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Identifying and documenting the Traras mountains(Northwest-Algeria) rural heritage architectural features: an architectural survey

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Abstract: In the extreme northwest of the Algerian territory the Traras Mountain the vernacular architecture of the houses is facing natural and human threats. with its loss, a synthesis of traditional rural life, imminent. This article is aimed at identifying and recording the characteristics of traditional vernacular architecture in housing to safeguard the knowledge and promote community awareness with respect to this architectural resource, thereby providing a context for future conservation work. The study involved an architectural survey to identify and document the architectural resources of the Traras mountains vernacular rural buildings. The survey included collection of relevant historical and geographic information, building description and analysis together with other data relating to spatial and functional organisation, construction methods and materials. The final product of this study is a conservation-support plan detailing all the characteristic features of the Traras mountains rural vernacular buildings.
Keywords: Traras Mountains; Vernacular housing; Vernacular architecture; Rural culture; Architectural features; Windshield survey.

Identificación y documentación de los elementos arquitectónicos del patrimonio rural de las montañas de Traras (noroeste de Argelia): un estudio arquitectónico

Resumen: En el extremo noroeste del territorio argelino, la montaña de Traras, la arquitectura vernácula de las viviendas se enfrenta a amenazas naturales y humanas. con su pérdida, una síntesis de la vida rural tradicional, inminente. Este artículo tiene como objetivo identificar y registrar las características de la arquitectura vernácula tradicional de las viviendas para salvaguardar el conocimiento y promover la concienciación de la comunidad con respecto a este recurso arquitectónico, proporcionando así un contexto para futuros trabajos de conservación. El estudio consistió en una encuesta arquitectónica para identificar y documentar los recursos arquitectónicos de los edificios rurales vernáculos de las montañas de Traras. El estudio incluyó la recopilación de información histórica y geográfica relevante, la descripción y el análisis de los edificios junto con otros datos relativos a la organización espacial y funcional, los métodos de construcción y los materiales. El producto final de este estudio es un plan de apoyo a la conservación que detalla todos los rasgos característicos de los edificios rurales vernáculos de las montañas de Traras.
Palabras Clave: Montañas de Traras; Viviendas vernáculas; Arquitectura vernácula; Cultura rural; Rasgos arquitectónicos; Encuesta de parabrisas.

1. Introduction

Studies regarding rural vernacular buildings in Algeria are in a beginning stage and are not considered enough sufficient to attract the international and even the national interest in terms of cultural values conservation. The Rural vernacular hamlets and isolated houses in the case of the Traras mountain

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region (Kari,2015) and except the few texts and works which have been done about them, have not yet been considered as cultural sites to benefit from conservation operations. It is therefore urgent to react about the state of neglect that seizes the vernacular rural buildings which will surely vanish without leaving the slightest trace.

The traditional rural architecture in this region is characterized by the use of local natural materials adapted to the climatic conditions (Bodash, 2014) and by a set of constructive and architectural elements that reflect the traditional modest Know-How of this rural community. Rural people in this historical and cultural area have been able to respond to the physical environment constraints and to the social mores, and so they were able to ensure acceptable living conditions.

The vernacular rural buildings can become an important element in the development of the Traras territory which has to be seen as a source of knowledge, pride and self-esteem and should encourage the rural people to stay deeply linked to their land (Sandstrom, 1987). This sense of pride and local identity is considered to have a positive effect on the development of economic, cultural and political practices (Paasi, 2003).

In nowadays, the traditional architectural knowledge needs to get attention and to be identified and documented. That contributes in the forming of the community consciousness about the importance of such an architectural resource and in providing a context for possible conservation practices.

2. Methods

In this study, the proposed method focused on the identification and the documenting of architectural resources of the Traras mountain vernacular rural buildings. Indeed, the traditional knowledge identification and safeguarding is essential for the development of a public awareness and appreciation of these cultural resources and for the establishment of a future comprehensive conservation plan.

The proposed method is based on an architectural survey which is the most effective tool to identify local architecture and historical resources.

In the first instance, a windshield survey is conducted to collect preliminary information about building's location, dominant architectural styles and natural and topographical features. Architectural and historical document analysis was also another rich source of information about rural ancient settlements locations and dates. There were available in previous research reports, especially those elaborated during the French colonial period and many ancient local materials.

The core element of this study method is the in-site survey work which allows gathering more accurate and consistent architectural information by means of traditional manual documentation tools as technical drawings and photographs.

As part of this survey, discussions and interviews occurred with the local community in order to gain an insight into the houses spatial and functional organization logic and about the architectural vocabulary.

According to this methodology, it has been possible to identify and document the architectural features of the Traras mountains rural buildings which were presented as building description, illustrative drawings and photographs.

3. Study area

The Traras Mountains region is in the extreme north west of the Algerian territory. It ensures a smooth transition between the Moroccan mountainous chain of *Beni Snassen* and the north-west Algerian plains. It is bordered by the Mediterranean Sea to the north, by the wadi *Mouilah* on the south and on the east by the wadi *Tafna* (Figure1).

