Geometric Patterns in the Floor of the Church of the Holy Archangels near Prizren

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Abstract: Following the example of the opus sectile and opus musivum (floor construction techniques) in the Middle Ages in today's Italy, opus Cosmati technique of flooring rich geometric patterns have been produced. In the Balkans it is also approved in the individual churches. Rare intact floors have survived to our time. Therefore, it is important to consider the ways of the construction of these complicated schemes and the most challenging example is located in St. Archangels in Prizren.
Keywords: Floor, geometrical pattern, quincunx, number 6.

1. INTRODUCTION

According to the words of one travel writer from the fifteenth century, the beauty of the floor of the monastery church of the Holy Archangels near Prizren was unable to find anywhere. While this is certainly an exaggeration, the layout of the floor was unknown anything until the excavation of the ruins of the monastery in the year of 1927 begun. The integral floor is no longer there, so today we met with a floor plate or their fragments. The appearance of the floor, therefore, had to be reconstructed. However, archaeologists, artists and architects have realized that, according to the geometric complexity of the schema, this will be a work on a decades long endeavor. Meanwhile, from 1965.god. there havent been much interest in society and amnong specialists about these patterns. This paper is a small contribution to this subject.

2. HISTORICAL BACKGROUND

Church of the Holy Archangels has been built in the great monastery in the period 1343-1352 as a burial endowment of Stefan Dusan Nemanjić, „Emperor of the Serbs and Byzantines". Probably within the last years precious floor was made in the church. Since the fifth century in the Christian Church is a non people (especially images of saints) in the floor. Therefore, it is impossible to expect them into orthodox churches, so there were typically presented geometric figures and floral motifs. The total area under these floor in the church was around 200m². The richness of ornament in the floor of the church of the Holy Archangels is great, and within these ornamental field are framed geometric motifs and animals, and to a much greater extent than is the case with any church in Byzantium or in Western Europe.

3. PREVIOUS FLOOR RECONSTRUCTIONS

In the process of reconstruction most data are provided by dr.Radomir Grujic and dr.Slobodan Nenadović, architect [1]. Specifically in each panel, between geometric tapers, are plotted recessed fields that are filled with mosaics, which was also compounded by a certain geometric pattern (Fig. 1.). Unfortunately, beside drawings R. Grujić nothing of these patterns of mosaic fill has not left [2].
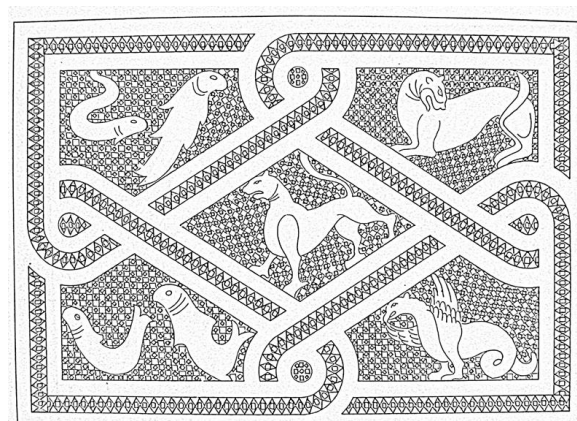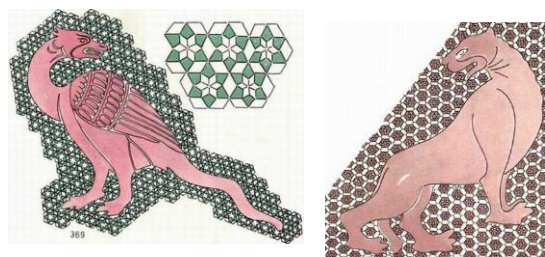

Fig. 1. Examples of mosaic plates in the floor of church of Holy Archangels near Prizren

During the excavations, there were pointed out especially triangular panels, where there were images of animals. According to the reconstruction that R.Grujić started, and then supplemented by

