مجلة جامعة الشارقة للعلوم الإنسانية والاجتماعية

Northern Jordan Traditional Architecture during the 19th and 20th Century: An Ethno-archaeological Perspective

Mahmoud Na'amneh
Ziedoun Al-Muhiesen
Muwafaq Bataineh
Hussien Deebajeh
Faculty of Archaeology and Anthropology - Yarmouk University
Irbid- Jordan

Received on : 06-03-2011 **Accepted on : 03-10-2012**

Abstract

Studying and documenting traditional architecture in Jordan contribute greatly to defining a collective identity as traditional buildings represent an integral part of Jordan's cultural and historical identity. Through employing an ethnoarchaeological and architectural framework of analysis, this study seeks to identify and analyze the intertwined socio-economic, climatic, and environmental factors that had a critical influence on the development of traditional buildings and the accompanied shifts in the architectural style, role, and functionality during the 19th and 20th centuries in Northern Jordan. The rich diversity in building types in this region varies according to the area and people's lifestyles. Moreover, this variety is highly influenced by climate and availability of materials, in addition to building expertise and skills. Indeed, the noticeable changes in traditional architecture tell the cumulative history of the local communities who produced these types. The existence of more advanced architectural types in Northern Jordan demonstrates the influence of types from neighboring areas in Palestine and southern Syria.

Key Words: documentation, traditional buildings, ethnoarchaeology, socio-historical identity, Jordan.

Introduction

The call to safeguard and rehabilitate traditional buildings in Jordan is growing day after day as part of the comprehensive interest in various aspects of cultural heritage. Such rising interest has come as an immediate reaction to the imminent danger of loosing such valuable and irreplaceable component of Jord'an socio-cultural identity. Waves of modernization and urbanization have contributed greatly to endangering cultural heritage in general and traditional architecture in particular.

As a cultural element, architecture has developed over time as a projection of the dominated sociopolitical systems (Yunis, 2001: 96) and/or urbanization (Abed, 2001). Traditional architecture is pictured as an impression of the various cultural elements on a temporal scale; thus tracking its development adds to understanding the communities, who lived their lives fighting the intertwined variables that raved the area in a period where little if any anthropological lexicon has been accumulated. By focusing on the cultural aspects of architecture, it is conceived of as "a culture-making process in which ideas, values, norms and beliefs are spatially and symbolically expressed in the environment to create new cultural forms and meanings" (Low, 1988: 187). This implies that the building structure, as an important aspect of material culture, reflects cultural ideas expressed spatially in a physical form (Kent, 1994: 34). Among the main interrelated elements which need to be taken into consideration when studying a place are physical features, socio-economic behaviors and functions, and cultural meanings and symbols (Relph, 1976; Canter, 1977).

This study seeks to understand the social past and people's adaptations in northern Jordan from the mid 19th to the mid 20th centuries through studying the development of traditional architecture. As traditional architecture survived the long years and continued to be used until today, the study hypothesizes that the variety in traditional buildings in the north of Jordan, spatially and temporally, came as a response to successful human adaptations and cultural exchange. As will be shown throughout this paper, the structure and the location of the buildings, used materials, building construction and techniques have resulted from development over centuries.

Study Area

This study focuses on traditional buildings in Northern Jordan. One could easily argue that this area is not well studied yet. Although the study area is relatively small, it has a varied topography and microclimates. The heights in the Eastern part are about 900 m above sea level while it is about 300 m below sea level in the West (Jordan Valley). The plains are almost 400 m above sea level constituting more than 1/3rd of the total area. The Eastern heights receive ca. 500 mm rainfall annually and extremely cold in winter, the Jordan Valley receives less than 100mm being warm in winter and about 300 mm in the plains of a cold winter. Jordan Valley is extremely hot in summer, the Eastern heights and are mild. Furthermore, the study area represents a rich socio-economic diversity due to the varied topography and climate. The local communities in each area have social and economic features which give each of them a sense of uniqueness and distinctiveness, and this issue has a direct bearing on building styles.

Methods

The study surveyed the region of Irbid governorate in the north of Jordan for the presence of traditional buildings that were originally established for housing purposes. The towns and cities that were surveyed are Irbid, Eidoun, Husun, Um Qais, Samad, Mazar and north Shuna. The total number of surveyed traditional buildings is 180; most of them are abandoned and deteriorated. A number of these buildings were reused for purposes other than housing. The surveyed buildings were spatially referenced to UTM coordinates and stored in a spatial database for future analyses and query. The buildings were classified into groups regarding the architectural type and the date of construction. Each type is modeled in a 3D environment accompanied by top plans and side elevations using Sketch Up pro 6. The study utilizes in-depth interviews to collect data on the date of construction, the source of the construction materials, information about the households, the builders, and the social status of inhabitants. The climate data were obtained from published reports and documents as well as the oral history from the subjects as climate records in Jordan did not exist before the year 1950.

