

Noravank Monastery in Armenia

Multidisciplinary surveying

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Abstract –

The paper aims to analyze a site of medieval Armenian architecture, to show a multidisciplinary approach that combines old and new forms of study. On the one hand the knowledge of the critical fortune of the subject and its environmental relationships; on the other hand, the digital detection that allows to memorize the morphology and subsequently to be able to understand its characteristics and functions. Two apparently distant procedures that, however, in practice, create an iterative process capable of potentially increasing knowledge.

Keywords

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I. INTRODUCTION

The site of Noravank is almost hidden at the bottom of a narrow valley in the east of Armenia. Currently the subject of a slow restoration process, the ancient mausoleum and churches built onto a natural plateau constitute a monumental complex originally designed by a known artist, a mediaeval miniaturist named Momik. This opportunity to study the built architecture in relationship with the historical miniatures of buildings has oriented a recent survey carried out by means of digital techniques.

However, historical and archival investigations have not been neglected, considered indispensable for a complete study.

Moreover, in such an 'emotional' situation from an environmental point of view, we could not neglect this aspect, which proved substantial in the predisposition to a complete approach.

The early results of this research are here presented in a provisional form.

II. NOTES FROM A PILGRIMAGE

The pilgrimage to Noravank begins a few kilometers before at the churches, when, upon reaching the vicinity of Yeghegnadzor, one leaves the highway and takes the road that runs through the narrow gorge of the Amaghu River. As one moves away from the deep caves that preserve evidence of the earliest man-made winemaking process, the rapidly succeeding slopes constantly obscure the view, rising the expectation for the final destination. Only after a few kilometers does the gorge widen into a valley that completely closes the horizon. The road begins to climb toward the small plateau at the bottom, but it is difficult to see the monuments from a distance. The churches are built of the same stone as the mountains, travertines reddened by iron and manganese. Along the road, the recently split rock is deep red while the mountain peaks, oxidized by the atmosphere, appear rather purplish and gray. After three switchbacks, one reaches the sloping parking lot outside the sacred enclosure in stone, and only here one can see the top of the mausoleum. The plateau extends slightly uphill toward the mountain ridge that embraces it to the north. The situation today is very different from what Paolo Cuneo and his team encountered in the late 1960s. The enclosure, though lower than when it protected the complex – the remains of the circular corner tower now contain a small garden – is much larger today; the buildings have been restored and service facilities and lodgings have been added, just outside. Once through the gate, one ascends slightly to the most famous monument, the two-level tomb-mausoleum, which rests on the most regular terracing of the entire complex. The entrance is on the side opposite the one from which one approaches, so that one has to walk around it, observing the complex decorations that cover it. Turning the corner, one also discovers the church complex just upstream and the view of the valley, with the gorge in the distance. Both the mausoleum and the churches are perfectly oriented on the west-east axis. A staircase leads to the lower level, two

meters below, still blackened by a fire and lit by small windows. Instead, the ascent to the upper cell, now discouraged for safety reasons, is via two staircases that protrude 40 cm from the western facade.

The two staircases, a combination of prefabricated ashlar, served to define an ascent and descent circuit that was usually tackled on one's knees, to avoid falling, and that led to the most representative room of the complex, to which the open dome with arched windows between columns has now been returned. After exploring the mausoleum, one moves on to the churches, to which the remains of a stone portico rest. The cubic Gavit, accessible by a portal to the west and a minor door to the south, presents itself as a stylistically complex room. The walls are defined by an order of pillars and an upper attic, on which rests the pavilion vault with pyramidal skylight. The high windows are obscured by stone supports that are placed exactly on their axis to avoiding direct light and reducing cold mountain currents. A staircase with five tall steps leads from the hall to the upper entrance of the domed Greek-cross church, which replicates the model of the Geghard monastery and many other Armenian sites. Because of the considerable rise and the absence of handrails, this staircase also requires some attention, especially on the way down while on the way out, the portal frames the view, emphasizing the strong connection between these buildings and the landscape. At the same time, the attention to natural morphology, strongly rectified only around the mausoleum, becomes evident. In practice, Noravank's buildings are all located at different height and take advantage of the differences in elevation, occasionally arranged with small dry-stone retaining walls, to articulate paths and hierarchies. Like the Gavit, the floor of the second church, what appears to be the oldest church in the complex, is articulated by a crowd of gravestones. Its entrance, hidden behind the Gavit, can only be found by exploring the northern boundary wall of the enclosure. The church consists of a single nave covered by a barrel vault and an apse with a raised floor, following a pattern found, in a small way, in the service rooms of the earlier church and in the two isolated chapels in the eastern sector of the enclosure. In this church, too, as in the mausoleum, the fabric of crosses-but also of other religious symbols-carved by pilgrims over centuries of travel is evident. These symbols can be found in the Khatchkars erected along the path that climbs eastward from the mausoleum instead, offering various vantage points from above over the entire complex and the valley that hosts it. From an architectural point of view, the sense of this place is precisely in this continuous exchange between 'observer' and 'observed', between architect and visitor, between landscape and buildings that, despite their stereometric shapes, are always placed in continuity with the natural morphology and material. Thus, Noravank does not appear to be a kind of half-hidden acropolis that houses the residence of divinity but rather a device for discovering

