

‘Urban planning as the first step of architecture’ a response to the mass housing issue and the quality of its interior landscape: The Case Study of Pouillon’s Housing Estate ‘Diar El Mahçoul’ in Algiers

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Abstract

The problem of mass housing dates back to the fifties as a crisis of the modern movement. Several responses have been proposed through the charters of CIAM where the future of the mass housing construction was in standardization and heavy industrialization in the image of mass production system. This created a separation between the housing itself and its environment. Meanwhile, Fernand Pouillon, far from theoretical debates, was able to find answers to the mass housing production issue by returning to the design (*composition*) of the traditional city, where urban planning established the art of architecture, and housing with its inner landscape as a part of the city. Through the analysis of the housing estate Diar El Mahçoul of Fernand Pouillon, we will try to understand the modern vision of the future of housing, which were his references, his tools and how did he manage to do it?

Keywords

Architectural composition, architecture and urban planning, housing estate and city, mass housing, Diar El Mahçoul, Fernand Pouillon.

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Introduction

This mass housing issue dates back to the fifties as a crisis of the modern movement. Several international congresses of modern architecture (CIAM) have been organized to solve this problem. Algeria does not escape this crisis as long as it was a French colony at the time. An intense activity of housing construction was undertaken in order to eliminate slums invading the capital. The answer brought by the architects of the modern movement at the time was the standardization and heavy industrialization of mass housing following the example of the car industry, with compositions based on the layout of the ground plan.

Meanwhile, Fernand Pouillon introduced new ideas and a new vision for the future of the construction of mass housing, which were criticized by most of his colleagues.

He concretized his ideas thanks to Jacques Chevalier newly elected mayor of Algiers at the time, who entrusted him with the construction of more than 7000 apartments divided into three complexes: Diar Es Saada, Diar El Mahçoul and Climat de France. He wanted to give a new image to the city. For his project he chose an architect who had proved his value with two important projects: the complex of the Old Port of Marseille, and the 200 apartments of Aix-en-Provence.

He resumed all the issues that were discussed by the modern movement. The most fundamental is the question of mass production of housing; *"I struggled alone so that the neglected part of the architecture finds life, spirit and love"*.¹ From this theme arise other problems which the relationship between architectural language and constructive system, that pushed Pouillon to reconcile design and construction processes to reach a high level of perfection.

Pouillon's responses to the housing massive construction involved the continuity relationship between architecture and urban planning ensured with a new interpretation of the architectural design (*composition*) while updating processes, techniques and ancestral construction devices.

The aim of this article is to understand this relationship between urbanism and architecture in Pouillon's architecture that responds to the problem of housing mass construction and architectural quality of its internal landscape, through the analysis of the complex of Diar El Mahçoul. We will try to determine his references, tools and understand the logic of his *"composition"*.

It is necessary to point out that this research was a little hard to do due to the scarcity of graphic documents. This is one of the reasons why the work of Pouillon is greatly unknown. This lack of raw material makes the work of researchers difficult and prevents them from doing in-depth studies.

In our case, the analysis of Pouillon's housing estates was possible thanks to the archives of the "Les Pierres sauvages de Belcastel" association.

Despite the small amount of material, it was possible to carry out a minimum of research work.