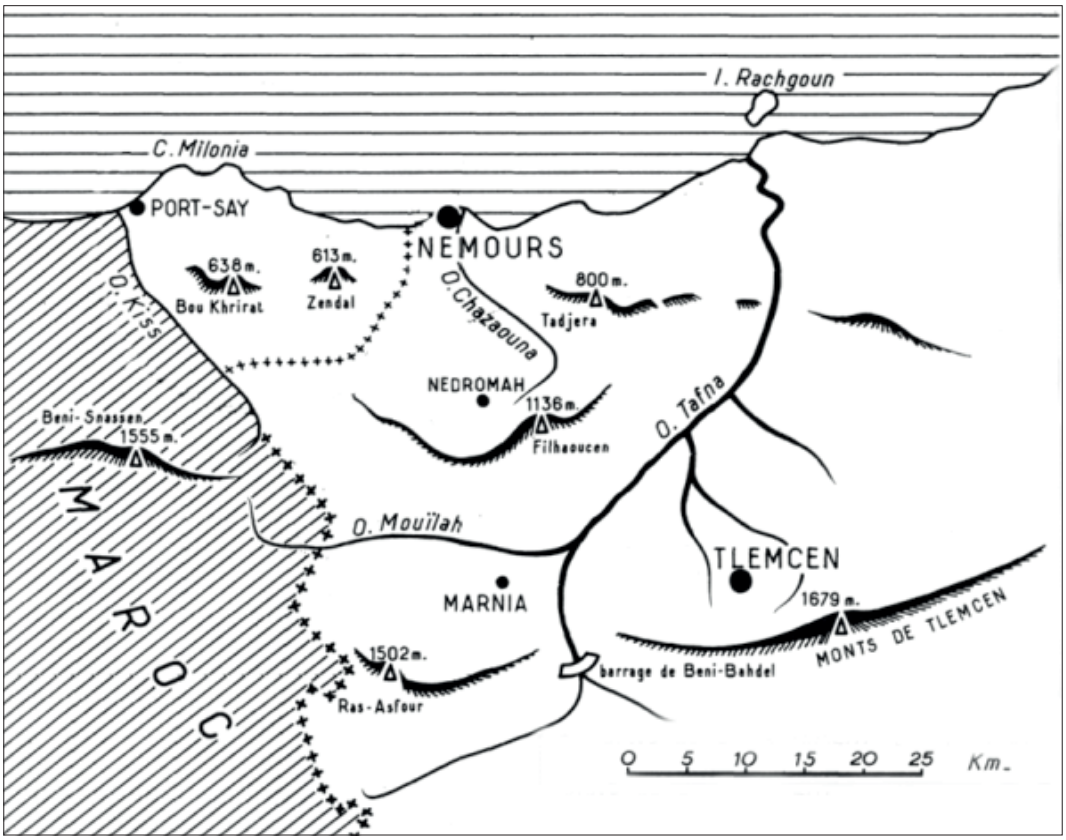
3.1. *Traras region as a Berber region*

The name of the region appears for the first time during the 16th century in 1548, in a document belonging to the wise man *El-Yagoubi* who has formed an association of Berbers and Arabs Tribes of this region to create an army to fight against the Spanish occupation in Tlemcen (Boyer, 1966).

Later during the 19th century, the same name has been resumed in maps by many geographers, as Elysée Reclus who represents the distribution of Berbers and Arabs in the Algerian territory and describes the Traras region as an area in which lived white Berbers and spoke a former language.

In this territory survived a people of Berber origins (Madani, 2003), who were from two large Berber tribes since the 12th century, *Matghara* and *Koumia*(Khelifa, 2010). Until the 19th century, the local Arabic dialect included several words of Berber origin (Djellab et al, 2017).

Figure 1: Traras Mountains region situation and geographic limitations.