the divine in the nature around and in the memory that infuses generation after generation.

F.C.

III. NORAVANK HISTORY

The monastic complex of Noravank is located in the historical Armenian region of Siunik (now Mikoyan). The name literally means "new monastery" and this testifies that its realization dates back to the mature Middle Ages, a period in which, after the Seljuk invasions first and then Mongolian, Armenia saw a second phase of artistic and cultural flowering [1].

These previous invasions favored a controlled influence of "steppe culture" on Armenian art: for example, "the composition of volumes with superimposed and interpenetrating elementary solids, and the rigor and modulation of mathematical type in proportions and decorum" [1].

The monastery of Noravank, consisting of three churches "strictly aligned according to an experienced habit" [1], a gavit and a wall – more organic and adapted to the surrounding terrain – stands in an isolated site, placed on a terrace on the southern slopes of a valley, in the place where until the ninth century there was a church dedicated to S. P'okas and then another more recent, of uncertain name, re-emerged thanks to recent excavations.

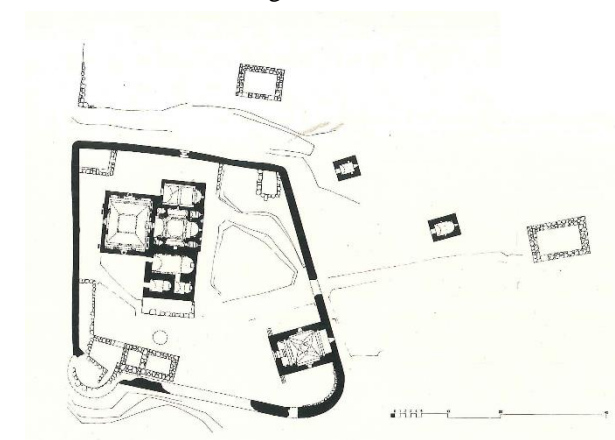


Fig.1 Noravank in 1875 (from [1])

It was not until 1221 that the name of the monastery changed to Noravank; in the same year the construction of the new church of S. Karapet began, destined to be the funeral chapel of the Oberlyan family, finished in 1228. The second church, S. Grigor, built at the behest of Tarsaych Orbelyan, also used as a family sepulcher [2], is dated back to 1275. In 1261 the gavit was restored by Prince Smbat Orbelian, probably to replace an existing structure whose stones were reused for the new building. Of this historical phase is also the construction of a bridge connecting the monastery and the rest of the region.

On the other hand, the dates of the church consecrated to St. Astvatsatsin (Mother of God), are uncertain. The

Armenian historian Murad Hasratyan sets the dates between 1303 and 1324, when the monastery had as abbot the nephew of Prince Liparit, Bishop Hovhannes-Orbel, who commissioned the church to architect Momik [1]. According to Cuneo, the church dates back to 1339 and was commissioned by Prince Burtel [2].



Fig.2 Noravank, Astvatsatsin, West-South-West elevation (photo by MC)

In the fifteenth century the architectural model of the two-storey funerary chapel spread to the region of Siunik' and tomb chapels of this type began to be built at all monasteries. During the 17th century, the city walls, a hotel and several auxiliary buildings were erected.

In 1840 an earthquake severely damaged the monastery, causing its permanent abandonment. It was not until after World War II, between 1948 and 1949, that the Committee for the Conservation of Monuments of Soviet Armenia initiated the first restoration works of the monastery, based on the projects of A. Balasanyan. More recently (1982-1983) further consolidation work, restoration and other excavations have been undertaken [1].

