

TOWARDS NEW HOUSING STRATEGIES: CASE OF MENAA HOUSING IN THE AURES

VERS DE NOUVELLES STRATEGIES D'HABITAT DANS LES AURES: CAS DE L'HABITAT DE MENAA

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ABSTRACT

The Aures is rich in vernacular human settlements; the old core of Menaâ is considered to be one of the well-known traditional housing. Its perched houses have an architectural and urban specificity described as universal heritage, produced by a patriarchal agricultural society. Since independence, the establishment is in a perpetual transformation, which has disfigured its morphology. A new emerging type of housing, called self-built housing is responding to the socio-economic and cultural conditions of the user. The purpose of this article is to present a summary of the transformations which occurred in the traditional kernel. The study is based on a comparative and typo-morphological approach. The survey was used to collect baseline data. The work aims to know the genesis of emerging typologies and to detect morphological phenotypes and genotypes in order to build an appropriate model for the contemporary inhabitant.

KEYWORDS: Transformations of traditional housing, self-built housing, the genesis of housing, genotype and phenotype, typo- morphologic approach, Menaâ.

RESUME

L'Aurès est riche en établissements humains vernaculaires dont le vieux noyau de Menaâ considéré comme le plus célèbre. Son habitat perché a une spécificité architecturale et urbaine le qualifiant de patrimoine universel, produit par une société agricole marquée par une structure patriarcale. Depuis l'indépendance, cet établissement est en perpétuelles transformations qui ont défiguré sa morphologie originelle. De ce fait, un nouveau type d'habitat a émergé, appelé habitat auto-construit qui répond assez bien aux conditions socio-économiques que culturels de l'usager.

Le but de cet article consiste à présenter un résumé sur les transformations qui ont eu lieu dans le noyau traditionnel. Cette étude est basée sur l'approche comparative combinée à l'approche typo-morphologique. Le questionnaire a été utilisé pour récolter les données. La finalité du travail consiste à expliquer la genèse des typologies émergentes et de détecter les phénotypes et les génotypes morphologiques afin de mettre à la disposition de l'utilisateur un modèle d'habitat approprié.

MOTS CLES: Transformations de l'habitat traditionnel, habitat auto-construit, genèse de l'habitat, génotype et phénotype, approche typo-morphologique, Menaâ.

1 INTRODUCTION

The transformations have disfigured the old nucleus, which was formerly harmonious fig. n° 1 & 2. Some traditional houses are replaced by other new ones; others are altered at different levels touching the facades and/or the interior spaces, using modern materials [1] responding to a cultural model. Rapoport supposes that the human mind gives and imposes meaning on things in this world, such as, constructed forms, like the other aspects of material culture

[2]. Again, Rapoport feels that «the meaning of many environments is generated through personalization—through taking possession, completing it and changing it” [3]. Other researchers said that the domestic space should not to be reduced to architectural configurations, but to an empty container that the family appropriates, inhabits and transforms [4]. Since the 1970s, the extension of housing takes shape outside the boundaries of the old core along the main road n° 87 [5]. A new type of houses is gradually being introduced, called self-built houses. They are

designed and built by the user himself. Sometimes a mason is called to do this task, taking into consideration the inhabitant's viewpoint. In this research, we will identify the genesis of the new typologies, by analyzing the following levels: nature of plot occupancy, functional, physical and morphological aspects. The last aspect will be approached from different angles in order to come up with several sub-levels namely: the geometric aspect, the relationship building/plot, the external appearance, the formal aspect of the architectonic elements and the internal transformations. The survey has pointed out other causes of the transformations. The choice of Menaâ as a case study is justified by the fact that this village is considered to be the largest urban center in Oued Abdi [6], which controls both valleys, Oued El Ahmar and Oued Abdi [7].



Figure 01: View on the Dechra after changes

Source Author, 2008



Figure 02: View on the Dechra before changes

Source: <http://www.algeriemesracines.com>

2 CASE STUDY

Menaâ is a nodal point, integrated into the structure of humans' settlements, of the Oued Abdi valley in the Aures region, rich with its thirty traditional village's [8] fig. 3. Its houses have a perched configuration, organized in a series of establishments called Dechras. The color of the building materials and the particular architectural style and based on the use of terraces made these houses perfectly integrated with the site [9]. Consequence, this make the front of the hill more attractive.

