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Abstract: *The means of artistic decoration of the second stage of developed Armenian architecture (12th-14th centuries) are presented. The research aims to highlight the features characteristic of the given period through a general analysis of ornamental art. The scientific innovation lies in clarifying the general features and the origins of form creation in the decorative means characterizing a given period, which will enable the determination of the monument's date, even when bibliographic and lithological data are scarce. As a result of the examination, the means of artistic decoration, with their new manifestations, played an important role in the formation of the stylistic direction of that period. They were formed on the achievements of the previous phase, the Bagratuni period (9th-11th centuries), as a result of cultural interactions with neighboring countries and were inherited by the following centuries.*

Keywords: ornament, columned rotunda, portal, stalactite, pointed arch.

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Introduction

The second stage of the High Middle Ages of Armenian architecture covers the 12th to 14th centuries. The abundance of decorative means of structures distinguishes it. Luxurious and diverse ornamental carvings were used in the decoration of the walls of religious structures, as well as khachkars. The art of stonemasonry had reached high perfection. The diversity of floral and geometric ornamental motifs and their creation with embroidery elegance, as well as the use of iconography, led to the creation of structures that are the best examples of the synthesis of architecture and sculpture. Many of them, becoming national values, replenished the treasury of both the Armenian and the world culture as well.

Both Armenian and foreign scholars have addressed the combination of Armenian architecture and ornamental sculptural art of the 12th-14th centuries. The works of great contributors to the field of Armenian architecture studies, T. Toramanyan [1], V. Harutyunyan [2], A. Yakobson [3], J. Strzygowski [4], S. Mnatsakanyan [5], N. Tokarsky [6], Sh. Azatyan [7], Z. Hakobyan [8], A. Ghazaryan [9], H. Petrosyan [10], H. Khalpakhchyan [11], and others are noteworthy.

In the given study, a systematic analysis of the artistic decoration of individual structures and khachkars of different architectural schools of the period under consideration (Ayrarat, Gugark, Syunik, Artsakh, and Ani) was carried out. The task was set to study the origins of their form creation, as well as their interactions with Western and Eastern cultures. The correlations of fresco painting, miniature painting, and embroidery developing in the given period with ornamental carvings were also observed. An attempt was made to identify the features characterizing the given period, in which artistic decoration played a decisive role.

Materials and Methods

Scientific domestic literature, archival materials, photographs, and measurements were studied. The research was conducted based on photographs taken on-site and comparative analyses.

Results and Discussion

Historical overview

In the second half of the 12th century, Armenia experienced unprecedented economic development, which created favorable conditions for the rise of cultural life. This rise lasted only 4-5 decades (it was interrupted

by the Mongol invasion) in central Armenia, but in some provinces of Armenia (Vayots Dzor, Artsakh, and Syunik), as well as in the independent kingdom of Cilicia, it continued until the 14th century. In central Armenia, this rise was led by the Ivane and Zakare Amirspasalar Zakaryans, who fortified a number of fortresses, including the city of Ani, and built new monastery complexes. Their example was followed by the Vachutyan, Proshyan, Orbelyan, and other princely families and wealthy nobles, and in Artsakh, by the princes of Khachen. Various economically wealthy monastic communities carried out some renovation works as well [2].

The mentioned period is notable for the works of such masters as Vetsik, Minas, Poghos, Siranes, Momik, and others. They were created with innovation born of the dictates of the era [5]. The works of these talented masters, nourished by national origins and relying on the rich heritage received from previous stages, enriched the treasury of Armenian architecture with new achievements.

As in the previous stages, in the second stage of the High Middle Ages, architecture in Armenia developed based on its national heritage, as well as on the interactions of cultures of other, especially neighboring, countries (both Christian and Islamic). In the period under consideration (12th-14th centuries), the main means of external decoration of religious buildings were portals, window arches, niches, wall arches, cornices, domes, and iconography (khetor and family symbols and Christian symbols—icons, birds, angels, etc.). They were supplemented by new decorative sculptures—sundials and intricate geometric ornamental sculptures. Polychromy also played an important role in artistic decoration, with the use of multi-colored stones as well as paint. In the interior decoration, the columns, capitals, pillars, the shapes of the trumpets, and the decoration of the facades of the stages (stage fronts). Fresco painting was also developing.