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S.Nenadović, these images are on special tape around the subdome space which is entirely made up of such a panel (Fig. 2.).
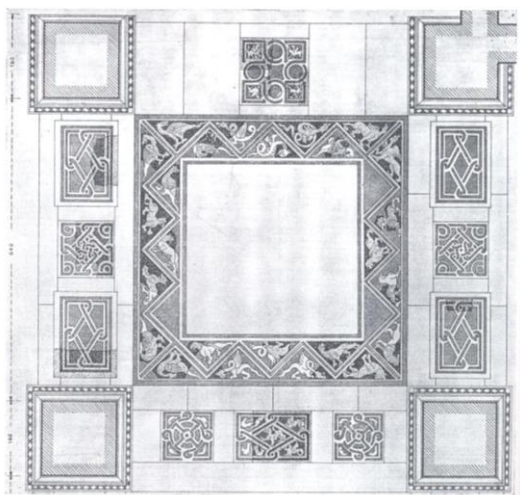

Fig. 2. Subdome space of floor

4. DIMENSIONS AND TECHNIQUES OF MOSAIC

Generally this technique of making ground is now in the world known as the Opus Cosmatii. Technique enabled on the plate is very precise. The plates were of different sizes. The largest fragment, which was not whole had dimensions of 106.5 x58, 5 cm. If the ornament on the plate was reconstructed and if he was entirely on it, then its length would be 2.0 m. Thickness of the marble slab is 24cm. Triangular plates which formed a continuous line around the dome, had base side long 110cm, with a height of 160cm. A rectangular plate with a diamond-shaped ornament in whose recessed areas are animal figures, judging by the ornament, was of dimensions of 160x109 cm.

Fig 3. Prepared plate for Cosmati-pavement

Small mosaic stones were of different shapes: squares, rectangles, triangles, diamonds, deltoid, and different colors: white, green, red, purple. Slits in plates whose infill was this mosaic were wide 4.5 cm and deep 2-3cm for tape ornaments. In such slits was first placed pounded lime mortar with rubble of red brick, and then in it stones of different colors. For

each panel first was defined geometrical ornaments or animal figures (Fig. 3.), and then the area around them has been pondered about 3cm deep.

5. ORIGIN OF TECHNIQUE AND ITS SPREADING IN MEDIEVAL EUROPE

The roots of the use of beautiful stone flooring in Europe are certainly very deep and go back to ancient times. In early medieval Byzantium which was the only heir to the Roman tradition, this tradition of marble floors has been managed to keep within the furnishing of magnificent palaces and churches,which can be seen on the floor of the church Constantinople, Thessaloniki, Mount Athos, Mystras [3]. In the middle of the Middle Ages this trend marble flooring equipments exceeds (or better yet - returns) in the Apennine peninsula [4]. The very heads of the church, even the Pope, were stimulated small family workshop marble floors by which are decorated basilica in Rome, as is the case with the family Cosmatii, by which the whole style of making these floors named. Six of its members in four generations have achieved the popularity of today's famous names of companies Svarofski, Tiffany [5]. Period in which the production of these floors was in full swing was in fact between the second half of the twelfth century and the fifteenth century. By its type cosmati floors are among the mosaic, which is clearly the way of their making, but they are essentially the combination of technique of opus sectile and opus musivum.

In fact, here the mosaic appears mostly as a fill or background forms for geometrical ornaments that are made of marble strips. These floors are noticeable throughout Italy today, a well-known example is the cathedral of Westminster abbey [6], as well as those in the cathedrals of Palermo whose donors were Norman-French kings in the twelfth century [7].

6. THE REPRESENTATION OF THE SHAPE AND FORM OF THE NEWLY-RECONSTRUCTED SLABS

Based on the two fragments of the Holy Archangels two plates were reconstructed. Along with this interpretation we try to find the reason of implemented geometrical forms eg. the explaination of the meaning of these forms in the Christian understanding of geometric shapes. We spotted two most common types of organization of shapes:

Quincunx: Certainly one of the most implemented form in shaping the form of the floors were guilloche motifs (twisted figure eight) and quincunx (kvinkunks - relationship of the five elements where one is in the center, and the other four around the two axes of symmetry in the composition). There are different polygonal shapes generated by crossing continuous lines in the floors, and amorphous forms, motifs of tears which touch circular and linear forms. One of the common ways of presentation quincux in cosmati-mosaic floors is by showing the

circle inscribed in a square. In the gaps that are out inner-field of the ring, eg. the angular parts of the interior squares, the smaller circles are inscribed that touch a large circle and a square. Then, among all these forms concentric mesh is established.

