

The Minaret of Bukhara (Kalan) and the Minaret of Vabkent New Knowledge About Their Stucco Décor

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ABSTRACT

The Manar-i Kalan of Bukhara (1127) and the Minaret of Vabkent (1198–9) are well known in research literature, primarily for their brickwork décor. However, the stucco ornamentation that fills the stalactite cornice of their lanterns has not yet been studied seriously until now. This paper attempts to survey the history stalactite cornice décor in Central Asian minarets and muqarnas' stucco ornamentation. Three types of the ornamental motifs were studied regionally to identify their variations and to offer their comparative, stylistic analysis. The said motifs were found to have been well developed in the Sassanid art and undergone certain changes of form in early Islamic art. We find a tradition of filling lanterns with stucco ornamentation to have already matured by the 12th century in Central Asia. The history of studies of those minarets' architectural décor cannot be considered complete without this paper.

Keywords: muqarnas ornamentation, the minaret of Bukhara, Kalyan, the minaret of Vabkent, stalactite cornice, Islamic stucco ornament, Islamic architecture in Central Asia

I. INTRODUCTION

Minarets were erected in all Islamic countries and often came to symbolise their cities. The Manar-i Kalan built in 1127 became such a symbol of Bukhara. Seven decades later (in 1198–9 or 1196–7), the Vabkent minaret was built 35 km north of Bukhara.

These are considered traditional early Islamic minarets, crowned with a circular balcony for calling the Adhan. However, only the Bukhara and Vabkent minarets stayed topped with rotunda lanterns that retained their stalactite cornices [1]¹. The cornices' muqarnas contain a few inserts of carved stucco ornament that are now in poor condition.

The minarets are well known and studied; however, their stucco ornament has never been given a thorough study (*the issue*). I suppose there were two reasons for that. Firstly, the few fragments of ornament, located rather high, have long been inaccessible for photographing without special enlargement [2]². Secondly, the minarets traditionally attracted

researchers' attention by their lush brickwork ornamentation. Consequently, stucco would be overlooked.

So this article is a dedicated study of those minarets' stucco décor. Their well-known décor programme could not be considered fully studied in its absence.

II. LITERATURE REVIEW

The abundant literature on these minarets is mainly dedicated to their architecture, decorative brickwork belts, and epigraphics [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20]³.

A small number of authors do pay attention to the inserts of carved stucco and mention them in just a few sentences or paragraphs.

Thus, in 1956 V.A. Nilsen, Soviet historian of architecture, mentions 'inimitable colourful patterns' in the lower stalactite belt of the Manar-i Kalan [21]. In

¹ Early Islamic minarets are traditionally considered to belong to a separate school.

² The Bukhara minaret is 45.6 m high according to V.A. Nilsen and 45.3 m according to G.A. Pugachenkova and L.I. Rempel; the Vabkent minaret is 41 m high.

³ Most of the publications were written by Soviet archaeologists and art historians, who provide brief information about those minarets in the 1920s and '30s (B.V. Weimarn, B.P. Denicke, I.I. Umnyakov, L.N. Voronin, and M.Ye. Masson). The most detailed publications were authored by V.A. Nilsen, S.G. Khmel'nitsky, and B. O'Kane.

1996, archaeologist S.G. Khmel'nitsky quotes his words with a small comment, 'Unfortunately, this brief description gives no understanding of what specifically is meant' [22].

The stucco ornament at Vabkent was first described in detail by B. O'Kane. The researcher devotes several paragraphs to it, publishes photos of the lantern with the ornamental insets, and finds analogues of the ornament [23]⁴. This information is undoubtedly of the greatest interest and value.

Among the latest mentions of the stucco known to me, I should cite a 2013 publication by A. Arapov. The researcher devotes just one sentence to it, 'In the décor of the Kalyan minaret and the minarets in Vabkent and Jarkurgan fretted stucco is used in combination with the figured brick ornamentation' [24].