Looking from far off, the Dechra with its house terraces, which play a central role in the life of its inhabitants,

appears characterized by a dominant view over the surrounding countryside [10]. The terraces are also involved in addressing the protection of the inhabitants [11]. The road that follows the bottom valley serves as an umbilical cord which connects the great agglomerations outside the massif, Batna on one side, Biskra on the other one [12]. This millennial installation has permit adaptation to the place and founded a mountainous autarkic agrarian economy. The municipality of Menaâ represents an archetype of a rural entity[13], located on the right bank of the Oued Abdi valley in the east of Algeria fig. 3, giving it a special importance. The site is very mountainous, 85% of its surface is undulating. Geographically, it is located at 926 meter of altitude, north latitude of 35.33° and east longitude of 6.11°. It has a Mediterranean and semi-arid climate [14], due to its proximity of the Sahara. The harsh climate remains a determinant agent generating housing forms. The contextual parameters, such as water and vegetation, conditioned its implantation. Menaâ is located in the meeting point of Oued Bouzina and Oued Abdi. The Oued Abdi river had supplied the whole valley with water, rainwater and the melting of the snows plus several sources of mountains such as the Miseb and Bouindal, all of them were providing the valley with water. At present, the river has become dray especially in summer. The forests account for 63% of the total area of the municipality of Menaâ. The vegetation cover changes depending to climatic clusters classified according to altitude [15]. In Menaâ the arboriculture has largely responded, especially, apple trees, pear trees, plum trees, fig trees, peach trees, grenadier and vine trees, with a dominance of the apricot trees added to that the gardening and rainfed agriculture[16].

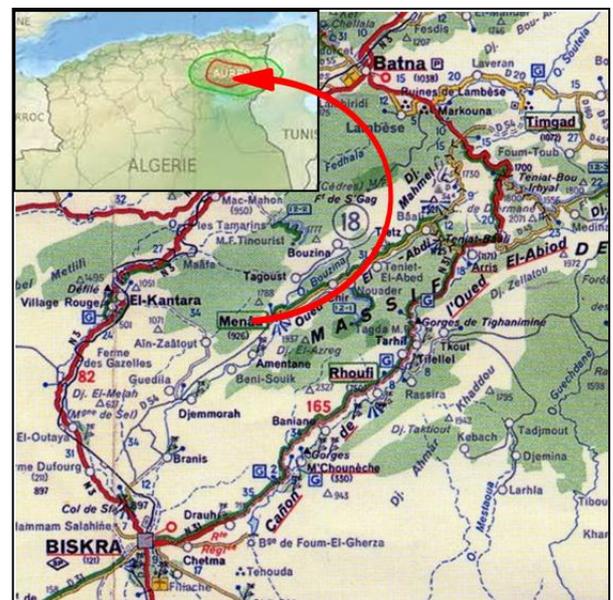


Figure 03: the situation of Menaâ

Source: <http://www.algeriemesracines.com>

3 HOUSE'S CHARACTERISTICS

The traditional houses constitute a social and economic unit. All the houses have the same architectural configuration fig. 2, only dimensions defer. The variety of houses sizes explains a social hierarchy. However, these varieties cannot prevent the identification of similarities as they obey an implicit cultural and mental model. The house as a social and economic unit is vertically hierarchical and shelters the three entities: the Man, the reserves and the animals, highlighted by three distinct volumes and levels. The second level is the human space; the core around which vertically gravitate the other spaces, the first level is intended for animals and place of fodder and wood. The third level articulates the drying's fruits and vegetable area. The house has generally two accesses placed on two different levels, one for human, and the other for animals. Access to the interior is through the typological house elements [17], listed below. The Threshold (el atab), marked by an elevation, and represents a symbolic system and also a protection against rainwater.

The Chicane (Tasquift or Sqifa) in the valley of Oued Abdi lost its quality of space filter, and becomes a transition space, it selects and mediates relationships, it is an arranged and covered space it takes place between two open spaces, the outside and the courtyard. The design of the chicane differs from the core of the old kernel and its periphery.

The courtyard and main room (hadarth n'ilames) represent the core of the house. The courtyard with restricted dimensions attests the little importance compared to the patio houses[18]. The main space (Hadarth n'ilames), is the place of social and economic life and presents the largest volume of the house. Its versatility lies in the projection of daily activities on the floor, cooking, meeting, receiving guests and weaving, marked by elevations and benches. In addition to the main space, we have also rooms. The reserves of provisions constitute a separate space in the house. The terrace serves to dry apricots, tomatoes, peppers, and also serves as an observation post for women and the family spends summer nights there. S. Adjali qualifies terrace as genotypic of Menaa houses [19].

