

THE GEOMETRY OF THE FLOWER OF LIFE AND ITS APPLICATION IN ARCHITECTURE

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ABSTRACT: In an ancient tradition that goes back to the beginnings of human consciousness, numbers and geometric shapes are archetypal metaphors representing the order of the universe. One of these basic archetypes is the symbol of the flower of life. It represents the geometry of the principle of all creation, the circle of life, the cosmic order and the living creative force from which everything comes. It appears in many cultures around the world, yet its discovery in architecture is not always that easy. It has been found, for example, in Egypt on the walls of the ancient temple of Osiris in Abydos and in palaces in Assur. In the Czech Republic, the master carpenter Petr Růžička shows unique examples of the use of circular geometry based on the Flower of Life. He gradually reveals that this symbol is not just a mere decorative element on a façade, but functions as an initial geometric measure and basic compositional and organisational unit for an entire structure. This is then harmonised in one scheme from the general layout to the details. The work connects everything with everything, everything is in everything, the small element is harmonised with the large. The architecture that arises from sacred geometry is filled with truth and beauty because it then incorporates these patterns into material reality. All the great architects of the past tried to bring a deeper order and understanding of a higher truth to architecture. Unfortunately, this tradition has not been preserved, which is why contemporary structures often look so empty and soulless.

KEYWORDS: geometry; sacred; flower of life; mathematics; order; structure; architecture; composition

"When we agree that numbers are derived from the parts of the human body, and that there is a symmetry resting on the module between the parts and the whole body, it follows that we pay homage to those who, in building the temples of the immortal gods, arranged the parts of their edifices so as to bring about, by means of proportion and symmetry, a correspondence between the parts and the whole." [1]

INTRODUCTION TO THE ISSUE

In earlier times, architects tried to design buildings to exude the order, mystery and magical power inherent in the universe. Architecture was then the art of embodying spiritual depth in the environment we built for ourselves to live, work, rest and pray in. It was an expression of spiritual understanding that was long considered to be the creator of the beauty of the building.

Numbers and geometry then served as the means by which buildings acquired their solemnity and harmony. The buildings, built according to the principles of sacred geometry, were meant to replicate the cosmic order and provide an immediate creative experience for the human being within its walls. The true spiritual and emotional effect on a person cannot then be questioned.

Real art and architecture reflect, through forms, an archetypal, instinctive and metaphysical consciousness that can be considered a priori inborn. Architects of the distant past knew that an innate, subconscious readiness precedes our conscious sensory perception. This knowledge emanates from the temples of ancient Egypt and Greece, or from medieval cathedrals. If we accept that the highest task of the architect is the exploration of the eternal truth found in the collective unconscious, then a keen awareness of the importance of archetypal phenomena will help to shorten the path in the search for deeper levels of spiritual knowledge.

Archetypes, or more precisely archetypal images, can be considered as certain guides to intuition: ways in which our intuition can be used to bring forth directly from the unconscious, especially the collective unconscious, shapes that will reflect fundamental metaphysical truths and that will express the essence of the harmony of the human being and the universe embodied in the structure of the building. According to Herbert

Bangs, author of *The Return of Sacred Architecture*: "Architecture is both a symbol and a shield: a symbol of the Divine Reality and a shield of our material corporeality. Today we have forgotten, or lost, our knowledge of the mysterious function of symbols and architecture, whose function was to communicate eternal truth." [2] The most sublime function of architecture should therefore be the profound understanding of a great mystery and its subsequent expression through matter. Great architecture must satisfy the universal, archetypal and instinctive demands of the human soul. The sense of the ancient, spiritual role of the architect has unfortunately disappeared so completely that few people are aware of what they have lost. The master carpenter Petr Růžička compares it to a tree that grows and has its roots in history. But this tree has broken and we have lost our roots since the Middle Ages.

THE IMPORTANCE OF GEOMETRY FOR ARCHITECTURE

Geometry, the science of measurements and the interrelationships of objects in plane and space, was born at the very beginning of ancient cultures. It has been the basis of many sciences as well as architecture for thousands of years. Its uniqueness lies in its ability to link the parts to the whole. Its impressive flowering occurred during the Pythagorean school in ancient Greece in the 6th century BC.