Diar El Mahçoul as a new vision of the mass housing

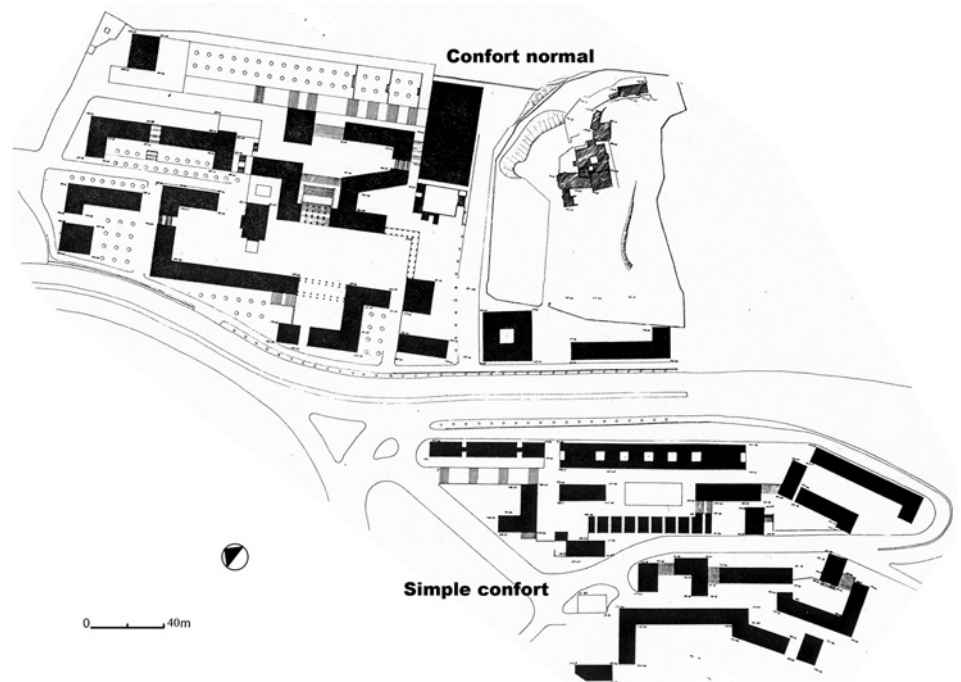
The composition of Diar El Mahçoul

Diar El Mahçoul is a housing complex built between 1953 and 1955, on the heights of Algiers with views of the sea, on sites selected exclusively by Fernand Pouillon. The three complexes are part of a political project for the equality of Muslim and European citizens.

1 Huet, Bernard, « La modernité de Fernand Pouillon », in *Fernand Pouillon, architecte méditerranéen*, [Marseille], éditions Imbernon, 2001.

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[Fig. 1] Diar El Mahçoul, «confort moyen» and «simple confort».

Source: Archive of «la fondation des pierres sauvages de Fernand Pouillon».

They are part of an HLM (*Habitation à loyer modéré*) program to make up for the housing deficit in the capital, on one hand; and they are aimed at getting rid of the slums in Algiers and at giving a new urban image to the capital, on the other hand.

Diar El Mahçoul consists of two parts (figure 1). A higher part called *confort normal* that contains 650 units for Europeans; and a lower part called *simple confort* with 900 units for the Algerian Muslims. Due to our goals, we will examine only the lower part of the complex (figure 2).

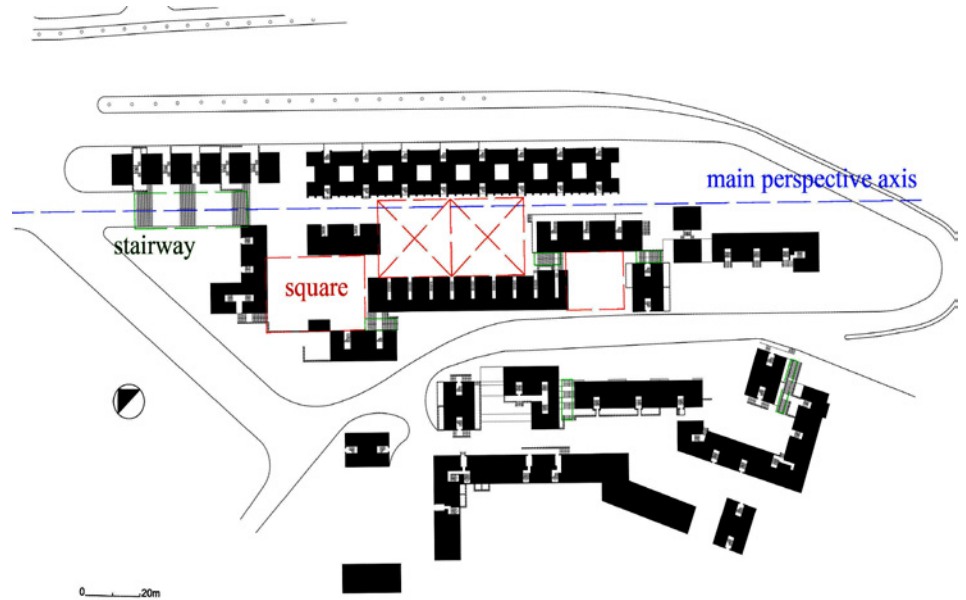
We can observe that the placement of the buildings is related to a main perspective axis, which traverses the complex from end to end without any visual barriers, passing through a large square (figure 3). This square is the key part of the complex, to which all the entrances of the housing estate lead to. It is animated in its length by two rhythms of bays (*travée*) that give it a monumental dimension. It is like a stage in which the viewer can take his time to contemplate the interior landscape. His curiosity will increase by discovering the sequence which is ensured by the diversity of visual openings created by the architect.

