideology of the God of their own. Quite opposite. Destroying, refuting, and replacing old religions and belief systems with new ones was an ongoing process. What is interesting is the fact that even though appearances and customs of replaced religions were gone, the symbology of theirs transformed and continued in new forms.

Once we follow the story of the Fleur-de-lis, it becomes apparent that once upon the time the heraldic symbol was associated with six-petalled flowers like the lily and the iris⁴. From those flowers, the lily and the pomegranate fruit were in close connection to the Tree of Life and the Menorah. Earlier in the history, the lily was mixed by etymology and possibly by aromatic usage and cultic means with the blue Egyptian water lily (the lotus in the further East) which was a part of the Tree of Life motif. The smell of the lotus meant a presence of gods. By the scent of the flower, one would be one with gods.

Roots deep in primordial waters, the Tree of Life presented a life force and knowledge suck up beneath the ground and materialized in the six-petal plants, the lily flower and the pomegranate fruit. Knowledge transforms from bitter to sweet like a water when it is moved up to the plants through capillary action. Kings of nations and priests of religions were regarded as guardians of the knowledge, but the real holders of the key might have been mystic sects who emphasized personal transformation rather than transformation orchestrated by formal constitutions.

I think that this is the meaning of the scenery depicted on silver and golden goblets found from Marlik. The base of the goblet that has the FOL symbol represents twofold waters, fresh and salty. Monsters crawling up from the sea are in the fight, like cosmos and chaos. On one end, we see serpents awakening and on the other end, eagles flying free. Goblets that were used on ceremonies were full of meaning. A sip of the drink, as described on

Dionysian mysteries, was for the liberation of earthly worries and troubles. It depended on the subject, if he was about to get in drunk or to realize the meaning of life and death. Mycenaean Golden Rosettes from 1600 BC with the FOL class 1 are special attachments for dead royals. Funerary cosmetic boxes from Thebes having the FOL symbol on the lid may have contained fragrances and perfumes of the flowers we have just talked about. This just adds to the holistic experience of the FOL symbol. It speaks with smells, tastes, for our eyes, ears, and every sense.

The Fleur-de-lis / the lily / the iris can be seen basically as the same symbol with the Flower of Life (and Death), but the former flowers are presented from the side view when the latter, the FOL, is presented from the top, i.e. bird's eye view. It is just a matter of the point of view to see it either way. This is the very first thing that geometrical introspection wishes to teach us.

When presented as an ornament, the FOL pattern could be called the **Field of Lilies**, or in a more general way as the field of six-petal flowers. Interestingly, Jesus advised his disciples not to worry about clothing and everyday life tasks by speaking of lilies and King Solomon⁵:

Consider the lilies, how they grow: they neither toil nor spin, yet I tell you, even Solomon in all his glory was not arrayed like one of these.

Even more memorable is the phrase from *Song of Solomon*⁶:

I am the rose of Sharon, the lily of the valleys. Like a lily among the thorns, so is my darling among the maidens.

New items

Eight new items / item groups that are discussed in this document consist of six rather modern artifacts (1400 - 1900 AD), one group of vessels and a terracotta torso from the Cypro-Archaic period (800 - 600 BC), and one special ivory item from the Late Bronze Age (1650 - 1050 BC) - all with occurrences of the FOL in them.

All items from the previous research that was done in 2014 and new items that are presented in this document are collectively listed in [Appendix 2](#).

Item 1



Picture 6.1: Rullstol from Finland © Meinander, K. K.

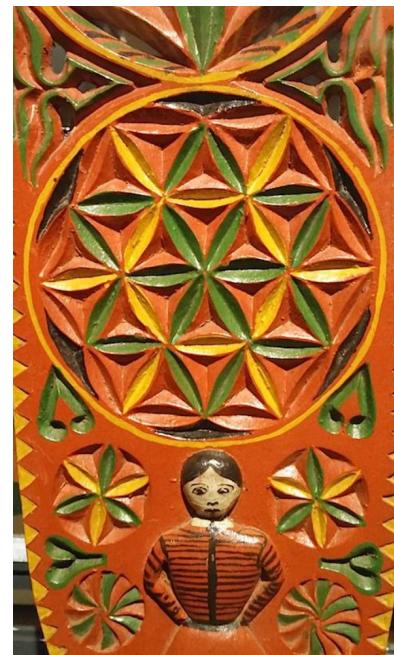
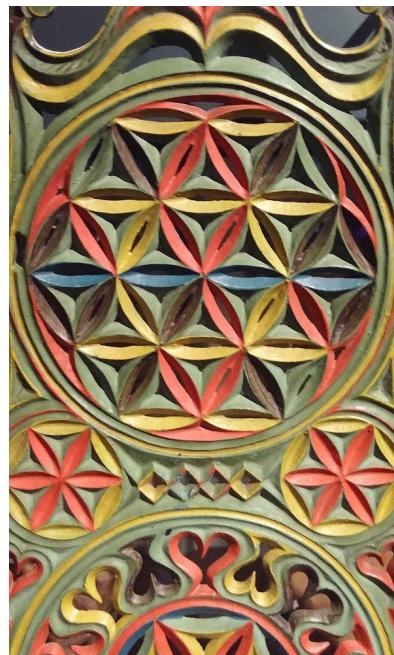
Above rullstol with the complete class 3 FOL symbol resides in the National Museum of Finland. The artifact is from Björkö island in Korsholm (fin. Mustasaari) municipality, the Gulf of Bothnia, 1850 AD. This Rullstol is one of many similar artifacts with the FOL symbols. Veera Vallinheimo notes the FOL symbol in her distaff blade book *Rukinlapa: käyttöesine ja kihlalahja*¹ and calls it rosette net (fin. *ruusukeverkko*) and rosette band (fin. *ruusukevyö*). Rosette, a naming convention for a stylized flower design, is a little bit confusing because the most obvious flower described with the symbol is a six-petalled one, and this is somewhat far from the rose flower. A petal count of roses vary from 0 to more than 100² and

the shape of petals in the rose differ from a regular oval shape used in the FOL. In archeological terminology, a rosette is understood as a general symmetrical flower-like shape, which may have 2 to n concentric petals.

The rullstol above as well as the next bridal gift items (2a, 2b, 2c) were made for decoration and functional use at the same time. The FOL symbol in forms of classes 1, 2, and 3 was a very popular handicraft decoration motif from 1700 to 1900 AD in coastal Finland.