The anthropological interviewing methods of generating data were deployed in this study to compile and analyze the existing ethnoarchaeological and ethnographic sources. Several in-depth interviews were conducted with owners or residents of traditional buildings. As most interviewees were from the older generation, the study relied heavily on oral history and narratives to explore how people use and relate to the place they occupy. Put another way, the study sought to investigate how people inhabit, appropriate, and interpret place. The traditional building is studied and analyzed as a socio-spatial entity where many cultural values, images, and meanings are constantly produced and reproduced. Its structure and use demonstrate that the relationship between the physical and socio-cultural realms is highly dynamic and intertwined, and that the structure of the space we inhabit moulds and guides our actions and interactions. This indicates that traditional architecture expresses the totality of the multifaceted relationship between man, society, and environment. In sum, certain significant aspects such as space usage, response to climate, and building materials and construction illustrate special architectural elements and features which have evolved from social attitudes, climatic forces, and aesthetic preoccupations (Desai, 2008).

Results and Discussion

The survey revealed a significant number of traditional buildings in Irbid governorate where few of them are still in use. The urban expansion and the need for multistory buildings have demolished most of them. The remaining few are abandoned, extremely deteriorated, and may not survive longer. The bad preservation state in these buildings is currently triggered by ownership issues; the property of these buildings could not be claimed as being owned by many individuals and/or families. The absence of a sense of attachment to these buildings among most of the single owners coupled with the very high cost of maintenance and restoration have kept these buildings under the threat of vanishing. On the other hand, no incentives were made by the government to protect such a legacy that documents and conveys an important epoch in the history of the country.

According to the architectural structure, there are 5 main types of traditional buildings in the north of Jordan: floor on arch, cross and keyed vault, Barrel

vaults, flat slab and cupola. These types were further divided according to the material of construction, roofing, roofing layers, courtyard, and number of stories (plate 1).

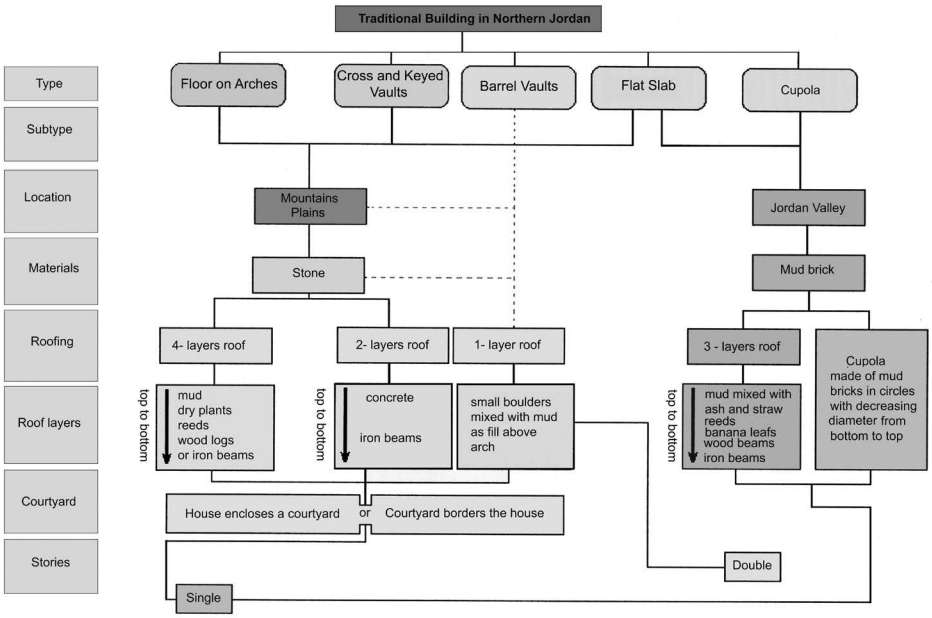

Plate1: The typology of traditional houses in northern Jordan.

The rooms in the floor on arch (Quntarah) structure usually have 2 or 3 parallel arches made of hewn stones constructed in a way that forms the first meter of the side walls; then curved reaching a maximum height of about 3m at the center of the room. On top of the arches wood logs that span the length of the room were placed at a space of about 1 meter. In later phases wood logs were replaced by iron beams that were brought from Palestine. A layer of stacked reeds was installed on top of the logs, then a layer of dry plants. The uppermost layer was mud mixed with straws. Not until the 1930s when these layers where replaced by iron beams and concrete, though it was very expensive (Plate 2 a, b,c).

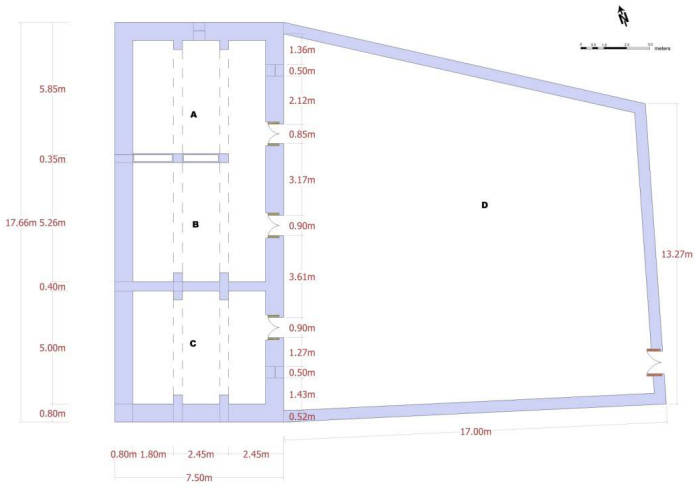

Plate 2a: A top plan model of floor on Quntarah type (Samad)

