REFLECTIONS OF THE "NAKED BRICK STYLE" IN SELJUK ANATOLIA

Anadolu Selçuklularında Tuğla Kullanımının Yansımaları

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Öz

Yapı malzemesi olarak tuğlanın seçimi orta Anadolu'da ama daha yoğun olarak Mezopotamya ve çevresinde Neolitik dönemden başlamakla birlikte, tuğla yüzeylerin hem yapısal hem de mimari bezeme için kullanımı onuncu yüzyıla kadar araştırılmamıştır. Bu dönemde ise, ilk olarak hangi yöre mimarisinde uygulandığı kesin olmamakla birlikte Türkistan, Horasan, Gazne ve Orta İran bölgelerinde tuğlanın her iki amaçla kullanılması ile "çıplak tuğla" geleneği gelişmiştir. Onbirinci yüzylın ikinci yarısından başlayarak Anadolu'ya göçen Türkler, daha önce yaşadıkları kültür çevrelerinde benimsedikleri bu tuğla geleneğini Anadolu Selçuklu dönemi mimarisine taşımışlardır. Bu dönemde tuğla, taşın yanında ikinci bir yapı malzemesi olarak ve seçici bir yaklaşımla kullanılmasına karşın yeni denemeler ve yaratıcı uygulamalarla zenginleştirilerek ondördüncü yüzyıl başlarına kadar sürdürülmüştür.

Anahtar kelimeler: Çıplak tuğla, Tuğla örgüler, Tuğla kaplamalar, Selçuk, Mimari

Abstract

Brick was preferred as a building material in central Anatolia but more so in Mesopotamia and its environs from the Neolithic period onwards, but its use both for building and for architectural ornament was not explored until the tenth century. Although not for certain, it is assumed that during the tenth the structural and deorative possibilities of the material were discovered somewhere in

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Turkestan, Khurasan, Ghazna or Central Iran and the "naked brick" or "exposed brick" style matured. The Turks who migrated to Anatolia during the second half of the eleventh century transmitted this style of building to Anatolian Seljuk architecture and employed it besides stone in a selective approach, but with a new enthusiasm leading to endless trials and new creations until the early fourteenth century.

Keywords: Naked brick, Brick bonds, Brick revetments, Seljuk, Architecture

Introduction[1]

The so called "naked brick", or "exposed brick" style, accentuates the use of brick, on carrying walls, superstructures or architectural elements, both for construction and for ornament. In this form of building the brick surfaces are not concealed behind a protective or decorative facing, like plaster or glazed components that cover their surface. On the opposite, the structural properties and decorative potentials of this traditional building material are highlighted.

The naked brick style is considered, as one of the outstanding innovations of the tenth century in the Turkestan, Khorasan and central Iran area. Questions like; where and when exactly did it start?, what was the reason for leaving the decorative revetments in stucco, marble, tiles and wall paintings, that embellished the plain brick surfaces and instead create different bonds by organising the brick units in a variety of allignments? on which buildings was this new trend first practiced? and how was it transmitted to other cultural centers? are questions that have been investigated by scholars, but still not thoroughly answered [2].

The first known and still standing examples for the naked brick style, come from the tenth century and from the Turkestan area with monuments in Bukhara and Samarkant, which are followed by a large group of Karakhanid and Ghaznavid examples and almost

[1] This paper was presented to the 10th International Herzfeld Symposium, at the Universität Hamburg, Asien Afrika Institute, 3-4th July, 2014. The seminar papers were not published.

[2] The context and origins of the naked brick style was discussed by several scholars in early publications. Only a few of these are given below. Pope-Ackerman (eds), 1938. Vol.3, 909-19, 950-63, 1267-68, 1284; Pope, 1965, 139; Creswell, 1958, p.185-186; Sarre-Herzfeld, XI, 1921, p.74-107.

concurrently by those from central Iran, erected between the tenth and the twelfth centuries. In these centers brick was the one and only building material for the construction of large or smaller sized buildings, with an impressive or simple context where it covered both the exterior and interior surfaces as a facing arranged in a variety of bond types, with fired brick units outlining geometric compositions. This type of brickwork where bricks have a woven appearance and the design stands out in relief was called *hazarbaf* in Persian, a compound of *hazar* "thousand" and *baf* "weavings"[3].

The naked brick style was transmitted to Anatolia, by the group of Seljuk Turk's who arrived there towards the end of the eleventh century and it was practiced in Anatolia until the first half of the fourteenth century. Whereas in the late twelfth century, this style of building fell out of fashion in the lands of is origin and the brick surfaces were again concealed behind other materials with a more appealing colour and texture.

The major concern of this paper is the practices with the naked brick style in Anatolia. What happened in Anatolia after the arrival of the Turks, who must have carried the naked brick style in their memories. Before going into the practices in Anatolia, the paper briefly outlines the beginnings and the full development of the style before its arrival in Anatolia which is followed by a discussion on how this style of brick building gained a new motivation, found a new energy or vivacity in Anatolia, while it was falling out of fashion elsewhere. Anatolia is also credited for the spread of the *banna'i tehnique* with brickwork, where fired brick units were used together with glazed tile units to create geometric patterns and spell out sacred names[4].

Early Brickwork

Starting from prehistoric times, first mud brick then fired brick, when the process of firing was discovered, have been widely

[3] Creswell,1958, p.185-186; Sarre-Herzfeld, XI, 1921, p.74-107; Herzfeld, 1948.

[4] Banna'i also called builder's technique is an architectural decoration style used in brickwork in which glazed tiles are alternated with plain bricks to create geometric patterns over the surface of a wall or to spell out sacred names or pious phrases. It is said to have originated in Syria and Iraq in the 8th century, and matured in the Seljuq and Timurid era 13th and 14th centuries, as it spread to Iran, Anatolia and Central Asia. See Blair and Bloom, 1999, 229.

used as a construction material, especially in areas where good aluvial clay was available[5]. Some reasons for its preference were the easy accessibility and handling of the material, its relatively low cost and most important than all, bricks being agreeable materials which could be shaped according to the needs and preferences of their users and according to the purpose for which they were going to be used. These qualifications have made brick named as the "first man made building material"[6]. Although brick was later selected as a building material, with a special preference for its visual merits, archaeological finds have shown that until the tenth century these assets were not specifically exposed.