For a geometrical curiosity, straight line (the holder of a ball of woolen thread), in the middle of the object cuts the Rullstol so that the upper part of it forms a so-called Arbelos or the Shoemaker's knife³, which was discussed in Part 1 of this document.

Item 2 (a, b, c)



Picture 6.2: Distaff comb

Picture 6.3: Distaff blade 1

Picture 6.4: Distaff blade 2

The distaff comb and blades above are made for a bridal gift. The pictures show us the Flower of Life motif in all classes from 1 to 3 as well as six petal rosettes. The motif is said to come to coastal Finland from Western Europe via Sweden and Russia. Several similar items, with the FOL creatively carved on them, are found from the period 1600 - 1900 AD.

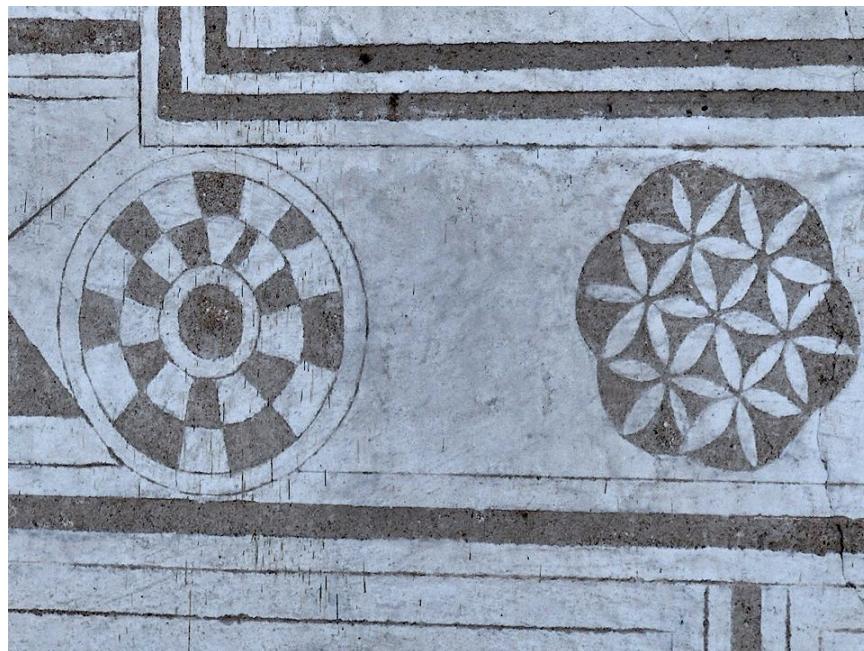
Since crafting blades (fin. *rukinkäpa*) became a very famous art form practiced by common people, these objects with various rounded circular motives can now be found around the country from several museums and even outdoor summer markets all around the country. I would not be surprised if the FOL symbol with some of its variations would also be found as a soundhole of the Finnish Kantele instrument as it is sometimes seen on a Polish fiddle, Suka⁴. Also, wooden spoon holders in Poland traditionally had different FOL classes attached on them.

In Latvia, the ethnic instrument called *kokle*⁵ most often has a six-petal rosette as a sound hole motif or extra decoration. Distaff blades, which are called *sprēslīca* in Latvian, they too seem to have applied six-petal rosette motives in quantities, as seen in the book *Latvju raksti (Ornament letton) III*⁶.

The main properties attached to the Finnish distaff blades above are clearly feminine, beauty, celebration, weaving, symmetry, roundness, and circularity. Although making an impression on his fiancée in a mundane artistic way is more apparent than any other deeper spiritual meaning, at least in the modern version of wooden objects, it would be interesting to trace the source of the idea of the FOL further to Russia and Western Europe. By strict academic practice, I think it is possible to comprehensively trace and map the usage of the

FOL in woodcarvings in Europe at least from 15th to 19th century. It just requires researching native ethnographic history books from different countries and their national libraries and antiquarian booksellers.

Item 3



Picture 6.5: Wall drawing on Rožmberk castle © Mark Libal

The above Flower of Life class 2 symbol (without surrounding petals) and other geometric symbols are visible in the castle of Rožmberk⁷ in the Czech Republic. During 14 - 16th century AD, the castle was owned by a Czech alchemist. Variating geometrical symbols are probably originating from that period.



Picture 6.6: Rožmberk castle © Sju

Item 4



Picture 6.7: Cupola of the church of St. Paul in Egypt © Tatiana Kiseleva

The above carousel of the saints riding on the cupola is found from the underground church of St. Paul⁸ in Thebes, Egypt. Among the Saints are fourth-century Roman Christian soldiers, Sergius, and Bacchus⁹. At the center, we can see a representation of the FOL class 2. Paintings were produced by the monastery monks in 1713, and paintings are probably overlay of earlier iconography that is lost since then. The church is one of the four churches in the Coptic monastery of St. Paul located in the eastern desert of Egypt^{10 11 12}.

Item 5



Picture 6.8: Painted pottery from Cyprus

Above pottery is found from the Archaeological museum of Nicosia¹³, Cyprus. In addition to this, other vessels and the terracotta torso found in the same museum had the Flower of Life decoration belt similar to the one presented above. Flower and fish motives on the vessel may very well have been consciously selected by the painter. They can be classified as FOL class p because the motif is used as a band pattern rather than a symbol. This object dates back to Cypro-Archaic 1 Period, i.e. 750 - 600 BC.

The pattern seems to be drawn by free hand, directly from a model, until painter has been very skilled and experienced with painting. This freehand drawing style resembles the oldest pattern (2000 years older than this vase) found as a reference in a book called *The Evolution on the Mature Indus Pottery Style in the Light of the Excavations at Nausharo* by Gonzague Quivron¹⁴. When painting on a curved surface, it is more difficult to be exact with the pattern than what we can see on flat surfaces.

Item 6



Picture 6.9: Ivory spindle whorl from Cyprus

The ivory item above, probably a spindle whorl or a disc functioning as a lid, contains the Flower of Life motif class 2. It was found and categorized as a local object belonging to the sanctuary of Aphrodite, and is now visible in the museum of Palaipafos, Kouklia, Cyprus.

This object is dated between 1600 - 1100 BC, making it one of the oldest FOL artifacts found in the Mediterranean world. A similar artifact was found from the British Museum already in my previous research, adding evidence of the fact that the symbol was possibly known to the Mycenaean traders in the famous trading port and island of that time.