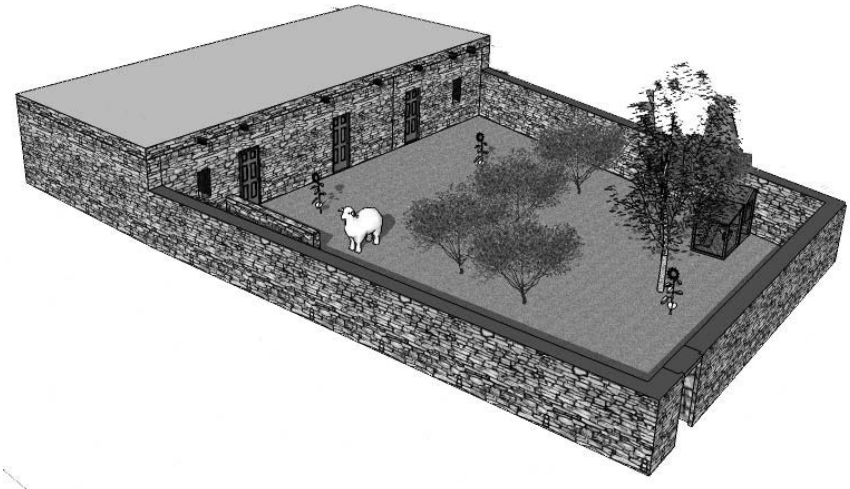

Plate 2b.

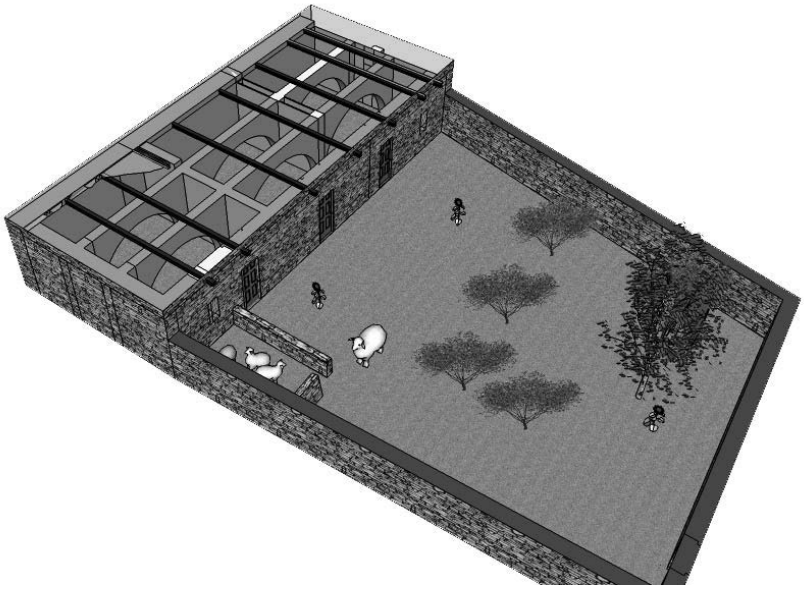

Plate 2c

Toward the end of the 18th century, cross and keyed vaults came into existence but did not replace the previous type. The cross and keyed vaults rooms were laborious and required skillful craftsmen who at the time were particularly from Palestine and Syria. The cross and keyed vaults room are basically two arches intersecting in the middle of the room reaching a height of about 3m. Smaller arches were created on each side of the room so that a cupola like appearance from inside was created. The roof is much like the one in the floor on arch rooms. These types dominated rural cold and mountainous areas. Taking into account the availability of building materials, many rural architectural types used rough stones or wooden frameworks filled with earth. Both stones and wood were easily accessible in these areas. The stone walls were built on bedrock (plate 3a,b,c) .

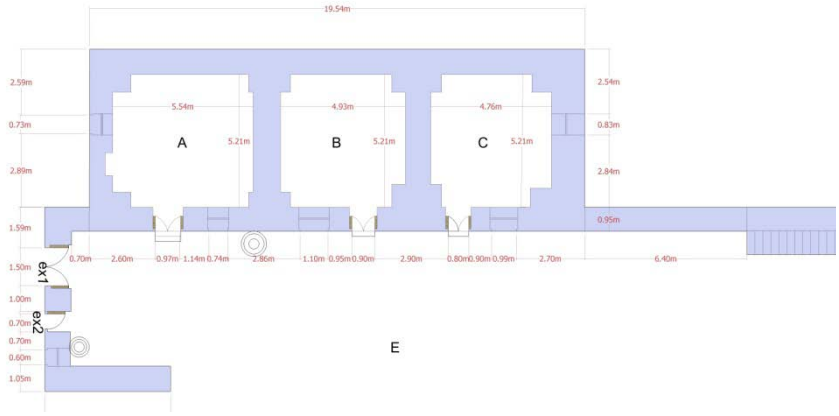

Plate 3a: A top plan model of cross and keyed vaults (Eidoun)