This animation of the architectural promenade is reinforced by the differences in elevation provided by the slope of the ground, which the architect has taken advantage of. They allow passing from one landscape to another while playing

[Fig. 2] Diar El Mahçoul, simple confort part.

Source: Author.





[Fig. 3] Diar El Mahçoul simple comfort (Islamic part) with the main axis of perspective, squares and stairways.

Source: Author.

with the height of the buildings. The viewer always feels he is in a homogeneous environment without sudden changes, thanks to sequences that differ according to the movements of the viewer and of his viewing angle. Therefore, the link between inside and outside is strengthened further, and allows introducing the exterior landscape into the housing estate.

New composition approach for the mass housing

What is important in Pouillon's approach is that he composes with the built environment. He composes with the city: the perspective axes and visual openings lead one's eye on to the built environment. Moreover, the small passages and squares inside the complex make it a part of the city. According to this vision, urban planning is the result of architecture.

This is Pouillon's reaction against the architecture of the ground plan. He explains it very well in *Ordonnances*, by saying that "*When envisaging a city or part of a city, it is not enough to think only of the plan: one has to be able to imagine the architecture in all its smallest details...*"²

In the same book, he stresses this important point which consists of composing in relation to surrounding architecture: "*In the seventeenth and eighteenth centuries, urban structure was conceived purely in relation to existing architecture. Therein lies its great merit. The form and aspect of existing buildings defined the urban plan. It was easy, in that epoch, to create an urban site: urban structure derived expressly from the installation (mise en place) of architecture.*"³

Auguste Choisy as a main reference

The ground plan much favoured by the modern movement's architect who followed the *Athens Charter*, is based on a horizontal vision of space, an aerial view.