Picture 6.10: The megalithic temple Hagar Qim © jkb

Another remarkable detail is the pointillism used on the surface of the flat ivory object. Pointillism seems to have an old and unresearched origin in the past. Above picture 6.10 shows an example of small drilled holes on the Neolithic temples in Malta from the 3rd millennium BC. Pitted decoration is mostly toward the Sun so that when the rays of the Sun are shining from the morning until the evening, they hit the stone facade with the pitted with small holes. The other side of the stones are blank so there must have been a certain reason why the pitted sides are towards the Sun. In many cases, the association to honey bee cells and some sea shells is easy to make from the pitted decoration.

The FOL artifacts with a pitted background decoration are visible on items: 3, 5, 14, 27. Items 1 and 4 have a round dint between triangular holes surrounded by leaves. Because mosaics are made of small pebbles they may look like they have a similar effect of the dotted background, but that is hardly deliberate. It is yet to be seen if the origin of the FOL can ever reach to the Neolithic period on the fourth millennium BC. This is not likely, according to the current evidence, but a dotted motif as a background pattern of the FOL items may have a certain meaning.

Item 7 (a, b, c)



Picture 6.11: Woodcarvings from Zakopane, Poland © Tatra Museum



Picture 6.12: Woodcarvings from Zakopane, Poland © Andre

The type of ornaments that are seen in pictures 6.11 and 6.12 are very common in Zakopane town, Poland. The Flower of Life is called *Kwiat Życia* in Polish. The photograph above on the left is from the collection of Tatra Museum in Zakopane and it is used with permission ¹⁵. The photograph on the right side is from the same museum, but the photo is taken and its use in this document is agreed by Andre ¹⁶. You can find more similar photos like these from my Pinterest collection ¹⁷.

The FOL symbol has been used widely on woodcarvings around Europe and the Mediterranean world in 1600 - 1900 AD. It was a common practice for carpenters to signature ready-made buildings with circular symbols. It is possible that the FOL eventually become a sign of woodworking guilds of that era. You can see similar practice on the wood pole below:



Picture 6.13: Wooden pole from Cyprus

The hexagonal ornament and carvings on the wooden pole was brought from the mountains to the medieval museum of Lemesos (Limassol, Cyprus) when the original 1600 AD orthodox church roof was replaced by a new one. The underside of the pole, although too dimly lit to see clearly, also has the FOL class 2 symbol. I have found many similar samples from Romania, too.

Item 8



Picture 6.14: Blue Mosque window background

The Flower of Life pattern visible on the window background ornament facing to Mecca on the Blue Mosque in Istanbul, Turkey. The mosque was built in 1616. The organization of the work was described in meticulous detail in eight volumes that can now be found in the library of the Topkapı Palace. These volumes might enlighten why this particular ornament was selected to the Blue Mosque. Outside the Mosque there were both six-petal rosettes and Cownose patterns on mosaic floors. Four to five million tourists visit the place per a year, but I have never found this detail of windows in the context of the Flower of Life mentioned before.

Epilogue

Framework used in the study

I have paid great attention to the study of fields that seem to be off topic, or, at least, shooting a topic of the FOL with a shotgun. I have chosen to do so to show my methodology and path to get answers to the origin of the FOL. Three main fields of the study that I have applied are namely geometry, mythology, and etymology.

Essentially, I want to mix the subjective and the objective view to the study because I can't believe the understanding of anything, especially in a humanistic field, can happen without getting involved. Following a bit of hermeneutic reflection¹, getting involved in this case means practically drawing the Flower of Life symbol on its different stages by bare hands (as well as with a computer-aided drafting). Contemplating, reading, discussing the topic, traveling around, seeing, smelling, and touching symbols in their original environment are other ways of getting involved. The third way to get involved is to meet people in modern New Age groups and still alive historical fraternal and gnostic groups who pay attention to the more practical side of the studying symbolism of the ancients. Meeting people from traditional religious and spiritual groups is equally important because they keep alive the ancient heritage by paintings, frescoes, iconography, architecture, literature, and so on.

The problem of constitutional religious groups to give attention to the FOL topic probably comes from the fact that the Flower of Life symbolism was brought to the awareness of public by the New Age movement in the late 20th century. It's a pity if old traditions have totally missed the meaning of so ancient symbol.

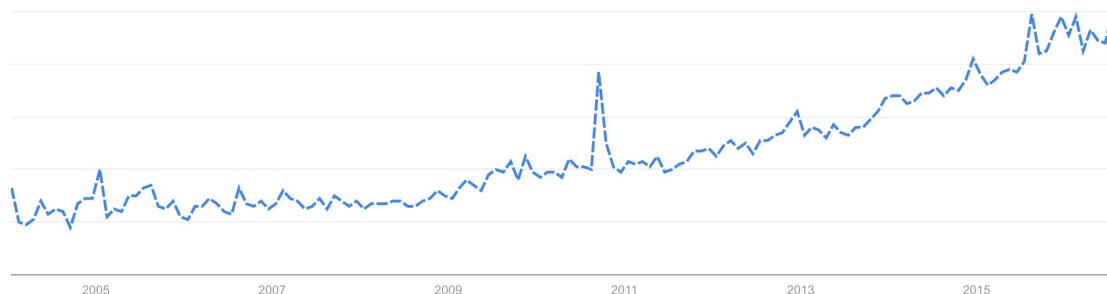
But every once in a while there appear people, who have found the connection to the ancient past. For example, the art historian Patrik Reuterswärd interprets six-petal rosette as a Christian divine symbol, a forgotten sign of Jesus^{2 3}.

This association to the pseudo-scientific and neo-religious societies can be the reason why some academic minds are also so eager to deny the significance of the FOL. Artistic individuals and groups are more enthusiastic to the phenomenon since they take the symbol as a creative source for their impressions / innovations. Festival decoration group Flowers of Life⁴, Flower of Life artpark for children⁵, Architect office Kanttia2⁶, Geometrify Virtual Reality application⁷, and graphic designer Hannamari Mäkelä⁸ are just a few modern examples of inspiration the FOL symbol has given in a small country like Finland.

Recently (11/2015) the world-famous music band Coldplay announced the album *A Head Full of Dreams* with the FOL motif in the center of the album cover⁹. This happened after releasing a new record by Nightwish that is called *Endless Forms Most Beautiful* (03/2015).

The latter album title can be seen ideologically as a secular one, because the name of the record is a famous quote of C. R. Darwin. The FOL symbolism, on the other hand, is often promoted by spiritualists, but nevertheless, both ideologies are attracted by the endless forms and mathematical structures in nature. Appreciation of these forms in a metaphysical manner are expressed much before the New Age movement or Darwin in the Timaeus, where Plato describes the world as "the most beautiful (grc. *kallistos*) of generated things"¹⁰ synthesizing cleverly both material and metaphysical worlds.