In Anatolia, in the Neolithic settlements like Çatalhöyük, Hacılar, Aşıklı Höyük, mud brick wall surfaces were concealed under multiple layers of thin plaster, usualy in white and then they were decorated with geometric and figural patterns delineated in red paint[7]. In these examples the use of plaster could be a precaution against wear and tear, as it was repeated with a fresh coat ever so often, Excavations in Çatalhöyük have revealed that the bearing walls of the houses and shrines were constructed with mud brick units and reinforced with timber tie beams at regular intervals. These walls were then plastered, white washed and decorative patterns were drawn on them in red paint. Çatalhöyük is assessed as the only town in Anatolia and the Near East, where walls paintings were found in-situ. No other Neolithic sites have been found so far with wall paintings of a similar scale in terms of size and variety of representations.The repertoıre of geometric and figural representations at Çatalhöyük point to a specific preference for

[5] Especially in Mesopotamia, where building stone was not abundant but the clay was easily available and brick was preferred, Frankforth, 1951, 103; Lloyd, 1955-56, 456.

[6] Kuban, 1973, 35. Stone and timber are obtained from nature, their properties depend on the geological conditions of the land and they are merely cut and shaped according to the purpose for which they are to be employed. Whereas, brick is the first material that man has produced according to his own needs and preferences. Starting with the preperation of the raw materials and, forming and firing he has manufactured the brick necessary for his purposes. Throughout history it was possible to change its properties accoding to current needs, accoding to geological conditions, according to current manufacturing technologies. However the basic production steps, that must have evolved in time, have not changed much except the changes reated to new technological developments.

[7] Hodder, 2011,109-117, fig.68,9, colored fig.15,16,18. For the wall paintings see: Çamurcuoğlu, 2015, p.24-25,82,Fig.2-4.

decorating the plain surfaces and perhaps designating some symbolic significance[8]. In later centuries and in some later settlements, they were not content with the plaster and paint method, as it required re-plastering and re-painting at regular intervals, thus new surface coverings began to be employed. The type of these new revetments varied in time and place from clay cones, such as the so called cone-mosaics in Mesopotama[9], to marble slabs and mosaic revetments in Roman[10] and Byzantine architectures[11].

The Tenth Century

It is only during the tenth century that an interest in exposed brick surfaces began to increase and this marked the beginnings of, what is usually referred to as, the "naked brick", or the "exposed brick" style.[12] Its origin and preliminary experiments before the tenth century is obscure, due to the lack of standing examples, but one could still look back in search of an impact coming from the brick architecture of earlier periods. In this context from the western Byzantine setting the St Apollinare Classe and the St Apollinare Nuova in Ravenna -- both constructed in the early years of the sixth century -- are solid brick buildings with their exterior wall surfaces constructed with simple brick bonds and left exposed. However, in both buildings the interior surfaces of the walls are revetted with mosaics in the conventional Byzantine style.

Again looking back, this time to the east, one sees a similar approach. There are earlier examples then the tenth century, for the use of different bond types, possibly with an aim to provide strength and to practice something constructive rather than decorative, a variety of bond types were tried in Sassanid as well as in early Islamic architectures[13]. On the Bagdad Gate of Raqqa (772-790)[14], the

[8] Mellaart, 1967, Mellaart, 1970, Hodder, 2014 For the wall paintings see: Çamurcuoğlu, 2015, p.24-25,82,Fig.2-4.

[9] Frankfort, 1970 2, 9, 30 ; Briggs, 1956-1958, vol.2, 398-402; Mac Donald, vol. 2, 1986, 5, 30, 145, 150-157.,

[10] Briggs, vol.II, 1957, 398-402; Mac Donald, vol. 2, 1986, 5, 30, 145, 150-157.

[11] Ousterhout, 1999, 131-132; Bardill 2008, 335-352.

[12] Pope / Ackerman (eds), 1938. Vol.3, 909-19, 950-63, 1267-68, 1284. Pope, 1965, 139.

[13] Creswell, 1958, 185-186, Pl.39a.197; "on the earliest example of a pistaq, the shallow, semi-domed hoods of the recessed niches, on either side, are constructed with bricks, in whole, two-thirds, and one-third lengths, some being set horizontally and some

arched hood of the niche on the left archway is decorated with a geometric design, entirely in brick, which, as mentioned above, was called *hazarbaf.* These were followed by some ninth century constructions like the Tārik-khāna in Dāmghān, Iran[15] or the Great Mosque and the Abu Dulef Mosque as well as the Ukhaidir Palace in Samarra, Iraq[16]. The columns on the courtyard of the Tārik-Khāna (750-786) are quite astonishing and unique. They are not monolith marble or stone as one would expect, but they are built of brick units placed upright and horizontal in alternate rows and then covered with a thick layer of plaster[17]. In Samarra, the exterior wall surfaces in the Great Mosque (800) and the Abu Dulef Mosque, are covered with a regular common bond on a solid brick core. On the swirling *malwia* minaret, constructed in brick, there are the remains of a thin layer of plaster, now only partly visible. Again in Samarra at the Ukhaidir Palace (720-800), interior surfaces are faced with molded and carved stucco[18].

The above mentioned examples, seem to provide a naive introduction to the naked brick style that emerged in the tenth century. It is usually accepted that it originated in North Eastern Iran, Bukhara and Samarkand area, during the tenth century and the Tomb of Ismāʿīl Sāmānī in Bukhara, from the Samanid dynasty, dating from 295/907, is recognized as the earliest extant building where brick is utilized both for construction and for architectural ornament, while its surface is left exposed. According to Rempel: "In addition to plain bricks, rendered decorative by varied lays, a certain amount of carved terracotta was used in the panels inset in the portal spandrels and on the columns of the exterior arcade of the gallery, but the only decoration in the strict sense of the word is on the squinches."[19]

Thus the small mausoleum, on which several bond types are applied on different architectural components, can be considered as a

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vertically, so as to form geometric patterns, This style is called hazarbaf and it is found everywhere in later Persian and Iraqi architectures".