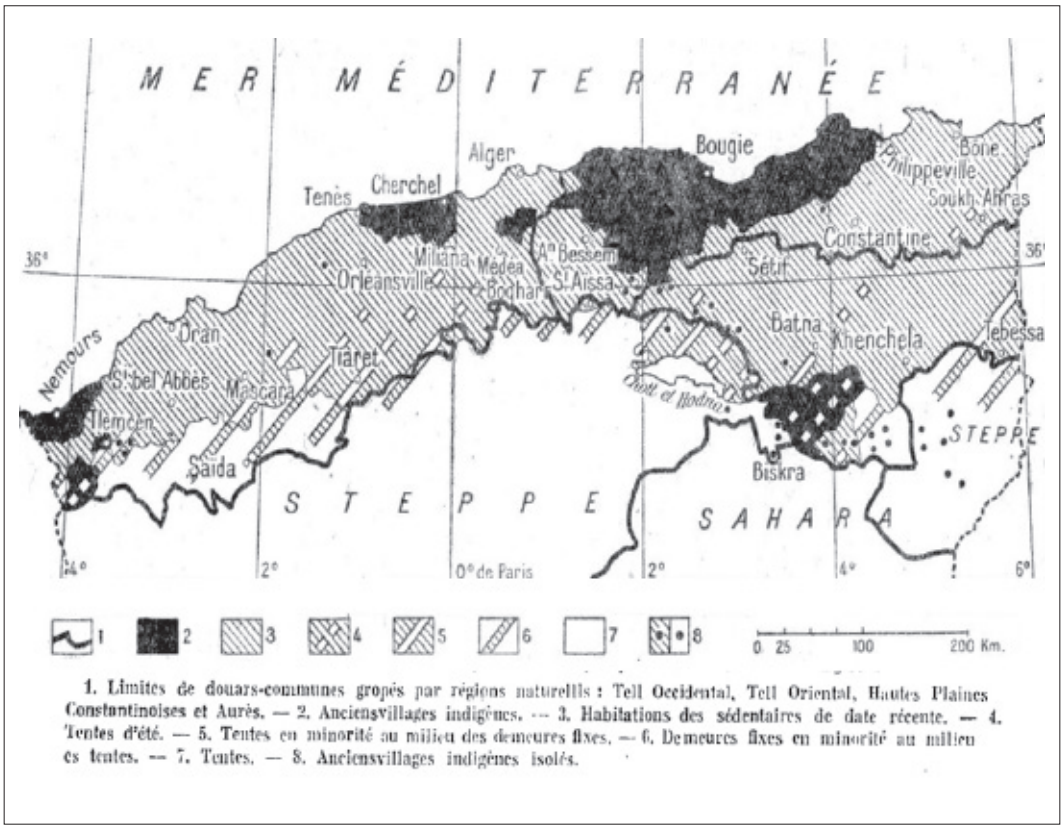
Source: Kari,2015.

3.2. *Traras villages as one of the most ancient in Algeria*

According to (De Mauprix, 1888), Traras Mountains people were very attached to their lands, occupied for long centuries. They were living in houses and they were engaged principally in agriculture and also in some different manual crafts like pottery, basketry and weaving fabrics.

Hence, this region is one of the most ancient zones in terms of constructions of villages. The Traras mountains appear on a map (Figure 2), drawn in 1917 as well as the region of Kabylia, Aurès, and the Dahra region, as one of the areas in which were constructed ancient villages in Algeria (Larnaude, 1944). It was occupied by a sedentary Berber community during long centuries in picturesquely roosted villages (Lawless, 1972).

Figure 2: In black color, the most ancient native villages in the north of Algeria. The Traras Mountains region is the one situated on the extreme Nord-West of the Algerian territory.



1. Limites de douars-communes groupés par régions naturelllis : Tell Occidental, Tell Oriental, Hautes Plaines Constantinoises et Aurès. — 2. Anciensvillages indigènes. — 3. Habitations des sédentaires de date récente. — 4. Tentes d'été. — 5. Tentes en minorité au milieu des demeures fixes. — 6. Demeures fixes en minorité au milieu es tentes. — 7. Tentes. — 8. Anciensvillages indigènes isolés.

Source: Larnaude, 1944.

3.3. *Climatic and Geographical Conditions*

As was the case in many countries, the form of traditional housing is generally influenced by climatic and physical conditions; here we are going to preset the most important climatic factors that have influenced the Traras region traditional buildings.

The Traras Mountains region is exposed to the Mediterranean climate effects, warm and dry for six months, from March to August, and mild, wet during the rest of the year in this region the mean temperature during the summer is 27°C and 12°C degrees in the winter. The average annual temperature in this region is 18.5 °C.

The region is exposed to the prevailing winds coming from the west and from northwest charged with moisture and to the hot upward winds coming up from the plain of Maghnia.

The precipitation in the Traras mountains region is much more important in winter than in summer. The average annual rainfall varies between 300 mm and 500 mm. The snowfall in this region is too rarely.

The rainfall poverty has made life and development of the forest species only possible for xerophilous that can adapt with the dry character of the Traras region. This last is covered mainly by Barbary Thuya but also by other species, mentioning the Aleppo pine, Juniper and Dwarf palm and other rare species. This mountainous region is characterized by its altitudes varying between 500 and 1000 and culminates in the *Fellaouçen* Mountain with a summit elevation of 1136 meter. It's a steep-sided massif formed by more than 60% of slopes which influenced the repartition of natural vegetation by promoting certain slopes over others.

4. Architectural Survey

In the first instance, notes on the type of buildings and settlements, sites natural and topographical information were taken from all around the study area and were inventoried. This windshield survey and field research have allowed as to find out the area principal kinds of settlements and to consider that the Traras Mountains region is a well-homogenous area in terms of vernacular architecture characteristics. Due to that, the survey will represent a one sample of vernacular houses which is the most representative type of the Traras vernacular houses.

