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Luca Maricchiolo

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## Historicizing spontaneous city.

Michel Ecochard and the « habitat pour le plus grand nombre » in Morocco

Luca Maricchiolo

Université Internationale de Rabat, Ecole d'Architecture

Parc Technopolis, Rocade de Rabat-Salé, 11100 Sala El Jadida, Morocco

luca.maricchiolo@libero.it \_ +212 (0) 5 30 10 31 44 \_ +39 340 1449431

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### Introduction

Michel Ecochard arrives in Morocco in 1946, appointed by the *Résident Générale* Erik Labonne as head of protectorate urban policies. The scenario he dealt with has been described by himself as dramatic (Ecochard, 1955a): a country in demographic explosion and a colonial urban policy having not been able to give adequate responses. Cities designed by Henri Prost in first colonial period are forbidden to local population, while attracting a wave of internal migration for economic reasons. This puts a strain on historic towns and make spontaneous urbanisation proliferate. On one hand, the reaction take form in densification of historical medinas; on the other, it drives clandestine habitat development.

Spontaneous dynamics faced by Ecochard propose a double challenge, both practical and cultural. European architects belonging to Modern thought must find a quick, economic and effective solution to the habitat problem and, above all, they dealt with a population still marked by strong rural attitudes. The functionalist approach, involved in this crisis, conceived an innovative methodology which goes down in history as "*Habitat pour le plus grand nombre*".

Decades later, it is possible to take stock of this experience, tracing frictions and synergies in the relationship between heteronomous planning and self-organized development. The goal is to understand Ecochard innovative legacy to international design culture, and to urban development of Morocco, including the invention of new architectural typologies and urban morphologies.

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### Methodology

Morphological reading of Moroccan urban landscape and analysis of typological variation allow to reconstruct the forming processes of nowadays widespread phenomena.

A topical moment is typifying action carried out by the *Service de l'Urbanisme* directed by Michel Ecochard. The visual grid "*Habitat pour le plus grand nombre*" presented at CIAM IX in 1953 as well as Ecochard writings thus constitute the primary sources of such action. These documentary bases allow to retrace this path and to place it within Moroccan city evolution.

Literature, documentation on historical cities, and analysis of Ecochard projects 60 years later, together with normative sources and planning acts led to a comparative balance of morphological-typological innovation and to the formulation of critical conclusions about the cultural impact of Ecochard experience in Morocco.

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### Forming process

#### 1. « Habitat pour le plus grand nombre »

When the results of the *Service de l'Urbanisme* action leaded by Ecochard in Morocco were presented to CIAM IX in 1953, they have been formalized methodological and design innovations from the first field test of European Modern theories. The visual grids conceived by the CIAM for the comparison of modern projects (Le Corbusier, 1948) feed on unexpected contents: they were investigating spontaneous settlements forming processes, whilst framed in the logical structure of Athens Charter.

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Ecochard was not new to the cultural context of the Modern. Rather, he had been educated to lecorbusierian thought, and he came to Morocco determined to apply the principles of 1933 Charter: the challenge of growth, bringing urban population from about 500.000 inhabitants in 1921 to over 1.800.000 in 1947 (Ecochard, 1950), required a simple conceptual tool, which could offer clear responses (Ecochard, 1955a), although not yet experimented on the ground.

The relations between Modern culture and Moroccan practices are frequent and nourished by profitable exchanges. Since 1947 Ecochard had an epistolary report with Siegfried Geidion, keeping him updated on the progress of the experiments (Cohen, 1992), and he was invited for an individual contribution to 1949 CIAM in Bergamo (Cohen, Eleb, 1998). Furthermore, the link with European cultural framework were strengthened by Georges Candilis and Vladimir Bodiansky. The two architects involved in the construction of the Cité Radieuse in Marseille joined the action of the *Service*, constituting in 1951 the ATBAT-Afrique group based in Casablanca.

