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Revealing the Diverse Evolution of Ornamental Safeguards Across Societies

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Abstract

This study explores the evolution of ornaments and their integral role in embodying the national and artistic traditions of various cultures. Traditionally, these decorative elements served not only aesthetic purposes but also protective functions, shielding individuals from natural adversities, malevolent spirits, and diseases. Despite their prevalent use in early household items, there is a significant gap in understanding the systematic development and protective rationale behind these ornamentations. This research aims to structurally and functionally analyze the construction of ornaments to uncover these underlying mechanisms. Employing a qualitative analysis of historical artifacts, the study reveals how different cultures adapted ornament designs for both utilitarian and protective purposes. The findings suggest that ornaments are a critical medium through which cultural values and protective needs are expressed and perpetuated, offering new insights into the intersection of art, culture, and social protection.

Keywords: ornamental symbolism, cultural heritage, protective functions, design integration, functional aesthetics

Introduction

The word “ornament” translated from Latin means “decoration”, that is, patterns that cover various products of folk crafts, architectural structures, clothing and household items. The national ornament is unusually rich and amazingly beautiful, it is multi-valued and deep in its essence since it is based on ancient symbolism.

The main classification features of an ornament are its origin, purpose and content. Taking this into account, ornaments can be combined into several groups: technical ornament, symbolic, geometric, floral, zoomorphic, calligraphic, fantastic, astral, landscape, and object [1]. The ornament is based on the rhythmic alternation of the pattern. Rhythm in an ornament is the alternation of pattern elements in a certain sequence [2].

Methodology

The structural and functional study of ornaments in Central Asian architecture can be approached using a variety of methods, including:

1. Literature Review

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The research will begin with a comprehensive literature review to gather information on the concept of ornament, its classification, and its significance in various cultures. This will include studying the works of art historians, archaeologists, and anthropologists who have researched the topic.

2. Data Collection

The research will involve the collection of data on various types of ornaments, their origin, purpose, and content. This will include studying artefacts, architectural structures, clothing, and household items from various cultures and periods.

3. Classification

The collected data will be classified based on the origin, purpose, and content of the ornaments. This will help in understanding the patterns and trends in the development of ornaments.

4. Analysis

The classified data will be analyzed to identify the key features of each type of ornament. This will include studying the use of colour, texture, and pattern in the ornaments.

5. Interpretation

The analyzed data will be interpreted to understand the symbolism and meaning behind the ornaments. This will involve studying the cultural, historical, and social contexts in which the ornaments were created.

6. Comparison

The ornaments from different cultures and periods will be compared to identify similarities and differences. This will help in understanding the evolution of ornaments and their significance in different cultures.

Results and Discussion

The pattern can be flat or three-dimensional (Fig. 1 and Fig. 2):

a. planar ornaments are used when decorating clothes, painting the walls of buildings in the form of borders, and household items [3].
b. relief or convex ornaments are decorations made of wood, bone, stone or metal and are used to decorate architectural structures, buildings, etc.

Figure 1. Volumetric Ornament

Figure 2. Flat Ornament

The types of ornaments are: ribbon, closed, and mesh:

a. the ribbon type of ornaments includes borders, friezes, borders, frames, etc. (Fig.3).