[14] Creswell, 1958, p.185-186, Pl.32, 33, 39a

[15] Pope-Ackerman (eds), 1938. Vol.3, 909-19, 950-63

[16] Bell, 1914; Northedge, 1990, 74-93.

[17] Pope-Ackerman (eds.),1938,vol.3: 916-919, 950-963, 1267-1268, 1284.Pope, 1965,139.

[18] Bell, 1914; Northedge, 1990, 74-93

[19] Rempel, 1936, 199-205; Hill -Grabar, 1964, 1-5.

"trial piece" where the builders were exploring the possibilities of creating a variety of bond types with the standard and specially shaped brick units. There are several contemporaneous or slightly later buildings from nearby regions, that have reminiscences to the Tomb of Ismāʿīl Sāmānī. One is the Tomb of Arab Ata at Tim, close to Samarkand in present Uzbekistan, constructed in 366-367/997-78, and considered as the earliest standing example of Qarakhānid architecture.[20] It is followed by three commemorative buildings at Uzgend, standing side by side and all dated to the eleventh and twelfth centuries, on which once again naked brick is the preferred material[21] The Qarakhānid caravanserai of Ribāṭ-i Malik, a solid brick construction with a monumental portal covered with decorative brickwork, built between 471/1078-79 on the Bukhara-Samarkand road, can be added to the list as the most imposing example of the period[22]. There survived also several minarets in Uzgend and Burana, whose shafts are covered with brick bonds and brick revetments in alternating bands of various width, encircling the shaft. The use of the two techniques, that is the bonds where bricks with regular shapes and sizes and the revetments with different shapes cut in brick, are used side by side makes it apparent that, from the beginning the bonds and the revetments developed together and that one is not the outcome of the other[23].

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[20] Grabar,1966, 19; Aslanapa, 1972,.24-25, pls. 38-40; Cezar, 1977, 34-36.

[21] Aslanapa, 1972, 28-31, 47-51; Cezar, 1977, 34-40. Both describe the tombs as : The one at the center, the Tomb of Naṣr bin 'Alī from 403/1012 is the oldest; the second tomb, to the north of the first one, was constructed by Jalāl al-Dīn Husayn in 547/1152, and the third one to the south of the first is the Tomb of Muḥammad bin Naṣr, grandson of Jalāl al-Dīn Husayn, dated by an inscription to 582/1186. Brick covers the surfaces of the moulded bands, in different bond types, as seen on the framework of the portal, or it is arranged in patterns carved in the beveled style and as a third variation it is prepared or perhaps cast as a revetment with geometric interlace patterns.

[22] Hillenbrand, 1999, 30,343-344, 549; Aslanapa, 1972, 28-31, pls. 47-51. The caravanserai is built with mud brick and covered with fired bricks laid in common bond. There is also a monumental portal, where there is a framework with a raised geometric interlace pattern, arranged with cut and fired bricks.The interlace composition is composed of projecting eight cornered stars repeating around the framework.

[23] Bakırer, 2002, 729-36; Bakırer, 1981,5-8:The use of brick bonds and revetments on the same monuments, but on specific, locations is seen on other contemporary or later buildings like the Hazara Mosque near Bukhara from the early 11th century, Talhatan Baba mosque near Merv, from the late 11th and early 12th century and the Mughaki Attari Mosque from the beginning of the 12th century. For plans and images see: Aslanapa, 1972, 19-23, 30-37.

With the coming of the tenth century, when brickwork gained a new and strong impetus in the Turkestan, Khurasan and central Iran area, decorative brickwork developed in two lines varying both in technique and in the final product. These two can be grouped as the brick bonds and brick revetments. From chronological grounds it can be attested that the two developed together and were used side by side, on the same buildings. However, the process of production and the bricks used differ in these two types of brickwork. Even so, both share a common aspect, which is their dependence on geometry.

The brick bonds are structural. In these bonds, the bricks are laid unit by unit and during the building process they are arranged in rows rising on the wall surface and/or encircling the minaret shafts,. Different bonds are delineated through modular geometry with the arrangement of standard shaped and almost standart sized brick units, arranged in regular courses and staggered according to the requirements of the bond type. Different bonds like common, chevron, herringbone are created by changing the directions of the units in every or in alternative courses. Different effects are created in each bond by enlarging the rising joints and/or inserting end-plugs of different materials inside these enlarged joints[24].

The brick revetments, are assembled from precast units and inserted on the specified surfaces, either on the wall or on architectural elements. The geometric interlace patterns used on the revetments are pre-designed according to geometric principles[25]. Bricks, cut in shapes and sizes determined by this design, are assembled in production units, in square, triangular or other shapes related both to the shape of the surface and to the pattern. These production units are then inserted on their places. The revetments may not be long-lasting as the bonds.

The eleventh and twelfth centuries mark the climax of the naked brick style in the works of the Great Seljuk's in central Iran. Certain sections on many large and small Mosques, Medrese and Caravanserai, tomb towers and minarets are all erected in this style. Among the large repertoire of solid brick constructions the Masjid-i Jumʿa in Iṣfahān is noteworthy. On the walls and the dome of the north *aiwan* and the walls and carrying elements on the north east

[24] Bakırer, 1980, 143-181.
[25] Bakırer, 1980, 174-198; Bakırer, 1983, 91- 120

corner of the mosque, that is on sections built during the Great Seljuk period and dated to around 1080's, a variety of bond types were used[26]. In addition there are several eleventh century tomb towers again worth mentioning for their brickwork. Well known ones are the East Tomb Tower, the Kharraqān I (460/1067-1068) and the West Tomb Tower, the Kharraqān II (487/1093) from western Iran. The third one with similar features is the Damāvand Tomb, also from the late eleventh century.[27] To these can be added later examples in Marāgha, like the Qunbad-i Surkh (542/1147-1148) and Gunbad-i Kabūd (590/1196-1197). In Nakhichevan (in Azerbaijan), there are two other towers, the tomb of Yūsuf bin Quṣayr, dated by inscription to 557/1162 and that of Mu'mina Khātūn, again dated with inscription to 782/1186. All these monumental towers, are good examples to the naked brick style and exhibit a noteworthy development from the tenth until the late twelfth century, with their intricate brick bonds and revetments [28].

