The birth of Venus
Florence – 1486
Sandro Botticelli
1445–1510

Analysis of Composition in Painting
Introduction to Comparative Geometry

Light version
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First observation of the painting

The reality of the work

(Biographic elements are in Appendix 1)
The first observations do not concern the mythological discourse of the work (See Appendix 1) but its reality and primary: its technique, its format, contrapposto Venus finally the horizon.

Technique – The first point concerns Art. This tempera has an excellent resistance over time, by the new use of the canvas.

Format – The current frame, close to the golden ratio, has necessarily been changed several times over the centuries. Originally, the ratio was clearly correct. The vertical black line on the right corresponds to 3.5 ‰ missing according to the Golden Number. The yellow part is what is missing to meet the "official version" (172.5 x 278.5 cm). The images were victims of a cut that adds a voluntary error for the inevitable optical distortion. The results will be specified later, they are here sufficiently reliable, and justify this introduction.

The contrapposto

Sandro Botticelli presents a contrapposto, that he studied finely in an ancient Marble sculpture, listed in the impressive collection of the Medici.

The key elements are exposed. The supporting leg is up, when the other hip, free, is relaxed and bend back the foot slightly. Then, the shoulder line, opposes symmetrically its inclination to the one of iliac points, up causing a slight bend at the waist. The two lines intersect with the angle of the Pentagram (36°).
In contrast, the vertical plumb of the center of gravity, does not pass through the sustenance polygon. In other words, the base that carries the building is not under his weight, and Venus does not hold upright! Botticelli’s talent is to make us forget this contradiction. Venus escapes the laws of gravity. It floats in Celestial space, the one of Sacred Geometry, which will become aquatic in the third part of the study.

**The mysteries of the skyline**

To complete the destabilization, Botticelli gives a slope to the horizon, rising to the left with an angle of more than one degree. Again, it could not be awkwardness or naivety: the slope comes from the will of the artist.

◊ **Presentation of the study**

Geometry of Sandro Botticelli takes the form of a festival. The explanation for this miracle for the eyes results in a construction system where the Golden Ratio confirms its key role. The three stages of the study (identification, construction, and translation) are here only a single text.

**The three most explicit visuals of the composition**

- **Left:** Sacred bisectors of the Golden Triangles intersect on the navel of Venus, expressing a relationship with the couple.

- **Middle:** the great golden spiral of the pentagram tells the story of Aphrodite.

- **Right:** The geometry reveals the flipper of Venus the Mermaid. The frame is then read, with an explanation of its floating elements.
The grid – The canons of the flesh

Any Sacred Geometry settled on a grid. It allows us to situate the figures and to measure them. The numerical values provide access to the interpretation of the work. **Note:** The grid is a repository. It is not directly in construction.

**Careful observation of the work**

Three feet and the cloth of Zephyr, give the exact measure of the grid, in vertical (half-point sized). The extension of this scale confirms the wrist of Chloris and the place of roses. However, these lines concern the Belle only at the top of her head...

The navel of Venus enlightens our mind. By dragging the lines up to a mark, a small line that caps the circle, we fall in line with the upper frame. The grid can then be put in place.

A horizontal line passes through the highest point of the ocean (left), the navel of Venus and the peak that forms the neck of the cape, on the right.

The mesh of the lines marking the half-point, rest vertically on the same navel.
Why two alignments?
Why two levels of identification for the horizontals? Sandro Botticelli is not allowed to play in his manifesto of Beauty. The explanation of this double-line is clear: Venus is a little bit more than four squares height. The scale of proportions takes up the top line, and bottom, the lowest line. According to this, one can apply the "rules of proportion". The most convenient division divides the height into eight equal parts, and two of them measure the horizontal, equal in width to "pelvis plus hands". The head of Venus, whose thick hair is out of the account, is 1/8th of the total height.