The verticality in the spatial compositions of monastic complexes, as well as in the planes of structures and walls

The architrave becomes one of the important features of the spatial compositions of monastic complexes and individual structures of the 12th-14th centuries. It was also the main feature of Gothic art, which was the main stylistic direction in the architecture of Western European countries of that period.

Since the 13th century, bell towers with columned rotundas have appeared in monastic complexes as vertical accents. The best examples include the bell towers of the Sanahin and Haghpat monasteries, built in the 13th century [11]. The bell tower of the newly constructed Kobayr monastery (1279) also features a columned rotunda (Fig.1). Starting in the 14th century, three-story churches topped with a columned rotunda were built, emphasizing vertical development. Notable examples are the church-bell towers of Yeghvard, Noravank, Kaputan, and Goshavank (Fig.1).



The bell-tower of Haghpat, 1245



Kaputan, 1349



Noravank, 1339

Fig. 1. Church-bell towers, 13th-14th centuries

During this period, even low-lying cloisters were crowned with slender rotundas. The cloisters of Gandzasar, Hovhannavank, Saghmosavank, Harichavank, and other monasteries have such a design.

The aspiration for revival is also observed in the composition of the domes of the churches. In the period under study, two types of domes were used: fan-shaped with a spire and conical. The domes formed in the previous period served as the basis for both types.

The number of drum seats in fan-shaped domes increased in some structures, resulting in a corresponding increase in the number of columns. The cornices and columns became thinner, taller, and more slender. In their intermediate sections, carved windows, niches, iconostasis, and ornamental reliefs of various geometric shapes appeared. A more pronounced vertical light-shadow contrast emerged, which added lightness and stretch to the fan-shaped domes. The best examples are the main churches of St. Hovhannes Mkrtych in Gandzasar, Harichavank, and Hovhannavank (Fig.2a). Domes with cylindrical drums and conical spires became more pointed and slender from the 13th century onwards. The number of arches encircling the drum increased. The intermediate sections of the arches were sculpted with various geometric ornaments. During this period, the upper surfaces of the drums were encircled with sculpted ornamental bands. Examples include the churches of St. Gregory of Ani, the main church of Makaravank, St. Astvatsatsin of Goshavank, St. Astvatsatsin of Geghardavank, Tigran Honents of Ani, and others (Fig.2b).