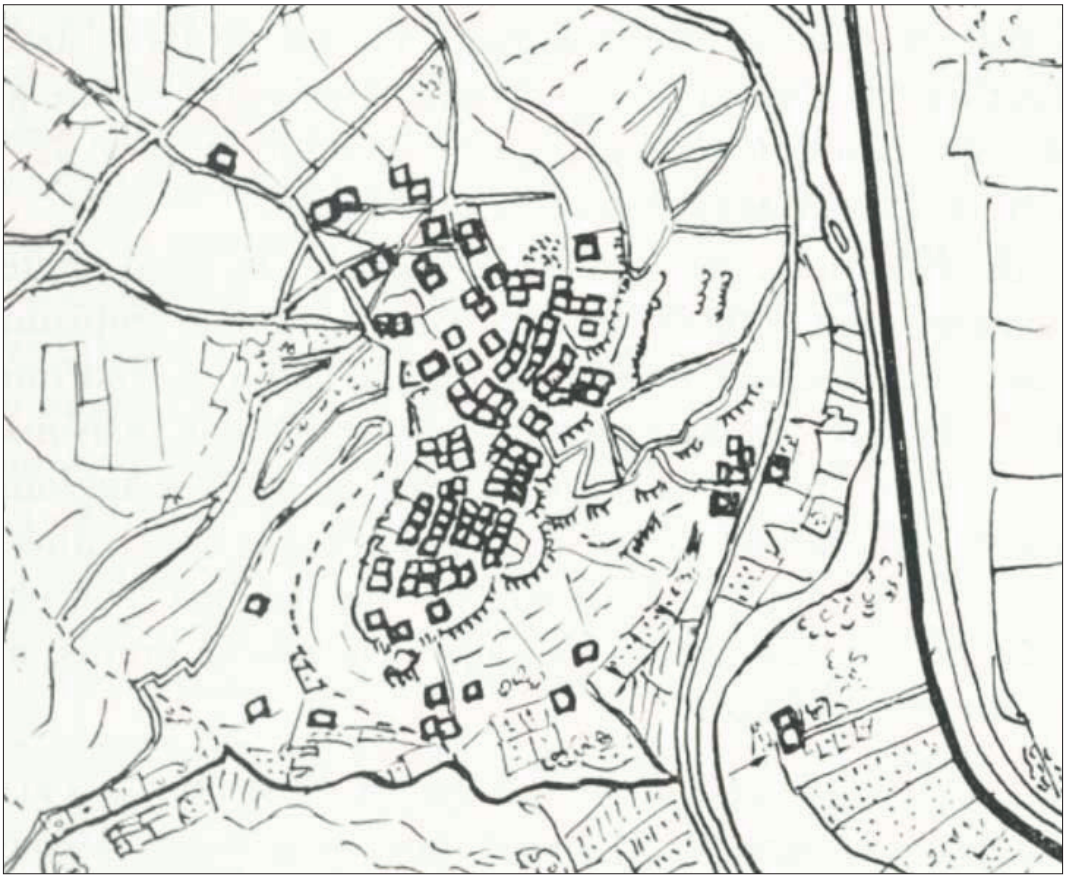
4.1. *Settlements Forms*

In the Traras Mountains region, two kinds of vernacular building groupings are distinguished according to the density of buildings; concentrated (Figure 3) and fragmented settlement.

Concentrate settlements can be geographically specified as those constructed in the west of the study area, close to the Moroccan lands and are particularly those of *Souahlia*, *Djebala* and *Maaziz*. The Fragmented settlements (Figure 4) are relatively less compact and discontinuous and mainly present in the *Beni Mishel* tribe territory.