The proportions of Vitruvius – The Canons of the flesh
The Roman architect Vitruvius (first century BC.) is the author of a treatise called "De Architectura" which will greatly influence the Renaissance. Leone Battista Alberti (1404–1472) rediscovers Vitruvius from the 1420s, and the first edition is printed in Rome in 1486, when Botticelli paints Venus. Alberti gets recognition in Florence at the end of his life when he is dealing with Lorenzo the Magnificent, the great protector and patron of Sandro. "De architectura" includes a chapter on the proportions of the human body: « Nature has in fact ordered the body to the following standards: the face, from chin to the top of the forehead and the hairline is the tenth its height ... the head from the chin to the top of the skull, is eighth ... »

Follow these instructions up to the letter, and build a second grid of proportion to the Belle. Juxtapose one of the models of Vitruvius, dating from Renaissance, and look: the double lines of Botticelli accord much better with the model of Vitruvius than the opposite!
Engraving of the plate: « The proportions of the human body, architecture or art of building »
Marc Vitruvius Pollio, Jean Martin, 1547
However, the large inter-line of Botticelli seems very close to the famous tenth of the height (marked by the blue-gray square)! In plain terms, Sandro Botticelli refers to the grid of Vitruvius. These speeches are pending in the workshops and salons of this time. Botticelli even involves his formidable mastery of geometry: the face of the athlete is found, almost a century later, between the lines (height squared)! The details of the patella, neck and feet, caught between the lines, are simply delicious.

Facing the Belle, the athlete is classifiable as a bacteriological horror! His too small head prevents him from thinking. Besides the contrapposto half-remembered and half-wrong of the engraving (which depends only on the artist), this head claims the superiority of the flesh over the spirit, and force over reason. The opposition between deterministic design, which leads to the caricature, and a much more sensible approach from the harmonists of Sacred has always existed, even in the heart of the monasteries of the Middle Ages. The Geometry shows this opposition.

The proportion of the face of Venus is close to 1/9th, which makes sense, symbolically, we'll see. It can not be 1/8th; total height of the head. Not more the 1/10th of Vitruvius, to whom Botticelli gives "wrong". Note: The inclination of the face corresponds to the curvature of the body and reduces the relative differences ...

Beauty can not be measured: it is a manifestation. Geometry can guide it, interpret it, too, when it is alive, nourished by the movement of the spirit, and full of the symbolism. The brutal logic of canons goes against the principles of its manifestations. Durer took up this idea through his famous sentence: 
« It belongs only to God, to submit absolute beauty to any measurement. »

**Measurements of the frame by the grid**

In a practical way, the identification of the grid is a very important step. In the case of this painting, The vertical is \( H = 2 \Phi^2 \) (either \( 2(\Phi+1) = 2+2.\Phi \neq 5,236 \)). and with the scale, length is \( L = 2 \Phi^3 \neq 8,472 \). This measure comes from a [greek cross](#) of the Composition.
◊ **The Greek Crosses of Venus**

To make a Greek Cross, one extracts twice a golden rectangle from an initial square. These two rectangles define two vertical lines, in the middle of the square. This figure, together with its internal lines (diagonals and inscribed squares), duplicates itself and turns a quarter turn, thus showing a cross.

This first composition emphasizes vertical lines of demarcation between the characters, and the spatial distribution of horizontal (Horizon of navel and the top edge of the shell). The lines of force appear, highlighted on the visuals. The lightness of the characters is due to their own way to land on the golden bisectors. This « Venus » is an opportunity to enter the magic of painting. The pretty legs of female characters (or with wings) escape to the diktat of gravity.

◊ **The Sacred Triangle – The internal lines**

The Sacred Triangle is the historical basis of the Sacred Geometry [See the article on jacquier.org ] The presence of this triangle in the work identifies the scale of the grid, and also its marks.
In this case, four triangles are inscribed in a rectangle of 3 of 4 units, as a frame for the two characters on the left, Zephyrus and Chloris. A medallion is detaching from the outset: it contains the bodies and faces of the couple. The man embodies the west wind / Northwest pushing Aphrodite toward Earth. The breath that emanates from the mouth of Zephyr strictly follows a line parallel to the red line (that connects the center of the medallion at the navel of the Goddess).

This image shows in a didactical way the active role of the internal lines in the figures of the structure. We are used to see these geometrical elements, linking the system of composition. But for many observers, this workshops speech is still far from their concerns. In this case, the geometry, usually hidden in the mesh of the structure, out comes like the granite demonstrates the profound nature of the Earth.

**The golden bisectors**

The lines highlighted in red are the bisectors of two golden triangles Sacred (3-4-5 tiles). They leave the sides joining the vertices 3 and 5 of their triangle, cross the inscribed circle (called intimus), the exact distance 2.Phi, and intersect on the navel of Venus ... The nature of these lines is revealed little by little. The angle of the triangle attaches 5, assigned to the Man, and 3, connected to Heaven. This angle is, according to the universal symbolism, a place of exchange between the Human and the Celestial. The bisector which cut into two equal parts is a kind of axis which reflects the energy, but also a line of balance: its career is Golden Mean, holding the tool that Man receives from God to create harmony on Earth.