Pythagoras was also one of the significant insiders of the Hermetic philosophy of antiquity. Hermeticism teaches that the substance of any category needs information, or an idea, for its organization. The law of analogy expresses that: What is below is the same as what is above, and what is above is the same as what is below. Or in short: Both down and up, both up and down. This law expresses the analogy of relations on different levels of reality. The law of analogy teaches us that phenomena at the macrocosmic level are subject to the same laws as phenomena at the microscopic level and allows us to judge relationships at one level on the basis of relationships at another level. [3] Above the entrance to Plato's Athenian Academy there was an inscription: "Nobody comes in here without knowing geometry." The philosopher Plato became the most important heir to Pythagoras' ideas about ordering the world on mathematical and geometrical principles. He taught that numbers are the basic building block, the root of this world. The thirteen books of Euclid's *Foundations*, a body of work that served as

an unsurpassed textbook of geometry until the 19th century, became a true monument of ancient learning. [10]

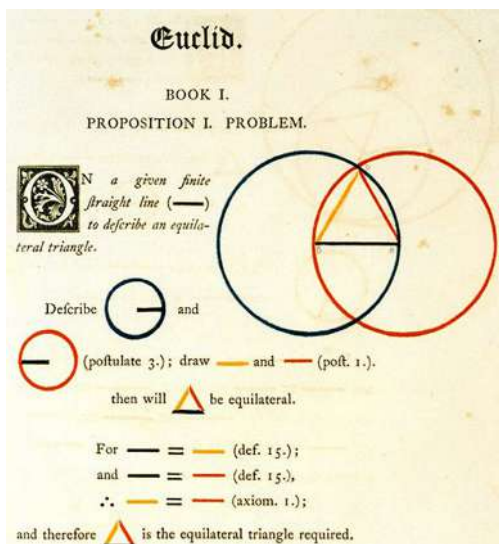


Fig. 1.: A mid-19th century illustration of Euclid's first design by Oliver Byrne. (Source: <https://www.entertheearth.com/seedoflife/>)

Careful study of cultures, their art, architecture, religion, mythology and philosophy often reveals that surprisingly simple universal principles often lie at the root of the variety and diversity of styles and types. Plato argued that the purpose of aesthetics is not merely to copy nature, but rather to gain a deeper insight into its essence, by which we penetrate beneath its enchanting surface and seek to understand and exploit the sacred proportions of its beautifully simple but divine order.

The Greek philosopher Plotinus, the main representative of Neo-Platonism, mentions: "The wise men of old, who built temples and statues in their desire to have the gods beside them, looked to the nature of the All and knew that in the nature of the soul it is easy to be attracted, but that if one were to create something with which the soul was in harmony and able to accept a part of it, it would accept it most readily of all things. That which is in harmony with the soul is that which imitates it in the manner of a mirror that can catch the reflection of the form." [2]

In his habilitation thesis *The Symbolism of Numbers*, architect Jiří Oplatek writes that just like music, it is possible to influence the soul of a person through the numerical structure of space. The identical geometrical patterns according to which cult buildings of all epochs and cultures were built lead to the conclusion that the intention of their builders was not exhausted only by meeting the basic requirements for architecture in terms of purpose, strength and beauty. The conscious composition of space according to numerical laws was supposed to lead man to intuition. The knowledge of the laws of spirit and matter, expressed in numbers and their ratios, has been passed down from generation to generation and has been materialized in buildings that cannot be understood with a purely cultural-historical approach. Many buildings have been destroyed by ignorance and much knowledge has been lost. [3]

THE GEOMETRY OF THE FLOWER OF LIFE

Sacred geometry is common to all peoples and cultures around the world who have understood it as a means of connecting humans to the universe. In all parts of the world and in all religions and various ancient civilizations, the symbol of the so-called "Flower of Life" appears. This pattern is very significant because it is considered a symbol containing all the geometry of life

as we know it on planet Earth. It is a universal symbol of energy, life and connection between all that exists and captures the creation of all existence. [4]

The geometry, composed of 19 circles resembling a flower, represents the fundamental matrix of the creation of space, time and forms, the unity of life and spirit and all the interconnectedness of existing life and events in the universe. It holds the essence of everything. The symbol contains all the basic building blocks of the universe, which we call Platonic solids. [4]

Symbolically, it represents the moment when God (Unity/Substance/Source/Soul/Universal Consciousness - depending on what name we choose) activated His will to create the universe, when he left the state of stillness, non-existence, non-being, emptiness and darkness. When the Flower of Life was born, everything began and started its first cycle. We can define it as "God" - "all that is". The symbol has the ability to demonstrate how all things come from one source and are closely and permanently connected. [4]

According to Drunvalo Melchizedek, "The flower of life contains in its proportions every aspect of life that exists. It contains every mathematical formula, every law of physics, every harmony in music, every biological life form in relation to a particular body. It contains every atom, every dimensional plane, absolutely everything that exists in the wave-function of the universe." [2] Melchizedek further states: "It's not just mathematics and it's not just circles and geometry. It is a living map of the creation of all reality." [5]

The geometry of the Flower of Life developed from a basic central point. It is a dimensionless point, the place of the sacred centre, symbolizing "divine unity", the primordial spirit and the beginning of creation. The expansion of a point into space, the expansion of consciousness in all directions, creates a sphere or in 2D representation a circle. It symbolizes the universal consciousness, which is in a state of oneness. Consciousness without beginning or end, eternally existing and perfect in form and symmetry.

