Richard Piran McClary

Brick Muqarnas on Rûm Saljuq buildings - The introduction of an Iranian decorative technique into the architecture of Anatolia

The aim of this paper is to examine the form, function and decoration of the small and poorly understood corpus of brick *muqarnas* that survive from the early stage of Rûm Saljuq architecture in Anatolia. These date from the period between the last quarter of the sixth/ twelfth century to the first quarter of the seventh/ thirteenth centuries. The original source of the *muqarnas* form has been much debated by scholars, with opinions as to its origin ranging from North Africa to Baghdad and Eastern Iran. It is clear that *muqarnas* cells came to be integrated into the architectural aesthetic of Islamic Anatolia from the mid to late sixth/ twelfth century onwards. By the middle of the seventh/ thirteenth century almost all but the western coast and part of the northern coast of Anatolia was part of the Rûm Saljuq Empire, but there were a number of other smaller Turko-Muslim states in the region during the early period.

Although the majority of the *muqarnas* in Anatolia were built in stone, there is a small corpus of brick *muqarnas*. The lack of a stone building tradition in Iran indicates that the stone *muqarnas* were the work of Anatolian or Syrian craftsmen. This paper aims to demonstrate that the much less common brick examples were most likely the work of craftsmen from Iran. The surviving examples are clustered in the central Anatolian heartland of the Rûm Saljuqs, between Konya to the west and Sivas to the east. Given the prolific, almost ubiquitous nature of the stone *muqarnas* hoods on the portals of tombs, madrasas, caravanserais and mosques, it is puzzling why no brick *muqarnas* portals appear to have been built in Anatolia in the Saljuq period. There does not appear to have been a pre-existing tradition of decorative brick construction in the Byzantine and Armenian buildings of central Anatolia. In western Anatolia the *opus mixtum* technique of brick and stone construction was widespread but it did not tend to feature the decorative brick bonds found in the Islamic architecture of Iran. This indicates that it was non-indigenous craftsmen, probably from Iran, that were responsible for the construction of the few surviving examples of the art of brick decoration in Anatolia. The brief process of efflorescence that starts in the late sixth/ twelfth century is followed by almost complete abeyance after the mid-seventh/ thirteenth century.

The basic building blocks of brick *muqarnas* compositions consist of cells used singly, or in combination with one or two others. They have the appearance of a rectangular panel with a triangle above that has had the tip bent forward 90° giving the cell a triangular plan (fig. 1). When two cells with equilateral triangle plans are employed next to each other a rhombus plan is created (fig. 1.B). When isosceles triangles are used the resulting plan is an irregular polygon (fig. 1.C). In each case the basic unit has a wide base and narrow pointed top. In addition there is the open rhombus, where a single spine rises from one corner of the rhombus plan and spreads outward and upward in the manner of an unsupported fan vault (figs. 1.A & 2).

![Figure 1: Basic cell forms (black) and plans (grey) © R. McClary 2013](attachment:figure1.png)
The corpus can be divided into three functional types of brick *muqarnas*. There are brackets, of which the only surviving examples are the tall projecting *muqarnas* brackets on the exterior of the palace kiosk of Qilij Arslân II in Konya (c.569 AH/ c.1174 CE). *Muqarnas* are also used as a cornice, on the cylindrical shaft below the balcony at the minaret of the Great Mosque in Sivas (609 AH/ 1212-13 CE) and the Eğri Minaret in Aksaray (616-34 AH/ 1219-37 CE). Another example is the cornice at the top of the octagonal shaft of the Bekar Sultan Tomb in Gülüşç, outside Aksaray (c. early seventh/ thirteenth century). The third type of brick *muqarnas* consists of hoods at the top of niches. There are shallow *muqarnas* hoods at the top of the flanking shallow niches on the four facets of the Melik Gazi Tomb in Pinarbaşı, 70km east of Kayseri (c. late sixth/ twelfth century). There is also a pair of *muqarnas* topped niches in the east and west walls of the north iwân of the ‘Izz al-Dîn Kay Kâ‘ûs I Hospital in Sivas, founded in 614 AH/ 1217 CE.\(^5\)

It is a diverse, if small, corpus that consists of deep and shallow cells of both angular and curvilinear forms in single tier and multi-tier compositions. Although the primary material under discussion is brick, there are a number of other materials involved in the construction process. These include lime or gypsum based mortar used to bond the bricks together and affix the glazed elements, while the *muqarnas* brackets at the Qilij Arslân II Palace in Konya are reinforced with large timber beams. With the exception of the Melik Gazi Tomb in Pinarbaşı and the Konya palace brackets, the surviving examples of brick *muqarnas* feature glazed tile intarsia, either flat turquoise tiles of varying shapes or green and turquoise glazed bowls set into the mortar bed.