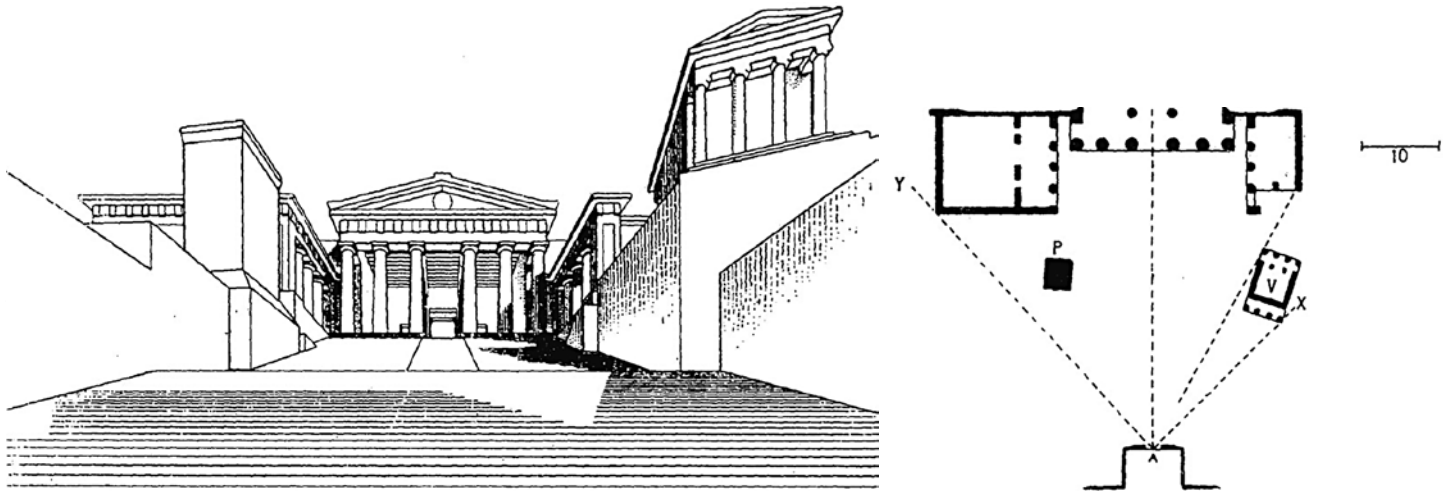
For Pouillon, the composition of urban spaces should refer to the height of the human eye, which embraces the architectural object by surrounding it. This is an interpretation of Choisy's lesson on the Acropolis of Athens. To understand the arrangement of the buildings according to Choisy, we must look at the complex through the viewer's eye: everything is arranged in relation to him by following viewing angles. For him, the overall plan of the Acropolis, is not an "*accumulation of buildings from various periods*"⁴, but a plan "*methodically designed according to a general vision...*"⁵

2 Fernand Pouillon, *Ordonnances. Hôtels et résidences des XVI, XVII et XVIII siècles*, in Caruso, A, Thomas, H, «The Stones of Fernand Pouillon, an alternative modernism in French architecture», gta Verlag, Zurich, 53.

3 Ibid., 54.

4 Choisy, A, 1899, «Histoire de l'Architecture», Gauthiers-Villars, Tome 1, Paris, 413.

5 Choisy, A, *ibid.*



[Fig. 4] Propylaea of the Acropolis of Athens.
Source: August Choisy, *Histoire de l'architecture*,
Tome 1, 414.

According to Choisy, the overall plan is made according to symmetry, but not bilateral symmetry. Jacques Lucan says it is “visual symmetry, symmetry of the masses, perspective symmetry, picturesque, optical or optical balance, that is, the result of a balancing of the masses (*pondération des masses*)”⁶ (Figure 4). It is the picturesque principle of architectural composition.

Choisy takes the example of the propylaea of Athens to explain this principle of composition. The propylaea is composed of a symmetrical central body and two wings unequal in shape. The left wing is wider than the right one. According to Choisy, this set, even if it appears irregular, is in equilibrium. The temple of victory compensates for the difference between the two wings. This allows for a balance of mass that the viewer can appreciate from a well-chosen viewpoint. By truncating the right wing, it allows the temple of victory to be drawn entirely in an image that the viewer can see from point ‘A’ [fig. 4].

The visual symmetry with which the buildings are arranged is based on the angle view and the formation of the tables for the spectator. For Choisy, ‘*The views angle are those which the ancients generally seek to maintain. A view angle is more picturesque, a front view is more majestic: to each its role; the view angle is the rule, the front view an exception always motivated*’ For the Greeks, the composition of a complex must belong to a picture that the spectator sees from the first sight. Choisy called it the principle of the first impression that the Greeks strengthen in their composition.