The interaction between Ecochard and Candilis led to constitution of GAMMA, *Group d'Architectes Modernes MARocaines* that firstly signed Rabat-Salé plan in 1951 (Cohen, Eleb, 1998). It receives different – even contrasting – approaches, which “*Habitat pour le plus grand nombre*” grid represent a synthesis.

### 1.1. A multidisciplinary approach

Presented at Aix-en-Provence together with Le Corbusier's “*Mahieddine*” grid on Alger and Allison & Peter Smithson “*Urban Re-identification*” grid, GAMMA grid constitutes the only experience having been realized.

The visual exhibition presents not just a project, but an entire methodological system. This is composed by analysis, context knowledge, re-elaboration and design to conclude with the realizations implemented on Moroccan terrain. It is a structured tool, working on an interdisciplinary team, thus inaugurating a way to manage complexity through multiple skills. Ecochard design ideas are mainly based on sociologists Robert Montagne and André Adam researches, assisted by Pierre Mas (Cohen, Eleb, 1998), as well as on demographic data given by the protectorate administration: hence, design process integrates a substratum of cultural awareness in the definition of planning strategies.

The conceptual structure of the grid is divided into five progressive phases. *Introduction et bidonville* and *Planification and urbanisme* concerning conceptual tools of analysis and design; *ordre sans construction, la concentration horizontale* and *la concentration verticale* presenting realized solutions.

*Introduction et Bidonville*, edited by Pierre Mas, presents the context and the urban problem to be tackled. The spontaneous city, in both its consolidated form, the medina, and in its ephemeral one, the slum, testifies population needs and immediate responses, as adopted in dwellings typologies. Traditional housing types look for shade and compactness, basic requirements for a “cold country where the sun is hot” – according to the phrase attributed to Marshal Lyautey. Similarly, it arises awareness of the tensions between collective and individual sphere. In Mediterranean towns as well as in Atlas casbahs, the socio-cultural dimension is almost directly reflected in spatial organization: “*for a centuries-old tradition, the Muslim creates an intimate inner life, completely separated from the outside, through a strong family intimacy, but at the same time a strong sense of collectiveness. The social structure, tribal, religious, and climate needs have given rise to a collective expression: the casbahs of the Sahara: these fortified collective citadels reflect the tendency to live close to each other but respecting family intimacy*” (Architecture d'Aujourd'hui, n. 50-51, 1953, supplement).

The importance accorded to the context directly reverberates in the second section of the grid, *Planification et Urbanisme*, edited by Ecochard himself, that constitutes the core of the whole process. Ecochard brings out political wills of his planning action: the main objective of applying Athens Charter principles, while, at

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the same time, the goal of taking into account inhabitants historical habitudes – “*les habitudes seculaires des habitants*” (Ecochard, 1955b).

Ecochard explain the problem and the strategies to deal with it. At first, on a quantitative point of view: demographic analysis provides growth trends, highlighting the need to pass from about 3000 dwellings realized per year to more than 35,000 (Ecochard, 1950). This to accommodate urbanism rhythm and to provide a home to the growing urban proletariat. He further demonstrates the unfairness of access to the official city: neighbourhoods destined to Moroccan population reach density of 1000 inhabitants per hectare in Casablanca (Ecochard, 1955a), while in Rabat Muslim population, 60% of the total, occupies about a sixth of the urbanized territory (Mauret, 1954). Ecochard gives himself the goal of 260000 new dwellings before 1960, and he investigates the financial means at the disposal of public administration. Practical requirements of the project are finally outlined here, shaping up a mixed financing: public action should take charge of infrastructures and minimum accommodation, while population financial engagement will provide to the growth of the city.