Qilij Arslân II Palace Kiosk, Konya

The currently freestanding tower in Konya formed part of the palace of the Rûm Saljuq Sultan Qilij Arslân II (r. 551-588 AH/1156-1192 CE). It was built into the northern section of the pre-existing Byzantine citadel wall in the second half of the sixth/ twelfth century.\(^6\) The brackets that supported the first floor balcony of the palace consist of six projecting rows of cells. Two of the surviving examples have a similar overall form but are made up of different combinations of cells (figs. 2 & 3). The north, east and west facets of the tower featured three brackets each, one at each end and one in the middle. A photograph by Gertrude Bell, taken in 1905\(^7\) shows the structure in a far better state of preservation than it is now. The building originally had a further two brackets in a similar manner on the ends of the north face of the second floor to support the overhanging eaves of the roof, but they are now lost. The lower portion of the tower, up to the start of the arching brickwork and around the brackets, was plastered and painted with red geometric patterns matching the decorative brickwork above. Fragments of this survive and can be seen in fig. 2.

The structural support of the *muqarnas* brackets is provided by large cantilevered (projecting) beams that are braced by smaller beams sitting in a V notch on the bottom of the cantilever beam. This acted as an internal support and a matrix for the brick *muqarnas* to be built around. Due to losses to the structure it can be seen that within each bracket there are two cantilever beams side-by-side but slightly apart. These retain their original round form in the north bracket (fig. 2), but are squared off at the top and bottom in the south bracket.\(^8\) A number of the rising joints of the bricks of the *muqarnas* cells, as well as the decorative brickwork above the brackets, have had the mortar excavated to enliven the appearance. This decorative technique is employed across structural types and can be found on the *muqarnas* of the Melik Gazi Tomb in Pinarbaşı and the Bekar Sultan Tomb in Gülüşç.

The Konya palace brackets demonstrate the presence of craftsmen with the technical ability to create brick *muqarnas* with significant horizontal projection and load bearing capacity, as well as providing evidence of their use on a royal building. The sixth/ twelfth-century use of *muqarnas* in the context of royal structures is not a phenomenon reserved for Saljuq, or even Islamic architecture. The ceilings of both the Norman Capella Palatina in Palermo (c. 1140)\(^9\) and the (lost) Mouchroutsas audience hall in the Byzantine Palace in Constantinople (c. 1161)\(^10\) also made use of *muqarnas* in a royal context. All three structures speak to the
prestige associated with the complex and innovative form of muqarnas in sixth-/twelfth-century courtly circles that transcended cultural and religious boundaries.

The form and function of the muqarnas can be related to those of the ones used on the minarets in Sivas and Aksaray that are discussed below. In each case the muqarnas cornice increases the surface area above a shaft in order to provide a larger platform for the upper section of the building. The functional role of the Bekar Sultan Tomb cornice is to increase the size of the roof in order to shed water runoff away from the walls of the tomb and thus reduce erosion of the brick Kufic band of epigraphy below. This structure, like the ‘Izz al-Dīn Kay Ka’ūs I Hospital in Sivas, is constructed from a variety of media, including stone and glazed tiles as well as brick, with the muqarnas being just one part of the decorative schema.

Bekar Sultan Tomb, Gülağac (Aksaray)

The Bekar Sultan Tomb near Gülağac in Aksaray province, stylistically attributed to the first quarter of the seventh/thirteenth century, is an octagonal tomb. The base and most of the shaft are stone, while the upper section of the shaft, the muqarnas band and the roof are constructed of baked brick. Glazed turquoise intarsia are set in guard bands above and below the two bands of muqarnas. The muqarnas consist of two tiers, with the lower tier alternating between blank panels and triangle plan cells. The upper cells are tripartite, with the exception of the eight corner cells, which are bipartite rhombus plan cells (fig. 4). All the rising joints except those that touch the small square bricks forming the outline of the cells have deep voids that appear black against the baked brick, enlivening the appearance of the composition.

