THE INVERSE PERSPECTIVE IN BYZANTINE PAINTING

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Abstract: The inverse perspective is a method of representing spatial depth used only in Byzantine painting. It is different from Renaissance perspective (a method of realistic, conventional, subjective, subject to a single point of view).
The inverse perspective, with two-dimensional axonometric representations, is more complex, offering multiple possibilities of symbolization.
Various theories have considered either optical-geometric aspect or artistic-cultural aspect as the main factors that generated it. But they have not led to a unified conclusion.
This study highlights the common elements of these theories, bringing together the two issues and providing a philosophical-religious interpretation.

Keywords: Byzantine painting, inverse perspective, theory, interpretation

Description

The representations of the Byzantine painting are different from the usual ones: spatial depth and objects' tridimensionality are obtained differently compared to the direct perspective. Representations comparable to those in the Byzantine painting appeared in other periods too (Ancient Egypt, the 20th century BC) by resorting to bidimensionality. But the inverse perspective method appeared only during the Byzantine period.
What does this method consist of?

At a simple look at the Byzantine painting, one may notice that the tridimensionality of objects is rendered through a procedure which is in opposition to the direct perspective. Whereas the vanishing point in the direct perspective is within the space of the painting, thus the represented space inviting us in-depth, in the Byzantine painting the vanishing point is in the space of the onlooker, not of the painting, and the convergence of lines lies outside the area of the painting (Fig. 1).
The procedure isn't limited only to the linear perspective, it can also be found in the overall organization of the composition. If several characters are

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superposed, the heads of those in the back are bigger than those in front, so that one may have the impression that the characters come nearer the onlooker (Fig. 2). It is the same thing as in the inverse perspective of objects, where the backside is larger than the front side, unlike the representation in the direct perspective, where it is, thus showing that the emphasis is laid on the forefront. There is a tendency to reduce space to bidimensionality, so as to offer more possibilities of symbolizing. Moreover, the closer the object is to the onlooker, the freer from the linear perspective, which results in the hiding of perspective effects under the clothing as a refusal to render depth (Fig. 3). One may also notice that there is no relation between the height of the characters and the size of the buildings. Therefore, there is no procedure of scale representation or of relative measure which supposes dimensionality of spaces and objects in relation to people's height (Fig. 3). The explanation consists in the fact that faces in an icon belong to another world, the transcendental world, which is different from the real world of things. Disproportion of the different parts of the body suggests immateriality.

Apart from the inverse perspective, there is also a preference for axonometry where the fundamental characteristics of the object remain constant (proportions, parallelism, symmetry). Axonometry is a procedure by means of which the object is neuter, a simple presence or enunciation of a truth, independent from the onlooker, beyond space and time. The objects from the direct perspective are forced into a hierarchy, the image depends on the point of view of the observer, illustrating a certain time and a certain place.

Generally speaking, one may observe a refusal of the closed space, (which would generate the representation of the spatial depth), which is contrary to the representation of the Renaissance emphasizing interior space. In the Byzantine painting the scenes take place outside the buildings even when the action carries on insid. the Renaissance space is a contained space, and this conception remains dominant until the modern period when space becomes relative, marked by temporality. The space of the Middle Ages is a space = condition of the presence of bodies in space, an object-space, a theory borrowed from Antiquity. This refusal of representing the interior may be explained by the fact that the divine world that is represented cannot fit in the common space, which is tridimensional; rather, it belongs to a space without dimensions, a heavenly space.

The vertical line is kept rigorously, as an emphasis on spiritual values. Also, each object in the space of the painting has its own perspective (some of the objects are in axonometry, others in inverse perspective and others in bidimensionality, with different orientations of the axes or with different vanishing points). They are juxtaposed based on a compositional principle that takes into account their meaning (Fig. 5).

There are also procedures related to colour and light. Through special rules of colouring new aspects of objects are stressed: the emphasis through colour of an element in the back (the Holy Gospel is brought to attention by placing it in the most lighted part of the icon), (Fig. 4). the non-uniform chromaticity of the buildings (the side walls are of a different colour than the facade) (Fig. 5); in both cases the result is the inverse perspective. The chiaroscuro law is broken: even if there isn't any source of light, the light in the icon comes from everywhere "…*The true light that shines on everyone that is born into the world*"(Bible, John 1/9). The golden background suggests immateriality and the transcendent world beyond. The contour is drawn in a bright colour (metal, golden leaflet), inserting new power lines in the composition (Fig. 2, Fig. 3, Fig. 6).