III. METHODOLOGY

The above helps formulate the object (the Bukhara and Vabkent minarets) and subject matter of this study (the stucco ornament of their stalactite cornices). Those monuments were chosen because they are the only ones in Central Asia to remain crowned with stalactite belts.

The purposes and objectives of this study are:

- to describe the vegetal motifs,
- to identify monuments of architecture with similar iconography,
- to answer the question of where they rank among the previously described ones that became widespread in Central Asia the said time period, and
- to trace a tradition of decorating pre-Mongolian minarets in Central Asia with stalactite belts.

The study employs historical information and literary data, and methods of comparative and stylistic analysis.

It identifies the best-preserved architectural monuments belonging to the same circle. The period covered is between the 9th and 12th century. The study's geographical scope includes Turkmenistan, Kyrgyzstan, Tajikistan, Uzbekistan, Iran, Iraq, Afghanistan, and Azerbaijan.

The following architectural and archaeological methods were used for *data collection*: graphic, photographic and descriptive recording.

⁴ The researcher finds parallels with the ornament that decorates the stalactite squinches of the 11th-century Baba Hatim Ziyarat (or Salar Khalili). The mausoleum is a tomb at Imam Sahib, a town sixty kilometers west of Mazar-i Sharif, Afghanistan.

There are a total of 35 monuments. And 18 most representative ornaments are shown in the tables. They were all collected and classified by their supposed date⁵ and region (*evaluation and classification of date*).

The ornaments' stylistics and composition were studied (to identify the ornamental motif and find parallels with earlier findings).

The materials have been collated and reconciled with historical information and with studies of other monuments of the same type (*synthesis*).

These methods permit the most complete data coverage and evaluation.

IV. THE STALACTITE CORNICES OF THE BUKHARA AND VABKENT MINARETS AND THEIR STUCCO ORNAMENT

This section will deal with Central Asian minarets' crowning shapes and stalactite cornices. Minarets in Azerbaijan, Afghanistan and Iran will also be reviewed for comparative historic analysis.

Although no minarets dating from the 9th and 10th centuries have survived in Central Asia, we can assume their canonical shape to have been established by that time and remained the same later on. That is, the lantern must have taken on its finished shape by the 11th century.

This is attested to by the 11th-century Ribat-i Malik monument located between Bukhara and Samarkand.⁶ Its south-western tower had a 'lantern of a number of arches, something similar to the top of the well-known Bukhara minaret' [25]. We know this from a brief description and drawing by Austrian researcher A. Lehmann who visited Bukhara and its environs in 1841–1842⁷.

That is, in the pre-Mongolian period (and later, to some extent) the appearance of a Central Asian minaret remains generally the same (with minor variations). Tripartite in design (base, shaft and lantern), it is a round tower in plan. Its shaft tapers upwards and houses winding stairs inside. Outside, the shaft is decorated with rings of brickwork with geometric or epigraphic ornament. Minarets have crowns from which the Adhan is called.

⁵ The datings of architectural monuments and their décor common to research literature are used.

⁶ Summer residence of the Qarakhanid dynasty, later used as a caravanserai.

⁷ B.N. Zasyepkin relies on a drawing published by A. Lehmann [26]. This vision is unequivocally supported by S.G. Khmel'nitsky, B.N. Zasyepkin and N.B. Nemtseva. The last author told me personally that the lantern tower may have been used as a minaret, though there was no practical need for that.

The Bukhara and Vabkent crowns are massive rotundas⁸ with a circular arcade and flat roof.

- Manar-i Kalan

The Manar-i Kalan rotunda is 6.66 m in diameter, 33 cm wider than the minaret's shaft. The overhang is supported by a belt of stalactites (muqarnas) in three tiers, that decorate the transition from the narrow shaft to the wider crown.

The stalactites are sculpted from terra cotta to produce a uniform structure. Two motifs have been preserved. The first one is a multi-tiered vegetal twig (palmette?) with separate leaves. The second one is a trefoil with elaborate symmetrical half-acanthus on its sides ("Fig. 1").