Hexagon: On several occasions, as one of the major forms of the floor pavement in the church of the Holy Archangel appeared hexagon or a six-pointed star figure invert. Particularly significant was that fragment of the cornish which on his background has a six-pointed star inscribed in a circle, and in its center is anotherone concentric circle (Fig. 4.). This sign is interpreted by many experts as a sign of master craftsmen, eg by a design and construction creator of this endowment. Unfortunately, unlike the Decani, where we know that it was built by Franciscan Vita, at Holy Archangels we do not know the name of this man. If it is true, it is possible for that reason to interpret that this had been used elsewhere as a sign of the signature builder.
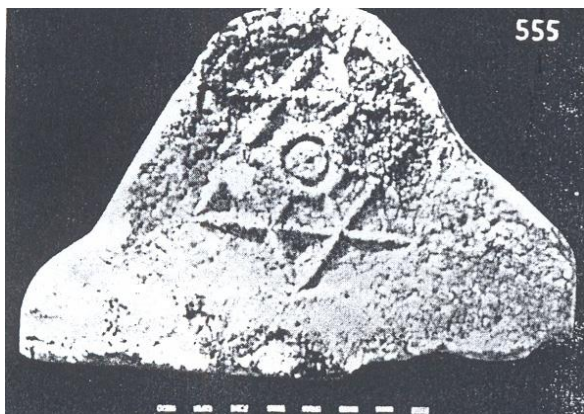

Fig. 4. Sign of master-mason of the monastery of S.Archangels

Namely, if the number 12 is understood as one of the outcomes of the number 6, and then analyse the shapes that had the drum of main dome, and a cornice on. baptistery, then we can figure out their forms as representation of numbers 6 and 12 of the major forms of the church to those quite small, as were the forms within floor pavements.

The organisation of quincunx and heksagonal shapes are very well visible in the next reconstructions of floor-plates in Fig. 5. and Fig. 6.
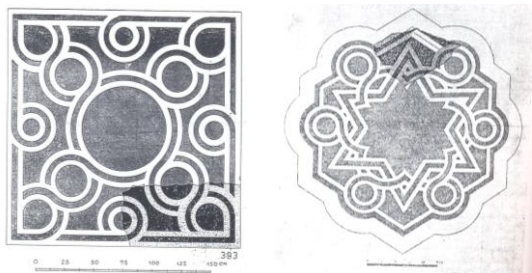

Fig. 5. Quincunx organisation of shapes and applied form of heksagon
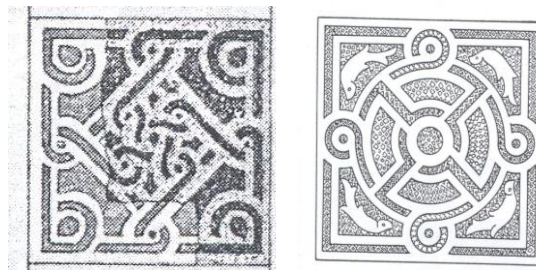

Fig. 6. Multiple Quincunx organisation of shapes

Number 6 is one of the important in Christianity. It brought far more attention than was it had given in antiquity, but even philosophers who promoted Christianity in the first half of the Middle Ages were not neglected it. St. Augustine emphasizes its coincidence. Here we will mention only some of the characteristics of 6 and 12 according to the Christian understanding of the fourteenth century:

• It is equal to the sum of the first three numbers: 1,2,3, and their product.

• The number 6 is the only number whose polygon has the same value as the length of the page, as well as measuring the radius of the circle around the polygon (hexagon) is described.

• He was considered for 'perfection of parts, "since the number multiplied by six times as much to himself returns a value whose last digit of the same number again: 6, 36, 216.

• The number 6 is the value of number of sides of perfect form, geometric figure - cube. In christian interpretation, the heavenly Jerusalem is presented as a cube.

• In the Old Testament God created the world in six periods, (translated from the fourth century for 6 days).

• In his charter of the monastery of Emperor Dusan says: "To you, to the first head of Heavenly powers, your character flashes of fire, and thy wondrous beauty, and while a firing weapon in your hand you are holding, looking with golden-shine is yours, the nature of fire, lightning is your dress. " He then quotes the prophet Isaiah (Is 6:1-2): 'I saw the Lord on the throne of glory too high, and cherubim and seraphim standing around him, angels and archangels, and those of six-winged (Motif of six-winged angels is on pendentives once the largest imperial Orthodox Church - Agia Sophia in Constantinople, today's Istanbul, and this monastery near Prizren is dedicated to archangels).