Comparison: the direct perspective – the inverse perspective

In the direct perspective the perception is static, generating a hierarchy in depth; in the inverse perspective, the perception is dynamic because it uses several points of view and even more systems of representation (different orientations of the objects' sides, different axonometric systems) so that we can say that it is not only a problem of several points of view, but also of several spaces represented. It is as if we had representations in parallel worlds. In fact, in the Christian religion, it is often spoken of the terrestrial world and the heavenly world, this world and the world beyond …

According to Paul Florensky, the lack of direct perspective (also to be found in the Chinese or Egyptian art) actually demonstrates maturity of the art rather than lack of experience. In this way, the art of the Middle Ages can be interpreted as a moving away from the realistic representation of the Greek and Roman Antiquity. The Renaissance can be understood as a new start after the irrational peak of the Middle Ages. The Middle Ages freed itself from perspective in the name of religious objectivity and the supra-personal metaphysics. The direct perspective is an illusion that completes reality. Florensky contends that this was used initially in theatre scenery and only later, Giotto introduced it into painting. The inverse perspective doesn't complete reality, rather it takes you to another, parallel reality where the vanishing point is in the space of the onlooker and not in the space of the painting. Consequently, the real world belongs to the onlooker, to the terrestrial, and the icon's world belongs to the transcendent, which must be contemplated without touching it, without being part of it.

The Middle Ages "tears apart" the Antiquity's direct perspective and discovers or goes back to a new modality of representation not because it lacked access to the knowledge of perspective of the Antiquity, but because such views didn't correspond with the ideology of the new epoch. Arnheim is wrong when he says that the perspective "*has been discovered in a single moment and in a single place in the entire human history*". As a matter of

fact, we have remarkable representations in perspective dating from the Antiquity. The Renaissance simply rediscovered this modality of representing space. Its merit is that it took it up again, theorized about it, made it accessible and polished it, which culminated with the discoveries of baroque art.

Arnheim observes that the procedures of reproducing the space in bidimensionality or in axonometry were discovered independently in the entire world. One may conclude that these modalities of representation, in comparison with the direct perspective, are more natural and significant. This can be explained through the fact that the perspectival image only catches a moment of the visual perception, the moment when the image is projected onto the retina. From this point of view, axonometry and the bidimensional projection is closer to the truth than the image from the direct perspective, because, through these representations, the fundamental characteristics are maintained (proportions, parallelism). Paradoxically, though the direct perspective produces a distortion of the objects, it claims to be closer to reality but it is only closer to a moment of the visual perception, when the image projects in a distorted way onto the retina.

The preference for bidimensionality or axonometry follows from the tendency of Medieval man to affirm a reality independent of him. Medieval man is different from the Renaissance man or from Greek Antiquity. He is mystical and religious, and the Medieval human ideal is that of the ascetic, altruistic man, capable of sacrifice (in the Christian religion, sanctification involves sacrifice). From the Renaissance until the modern and contemporary time, man is the centre of the universe and submits everything to his point of view. That is why Renaissance representations are circumscribed to a single point of view while Medieval representations lack subjectivity and go beyond reality. One may observe how the religious impact leads to less realistic, symbolic representations (prehistoric art, Ancient Egypt's art, Medieval art). As they got closer or farther away from reality, the artists used the direct perspective accordingly. This explains the short periods of representation in perspective, why it was theorized so late and why, during the modern period, it was replaced by photography.

Arnheim speaks about the European painter from the 14^{th}-15^{th} century, his "groping" after convergence in space, and of axonometry and bidimensional representations as "elementary" procedures of rendering space. However, this search must not be understood as a mistake but as a step towards naivety, purity and truth, the characteristics of a representation that presupposes a religious feeling, such as painting an icon. By appealing to bidimensionality and axonometry, prehistoric, Egyptian Antiquity, Far East, Middle Ages and 20^{th} century art representations are more significant because in these representations the artist shows what he feels, not what he already knows about objects and space. There are a lot of analogies with children's

drawings. Indeed, children, just like primitive man, draw what they see, not what they know about objects, as adults do. Florenski says that the inverse perspective is lost at the moment of cutting off the direct relationship with the world. The inverse perspective is generated by the nature of the synthesis of the world. According to Florenski, the system of representation in the inverse perspective is deliberate and conscious, an artistic complex calculation. In fact, I think that this way of representation is spontaneous, pure, as in children's drawings. The difference between direct and inverse perspective is that the direct perspective is taught, it is artificial, while the inverse perspective is natural, generated by feeling and talent. The marked digressions from the direct perspective give the quality of Byzantine icon which belong, most of the times, to great masters. They impress through the primitive, naïve, but also profound character, being more a feeling than a representation. Ancient Egyptian art and Medieval art take this type of representation further, achieving a degree of subtlety. The 20thcentury, when it goes back to bidimensionality (in cubism, abstractionism), is aware of these qualities. Byzantine art, through representation in the,painting does not look for similarities with reality, but for symbols of reality.