On the other hand, what is most interesting on a disciplinary point of view, there is the qualitative analysis of the context. In *Planification* panels, and further in *Urbanisme* panels, the strategic approach to the project is set out: the study of minimum unit, the settlement principles of medinas, the new organization of urban space, are related to the categories of the Athens Charter. Modern main functions shape the three strategic axes of the project: living and circulate, which provides an infrastructural frame lead to the neighbourhood pedestrian paths; work and living, achieved by a modern territorial zoning; living and recreating, which shows the preparatory studies of the proposed urban form.

### 1.2. The design of an evolutionary system

Problems faced by the “*habitat pour le plus grand nombre*” make the different European cultural approaches reverberate in Morocco. Architects of the *Service de l'Urbanisme*, were divided about design solutions to be adopted, about how to lead Moroccan dwellings towards Modern models.

Ecochard, moving by more practical than theoretical reasons, defends the line of a stronger adherence to traditional ways, in the sense of a modern reinterpretation in typologies, forms and techniques. The large part of the population to be lodged has, in fact, still rooted rural habits, and it would hardly accept to switch towards high-rise collective housing. Moreover, the financial resources available would allow to build just a few blocks, not solving the problem as a whole. So that, since the earliest sketches for Rabat-Salé, he was oriented towards cheaper solutions (Ecochard, 1948), involving both cultural and practical reasons in his invention, an adapted horizontal density. On the other hand, Candilis and the ATBAT-Afrique group, closer to lororbusierian positions, defend the need to propose high-rise oriented buildings. However, unity of purpose made easier a unitary action and the constitution of a common Group within the CIAM.

The common ground has been the conception of an evolutionary system, to achieve different housing typologies in successive steps.

These have been presented in the further three sections of the visual grid: the first one, *ordre sans construction*, is a territorial infrastructure in regular plots, providing services, on which inhabitants are free to install; the other two, *la concentration horizontale* (figure 1) et *la concentration verticale* present consecutives steps of architectural and urban construction.

The design invention of Ecochard, *la concentration horizontale*, is a low rise high density urban fabric having been the most widely tested and implemented. It is the juxtaposition of base cells, organized in lots 8x8 meters, structured by pedestrian paths derived from the spatial organization of the medina. Housing is organized in units, provided by the facilities prescribed by Athens Charter.

The low-rise density is punctuated by high-rise housing blocks conceived by ATBAT-Afrique as a superposition of Ecochard patio houses. Vertical blocks mark the horizontal city and testify the goal to be

achieved: the horizontal plots are to be considered provisional, and they should have been replaced by Modern blocks, once better financial conditions and inhabitants wishes would be ready for shifting to a modern (European) lifestyle.

The well-known Candilis and Bodiansky buildings in Casablanca – *Immeuble Nid d'Abeille* and *Immeuble Sémiramis* – are to be placed in this dialectic. While sharing the approach of contextual inspiration, the two positions differ for design interpretations. Closer to history and to the context Ecochard's one, more universalist Candilis position. In this regard, sociologist André Adam had to say that, in absence of traditional urban form, in Candilis suspended patio "*nowadays Moroccan woman is like a bird in a cage*" (Adam, 1971).

Figure 1: Group d'Architectes Modernes Marocaines, Grid *Habitat pour le plus grand nombre*, section *La concentration horizontale*, CIAM IX, Aix en Provence, 1953. Source: Photothèque, Ecole Nationale d'Architecture, Rabat

## 2. Typifying ancient medinas

The invention of the *Cité Horizontale* is the field in which Modern project owes a stronger debt to spontaneous settlements. The investigations on traditional city reveal a morphogenetic and procedural affinity between clandestine settlements and historical medinas. It should not surprise us much, as these are the outcomes of the same self-organized processes, in similar climatic and cultural contexts. Medinas urban form results of a centuries-old adaptation of built environment to physical and social needs, whose hierarchy and spatial structure are both a necessity and a resource for inhabitants. So much to recreate those even outside the historical urban perimeter, in the self-construction of slums. In this phenomenon poor people express their right to the city, and they concretize their aspirations according to instinctive urban model (Navez-Bouchanine, 2002).