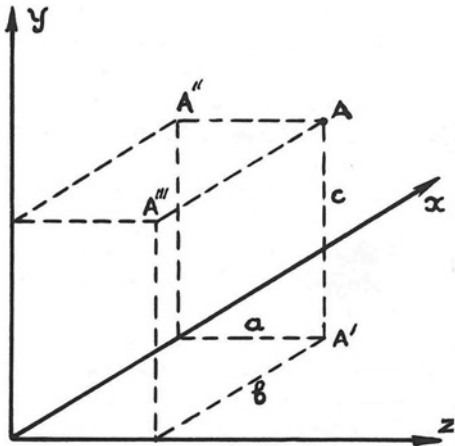
Constantinos Doxiadis and the viewpoint arrangement system in the Acropolis of Athens.

The discovery of Choisy was pushed even further this time with a Greek architect; Constantinos Doxiadis (1914-1975), he arrived in his doctoral thesis written in German in 1937 to determine the mathematical method with which were implanted the different buildings of the Acropolis.

His hypothesis starts from the same point of view of Choisy, «*it is not always easy to remember that these complexes were built by the ancient Greeks not as isolated objects, as we see them today, but as a part of a dynamic urban environment [...]. If we have hitherto failed to recognize that the urban layouts of the archaic, classic, and Hellenistic periods were organized on the basis of a precisely calculated system, it is because we are strongly influenced, consciously or unconsciously, by the rectangular system of coordinates [fig. 5] in which every point is established by its positions on a plan in relation to two lines intersecting at right angles. This system was completely unknown to the ancient Greeks. Their layouts were not designed on a drawing board; each was developed on a site in an existing landscape, which was not subject to the laws of axial coordinates.*»⁷

6 Lucan. J, composition-non composition, op. cit., composition et parcours - Auguste Choisy et le pittoresque grec, 352.

7 Doxiadis, Architectural space in Ancient Greece, The MIT press 1972, p. 4.



[Fig. 5] The rectangular system of coordinates.
Source: Doxiadis, *Architectural space in Ancient Greece*, The MIT press, 1972.

According to Doxiadis's hypothesis, man was the central point in the Greek positioning system, known as the polar coordinate system. Each object was determined by the position of the pedestrian [fig. 6]. This allows determining accurately the position of each building of the Acropolis with regard to a selected viewpoint which is part of the promenade designed by the architect. Usually the main viewpoint according to which the buildings are located is the entrance highlighted by the Propylaea.

Composition rules of acropolis established by Doxiadis [fig. 7] are basically two principles; the first is that all the buildings are positioned relative to the viewpoint by viewing angles that are either part of a system of twelve parts ($360/12 = 30^\circ$) or a system of ten parts ($360 / 10 = 36^\circ$). The second principle is that in addition to the viewing angle, the position of a building is also determined with respect to its distance from the viewpoint which is calculated by foot and which was usually a sequence of 100 ft (100- 200-300-400-500 in the case of the Acropolis).

He also noticed that the usually central angle of the composition was left free of buildings and opened directly to the surrounding countryside. It represents the way that the viewer has to borrow, it is the "sacred way"⁸.

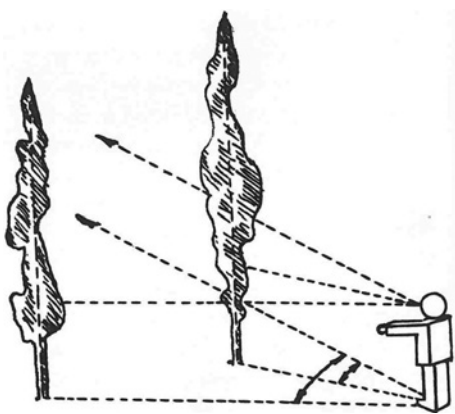
Architectural composition between bilateral and visual symmetry.

This discovery regarding the disposition of the Acropolis buildings will come out the composition of the circle of bilateral symmetry and closure of space and opens up other way for contemporary architects who will pass from the closed order to the open order⁹ with another interpretation of space and architectural courses.

Pouillon's career flourished at the end of the 1940s, in the period of the post-war reconstruction. It was a time that favored the free plan of Le Corbusier and Mies van der Rohe, with new construction systems, which allowed freeing the wall of its structural function.