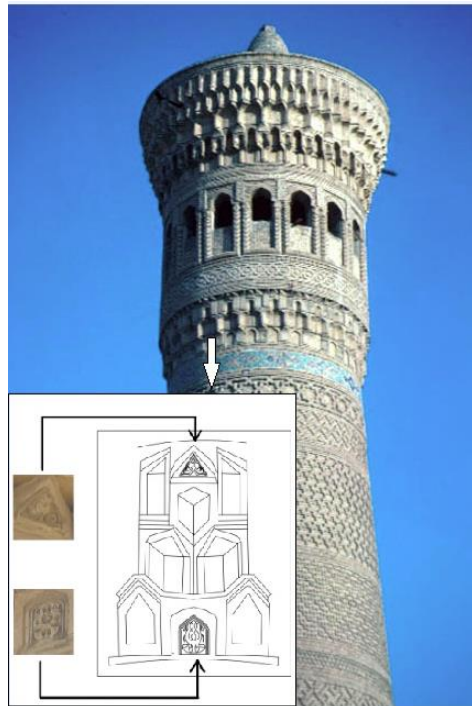


Fig. 1. The Minaret of Bukhara. Sketch by Guzel Zagirova.

The rotunda has a stalactite crown as well – a three-tiered cornice whose cells have no ornament. The cornice is known to have been five-tiered before 1920, but the lantern was severely damaged by a shell as the Red Army captured Bukhara. In 1923, it was restored by the master Abdul-Kadyr Bakiyev. The master builder is known to have left only three tiers of stalactites in the cornice, for fear of failing to cope technically with the big overhang [27, 28]. There are no documents (to the best of my knowledge) about this restoration that could describe the ornamental filling of the upper cornice. The muqarnas may have been intentionally left empty back in the 12th century as that

⁸ On the contrary, the open balcony crown is typical of Iran.

part of the rotunda was weakly protected from the elements. Or the ornaments failed to survive till 1920, also because the upper part was unprotected.

- The Minaret of Vabkent

The Vabkent minaret is considered a smaller copy of its Bukhara predecessor (in terms of its design and décor). The lantern is 33 cm wider than the shaft and has a similar stalactite base and stalactite cornice on top. In the two lower tiers, two kinds of ornament can be seen, arranged in chessboard order. One is fantastic foliage inscribed in a rectangle. The second is the motif of a multi-tiered vegetal twig inscribed in an arch ("Fig. 2").

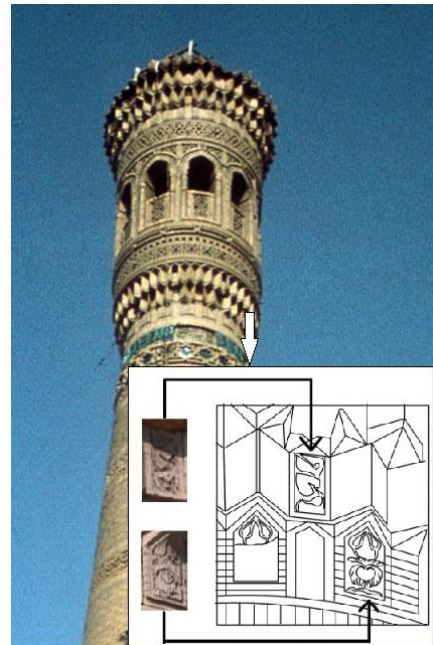


Fig. 2. The Minaret of Vabkent. Sketch by Guzel Zagirova.

The stalactites of the rotunda's top have no ornamental filling, either.

A detailed stylistic analysis of all the ornaments mentioned is provided in the following section.

The above is important for understanding that those minarets had elaborate ornamental motifs in stucco⁹. They had shared a common prototype that was repeated in multiple monuments ("Table. I", "Table. II", "Table. III"). If the motifs are used here in the canonically

⁹ The earliest specimens of Central Asian carved stucco date back to the period of Sogdian art. And between the 9th and 12th centuries this technique (called gunch carving) was flourishing. The whole series of the ornamental motifs of the region's pre-Mongolian art dates from that period.

approved lantern shape, then they may have had predecessors with ornamented stalactite belts¹⁰.