The exposed brick style, which did not originate in central Iran but was developed there as a fundamental building style of the Great Seljuk's, started to decline during the second half of the twelfth centuy. The types of the brick bonds began to be monotonous, the stucco end-plugs that were inserted inside the rising joints, simply to outline certain geometric shapes, now began to extend over the edges of the brick units and finally stucco was to run over the surfaces of the units as a layer. Thus, the exposed brick surfaces began to be covered once again and this time it was with revetments made of stucco, colorful mosaic faience and glazed tiles that reached to a peak after the fourteenth century. On the later added sections of the Masjid-i Jum'a of Iṣfahān, the facades of the iwans built in the fourteenth century, are covered with glazed tiles that stand in contrast against the naked brick surfaces of the eleventh century.

Naked Brick in Anatolia

In Anatolia, the geological condition of the land has yielded good quality limestone, sandstone and tufa, which was therefore

[26] Aiwan, ivan and in Turkish eyvan, is the a rectangular space, usually vaulted, walled on three sides, with one end entirely open to the courtyard with a high arch.

[27] Stronack-Young Jr.1966), 1-20; Hill-Grabar, 1964,.33-35, 49, 55 ; 88; S.P. Seherr-Thoss, S.P-Seherr ,H. C.,1968, 52-68, pls.18-26 ; Bakirer, 1983, 91-120.

[28] Hill -Grabar,1964, 33-35, 49, 55, 88;.Seherr-Thoss,S.P-Thoss, H.C., 1968, 52-68, pls.18-26 ; Yazar, 2007, 83-105,160; fig.227-242, 244-277.

preferred as the primary building material for monumental constructions during the Hittite, Hellenistic and Roman periods. In addition, good quality alluvial clays were also available in the central part of the country, in Konya and its environs. Starting from the Neolithic period, clay was used not only for the production of pottery, but also as a building material. In the settlements, like Çatalhöyük and Hacılar, it was used as mud brick and was the primary material in the construction of houses and shrines. In the dwellings, the bearing walls were constructed in a regular common bond with mud brick units shaped into large rectangular units and reinforced, with timber beams, at regular intervals[29].

In Anatolia, the use of brick was minimum in the Hellenistic and Roman periods[30]. However, in Byzantine architecture priority was given to brick in areas where good quality stone was not available and had to be transported from elsewhere. In the Marmara region, with Constantinople as the capital and in settlements on the western coast, a new construction technique, the "alternative wall" or "banded wall" construction was practiced, in which stone and brick bonds were arranged in alternating courses whose number and repetition mode changed from one example to the other[31]. This type of wall construction can be notices on the land walls and sea walls in Constantinople, as well as some monumental buildings of the city from the fifth and the sixth centuries. On the city walls, both faces were left naked, whereas on the monumental edifices, the exterior wall surfaces were left naked, while their interiors were covered with wall paintings, frecoes or mosaic reverments. The Church of the Holy Saviour in Chora and the Church of Saints Sergius and Bacchus, both from the sixth century, carry this style[32].

[29] It is believed that the use of clay in Anatolia started prior to 7500 BC in an adaptation stage for which the architectural finds at Çatalhöyük, Aşıklı Höyük, Hacılar and Çayönü Tepesi are good examples. See: Schmandt-Bessarat, 1977, 133-150*; Marc Waelkans, 1987, 94-105.

[30] In large Greek settlements brick was confined to domestic buildings, like the "terrace houses" in Ephesus, where brick walls were plastered and decorated with wall paintings. In Ephesus, water pipes were also in baked brick. Another use of clay is for roof tiles, gables and the antefix for the temples. Lydian examples of interlocked roof tiles, painted gables and elaborately carved examples for the antefix were recovered in Sardis.

[31] Ousterhout, 1999,128 ff.; Bardill, 2004; Bardill 2008, 335-352.

[32] Ousterhout, 1999,128 ff.; Bardill, 2004; Bardill 2008, 335-352 ; Krautheimer, 1965; Mainstone,1988..

The naked brick style, was carried to Anatolia by the Seljuk Turks who arrived there in the late eleventh century. Earlier, the Turks had made their first entry into the Islamic world during the Abbasid rule, in the ninth century and were assigned as soldiers, to live in the new capital Samarra. In the tenth century, the family of the Oghuz Turks, from Central Asia living in the area east of the Caspian sea, were converted to Islam and moved to Transoxiana, where they were together with the Karakhanids, Ghaznavids and Samanids. The eleventh century witnessed other political developments when new groups of Seljuk's entered Iran and established the Great Seljuk dynasty in 1055. In the meantime, after 1040, another branch of the Seljuk's expanded westward in small groups and began organizing raids into Anatolia intending to search for more favorable land and living conditions. Following these first excursions, and their victory against Byzantium, in the Battle of Manzikert (Malazgirt) in 1071, they continued to arrive in larger numbers, this time to settle permanently and make it their new homeland [33].

If the political and administrative condition of Anatolia, towards the end of the 11th century, could be defined with a single word, this word would be "diversity." This political diversity that started after the 1071 triumph at the battle Mangizet encouraged the Turks arrive and settle in small groups who established the small principalities: Danishmendid (1095-1175), Mengüceid (1071-1252), Saltukid (1080-1201), and Artukid (1098-1407). These principalities were eventually transformed into a kind of political entity when the Anatolian Seljuks (1071-1308) conquered the lands of the first three and established a single rule with Konya their capital. The Artukid principality continued its political autonomy for another three centuries until the Ottoman conquest in the early sixteenth century. Thus, for Anatolia, the first two centuries after the arrival of the Seljuk's (the Seljuk's of Rum) was a period motivated by wars, political activity and a change of power progressing towards the establishment of the Anatolian unity.

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[33] This section on the historic background of the period is summarized from my earlier published paper. See Bakırer, 2002, Vol. 2, 729-36. The historic background of the period is covered in dept in many studies among which the following could be consulted: Cahen,1968; 2001. For more recent studies by younger generation scholars see: *The Turks*, 2002, vol.2.