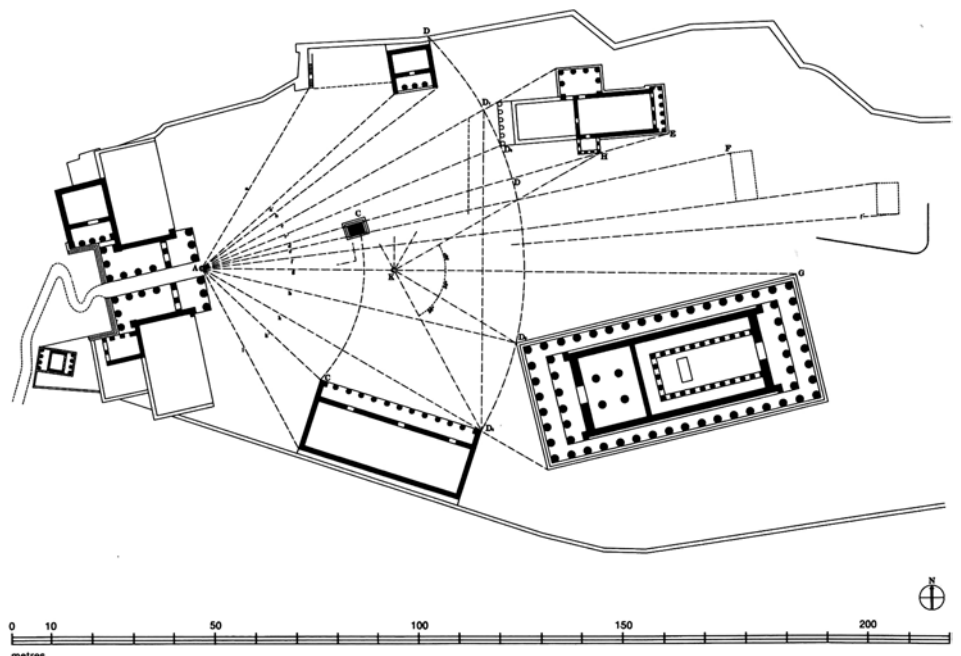
Note that this vision of Le Corbusier and Mies follows what August Choisy discovered about the arrangement of the buildings on the Acropolis in the late 19th century.

This discovery, which regards the placement of the buildings of the Acropolis, removes composition from the realm of bilateral symmetry and of closed space, which was supported by Jacques-François Blondel¹⁰ and Jean-Nicolas-Louis Durand in the late 18th and early 19th centuries.



[Fig. 6] Polar coordinate system.
Source: Doxiadis, *Architectural space in Ancient Greece*, The MIT press, 1972.

[Fig. 7] Athens, Acropolis III, after 450 b.c.
Plan, "Positioning logic of the Acropolis of Athens buildings".
Source: Doxiadis, *Architectural space in Ancient Greece*, The MIT press 1972, p. 37.



8 Ibidem, p5

9 See about that : "composition non-composition" of Jacques Lucan, op. cit.

10 Blondel wrote in his "Cours d'Architecture ", Volume 1, Paris, 1771, that "symmetry must be regarded as one of the main beauties of Architecture; it must be regarded as the enemy of contrast".

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Because in the 19th century, a time when prevailing academicism of the school of fine arts (beaux-arts), it was admitted time that talking about architectural composition is talking about bilateral symmetry along a central axis of symmetry.