Let us focus on the circle of the couple. Its center is between two lovers that outline the figure of the Yin Yang. From this center the couple at the navel of Venus, the distance is $\sqrt{5}$. This is the measure of human mystery, and for a good reason: the navel would not happen without the mystery of procreation. The couple of Zephyr and Chloris appears here under this identity, and it is primarily a birth, translated by the navel of Venus, as attribute. This discrepancy between the original allegories, mythological, and the real symbolic values of the final study, which reflect the absolute, is a constant in Sacred Geometry.
The second circle out of the visual appear "empty" if we forget that Venus was born from the seed of his father Ouranos, widespread in the sea. Her associated bisector is rising and it goes from deep blue of the sea up to the dark green of silent trees. Again the mystery of creation is exposed, and it passes through the mouth of the Hour. This birth is a rebirth: the flowers come here, as an allegory of the seed of Uranus. They are the most beautiful words of Spring.

◊ Numerical Symbolic of the Star

Occidental Yin and Yang

Geometry is one, timeless and universal. Its application to Image has not developed without a theoretical study apart the scope of painting. So inevitably, the artists have found this simple figure. It puts four circles of diameter 1 posed as a cross within a circle of diameter 2. The western Yin–Yang...

The opposition of Eastern and Western Civilizations is as clumsy as their confusion. The angle of approach is fundamentally different: Asia sees a complementarity where Europe establishes an opposition. However the drawing shows, in the "western" construction (right side of this visual), one of the representations of the swastika, a universal symbol. For example, the Basque cross, built on the same pattern. The luburu, a term which means "four heads" is a pendant worn by the inhabitants of the seven Basque provinces. It is also engraved on houses, furniture or tombstones. The swastika appears in ancient civilizations, India, China and Central America. In the East, in Cultures Jain, Hindu and Buddhist, China, it symbolizes the eternal time.
What values are involved in this pattern? Round this cross is a combination of 4 circles in a circle 2. The circles are opposed pairs, and tangential pairs (2x2). On 1 brings its magic, beginning with the measurement. According to Christophe de Cène, 2 symbolizes Inspiration. Our joint studies have reached this conclusion: the first step of Inspiration is discernment, id est: the differentiation of different values, both opposite and complementary. This idea seems to agree with the East as much as with the West. Then, 4 is connected to the Earth, showing cardinal points, the square of any architectural elevation etc. 4 is the land, according to all codes of symbolic tradition. Earth before the life.

**The Arcane 17, of Tarots – The Star**

Also according to Christophe de Cène, 4 and 2 form a digital combination, the unique genetic code of the Star, the major arcana of the Tarot (blade XVII). The female character of the card has always been regarded as a representation of Venus. The Star is, in reading her specific numbers, «Inspiration of the Earth ».

What means the water running to her feet?
By this fall water, the scene of the Arcane remembers from baptism.
The christening is also a harmonic reference to the birth of Venus. The shell is a testimony picking up the star to Cyprus. Both pots have two sources of inspiration. Geometry translation take two aspects: the pattern of four circles in one, at first, and the Pentagram, which will be discussed later. The first pattern describes the time, through this cross with integers linked to the absolute reference of Divine Creation. The Pentagram has a more human scale, rediscovered at the Renaissance epoch.

**The Yin and Yang of Venus**

This plate brings together the most straightforward cases of the swastika by Botticelli. In addition to the golden bisectors of sacred triangle, the layout of the circles follows the inspiration of the artist in a very solid structure.
The first strong picture is the one of the couple of Zephyr and Chloris, the inscribed circle at Sacred Triangle of the above composition. The opposition between eastern and western spirit explodes here, not without a touch of humor: the position of the centers of two circles of diameter 1 reminds us that the woman has arms (even if it is only to hug), and the man has a head! The expression of the movement is particularly explicit about the shell. It means that Venus was born in a movement of sea foam. The circle placed on the chest of Venus is the one that activates the four poles of the wheel. Her bust is inscribed like most of her hair. A dialogue is opened between the cape which is preparing to cover the Belle and the abundant hair that already protects her. This circle seems hanged to the shell, that the Horae holds in her hand. Finally, the "virtuous" dynamic of the spring and flowers Goddess is particularly readable.