Plate 3b

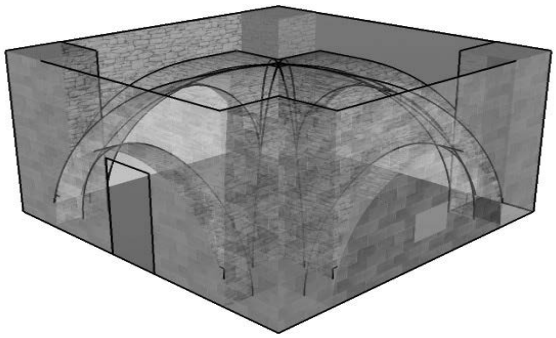

Plate 3c: Transparency of cross and keyed vaults

The difference between rural and urban lifestyles had a huge impact on building type. Life in the countryside depended mainly on agriculture and livestock farming. This in turn called for attaching a courtyard to the house, which can be used as a private space for the family or/and a place to keep animals such horses, donkeys, cows, sheep, goats, and poultry. All rooms are usually set around the courtyard and open onto it. Most courtyards have water wells inside their borders, which is dug in the ground to collect rainwater during winter. The collected water is used for different purposes such as drinking, cooking, cleaning, etc. The size of the house, in terms of the number of rooms and the size of the courtyard, depended on the socio-economic status of the owner (Zakarneh, 2000:87); the richer the owner, the larger the house and the courtyard. As Petruccioli (2006:15) indicates, the courtyard has varied functions including: the demarcation of the property limits, the definition of the family's private place, the unification of house elements and spaces, the creation of a garden or cool place, and the promotion of ventilation. Given the fact that most buildings at the time were of one-storey type, the courtyard was necessary to provide the residing family with a sense of privacy. In addition, the courtyard would have a single heavy door as the main entrance for the house. The entrance did not, under any circumstances, allow a direct view of the private quarters of the house (Ibid :36) (Plate 4a,b, c)

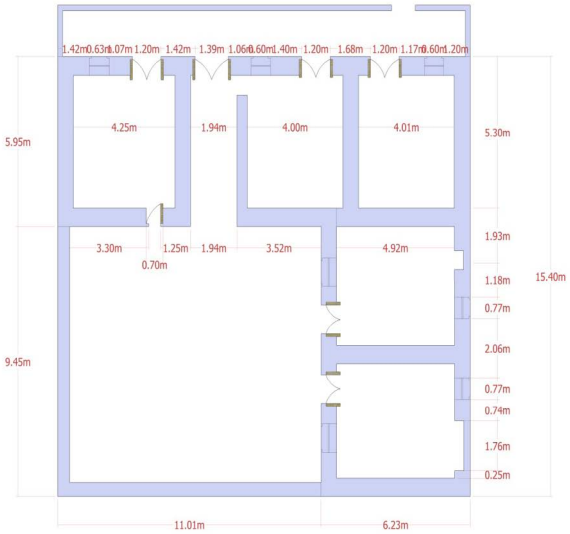

Plate 4a: A top plan model of courtyard (flat slab) (Husun)

Plate 4b

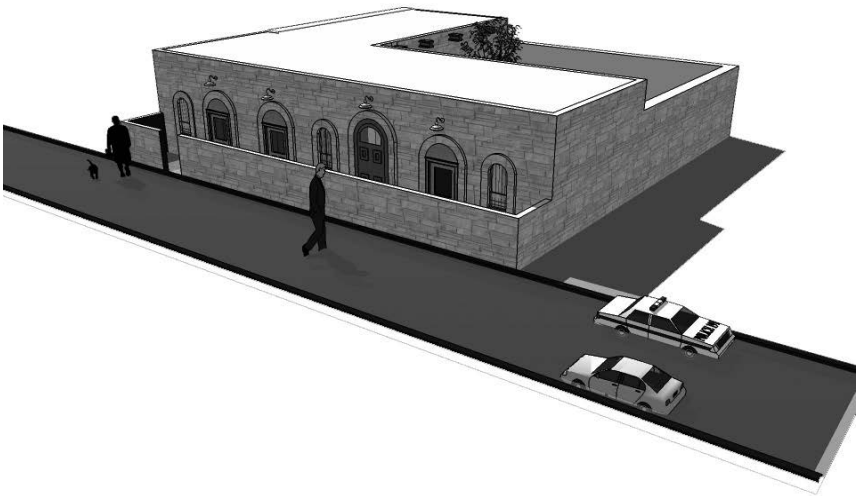

Plate 4c

The wooden doorway of the house main entrance usually reports the owner's name and his family lineage and the date of construction (Filippi, 2006). In some areas where both Muslim and Christian communities lived together in the same neighborhood, as in the case of Samad, religious symbols were marked above the doorway to report the religion of the owner since there were no distinctive architectural features to distinguish between the two religious communities. The crescent was used for Muslims and the cross for Christians.