4 ASSESSMENT OF TRANSFORMATIONS

4.1 URBAN STRUCTURING AND TRANSFORMATIONS

The ancient kernel of Menaa has a hilly topography and the structure of its dense fabric follows the relief, fig. 2. The houses overlap, so that, we cannot distinguish the boundaries of each house. this compactness readjusts the variations of the temperatures at the urban level and also manifests a great social cohesion revealing sensations of

intimacy and rejection while, offering games of volume, shade and light, freshness and warmth, so that everything harmonizes and equilibrates. Nowadays, the vernacular fabric is fading and changing under the pressure of new needs. At the urban level, the authorities proceeded to its rehabilitation Fig. 4.

It has been noticed that a large number of owners have substituted their houses by exceeding the limits of their plots and appropriate a part of the urban space by building stairs, which reduces the width of lanes fig. 5.



Figure 04: Lanes before and after rehabilitation

Source: Author, 2011



Figure 15: Appropriation of the alleys.

Source: Author, 2011

5 HOUSES TRANSFORMATIONS

This investigation is based on a corpus drawn from the case study, it allowed us to list the different types of transformations that affect the internal and external level in addition to the partial and total substitution, synthesized as follows and shown in fig. 6. The total number of houses after division and dismemberment is 204.

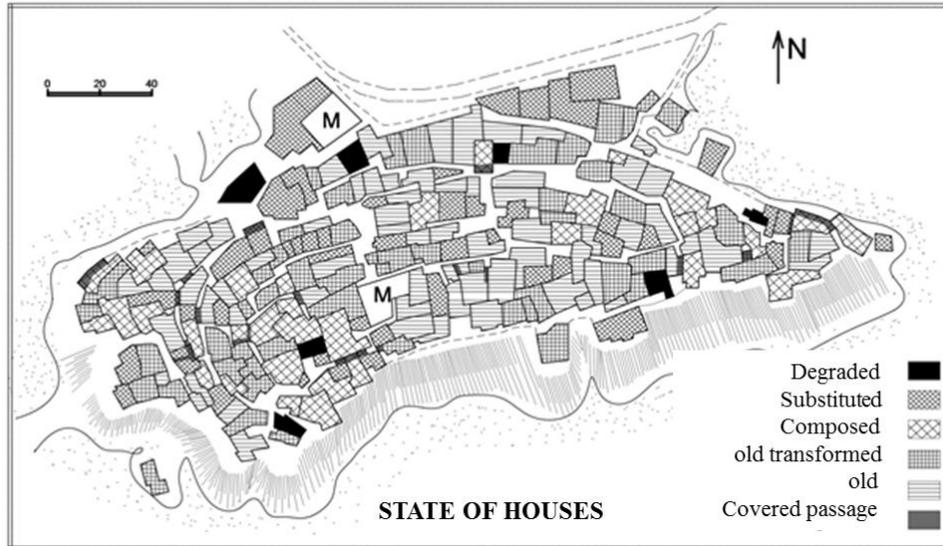


Figure 06: the State of houses

5.1 Traditional type non-transformed

The number of traditional houses is 67, the majority of

them are abandoned fig. 7, of which 7 cases are in ruins fig. 8, and only 4 cases are occupied fig. 9. This type presents 2.9% of the sample.



Figure 07: Traditional house abandoned



Fig. 8: Traditional house ruined



Fig. 9: Traditional house occupied

Source: Author, 2010

5.2 Traditional type transformed

Fifty-two houses are transformed, among them 9 houses are vacant, 10 are rented, the transformations vary between internal fig. 10, and external transformation fig. 11, without

alteration neither, nor to the structure nor to the facades, sometimes both. The external transformations are considered minimal and can be corrected to retrieve the old type; this type represents 42.3% of the sample as shown in table n° 1.



Figure 10: Internal transformations.



Fig. 11: External Transformations

Source: Author, 2010

Table 01: Synoptic table of the physical aspect

Characteristics		Types of houses	Traditional	Traditional transformed		New type Self-built	
				Int. transf.	Ext. Transf.		
Physical Aspect	Wall	Built with Clay	0				
		Built with stones			0		
		mixture built (stones clay)	0				
		mixed Materials (stones developed materials)	&		0	0	
		Built with developed materials		0	0	0	
	Roofing	Mixed materials (clay, wood & stones)	0				
		Materials developed (concret, wood)		0	0	0	
		Light material cardeboard & plastic		0			
		naturel Material (bleu mortar)			0		
		Developed materials		0	0		
	Architectonic elements	Door s	Wood	0	0	0	0
			Aeron		0	0	0
		windows	Wood	0	0	0	0
			Aeron for grid		0	0	0

Source: Author 2011

5.3 Type with partial substitution

Thirty-one cases are partially substituted (Composed of traditional and contemporary type) fig. 12; of which 01 house is rented and 02 houses are under construction.