Ecochard seems having understood the character "in the making" of such cities, including the precise social meanings underlying the organization of space and the disposition of dwellings. The basis of his design solution is indeed declared in the *Urbanisme* panels, and even more explicitly in the horizontal concentration ones, edited by Claude Beraud and George Godefroy.

Without hesitation regarding the universalist approach, the Ecochard group directly cites the "sources" of their work, identifying in the continuity of urban evolution the key point of their proposal. Suddenly, the concept of house moves from "machine for living" to "habitat", stating the appropriation by the Modern of the cultural significance of the city (Eleb, 1999). Modern design method deals with traditional city, investigates its forms and its constitutive processes. Spontaneous intelligence and modern *logos* intertwine in a paradigm shift that move the universalist approach towards first culturally specific solutions (Avermaete, Karakayali, Von Osten, 2010).

Finally, Ecochard finds a synergy between culturally responsive inspiration and the principles of the Athens charter. A strictly typified, hygienic and functional model, to be applicable to the whole country, would be supported by the ordering principles of spontaneous habitat.

### 2.1. Housing typologies

Urban morphology and patio houses result from accurate analysis, aerial shots made by Ecochard himself, and progressive studies towards a minimal residential unit. Modern themes such as standardization and industrial construction are mixed with the typological invariance of the traditional court house, functional for protection of both intimacy and shadow.

Ecochard *habitat minimum* is then a patio house. Purchasing capacities suggest 8 x 8 m squares, "*allowing to build a three-room house with a courtyard, according to traditional principles*" and, by variation, some

diversified types (Ecochard, 1955a, p 106). The 64 m<sup>2</sup> plot, delimited by a fence of 2.8m high, offers two or three rooms facing south, a bathroom and a kitchenette in the courtyard. Distribution is in the patio, and rooms must not exceed 3 meters in width, allowing to limit built surface and to utilize prefabricated concrete panels for both walls and roofs.

The construction is minimal and repeatable in series. Modern research emerges from the self-referentiality of language and conceives a device apt to solve problems rather than look for emotional spaces (Culley, 2011). Ecochard cell constitutes hence a first typological standardization of the traditional house. It is the zero degree, the archetype of Mediterranean residential architecture, made concrete for mass production, for *le plus grand nombre*.

## 2.2. Territorial organization

The concept of *habitat* arises in urban fabrics design. Far from being chaotic, the territorial organization of medinas propose a functional scheme to be played in the project.

With functionalist attitude, Ecochard explores the aggregative modalities. He hypothesizes a classical system of arrays, up to excluding it for spatial economy. The cluster distribution, around a central void, ensures greater territorial density, implies smaller infrastructures and allows a common neighbourhood space. Public spaces are hence not serial but hierarchic: primary streets connect metropolitan territory out of the fabric, according to Athens Charter, and lead to urban streets providing access. Here the system changes: small pedestrian streets – *ruelles* - lead to neighbourhood *placettes*, and these run to semi-private alleys, *impasses*, to enter houses. Variation of section and directions characterize this concatenation of voids, different and yet connected, whose differences determine uses and privacy gradient.

Public space hierarchy is perfectly consistent with the historical model of reference. The inner space of medinas provides for an intuitive progression of socio-cultural senses, from sharing to privacy. Most rectilinear alleys crossing the town are places of exchange and anonymity. Section variation signals the transition to residential sectors, where commercial activities thin out to give space to neighbourhood facilities. Directional shifts - the *chicanes* - emphasize changes of behaviour code. The public space becomes a neighbourhood space, selecting uses, attendance, and social control. Subsequent section or direction shifts lead to small common areas, linked to the patio space: home fireplace and in turn servant space of the dwelling.

Similarities in spatial progressions of the two fabrics are the clearest link between low-rise dwellings morphology and medinas, expressly declared by Ecochard in his works. However, the same "concentric" principle can be found in territorial organization.