The majority of these rural stone houses were inhabited by several nuclear families that together form an extended household, which consists of an older married couple, their married sons and wives, and the unmarried children of both the older couple and their married sons. Their married daughters would have left the household to join the households of their husbands. One could actually argue that the extended living arrangement was the most common type at the time. In most cases, each nuclear family would occupy a separate room or may share the same room with another family. In a shared room, a curtain made of a piece of cloth would usually function as a divider between the spaces of the two families.

Wealth accumulation in the beginning of the 20th century enabled the wealthiest locals to establish a second floor (mostly one room). A continuous barrel vault was created in the first floor rooms which structurally could carry the heavy load of the upper room. As the above mentioned types required extensive labor and money, flat slab rooms were the best choice depending on iron beams as roofing supports in many of the surveyed houses, the roof was either two or four layers. In Jordan Valley, mud bricks were used for building the flat slab house; no other types were found_until the spread of concrete as a material of construction in the country (Plate 5a, b, c)

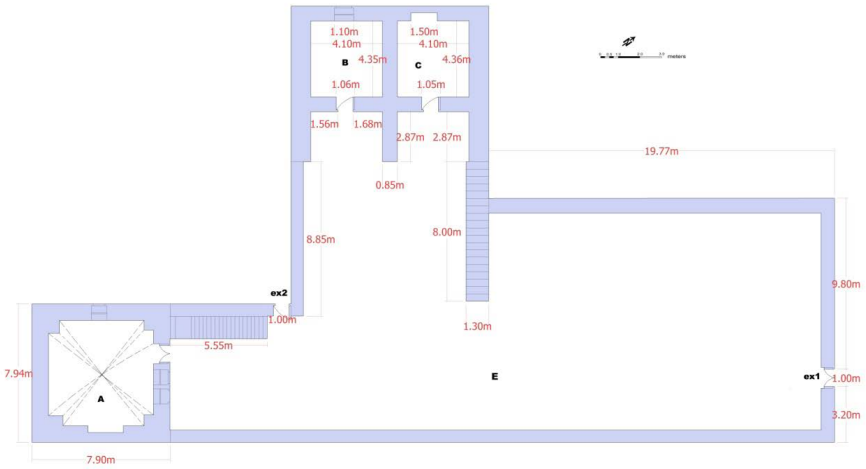

Plate 5a: A top plan model of barrel vaults (Mazar)

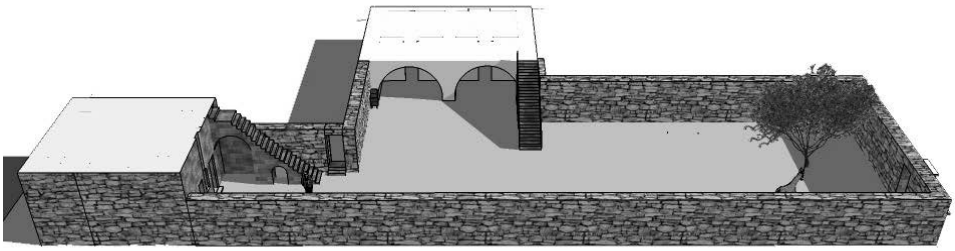

Plate 5b

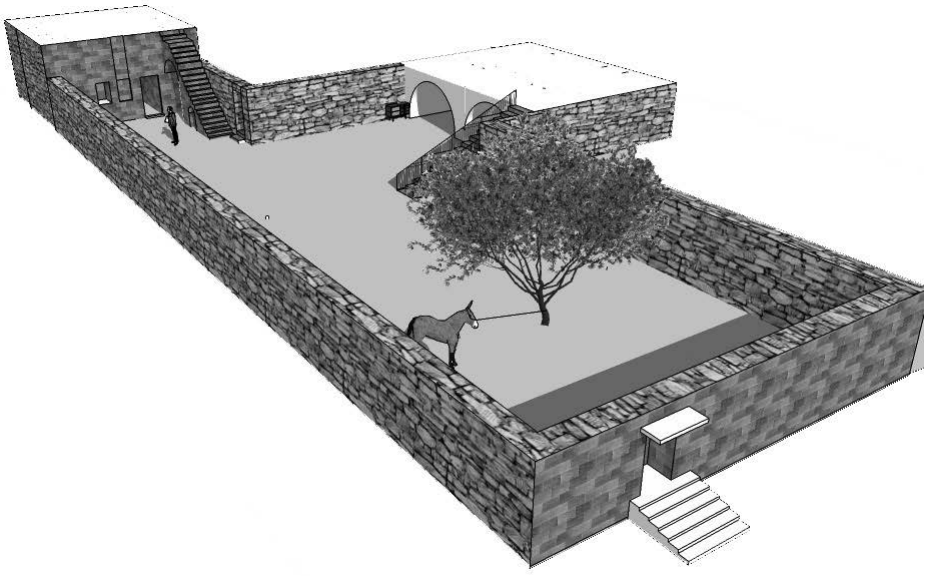

Plate 5c

Mud is considered the most basic man made building material. Local population adopted this style of architecture as a practical way to manage climatic effects. Given the fact that the weather in the Jordan valley area is

hot during summer, mud brick-houses tend to be very suitable for this area. They keep their houses internally cool in summer and warm in winter. As Mahdavi et al. (1996:71) demonstrated, traditional buildings are believed to embody numerous features which emerge through various historical processes of adjustment to local climatic conditions. Furthermore, mud structure was ideal for area with rare rainfalls such as the Jordan valley area (Plate 6a, b, c).