Figure 12: Type with partial substitution

Source: Author, 2010

This type represents 27.9% of the sample. Sometimes, the partial substitution appears inside the house, it remains without effect on the facades but dangerous at the structural level, although this act is minimal, it represents 12.9% of the total sample.

5.4 Type with total substitution

Forty-seven cases are totally substituted (self-built houses) fig. 13, of which 06 are vacant, 05 are under construction and 02 are rented. This type presents 11.7% of the cases studied.



Figure 13: Type with total substitution

Source: Author, 2010

5.5 RESULTS AND DISCUSSION, FROM GENOTYPE TO PHENOTYPE

This investigation revealed that the climatic impact, the lack of maintenance and the ageing of the materials are the real factors that are behind the transformations and the deterioration of the physical state of the houses. On the other hand, the scarcity of land outside the Dechra [20]

drives users to make changes in the old core table 2. and 3, with the complicity of the State which contributes with the user by helping him to rebuild his house as part of the rural housing aid [21]. This analysis enabled us to enumerate the different types of transformations table 4, to distinguish the changes that represent the phenotypes and permanencies characterizing the genotypes of emergent typologies, compared to the traditional reference model.

Table 02: The internal and the external transformations

INTERNAL AND EXTERNAL TRANSFORMATIONS			plans		
L O C A L I T Y I N t h e S q i f a	Add of WC+ bath room joined or separated		Facads		
	<p>LEVEL 0</p>	<p>LEVEL 0</p>	<p>LEVEL I</p>		<p>Non altered</p>
	Add of WC+ B.R. or WC only		Facads		
	<p>LEVEL 0</p>	<p>LEVEL I</p>	<p>LEVEL -I</p>		<p>Non altered</p>
	I N t h e C o u r t y a r d	Add of room		Facads	
<p>LEVEL I</p>		<p>LEVEL I</p>	<p>LEVEL I</p>	<p>Altered</p>	
Add of WC		Facads			
<p>LEVEL 0</p>	<p>LEVEL 0</p>	<p>LEVEL 0</p>		<p>Non altered</p>	
I N t h e S q i f a	Add of WC+ B. R.		Facads		
	<p>LEVEL 0</p>	<p>LEVEL 0</p>	<p>LEVEL 0</p>		<p>Non altered</p>

LEGENDE
 Ancien
 Sqifa
 Courtyard
 Empty on court
 Added part,
 Added part

Table 03: Transformations by substitution

location		Type	TRANSFORMATIONS BY PARTIAL SUBSTITUTION	
FACAD'S SCHEMA			PLANS	FACADS
BY SUPERPOSITION	level substituted by using new materials			Altered
	part substituted by using new materials			Altered

Source: Author 2017

Table 4: Morphological genotypes and Phenotypes

TRANSFORMATIONS BY TOTAL SUBSTITUTION (CONTEMPORARY TYPE)			
	PLAN'S SCHEMA	PLAN	FACAD
GENOTYPES	<p>The zerdeb "sheepfold" is a genotypic space of the traditional housing and take a place in the contemporary one.</p> <p>Zerdeb</p>		<p>Facad with large balconies and openings</p>
	<p>The courtyard plays its functional and technical role that takes the position of terrace with some of its functions.</p> <p>Courtyard and terrace</p>		
GENOTYPES	<p>The courtyard is a genotypic space of the traditional housing and adapted to the contemporary one</p> <p>Courtyard</p>		<p>Facads without openings</p>
GENOTYPES	<p>The contemporary housing type includes phenotypic spaces like as the corridor and the hall.</p> <p>Corridor</p>		<p>Facad with large balcony and height openings</p>
HYBRID TYPES	<p>In contemporary housing, there are also hybrid types whose spatial components are genotypes and phenotypes grouped in the same house, we find the corridor, the hall, the zerdeb and the courtyard.</p> <p>LEVEL 0 with zerdeb</p> <p>LEVEL 1 and 2 with corridor</p> <p>LEVEL 3 with courtyard and hall</p> <p>TERRAC</p>		<p>facade with several floors</p>

Source: Author 2017

This long gestation has produced disfigured spatial and morphological structures dimensionally and structurally, while permitting the permanence of some ancient practices.

It should be mentioned that the houses transformations are important when the owners are themselves the occupants, whereas the transformations are minimal when the houses

are rented; this is clearly visible at the morphological and functional levels.