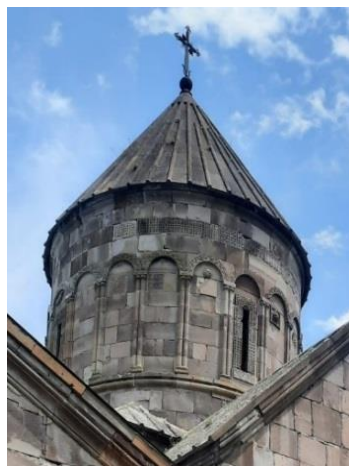


*Church of Harichavanq,
1201*

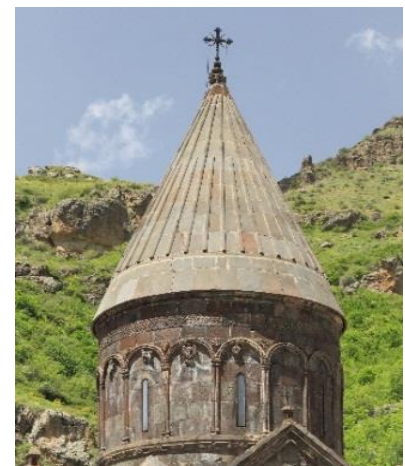


*Church of Hovhannavanq,
1216-1221*

a. Fan-shaped roofs of domes



*The main church of
Makaravanq, 1205*

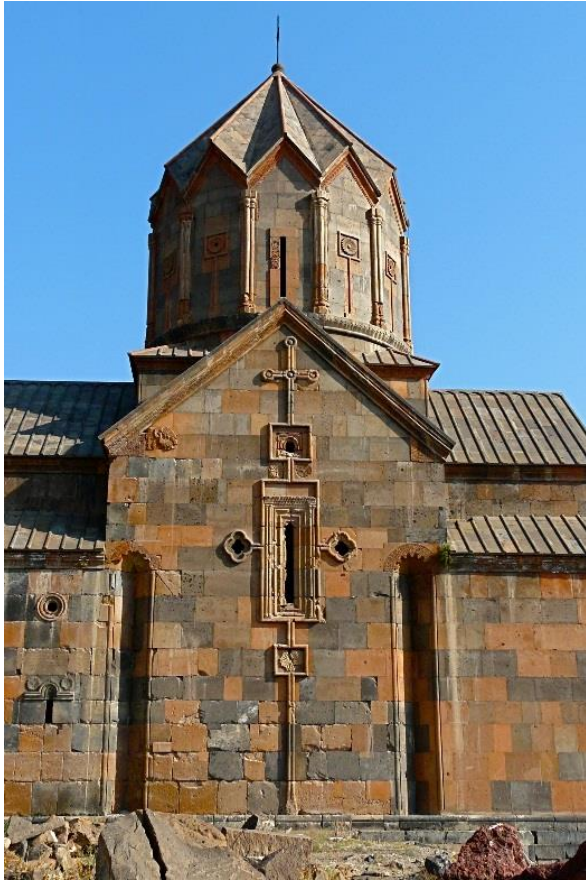


*The main church of
Geghard, 1215*

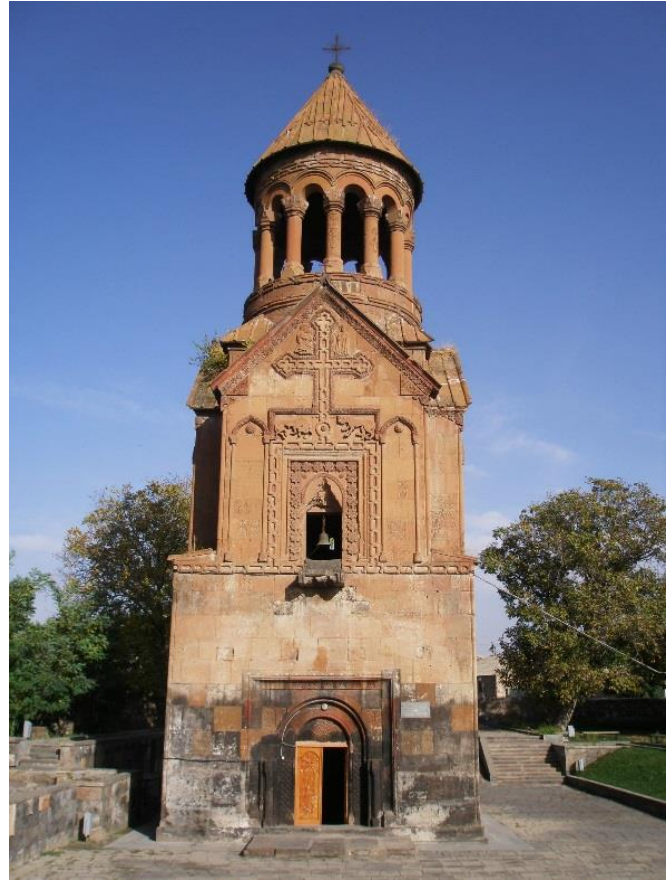
b. Conical roofs of domes

Fig. 2. Cupolas, 13th century

In the decoration of the planes of the walls of the cult structures of the period under consideration, there is a dynamic development in two directions: vertical and horizontal. The vertical axis was emphasized by the portal, a vertically developing profiled strip, which, without interruption, encircled the rectangular windows and niches, and in some facades, it turned into a cross stretching the entire height of the facade. The decoration of the cross appeared in the planes of the facades from the 12th century [12]. Before that, they were found only in khachkars. With its elongated composition, the cross further emphasized the vertical axis of the facade of the structure (Tigran Honents, Harichavank, Makaravank, Gandzasar, Noravank, Haghpat Belfry, etc.). The lower wing of the bas-relief of the cross sometimes descends along the entire length of the wall, emphasizing the axis of symmetry (Haghpat Belfry, Hovhannavank, Gandzasar, etc.) (Fig.3).