A.S.

IV. MOMIK

Architect, sculptor, scribe, miniaturist, Momik was one of the most innovative and revolutionary personalities in Armenian figurative culture of the 13th-14th centuries. His artistic output includes the design of numerous churches,

many of which are characterised by original floor plans and rich decorations in which traditional elements of Armenian art and references to Islamic art come together. His repertoire also includes sculptures, in particular khachkars (stone crosses), and a series of manuscripts kept at the Mesrop Mashtots Institute of Ancient Manuscripts 'Matenadaran' in Yerevan.

The aim of this chapter is to trace Momik's artistic profile and to place it within the historical context in which he exercised his multifaceted activity; in particular, emphasis will be placed on those monuments and works linked to the patronage of the noble Orbelyan family, lords of the Armenian region of Syunik.

An attempt will then be made to analyse some of the manuscripts decorated by Momik, emphasising certain iconographic peculiarities that distinguish them. Specifically, the codices Erevan, Matendaran, ms. 2848 (an. 1292) and Erevan, Matendaran, ms. 6792 (an. 1302) will be examined. Indeed, the miniatures of these Gospels reveal original iconography and an eclectic style that departs from the illuminated production of contemporary Greater Armenia. In fact, innovations from a figurative point of view are noticeable, which the artist also seems to apply in sculpture. In this sense, a series of magnificent khachkars sculpted and signed by Momik, two of which are located outside the monastic complex of Noravank, will be examined as material for comparison.

These khachkars are of a high quality of execution: the background is a dense lacework carved with arabesque motifs against which stand a series of figures that Momik depicts at the apex of the stela, on the margins of the long sides, or at the base.

What is surprising when observing the faces of these figures is their physiognomy, which displays anthropological features typical of the Mongol people. For instance, the face of the enthroned Christ surrounded by the Tetramorph (fig. 3), carved at the apex of the khachkar commissioned by Hovhannes Orbel and dated 1304, is a significant example of the cultural interactions and visual exchanges occurring on Armenian territory during the years of Mongol rule (1230-1335).



Fig. 3. Christ enthroned with Tetramorph, Khackar, 1304.

This cohabitation forced many of the Orbelian family

members to forge alliances with the Mongols not only politically, but also through marriage relations.

As mentioned above, similar features are attested not only in the khachkars but also in miniatures, as can be seen by looking at the portrait of the Evangelist Luke illuminated in the above-mentioned ms. 2848 from the year 1292; Luke's eyes appear slightly elongated and his hair is long and in a plait in the fashion of the Mongols (fig. 4).

Finally, a focus will be devoted to the examination of some marginal miniatures painted by Momik in his manuscripts, representing models of architecture. A famous example is illuminated in ms. 2848, where the artist reproduces a centrally planned, two-level architecture that anticipates the structure built for the Noravank complex (Fig. 5).



Fig. 4. Evangelista Luca, Gospel, ms. 2848, 1292.



Fig. 5 Marginal miniature, church model, Gospel, ms. 2848, 1292.

V. SURVEY AND MORPHOLOGICAL STUDY

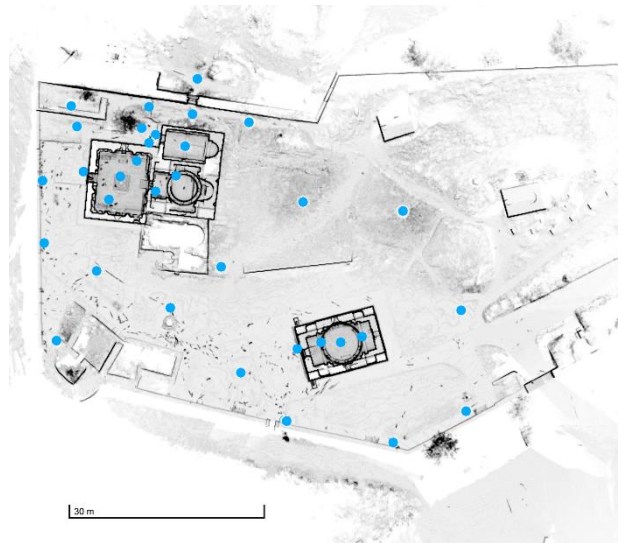
The walls of Noravank once included the western area of the current area, which with the latest interventions has extended to the east with buildings dedicated to musealization and hospitality.