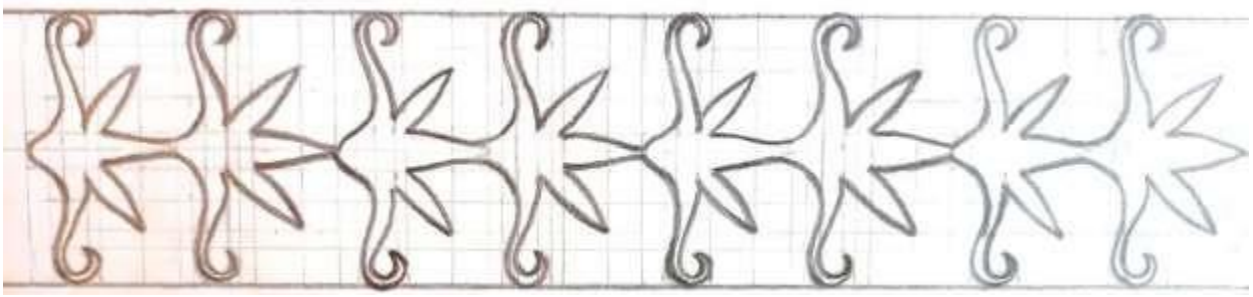


Figure 3. Ribbon Type of Ornament

b. the closed type includes all ornaments that are arranged in a rectangle, square or circle (rosettes). The motif in such ornaments is not repeated or is repeated with a rotation on the plane (rotational symmetry). The rosette is built on the geometric division of the circle into equal parts, symmetry and rotation (Fig. 4).

Figure 4. Closed Type of Ornament

c. the third type of ornament is a mesh (network, mosaic, mesh ornament). To construct mesh patterns, two types of meshes are used - four and triangles. The triangular one consists only of regular triangles, and the quadrangular one of squares, rectangles, rhombuses or parallelograms (Fig. 5), [4].

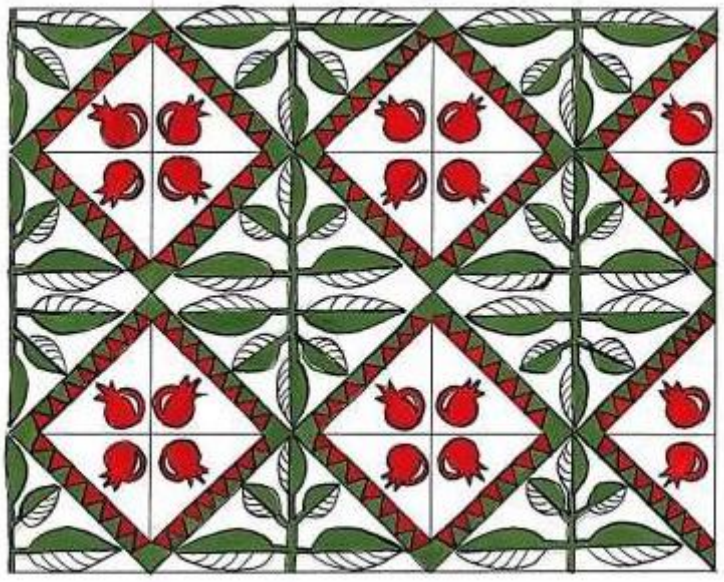


Figure 5. Grid Type of Ornament

The elements of ornamental composition and at the same time its expressive means include point, spot, line, colour, and texture. These elements (means) of composition in the work are transformed into ornamental motifs. The concept of "composition proportion" includes such concepts as rhythm, plasticity, symmetry, asymmetry, statics and dynamics.

Rhythm in ornamental composition is the alternation or repetition of motifs, figures and intervals between them. Rhythm is responsible for movement in ornament: transition from small to large, from simple to complex, from light to dark or repetition of shapes at intervals. Rhythm can be metric (uniform) and non-uniform.

The motif is a part of the ornament, its main forming element. Ornamental compositions in which the motif is repeated at equal intervals are called rapport.

Rape is the minimum area occupied by a motif and the interval to the neighbouring motif. Repetition of the rapport vertically and horizontally forms a rapport grid (Fig.6).