The establishment of balance and conformity in the political milieu and the rule of powerful Sultan's, like İzzeddin Keykavus and Alaaddin, starting from the early years of the thirteenth century, brought prosperity, rapid urbanization and an interest in building campaigns all over the country. Probably, the purpose was to re-create the Islamic setting with which they were familiar in their earlier home, as well as to improve the ruinous state Anatolia had fallen into, after long years of war.

Until the end of the thirteenth century, Anatolia was embellished with monumental buildings. Such as; existing city walls, fortifications and citadels were consolidated, new ones were added upon need such as; religious buildings as mosques and masjids; commemorative buildings like tomb towers, educational buildings as the madrasa, Koran schools and others were built in numbers. Furthermore, new highways were opened to recuperate the caravan trade between eastern and western markets and on them han's and caravanserai were constructed at regular intervals to provide safe accommodation to travelers and merchants. Palaces and kiosks for royalty were constructed in several old or new established towns [34].

These buildings carry traditional functions and formal arrangements, but at times there are changes in their plans, related to new needs. Another primary change, the adoption of stone as the main building material, is related to impacts coming from local architecture as well as from local builders and craftsmen, who participated in the rapidly progressing building projects. On the other hand, building with brick, which reflects the transmission of the naked brick tradition to Anatolia, is also seen and can be associated with the builders and craftsmen who were among the migrating groups and who must have carried this building tradition, from their homeland, in their memories. These advances indicate that, in architectural expressions there was an integration which can be examines as "continuity", "change", "synthesis and assimilation".

"Continuity" is noticed, first in the functions and plan types of some monumental buldings that are arranged according to the requirements of the Islamic religion and lifestyle and second, it is noticed in the use of brick. These issues mark the "continuity" of the

[34] Bakırer, 2002, 729-36; Redford, 2011, 256-276.

long established culture and tradition of the Turks before their arrival in Anatolia.

Anatolia was rich in building stone and there were quarries close to the construction sites, therefore for the Anatolian Seljuk's brick was not a need as with the Great Seljuks but it was a preference. This preference was perhaps intentional to transmit the traditional building materials and methods to Anatolia, or it was practical because of its easy adaptability to complex forms on the transition elements and super structures, or it was particular because of the aesthetic qualities and possibilities it offered.

Among buildings that have survived to our times, the best witnesses that display continuity of the naked brick style in Anatolia, are also the earliest examples like the Iplikçi Mosque in Konya and two mausolea in smaller settlements. According to its foundation document, the Iplikçi Mosque was built in the year 1202[35]. It has undergone several restorations and today only the qıbla wall still carries the original brickwork. Possibly this and other early mosques, that have not survived, were reminiscent examples or followers of the Masjid-i Djuma's in Ardistan, Isfahan and Barsian.

The Mausoleum at Pınarbaşı, in the Pınarbaşı (Pazarören) village of Kayseri is undated, yet a late twelfth century date is given to it based on its attribution to Melik Ghazi, a known commander of the time[36]. This small, square planned mausoleum, topped with a conical cap, is completely built in brick on stone foundations. The repertoire of the brickbonds is in close association with the eleventh century Tomb Towers in Kharraqan and Demavend in İran[37]. Yet here there is a marked decrease in the number of the bond types as the building has a square plan, therefore less number of wall surfaces to cover with brickwork. (Fig. 1).

The second mausoleum, in the Kemah Village of Erzincan, in north eastern Anatolia, is attributed to another historic character,

[35] The Mosque was donated by vizier Şemseddin Altunapa together with a Medrese. For information on the history and architectural characteristics of the mosque see: Eyice, 1960,102; Konyalı, 1964,404-415. For the brickwork see: Bakırer, 1981, vol. 1, 264-265.
[36] Bakırer, 1981, vol. 1, 247-255; Özgüç - M.Akok, 1954, 331-336.
[37] For the tomb towers in Kharaqan and Demavend see: Stronack Young Jr., 1966, 1-20; Hill-Grabar, 1964, 33-35, 49, 55, 88; S.P. Seherr-Thoss, S.P-Thoss, H.C., 1968,52-68, pls.18-26.

Menghucek Ghazi and also dated to the late twelfth century (Fig.2)[38]. For the carrying walls several bond typehave been used, while on the small entrance portal a geometric interlace composition is delineated inside the recessed, arched lunette which carries resemblances to the Yusuf bin Kuseyr Tomb from 1167 and the Mu'mine Khatun tomb from 1186, both in Nahtchivan[39].

"Change" is noticed in certain variations in the plan types of some traditional building types, like the longitudinally planned mosques, as well as the decrease in the number of eyvans, from four to three or even one in Madrasa and Caravanserai buildings with building materials, change is strongly emphasized in the use of stone and this is more of a tranformation that takes place in time and it can be briefly called as "brick into stone".

In Anatolia the preference of stone, as the principal building material, is perhaps a necessity depending on the geological and geographical conditions of the land, but it also has impacts coming from the surviving examples of Hellenistic and Roman buildings in stone. The long established Anatolian tradition of building in stone was adopted by the Seljuk's and this brought "change" in the building materials employed in their architecture throughout the 13th century.

The earliest examples where change is noticed in its complete format are Menguceid period tomb towers at Divriği, province of Sivas. The tomb of Sitte Melik (1196), that of the Emir Kemareddin (1196) and the undated Ahi yusuf Tomb, contemporaries of the tombs in Pınarbaşı and Kemah, and the one in Konya, the tomb of Mesut I, adjacent to the Alaaddin Mosque (1155) are built in cut stone from their foundations up, including their conical caps. (Fig.3, 4).

Change is noticed in the mosques, mascid and madrasa buildings, hospitals, caravanserai and tomb towers constructed throughout the 13th century. Those which have reached our times intact, have their foundations, carrying walls, transition zones and upper structures built in stone and they display two variation as: foundations in rough cut or cut stone, carrying walls, transition and upper structure in rubble stone, as seen in the Çukur Medrese in

[38] Bakırer, 1981, vol. 1,235-242;Kemali, 1932, 330; Özgüç, 1962, 325-327.
[39] Yazar, 2007, 83-105,160; fig.227-242, 244-277; Bakırer, 1983, 90-120.