Sivas Great Mosque minaret

The brick minaret at the east end of the qibla wall of the stone-built Great Mosque in Sivas was probably added to the pre-existing mosque structure in 609 AH/1212-13 CE. It is unusual in both its location, on the qibla wall, and the fact that, unlike most Anatolian minarets, it does not have a square base topped by an octagonal section supporting a cylindrical shaft. Instead it features an octagonal base supporting the cylindrical shaft in the manner of the Gulpayagan Minaret in Iran, built in c. 493 AH/1100 CE. The use of brick muqarnas projections to support the balcony is first employed on minarets with cylindrical shafts in Iran in the latter half of the fifth/eleventh century, an early example being the Pa Minār Mosque minaret in Zavāreh (461 AH/1068-69 CE).

The upper section of the shaft has one band of muqarnas cells and three increasingly larger bands of V projections, each band consisting of five courses of
brick. The muqarnas cells alternate between wide and narrow, with all twenty-four cells having a triangular plan (fig. 7). The V plan created by the muqarnas is added to by the addition of an extra set of V shaped projecting bricks between each cell. The purpose of these is to narrow the gap that the bricks forming the circular platform above have to span. The faces of the cells are decorated with irregularly alternating glazed strapwork or unglazed geometric patterns (fig. 6). Although many of the geometric compositions decorating the cells are constructed from triangular components, the more complex pattern consisting of kite shaped elements was designed using a triangle-based grid. It consists of six subdivided triangles arranged to form a hexagon, with the bottom half of the bottom two triangles missing from the final composition (fig 5.G).

There are at least eight different unglazed patterns as well as a ninth that features fragmentary traces of glaze. There are also three turquoise glazed strapwork patterns, two of which are employed on the narrow cells, making a total of twelve patterns. The most intact glazed design is illustrated in fig 5.E. None of the unglazed brick patterns appear to be repeated although several cells are missing entirely or are too fragmentary to determine the nature of their patterns. What the losses do allow is a better understanding of the method of construction. In contrast to the rest of the surviving brick muqarnas of the period in Anatolia, the forms of the Sivas minaret muqarnas cells are constructed with mortar. The edges of the cells are delineated with small square bricks and the bottom with thin rectangular bricks. The sides of the upper projecting elements are reinforced with larger bricks to support the V shaped projections above. There is no visible evidence of internal timber reinforcement as seen at the Qilij Arslan II Palace brackets in Konya, but there is a band of holes at the top of the shaft which were probably used as put-log holes for the wooden scaffolding required for the construction of the muqarnas. They remain as voids in order to provide ventilation for the minaret shaft. Between the muqarnas and the scaffolding holes there is a decorative band of green glazed bowl like inserts.

The patterns, both glazed and unglazed, that are employed on the muqarnas and the rest of the minaret are very similar to those seen at the nearby ‘Izz al-Dīn Kay Kā’īs I Hospital, in the two north iwān niches and the tomb (617 AH/ 1220 CE) in the south iwān of the building. Above the west window of the tomb façade two cartouches carry the name of Aḥmad bin Abū Bakr al-Marandi, a craftsman whose nisba indicates he was from Marand in north-west Iran. The distinctive nature of the patterns and epigraphy on the tomb, the north iwān’s muqarnas niches and the Great Mosque minaret points towards the same group of craftsmen being responsible for all three structures. That Iran is the source of the forms and techniques of brick muqarnas construction in Anatolia is the unavoidable conclusion when faced with the number of closely related antecedent brick muqarnas compositions in Iran. The wide rising joints void of mortar that are seen at the Konya palace and the tombs in Pınarbaşı and Gülağaç occur as early as the late fifth/eleventh century on the exterior of the Shaykh Shibli Tomb at Demavend. Furthermore, the use of bands of brick muqarnas to corbel out from cylindrical minaret shafts to the balcony is also a technique developed in the region of Greater Iran. Due to the lack of written accounts concerning the working methods and movement of craftsmen, the few signatures of craftsmen and stylistic comparisons of surviving structures are the only sources available. Combining the two, it appears that the most likely means of the transmission of the techniques of brick muqarnas construction from Iran to Anatolia was through the movement of skilled craftsmen over large areas seeking patrons.
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kunsttexte.de 3/2014 - 5