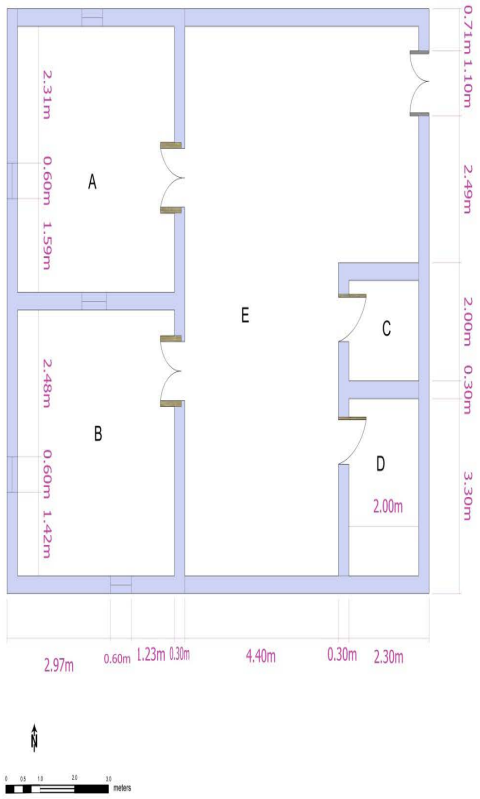

Plate 6a: A top plan Model of Mud Brick (flat slab).

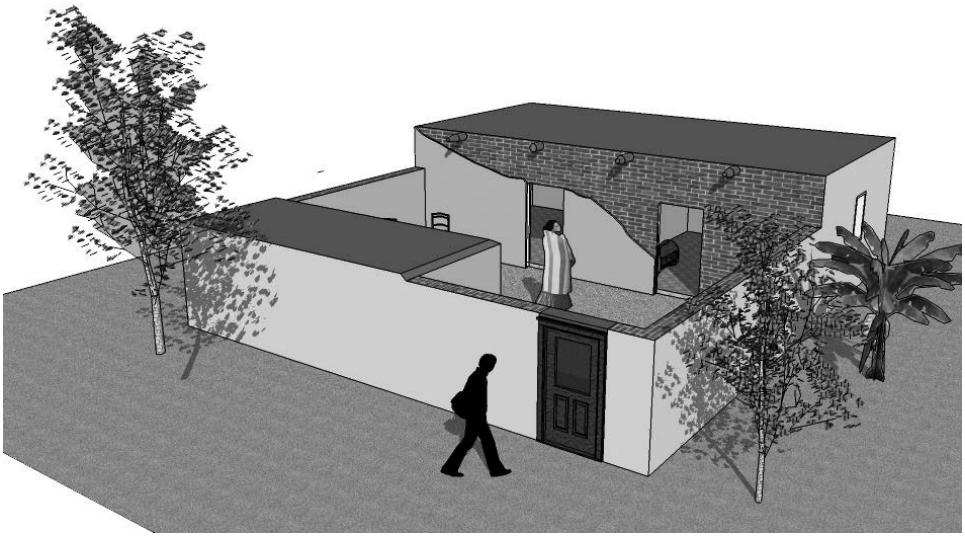

Plate 6b

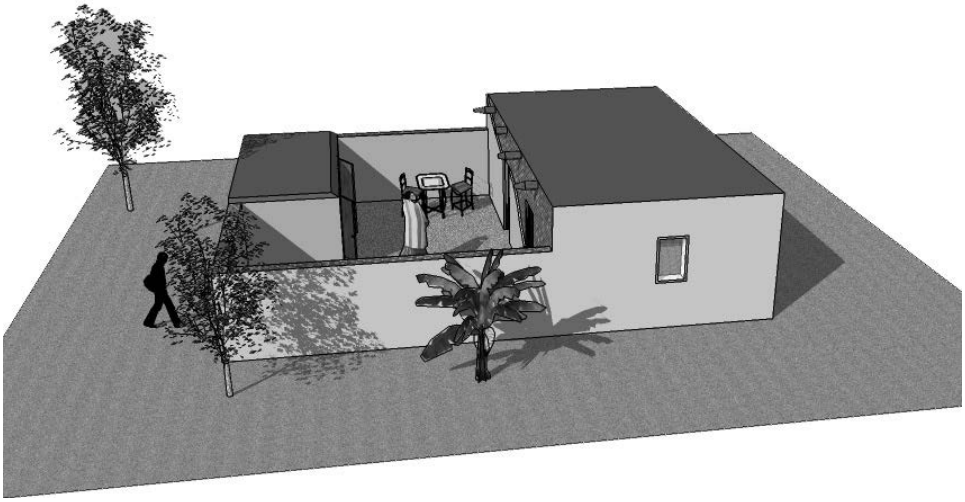

Plate 6c

As locals narrate, Palestinian refugees who moved to the Jordan valley aftermath the 1948 Arab-Israeli war played a pivotal role in adopting such