Tokat, from the late telfth century[40] or foundations in rough cut or cut stone, carrying walls, transition and upper structure in cut stone, as seen in most of the buildings erected during the 13th century.

Other Menguceid period examples at Divriği are the small citadel Mosque (1180) and the Great Mosque and Hospital (1228-29) which present the change in a monumental scale [41].

Although executed in stone here, the initial idea of marking the entrances with monumental portals or pistaq can be associated with Karakhanid and Great Seljuk building traditions. Yet the outstanding stone workmanship on the portals of the thirteenth century Great Mosque in Anatolia, is a local manifestation, the outcome of a colloboration between the local builders and craftsman and those who arrived with the migrating groups[42]. Furthermore, the use of stone emphasizes a geographical distribution, such as: in Kayseri, Niğde, Sivas, Amasya, Erzurum and environs, stone seems to be a primary preference for all building types, because good quality tufa stones were easily available from quarries, at a distance of 5-10 km to the construction sites[43]. The tomb towers distributed in all Seljuk settlements, the Huand Hatun Complex (1237-1238), outside the citadel of Kayseri, the Alaaddin Mosque inside the inner citadel of Niğde (1223) are representatives for this type. Longitudionally planned buildings, surmounted with stone domes and vaults, vertically rising portals with carved ornament and stone minarets are their characteristics (Fig. 5a, 5b).

Solid stone structures also mark a selection depending on the function of the building, such as the Cravanserai for which solidity and permanence are primary concerns, were built at close distances on the renovated highways. With their architectural and structural features and with richly carved stone ornament on their portals, these are the noteworthy stone structures of the period.

[40] Kuran, 1969.16-18.

[41] The Great Mosque and Hospital are in the World Heritage List of UNESCO since 1985; Bakırer, 2016, 86-109, 2008, 53-72.

[42] Some building inscriptions give the names of local architects and artists as well as those from Iran and elsewhere working together on the same constructions. For examples in Divriği see Sakaoğlu, 2005.

[43] Bakırer, 2013, 4-5.

"Synthesis and assimilation" can be defined as the use of stone with the addition of brick, for certain sections. This practice starts in the late twelfth century, but its use in monumental and official buildings, is more established after the turn of the thirteenth century and towards the second half. Especially in mosque and madrasa buildings, brick and stone are used side by side on the sections reserved for each and often repeating a pattern as stone for the lower structure and brick for the transition and the upper structure. The use of stone and brick together marks the final stage both in time and in style.

The anonymous tomb in Selimeköy, and the so called Bekâr Sultan tomb at Neneziköy, both in the vicinity of Aksaray and both stylistically dated to the end of the twelfth and the beginning of the thirteenth century, are the forerunners of this group[44]. While in Pınarbaşı and Kemah. impacts from the earlier practices of the naked brick style were strongly visible, these in Aksaray bring new innovations. Their upper structures are in brick but on the load bearing walls brick and stone are used together, presenting the transition from brick to stone or accentuating the togetherness of the two materials.

Other applications for the use of stone and brick together are more pronounced. Such as; a brick minaret, standing on its own base, is attached to the side of the stone building[45]. Early thirteenth century examples are the Great mosques in Harput (1155), Kayseri (restored in 1205) and Sivas (early 13th.century). In Harput and Kayseri brick shafts rise on stone bases, but in Sivas both the base and the shaft are in brick (Fig.6a,6b). The brick minaret standing at a short distance from the mosque in the Great Mosque of Akşehir, (1215) has also a tall rectangular brick base which carries on its front face, reused marble fragments belonging to Roman tomb stones and Byzantine church furniture which are placed side by side on the common bond brickwork. The inscription panel is carved on the rear face of a marble block, again originally belonging to a Byzantine building[46]. At Erzurum, the small citadel mosque is built of stone and

[44] Bakırer, 1981, vol. 1, pp.245-246, 255-258 ; Bayburtluoğlu 1970,14-15.

[45] For the construction of minarets, special minaret bricks that have a concave curve to adjust to the cylindrical shaft. The preference appears to be based on the easy adaptability of the brick units to the cylindrical shaft.

[46] Bakırer, 2009, 91-116.

its minaret, that has a stone built base is attached to the citadel wall. The large cylindrical shaft is covered with a common bond brick layout and the inscription encircling the upper end of the shaft is composed of cut brick units, giving the date 1080, recording it as the earliest dated brick minaret in Anatolia.

During the second half of the thirteenth century, the new fashion with the brick minaret, appears as double minarets in brick rising over the stone facade and portal . The earliest example of this type is the Sahip Ata Mosque in Konya (1258), donated by the grand vizier Sahip Ata Fahrettin Ali who is mentioned as the originator of this portal composition with double minarets, a scheme which was later practiced on a few other buildings[47]. The brick bases and shafts are placed at the corners of the stone framework of the portal. Unfortunately the shaft of one minaret has fallen off. The Gök Medrese and the Çifte Minareli Medrese, both in Sivas and both from 1271, have double minarets in brick, rising over their monumental portals in stone. In the Gök Medrese, the tall stone bases flank the sides of the portal, becoming almost part of it and the rippled brick shafts rise above the frame of the portal. This arrangement accentuates verticality and creates a contrast in material between the stone portal and the brick minaret, where the brickbond is also enriched with the addition of small tile units inside the joints (Fig.7). In the Çifte Minareli, the cylindrical shafts stand on tall rectangular bases and transition zones in brick, rising above the monumental stone portal. Çifte Minareli Medrese in Erzurum, with double brick minarets, that also have rippled brick shafts, is the last example of this group dating from after 1250's or during the last quarter of the thirteenth century . These last three buildings are among the latest monumetal medrese buildings built immediately before the second Mongol attack (1271), that had a negative effect on the evolution of Seljuk architecture and brickwork.