The symbol for God - Unity, Universe is a dimensionless sphere. Creation means separating from the base sphere a second sphere exactly the same as the first. It means the movement from unity to duality. Moving



Fig. 2.: Christ in a mandorla surrounded by an angel, an eagle, a bull and a lion, representing the four evangelists. (Source: <https://www.entertheearth.com/seedoflife/>)

to the newly created and projecting another sphere of the same size as the first. The second sphere depicts God in matter and expresses the affirmation both above and below, both in heaven and on earth. The opposites are identical. [5]

The first movement creates a division of one sphere into two intersecting ones in the middle, representing the unfolding of unity into duality. This configuration is one of the most important and prevalent relationships of sacred geometry and is called the Vesica Piscis or "fish bladder". This shape was also historically known as mandorla (Italian for "almond") after the shape of the nut. The mandorla was commonly used in Christian art as a halo around the religious figures of Jesus and Mary to signify their role in uniting the divine and human realms. Vesica Piscis also symbolizes the first duality and the first day of creation.

Geometrically, it is a pair of intersecting circles with centres on their circumferences, i.e. the centroid has the length of the radius of one of them. There are two basic measures in Vesica piscis - one that extends through the centre (narrower width), and one that connects opposite points through the centre- these are the keys to great knowledge within this information. Vesica piscis can be used to construct regular polygons such as triangles, squares and hexagons. (Fig.3) It also has a unique relationship to several square roots. Historically, it was used as a geometric proof for the square roots of 2, 3 and 5 (Figure 4). It is well known that the square root of 5 generates the number phi, which is the basis of the golden ratio construction.

$$\varphi = \frac{1 + \sqrt{5}}{2} = 1.6180339887 \dots$$

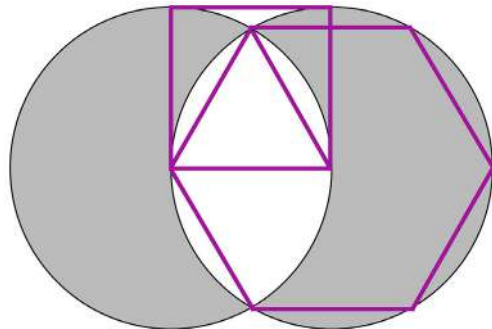


Fig. 3.: Vesica Piscis and the construction of polygons (Source: <https://www.entertheearth.com/seedoflife/>)

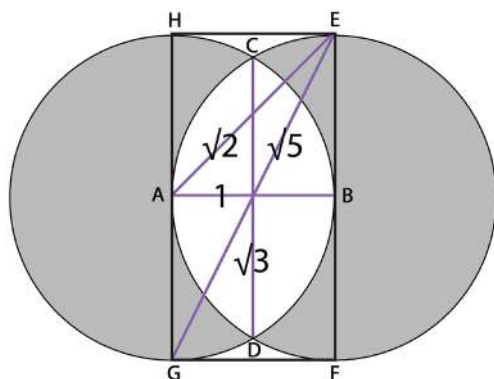


Fig. 4.: Vesica Piscis and its relation to the three square roots. If the distance A-B 1 is the radius of the two circles, then C-D = $\sqrt{3}$, E-G = $\sqrt{5}$ and E-A = $\sqrt{2}$ (Source: <https://www.entertheearth.com/seedoflife/>)

At this point the division into two circles/spheres of consciousness is no longer unified, but divided into two perspectives. The intersecting space between the two circles/spheres depicts creation, specifically co-creation, where two perspectives meet to create something new. After the creation of this formula,

there is only one instruction to follow. Always move to the innermost point of the circle and project to create another sphere. "Move toward that which is newly created until it is perfect." [5]

Then add another circle/sphere so that its centre is at the intersection of the previous sphere/circle. The result of this motion is the intersection of three circles/spheres, which is the geometric basis of the star - the tetrahedron. The trinity of circles/spheres and the essence of the number three has deep meaning in many religions. It symbolizes the divine, threefold nature of all things. It means the primordial division from unity to duality into matter and spirit. It is a combination of three levels into one. In Christian dogma it is the Holy Trinity of God the Father, God the Son and God the Holy Spirit, in Hinduism it symbolizes the trinity of gods, and in new philosophical trends a division into matter, soul and spirit is emerging.

By adding a fourth circle/sphere, the symbolism of the four, which characterizes the four elements, matter, the Earth, begins to take effect. It represents everything that is firmly and permanently anchored in matter. It is the division of duality into two parts again - expressed graphically by the square base of the pyramid or right angle in architecture. So number four is an escalation of number two to a new level.