The *cit  horizontale* is structured in neighbourhood units of 1500 inhabitants: living areas are aggregated around a place for proximity relationships. Five neighbourhood units form a district of 9000 inhabitants, structured on a centre for recreating activities, provided with the mosque, the hammam, the Koranic school, the market. "*Smaller, the district dies, larger it is no longer on the scale of man, who feels isolated*" (Ecochard, 1955a, p.199). As far as possible, the connection between the neighbourhood unit centre and the district centre must be pedestrian. Four up to five neighbourhoods form a satellite city, provided with industrial and working areas. Vehicular circulation is external, connecting sectors through natural landscape. Let's go back to the medina: within the walls, the narrow and labyrinthine morphology refers to residential neighbourhoods. This lead to wider and straighter paths, with the mosque, the Koranic school and other facilities. The main souk is a crossing path that relates urban gates on different sides and leads, outside the walls, to agricultural or pastoral fields. Internal and external planning are in strict relation, living the historical ecosystem of the symbiosis between the medina and its surroundings. The territory source of supply serves the commercial city, which in turn hosts the labour force of the camps (Radoine, 2011).

The geometrical and technological rationalization of these principles appears in the urban plan for the Carrieres Centrales in Casablanca (figure 2). Modern zoning in homogeneous areas is distributed according to traditional relational principles. In dense dwelling areas, made of patio residences, thick 8x8 texture refers to ancient morphologies. These are connected one to each other without losing morphological continuity. Horizontal fabrics, built on a human scale, are punctuated by knots, where the verticality of minarets is joined by the high-rise blocks erected as a model of the future transformation.

Figure 2: Service de l'Urbanisme, Masterplan for Carrieres Centrales in Casablanca, 1950. Source: Avermaete, T., Casciato, M. (2014), *Casablanca-Chandigarh: bilans d'une modernisation*, CCA - Canadian Centre of Architecture, Montreal p. 263

### 3. Spontaneous evolution and a new typo-morphology codification

In the prevision of an infrastructure for housing development lies Ecochard intuition on in the making nature of Mediterranean city. *Habitat pour le plus grand nombre* is not a prefigurative project. It is a process in progress, which conceives some typed devices - the *bidonville ameliorée*, the horizontal fabric and the vertical blocks – to be implemented in a progressive way, according to changing of needs and means.

It happens, however, that reality overcomes imagination. Ecochard cities effectively played as infrastructures for change, having driven evolution towards new forms and types. In this sense the Ecochard intuition has been validated by history in the following 60 years. Nevertheless, the direction of evolution has been continually perfected after Moroccan independence, basing on the interactions between contextual conditions and responsiveness of public and private actors.

Evolutionary habitat has been adopted as strategy by the new independent state for decades (Belquih and Fadloulah, 1986), whilst having been adapted several times in types and methods of realization. Adaptation has been driven by action-reaction dynamics between housing crisis and spontaneous response, ready to supply the shortcomings of the official response.

Initially, Ecochard system was applied unchanged. In 1957 two financing formulas, *lots évolutifs* and *lots économiques*, provided assistance to build an 8x8 base cell. Financial difficulties led to a first typology variation: the *Trames Sanitaires Ameliorées*, since 1963, reduced the size of the lots to 48m<sup>2</sup>. At the same time, the 1965-1967 three-year plan extends the Ecochard plan of Yacoub el Mansour in Rabat, keeping the cell unchanged but altering the territorial design, renouncing to the neighbourhood morphology: the absence of neighbourhood facilities marks in fact most of the realizations.

Nevertheless, until the mid-1960s Ecochard system was kept constant, and 8x8 cells were the most applied type (Belquih and Fadloulah, 1986).