These two ways of representation follow from the manner of understanding space: "the space of sensorial reality" and the "space of spiritual reality". Even the "space of sensorial reality" may be different from the geometric, Euclidian, isotropic, homogenous, infinite, tridimensional space. Consequently, any attempt of other than geometric representation of space offers yet another possibility of detecting its characteristics. In the Byzantine painting perspectival space and unperspectival space are met simultaneously (Fig. 7).

The Byzantine representation is the opposite of the Renaissance painting. It is not a window through which the spirit enters the world. (Sendler 1981). In it the represented world discovers itself, it opens for the onlooker. The icon's space is active, unlike that of the onlooker, as in the Renaissance painting.

In the icon space is reduced to bidimensionality, it unfolds towards the onlooker. Through the convergence of lines in the space of the onlooker, not that of the painting, the inverse perspective throws the depth of space from the inside out. The tridimensionality belongs only to the viewer's space, to the terrestrial world, not to the divine universe of bidimensional representation.

Theories about the reverse perspective. Interpretation

Many theories have tried to explain this special type of representation, found in the Byzantine painting exclusively. Some of the theories explain the phenomenon with the help of optics and geometry, others see in the inverse perspective the expression of a cultural datum. These two tendencies,

essentially different, have a few principles in common. Research has not reached any viable solution, this is the reason why our paper tries to combine these theories into a synthesis.

A. V. Babušinski's theory of the double perception explains the inverse perspective by means of the binocular vision, a different image corresponding to each eye. The superposition of the two projections leads to an image in which both sides of the object are represented, as in the inverse perspective. The theory has shortcomings because it is valid for objects seen from close by, less than 30 cm away (Sendler). Besides, the two images combine in perception to make up a single tridimensional image. Thus, the two images don't separate so that we can analyze them separately.

L. F. Žeghine elaborated the theory of dynamic space (Sendler). He asserts that man in movement sees many facets of the object which he unifies mentally into a single image. He sees things from both sides and from above at the same time. The curve of space results from movement. The joining of these many perspectival images generates distortions: a straight line seems curved, a curve slightly concave becomes more concave, a convex curve looks almost like a straight line. The result is a dynamic, spherical space.
One can make analogies with the theory of relativity that speaks about the curving of the ray of light.

These two theories would be interesting as far as they could go beyond an optical explanation of the phenomenon, towards a philosophic, religious interpretation.

In the direct perspective space is plane; the image is represented on a plane surface (perspective painting). All the objects submit to a hierarchy, to a center that is the point of view of the observer. Besides, in the direct perspective the representation on a plane surface is a geometrical convention, an artifice practiced for easiness of representation. In reality, the image projected onto the retina belongs to a curve surface (the curve of the ocular globe); from this point of view the direct perspective is a simplified, artificial representation of reality. The ancient Greeks resorted to optical corrections to diminish the illusions created by projection of large-size plane figures (the facade, the interior floor of the temple, sculptures placed at great heights) on the spherical surface of the eye. If the image projected onto the retina could be caught by sectioning the visual cone with a spherical surface, straight lines wouldn't be straight anymore, but curved and at the same time convergent. In addition, the representation on a plane surface is, generally, a convention. Thus, we consider the direction of the force of gravity perpendicular on the surface of the Earth, while in reality it moves towards its centre, the surface of the Earth being spherical. The non-Euclidian theories amended Euclidian plane geometry, the result being complex geometrical systems that opened new vistas in science. Babušinski's and Žeghine's theories can be merged if we accept the hypothesis of dynamic perception in a spherical space.

In the Byzantine painting each object has its place, its own existence because it is separated from the other objects and viewed from many points of view, in movement. In the direct perspective, during the Renaissance, which is a representation on a single plan, the objects submit to a geometric conventional system, to a single point of view. As a consequence, the multitude of representational systems in the Byzantine painting is more in keeping with the perception of a reality which, through its transcendent, immaterial character, can't even submit to a single, fixed representation. Žeghine's deduction according to which in the inverse perspective the vanishing point appears under the horizon line as an image in the mirror of the direct perspective, leads to the idea of the real world's image as a mirror of the icon's world. This convergence of the vanishing lines in the space of the onlooker resembles the upside down image of the world that we see (in the direct perspective). It is an image of our space seen by the icon's world. So, the icon's saints look at us from their world as we look at reality, as through a window, in the direct perspective.