The attached fifth circle represents the division of Unity twice into duality. In 3D projection, it creates a pyramid shape. In the 2D record, a pentagram symbolising a perfect man with outstretched arms standing on both legs - the so-called Vitruvian figure. Man then represents a living pentagram. Man has 5 senses, 5 fingers and toes, etc.

The sixth circle then forms a six-pointed star, which is a 2x equilateral triangle within itself. It thus contains the masculine and feminine principle.

The addition of the seventh circle creates the Seed of Life - the first and fundamental flower of life, representing the abundance of life and a symbol derived

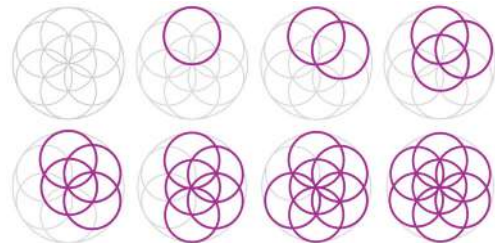


Fig. 5.: The construction of the Seed of Life. (Source: <https://www.entertheearth.com/seedoflife/>)

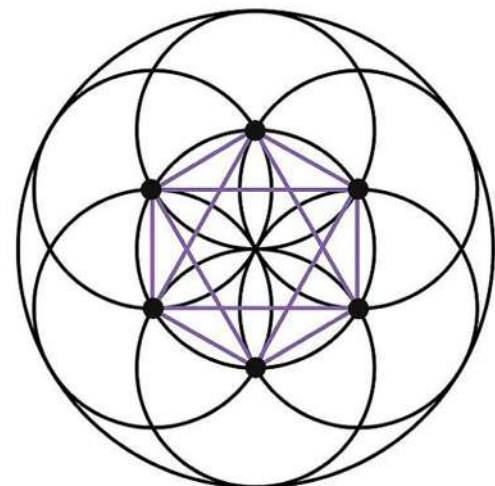


Fig. 6.: The Seed of Life construction used as the basis for the hexagon construction. (Source: <https://www.entertheearth.com/seedoflife/>)

from Genesis - the 7 circles derived from the Vesica piscis representing the 7 days of creation of the universe in which we live.

"Seven spheres, seven days of creation, seven notes, seven colours, seven layers of muscles in the heart, seven chakras, seven endocrine glands. This geometric pattern repeats itself infinitely many times. It is the basis of all life. Thanks to it, flowers bloom in nature, and two, four, six or eight cells are formed from what was originally a single cell. On the same basis, a human body or a galaxy is formed. By multiplying the original eternal spiral, new spheres are created. In the third round, 19 spheres are finished and with them the Flower of Life. This pattern takes the form of a flower and is an eternal process. It contains musical harmonies, scales of light and a model of the growth of living tissues. Each sphere has the same possibility of development as the original sphere. Therefore, the Flower of Life produces the Fruit of Life, which composes its own flower. Each sphere has within it the five Platonic bodies, the union of masculine and feminine energy, straight and curved lines, along with two geometrical matrices which are the basis for all that is real." [7]

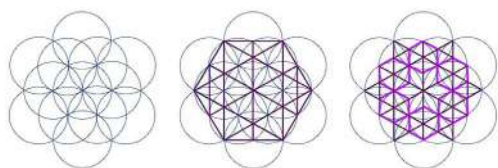


Fig. 7.: The Seed of Life design used as a template for more complex geometric shapes such as the basic grid in Islamic art. (Source: <https://www.entertheearth.com/seedoflife/>)

By further expansion and drawing more circles on all intersections, an ever larger pattern is created. If it is circumscribed so that only 19 complete circles are visible, the **Flower of Life** is formed. It is often bounded by two circles which have their own meaning. It forms a precisely defined free space within which creation takes place. [4]

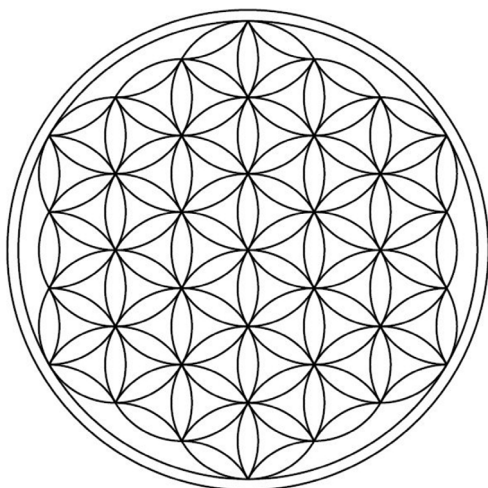


Fig. 8.: The flower of life. (Source: https://www.kamenzivota.cz/O-KVETU-ZIVOTA-a8_0.htm)