Other medrese buildings constructed after the second quarter of the thirteenth 13th century, especially those between 1240 and 1270, in Konya, Akşehir, Tokat, Sivas and Amasya, present a variety of applications for the use of stone and brick on their interiors and upper structures. The following variations can be described: In one

[47] Brend,1975-76, 160-186. Sahip Ata seems to have adopted this idea from Iran after a a visit there.

group, the foundations are in rough cut or cut stone, load-bearing walls in stone, transition zone and upper structure in brick. Thus, in this group a distinction is made in material, between the lower and the upper structures. Earliest example is the Keykâvus Hospital in Sivas, donated by the Seljuk Sultan İzzeddin Keykâvus I, in 1220. This is a rectangıular building, with a large open courtyard at its center, that is surrounded by a colonaded portico, the tomb of the donor is placed in the north eyvan, that is located in the center of the north wing with its facade facing the courtyard. The building is built in stone and only the vaulted upper structure of the portico, the north eyvan and its front elevation and also the octagonal drum rising above the upper structure are in brick. Each side of the octagon is articulated with a recessed arch whose surface is covered with a geometric interlace pattern delineated as a brick revetment. The geometric compositions as well as the application of these revetments are different on each face of the octagon[48]. A similar arrangement, with recessed arched blind niches, adorned with geometric compositions, delineated in brick, is repeated at the so called Gök Medrese in Amasya, which is from the second half of the thirteenth century[49]. Here the lower structure is in stone, but the upper structure of both the mosque and the türbe is in brick. The drum of the tomb tower, attached on the north east corner of the facade and raised on a stone base, is reminiscent to that of the Keykâvus Hospital. (Fig. 8a,8b).

In the second variety of smilarity and assimilation is as follows: the foundations are in rough cut or cut stone, the bearing walls are in stone on the exterior but the interior of the same walls are faced partly or completely with brick. On the upper structure the transition zone, dome and vaults are in brick. In those buildings where this variety is applied, tiles and glazed bricks are generously used, alternating with plain bricks and they present the full bloom of the banna'i style, whose development reached to a peak especially after 1250's. The Great Mosque in Malatya (1224, 1247, 1274) is a stone structure with a brick dome, from the exterior, but on the interior certain sections are built in brick, like the three-partite squinches and the dome of the eyvan placed at the center of the south wing and the west wing of the colonnaded portico surrounding the

[48] Bakırer, 1981, vol. 1, 76-301.
[49] Bakırer, 1981 vol. 1, 427-435.

inner courtyard[50]. Both the plan of the Mosque and the brickwork remind the examples in Iran, especially the early parts of the Masjid-i Djuma in Isfahan (1080) (Figs.9a, 9b). However, in Malatya, the brickwork is far more enriched with the addition of tiles in the brick bonds and the brick revetments. The second example, is the İnce Minareli Medrese in Konya, (1264). Here too, the exterior wall surfaces and the portal are in stone, but on the interior, starting from ca.1m. above ground level, and continuing all the way up to the dome, brick and tiles are used to delineate different brickbonds. The wall surfaces and pendentives on the transtition zone, are covered with brick and the two sides of the pendentives are outlined with tiles. When they reach the dome, the hemispherical surface is covered with a bond that articulates lozenge patterns in brick, delineated with turquoise and purple tiles[51]. The Karatay Medrese again in Konya (1251), presents a close application with more tiles both on the walls and the surface of the dome (Figs.10a, 10b, 11a,11b)[52].

"Synthesis and Assimilation" in the use of stone and brick has generated partially stone and partially brick structures which can be seen as an Anatolian Seljuk innovation that enriched the naked brick style during the thirteenth century. The builders and craftsmen and of course their donors, the Sultan's and the Grand viziers, must have played a stimulating role in the erection of these buildings, in the selection of materials for construction and for ornament and therefore have contributed to the evolution of a new style of building.

Conclusion

The naked brick style which began to be practiced in Turkestan, Khorasan, Ghazna and Central Iran after the tenth century was transmitted to Anatolia, a century later, by the Seljuk Turks'. In the century that followed, while they embellished Anatolia with a variety of buildings needed for their lifestyle, the Seljuk builders adopted stone the local and traditional building material of Anatolia. But brick building must have survived in their memories, therefore while there is a change from "brick into stone" there is also a "continuity" of brick use in a "selective" approach. From the late eleventh until the early fourteenth century, they brought new trends

[50] Bakırer, 1981, vol. 1, 316-335.
[51] Bakırer, 1981, vol. 1, 422-426.
[52] Bakırer, 1981, vol. 1, 405-407.

and diversity to the monotonous state that brickwork had fallen towards the end of the twelfth century in Iran.

The above classification shows a chronological evolution. That is, in Anatolia, continuity of the early tradition in the use of both structural and decorative brickwork, carrying close resemblances to earlier examples, is documented in a few small sized buildings which are erected after the second half of the 12th century. The more appreciated practice was to use the two materials in the same buildings with particular attention to their structural and aesthetic peculiarities and this created distinct works of architecture .

Stone, as the new material for Seljuk builders, best suited the human scale monumentality and dignity of their buildings and helped in the survival of their cultural heritage to our times. Brick, their strong attachment to earlier tradition, added colour and movement to these buildings. With these buildings, especially madrasa buildings, each case is a unique case with outstanding quality in craftsmanship. The second Mongol attack in 1271 and the events that folowed brought an end to the construction of monumental buildings and dilapidated the evolution of the naked brick style.

If a question arises for what happened after 1300? , it will be seen that only one or two of the Principalities, the followers of the Seljuk's in the 14th century, appreciated this style of building, but in an inferior workmanship. Some principalities in western and northwestern Anatolia, headed by the Ottoman's (established in 1299), used brick and stone alternately in the Byzantine style only for a short period and later mastered the use of stone with all its distinctive characteristics in their genuine monumental buildings, reaching to a peak in the sixteenth and seventeenth centuries.