Eğri Minaret, Aksaray

The Eğri minaret, in the centre of Aksaray, was constructed during the reign of the Rûm Saljuq Sultan ‘Alâ’ al-Dîn Kay Qubadh I (r. 616-634 AH/ 1219-1237 CE) and was attached to the northwest corner of a now-lost mosque. The corbelling of the balcony is achieved through the use of two bands of muqarnas at the top of the shaft (fig. 8). The lower band consists of ten alternating wide, blind shallow recessed pointed arches interspaced with ten pairs of triangle plan cells forming a flat front to support a slightly wider single triangle plan cell in the band above (figs. 8 & 9). The cells and panels feature a wide variety of patterns consisting of vertical and horizontal bricks along with fragmentary remains of recessed turquoise glazed intarsia. The ten recesses between the single cells in the second tier consist of large tripartite cells creating an irregular pentagonal plan. There are extensive losses, but the single cells in the upper row feature both square and rectangular glazed intarsia, one of which has a checkerboard pattern. The curved upper section of the projecting single cells feature inset glazed bowls of a similar kind to the ones in a band around the bottom of the muqarnas of the Sivas minaret. Above the two bands of cells the alternating wide V and narrow V shaped plan of the muqarnas continues up five courses of bricks before the cylindrical balcony section starts.

The muqarnas of the Eğri minaret, in particular the upper band, reveal a number of variations and inconsistencies from the idealised plan as shown in fig. 9. The irregularities in both the width of the cells and the alignment of cells from one course of bricks to the next are most likely due to the need to adapt the design to deviations from true in the curvature of the shaft upon which they are built however the problem of accessibility makes proving this through accurate measurement difficult.

The plans of the balconies of both the Sivas and the Aksaray minarets are stellate (figs. 7 & 9). The star plan is an unusual one and it may be the case that there is a link to the stellate plans of eastern minarets such as the Ghaznavid minaret of Mas‘ûd III at Ghazna in Afghanistan (492-508 AH/ 1099-1115 CE) and the Ghiûrid Quib Minâr at Delhi, the lower section of which was completed by 599 AH/ 1202 CE.21 The presence of Ghiûrid style epigraphy on the Sivas minaret indicates a direct link between the two regions and the movement of craftsmen from Khorasan to Anatolia is the most like cause of any connection between such geographically distant structures.

The alternative method for creating the projection of minaret balconies in use in the seventh/thirteenth century was to lay increasingly large circular courses of bricks laid flat and set at 45° to create a V profile on the face. This technique can be seen on the minarets of the Great Mosque (609 AH/ 1213 CE) and the Gûdük Minare Mosque (624 AH/ 1227 CE) in Akşehir. It was the method that was chosen over muqarnas for the balcony projection of several later seventh/thir-
teenth century minarets, such as those of the Gök Madrasa and the Çifte Minare Madrasa in Sivas (both 670 AH/ 1271-72 CE). This decorative technique is one that can be seen in earlier Byzantine brick buildings and is first seen in minarets in the western border regions of the Rûm Saljuq empire. It is likely, but by no means certain, that the minarets with this style of balcony were built in the Iranian manner by teams of craftsmen that were largely, if not wholly, trained in the indigenous western Anatolian tradition of brick construction which had no history of muqarnas use.

Melik Gazi Tomb, Pınarbaşı (Kayseri)
The Melik Gazi Tomb, although lacking secure epigraphic dating has been attributed on stylistic grounds to the end of the sixth/twelfth century.22 Elements of the tomb, including its square form, tripartite decoration and crude, shallow muqarnas can be compared to the Pir-i Takistan Tomb, built in Iran in the late sixth/ twelfth century.24 The muqarnas are entirely decorative, with the aesthetic effect of articulating the four sides of the structure, in conjunction with the use of decorative brick bonds and voids in the rising mortar joints. There are two muqarnas compositions on each of the four sides of the building at the top of the tall, shallow recess panels. The muqarnas are perhaps the closest thing to external muqarnas hoods in brick to be found in Anatolia, with each hood consisting of four courses of cells (fig. 10).25 The bottom course has five cells, the next four, then three, with the top being a single cell without the same degree of depth as all the others, and each row of cells consists of three courses of bricks. The cells consist of a flat back panel made of a full brick on top and bottom with two small square bricks with a void rising joint in the middle. This deep gap gives a further sense of depth to the cells. The sides are formed from bricks projecting at 45° to the back panel, a short one at the bottom, with twice the projection for the second course of bricks. The roof of the cell is formed from the use of two triangle shaped bricks that meet at their compound mitred tips. The unrepaired spandrels around the muqarnas also feature deep wide voids in the rising joints of the brickwork. When compared with other brick muqarnas of the period these ones have a rather crude angular appearance but viewed from afar the visual effect is not dissimilar to the more accomplished examples.