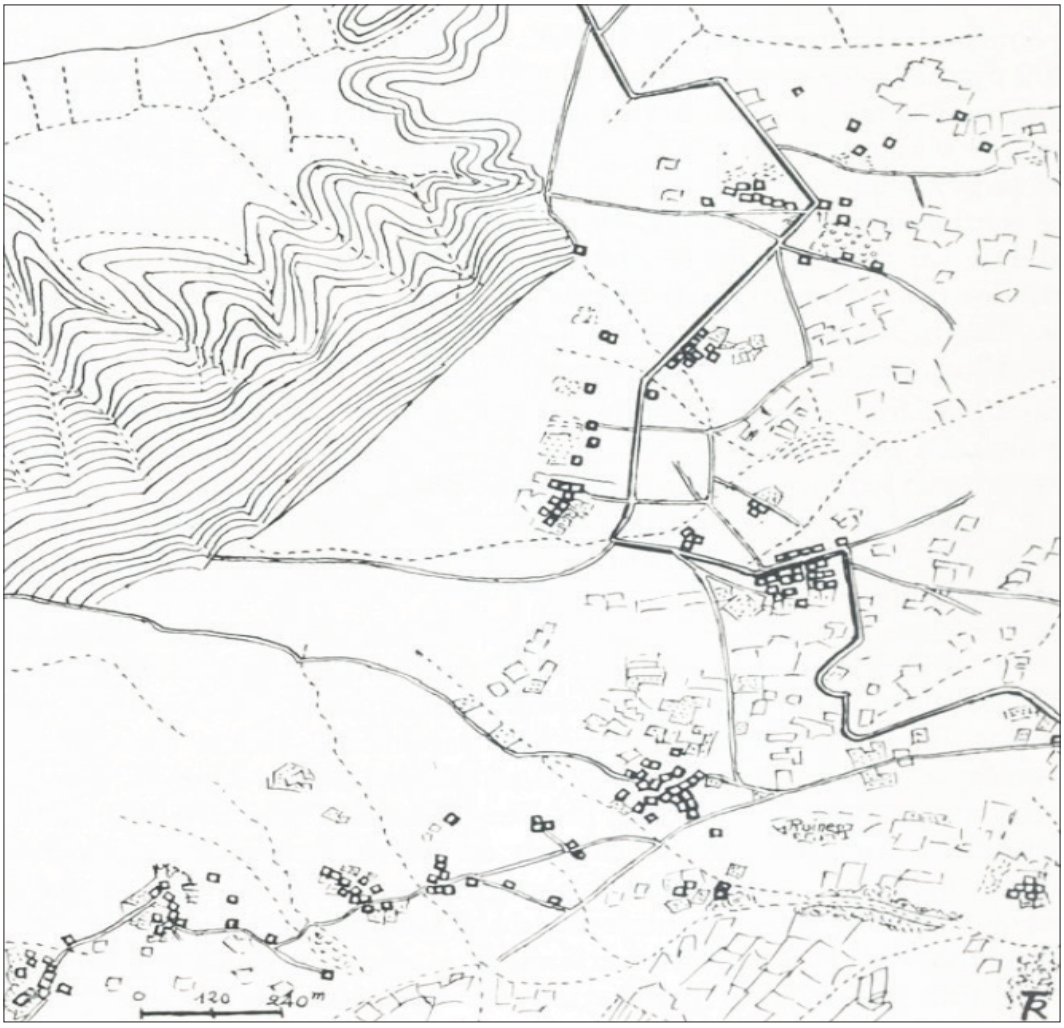
In addition to those two cases of rural settlements, isolated vernacular buildings have always existed and reflect the mentality of the Trari man who was not searching to live in the community. The Trari likes staying independent, for him it is not necessary to have neighbors, and to live in villages (De Mauprix, 1888: 29).

Figure 3: Concentrated villages in which the density of occupation is relatively important.



Source: Authors, 2015.

Figure 4: Fragmented villages.



Source: Authors, 2015.

Generally, and to ensure the intimacy, ancient rural buildings are not contiguous, even in the case where it should be necessary for people to be grouped, habitations are still separated one from another with a certain distance and with obstacles such as vegetation.

As the life of Traras rural people was based mainly upon the agriculture, settlements were mostly located on non-arable lands, or in less fertile soil sites in other cases. Habitations are mostly grouped around or near to a place where a water source is located. The presence of water was essential for the survival in such a rural area.

The Traras settlement has no clear delimitation, all the paths, in the case of a high density, are going directly towards the outside environment.

Like as is presented in the (Figure 3), and because of the topographical character of the most of the settlements sites which are steep-sided, the form and the orientation of houses and paths are very disparate.

The village constructions are mostly one level and they are not too important in height, generally, they do not exceed 2.50 meters.

4.2. *Buildings implantation*

In the Traras Mountains region, the vernacular building implantation was in a kind of sites which can provide a suitable answer to several constraints at the same time. Firstly, the possibility of construction from a topographical point of view, the site is generally a ledge in where the conditions make the construction of a habitation more or less easy task (Lebbal, 1989).

The rural people of Traras mountains region have always known how to adapt their buildings, in a way to ensure to the whole house, a wide opening on the landscape around for a natural airflow, but also to be well revealed to the sun's paths for the whole day. The rural buildings in this region are usually facing between south and west.

The house is often leaning against the slop of a hill and implanted in such a manner to be in alignment with the level curves and to be in a well integration with the site topography. This determines the orientation of the house, which is also decided to be open on the eastern side, to enjoy a maximum of sunlight and to avoid winter winds and rainfall. This orientation also ensures a visual domination of the surrounding natural environment.

The prevailing winds are often unpleasant in these regions and that is why it is also an important element in the implementation and the orientation of the habitation. In the Traras Mountains region, the house is mostly oriented so that winter wind infiltration cannot be possible.

4.3. *House Spatial Characteristics*

The Traras Mountains region habitation is a courtyard-type housing (Rapoport, 2007) composed of a set of rectangular narrow spaces with a very low roof. The doors are also short and small and often sheltered by a small canopy. The room roofs are horizontal, made of wood logs, *Ampelodesmos* and many layers of clay.

The spatial organization (Figures 5 and 6) of the Traras habitation is often presented as an enclosure formed with four rectangular rooms surrounding a quadrangular courtyard named *Fouste'dar* which serves at an open-plan living area during the day and for holding domestic animals at night (Aksoylu, 1987).

The Traras region habitation design is very simple and typical. The house is usually a single level, grouping, the stable or sheep pen and the other human house parts. In the same level, humans and domestic animals were sharing the same space.

In these details, the Traras mounts habitation present a spatial unity which can be found throughout all the territory of the study region.

The Traras house contains, all at once, the living spaces for humans, spaces for animals and also food storage spaces.