Nassim Haramein, the Director of Research at the Resonance Project Foundation¹¹, has moved a tremendous mass of people to realize that geometry related to the Flower of Life hexagonal grid may explain the deep realms of physics of the universe itself. Worldwide influences of the FOL symbol are too numerous to mention here. Arguments on non-notability and non-significance of the symbol are very weak when reflected whether to the historical or to the modern influence of the symbol. The importance of the symbol has evolved from an anecdotal value to a real statistical phenomenon in the current society. This is also evident from Google Trends¹² where "Overlapping circle grid" topic, which collects all Flower of Life related content under the same umbrella, is getting increased attention since 2009.



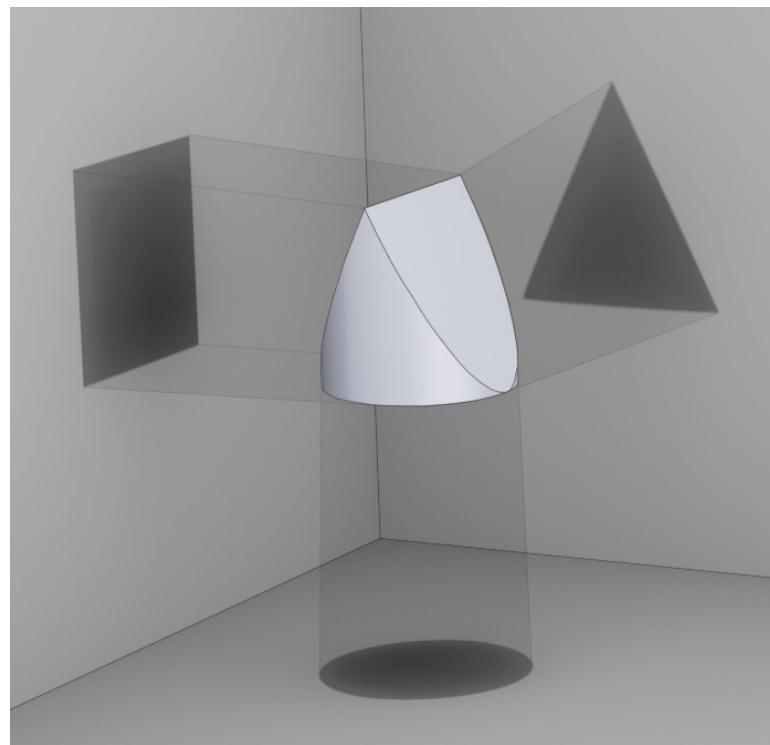
Picture 7.1: Overlapping circle grid © Google trends

Geometry

I have taken geometry to my toolbox for a couple of reasons. The most obvious is the fact that the FOL symbol and pattern is a geometrical shape made with a drawing tool, the compass. But the other reason is the profound philosophy behind geometry and the geometry of the circle especially. It leads us to shift thinking from linear to rounded and parallel. By dimensional introspections geometry teaches us to think consciously by analogies and urges us to change perspectives. In a cultic book *Flatland - A romance of many dimensions* by Edward A. Abbott, this is elaborated in great details:

"Look yonder," said my Guide, "in Flatland thou hast lived; of Lineland thou hast received a vision; thou hast soared with me to the heights of Spaceland; now, in order to complete the range of thy experience, I conduct thee downward to the lowest depth of existence, even to the realm of Pointland, the Abyss of No dimensions.¹³

Reflections of the same object may give us totally different impression when it is looked from a different point of view. For example, a special wedge cut from cylinder to a 3D model (picture 7.2) looks nothing special at first. But when the light is aimed from three sides of the object, we realize that the single object holds plane figures of a triangle, a square, and a circle.



Picture 7.2: Cylindrical wedge projections © Antti Oinonen

And many others if you will. This will eventually lead us to the axiomatic "every thing is same and every thing is different" statement. The main task of the thinker is to develop a resolution to see differences and similarities between objects and grow one's ability to synthesize things. The next task is to find the threshold, where object keeps its identity while connecting to the bigger picture. And the third task is to determine if the result and the conclusion can give something new to the community. This is the land where words and forms really matter.

Geometry is also a tool of evaluation which allows us to understand principles behind overwhelming variations and an almost infinite amount of forms that nature produces. The geometrical figure made of intersecting circles (the FOL) versus the heraldic palmette (the Fleur-de-lis) versus the figure of a tree (the Tree of Life and the Menorah) look very different

compared to each other. By reduction and changing views, it is possible to see how they are actually from the same origin. Of course, this is more apparent when the second method is combined to the framework: the study of mythology.

Mythology

From the three of the methods, the mythological one is perhaps the most subjective and the most vulnerable for interpretations. Needless to say, throughout my research, the word myth does not mean unreal, fiction, or falsehood, but quite opposite. John D. Dadosky quotes Mircea Eliade in the book *The Structure of Religious Knowing: Encountering the Sacred in Eliade and Lonergan*:

*In other words, a myth is a true history of what came to pass at the beginning of Time, and one which provides the pattern for human behavior.*¹⁴

Since the Flower of Life symbol and pattern mostly occur on ceremonial vessels that have mythical creatures beside it as well as in religious contexts on mosaics and temple walls, it is natural to try to open the FOL symbol by mythology or by religious studies.

The ongoing evaluation process *in anticipation of understanding in the light of the increased knowledge of the parts*¹⁵ is a great guide in this quest. The hermeneutic circle is a sound tool to use to face the challenge of describing and understanding the meaning of the FOL. René Gothóni states, that:

*Academic ambition dictates that we cannot remain on the level of description only, when we relate how humans experience religion, for instance. Likewise, the authenticity of experiences of life and societal responsibility obliges us as scholars not to ascend and entirely withdraw ourselves to the level of abstract concepts either.*¹⁶

The methodology used in this study is far from being purely statistical and objective. Further understanding of the Flower of Life symbology requires interdisciplinary discourse between three aforementioned subjects at least. By the study of geometry, mythology, and etymology the qualitative dimension is strongly emphasized.

Etymology

More pragmatic and objective methods, like the study of the etymology of words, can also be a tool of self-introspection. Since we learn to speak by imitation, most of the words and phrases (if not all) that we use, have a very superficial and flat meaning in the beginning. Questioning the origin of the words on a daily basis is a procedure which brings vertical depthness to the understanding of the world history and communication. A multitude of words

tend to lead us to the same principal root words and syllables, so the procedure is reductive by nature. The reduction is one way to understand oneness, the connection between all things. This kind of work gives plenty of joyful and insightful eureka moments.