The joining of the centres of certain circles creates the **Tree of Life**, which is the central mystical symbol of the teachings of the Kabbalah. It is a tree, then a flower, then a seed. If these geometries do indeed have a parallel in the five cycles of the fruit tree found on Earth, then the beginning of the tree must be perfectly contained in the seed. If we place the pattern of the Seed of Life on the pattern of the Tree of Life, we can understand their relationship. They fit together perfectly! It's like a key in a lock or two parts of a puzzle - one fits exactly to the other. Here we see the synchronicity of the forms of sacred geometry and the way they move and fit together perfectly. [6]

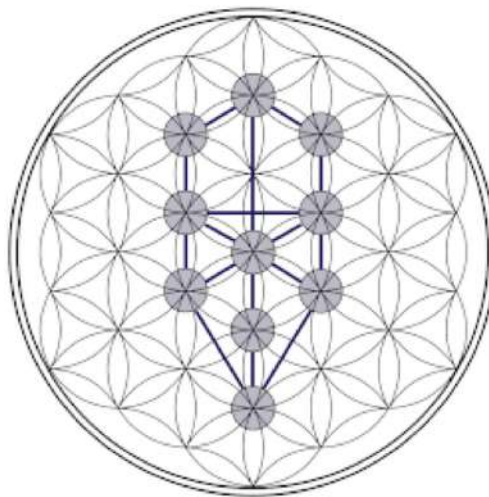


Fig. 9.: The Tree of Life. (Source: https://www.kamenzivota.cz/O-KVETU-ZIVOTA-a8_0.htm)

Each line in the Tree of Life, measures the width and length of the Vesica Piscis in the Flower of Life. And at the same time, they all have the proportions of the golden section. When we look at the Tree of Life laid out on the Flower of Life, we see that each line corresponds exactly to the width and height in the Vesica Piscis. [5]

By selecting the 13 central circles of the Flower of Life, the basis for the 7 circles of the Egg of Life can be obtained, which resembles an embryo in the stage of division into 8 cells. It is also given meaning because the union of the centres of the circles produces a two-dimensional projection of the cube, and the cube is also one of the Platonic solids. [5]

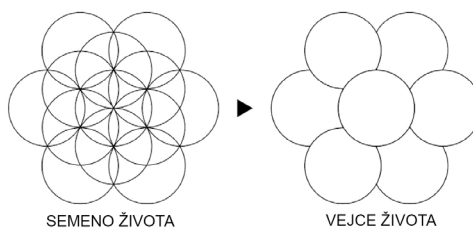


Fig. 10.: The egg of life. (Source: https://www.kamenzivota.cz/O-KVETU-ZIVOTA-a8_0.htm)

The completion of the Flower of Life is the **Fruit of Life**, i.e. by drawing the missing circles cut by the mentioned border and then selecting all touching circles (of which there are 11). Their centres lie on lines that divide 360° into sixths and intersect at one point - the centre of the whole image. [5]

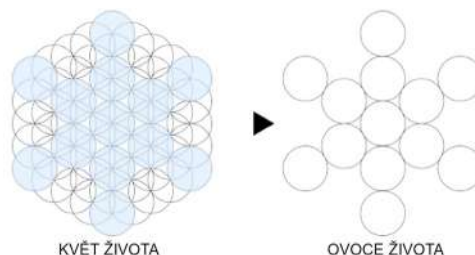


Fig. 11.: The fruit of life. (Source: https://www.kamenzivota.cz/O-KVETU-ZIVOTA-a8_0.htm)

The two-dimensional projection of the body that is created by connecting all the centres of the circles with each other in the Fruit of Life is the Metatron's cube. The geometry of the flower of life is also very closely related to the geometry of Platonic solids. However, I do not want to go into more details in this context. Such an analysis would require another separate article. [5]

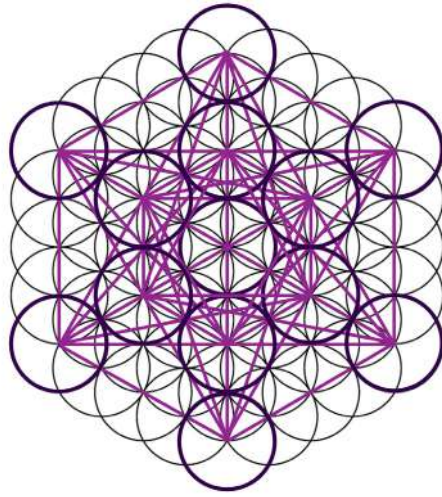


Fig. 12.: Metatron's cube. (Source: <https://www.entertheearth.com/seedoflife/>)

The flower of life has almost the same name all over the world. It's a clean shape with clean proportions. It is called a flower not because it looks like one, but because it represents the cycle of the fruit tree. A fruit tree produces flowers that undergo metamorphosis and become fruit. The fruit contains a seed which, when it falls to the ground, grows into another tree. It is the cycle of the fruit tree from fruit to seed and back to tree in five stages.