◊ The Systeme of Composition in « Venus »

The symbolic point between the thumb and the index of Horae is a keypoint of the composition. Around that point, a circle of diameter 1 touches the angle of the jaw of the Belle. A second circle diameter Phi develops from the same center. This time, it designates the elbow of the Hour and in the opposite side, the corner of Venus eye...

Finally, a third circle diameter squared Phi, Phi plus one, touches the corner of Chloris eye. This circle has a great importance. The distance between the thumbs at the foot of Horae takes this measure. The algebraic properties of the Golden Ratio meet here the geometric properties : a duet of two circles are formed, whose centers are separated by a distance of Phi/2.
Three sights are combined in the combination of these two circles (Phi squared). That of Venus is at the center of a circle on the left, which touches Chloris eye. The right circle, more "objective", takes the profile of the Horae around of the diapason of the cyprée. Three eyes, three attitudes, three roles.

These two circles determine the whole building of the work! Their measurement is consistent with that of the grid, and their alignment takes the lines 2 vertical and 2 horizontal on the grid. The 2 is keeping appearing in the dimensions. Also in Phi² and Phi/2. 2 of Inspiration, and its first event: discernment ....

The height of the intersection of the two circles has a barbaric writing: 
\((1/2).\sqrt{(11\Phi+7)}\). This result is close to 2,49 either 2,5 (precision 4 %).
This margin is about one millimeter on the canvas, and is typical of Sacred Geometry. The polyhedron in Dürer’s famous engraving « Melencolia I » develops the same type of construction with the Golden Ratio. The diameter of the sphere containing the polyhedron is \( D = \sqrt{(2\Phi + 3)} \approx 2.497 \, 212 \approx 2.5 \) to 1.1 ‰ ... It seems worth noting that 2.5 is written as 5 / 2 in Sacred Geometry. 5 recalls the Man, the Pentagram and the Golden Ratio. 2, no longer needs an introduction, it is everywhere in this work, at the point to ask if Venus would not have a split personality ... Sandro Botticelli chose as a model a woman who lived in her short life at least two lives.

**Geometrical Properties**

The first property of this configuration is the angle formed by the lines joining the centers of the circles to the point A, at the top of the intersection. This is the exact angle of the tip of a pentagram, or that of a golden triangle: \( 36^\circ = (\pi/5) \). The Pentagram does not extend to arbitrarily from this pair of circles. The base of this tip coincides with the circles. According to what, the circle with diameter Phi brings once again its small contribution. It cuts the tip to the height of the centers and the pentagon, on the left circle ... When we reverse this pentagram in his large circle, one realizes that Botticelli chose the line of the Pentagon to put the grid. In fact, the coincidences are a whole. There are exactly two units from the base of the circles to the upper line of the inverted pentagon.

This figure is clearly the complex mathematical resolution of an equation, that Botticelli arises about the work that he undertakes. The level of these developments do not address the status of a simple arrangement of a painted surface. We are dealing with a system that combines multiple layers. And their coincidences can find their meaning through numbers.
Here are the links between the Pentagram and other figures in the composition. The idea of system is strengthened on the principle of correspondence. They are all related to the Golden Ratio. The equation $1+\Phi=\Phi^2$ is $E=mC^2$ of Sacred Geometry.

**The circle with diameter $\Phi$ squared**

It is, as one of 2, an excellent motive. Their difference of nature is fundamental. The Ring 2 is primarily recorded in the Sacred Triangle, designating their intimacy: it shows symbolic medallions. The circle of "Phi plus one" is dedicated to harmony and exchange; the circle with diameter 2 communicates by the bisectors.

2 x 2 x 2 x 2 circles, 2 power 4, are involved in the rosette, which evokes frankly the roses discuss of the painting. This complex is a wonderful net for the hair of the Belle, and ... Expected Solution, the right foot of Venus picks the intersection of two circles.

The importance of this composition calls a second presentation, this time more compact, consisting of eight key circles in a cross.
The large Pentagrams of Venus

These Pentagrams organize the space around Venus, as evidenced by the side of the Pentagon. This roof caps the hair of the Horae whose robe has shivers at the contact with the large circle. The faces of the couple are also within this circle, distinguished more than separated by the Pentagon. Chloris leg escapes precisely to the Pentagon, like the hand of Zephyr escapes to the Pentagram ... Venus continues to be out of this figure by a foot, a shoulder, one hand, a part of her forehead ... This ballet of "full and empty", plays "inside and out".