The restorations of the last century have returned the use of two main architectural structures: one to the north including the churches of St. Karapet and St. Grigor, and one to the south dedicated to St. Astvatsatsin.

Given the lack of obstacles to the 'ring' path, external scans were performed describing two complete rings. Other scans included some areas of interest between the two nuclei.

Fig.6 Noravank – General plan of scans (processing MC)

Subsequently, the interiors were also detected.



Unfortunately, the dangerous access did not allow to detect the upper floor of the Astvatsatsin. We could have made up for it with the use of a drone, in fact the roof is formed by a monoptera lantern, between whose columns we could access, but the criticality of the operation has discarded the idea.

In all, 34 scans were carried out, sufficient to record a cloud capable of comprehensively recording the morphology of the most important architectural elements.

From a first observation of the general plan we realize that the northern group of the thirteenth century has a gisto orientation with the apses to the east and the atrium / narthex (the *gavit*) to the west of the main church. As for the mausoleum of the Orbelyan (the Astvatsatsin) rotated with North-North-East axis, but knowing the shape of the ancient perimeter walls we know that its construction in the fifteenth century has adapted to the pre-existing trend of the boundary wall. In any case, the East-West orientation of the longitudinal axis of Armenian churches does not have the precision of a compass. Personally I think this is due to the variability of the sun's path during the year, a factor that shows the apparent uncertainty of the east-west axis.

But the most interesting feature of this building is its layout on two levels and the and the staircase with two flights on the façade. In Armenia there are only two similar buildings, in Eghvard and Kaputan (Fig.7).



Fig.7 – The two-storey churches of Eghvard (left) and Kaputan (right)

Kaputan has the overlapping of two apsidal rooms, while in Eghvard the upper room has a square termination (scarsella?). The double access to the upper level was made impractical for both of them.

The lower room was generally intended for burials while the upper one was intended for the sacred rite.



Fig. 8 – Point cloud of the intrados of the lower environment (MC processing).

In Noravank the upper room is apsidal and clearly defines the religious function, while the lower one is rectangular, slightly 'marked' in the vertical structures. The roof is a starry cross vault (fig.8). The key surface is flat and the four arms of the star tend to have a cylindrical surface.

This aspect makes it different from a liturgical place and very similar to a *gavit*, an environment with burial functions, easy to access but without the function of 'pronaos' of the chapel.

M.C.

VI. THE WEAVES OF ST. GREGORY

The Orbelian Funeral Chapel was founded in 1275 and dedicated to St. Gregory the Illuminator. The façade has a traditional square work with recurs of variable height, also horizontally. This feature confirms the practice of adjusting elements in work and in groups. This provides the texture a first decorative motif given by the variability of orientation, never extended for the entire front.

Our attention, however, is focused on the seven elements that present geometric patterns interwoven. They were numbered following the sequence from left to right on the two lines (figg.9-10). The first common feature is that the weave is composed of bands ordered according to the coupling of three cylindrical elements "flexible" as fibers. 1, 2, 4 and 7 have a circular setting, while the others square. The passage above/below of the bands is then a three-dimensional interplay that seems to be temporally subsequent to that of the geometric setting.

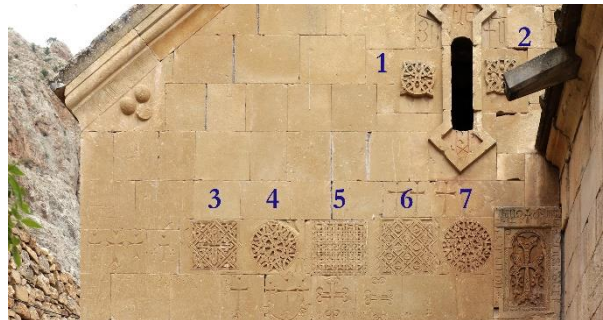


Fig. 9 – The façade of the Chapel (photo M.C.)

1 and 2 have the same geometric shape and vary only in the semispherical defined within the spaces left by the bands: stellar for 1 and smooth for 2. There are four axes of symmetry; the basic shape is a circumference divided by four inner arcs to form the sequence of four spindles. To this basic figure are added four major arcs rotated of 45 degrees, compared to the previous ones, which meet in the four vertices of the hypothetical square circumscribed to the circumference, and thus forming four major radial spindles. From the weave can be assumed the overlap of three closed bands. The first two describe the circle and have the sequence 'circular sector'-'arc'-'circular sector'-'arc'. The third is the sequence of the four arcs.