B. V. Rauschenbach has the merit of drawing attention to the fact that the inverse perspective in the Byzantine painting isn't the result of a single factor. Thus, one should take into account the optical aspect as well as the artistic aspect of the phenomenon. He asserts that the preference for axonometry is explained through the fact that the painter doesn't start from a simple contemplation of nature but is preoccupied by the essence of things. He accepts the effect of binocular vision, the mobility of points of view, because in the Byzantine painting there is not only one point of view; each architectural form, each piece of furniture has its own perspective. So each object has is own existence, a certain degree of independence in relation to the whole, each object has its importance, its meaning.

Rauschenbach also speaks about the *persistence of forms* in the sense that the painter brings to the onlooker's conscience aspects which, normally, wouldn't be visible (he paints the roof of the building as seen from above, like in aerial perspective, the surface of the table, lifted to onlooker, on which there is a book with its pages turned towards him, or enlarges the back feet of table) (Il. 1, Il. 4, Il. 8)

We must admit the difficulty of gathering these elements into a single composition since the unifying principle of the direct perspective is missing. The unifying principle in the Byzantine painting could be the fact that everything is circumscribed to the character, to the main scene (Il. 2, Il. 9)

But we must specify that the geometric structure of the forms is not as important as the world vision that created them (Sendler).

This is why the theories that deal with the cultural aspect of the problem are more valuable. The idea of compositional unity doesn't really count in relation to the geometrical procedure of the direct perspective but it is very important for the cohesion given by the artistic, ideological sense of

representation. In the Byzantine painting the painter doesn't represent the world as he knows it but through its symbolic sense.

P. A. Michelis makes the difference between the "sensitive space", which is the perceptive space, determined by the three coordinates, and the "feeling of space", which is subjective and belongs to the category of the sublime, only appearing when the means of representation become irrational and bursting with feelings.

K. Onasch (Sendler) speaks about the "importance perspective" and the "epic perspective". The first refers to the fact that the main characters of the scenes are of bigger dimensions (a procedure used not only in the Byzantine painting but also in the oriental art, in Rome, in Egypt) (Il. 5, Il. 8). The main character in the icon, enlarged, seems to be getting out from the interior of the icon and welcome the onlooker. Similarly, as we have already showed, in the representation of groups of persons, the characters in the back have their heads enlarged, giving a inverse perspective effect, as if coming to the front. The psychological perspective consists of rendering evident the main characters by enlarging their figure, their head and eyes, by placing them in the centre of the composition, by modifying the natural proportions of their bodies so as to express their virtues and spiritual moods. The disproportions of these bodies show immateriality. The epic perspective refers to the fact that the icon has a narrative character. Besides, we find no tendency to build the space in which the events occur but rather, the space opens to the onlooker, becoming transparent. Indeed, the vanishing lines from the direct perspective create mystery by going in-depth, while the vanishing lines reversed in the onlooker's space, in the inverse perspective, offer the scene to the onlooker, make it noticeable, explorable. The feeling of suspending time appears during the narration of some events. Thus, events that had taken place at different moments are represented in the composition as if they had happened simultaneously. This offers a compressed view upon the events described in the Gospels. This is a compressed time, the icons are *concise memorials* (*hypomneseis syntomoi*), as Saint John the Damascene says (Cavarnos). So, in the icon's world there is no time and no space. Onasch's theory agrees with the other theories that admit the reduced depth of the representation, the movement of the forms towards the onlooker. Still, it doesn't explain clearly enough the formal details that create space. The other theories explain this but they reduce things either to the optical aspect or to the cultural one.

Conclusions

As an outcome of these studies, the authors have agreed upon some common elements such as: the image in the Byzantine painting is the representation of ideas, the scenes are presented as if they were on a spherical surface, of reduced depth, the details create a characteristic space, the other

elements of the painting have their own role (movement, colour, light) in the making of the inverse perspective.

Generally speaking, in the Byzantine painting the scenes are to be read on a concave surface that offers itself to the onlooker. Though on small area, the icon's universe is like a vault on which the onlooker reads, in a panoramic view, the details of the object. From this point of view, the Byzantine representation is in agreement with the viewer's vision, developing circularly, in front of the observer.

These theories testify to the richness of the Byzantine conception about the possibility of representing reality based on idea, not on observation. The Byzantine representation can also makes the otherwise un-representable elements show. Our study admits that the scientific interpretation is limited since, although it offers an exact knowledge of the phenomenon, it cannot interpret it satisfactorily.