To maintain the privacy of the house, all the spaces are organized, in the most of cases, with an introverted design idea (Eyuce, 2007). The access to the house parts can be done directly from the Courtyard.

The most private space is located far away from the entrance of the house (Figures 5 and 6). The stable and the storage room *Khiama* are generally the less private spaces and are related to the outside.

The entrance of the house is done in a single side of the house, mostly the lower of the slope. But there are also cases that have a second opening relatively narrower and which is used just to come out from the house, this opening is named *Kharajia*.

4.4. House Main Functional Component

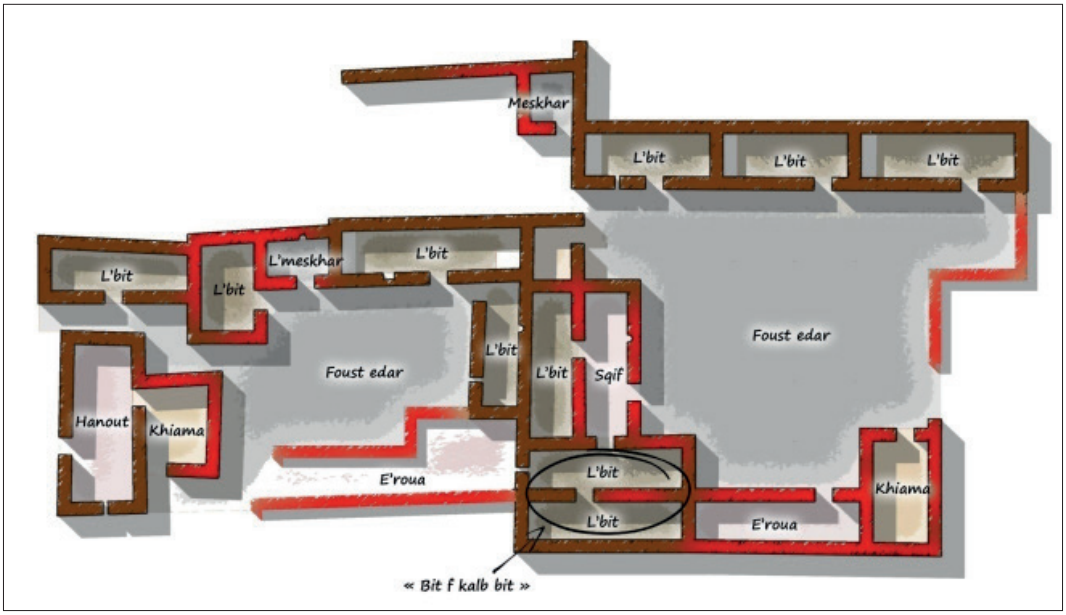
According to the architectural survey and the interviews undertaken with rural community members, the Traras habitation, as in the case of the Berber house (Bourdieu, 1970), has a set of functions that ensures the daily hard life of Traras rural man. It is composed essentially of human spaces, storage and domestic animals' areas. We also note the presence of a typical feature of this region construction kind named *E'sqif*.

4.4.1. *L' bit:*

It is the principal human part and the main component of the house in which other complementary spaces are linked (Figure 5). This room has an oblong form, illuminated only by the opening of the door. This room surface varies between 12 and 16 square meters and not exceeding 2.30 meters of heights.

Generally, in a Traras habitation, room number can vary according to the importance of the family. There is an example with up to five (5) rooms in the same house. As seen before, the human parts are often oriented to be well enlightened by the sun.

Figure 5: Traras region house plan, main functional components.



Source: Authors, 2015.

Figure 6: Another Traras house drawing. Red parties are ruined walls.

Source: Authors, 2015.

In the room we can find a niche cut into the wall that serves as a small storage space, locally known as *Barja* and which is usually 30x40cm (Figures 5 and 13).

L'bit is coated from the interior with clay mixed with straw and whitewashed. A different darker color is often applied to a certain height of the wall.

As in the case in the Kabylie House (Hadjiri,1993), *l'bit* in the Traras mountains region has not necessarily a window; it is a dark room that depends for its ventilation only on the opening of the door which remains often opened for the whole day. The room can also have another very small opening which serves only for ventilation named locally *E'chbar*.

The entrance of the room is usually in the middle of the front wall, called *Hadjeba*. The opening width can vary between 72 cm and 97 cm and a maximum of 2.20 m in height. The room entrance is often marked by a step called E'retaba.