But the etymological study also leads to the augmentation because it forces us to learn several different language vocabularies. The increased flood of information requires great patience, filtering, sampling, and organized workflow to get it controlled. Etymological vocabularies are often very cryptic books aimed to specialists. In some areas, the science of the language is a very strict, mathematically aimed and proven method to find out language relatives. That scientific field is also very opinionated, and even prejudiced toward new theories or when old theories are highlighted, in a similar way the origin of the language was a controversial subject for ancient Greeks. For more flexible and relaxed students, the Nostratic or the Magdalenian proto-language theories, for instance, can be very thought-provoking. In my study I have followed an interpretive method presented by Franco Rendich in his *Comparative Etymological Dictionary*¹⁷:

by joining two or more basic ideas represented by the sounds of consonants and vowels. Such sounds, each of which has a particular semantic value, were governed, as we shall see, by precise associative rules.

Although the etymology of the dimensional principles presented on my book are not explicitly related to the Flower of Life symbol, botanical roots of the naming of the properties of the projective geometry should be interesting enough curiosities for serious students.

Conclusions

Karl Popper, one of the great minds of philosophy of science, once wrote:

*Bold ideas, unjustified anticipations, and speculative thought, are our only means for interpreting nature: our only organon, our only instrument, for grasping her.*¹

If the methodology of this book was restricted to the bare objective listing of the artifacts of the Flower of Life, the conclusion would be much meagerer. We would probably just say that we cannot know what was meant with the symbol, or we cannot be sure where and why it was made, since none of it is nor written or told on any ancient sources. But would we know even if someone told? There are always verification and interpretation layers to walk through. Widening methodology of this research by applying hermeneutics and subjective interpretations based on the understanding of the geometry of the FOL, tracing the etymology of words, and examining the mythology around the symbol, we can conclude much more. If not bold and daring yet, however, I am ready to make some conjectures that I was not ready for two years ago.

Early Bronze Age occurrences of the FOL (Pre-Indus vase ornament, Pre-Hittite hexagonal Sun disks, and Babylonian math tablets) are too few, sparse, and lack of direct substance to allow any remarkable conjectures of the symbolism. It is possible that the meaning attached to the geometric formation of the concave equilateral triangle lattice had also changed, if the meaning ever was stabilized, when arriving from the third millennium to the second millennium BC.

In the second and the first millennium BC, the Flower of Life symbol forms in classes 1, 2, 3, and p developed side by side with religious floral motives and the Tree of Life hybrid. But instead of presenting motif from the side view, the FOL represents the idea of the sacred flower (tree) from the top view. The FOL represents knowledge and order (logos, child) raising from a mixture of mythical water elements (salt & fresh sea parents, chaos & cosmos). The FOL was later, at the dawn of the Common Era, a symbol of life and death in conjunction with a lily symbology. Then the FOL became associated with matured spiritual rebirth and religious reunion concepts. This is perhaps the way why the FOL became to be a symbol in bridal gifts in Finland, and bridal gift table ornamentation in Ukraine. The very meaning of *religio* or *yoga* is often depicted with a bride and a bridegroom analogy. For the FOL to symbolize primarily life and light is the newest development of the motif. The modern meaning of the symbol is thus developed a) from perceiving order from chaos b) to a more mystical experience of knowing the mysteries of life and death c) and finally to experience

the connection between "things". Yet it is easy to see, at least for a mystically oriented mind, that all these are just a depiction of the same process, no matter in how many ways it is presented.

Outward movement, "outrospection" so to say, can bring out new inventions and discoveries that might or might not have been on minds of ancients when they used the FOL symbol. Leonardo da Vinci serves as a good example: he studied hexagonal patterns in the FOL, apparently for his inventions. Was the symbol itself an invention, or a discovery? The question is not making justice to the subject, because both discovery and invention are often involved in the process of the development of new ideas. On the other hand, the FOL symbol, strictly speaking, does not occur anywhere in nature. Well, I have seen a picture of a starfish with the FOL pattern on the skin, but I have not been able to verify the source. So, most probably the FOL must be an abstraction of natural forms and laws that were discovered by educated ancients. And that abstraction-invention was not made by an accident but as a consequence of the long tradition of arithmetic and geometric practice.

In my research, I have taken a more objective look to the hard facts of the historical occurrences of the symbol and I have tried to separate facts from speculation of the meaning of the symbol. Nevertheless, I have taken both steps in hoping it will raise more discussion on the meaning of the FOL, and not just plainly listing and describing the FOL occurrences. Yet, practical applications are also a different topic that should be discussed. If the Flower of Life symbology can be seen in the mesocosm, in the cultural exchange between humans in our sensory level, could the Flower of Life geometry be applicable on the microcosmic and macrocosmic levels too? What happens if the Flower of Life symbology is transferred from the two-dimensional plane geometry to the three-dimensional sphere and above? I think that the real adventure starts somewhere from these fields of questions.

Appendix 1 - Classification

There are several reasons why the classification of the FOL is useful. Categories help us to group objects and determine similarities and differences between objects. Classification increases the resolution of the problem field and explains relationships between objects.

Among quantitative and qualitative research methods, categorization and FOL type descriptions are useful methods which all bring additional substance to the study.

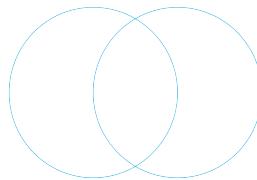
Classification of the FOL may further clarify the local and the temporal development of motives. Mathematical properties that belong to each group and progressing between groups may give extra insights to the historical development of the motif. Classification helps to discuss about the topic with more detailed and unambiguous terms.

We can distinguish seven classes of which the first two of are the preliminary appearances of the FOL: 1. Vesica Piscis and 2. six-petal rosette. The next three are the main classes: class 1, class 2, and class 3. The sixth class is reserved to indicate any progression of the FOL beyond class 3. Finally, the seventh class is reserved for pattern occurrences of the FOL that are separate from symbol appearances.

1. Vesica Piscis
2. Six petal rosette
3. Class 1
4. Class 2
5. Class 3
6. Class n ($n > 3$)
7. Class p ($p = \text{pattern}$)

The FOL formation could also have been categorized to two other groups: hexagonal and concave forms. Many of the occurrences of the symbol instead of using curved lines, uses straight lines which creates a hexagonal grid. But I have left this categorization for the future work.