Shifts occur in response to crises. The growing demographic pressure, to which public action cannot cope, triggers two distinct but converging processes: the transformation of housing typology and the emergence of a new morphological type. On the one hand demographic pressure inducts inhabitants to spontaneous superelevations. On the other, clandestine dwellings appeared, following the same pattern of the official city. The first phenomenon is the most striking, and it leads within a decade to the complete metamorphosis of Ecochard fabrics (figure 3). Progressively a new room is built in the patio, hence the house is elevated on the same plot, leaving just a small void instead for ground floor ventilation. The spontaneous dynamics has strengthened in the early seventies: in 1971 the state stopped considering the 8x8 fabrics ad temporary, pushing towards land normalization.

Figure 3: Spontaneous adaptation of Ecochard's Cité Yacoub el Mansour, Rabat. Source: Photothèque, Ecole Nationale d'Architecture, Rabat

The typological variation takes different forms according to purpose. In case of response to a family requirement, the single-family units have been elevated up to two levels, maintaining their unity and their residential function. Another variation occurs in response to the lack of activities, with a speculative intent: superelevation, in this case, lead commercial or artisan shops on ground floor, to reconstruct proximity facilities neglected by public works. Furthermore, lower levels are rented to different families, shifting to a collective housing.

The transition is complete. Horizontal Ecochard fabrics spontaneously become townhouses, and finally small collective housing. This causes some problems, such as over densification – from 50 houses per hectare according to Ecochard plan, up to over 100 – and infrastructure inadequacy. That's why spontaneous variation begun to be provided for in official planning.

New dwellings were being codified through official acts towards a new type, nowadays known in Morocco as *Maison Moderne Marocaine* – although this name has never appeared in official sources.

The decree n. 2-64-445 of December 1964, regulating for the first time social housing, requires dwellings performances and dimensions deduced from the new spontaneous type. These requirements are the basis for design of standard plans provided by the State for assisted construction. Superelevation was expected at the beginning, offering to inhabitants the typological scheme to be followed.

The first urban plan for independent Morocco capital the *Schéma Directeur d'Aménagement Urban* of Rabat-Salé discussed in 1971 and published in 1973, incorporates strategies of evolutionary habitat, accepting superelevation and providing further formulas (Chaline, 1989). Such typology became the design tool of "integrated projects". Plans designing urban fabrics including different economic standards, according to the size of the lots. A morphologically compact urban design juxtaposes lots between 64 and 144 m<sup>2</sup>, for which type-plans are provided to the owner for construction. Official planning has finally introduced a tool based on spontaneous adaptation (figure 4).

It is therefore no coincidence the morpho-typological coherence that can be observed in many districts of the Moroccan cities. The dense scan of the fabric - with dimensions between 8 and 12 meters - and the juxtaposition of comparable typologies are the constants linking together the original Ecochard *cit *, now completely raised, most of post-independence urban extensions, up to the clandestine dwellings. The self-organized genesis of this process returns to its origins, to de fully-spontaneous urban production.

Figure 4: Plans comparison : a. historic medina house, Rabat; b. Ecochard patio house, 1948; c. Spontaneous adaptations; d. Type plans, Rabat, 1973.

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## Conclusion

The short present of Ecochard action in Morocco (1946-1952) reverberates in the compression between his past and his future. His Moroccan projects reflect a process result of random relations between design, local culture and spontaneous actions. Originated by self-organized city, they typed with functionalist lucidity the intuitive structure of the Mediterranean space, to be in their turn adapted and subsequently codified in a new typology and in a new urban form. *Habitat pour le plus grand nombre* represents, hence, a link in the chain of in the making Moroccan and Mediterranean cities.

The consistency of this process can be found in some trends that still inform contemporary Moroccan architecture and cities: sense of urbanity, compression of urban space, scale, tight rhythm of fabrics and architectures. Persistent phenomena of a self-organized evolutionary process interpreted first, and then guided by the introduction of a hetero-organized force. Thus, Ecochard proposes a method, a way to deal with spontaneous city. Therein it's possible to draw noteworthy lessons to face challenges of slums and objectives of nowadays city.



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