Accessibility in the traditional type is generally done through two distinct levels, one for the inhabitant and the other for the animals. A large number of substitute houses have integrated this component and reflect a functional permanence. The window that plays the role of aeration currently provides the role of the sun with wide and low openings inside and out and large balconies. Large unusable openings and mechanical means fulfill the need for comfort during the summer. In the past, terraces were accessible and used for drying clothes, fruits and vegetables, as well as for sleeping during the summer period and women's discussions away from men's regards. Nowadays, Terraces are rarely accessible and are limited to drying clothes, fruits and vegetables.

From the morphological aspect emerge several sub-levels, new self-built plots are more regular and more defined; which is not the case for traditional plots, where houses interlock and sometimes partially overlap. The reconstructed houses are inherited or purchased, sometimes plots are issue from dismemberment and the new plot has rarely the same configuration as the old one. This attitude explains a position towards the traditional irregular and indefinite form of the property. Traditional houses have irregular shapes, deformed and compound, rich in volumes while the new configurations have a regular geometry of simple composition en bloc, due to the use of new materials and construction techniques, such as formwork for the structural elements, use of plaster and of paint for partially substituted types. The courtyard takes larger dimensions, of irregular shape. The courtyard in the totally substituted type is rare, considering the restricted dimensions of the parcels in the old kernel. The outward appearance reveals the transition from the introvert to the extrovert, from the intimacy towards the opening on the outside, in order to meet the new needs of comfort. New configurations are gradually being introduced, contrasting with traditional ones at heights, colours and architectonic elements, the formal aspect of doors and windows considering their numbers, dimensions, positions and shapes. Contemporary housing differs from traditional housing. The triangular shape has been the key element of the traditional Auressian architecture; its small triangular and rectangular openings forms, give way to rectangular shapes with medium and large doors and balconies. The templates of new homes are overwhelming with a multitude of levels up to R + 3. This influences the ancestral practices of the terraced houses and the image of the Dechra. The toilet and shower are added, assigned either in the yard or in the Sqifa or in one of the rooms where they are separated or twinned, this generate little changes with the external appearance. While the partial substitution causes significant morphological transformations, generating typologies that contain the old and the new integrated, juxtaposed and superimposed or extension form out of the plot.

Rooms are spacious, of a regular shape, disposed along the corridor which becomes the determining element in the contemporary houses and in the partially substituted

houses. The house loses its symbolic centrality around the poly-functional space "aderth n'llmess". The number of spaces increases in the contemporary houses compared to the traditional one. A specification of the spaces is installed, where each space is endowed with equipment adapted to the functions and which opposes the mixed-use spaces of the traditional house, these are the kitchen, toilets, shower, entrance hall, bedrooms, and bedrooms for girls, boys and parents. On the upper floor, the distribution is generally similar to that of the ground floor.

The survey confirms the socio-economic change parallel to the transformations conducted. On one hand, security factors have caused internal and external transformations Table 1, society loses its coherence, because of its heterogeneous components coming from everywhere, and the public space no longer plays its role.

On the other side, the need for housing, the increase in land prices and its scarcity in the new extension, sometimes force the user to opt for cohabitation in the old core, this reveals a societal model of a neo-patriarchal type. Sometime, inhabitant abandons his old home to live elsewhere.

The substitute transformations are due to economic changes, the increase of the incomes and the will of the inhabitant to express the modernity according to its means and model of reference.

6 CONCLUSION

Formerly, the construction of the house was the task of the owner; he imbued it with his ancestral cultural model. The new houses are built of concrete. The spatial organization is hesitant between a "modern" design and a "traditional" activity, the space for animals, the traditional fireplace and the terrace in the partially substituted houses are always present, the house often keeps these genotypic elements table n° 3, as well as in contemporary homes. In the latter, a succession of rooms along the corridor or around the hall, the bathroom and the kitchen are created. Phenotypic elements appear, with modern furniture, symbol of social evolution. The house is extroverted with large openings, looking for comfort and light table n ° 4.

The proliferation of self-construction in the old core is a shocking fact. Certain socio-spatial and architectural components of these houses make the difference or the reference to the traditional model under the aegis of the so much hoped modernity. This established the morphological imbalance in the traditional nucleus and accentuated its degradation. In short, these transformations, as an unavoidable way towards modernity, have drain the development of housing and carried the germs of the traditional housing genes

Certainly, the morphological approach has informed us about the physical aspect of the building, but another level of reading can be envisaged, to extract genotypes and phenotypes, considering the topological relations of one space with another and its relation with the whole, using the

space syntax method and other genotypes can be extracted.

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