No less than four Pentagrams, bringing together 20 points, build a rosette around the Belle. Four other similar figures fit into the firsts. If we had doubt about their opportunity, Botticelli left a clear mark on the landscape, on a spit of land.

Two colors separate themselves precisely on the line of one of the smaller figures, while it has been rotated by 90°. This effectively means clear that all the operations are justified (this result being the latest). The Master took care of the correspondence of his picture with this Pentagram. The waist, as an effect of contrapposto, the hair wrapped around the vertical string of the star, the origin of the little finger and the line of the forearms are the details of this signature.
◊ The road of the stars

Comparative Geometry is the scientific discipline that studies the works of art, with the primary aim of revealing the Sacred Geometry that composes them. Its most important principle is that of double-proof, without which a geometrical proposition can not be accepted as "fundamental ", despite any observation. The extraordinary complexity of the system produced many "overtones", which we will discuss aspects. For now, we discover the gift in gold of Sandro Botticelli: a golden spiral, signing the system. This layout corresponds exactly to the general Pentagram: three of its angles are listed in this construction. A Golden Triangle stands, with its golden spiral.

—•> More precisions, in french, in the article pdf about le nombre d'or

The curve has its origin in the sky field of Uranus, father of Venus. The hair of the Belle merges with the origin, and the bond that holds it sticks to the curve a bit further. The Horae has a shell in her hand which could be a Cyprée, the poetic name from Venus (see Appendix 2 – Etymology). Many sea shells remember the name of Venus, and for good reason: in them man had the "revelation" of the spiral (the best is in gold). It is or not "accurate" in nature and this is not really the matter: the Land of the Sacred practice an idealization of the world, that comes from the pulse produced by observation. Then, when the vision of the world develops, one see if it is "profitable" (term of researcher's vocabulary).

The cyprée, held aloft by the hand of Horae, claims the conch as the diapason of the painting (also its history), as an object of revelation. The curve fits then with the circle of the cape, punctuated by an angle of the collar, and then finds the armpit of Venus. A leafy branch hosts the line in its fall, and emphasizes the meaning by three rafters. The accuracy of the line never ceases to amaze, when it touches exactly the dress of Horae. Similarly for the shell in contact with the foam of the

Yvo Jacquier – The birth of Venus, Sandro Botticelli, 1486
waves, the place of Venus birth. Before flying, the spiral gets the complicity of Chloris, who seems to run on this road with great strides. Everything has a mind-blowing precision with this graphic, in a great symbolic coherence...

◊ The secondary Pentagrams of Venus

The set of Pentagrams that we approach, complement the idea of Yin and Yang that we studied. This Goddess takes a human face because she wishes to get Beauty. This beauty is/becomes human. The Pentagram is the most complete geometric expression of the Golden Ratio. The rectangle encloses, the Pentagram opens.

Venus poses her upper body in a pentagram, with a circle exactly at the height of the work. The faces of the couple who take care about her, are in the sphere, and the face of the Horae, who keeps a "cold head", remains outside. Her eye is on the line, as a sign of vigilance. The feet of the Belle escape to the star ...

Even with the supplement of the symmetrical star, the heels of the Belle continue to escape: she is from another world, a women from a parallel world. The definitive explanation to this key question will come in time. It took five thousand years to build this Culture ...
◊ The overtones of the system of Composition

The complexity of the system also produces, what the Comparative Geometry calls overtones. The first figures that govern the work are extended by others who are not coming necessarily from the will of the author. However, the elements are in place, as if by magic...

A sea shell
Each golden triangle of the pentagram generates two large golden spiral, which brings the beam to ten ... Five of them are exposed here and draw a starfish. The starfish evokes the foam which give birth to Venus. Zephyr wind turns the turbine, and the Horae measures the extent of these movements.

The second rosette of the rings of Phi square
They can also be distributed according to an arrangement of five point. The intersections are interesting : Sandro Botticelli might pay attention, and engage in some symbolic explanation of the female anatomy. The veil of modesty covers this pictorial discourse.

The flower of Pentagram
All together, the curves of the second Pentagram draw a beautiful flower which can ask the question if it is "ideal" or "particular". One imagines white skin, as white as the marble statue that studied Sandro Botticelli.
Circles with diameter 2.\(\Phi\)  
Circles of radius \(\Phi\), also fall into this ronde, because of the properties of the Golden Ratio. A circle of diameter 2 is at the center of its distribution. The particular place of flowers on the painting is incredibly organized.