The explanation of this type of representation must be searched within the ideas that generated it and the particular world view of the time. One of the explanations may be directly connected to the philosophical and scientific ideas of the epoch. Thus, according to Dionisie Areopagit, a philosopher and theologian who influenced the way of thinking in the Middle Ages, everything is a "waterfall of light" (Besançon). As a consequence, the scenes in the icons shed a divine light towards us; this is why the iconic space opens to the onlooker. The relationship man / world changes in the Byzantine faith. So, it is normal that the structures and the laws of representation appear inverted. This research supports the idea that the history of art must not be studied as a phenomenon in itself, but closely related to the philosophical, religious, scientific conceptions of the epoch. One also finds out that the origin of the remarkable artistic achievements is always an idea, a concept that unifies and makes the representation original.

The role of the icon is to help us discern that particular something lying behind the image. The icon is "a window to the sky", it renders realities from the other world.

Illustrations:

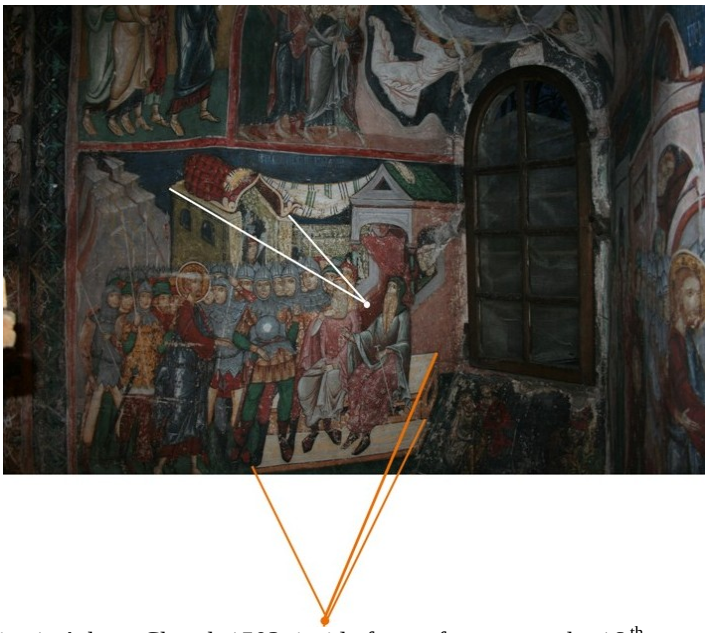

Fig. 1: Arbore Church 1503; inside fresco from nave, the 16 th century

Fig. 2: Church of the Humor Monastery; fresco from south façade, 1535

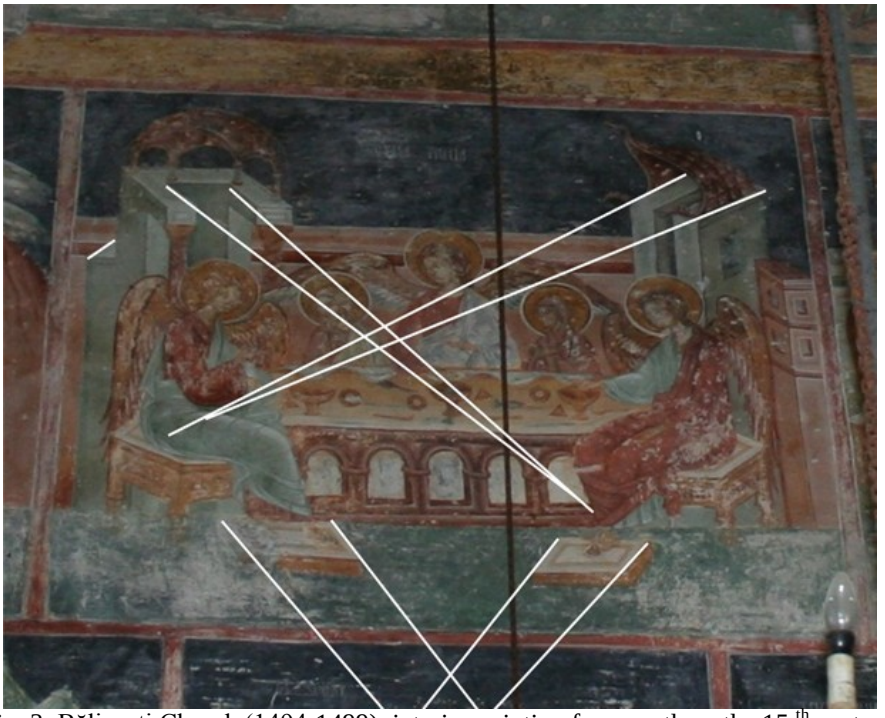

Fig. 3: Bălineşti Church (1494-1499); interior painting from narthex, the 15 th century

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