Izz al-Dīn Kay Kāʾūs I Hospital, Sivas - north iwān niches
The hospital, founded in 614 AH/ 1217 CE, is a large modified four iwān structure in the centre of Sivas with the tomb of the founder built into the south iwān. The muqarnas cells form the hood of the niches in the east and west walls of the north iwān of the hospital. They are similar to those used on the nearby minaret, as well as the tripartite cells of the later Eğri minaret in

Figure 8: Eğri Minaret, Aksaray © R. McClary 2013

Figure 9: Eğri Minaret muqarnas plan (tier 1 white, tier 2 grey) © R. McClary 2013
Aksaray discussed above. There are three rows of cells, with the first row consisting of a triangle plan cell on the front of both sides, a rhombus in each corner with each cell separated by a blind pointed arch panel (fig. 12). All the cells are decorated with glazed and unglazed polygonal tiles in the form of triangles, lozenges, pentagons and hexagons. The form of the overall composition is strikingly similar to the shallower but somewhat larger niches on the exterior of the Mu‘mine Khatūn Tomb in Nakhchivan, Azerbaijan (582 AH/1186 CE).

The central blind panel of the bottom row consists of a mix of pentagons and lozenges in unglazed tiles. The remaining triangular spaces are filled with incised mortar triangles with six cuneiform like dots (fig. 11.C), a similar motif can also be seen on the external decoration of the Mu‘mine Khatūn Tomb. The triangles with six dots are employed in the rising joint incisions nearby in the brick work of the walls of the north īvan, with two of the same triangles set tip to tip that helps to unify the broader decorative scheme of the building (fig. 11.E). The second row consists of three tripartite cells, while the third row is made up of two tripartite cells and two blind pointed arch panels. The area where the two cells meet in the middle is decorated with glazed turquoise triangles and curves forward in the manner of the fan vault like rhombus plan cells at Konya. The profiles of the cells are delineated on the face of the niche to create a form not dissimilar to a tripartite shouldered arch. This is surrounded by a pointed blind arch, the spandrels of which are decorated with hexagon based patterns consisting of both glazed and unglazed elements.

The bricks do not have rising mortar joint voids like most of the earlier examples, but the mortar joints are still accented in a different and entirely Iranian manner through the use of incised patterns. The irregular shaped mortar joints between the intarsia in the spandrels are unique in Anatolian architecture and feature foliated and angular patterns (figs. 11.A & B). Both the form and the location, but not the scale, of the foliate incisions can be seen in the incised stucco decoration of the zone of transition of the dome of the Masjid-i Jāmi’ in Qurva, Iran, dated to the sixth/twelfth century. The area between the edge of the muqarnas recess and the blind pointed arch around it has a few surviving examples of two types of rising joint decoration running in alternating diagonal bands, one of which (fig. 11.F) is a cruder version of one employed in both the Qurva mosque and the Masjid-i Jami’ in Sujās, also thought to date from the sixth/twelfth century. The quality of the patterns carved into the plaster in the spandrels in the Sivas niches are of a far higher quality than that of the rest of the mortar incisions in and around the niche. It is likely that they represent the hand of a more skilled craftsman than that of the one who executed most of the rising joints. The only other surviving mortar incisions in Anatolia are on the octagonal central pillar in the crypt of the Mengücek Gazi Tomb at Kemah, dated to the late sixth/twelfth century. These mortar incisions are, like brick muqarnas, another decorative feature that originated in the architecture of Iran, was introduced into Anatolia, but not subsequently adopted by the craftsmen working there.