The Hexagram and its Vesica Piscis  
To conclude, here is the reassuring figure of the hexagram. With an unusual position, at 90° from that to which it has accustomed us. Whereby it tells the dialogues of Venus with the couple, and with the character of the Horae on the other side.

◊ If Venus would be a Mermaid ?  
The incredible attitude of Venus confesses finally its secret : She is a mermaid, and she floats in the ocean. The curves of her hair could have alerted us...

Just consider this idea to grasp reality, especially through the cloth of the painting ... The missing part is in the geometry of the frame explicitly. As the Bible missing to "The Holy Trinity" of Rublev, a little earlier in the fifteenth century. A link more over both sides of the borders, about time and space.
The magic of nine

Any multiple of 9 has the sum of its digits equal to 9:
0 —> often the exception. Zero comes in Europe with Fibonacci (1175–1250)
99 —> 18 —> even 9!
180 : Stop! We speak about ANGLES.

This series of Angles relates specifically to the Pentagram. A previous work shows the same, about the Polyhedron of Dürer. The problem is exposed on Wikipedia. And the solution is, in french at the moment, on www.melencoliai.org. We will discuss another construction than that of Dürer, signed Botticelli. The first step is to put the divisions in a range of angles of 9° in 9°, on the painting of Venus ...

A first origin, on the left, generates a beam of lines 9 in 9°, starting with the horizontal. This range explains the lines of the couple Zephyr and Chloris, as well as the toes! One line passes through the navel of Venus, the gateway to any reference in this work.

A second point expands its beam on the right. The point is at the horizontal of the first, separated from the side by a unit-square. The distance between the points is 9.\(\Phi^2/2\). These three indications install definitely the ranges on the painting.

The confrontation with the grid shows six coincidences with the horizontal, and one with vertical lines. This comparison does not seek symbolic meaning: it brings together two referencials, cartesian and polar.
The subtle round of Values

The high level of conception that characterizes sacred mathematics lies in their "kinetic" exhibition (as opposed to "frozen", "static", "dogmatic") of numerical values, so symbolic. This is one of the great revelations of Comparative Geometry. The Knowledge of Ancients is not a statement (of proportions, for example), much less accounting of "dead" values. By a binding net, this knowledge sets in motion a dynamic relationship between values and reflects the life and its movement. By the way, one can not pretend to express the life through mathematics who would speak only about themselves. Patterns such as "flower of life", that one finds in abundance in the esoteric literature, do not survive to the real questions. In addition, there is a beauty in mathematics, that claims no development to "justify" itself. The meditation on dry figures, which does not risk their confrontation with reality through representation, gets the statement of helplessness. This view, which may seem hard is that of the Ancients.

Specifically, we construct a Greek Cross with initial reference value of 4. Its development by the Golden Ratio produces a spiral which opens to a revelation: two spirals of 4 draw a heart within a circle of diameter 5! Symbolic comment: The 4 of the Earth is understood as a very stable value, objective and referential, close to the mineral. It is the Earth before the life. Gold converts this value, and invests space with the form of a curve, which expresses the movement of Life. The 5 refers to humans. In this case it defines its sphere through a circle. The coincidence of the spirals from the 4 and the circle of diameter 5, is the result of the magic of Phi. To the ancients, the Golden Number is God's gift to the man, as a help to build. The concept of Harmony is only one aspect of the "concept". The notions of strength, stability, coherence and development are equally important.

The range that we opened on the painting can then place this new circle with the figure of the Vesica Piscis, completed of the Sacred Triangle. This fantastic complex gives the response to the ultimate conclusion of the study, and reveals the missing part to the picture: the fish's tail. Venus is a Mermaid and the scene of the painting goes under water, its natural element (symmetric to the Fire of Mars)! Symbolic comment: This second consideration will become more understandable as and when the figures will unfold. We can nevertheless give the main outline. The circle of 5, which can be translated as "human universe", naturally calls a Sacred Triangle which
enters in it. This triangle brings with it all the values from 1 to 6. Then, the Vesica Piscis involves the value of $\sqrt{3}$, expression of celestial mystery. The geometrical complex expresses a kind of symbolic whole, that confirms and expands the study of detail. On this occasion, we must distinguish the exposure of the symbolic vocabulary (identified by numbers), then its implementation by Sandro Botticelli, and third finally the concrete interpretation.