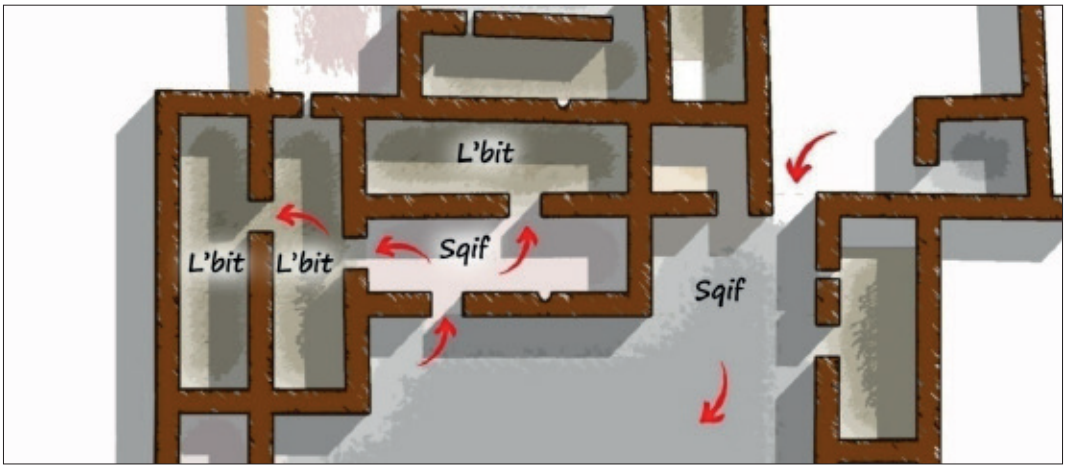
L'bit is also particular by its wood awning. This last one is in fact a part of the room roof which continues beyond the front wall limit. It is formed by a set of logs on which were laid reeds or branches battens. This awning is locally known as *Bouchtan*.

4.4.2. *E'sqif:*

Literarily, this word is derived from the Arabic word which means the roof and it is one of the characteristic features of the rural traditional house in the Traras mountains region. In this last one, the word *E'sqif* is used at the same time to designate two spaces; the first is a covered, not close space that serves as a transition between the exterior and the interior of the house (Figure 7). It is the first interior space beyond the house threshold (Lebbal, 1989:41). The second is one of another characteristic features of the Traras house, known as *bit f kalb bit* which means, word by word, a room in the midst of another (Figure 5).

In the first case, the *E'sqif* is a transition passing space between the outside and the courtyard and that is also true in the second case but between *Fouste'dar* and *L'bit*. In this last one the *E'sqif* is used as the same thing as *L'bit*. Because it is generally the coolest space in the house, the *E'sqif* is often preferred by the inhabitants to do their various domestic works.

Figure 7: The two cases of the E'sqif.



Source: Authors, 2015.

4.4.3. *Fouste'dar:*

The Courtyard is also one of the main characteristics of this region architecture that is locally known as *Fouste'dar* (Figures 5 and 6) which literally means: in the center of the house. The Traras house courtyard has no particular destination, once watered and cleaned every morning; it is used by women to do various domestic activities. It is often in a single level, but in the case of a slope, the courtyard can be divided into many levels but always keeps it natural aspect. *Fouste'dar* of the rural traditional house may occupy about almost half of the house surface, and that is a sign of its importance.

4.4.4. ***Khiama*****:**

It is a room that has the same aspects as the precedents, particular only by its location and orientation (Figures 5 and 6). Used for the short-term storage of all kinds of food reserves, the *Khiama* is often found in a well-ventilated place and often close to *Elmeskhar* which is the name of the Traras rural house kitchen.

4.4.5. ***Elmeskhar:***

Generally, the narrowest room in the Traras rural house, *Elmeskhar* is the place where food is prepared and cooked with fire for daily dining. It contains the main fire pit of the house known as *Gharghoura* which is a stone-lined hearth dug in the ground of the room. A part of this space is reserved for the storage of wood used for making fire for cooking and heating the other rooms in winter.

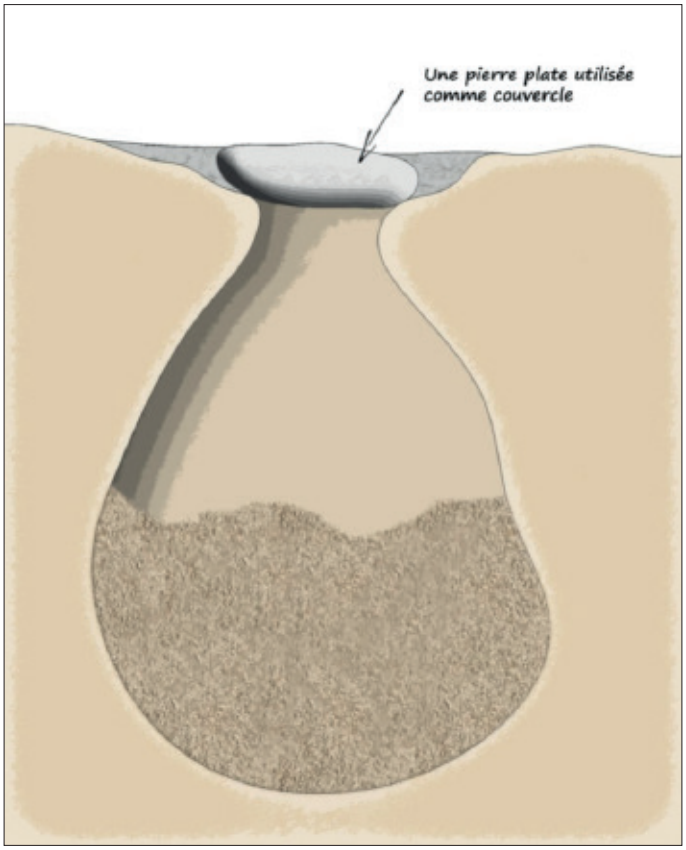
4.4.6. ***E'roua:***

It is the domestic animals' space and it is generally located just in front of the main entrance of the house and far from the part of the house human living areas (Figures 5 and 6). *E'roua* is a covered and coated space such as another room and equipped with a feeder. This space can also have a large gate.