The southern facade of Hovhanavank



The western facade of Yeghvard Church

Fig. 3. *The cross ornament on the facades*

Portals

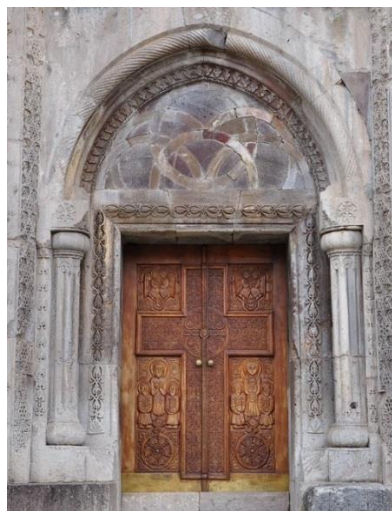
The main, mainly western, facades of all structures of monastic complexes were emphasized by luxuriously decorated portals, which became a compositional dominant [7].

The main features of the portals of this period were:

1. In some structures, the entrance, crowned with an arch, was inscribed in a rectangular or stepped frame.
2. Polychromy was used in the decoration of portals, especially tympanums. It was obtained in two ways: with mosaics of large stones of different colors (Nor Varagavank, Harichavank, Makaravank, Tigran Honents, etc.) or by applying paint, especially vordan karmir (Gandzasar, Hovhannavank, etc.) (Fig. 4).



Harichavanq



Gandzasar



Nor Varagavanq

Fig. 4. *Polychromy*

3. Starting from the 13th century, pointed arches were widely used in the portals, along with semicircular arches. They crowned the pillars of the entrances and had a pronounced pointed shape, due to which they gave verticality to the portals. It should be noted that pointed arches were first encountered in Armenian architecture at the beginning of the 11th century, in the Ani Cathedral (1001). The architect Trdat used pointed arches in the constructive structure of that building. They, forming part of the constructive structure of the structure, rest on beam-shaped columns. A bunch of columns turned into arches without interruption, thereby emphasizing the dynamic verticality of the internal space. This circumstance was meant by the Austrian historian and scholar Josef Strzygowski, who noticed Gothic features in the Ani Cathedral [4]. The decorative wall paintings were first widely used in the external decoration of religious buildings of the 13th-14th centuries, in the portals, becoming one of the features characterizing the period under consideration. It can be said that the use of pointed decorative arches in the exterior decoration of buildings was an innovation in Armenian architecture.

The pointed shape of arches was also found both in the Islamic and neighboring Persian and Arab cultures and in the Western European Gothic architecture of that period. Armenian pointed arches were strikingly different in their construction. They were formed by a semicircular volume and a series of straight lines tangential to it from both sides (Fig. 5).