First step – Golden rectangle of four
Placed on the grid lines, here is the golden rectangle of four, developed as a Greek Cross. The internal lines of the cross respond magnificently to Saint-Jacques shell (unprecedented in the study). This boat of Venus likes the space related to the Earth (four), and for good reason: he welcomes the Belle, barely out of the foam. In astrological sense, the meaning of the birth is a landing. On this occasion, being left breast and adopts the referential of Earth, its rhythms and cues.

Placement of the Cross on the referential
This new figure is clearly keyed to the previous ones. The beam of right takes over one of the internal diagonals of the Cross. Other coincidences deserve to be clarified...

The large pentagon gives handle to the cross, at the red dot.
The horizontal portion of the Cross, rectangle 4 on 4 Phi, is divisible by golden traditional logic, which prepares to receive the famous spiral. The horizontal branch of the large pentagram coincides with one of these golden divisions.

Second step – The Spiral of heart
The Golden Spiral of the rectangle 4 on 4 Phi.

This spiral is partnering with its symmetrical, and form a heart in the work, with the indications of the large pentagram: the two curves cover the horizontal branch of the Pentagram. The left even pass through the point of intersection of the circle diameter Phi (in black).

Revelation: the heart-shaped spirals are part of a circle of diameter 5. Obviously, there can be no question of perfect accuracy. The radius of a circle is constant as that of a spiral is increasing. That is precisely what makes this impressive figure. The curve coming from 4 by Phi is married with circle 5 ...

Third step – The Vesica Piscis
The tail of the Mermaid belongs to Vesica Piscis two circles 5. To install, we need the golden rectangle 4 out 4 Phi. And the large pentagram too, inverted this time. Three red dots fix the circles.
Fourth step – The inscribed Rectangles

A Sacred Triangle is half a rectangle of 3 of 4, cut in two by the hypotenuse (diagonal). This rectangle is placed here in the circle of 5 with an angle of 27° from the vertical (shown in red), from the origin of the range (bottom left).

The symmetrical rectangle belonging to the other circle, completes the tail of the mermaid. What is more natural in a Vesica Piscis! In Latin, the name literally means "the fish's body. " The drawing of Botticelli respects its etymology to the letter. The head of the Belle is apart of the almond.

The veiled form of white extends the body of Venus in a harmonious way, the line on the left is the asymptote of his right leg, and both feet take directions conform to the slopes of the pyramid shape. Various elements of the painting adds a certain realism to this previously unsuspected extension: the ridges of the shell and the scrolls of the foam, in particular. We finally have the answer to that original question: Venus does not stand upright : she floats under the water, its natural symbolic environment. This new reading of the painting justifies the deformation of the scenery mentioned in the first part of the study, and the flexibility of the draping. The Belle gives the curls of her hair to the stream, that she must contain from a hand to save her modesty.

The peculiarities of the figure of the Mermaid

The range of 9° prints its marks in the angles of the figure : the sums of the numbers are equal to 9. The bisectors of the right angles meet at the center and this makes think of two books. They form a square of side $\sqrt{2}/2$ with a diagonal 1. Are they the Old and the New Testament ? The Vesica Piscis is the sign of recognition of their Christian origin. The presence of the Unit, as the measure of the squares,
themselves products of bisectors which are those of 1 on the sacred triangle, leads straight to God.

Each rectangle of sides 3 and 4 contains four triangles of type 3–4–5, and each triangle has an inscribed circle of diameter 2. This circle is centered on the junction of the three bisectors from three angles. The blue bisectors intersect the right angle triangles (and rectangles). In green, we discover the golden bisectors: those from the angle formed by the sides 3 and 5 of the triangle. They bear the golden ratio. Another property is revealed here, just as a surprise: the golden bisectors meet in pairs on the circle (those with the adjacent circles). Moreover, their length of $2\sqrt{5}$ is cut in half by the center of the circle!

The bisectors of order 3 (diagonal of a triple square) have a length of $5/\sqrt{2}$, which echoes the previous one. They also meet on the great circle for triangles with small circles form a Vesica Piscis. The structure of this figure shows an incredible strength. A multitude of geometrical links and numeric vocabulary adds to the original vocabulary of the Sacred Triangle (1 = radius of inscribed circle, 2 = diameter of the circle, 3–4–5 = sides of triangle, 5 = diameter of circumscribed circle, 6 = area of the triangle, golden ratio = $2\Phi$ on the bisector with the same name).