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Fig.1: Kayseri, Pınarbaşı, Melik Gazi Tomb, exterior

Fig.2: Erzincan, Kemah Mengücek Gazi Tomb, exterior

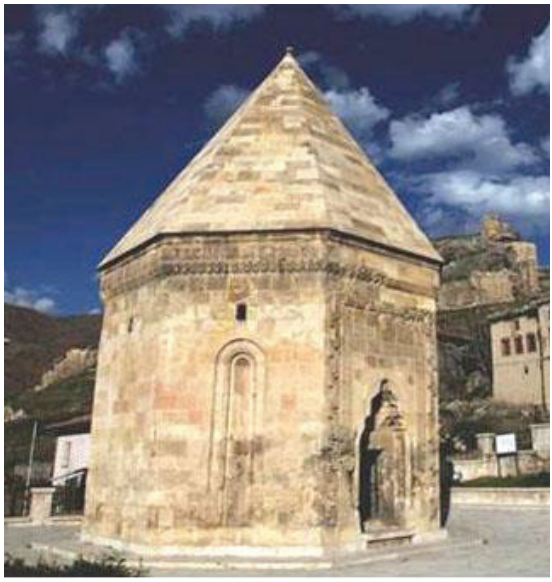

Fig.3: Sivas, Divriği Sitte Melik Tomb, exterior

Fig.4: Konya, Alaaddin Mosque, Tomb of Mesud I, exterior

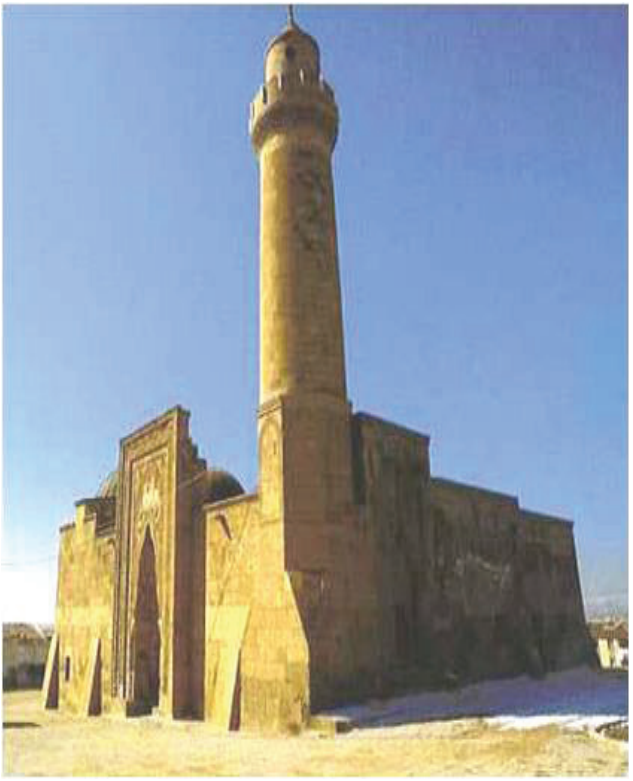

Fig.5a: Niğde Alaadin Mosque, front façade

Fig.5b: Niğde Alaaddin Mosque, interior


Fig.6ab: Sivas Great Mosque, minaret, general view and Sivas Great Mosque, detail from shaft

Fig.7: Sivas Gök Medrese front facade

Fig.8a: Amasya Gök Medrese, section. Legend for materials: gray-stone, red-brick blue-tiles

Fig.8b: Amasya Gök Medrese, exterior of Tomb

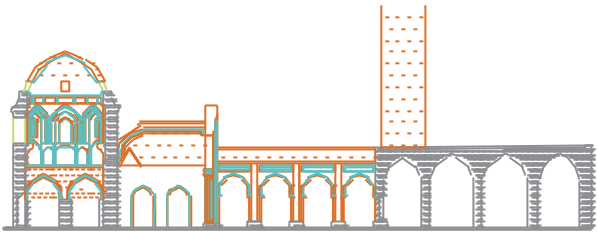

Fig.9a: Malatya,Great Mosque, section. Legend for materials: gray-stone, red-brick , blue-tiles

Fig.9b: Malatya, Great Mosque, exterior, south Wall

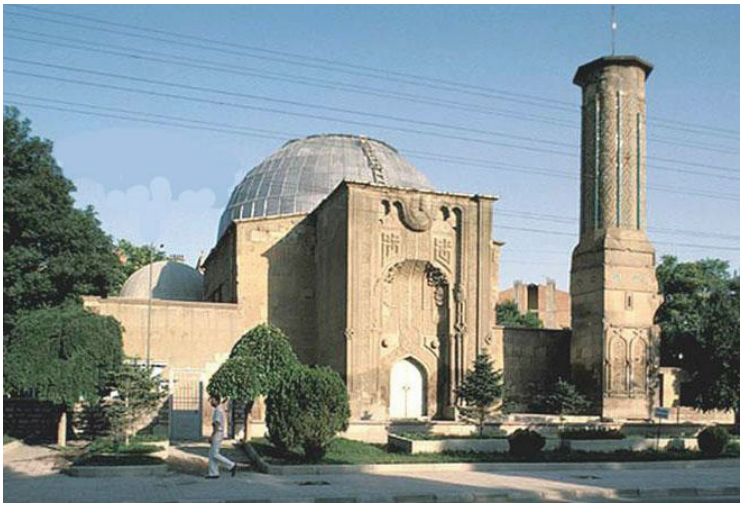

Fig. 10a: Konya, İnce Minare Medrese, exterior general view

Fig. 10b: Konya, İnc Minare Medrese, interior, general view

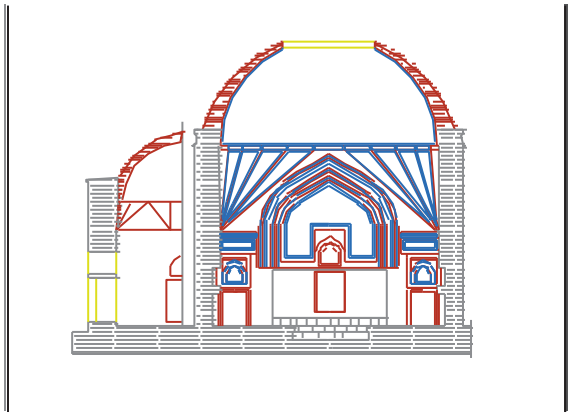

Fig.11a Konya Karatay Medrese, section. Legend for materials: gray-stone, red-brick, blue-tiles

Fig. 11b Konya Karatay Medrese, exterior entrance façade and portal.