The perfect geometry of the fascinating pattern of the Flower of Life has intrigued many a thinker. The renaissance Italian painter Leonardo Da Vinci was also captivated by it and wanted to find the essence of the universe and of man himself. On several pages in the book *The Unknown Leonardo*[8] we can find studies and analyses of the Flower of Life. Leonardo studied all the possible relationships of the core of the Flower of Life and calculated the angles that resulted from it, which he further applied to his physical inventions. Based on the findings of the Roman architect Vitruvius (who discovered that if a man spreads his arms, his body is approximately the same length in height and width), he managed to draw the human figure perfectly within the symbol of the Flower of Life, with the intersections of the circles exactly fitting where Da Vinci

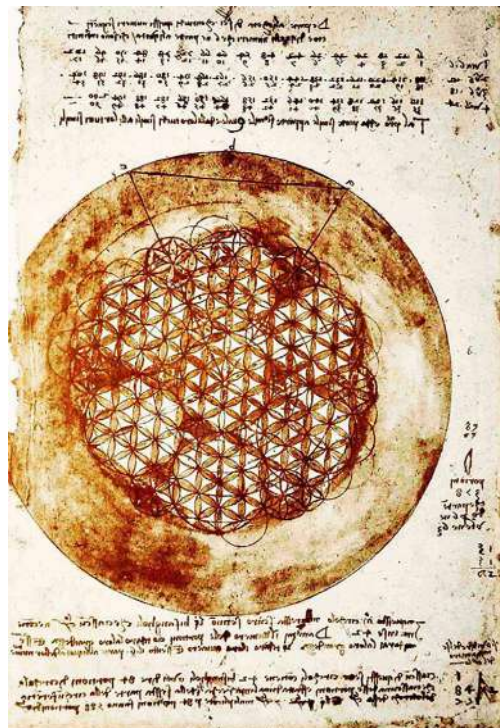


Fig. 13.: Sketch of the Flower of Life by Leonardo Da Vinci. (Source: L. Reti, *The Unknown Leonardo*, McGraw-Hill Book Co, England, 1974)

had drawn the outstretched arms, and the centre of the Flower of Life was located directly at the navel. He thus verified that this is indeed the symbolism of the beginning of the universe and the creation of man in his perfect form.

An understanding of the basic geometry of the Flower of Life is essential for architects in addition to many other professions, and should be taught in all schools, as it weaves together all the basic geometric elements and relates them to the philosophy of creation and the deeper cosmic order. Buildings designed on the basis of these proportional relationships are characterized by a fixed order, according to which the building's contours and its individual parts are interrelated and create proportional harmony. Buildings composed in this way can then be considered beautiful and true.

THE GEOMETRY OF THE FLOWER OF LIFE AND ITS FINDINGS IN ARCHITECTURE

Despite the importance of the Flower of Life symbol of geometry, its use in architecture is relatively rare and its discovery is not easy. Sacred geometry, which had been passed down and taught for generations in the building industry, among builders and architects, was passed down only as a secret teaching and was not recorded in writing and exposed to the common man. Moreover, the original geometry served only as the basic organizational unit by which everything was governed, yet it rarely surfaced. Therefore, the search for traces of it in architecture is rather difficult, although we can see from various evidence that it is quite certain that this symbol has been used all over the world and throughout the history of mankind. It is more often found as a pattern in stained glass windows, or as an element on altars or tombs, but also as a protective symbol on everyday objects.

Perhaps the oldest depiction of the Flower of Life is found in Egypt in the **Temple of Osiris in Abydos**. Here is a set of three successive temples dedicated to Osiris. The first is the temple of Seti I and behind it is another very old temple, also called the temple of Osiris. This nearly 6,000 year old temple is one of the oldest around the world, and its walls (probably one of the oldest walls in Egypt) are engraved with symbols of the Flower of Life. Other related designs of the Seed of Life appear on other walls. The temple was first buried in the ground before being excavated again. Unfortunately it is now mostly flooded with water due to the rising level of the River Nile, but when it was first discovered it was open and dry. Here on the wall there are pictures of the Flower of Life. The original ground plan of the temple also speaks of sacred geometry in that it contains two pentagons connected by a common edge. [5]

Another example shows the depiction of the Flower of Life as a flat band relief on the façade of the **court façade of the Parthian palace at Ashur**, which was the centre of the ancient Assyrian empire (in the north of present day Iraq) from 2500 BC. The stucco elements here date from the 1st century BC and were probably originally coloured, as was popular at the time. We can see them during a visit to the Pergamon Museum in Berlin, when visiting the exhibition from the Mesopotamian period on the wall opposite the reconstructed Ishtar Gate. It was a sculptural decoration, like the **screen decoration in China**, where the pattern was drawn on the screen separating the rooms. They made the screen in a rectangular shape and the pattern covered the entire surface of the screen right to the edges. The Flower of Life is ideal for graphic representation of any surface due to its infinite possibilities of replication. It works as a base row under more complex geometric patterns such as stained glass, window tracery and mosaics. A very beautiful rosette window can be found, for example, in the **Cathedral of St. Stephen in Vienna**.