type of architecture in the area. However, others point out that local people who used to cross the Jordan valley into Palestine brought this structure with them from Palestine, given that the Jordan River was an arbitrary, permeable boundary between the East and West banks. Palestinian refugees chose to stay in the Jordan valley awaiting a quick return to their original places in Palestine. Like local people, most of them lived initially in temporary tents in Al-khosum area. Therefore, the primary mode of subsistence for local people at the time was nomadic pastoralism. As a type of dwelling, the black tent of the Middle East is possibly the best recognized form of nomadic architecture to this day. The tent is traditionally woven from goats' hair, though the woven strips can be bought from the market at present. Several factors determine locations for tent pitching including environment, climate, vegetation, and geography (Lancaster, 1981).

With the arrival of Palestinian refugees and the shattering of their dream of a quick return, both local people and refugees began to settle in permanent houses made of mud bricks. As a result, people's mode of subsistence changed dramatically. They switched from nomadism to an early form of extensive agriculture. Different types of vegetables such as tomatoes, squash, and cucumbers were produced for local and regional markets. At the beginning, most refugees worked as wage laborers in Jordanians' farms. They actually introduced new agricultural products, equipments and techniques. With time, refugees began to rent and buy land and eventually to run their own businesses.

In the process of construction, people used materials such as mud, ash, straw reeds and banana leaves which were abundant in the region. After preparation, the mud was mixed with straw, which gave it strength; then it was put into formworks to make mud bricks. These bricks are used only after drying. In this building type, both the walls and the roof are rendered to reach a good final result. As rendering is very sensitive to external factors, it must be renewed periodically to endure the building durability. Mud and lime, but not cement, were used as rendering materials.

The Jordan Valley witnessed the use of cupola houses mainly after the establishment of the Jordan Valley Authority in the 1948. The foundations were made of stones reaching a height of about 70cm, the walls extended above as mud brick walls. The roof was constructed in a dome-like structure

made of mud bricks arranged in circular rows decreasing in diameter until the last raw is a single brick. Unfortunately, one cupola house is still existing and found in Deir Alla outside the study area (Plate 7a, b)

Plate 7a: A top plan model of cupola (Jordan Valley)

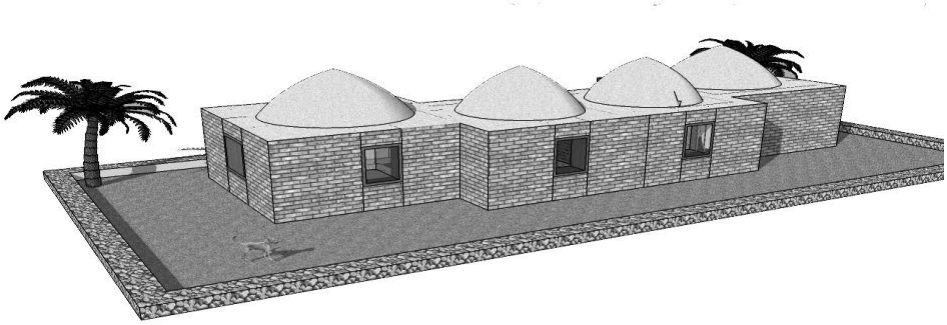

Plate 7b

Cupola houses in Deir Alla were initially built exclusively for employees of the Jordan Valley Authority. Thus, most of them were built in the late 1940s. Other residential units in the area were mud houses but without cupola. As mentioned before, this type of architecture were used most widely in this area best fitted the local hot conditions. Mud walls are usually built on the very ground if it is rock or strong enough. If the ground is loose or weak, the wall is built on a stone foundation of about 50 cm deep and which rises about 50 cm above the ground level. Some residents bought their houses later from the Authority before they were abandoned or sold again in the early 1980s. Basic services such as water and electricity were installed in the houses during the building process. It can be argued that all cupola houses in the area were built by a Palestinian builder, whose name is Fadeel Shafa Amer, who brought this type with him from Palestine. Every residential unit consisted of a number of separate rooms used for different functions; it was occupied mainly by a nuclear family: the employee and his family. Furthermore, mud copulas are also used in neighboring countries such as Syria. Several examples have been reported from the towns of Tiara and Sfrieh on the outskirts of Aleppo and the Damascus and Ghutta region[1]. In some cases, the whole building takes on the shape of cupola, not just the roof.

Concluding Remarks

The ongoing archaeological work in the Arab region demonstrates that the earlier forms of traditional architecture may date back to 5000 years BC or beyond (Ragette, 2003). The intertwined factors of geology, topography, and socio-ethnological structures have played a pivotal role in producing specific architectural forms in Northern Jordan. As has been discussed throughout this study, a traditional building normally reflects its surrounding. This represents a strong testament to the fact that the natural environment can be considered an element of utmost importance in traditional architecture. Put another way, a traditional architectural design seeks to attain an ideal harmony between its structure and natural surrounding. The building types examined in this study demonstrate the complex relationship, interaction and correspondence between cultural and environmental processes and principles. Building materials and structures are carefully chosen according to availability of materials, climates, and social conditions.