• Number 6 is a factor of 12 as that many were the Apostles, they are often depicted together in the fields of space drum walls between windows, for what must have been the reason for twelve-side dome of the church of the Holy Archangels in Prizren.

• The number of 12, which represents the number of zodiacal signs by which sailors are governed for centuries, and with whom artists had contacts, especially those who have traveled across the sea, which is a very easy case to those who worked on the Church of the Monastery of the Holy Archangels.

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• Finaly, the number 6 in six-pointed star reflects on the images of first Emperors in The Holy Testimony: David and Solomon. In the eyes of the medieval ruler, especially when we talk about ortodox emperors, each one of them tried to presente himself as a smart and justified ruler as were those two imperators in the Old Testimony. The most famous symbols of these emperors were five eg. six-pointed star.

Therefore, the numbers 6 and 12 have firmly roots in the philosophy of medieval men, especially those which nature of their work had to be in contact with the space, geometry and numbers. Floors made in Kosmati techniques have always been a symbol of the magnificence of the endowment, especially if it was brought into connection with the supreme authority. Imperial was from heaven: by the medieval conception of man, not only in the small empire of Serbs and Greeks but in the whole of Europe. The epithet empire was emphasized in Serbia as it was proper and in Rome, Naples and Palermo, Constantinople. Also, considering themselves the successor to the Byzantine emperors and their successors the Byzantine empire, the emperor Stefan Dusan also had reason to have a number 6 as representatiuon of motivations arise in its imperial tomb Foundation.

There is no doubt that the significance of numbers played a great role in the geometry of motives in the pattern, not only the the way how the rows of small rocks were lined up in mossaic, but also what eas the main thought in the relationship of geometrical figures i the Cosmati – floor in the church of Holy Archangels near Prizren.
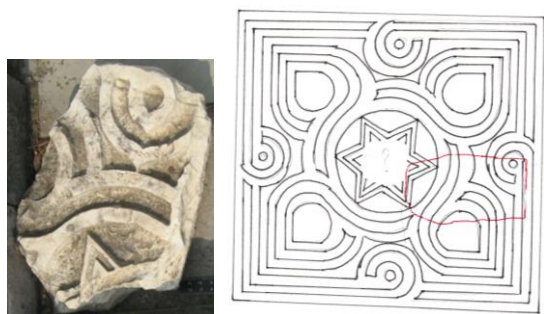

Fig. 7. Motive with Hexagon and Quincunx shema on reconstructed floor-slub (by I.Bjelić)

Fig. 8. Motive with Quincunx shema on reconstructed floor-slub (by I.Bjelić)

7. CONCLUSION

The simbology of numbers and their outcome polygons as whell as the relationship of shapes had to be in close relationship with Christian orthodox understadnding of structure and organization of cosmos, therefore which had to be reflected on organization of kingdom of heaven, as the most perfect form of state under one god. Medieval emperors resorted to this symbols of ideal state. However, even if they had formal education of symbols (because they had to present themselves as those who defend the thrue faith), it was on master mason who built for them the most monumental monuments to emphasize these kind of symbols and shapes, and that is the pattern which we can well recognize through the development of applied geometry in the most beatifull buildings of medieval monuments.

In the applied ornamentation and composition on floors in the Holy Archangels near Prizren there are more advanced forms. I dare to say that it applies in relation to the Italian flooring. Plenty of zoomorphic motifs on the mosaics seems to us as those on which used to walk the Roman emperors. It had lions, griffins, dragons, birds and fish. After all, we can say that the monastery Holy Archangels near Prizren was intended to show the brightest moment in the history of a people through excellence in the most monumental architecture, and even in the smallest details, including the floor. The floors of these geometric figures can be seen in the hustle expression of color and design, because the mosaic technique combined with the marble shaped planar surfaces. As can be inferred, using the form hexagons and quincunx organisation we made the systematization of a large number of geometric motifs on which to continue to carry out the reconstruction of the floor.

Representation of different geometric motifs, as well as finesse and elegance of movements of these animals, suggest that such an approach is geometric forms able to incorporate along with animal motifs in artist perfect expression displayed within an architectural element.

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