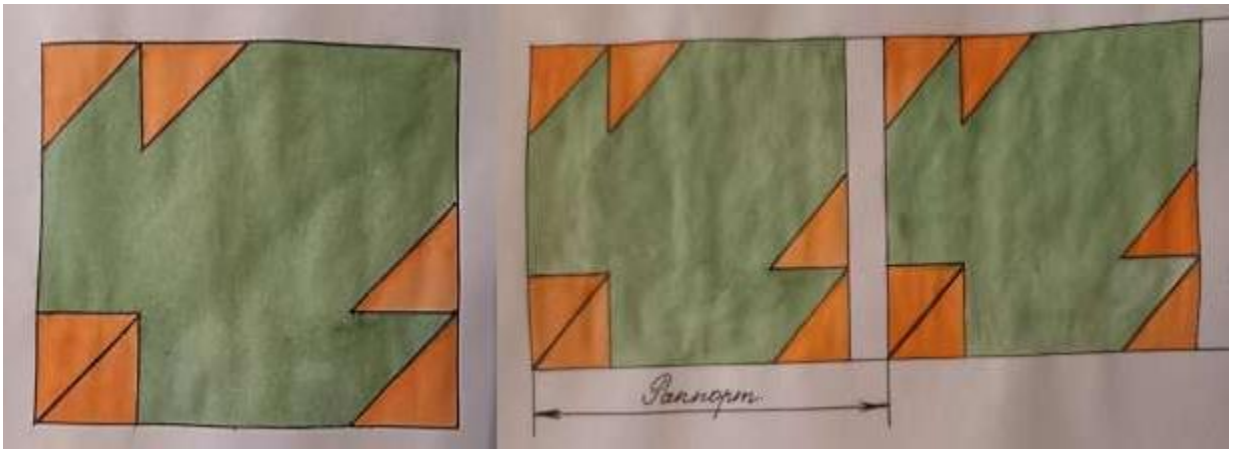


Figure 6. Motive and Rapport

The main types of rapport:

a. Ribbon rapport (framing, pilasters, friezes, stripes, etc.). The motif fits into a rectangle, or rhombus or can be in a trapezoid.
b. continuous grid carpet rapport - the motif is inscribed in a rectangular or rhombus grid. In connection of different figures or at more complex figures in which motifs are inscribed, the ornament passes into arabesque [5].
c. central ray rosetted rapport the motif is inscribed in a triangle.
d. reverse or heraldic rapport based on mirror reflection symmetry, the motif can be inscribed in any figure.

Monoraportic ornaments are finite figures (for example, a coat of arms, an emblem, etc.) [6]

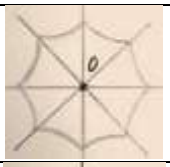
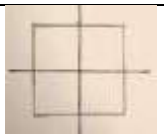
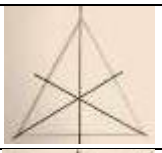
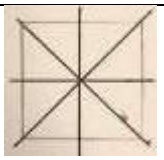
1. In linear rapportorty ornaments, the motif is repeated along a straight line.
2. In reticulate rapport pattern elements are arranged along many axes of transfer and create movement in all directions.

This composition is based on five types of grids: rectangular, square, regular triangular, rhombic and oblique parallelogram.Plasticity in ornament is continuous smooth transitions from one form element to another. At the plastic transition, the elements merge with each other.

Ornamental forms depending on the emotional impact are conditionally divided into heavy and light. Heavy forms belong to squares, cubes, circles, balls, light - lines, rectangles, ellipses.

Symmetry is a property of a figure (or an ornamental motif) to superimpose itself in such a way that all points occupy the original position. Asymmetry - absence or violation of symmetry, Table 1.

Table 1. Types of Symmetry

No.	Title and Explanation	View
1	The central symmetry is relative to the centre point O	
2	Uniaxial (mirror) symmetry is a mirror reflection with respect to an axis or plane	
3	Biaxial (coordinate) - symmetry about two axes	
4	Triaxial (on a grid of triangles) - symmetry about three axes	
5	Four-axis symmetry is constructed with respect to four axes	
6	Multiaxial symmetry is constructed with respect to several axes	

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5. Four-axis symmetry is constructed with respect to four axes
6. Multiaxial symmetry is constructed with respect to several axes

The circle, square and cross are universal forms on which all material culture rests, viz:

a. the circle is a symbol of the divine order;
b. the square is a symbol of the earthly beginning, the dwelling place of man;
c. the cross was identified with the World Tree, the Axis of the World.

According to mythological ideas of man about the creation of the world, the Tree grows out of the earth, which connects the earth with the sky. At the top of the Tree grows a flower, which represents the birth of the Sun. The Tree is guarded by lions, bulls, goats, dogs, birds and other specimens of zoomorphic species or is worshipped by anthropomorphic images. This subject was often used in the art of ornamentation [7].