The value of 6 occurs at the horizontal intersection of small and large circles. This line passes on top of the brown shell. On this occasion, we can notice that the aquatic nature of the painting justifies that the foot of the Belle is not on the pearly portion of the conch: it floats ...

The ideal conclusion to this third part is a slideshow that brings together all the visuals of the Study. There is no better proof than the aesthetic which emerges from the high intentions of the Master Sandro Botticelli.

---●> DIAPORAMA
Appendix 1 – The birth of Venus

Venus anadyomène (Venus Rising From the Sea)

- Artist: Sandro Botticelli
- Technique: Tempera on canvas
- Actual size: 172.5 × 278.5 cm
- Date: 1486 (parfois 1485)
- Conservation: Offices gallery, Florence
- Model posthumous: Simonetta Vespucci
- Sponsor: Lorenzo di Pierfrancesco de Medicis

Sandro Botticelli

Alessandro di Mariano di Vanni Filipepi (1444/45–1510, Florence)

His first master is Filippo Lippi, he enters the studio for three years in 1464. Subsequently, we perceive the growing influence of Andrea Verrocchio (Florence, 1435 – Venice, 1488), which he haunts the workshop alongside Leonardo da Vinci. Sandro Botticelli completes the mastery of his craft as a painter of his introduction to Sacred Geometry to the Society of Painters St. Luke (Compagnia dei Fiorentini pittori di San Luca) or Guild of St. Luke, founded in 1339 under the leadership of the Medici family. His first major composition is the "Adoration of the Magi" in 1475. Back from Rome where he spent the years 1480–1481 in the service of Pope Sixtus IV (Sistine Chapel), it enjoys a period of glory under the protection of the Medici, particularly that of Lorenzo the Magnificent, who sees in the Artist the best interpreter of his high passionate Humanism. Botticelli stays in Florence when Vinci migrates to Milan in the 80s. After the death of Lorenzo the Magnificent, which occurred in 1492, both because of the weakness of the son who succeeded him, Peter the Unfortunate, as the advance of the ideas of Savonarola, the mood the painter of is darkening.

The Sponsor – The Model

Lorenzo di Pierfrancesco de Medici, called the Popolano (1463–1503, Florence) is also its patron. He commands Botticelli "The Birth of Venus" (1486) for the Villa Medici di Castello (which he shares with his brother Giovanni), having received for his wedding, from his cousin and his guardian Lorenzo the Magnificent, "Spring "(1482) and" Pallas and the Centaur "(1482).

Yvo Jacquier – The birth of Venus, Sandro Botticelli, 1486
Simonetta Cattaneo Vespucci (born in Genoa in 1453, and died of tuberculosis in Florence in 1476) is nicknamed "la bella Simonetta" or "the peerless". Posthumous model of the work, she is both the woman of Marco Vespucci of Florence, and mistress of Giuliano de Medici, the younger brother of Lawrence.

The mythological subject of the birth of Venus
The symbolic frame of the painting is derived from Greek mythology. Cronus, the son of Gaia (Earth Goddess) and Ouranos (Sky God) would have emasculated his father (to end the exile which he chastised his children). The seed of Ouranos spreads in the ocean and in contact with water, foam gives Aphrodite (renamed Venus, by the Romans). The Goddess is carried by a shell, and pushed by the wind of God Zephyr (son of Aeolus, the master of the winds, and Eos, the Dawn), she reached Cythera and Cyprus, where she is dressed by three Horae. These daughters of Zeus and Themis personify the Discipline, Justice and Peace, but also the Spring, Summer and Winter. In this scene, Horae covers Venus with a red cloak studded with floral motifs on his arrival on the beaches of Cyprus. The character hanging around the neck of Zephyr is his wife, the nymph Chloris (Flora for the Romans, Divinity of Flowers).

◊ Appendix 2 – The Venusian etymology

- Venus is the Roman translation of the Aphrodite of the Greeks.
  --> In Latin: Venus, Veneris, Veneria.

- Landed to Cythera and then Cyprus, the literature calls Cypris.
  --> The Cypréées are beautiful shells.

- Venereal Venereology, have also Venus in their etymology.

- Many shelled molluscs remember of Venus. The shell of St. Jacques de Compostela of pilgrims is called "shell of Venus", translated into Spanish as "venerated" or "Vieira", or "concha venerated" or "shell of Venus," for "coquille Saint-Jacques "...