This is quite possible, given that one of the earliest stalactite cornices in Islamic architecture (a direct prototype of later stalactite decorations) is located 60 km away from Bukhara. This is the late 9th – early 10th century Masjid-i Diggaron near the village of Khazara. Single stalactites were also found 190 km east of Bukhara, in the village of Tim (south of the city of Kattakurgan) in the Mazar-i 'Arab 'Ata dating from 977–978. And located in Bukhara itself is the Mausoleum of the Samanids built in 892–942, whose squinches are believed to contain prototypes of the first stalactites.

The search for possible predecessors takes us to 10th to 12th century minarets of Central Asia, Iran and Afghanistan.

The above-mentioned Ribat-i Malik minaret tower had 'basic shape stalactites in the form of protrusions covered with carved gunch' that are now lost [29], [30]. As archaeologist N.B. Nemtseva explained to me, by the time she started working on the monument, the cornice with its possible ornamental filling had already been destroyed.

All the other Central Asian minarets close to the Bukhara and Vabkent ones in design and/or décor have lost their crowns [31]. These include: the Minar-i Qutlugh Timur¹¹, the Northern minaret at Misrian¹², the Burana minaret (Tower of Burana)¹³, Özgön Minar (the Uzgen minaret)¹⁴, and adobe minarets in the upper reaches of the Zeravshan [32]¹⁵.

A review of Iranian and Afghan monuments returns the following findings. Firstly, most of the minarets

have either lost their crowns or undergone serious alterations¹⁶.

Secondly, the lanterns in Bukhara and Vabkent are somewhat differently and more intricately elaborated. Generally, in 11th and 12th century Iran a rotunda lantern was a rare occurrence and rather an exception. Thus, it may result from a later alteration, like in the Masjid-i Jami' Kashan¹⁷ – or from Central Asian influence, like the Manar Mashhad-i Bayazid Bastami¹⁸. The latter's stalactite belt is roughly plastered and left without ornamental filling (the work may have been left unfinished).

Thirdly, the closest analogues of the Bukhara and Vabkent minaret in terms of lantern and cornice design include the above-mentioned minaret of Bastam, followed by the Manar-i Sarban¹⁹, and possibly Arslan-i Jazib Gunbad-i²⁰. However, their cornices have no stucco ornamentation.

Such a detailed review is important as it identifies two important exceptions.

The first exception is located in Azerbaijan. In the minaret of Synyk-Kala (or the Mohammed Mosque)²¹ a stalactite cornice of cut stone has ornamental filling in the form of basic palmette.

The second exception is in Iran. A short cylindrical shaft of Masjid-i Jami'-i Na'in²² terminates in a cornice decorated with carved stucco. The cornice has no stalactites; however, its ornamental motifs are of great interest. They represent a ribbon of trefoils similar to the Manar-i Kalan.

The above suggests two tentative conclusions.

One is that in Bukhara and Vabkent we already find a mature tradition of ornamental filling of muqarnas. In comparison, the Synyk-Kala ornaments created a century before are simpler and rougher in their execution. The stalactite-like pendentives of the Hakim at Termiziy mausoleum has a simple stucco ornament

¹⁰ Judging from the first known muqarnas in Nishapur, Iran and Qasr al-Salam, Algeria, the tradition of their ornamental decoration had existed back in the 10th century.

¹¹ Kunya-Urgench, Turkmenistan. Its datings vary between the 11th and 14th century. The minaret was formerly crowned by a wooden lantern; the beams radiating out of the placing are the only remains of the lantern.

¹² Turkmenistan. The earliest dated minaret in Central Asia, 1004–5.

¹³ Kyrgyzstan, late 10th – early 11th century.

¹⁴ Located 260 km away from the Burana minaret, 2nd half of the 12th century. Its initial crown has been lost; the current one was made from European brick in 1923 to roughly imitate the lantern shape typical of the 12th century.