Vesica Piscis

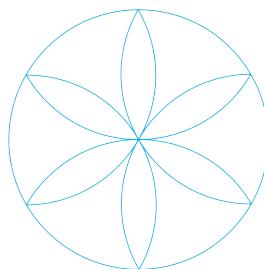


Picture 9.1: Vesica Piscis

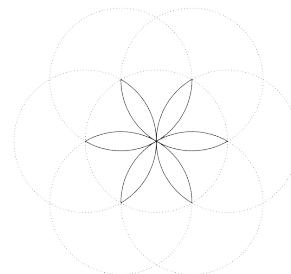
Two circles of the same size intersect each other at the center of both circles. This is the most fundamental geometrical component of the Flower of Life symbol. Vesica Piscis is sometimes called mandorla, or almond, especially in the Orthodox iconography.

Piscis or a fish  is known to refer to the middle of the symbol that is somewhat similar to a fish shape. The ratio between the radius of the circle and a straight line drawn to the two intersection points is sometimes called "the measure of a fish". This ratio is a square root of 3 or its reciprocal $1/\sqrt{3}$. This geometric form is so famous and well known in history and there is so much information available on it that it does not really need any special description in this study.

Six-petal rosette



Picture 9.2: Six-petal rosette a

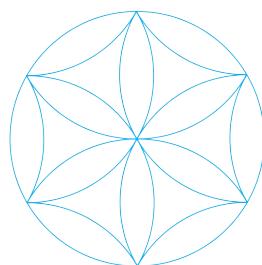


Picture 9.3: Six-petal rosette b

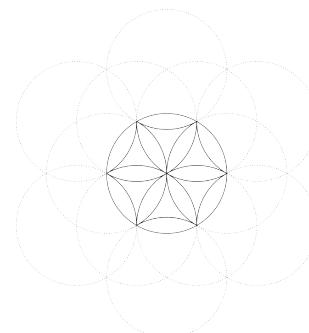
With or without the circle around it, this is one of the most used geometric formation in the ancient art. Rosette is a general name for the symmetrical appearance of the flower-like petals. Petals can be three, four, five, six, or any multiple of these. But when speaking of the FOL, the six-petal rosette is the correct one. The most important aspect of this symbol is the relation between 6 and 7, six leaves and seven intersecting points. Occurrences of the six-

petal rosette are too common to be in the scope of this research. Sometimes six-petal rosette and the next class 1 FOL are called a "seed of life" in the contemporary New Age circles.

Class 1



Picture 9.4: FOL class 1 a



Picture 9.5: FOL class 1 b

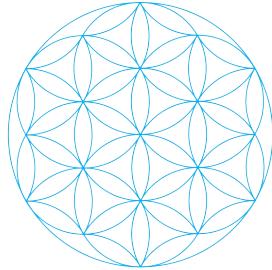
The third category includes the simplest FOL symbol. Occurrences of this class 1 FOL are not as actively collected on my list of artifacts as classes 2 and 3. The criteria for including this symbol in the list of FOL classifications is because the symbol requires additional helper circles and arcs drawn outside the final motif, that are then erased from the final picture. This is a common factor for all classes 1, 2, and 3.

Historical usage of the class 1 FOL together with the lily is one of the most important subject on my interpretation of the FOL symbol. Associating the FOL with death and afterlife is due to the fact that the lily was associated, like it is still common nowadays, with afterlife and death. This connection is further supplemented by one of the oldest artifacts related to the FOL collection, Mycenaean [golden rosettes](#) (1600 BC) that are presented in my previous research. These gold foil disks were buried with royal people as special "attachments"¹. [Golden goblet](#) (1400 - 1100 BC) from Marlik is also one of the early class 1 FOL appearances. All goblets in Marlik were found from the royal burial sites. The class 1 motif can be seen on many Roman mosaics, funerary steles, and ossuaries.

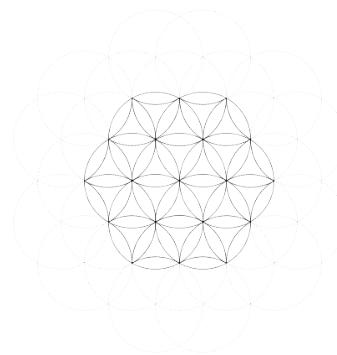
Similar to the six-petal rosette, the class 1 FOL is too common to be collected on a small documentation project. Although my central focus is mainly to bring class 2 and 3 artifacts into daylight, cataloging early occurrences of the class 1 FOL artifacts surely helps to reveal crucial knowledge of the origin of the symbol.

In this complementary document, [item 1](#), [item 2a](#), [2b](#), [2c](#), and [item 5](#) as a continuous ornament contains the class 1 version of the FOL.

Class 2



Picture 9.6: FOL class 2 a



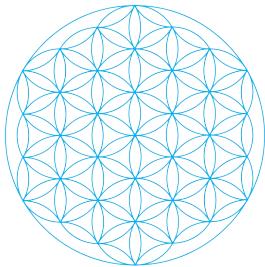
Picture 9.7: FOL class 2 b

The fourth stage of the FOL symbol is the class 2. The earliest occurrence of this version of the FOL can be found from an Egyptian [cosmetic box](#) (1500 BC). Other cosmetic boxes from Egypt that originate from the same time period contain also 24-petalled rosettes. All are made with a compass and they were possibly used to store a lotus or corresponding fragrances. Ivory whorls from Cyprus that contain the FOL class 2 are dated roughly to the same period, middle of the second millennium. A silver goblet from Marlik made in 1000 BC has the FOL class 2 depicted on it, and so has the bowl from Levant, 800 BC. Many roman period mosaics use this formation, and so does numerous woodwork from the Common Era. [Items 2 b and c](#), [item 3](#), [item 4](#), [item 6](#), and [item 7](#) in this complementary document have this symbol attached on them.

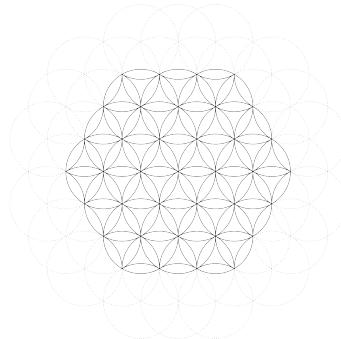
From the samples we have available, it is clear that this form of the FOL is already more difficult to draw than the class 1. A slight miss-position of the compass will accrue and soon the miss-orientation becomes visible for the eye. D. Melchizedek calls this form a "seed of life"², but doesn't give any special name for the FOL class 1.