The 3 has a square surface, it shows four axes of symmetry and has a pattern that is repeated with compared to the center, every 90 degrees. The geometric shapes are two concentric squares rotated of 45, marked by their diagonals; a wide central circumference at which are intertwined four minor circumferences and four other arches more external, symmetrical "echo" of the previous four. Last a central "Greek" cross and a small circumference. In the complexity of the weaves are identified the five main circumferences and the central cross, the rest is a complex interplay of weaving between the sides of the squares, the angular arcs and the small central circle.

The number 4 has a circular outline and two series of six axes of symmetry (twelve in total). The repetition of the pattern occurs every 60 days. The main geometric figures are two concentric circles: the smaller one generates six circular volutes towards the outside while the greater one has two orders of arcs, a series of twelve smaller and external and a series of six larger intersecting in the center generating six radial spindles; however, the intersection of the major arches in the center is too narrow so the sculptor "accommodated" the weave as he could, with a result not always consistent with the graphic composition.

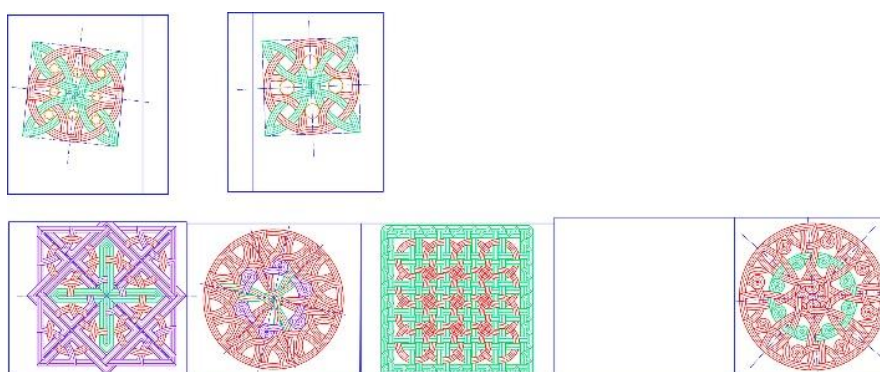


Fig.10 – geometric reconstruction of the decorations /MC processing)

The 5 is square with a frame made up of a series of circular weaves. Inside, the square is divided by four vertical lines and four horizontal lines into twenty-five quadrants. There are also sixteen intertwined circles. This pattern is very tight and has the potential to be reproduced endlessly.

Also the 6 is square and has a pattern that can be reproduced according to the two Cartesian directions infinite times. Here, however, the ornate sculptor seems to have had difficulties in realizing and the solutions of interweaving with the square frame are resolved differently for the vertical sides than the horizontal sides, with the addition of the base that seems to have undergone an adjustment due to errors in vertical sizing. The square is divided by parallel lines to the diagonals, making twelve squares surrounded by twelve triangles. In the middle of the squares there are flat studs of which nine are divided into six segments and three like a four-leaf clover. Nine circular bands intertwined with the square frames conclude the composition.

The 7 is very similar to the 4 and it could be assumed the work of the same ornamentist. It has circular outline and two series of four axes of symmetry (eight in total), although the four volutes of the center reduce the axes to four. The pattern is repeated every 45 degrees. The main geometric figures are two concentric circles: the smaller one generates six circular volutes inside; the larger has two orders of arches, a series of eight smaller and external

(with an asymmetric circular volute) and a series of eight major intersecting at the center generating eight radial spindles. Of these last arches, for reasons of space, only four have the outer circular volute that closes the central portion of the decoration; and, similarly to the 4, there are rough adjustments of the weaves that betray the difficulty of the lack of coherence of the geometric design.

M.C.

VII. CONCLUSIONS

Thanks to their multidisciplinary nature, digital sensing techniques can be profitably used in the context of understanding and increasing knowledge. For Noravank we have begun a long journey that allows us to embrace many aspects. The next action will be to elaborate correct classical representations (sections and elevations) and to analyze the endless completely panorama of geometric decorations present and widespread on all architectural surfaces.

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