The swastika is a rotating cross with broken ends. There are two types of the swastika: the

right-handed swastika, which personifies the spring sun and the left-handed swastika, which is associated with the autumn sun [8].

The laws of ornamental composition, namely:

a. the law of proportionality, the establishment of proportionality of parts in relation to each other and the whole;
b. the law of subordination, the allocation of major parts, and the subordination of minor parts to them;
c. the law of three-component, the meaning of which is that to convincingly express the complex and diverse movement of ornamental motifs it is necessary to show in the composition three phases of this movement (three different sizes, three different intervals between the motifs) and periodically repeat them;
d. the law of contrast, the interaction of contrasting elements mutually enhances their properties;
e. law of ornamental counterpoint, construction of a motif by combining a number of closed elements into a whole ornamental image;
f. the law of simplicity, obtaining expressiveness of ornament by minimal means.

Special types of ornaments are distinguished - arabesque, monogram, vignette, ligature, lettering (initial), vimpery, cartouche, filenka. The most ancient ornament of Central Asia was built in the following way: the pattern is divided into schemes or figures; the scheme is divided into motifs; motifs are divided into elements.

In the initial form, the main types of symmetry were developed: central, uniaxial (mirror), biaxial (coordinate), triaxial (on a triangle grid), quad axial (on a grid of squares) and multiaxial (radial) [9].

In the first half of the 8th century, Islam, a religion that served as an impetus for the creation and development of Muslim ornamentation, came to Central Asia. The technique of carved ganch developed.

In Central Asia, the first-class creations of the first five centuries of Islam are (in the technique of carved ganch): the palace complex of the VI - VIII cc. in Varakhsh near Bukhara (where ornamental decoration became a natural continuation of pre-Islamic traditions, which was a characteristic feature of the time), the halls of the Samanid palace in Samarkand of the IX - X cc, its domed hall of the X cc. The mausoleum of Arab-Ata of the 10th century in the village of Tim in Uzbekistan, etc. [10].

Considering the ornaments of Varakhshi, one can see that there are ribbon, rosette and filling ornamental field ornaments. In some ornaments the designs are geometric, in others vegetative; some of the ornaments are elementary simple, and others have a relatively complex composition. But they are united by the repetition of figures, the presence of rhythm in the construction of the composition and geometric basis, not to mention the high mastery of carving [11]. Varakhshi ornamentalists use the side and diagonal of a square, their derivatives, division in half, "Egyptian triangle", circular, as well as division of a circle into parts.

In Muslim art, the allegory of colours was used to depict a human being [12]. Islam, being a religion of emphasised monotheism, negative to figurative images, develops a special form of describing the essence of the deity. Unlike the art of the Christian world, the art of the new religion needed not a retelling of sacred history, but symbols of the abstract truth of the existence of the only God, "besides whom there is no deity and who has no companions". Abstract in nature, ornamentation was perfectly suited to the story of the abstract and became a way of artistically expressing the Islamic worldview. It was a powerful impetus for the flourishing of all kinds of ornament (vegetal, geometric, epigraphic) and turned the theory of pattern construction

into a science [13]. The Quran repeatedly cites flora and fauna as proof of the Almighty's favour to man who enjoys these benefits. And "plastic art of Islam" is in a certain sense a reflection of the words of the Quran. Thus, plant ornament, personifying the beauty of a fruit-bearing garden, which is an allusion to the gardens of Paradise, acts as a generalised symbol of this favour.

In the vast majority of monuments, the ganch played the dominant role. However, with the appearance of new types of panelling in the XII century and with the invasion of the Mongols in the XIII century, the ganch was relegated to the background in the interior. The main role is given to carved terracotta and watered pottery.

At the end of the 12th century, after the tradition of using ganch as a means of interior decoration finally acquired the modern meaning of the word, when the ornamental style became predominant, and geometric and vegetal ornaments became complete systems in the form of brilliantly developed geometric weaves and grids in a variety of variations, largely because the theory of arabesque construction turned into a science.