There are totally 45 circles in the figure 7.7. Number 45 is the 9th pyramidal number:
 $1+2+3+4+5+6+7+8+9 = 45$.

Class 3



Picture 9.8: FOL class 3 a



Picture 9.9: FOL class 3 b

According to D. Melchizedek, class 3 is the real and complete FOL. It is not as common as the other classes, and one could argue whether there is any special meaning attached to this particular symbol, or if it just the same motif than classes 1 and 2. This formation brings no new elements compared to classes 1 and 2. But bigger the formation goes, the level of difficulty increases. Early occurrences of this symbol are debatable. The FOL in Abydos still needs examination. The FOL class 3 used as a background model of the Pre-Hittite sun symbol presented in this complementary document is speculative in nature. The first occurrence of the FOL class 3 comes from the Marlik silver goblet dated to 1400 - 1100 BC. Thereafter it appears on the Near East silver beaker from 600 BC. Again, Roman mosaics use the class 3 FOL and so do the wall drawings in Syria (729 AD), which are particularly intriguing. Numerous woodworkers from various countries in the Common Era used this form and have maintained the tradition until our days. [Item 1](#) and [item 2a](#) in this complementary document contains the class 3 FOL.

Mathematical properties of the class 3 symbol elements are interesting, especially the number of circles that is needed to construct the symbol, i.e. 19 for the figure 7.8 and 55 for the figure 7.9. Number 55 is the tenth number (greater than 0) in the triangular number sequence called pyramidal number: $1+2+3+4+5+6+7+8+9+10 = 55$. Number 55 is also the tenth Fibonacci number greater than 0: $1_1, 1_2, 2_3, 3_4, 5_5, 8_6, 13_7, 21_8, 34_9, 55_{10}, \dots$ It is the largest Fibonacci number that is also a triangular number.

Intersections point count is 37 for the figure 7.8 and 73 for the figure 7.9. 37 and 73 are mirror numbers. 73 is the 21st prime number. 37 is the 12th prime number. 21 and 12 are again mirror numbers, and further 21 is $3*7$ or $7*3$, so we can speak of a nested recursive mirror number sequence. Other curiosity is that the "Plato's lambda" ($1,2,4,8 + 1,3,9,27$) adds up to 55.

Mathematical properties and options for classes 1, 2, and 3

Classes 1, 2, and 3 are central variations of the FOL form at I want to spend more time to analyze. Each of the classes has mathematical properties and options that can be calculated in the following manner:

Mathematical properties

1. Number of *circles* that are needed to construct the symbol
2. Number of intersection *points* that are present in the construction
3. Number of *leaves* that are present in the construction
4. Minimum (*w_min*) and maximum (*w_max*) width of the symbol
5. Number of concave *triangles* that are countable within the construction

Each of them can be calculated from inner and outer part of the construction giving two options:

- a. Inside the formation
- b. Inside + outside the formation combined

Circles that are totally inside the formation is a bit arbitrary because the FOL needs to have partial circles / arcs to be fully formed as a symbol. In this case, one should pay attention to the option b, i.e. the combined value of the inside and outside objects.

The count of leaves is a bit arbitrary in the option b because there are half-formatted leaves on the outer part of the motif. As a result, only fully formed leaves are counted in the option b.

A width of the motif has two values because of the hexagonal shape of the FOL which has two different diagonals. Longer (max.) diagonal value is the vertex of the hexagon. Shorter (min.) diagonal value related to the square root 3 is the apothem of the hexagon.

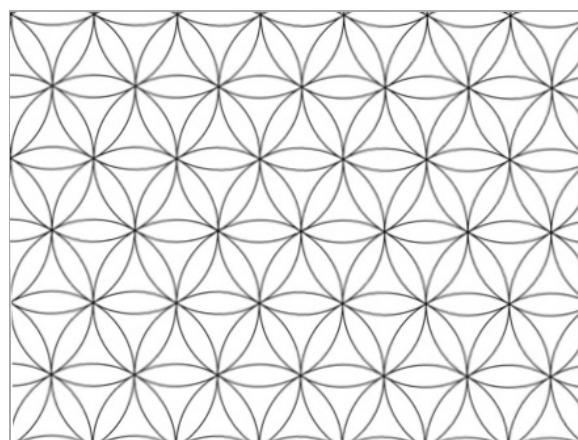
Concave triangles inside the FOL are countable in an exact number, but on the outer formation, we can see partly formed concave triangles and only fully symmetrical triangles are counted in the option b.

class	option	circles	points	leaves	w_min	w_max	triangles
1	a	1	7	12	1	1	6
1	b	13	19	18	2	2.732	24
2	a	7	19	42	1.732	2	24
2	b	45	37	60	3	3.464	60
3	a	19	37	90	2.598	3	54
3	b	55	73	120	4	4.330	96

Class n

There is practically no limit on how many layers of circles you can draw on the FOL motif. However, just few artifacts have more layers than class 3 formation of the FOL. [The Idalion cup](#) has a class 5 FOL and actually the "fruit of life" symbol presented by D. Melchizedek would fit inside the Idalion cup formation. [The bronze vessel](#) from Nimrud has an extraordinary big formation, a class 8 FOL.

Class p



Picture 9.10: FOL Pattern

The class p means a pattern-like or an ornament-like formation of the FOL. This is quite typical among the previous classes. [Item 5](#) and [item 8](#) in this book belong to this category. Pre-Indus ceramic ornament (2500 BC) is the earliest reference of the FOL in class p. From 800 - 600 BC on, many items like the Ivory tusk, the plaque, and the cosmetic pyxis from Nimrud, Terracotta torsos from Cyprus, and stone floor sills from Iraq, all belong to the class p FOL category. The church pavement from London (1600 AD) uses this formation. One undated Assyrian wall decoration is also within the class p FOL categorization.

One notable feature difference between the Cownose and the Flower of Life is that the Cownose pattern is almost without exceptions found in an ornament / pattern form. It is clearly not used in a similar way than the FOL is used in classes 1, 2, and 3, where the symbol is enclosed by a circular form around it.

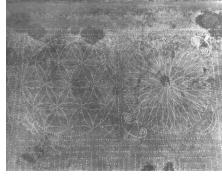
Appendix 2 - Occurrences of the FOL

Faded pictures represents links to copyright protected images, and they need to be obtained from the original source.