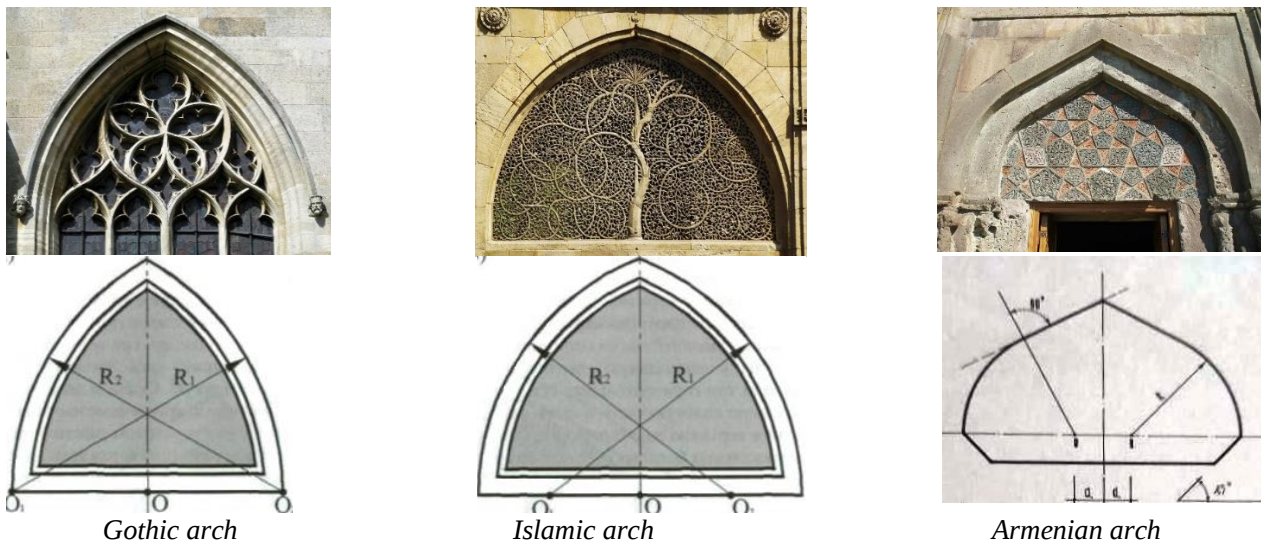


Fig. 5. Arrow-shaped arches

4. The tympanums of the portals were sometimes decorated with luxurious floral and geometrical motifs, reminiscent of miniature painting. The best examples are the southern portals of the main church of Geghardavank and the western portals of the gavit of Geghardavank, St. Gregor church of Goshavank, the main church of Gandzasar, and the portal of the gavit of Harichavank, etc. These motifs have something in common with miniature painting. (Fig.6).

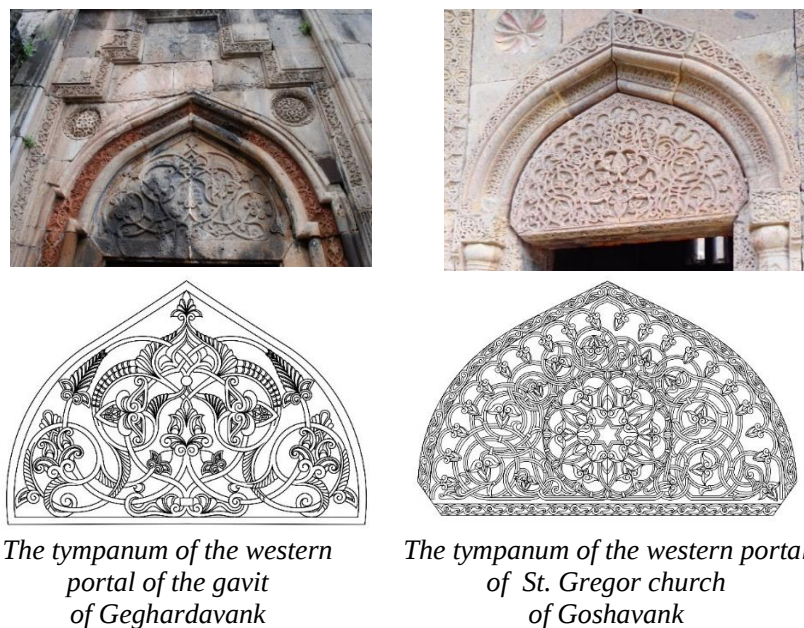


Fig. 6. Luxurious decorative motifs of the portal's tympanums

5. Stalactite decoration was used in the archivolts of the arches of the entrances (churches of Spitakavor, Noravank, Neghuts Monastery, and the Church of the Apostles in Ani, etc.). This decoration is also found in the arches of the niches (the crowns of the niches of the Haghpat bell tower), on the upper slabs of the capitals, and in the decoration of the ceilings of some gavits (the gavits of Geghardavank and Gandzasar). In this case, we can talk about interactions with Eastern Islamic architecture. The Armenian stalactites are strikingly different from the Islamic multi-colored mosaics. It had a clear geometric three-dimensional structure, formed by polyhedral stones, which created rich light and shadow (Fig. 7).