¹⁵ Located in Zahmatabad, Rarz, and Fatmev (Tajikistan), and dating from the 10th and 11th centuries. The minarets' were 15 to 20 metres high, but their upper parts have not survived. Adobe was too weak a material to carry the weight of an adobe lantern, so the latter might have been made of wood.

¹⁶ E.g. the 1108–9 Dawlatabad Minar in Afghanistan, Manar-i Masjid-i Jami' Savah of 1110, the minarets of Masjid-i Tarik Khana built in 1028, and of Masjid-i Jami' Simnan dating from 1026–1073. The 1174–5 or 1193–4 Minaret of Jam in Afghanistan stands distinctive. As explained by David Thomas, its crown suffered no considerable damage. Only a few fragments of its wooden balcony have survived, protruding from the cornice. The brick-and-stucco cornices carry no traces of ornament.

¹⁷ 1073–4. Major restorations were made in the decade after 1778–93.

¹⁸ 1120–1.

¹⁹ Isfahan, Iran, 1130–55.

²⁰ Sang Bast, Iran, 997–1028.

²¹ Baku, Azerbaijan, 1078–9.

²² Iran, 10th–early 11th century.

as well²³. In the same period, the stalactite cornice of the Ribat-i Malik minaret tower was created in Central Asia.

The other is that the minarets of Bukhara, Vabkent and Ribat-i Malik were perhaps an exception, and muqarnas would possibly be left just smoothly plastered. There may be a number of reasons for that. Firstly, stucco turned out to succumb to the elements, so in the 10th to 12th century it was used in exterior décor rarely and to a limited extent.²⁴ Secondly, stucco was almost entirely displaced from the décor programme as fired brick facing developed.

V. ANALYSIS OF THE ORNAMENTAL MOTIFS

We now proceed to stylistic analysis of the ornamental motifs described in the preceding section.

It is important to bear in mind that the muqarnas' geometric shape dictates a limited set of motifs that repeat on the set of monuments.

- The Motif of a Multi-tiered Vegetal Twig Inscribed in an Arch.

In Vabkent, this motif rather resembles a tripartite *cosmological tree*, well known from the pre-Islamic art of Iran ("Fig. 2"). In the Sassanid tradition, the *cosmological tree* is a composite plant, fantastic foliage, that comprises the *palmette*, *acanthus*, and *lotus* [33]. With the passage of time, those elements get developed on their own and may supplant the idea of the *cosmological tree* [34]. Thus, in Bukhara the *cosmological tree* appears as a *palmette* with separated leaves ("Fig. 1").

As we continue analysing the motif at Vabkent, we should make a couple of important observations.

The pattern's lower paired leaves are deeply split in two and curl into heart-shaped forms. This is a developed form of Sassanid paired wings known from the Ctesiphone stucco. And its drooping upper leaves represent the split-acanthus leaf bracket that was widespread in Sassanid Iran [35]. In the 12th century its leaves broaden and split even more. The Vabkent specimen is the closest to the Masjid-i Haji Piyada (or Nuh Gunbad) ("Table. I").

The above-mentioned vegetal elements never disappeared for long from those regions' art and are frequently used, in new forms, in early Islamic art.

The Bukhara *palmette* is the closest to the stucco specimens from the portal niche of the 11–12th century

²³ Termez, Uzbekistan, 11th – 12th century.

²⁴ In addition to the two minarets under review, the Central Asian exceptions known to me include: the Mazar-i 'Arab 'Ata, the Mausoleum of the Samanids, and the Ribat-i Malik, Masjid-i Maghak-i 'Attari, and Uzgen Mausolea.

Northern Mausoleum (Uzgen). There the *palmettes* are confined in a kind of arcade consisting of three small arches ("Table. I"). This device is generally characteristic of the art of the Ghaznavid period, where a tree placed into an arch and repeated many times is reminiscent of the Sassanid scheme of pattern arrangement in an arcade. [36].

The earliest examples of this technique in early Islamic art of Central Asia can be seen on the 9th–10th carved wooden columns found in mountain villages on the Zeravshan river (Tajikistan)²⁵.