2000 BC - 0 AD

<i>Item</i>	<i>Class</i>	<i>Location</i>	<i>Date</i>	<i>Thumbnail</i>
Pre-Indus ornament	class p	India	2500 BC+	
Pre-Hittite Sun	class 3	Alacahöyük, Turkey	2500 BC	
Gold foils	class 1	Mycenae, Greece	1600 BC	
Wooden cosmetic boxes	class 2	Thebes, Egypt	1492 - 1473 BC	
Silver goblet	class 3	Iran	1400 - 1100 BC	
Silver gazelle cup	class 2	Iran	1000 BC	
Gold and silver goblets	class 1, 2, 3	Marlik, Northern Iran	1400 – 1100 BC	
Ivory whorls	class 2	Cyprus	1600 - 1100 BC	

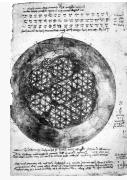
Bronze bowl	class 2	Levant	850 BC	
Idalion cup	class n	Cyprus	800 – 700 BC	
Oval pyxis	class p	Nimrud	800 – 700 BC	
Terracotta torsos	class p	Greece & Cyprus	700 BC	
Ivory tusk	class p	Nimrud	800 - 700 BC	
Ivory plaque	class p	Nimrud	800 - 700 BC	
Bronze vessel	class n	Nimrud	700 BC	
Stone floor sills	class p	Northern Iraq	645 BC	
Silver beaker	class 3	Near East	600 – 500 BC	
		Maharashtra,	200 – 100	

Cave arches	class p	India	BC	
Opus signinum	class 2	Caminreal, Spain	200 - 100 BC	
Floor mosaic	class 3	Ephesus, Turkey	100 BC	
Floor mosaic	class 2	Cyprus	75 – 50 BC	
Floor mosaic	class 2	Israel	20 BC	

0 AD - 2000 AD

Item	Class	Location	Date	Thumbnail
Floor mosaic	class 2	Pompeii, Italy	100 BC - 200 AD	
Floor mosaic	class 2	Masada, Israel	30 BC – 70 AD	
Floor mosaic	class 1, 2	Seville, Spain	100 AD	
			100 - 500	

Temple stele	class 2	Córdoba, Spain	100 - 500 AD	
Floor mosaics	class 3	Besancon, France	123 BC – 486 AD	
Floor mosaic	class 2	Kabile, Bulgaria	400 AD	
Silver bowl	class 2/p	Near East	400 – 500 AD	
Wall paintings	class 2, 3, p	Qasr al-Hair ash-Sharqi, Syria	729 AD	
Church pavement	class p	London, England	1268 AD	
Byzantine ruin	class p	Deir Seta, Syria	1400 AD	
Hampi pillar	class 2/p	India	1400 AD	
Ottoman cemetery decorations	class 2/p	Izmir, Turkey	1400 AD	
Castle of Rozmberk	class 2/p	Czech Republic	1400 - 1600 AD	

Codex Atlanticus folio 307v	class 1, 2, 3, n, p	Italy	1500 AD	
Stone inscriptions	class 2, p	Bulgaria	1600 AD	
Coptic church cupola	class 2	Thebe, Egypt	1600 AD	
Mosque window background	class p	Istanbul, Turkey	1616 AD	
Distaff blades	class 1, 2, 3, n, p	Finland	1700 - 1900 AD	
Woodcarvings	class 1, 2, 3, n, p	Zakopane, Poland	1800 AD	

Undated

Item	Class	Location	Date	Thumbnail
Abydos wall	class 2, 3, p	Abydos, Egypt	BC, AD	
Assyrian wall decoration	class p	Near East	BC	

Chapel lunette	class 1, 2, p	Patmos, Greece	AD	
Fu Dog sphere	class p, 3d	Shanghai, China	AD	
Giant urn	class p, 3d	Beijing, China	AD	
Marble floor decoration	class 3	Amritsar, India	AD	
Jewish painting	class 2	-	AD	

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Tools

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Akkadian / Sumerian / Assyrian language reference

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255,000 cuneiform texts and images database

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Oxford University Cuneiform Digital Library Initiative

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Open-source geometry and algebra application

<https://www.geogebra.org/>

Credits

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About pictures

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Thumbnail pictures on Appendix 2 refer and are linked to the original sources via my previous study [Artifacts of the Flower of Life](#), where their credits and copyright notices are given by more suitable way.

Full page pictures presenting the Flower of Life pattern starting Part 1 (page 10) and the Cownose starting Part 2 (page 40), are my own work. The frontpage picture is from the article *Folkkonsten i Finland* by K. K. Meinander published on a book *Nordisk kultur* page 392 in 1931.

[Pic. 4.1.1](#) A point

[Pic. 4.1.2](#) A-B line

[Pic. 4.2.1](#) Triangle - the simplest two-dimensional shape

[Pic. 4.2.2](#) Projected square

[Pic. 4.2.3](#) Simple circle

[Pic. 4.2.4](#) Slope as a ratio / logos

[Pic. 4.2.5](#) A four-winged genie in the Bucket and cone motif. Relief from the north wall of the Palace of king Sargon II at Dur Sharrukin, 713 - 716 BC / Public Domain

[Pic. 4.3.1](#) Two circles intersecting at their centers

- Pic. 4.3.2 Quadrilateral rhombus
- Pic. 4.3.3 Rhombus geometry on synagogue wall in Sardis
- Pic. 4.3.4 Equilateral triangle
- Pic. 4.3.5 A simple triquetra symbol / Public Domain
- Pic. 4.3.6 Lens in a lens
- Pic. 4.3.7 Arbelos - Shoemaker's knife © Mosmas
- Pic. 4.3.8 Six-petal rosette
- Pic. 4.3.9 Floral motives in Porvoo Cathedral
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- Pic. 4.3.11 Hexagram
- Pic. 4.3.12 Six-spoked wheel
- Pic. 4.3.13 Seal from the time of the Indus Valley Civilization © World Imaging
- Pic. 4.3.14 Six and seven ratio
- Pic. 4.3.15 Six circles
- Pic. 4.3.16 Flower of Life, class 1
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Keywords

The following list of keywords and phrases can be used to search more information about the Flower of Life related topics from libraries and search engines:

flower of life, six-petal rosette, six-spoked wheel, rosette symbolism, apsamikku, concave square, square root of 3, square root of 2, intersecting circles, overlapping circles, hexagon, hexagram, equilateral triangle, rhombus, lozenge, vesica piscis, fleur-de-lis, lily symbolism, tree of life, menorah history, sacred geometry, ancient mathematics, hittite sun disc

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About the Author

Marko Manninen is an indie writer, a kirtan musician, and a professional programmer. He has spent the last 25 years studying practical symbolism and perennial philosophy.

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