Fig. 14.: Belt reliefs of the Parthian palace in Assur. (Source: Pergamon Museum in Berlin, photo by the author)



Fig. 15.: Rosette window of the Cathedral of St. Stephen in Vienna. (Source: <https://www.entertheearth.com/seedoflife/>)



Fig. 16.: Interlocking rosettes as door decoration on a 19th century wooden church in Lozna, Romania. (Source: <https://www.entertheearth.com/seedoflife/>)

In the Czech Republic, Petr Růžička, a master carpenter, was engaged in researching and revealing the geometries of older buildings. He used several examples and geometrical analyses of buildings to show that the geometry of the Flower of Life symbol was applied in a much more complex way than just as a decorative element and ornament on façades. At the **Church of the Assumption of the Virgin Mary in Plasy**, north of the city of Pilsen, he demonstrated the practical use of the geometry of the circle of life and revealed its deeper geometric layers. Practically shown step by step using the Flower of Life geometry on the West Portal of what was originally a Romanesque stone basilica. On the walls of this church he discovered geometric circular structures and stone corbels that gave a clue to how

the building had been designed in Romanesque times. Old Czech measurements were used and importance was placed on the algebraic record of the cubit measure (1 Prague cubit = 59.3 cm) based on knowledge of the relationship between the basic unit of length and proportional relationships. The Vesica pisces, the Seed of Life and the Flower of Life were then developed on a circular basis to the extent of one Prague cubit. Petr Růžička demonstrated that thanks to this figure it is possible to construct projection networks and to develop a local surface network.

Petr Růžička presented that in the Middle Ages there was a drawing room at each large construction plant that created these networks. The original base circle was subsequently omitted, leaving only the spokes. The solid circle was not visible. Thanks to this basic design network, the individual details of the building, such as the entrance portals and other parts of the building, were also created. Petr Ruzicka clearly proved the interconnectedness of geometry on the individual details of the building and the whole. He showed the connection of the basic unit of measurement - the initial circle - the matrix and its application both on the portal and in the entire layout of the building. We are then dealing with pure geometric abstraction. The building was thus aligned with one scheme from floorplan to fine details. The work connected everything with everything, everything was in everything, the small element was harmonized with the large element; just as in the idea of God's work of creation.

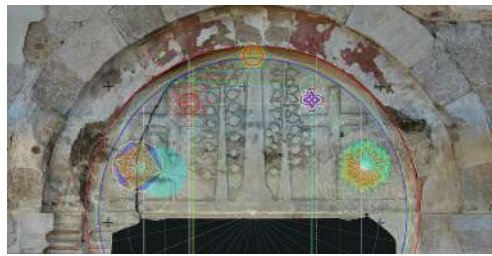


Fig. 17.: The western portal of the Church of the Assumption of the Virgin Mary in Plasy. (Source: Petr Růžička- presentation at the conference Architecture in Perspective 2022)

In this sense, the separate construction elements of the building can be understood as a set of geometric formations connected by a common compositional network, which then represents a whole of higher order. If the individual building elements are correctly arranged on the parent compositional grid, the external and internal dimensions of the building should be in harmonious proportion. Mathematically, this means that the parent composition network is in some way of higher importance than what we directly observe. In other words, the compositional network, undetectable by ordinary observation, has a function superior to the structure. From this point of view, sacred buildings are fully structuralist works. [10]

Master carpenter Petr Růžička showed the same principle of a uniform parent composition network - a hidden compositional structure of a higher order, on the plan of the Romanesque-Gothic church of **St. Peter and Paul in Načeradec** [11] (fig. 18), a small town in the district of Benešov in Podblanicko or at the early

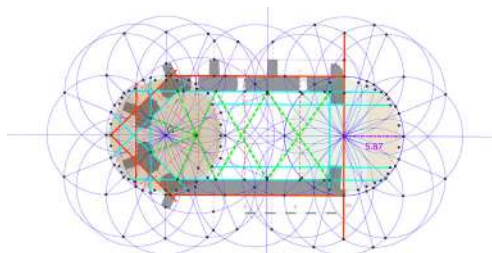


Fig. 18.: Floorplan of the Church of St. Peter and Paul in Načeradec. (Source: <https://www.geogebra.org/m/nurzydr>)

Gothic **Church of All Saints in Slivenec**. Petr Růžička also found circular drawings on the walls of the original **late Gothic Sokolov Château** in the centre of Sokolov.