Among the first architects who tried to systematize and provide a theoretical framework for the act of composing in architecture is Jean Nicolas Luis Durand, one of the most influential theorists of the 19th century. In his book « *Précis des leçons d'Architecture* », he gives the procedures to compose any project. He said about this “combine these different elements, then move to different parts of the buildings, and these parts to the whole, that is the step we must follow when one wants to learn to compose”¹¹. Jacques-François Blondel (1705-1774) goes further and says that “the symmetry must be regarded as one of the main beauties of Architecture; it must be regarded as the enemy of contrast [...]”¹²

The term “symmetry” refers to that time much more to the physical symmetry of two identical parts with respect to a central axis than to the symmetry as eurhythmy or proportion. Etienne-Luis Boullée (1728-1799) confirms it by saying that architecture is “an art based on the principles of parity”¹³ and “in architecture, lack of proportion is usually very sensitive only in the eyes of connoisseurs.”¹⁴ Moreover, Pierre François Léonard Fontaine (1762-1853) follows the same reasoning of Boullée and adds; “the symmetry and building arrangement (ordonnance) are the first conditions of architecture”¹⁵; “Without arrangement, without symmetry, there is no architecture.”¹⁶

In the late 19th century, several serious excavations were made in Greece to try to unravel the mystery of the irregular arrangement of the different monuments of the Acropolis. There has been several researchers who interpreted the results of these excavations, announcing hypotheses about the asymmetry of the Propylaea of the Acropolis. The most remarkable is that of August Choisy, which has been mentioned previously.

Le Corbusier was inspired by this discovery concerning the asymmetry and angular approach which rule the design of the Acropolis to develop the idea of the free plan and of the architectural promenade. Moreover, he used Choisy's drawings of the Greek picturesque as illustrations for his book “*Vers une architecture*”. For Le Corbusier, the asymmetry of the plan provides dynamism and movement, while symmetry makes architecture static¹⁷.

Mies van der Rohe, according to the same thought, introduced this movement in his design for a brick country house, with its free plan and the opening of the corners, by using walls that never intersect, “which Wright had announced when he often favoured diagonal views to create spatial continuity and fluidity”¹⁸.

Pouillon returned to the traditional composition of the city by drawing from Choisy's lessons on the Greek picturesque as well as from his master Eugène Beaudoin's rules for urban planning.

Pouillon adds to this the relationship between solids and voids, and the fact that urban planning should deal much more with the space between the buildings (figure 8): “Let's consider this notion of space, this constructed space that has so much influence on people. It is not a question of horizontal space but of space surrounded by construction that determines a “hollow”, this liquid-crystal as I sometimes call it, in general delimited by four sides, sometimes by two if it is a road.”¹⁹ At the time, this was a new urban vision, which reconciled two methods of composition: the closed order with an interior landscape which shuts into itself without any relation with the exterior; and the open order, which opens totally onto the exterior with no internal privacy for the residents.

11 Jean Nicolas Luis Durand, «Précis des leçons d'Architecture vol 1», 1819, 2.

12 Jacques François Blondel, Cours d'Architecture, Tome 1, Paris, 1771, livre premier, première partie : traité de la décoration extérieure des bâtiments, chapitre IV : Analyse de l'art, 408.

13 Etienne Luis Boullée, Architecture. Essai sur l'art, 35.

14 Etienne Luis Boullée, Architecture. op cité.67

15 Pierre François Léonard Fontaine, Journal 1799-1853, Paris, 1987, 187

16 Ibidem, 303.

17 Lucan. J, composition-non composition, op. cit.

18 Lucan. J, composition-non composition, op. cit., la relecture de la fermeture- l'espace et le temps, 390.

19 F. Pouillon in «Passions et angoisses d'un créateur», interview with Jean-François Dhuys, *Les nouvelles Littéraires*, 20 April 1978, in Caruso. A, Thomas. H, « The Stones of Fernand Pouillon, an alternative modernism in French architecture », op. cit., 72.

[Fig. 8] Diar El Mahçoul confort moyen, view of «la place de la mer».

Source: Archive of «la fondation des pierres sauvages de Fernand Pouillon».



Module and bay '*travée*' as two devices of architectural composition.

The arrangement of the buildings of Diar El Mahçoul is made following an orthogonal grid whose module is a constructive element, the *marmite*²⁰, which reinforces the relationship between design and construction. The fact of design with the module and materialize it on site with constructive element (*marmite*) was very useful for designers as for companies of realization.