Among these, the column from the village of Kurut attracts special attention. Protruding from the upper part of its shaft are triangular tringles similar to single stalactites. Their side surfaces are flat, and their middle surfaces are concave. The latter are decorated with ornamental carving that depicts vegetal twigs. A similar vegetal ornament was present on the octagonal columns in Jami' al-Nuri al-Kabir (1170-2) before it was destroyed ("Table. I") [37].

A similar motif repeats on the columns from the villages of Obburdon (lower part of the shaft) and Urmitan (capital) and in the carved wooden panel from Asht. Its most schematic and stylised version occurs inside the curved ribbons of the carved board from the Obburdon mazar ("Table. I").

The *palmette* gets more elaborate and detailed in the single stalactites of the above-mentioned 11th-century Baba Hatim ("Table. I") [38].

- The Motif of a Trefoil Inscribed in a Triangle with Symmetric Half-acanthi on Its Sides.

This is a common motif, and the cases of its use in stucco are innumerable. Plenty of it is found in Central Asian stucco and in the cornice of the Masjid-i Jami, Na'in minaret ("Table. II"). The flanking split-acanthus leaf brackets are broadened and split into two, which is characteristic of the 12th century.

- The Motif of Fantastic Foliage Inscribed in a Rectangle.

Unfortunately, it is problematic to see this motif in detail even using camera zoom. Besides, it has actually survived in one heavily damaged fragment.

Fantastic foliage underwent long-term evolution in Sassanid art. Four versions of it were developed by the end of that period. The Vabkent specimen is closer to

²⁵ These were studied and published by Soviet researcher V.I. Voronina. The basic paper is "The wooden Carving of the Zeravshan Valley," / Materials and research on archeology of the USSR, Proceedings of the Sogd-Tajik Archaeological Expedition of the Institute of the History of Material Culture of the USSR Academy of Sciences, Tajik branch of the USSR Academy of Sciences and the State Hermitage, Vol. 1: 1946-1947, Ed. A. Yu. Yakubovsky, 1950, No. 15, pp. 210-220.

the third type that 'seems of vine origin...but has been affected by the palmette' [39]. Its analogue is found in the same region, in the 11–12th century Palace of Termez Rulers.

A review of the carved stucco shown in the table ("Table. III") makes it possible to put the stucco of the Bukhara and Vabkent minaret on a par with that

region's ornaments already described and published. Besides the above-mentioned ones, these include the Masjid-i' Jami Ardistan, al-Qasr al-Abbasi, Mag'oki Attori Masjidi, Mausoleum of the Samanids, Afrasiyab, Masjid-i Jami Na'in, and the stucco panels of Rey and Nishapur. The stucco carvers would choose the motifs that circulated over the monuments known to them (wood/terracotta/stone carving).

TABLE I. THE MOTIF OF MULTI-TIERED VEGETAL TWIG












Ornamental motif's description	The motif of a multi-tiered vegetal twig inscribed in an arch (Cosmological Tree – Palmette)									
Minaret	The Minaret of Bukhara					The Minaret of Vabkent				
Motif's figure										
Motifs' analogues	Mosque of Haji Piyadah (or Nuh Gunbad), 2 nd half of the 9 th century or 794-803	Column from the village of Kurut, 9 th –10 th century, (sketch: V.I. Voronina)	Column from the village of Urmitan, 9 th –10 th century (sketch: V.I. Voronina)	Mausoleum of Baba Hatim (or Salar Khalili), 11 th century (sketch: G. Zagirova)	Northern mausoleum, Uzgen, 11 th –12 th century (sketch: G. Zagirova)	Masjid-i' Jami, Ardistan, 12 th –15 th century	al-Qasr al-Abbasi 1175-1230	Mag'oki Attori Masjidi 12 th century	Jami' al-Nuri al-Kabir 1170-2	
Analogues' figures										
Analogues' materials	Stucco	Wood	Wood	Stucco	Stucco	Stucco	Terracotta	Stucco	Stucco	