Similar research focused on the geometric analysis of the plan dimensions of sacral buildings was undertaken by Ladislav Moučka, author of the following books: *Mother Cathedral - Geometry of Sacred Space* [9] and *Jan Blažej Santini Aichel, Geometric Legacy of the Czech Middle Ages to the High Baroque*. [10] His study has confirmed the important function of geometric techniques in the foundation of Romanesque buildings and the tradition of transmitting geometric knowledge in building metallurgy, which goes back to the early Middle Ages. It discovers common features in buildings characteristic of the period of the entry of Christianity into our lands. This common feature is the geometrically defined proportions of the Tree of Life based on the circular geometry of the Flower of Life. Moučka considers the old Czech length measurements, especially the Czech or Prague cubit, to be very important. Ladislav Moučka is convinced that there is a common compositional key used in the design of all sacral buildings. The surveys and geometric analyses of rotundas confirmed the assumed similar geometric procedures in the floorplan designs. The buildings have common features that are variations on a unified proportional compositional scheme that has progressed through several centuries of development of sacred architecture in the Czech Republic. These links show that the proportions of the buildings did not arise arbitrarily, but were liturgically obligatory. This proportion is not a sign of a particular building style, but rather it seems that the compositional rules were imported to us from countries with wider construction experience and that they also had a wider application. It is almost impossible that these coincidences could have arisen by chance. On the contrary, there is a clear effort to connect the buildings ideologically - perhaps even to harmonize them as musical instruments of the orchestra.

CONCLUSION

In the past, architects were conscious of numbers and geometric shapes. They combined them with other shapes and numbers to express an inner understanding of a higher truth. This method had to be based on a systematic body of knowledge, a mathematical knowledge of mysterious numbers and shapes. Even if today's architects don't have this knowledge and rely on their intuitive visions, they can incorporate the beauty of mathematical truthfulness into their work. In order to create structures comparable to the creations of our ancestors, we must regain a systematic knowledge and a lost tradition of mathematical shapes.

The mysterious symbolism of numbers can be revealed through ancient sacred geometry, common to all peoples and cultures who have understood it as a means of connecting man to the universe. By studying and understanding the sacred science of mathematical symbols, architects will be able to design buildings, gardens, or complex landscapes that lift the spirit to an understanding of a higher truth.

Shapes, ratios, square roots, and transformations of numbers and geometry were considered by ancient philosophers to be analogous to the basic processes of life and the key to understanding the structure of the universe. Today, we can study these arithmetic and geometric systems in the context of modern mathematical science and our deeper understanding of the nature of their esoteric meaning will be slight. If we accept that these analogies are true and that they reflect an intuitive knowledge of a reality indescribable in words, we have a foundation on which to build architectural forms that are ageless because they are eternally true. If we introduce the symbolism of numbers

and sacred geometry into our projects, we will only be following a long-trodden path. With architectural form we express something of the nature of the universe and the meaning of life.

If we all renew our faith in a full existence and reaffirm our belief in a cosmic order, surely architects will also recognize the importance of sacred geometry, which lies beyond our sensory perception. Geometry and numbers will then be seen not only as a way of representing quantity, but also as a symbolic expression of a higher reality. The study of this higher reality will be considered the highest and as such, primary interest of the human spirit. If we understand the principles behind the world of real things, the neglected laws of harmony and proportion will come to life again. The transcendental, spiritual meaning of our lives will then be expressed in a new, common vocabulary of architectural forms. [2]

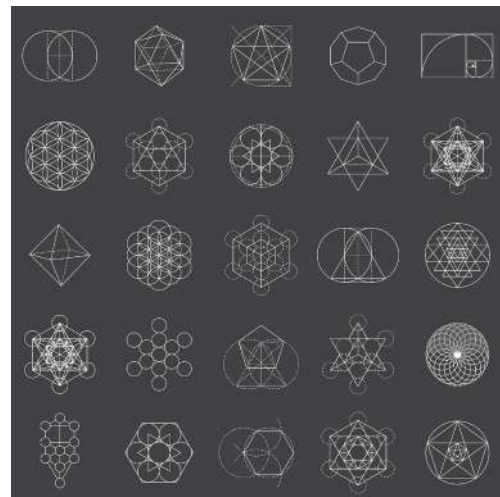


Fig. 19.: Geometry developing on the principle of the Flower of Life. (Source: <https://www.gettyimages.com/detail/illustration/set-of-sacred-geometry-icons-royalty-free-illustration/503924230>)

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