The portal's tympanum of the gavit of Neghuts vank



The ceiling of the gavit of Geghardavank



The portal's tympanum of Spitakavor church

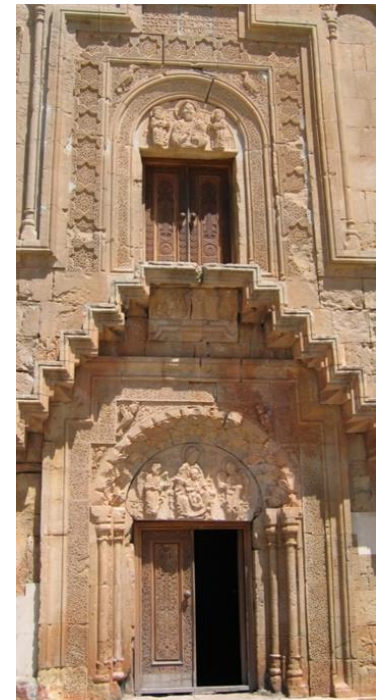
Fig. 7. Stalactite decoration

The decoration of the tympanums of the portals with pictorial sculptures, combined with rich floral and geometric ornaments, becomes a feature of this period. One of the best examples is the works of the talented medieval architect, sculptor, and miniaturist Momik in Noravank. The structures created by the master are wonderful examples of the synthesis of sculpture and architecture (Fig.8). In this case, there are connections to both neighboring Orthodox (Georgian and Byzantine) and Western European Catholic architecture. We also find carvings in the decoration of portals in the Romanesque and Gothic architecture of European countries.

6. The appearance of icon sculptures in the tympanums of the portals (Noravank, Hovhannavank, Spitakavor Church), on the surfaces of the walls (Aghjots Monastery), and on khachkars can also be explained by the fact that in the 13th century, frescoes became an important part of the interior decoration of church buildings. Of course, fresco painting, as an inseparable part of architecture, is one of the oldest manifestations of Armenian culture. Even some of the Armenian churches of the 5th-7th centuries had frescoes (for example, Lmpadavank, Mren, Aruch, Talin, Kosh, Yeghvard, etc.), and this tradition continued in the following centuries (for example, Tatev, Akhtamar, Haghpat, Horomos, Ani's



The western portal of the main church of Hovhannavank



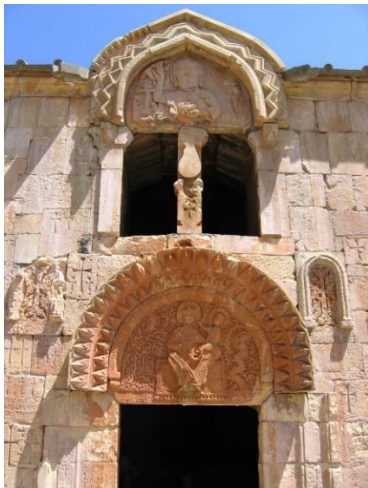
The western portals of St. Astvatsatsin of Noravank

Fig. 8. Decoration of the portal's tympanums with pictorial sculptures

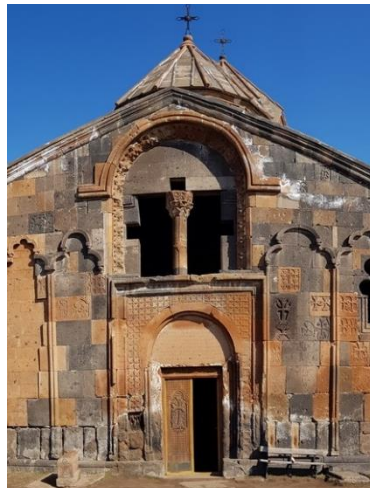
Holy Savior, Dadivank, Geghard, etc.). This form of Armenian fine art continued to flourish in 17th-century Armenian churches and monasteries (e.g., Holy Etchmiadzin, Old Julfa, Asdabad, Agulis, Varagavank, St. Gevorg of Mughni, Meghri, etc.).

In the period under consideration, in addition to the portals, iconography also appeared on the khachkars. In the 13th century, the Amenaprkich khachkars were created, depicting the crucifixion of Christ. Icons were also placed on the altars of the khachkars. The best examples are the khachkars of Haghpata, the village of Marts in Lori, and others [10].