Plant ornamentation based on geometry has two ways of construction: based on wavy line and the type of madohil (a system of incoming and forming each other figures).

The ornament is perceived as an eternal story, which fulfils two functions: it conveys the idea of continuity, and infinity, which corresponds to the Muslim's idea of the incomprehensible God, and also symbolises the admiration of the world, which was created for man.

In the first two decades of the 20th century, elements of Russian ornament appeared in the art of ganch in addition to traditional patterns. This can be seen like the pattern of mouldings and in the technique of execution. The motifs of the Soviet period began to include: cotton and wheat.

Masters ganchors had more than a dozen tools that allowed them to create patterns of any shape and complexity. And patterns for ornaments were the pride and wealth, which were passed on by inheritance.

The popular ornament girih ((Persian گره, "knot", and گره سازی ("knot tying")) [14] is built on geometry (Figure 7). Therefore, the master had not only to build the ornament according to the geometric scheme but also to give it an emotional colouring (Fig. 8).

Figure 7. Girih Ornament with Inlaid Plant Decoration in the Ensemble of Shahi Zindamausoleums in Samarkand

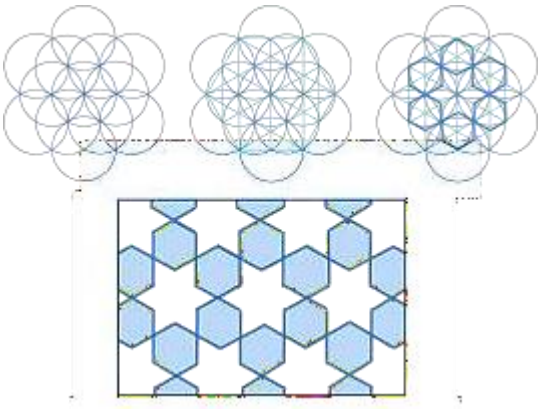

Figure 8. Girih Ornament that can be Constructed with a Circular. The Lattice on the Window in Topkapi Palace is Created with this Girih Pattern.

The colour scheme used in the ornamentation of Central Asia, in particular in Uzbekistan, is connected with natural and climatic conditions - bright sunlight and hot weather. Therefore, colours are chosen bright, contrasting with each other. Since the human eye gets used to the colours in the surrounding nature, the colours used are those that are familiar to a person from the local environment.

The architectural ornamentation of Central Asian monuments knows two main styles, viz:
a. the local antique and late antique art of the 6th century B.C. to the 18th century A.D.;
b. the Muslim Middle Ages of the IX-XIX cc.

The first is close to the forms and colour scheme of ancient Iranian, ancient Indian and Greco-Roman ornamentation. The second is close in many respects to the ornamentation of medieval Iran, Transcaucasia and other countries of the Middle and Near East. But at the same time, the architectural ornamentation of Uzbekistan and in antiquity and the Middle Ages was deeply original. [15]

If we compare the colour palette of Central Asian architects with the seven basic colours of the spectrum red, orange, yellow, green, blue, blue and violet - it is easy to see that until the XII-XIII centuries in architectural decoration dominated the left part of the spectrum, and then, in the following centuries the right.

In the interior, it is quite common to see the use of ceramic products as decoration. Today they can often be seen in designer interiors, where they play an effective role in wall decoration. In Central Asia, ceramics has been part of the interior for a long time.

The flourishing of ceramics was due to the introduction of coloured glazes (late 8th century), the spread of underglaze painting techniques (from the 9th century) and the use of high-silica ceramic mass, the so-called kashina (from the 12th century) [16].

Regional centres for the production of ceramics were formed. They differed in the colour range of glaze covering ceramics: the blue-white-green range is typical for Fergana and Khorezm ceramic schools, and the products of the centres of Bukhara, Samarkand and Tashkent used lead glaze and had a yellow-red-brown range [17].

In the 12th century the brick facings of the palace hall in the ancient Termez settlement were covered with alabaster and new carvings were applied to them. Apparently, at this time alabaster lattices with coloured glasses placed in lunettes on the curved surfaces of the vault were made [18]. The aivan was painted with vegetation - blue fanciful petals with orange buds and a black outline.