TABLE II. THE MOTIF OF A TREFOIL












Ornamental motif's description	The motif of a trefoil inscribed in a triangle with symmetric half-acanthi on its sides							
Minaret	The Minaret of Bukhara							
Motif's figure								
Motifs' analogues	Mausoleum of the Samanid, 892-942 (sketch: Guzel Zagirova)	Domed hall, Afrasiyab, 10 th –11 th century (sketch: Guzel Zagirova)	Mihrab, Afrasiyab, 9 th –10 th century (sketch: Guzel Zagirova)	Dado G, Palace, Afrasiyab, 9 th –10 th century	Masjid-I jami, Na'in 10 th –11 th century	Dado from Rey, 11 th century, Iran-e-Bastan Museum, Tehran, No. 3267 (photo: G. Zagirova)	Mosque of Haji Piyadah	
Analogues' figures								
Analogues' materials	Stucco	Stucco	Stucco	Stucco	Stucco	Stucco	Stucco	

TABLE III. THE MOTIF OF FANTASTIC FOLIAGE

Ornamental motif's description	The motif of fantastic foliage inscribed in a rectangle	
Minaret	The Minaret of Vabkent	
Motif's figure		
Motif's analogues	Palace of Termez Rulers, Eastern wall, 11th–12th century, the State Museum of Oriental Art in Moscow, "Personal archive of P.Ye. Kornilov"	Tepe Sabzpushan, Nishapur, 9th–10th century, Iran-e-Bastan Museum, Tehran, No. 3256-2 (photo: G. Zagirova)
Analogues' figures		
Analogues' materials	Stucco	Stucco

VI. CONCLUSION

Stylistic analysis was made for three types of motifs: multi-tiered vegetal twig (cosmological tree – palmette), trefoil flanked symmetrically by half-acanthus, and fantastic foliage (*description*).

The said motifs were found to have been well developed in the Sassanid art of Iran and undergone certain changes of form in early Islamic art.

The motifs got widespread in the 9th to 12th century stucco of Iran, Iraq, Afghanistan, and Central Asia (and in terracotta and wood carving as well) (*cite analogues*). This was facilitated by the geographic, historical and cultural proximity of those regions where a shared set of artistic ideas circulated.

From the diversity of the motifs developed, the masters would select those traditionally inscribed in a triangle, arch, or rectangle. Given that the stalactite forms limited the choice of motifs, their set for that kind of decorations could generally remain the same (*identification of the motifs' place in the set*).

A tradition of filling minarets' stalactite belts with stucco did exist in Central Asia. We find it to have already matured by the 12th century (*tracing the tradition*).

This is indicated by the following factors:

Firstly, this stucco décor was applied to a canonically approved lantern shape that remained stable since the 11th century.

Secondly, the first muqarnas in Central Asia were traced to the 10th century, and the first instances of their ornamental filling, to the 12th century. However, we

have no 11th century Central Asian minarets that would retain their rotunda lanterns with stalactite cornices (only a description of the 11th century Ribat-i Malik exists).

Thirdly, the earliest 10th-century muqarnas found in Iran and Algeria have (painted) ornamentation. This tradition might also come to Central Asia from the Western part of the Caliphate. I should specially mention that tracing the origins of this tradition in Central Asia is beyond the scope of this paper, given that the birthplace of the muqarnas themselves remains a disputable issue [40].

However, the influence of ideas is well exemplified by the stucco ornamentation of the cornice on the Masjid-i Jami'-i Na'in minaret and stone ornamentation in Synyk-Kala. Both monuments date back to the very beginning of the 11th century. Ornamentation in the Bukhara stalactites would only appear a century later. Consequently, in that period monuments could exist that developed that tradition in the region.

The absence of transitional monuments may also testify to an alternative inference. Those minarets' stucco ornamentation might be an exception, with muqarnas generally left smoothly plastered like on the Manar Mashhad-i Bayazid Bastami. The reasons were described above in detail.

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Minaret of Jam Archeological Project, also advised me on his publications [41] and provided some photos of the Minaret of Jam. Archaeologist Nina B. Nemtseva answered many of my questions on Ribat-i Malik.

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