In addition to these features, window openings with a unique design are also found. For example, the window openings above the western portals of the cloisters of Noravank and Hovhannavank are unique. They are divided into two parts by a column in the center of the design. Similar examples are found in Europe, in the portals of Gothic cathedrals (Fig. 9).



*The western fasad of
Noravank's gavit*



*The western fasad of
Hovhannavank's gavit*



*The western portal of
Notre Dame de Paris*

Fig. 9. Armenian and Evropan portals

Since the 13th century, Armenian architecture's building facades have also featured arches and ornamental forms, which have affinities with the Gothic art of that period. This is not accidental, as Armenia, particularly Cilicia, maintained close trade and cultural ties with European countries, especially Italy and France.

Arches and niches

As in the previous phase, the decoration of walls and domes with archways continues in this period. Their prototypes are found in the early medieval architecture of the 7th century (the churches of Zvartnots, Talin Kathiqe, and Artik), as well as in some structures of the 9th-11th centuries (Ani Cathedral, Gagkashen, Marmashen, Khtskonk, and other churches) [13]. In the period under consideration, the emphasis was already placed on rich, luxurious, and elegant designs, sometimes reaching the level of embroidery, rich in complex and dynamic solutions (Tigran Honents). If in the previous phase the capitals were sculpted, then in this phase, rather thin and slender pillars crowned with capitals of simple composition were used. The intermediate angular surfaces of the arches were mainly sculpted (as in the Zvartnots temple). The spatial compositions of the archways also differed from the previous phase. The rhythmic chain of archways in the wall planes also included window openings, niches, or portals. Sometimes a combination of semicircular and pointed arches was used.

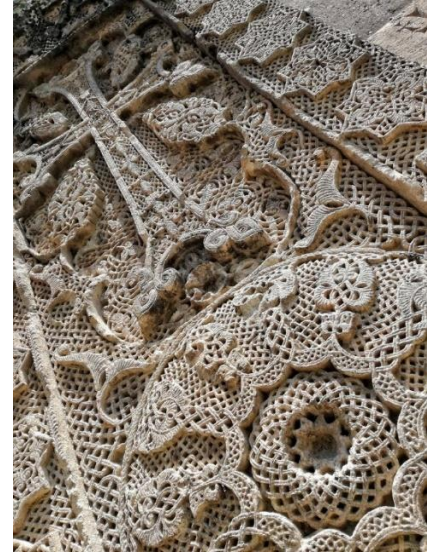
The wall arch used in the decoration of the walls of the St. Gregory the Illuminator Church in Goshavank has a unique solution. It rotates around the entire perimeter of the structure, and at the intersection of the western and southern facades, the angular arrow-shaped arch is divided: half remains on one facade, and the other half rotates towards the perpendicular facade. A similar solution is also found in the church of the Deghdzout monastery [14].

Based on the experience of the previous stage, in this period decorative niches also became an important means of expression in the decoration of wall surfaces. In this period they were included in the chain of wall arches, becoming a part of them. In the crowns of niches, the flat ornament is already transformed into a volumetric, three-dimensional ornamental sculpture. This was also a novelty and was used in this period.

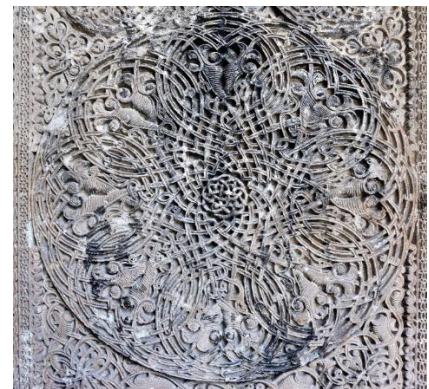
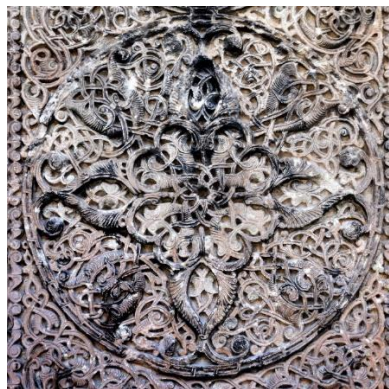
Ornamental motifs

Ornamental motifs include a variety of geometric (circular, quadrangular, polygonal, etc.) and plant motifs in non-repeating versions, which have common features with miniature painting. In the 13th-14th centuries, the Cilician school of miniature painting was especially flourishing. Sculptures of pairs of birds are often found on the arches or cornices of the windows of buildings, which are also characteristic features of this stage. Bird ornaments are also found in miniature painting.