During excavations of the tomb of Seyyid-Alauddin (XIII c.) a tomb saganah lined with majolica of intense blue and blue tones with the richest floral ornamentation was discovered. The stepped saganah of the tomb of Kusam ibn-Abbas in Shahi Zinda (XIV c.) is painted with multicoloured floral ornament: the colours are sapphire-blue in the base, painted in gold and almond-shaped patterned cartouches. The painting resembles products made of gold and semi-precious stones [19].

The period after the Mongol invasion enriched the technique with new developments partly borrowed by the XX century: decorative stalactites made of ganch, arched niches in the form of shells, widespread in Khorezm in the late XII - early XIII century; polychrome ganch, vivid examples of which are given by the XIV century when it is combined with pinkish-yellow terracotta and other polychrome facings (at this time the forms of patterns become more complicated and refined (the mausoleum of Ahmed Yassavi in the 14th century and the portal of the caravan-shed in Urgench). Urgench of the same time); decorative - star vaults, which reached perfection in Bukhara in the XVI century; coloured plaster kirma, actively used in the XVI-XVII centuries; a combination of carved ganch and coloured plaster, wall paintings, peculiar to the architecture of the Bukhara Khanate XVIII-XIX centuries.

Nowadays, the interior uses the technique of coloured gunch, in a colour scheme typical of the style of local monuments. The "turquoise-blue style" prevailed in architecture until the Temurid Renaissance. From the end of the fourteenth century, with the introduction of new types of cladding and dyes into architectural practice, a real revolution in colour took place. The accentuation of deep blue tones, produced with imported cobalt ("Muslim blue"), became a new word; the combination of turquoise and deep blue in compositions became a classic of Temurid decoration [20].

The buildings of Amir Temur dominate a lush pattern, with the predominance of blue and gilding, while the buildings of Ulugbek are characterised by paintings in blue on a white background, clearly inspired by the fashionable at that time Chinese porcelain type "cobalt" [21] (blue-green) is the colour of the sky, grass, the element of vegetation, fertility, the colour of eternity, apparent divinity, heavenly abode, paradise. Blue is the colour of mourning. White - symbol of purity, light, and unity. Yellow is the colour of the sun, earth, and gold. In combination with blue creates the effect of unity and struggle of opposites [22].

Polychromy formed at the end of the 14th century in Temurid architectural practice was called Haft Rangi in the Muslim world - translated from Persian as "seven colours" (heavenly rainbow). This emphasis on seven colours in Islamic culture also had a symbolic character and had its roots in the ancient cult of the seven planets, where each of the deified celestial bodies correlated with a certain colour, endowed with sacred meaning: the Moon (green), Mars (red), Mercury (blue, turquoise), Jupiter (grey), Venus (white), Saturn (black), the Sun (yellow). The idea of "coloured" planets revolving around the supreme deity, the "golden" Sun, was repeatedly embodied in architectural practice. The combination of seven "divine" colours in a single range of architectural facings can be regarded as an expression of heavenly, paradisiacal harmony, which became the embodiment of earthly harmony, and the buildings themselves - a symbol of paradise, divine beauty on earth.

Conclusion

The structural and functional study of ornaments in Central Asia's architecture highlights the importance of ornaments in maintaining the tectonics of the object and influencing its spatial perception. Ornaments also have an operational function, facilitating the use of the object, and can increase the impression of the value of the object. Furthermore, ornaments can have a mental effect on the person, with their composition able to excite or calm. The study of ornaments in

Central Asia's architecture involves a range of methods, including comparative historical analysis, petrographic and technological analysis, and use-wear analysis, as well as interpretation of the symbolism and meaning behind the ornaments.

Summarising the main functions of ornament:

a. maintaining the tectonics of the object and influencing its spatial perception;
b. operational function, which facilitates the use of the object;
c. increasing the impression of the value of the object;
d. has a mental effect on the person, its composition can excite or calm.

Originality Statement

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