4.4.7. ***Lmatmoura:***

The underground silo is a traditional and a primitive technique to store and save cereals, from storage pests, fire and theft when it comes to a good season. *Lmatmoura* is simply a bottle gourd form dug into the courtyard ground (Figure 8) or near to the habitation in an improvised location.

Figure 8: Drawing of the Lmatmoura.



Source: Authors, 2015.

4.5. *The use of natural material in the construction*

According to the architectural survey, the vernacular buildings of the Traras region are built with only natural materials with low environmental impacts which are extracted from the habitation close environment and within everyone's reach; it is constructed essentially with stone, a very available material, clay and wood and with the use of one the very simple building techniques.

4.5.1. *Stone*

It is the main building material used for the construction of the Traras rural house, available with abundance around the construction site; the stone is used mainly for the construction of walls. Its implementation is not a very complex task, it is just enough to carve it in a way to ensure a good apparatus (Figures 9 and 10).

The nature of the stone used in the construction is different from one site to another; it depends on the geological nature of the site. Here we can give the example of houses in which is used a very solid and heavy kind of stone known as *E'sam* and another house constructed with *Tifkert* which is a light stone kind and relatively frailer.

Figure 9: Wall stone (E'sam) apparatus.

Source: Authors, 2015.

Figure 10: Wall stone (Tifkert) apparatus.

Source: Authors, 2015.

4.5.2. ***Wood and reeds***

The wood is mainly used in the construction of roofs (Figure 11); it is an indispensable material in the construction of the Traras mountains houses.

The wood from Thuja and olive trees are used as beams, pillars and opening lintels, the branches as battens. It is also used to fabric the doors and windows joinery.

In the Traras rural house, tree branches were used initially as battens, but reeds were preferred later. Reeds are used as battens because they ensure, thanks to their silhouette and their length, having a well-sealed and uniform roof (Figure 11).

Figure 11: Logs and reeds in a Traras house roof.

Source: Authors, 2015.

4.5.3. *Clay*

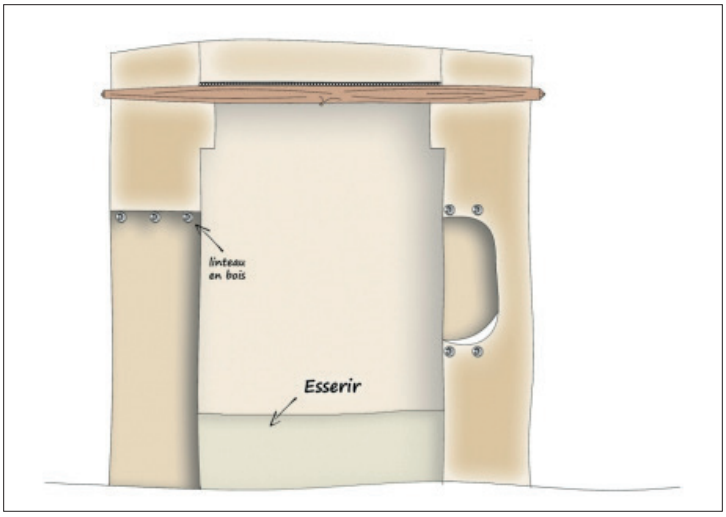
Used as a binder, the clay is one of the main components of the Traras house construction (Figure 12).It is manually extract from the site surrounding areas, from a small career known as *Hfayer* and then transported with traditional baskets and prepared on the site.

Figure 12: Clay and straw coated walls.

Source: Authors, 2015.

The clay is often mixed with straw called *E'ramoud* which is a kind of straw kept away for a nice time to be used in the construction and the maintenance of the House.

Figure 13: Traras house simple bay roof.



Source: Authors, 2015.

5. Conclusion

The vernacular rural built heritage of the Traras mountains region that we have tried to outline in this article is in the process of disappearing. All the effort that has been made by our ancestors during its construction and for its maintenance for centuries is being abandoned.

Those vernacular habitations interspersed in the Traras rural regions constitute a true heritage. Very firm steps must be taken to ensure its protection and for its sustainable improvement insurance. The first step should be the identification and the documenting of its architectural features.

In order to achieve that, this paper is presented to be a knowledge base about the Traras region vernacular buildings and their principal architectural features. The focus was on the functional and spatial organization and the natural materials used in the construction of these vernacular houses. All those details were presented and collected to be preserved for the future generation and to be used in future possible conservation operations.

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