The ktetor sculptures and princely coats of arms also became widespread [15]. Sundials are also found in the decoration of the southern facades of any of the churches or cloisters that were part of the monastic complexes. In the Middle Ages, the idea of time was given by the sundial, which over time also found its place in religious structures. They consisted of a semicircular tablet and a stationary rod; the time was determined by the shadow and the angle formed by a horizontal line. The oldest sundial preserved in Armenia is that of the Zvartnots Temple (7th century). Later, they were widely used, especially in the second phase of the High Middle Ages (we also find them occasionally in the 10th-11th centuries). Sundials showed not only the time but also harmoniously integrated into the artistic decoration, becoming its integral part.



Khachkar made by Master Poghos in Goshavank



The rosettes of Dadivank's khachkars

Fig. 10. "Embroidered" khachkars

During the period under study, the ornamental carvings found in the decorations of religious structures and khachkars were sometimes elaborated with "embroidery". It can be assumed that in addition to miniature painting, lacemaking was also developing in Armenia. The best examples of "embroidered" khachkars are the khachkars of Master Poghos in Goshavank, the khachkars of Momik in Noravank, the twin khachkars of Dadivank, etc. (Fig. 10).

Khachkar art developed in parallel and in harmony with the spirit of the time. As already mentioned, pictorial carvings also found a place in the decoration of khachkars: scenes of the crucifixion, icons, and angels. And the realistic fruit ornaments of grapes and pomegranates, which were widely used in the past, are now appearing in a stylized form with floral and geometric ornamental motifs that have a connection with miniature painting.

The discussed features are characteristics of different schools of Armenian architecture of the 12th-14th centuries. The architecture of Ani, Ayrarat, Shirak, Gugark, Syunik, and Artsakh developed with the characteristics typical of each region, having the common features that were characteristic of the given period. As an example, let's consider the Church of St. Hovhannes Mkrtych and the gavit of Gandzasar Monastery in Artsakh [16]:

- The dome of the church has a pronounced verticality typical of the period under consideration, thanks to the fan-shaped cupola and the polyhedral drum columns.
- The external walls of the church are decorated with vertical cross reliefs, icon sculptures, including ktetor sculptures, many geometric ornament motifs that reach an embroidery elegance, and wall arches.
- The gavit is crowned with a slender columned rotunda. The ceiling is stalactite.
- The tympanum of the vestibule, with its luxuriously sculpted belt, is decorated with polychrome.

Conclusion

Thus, in the second phase of the developed Middle Ages (12th-14th centuries) of Armenian architecture, the means of ornamental decoration played an important role in the formation of the stylistic direction of that period. It was formed based on the architectural heritage of previous periods, bearing the cultural interactions of neighboring Near Eastern and Western European countries as well.

As a result of the studies, we can make the following conclusions:

- The main feature of the architecture of the second stage of the developed Middle Ages, the 12th-14th centuries, was the luxurious and rich exterior decoration of the structures.
- This period was characterized by verticality, polychromy, the use of arrow-shaped arches, stalactite ornaments, figure sculptures, and exquisite "embroidery", which have similarities with miniatures and lacework.
- Architecture had been developing in synthesis with sculpture and mural painting.
- The masters of the period under review, without breaking the chain of inheritance, built on the achievements of the previous phase and created a new one in accordance with the dictates and spirit of the given period.
- Innovation, which was present in all means of artistic decoration, carried the national spirit without being cut off from its origins. At the same time, the architecture was in parallel with the world architecture of the period under study.

Conflict of Interest

The author declares no conflicts of interest.

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