1-Corpus Levant (2004). Traditional Syrian Architecture.

References

Abed, A. (2001). Change in Traditional Badu Home Layout as a Function of Lifestyle from: Bayt Esh-sha'r to Villa. Unpublished Master Thesis, Jordan University for Science and Technology.

Canter, D. (1977). The Psychology of Place. London: Architectural Press.

Corpus Levant. (2004). Traditional Syrian Architecture. France: Ecole d'Avignon.

Desai. M. (2008). Traditional Architecture: House Form of Bohras in Gujarat. Pune: National Institute of Advanced Studies in Architecture (NIASA).

Eshkiki, S.E. et. al. (2006). Structural Typology of Traditional Houses in Iran Based on Their Seismic Behavior. In Proceedings of the 8th U.S. National Conference of Earthquake Engineering. San Francisco, USA.

Filippi, F. (2006). Traditional Architecture in the Dakhleh Oasis, Egypt: Space, Form and Building Systems. In The 23rd Conference on Passive and Low Energy Architecture, Geneva, Switzerland.

Kent, S. (1984). Analyzing Activity Areas: an Ethnoarchaeological Study of the Use of Space. New Mexico: University of New Mexico Press.

Lancaster, W. (1981). The Rawala Bedouin Today. Cambridge: Cambridge University Press.

Low, S. (1988). Cultural Aspects of Design: An Introduction to the Field. Arch.& Comport./Arch .Behav. 4 (3): 187-190.

Mahdavi, A. et. al. (2006). A Systematic Approach to Scientific Study of Traditional Architecture. In The 23rd Conference on Passive and Low Energy Architecture, Geneva, Switzerland (pp.71-78).

Noble, A. (2007). Traditional Buildings a Global Survey of Structural Forms and Cultural Functions. New York: I. B. Tauris.

Petruccioli, A. (2006). The Courtyard House: typological variations over space and time. In Briadn Edwards et. al. (eds). Courtyard Housing: Past, Present & Future (pp. 2-27). New York: Taylor and Francis.

Relph, E. C. (1976). *Place and Placelessness*. London: Pion.

Metz, H. (1989). Jordan: A Country Study. Washington: GPO

Patai, R. (1958). Kingdom of Jordan. Princeton: Princeton University Press.

McNeill, W. (1977). Plagues and Peoples. New York: Anchor Press.

Shehadeh, N. (1985). The Climate of Jordan in the Past and Present. In

Studies in the History and Archaeology of Jordan II, Edited by Hadidi, A. pp. 25-37. Department of Antiquities, Jordan.

Toubasi, S. (1995). Impact of cultural factors and inter-cultural exchange on the traditional human settlements of Jordan. A comparative study of two Kerak villages. Master Thesis. Amman, Jordan: University of Jordan.

Zakarneh, K. (2000). Local traditional architecture in the Palestinian village: An analytical study-A case study of the village of Qabatiyyah. Unpublished Master Thesis. Amman, Jordan. University of Jordan.

Yunis, S. (2001). The impact of political changes on urban morphology: The case of Jerusalem since 1861. Unpublished Master Thesis. Amman, Jordan: University of Jordan.

العمارة التقليدية في شمال الأردن خلال القرنين التاسع عشر والعشرين: دراسة أثنواركيولوجية

محمود نعامنة

زيدون المحيسن

موفق بطاينة

حسين ديباجة

كلية الآثار والأنثروبولوجيا - جامعة اليرموك

إربد - الأردن

ملخص البحث

إن دراسة وتوثيق العمارة التقليدية في الأردن تسهم بشكل كبير في تحديد ملامح الهوية الجماعية للمجتمع, إذ إن المباني التقليدية تمثل جزءا مهما في الهوية الثقافية والتاريخية للاردن. تهدف هذه الدراسة إلى معرفة العوامل الاجتماعية والاقتصادية والمناخية والبيئية, التي أدت إلى تطور العمارة التقليدية في الأردن, هذا بالإضافة إلى معرفة التحول الذي رافق النمط المعماري ودوره ووظيفته في القرنين التاسع عشر والعشرين . وقد تم استخدام المنهج الأثنواركيولوجي والتوثيق الثلاثي الأبعاد في تحليل الأطر المعمارية المختلفة. ودلت هذه الدراسة على أن التنوع في الأنماط المعمارية يرتبط بالمنطقة الجغرافية وبنمط الحياة بشكل عام. بالإضافة لذلك فإن للمناخ ووفرة المواد الخام أثراً في هذا التنوع ناهيك عن الخبرة والمهارة في البناء آنذاك. إن التغير في العمارة التقليدية يحكي القصة التراكمية للمجتمع المحلي الذي أنتج هذه الأنواع المعمارية، وأن وجود طرز معمارية متطورة في شمال الاردن ما هو إلا انعكاس للتأثير الثقافي القادم من المناطق المجاورة خصوصا فلسطين وجنوب سوريا.

الكلمات الدالة: توثيق، المباني التراثية، علم الآثار الاجتماعي، الهوية الثقافية-التاريخية ، الأردن