Figure 10: Melik Gazi Tomb, Pinarbaşı © R. McClary 2013

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Figure 11: ‘Izz al-Dīn Kay Ka‘us I Hospital, Sivas – east niche mortar decoration © R. McClary 2013
Conclusion

The direct transfer of construction techniques from Iran to Anatolia through the migration of craftsmen was caused by the dual needs of both the craftsmen and the patrons. The death of Sultan Tughrul III in 590 AH/ 1194 CE led to political instability and war with a concomitant decline in architectural patronage in Iran, resulting in many craftsmen needing to move to find work. In much the same way as scholars such as Ḥuṣayn b. ‘Alī Rāwandī sought the patronage of the Rūm Saljuqs following the collapse of the Great Saljuq state, so did numerous administrators and craftsmen. Whether consciously on the part of the individuals or not, the effect of the process of movement of skilled labour was the introduction of a number of the characteristic aspects of Great Saljuq culture to Anatolia. During this period the Anatolian branch of the Saljuqs sought to establish themselves as the rightful heirs to the imperial prestige and the Rūm Saljuq court in Konya acquired an increasingly Persianate culture. Both sultan Ghiyāth al-Dīn Kay Khusraw I and his son ‘Īzz al-Dīn Kay Kāʾūs I adopted an imperialist policy of expansionism in the early decades of the seventh/ thirteenth century. It is during the rule of these two sultans in particular that a number of the brick buildings in the Iranian manner, such as the tomb and minaret in Sivas, were constructed. The style of architecture developed in the latter part of the sixth/ twelfth century in north-western Iran, and Nakchchivān in particular, can be seen to have exerted a strong effect on the style of brick muqarnas subsequently constructed in the late sixth/ seventh to early seventh/ thirteenth century in Anatolia. As the corpus of muqarnas examined here has demonstrated, the process of cultural transfer included specific elements of architectural decoration that had been developed in the Greater Iranian region.

It is important to remember that the brick muqarnas are just one part of the decorative programme employed on the structures built across Anatolia, alongside the extensive use of stone, glazed tile and timber. The combination of Armenian, Georgian and Syri-an stone construction methods, Iranian glazed tile and decorative brick techniques with Byzantine style exposed timber beams, often in the same structure, demonstrate the dynamic process of architectural synthesis that was taking place in Anatolia in the early seventh/ thirteenth century. Epigraphic evidence shows that craftsmen with different cultural back-grounds and architectural traditions, both Muslim and Christian, worked alongside each other in order to create a new architectural aesthetic.

The use of brick muqarnas, with or without glazed in-tarsia, does not appear to have continued past the military defeat and subsequent political side-lining of the Saljuq sultans by the Mongols after the battle of Kösedag, near Erzincan, in 641 AH/ 1243 CE. In the final reckoning brick muqarnas can be seen as an element of Iranian architecture that was transplanted, flowered briefly, but never truly took root in Anatolia.

Endnotes


3. Clifford Edmund Bosworth, The New Islamic Dynasties, A chronological and genealogical manual, Edinburgh 1996 lists all the dynasties and their rulers. The western region was under the control of the Laskarids while a portion of the Black Sea coast around the Kaspian was under the control of the Commeni, both of which were Greek Christian dynasties. Cilicia, in the southwest, had an Armenian Kingdom with its capital at Sis.

4. Claude Cahen, The Formation of Turkey: the Seljuk Sultanate of Rum, Eleventh to Fourteenth century; New York 2001, p. 163 states that a large number of Iranians from all walks of life moved to Rum in the period prior to the Mongol conquest.

5. Sedat Çetinta, Sivas Darüşşafaka 614-1217, Istanbul 1953, pp. 13-14. The structure is dated by the band of epigraphy over the main portal.


8. The use of an internal wood support structure can also be seen at the undated (but probably early seventh/ thirteenth century) Melit Sunullah Mosque minaret near Malatya which has fragmentary remains of a single row of muqarnas with a band of square glazed intarsia below.

9. Walker 2011, Middle Byzantine Aesthetics of Power, p. 84.

10. Ibidem. pp. 80-84 for a analysis of a contemporary written description of the lost structure. Walker suggests that the Byzantine building was modelled on the Konya kiosk and constructed around the time of the visit of Sultan Qilij Arslan II to the Byzantine court in 556 AH/ 1116 CE. The Palma muqarnas are in any, as most likely, were the ones in Byzantium.


15. The wide cells have an isosceles plan and the narrow one has an equilateral plan.

16. There are square holes in the same location on the E

17. There are square holes in the same location on the E

18. Meinecke 1976, p. 42 gives the date as the 1190s CE.

19. Hillenbrand 1972, Saljuq Monuments in Iran, p. 51 that states that incised rising joints are first seen in the south dome of the Sivas Jami’ in Isfahan, dated to 473 AH/ 1080-81 CE.

20. The process of cleaning during the recent restoration has unfortunately led to extensive losses to much of the detailed foliate elements.


22. The need for working faster on the drying mortar of the rising joints of the large expanses of brick wall rather than the small individual sections between the tiles of the spandrel decoration may be another reason for the more precise nature of the incised patterns in the spandrels.

23. See Önköl 1996, Anadolu Selçuklu Türtübleri, pl. 56. The Kemah incisions are in rising joints and not foliated or knotted in the manner of the ones in the spandrels at Sivas. Pencarolu 2013, The House of Mengücek, p. 42 gives the date as the 1190s CE.


25. Songül Mecit, Kingship and Ideology under the Rum Seljuqs, in: The Seljuqs, Politics, Society and Culture, ed. Christian Lange and Songül Mecit, Edinburgh 2011, pp. 43-75, p. 69-70 argues that this change was due in part to the influence of the increasing number of Persian administrators and craftsmen entering the empire. Scott Redford, 13th-century Rum Selraj Palaces and Palace Imagery, in Pre Modern Islamic Palaces, special issue of Ars Orientalis, vol. 23, 1993, pp. 219-239, pp. 154-5 cites the use of the names of Persian Kings and the use of Persian epic poetry.
on the walls of Konya as evidence of the Persianate character of the Rūm Saljuq dynasty.

37. The Rūm Saljuqs captured the Mediterranean port of Antalya in 603 AH/1207 CE and the Black Sea port of Sinop in 611 AH/1214 CE from the Byzantines. They (unsuccessfully) invaded the Ayyubid ruled Aleppo in 615 AH/1218 CE. For an overview of the period see Cahen 2001, The formation of Turkey, pp. 47-65.

38. There are no textual sources to illuminate the nature of the construction industry in Anatolia during the seventh/thirteenth century but a number of craftsmen’s signatures show the presence of Greek and Georgian workers. Doğan Kuban, The Miracle of Divriği, An Essay on the Art of Islamic Ornament in Seljuk Times, Istanbul 2001, p. 82 states that the craftsman responsible for the minbar of the mosque and hospital complex in Divriği was from Tbilisi in Georgia. Scott Redford, Sinop in the Summer of 1215: The Beginning of Anatolian Seljuk Architecture, in: Ancient Civilizations from Scythia to Siberia, vol. 16, nos. 1-2, 2010, pp. 125-149, p. 131 gives the names of Sebastios, a Greek architect, along with that of a Syrian Muslim and two from Anatolia, all carved into different sections of the Sinop walls that were rebuilt in 612 AH/1215 CE following the conquest of the city the previous year. Thus what little evidence there is indicates that craftsmen of different traditions and religions were working side by side on building projects in Anatolia during the seventh/thirteenth century.

39. The reasons for this remain unclear, as several brick structures with increased use of glazed decoration, such as the minarets of the Gök Madrasa in Sivas of 670 AH/1271-2 CE, were built after 641 AH/1243 CE without muqarnas. Instead, the corbelling is a result of increasingly large circular courses of bricks set at 45° to create a V shaped surface.

Abstract

Although the majority of architectural muqarnas compositions constructed during the Rūm Saljuq period in Anatolia are in stone, there is a small and poorly understood corpus of brick muqarnas to be found in central and eastern Anatolia. This paper focuses on the earliest examples, dating from the last quarter of the sixth/twelfth century to the end of the first quarter of the seventh/thirteenth century. The aim is to document the surviving examples as well as trace their connection to each other and their Iranian antecedents. The corpus of brick muqarnas is spread across an array of structural types, including minarets, tombs, a palace and a hospital. The use of brick muqarnas can be seen on both brick and predominantly stone structures; in many cases the muqarnas cells are accented with glazed tile. By examining the style and decoration of the muqarnas compositions in relation to the broader decorative context of the structures of which they form part, a clearer picture of the probable origins of the craftsmen who made them emerges. The brick muqarnas are a form of architectural decoration that was not generally adopted in later Rūm Saljuq, Beylik or Ottoman architecture yet can be found on a number of prestigious, imperial structures from the early period of Islamic architecture in Anatolia.

Author

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