The composition of the complex requires that the buildings always form an internal square. Afterwards, the gap between the buildings and the differences in height are established by focusing viewing angles that are part of a planned route. At the end, everything is adjusted in relation to the modules. Through this method Pouillon ensured the quality of the interior and exterior spaces, as well as the speed of construction.

In addition to the module that regulates the general plan, there is the measurement of the bay, which regulates the architecture and the arrangement of the different facades of the complex, as well as the position of the buildings. For Pouillon, the design of the squares is determined not only by the grid, but also by the architecture of the surrounding buildings. The bay is the element which regulates the arrangement and architecture of the buildings. For example, in Diar El Mahçoul, the main square of the Muslim part is bounded by two long buildings, five floors high. One of them is given a rhythm by pilasters [fig. 9] and the other by a succession of staircases. Two rhythms to make the square monumental while giving each building its own identity.

The polar coordinate system and viewing angles:

Besides the orthogonal grid which regulates the position of the buildings according to the Cartesian coordinate system, it is believed that the polar coordinate system was used also. At least, there is the use of a single polar coordinate, that is the "*angle*", to ensure symmetry and visual balance from the viewpoint through which one establishes the first contact with the complex, as in the Acropolis of Athens.

In Diar El Mahçoul, in the Muslim part also, it is possible to verify that from a high viewpoint at the top of the main staircase, the two buildings which make up the entrance of the complex are in visual symmetry in relation to the central axis of the stairs (figure 10), which is also the main perspective axis which crosses the large square. When descending to the bottom of the stairs, one is confronted with a choice of itineraries. Each itinerary allows one to go from one square to another with different sensations, according to the size and the arrangement of the square, the position of the entrances and the viewing angles allowed by these entrances.

20 Sayen. C, « l'Architecture par Fernand Pouillon », 2014, Editions Transversales, Toulouse, 55, the author explains the arrangement of the Diar es Saada buildings according to the module of the *marmite*, and we think that F. Pouillon did the same in Diar El Mahçoul.

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[Fig. 9] Diar El Mahçoul simple confort, order of a building facade of the great square.

Source: Archive of «*la fondation des pierres sauvages de Fernand Pouillon*».



The design per part of the housing estate:

About the internal spatial organization of buildings, one will find that all is arranged with the same 60x60cm module of the orthogonal grid. According to Catherine Sayen, after Pouillon determines the implantation principle of the development, he starts the design of the units that constitutes it. It means that he designed dwelling with different combinations; one-room apartment with two-rooms apartment, a two-rooms apartment with three-rooms apartment and so forth²¹, while thinking of the staircase, the height of the floor and the technical ducts -which is his pure invention-. In other words, he designed standard units of dwelling with all details and different typologies. After that, will be a combination game according to the building position, its length and its role in the arrangement of the buildings architecture and the composition of the complex.

This design process, which is based on the design by part of elements constituting the complex, ensured the speed of construction. The unit is the dwelling, so we design in detail only the housing typologies required by the program while thinking about the whole. After, it is a combining game of different types depending on the position of buildings, the façade rhythm desired, and the program. This is the same principle of city design by part, as if the housing estate is considered as a small city.

Conclusion

We have seen that the question of mass housing dates back to the fifties as a crisis of the modern movement. The answers proposed by the modern architects who follow the Athens Charter of 1933 refer to a horizontal vision of space, an aerial view (ground plan). For Pouillon, architecture is viewed by pedestrians and not by aviators. Then he develops a new interpretation of the architectural composition that deal with this housing crisis by building complexes while ensuring the continuity between the housing estate and the city.

This new interpretation of the architectural composition consists in arranging the buildings according to an orthogonal grid, and creates enclosed spaces which are not entirely shut in. This procedure generates open corners as well as passages between the buildings, which make the space closed and fluid at the same time.

Choisy's lesson can be found in the perspective symmetry followed by the buildings. They are arranged in such a way to be balanced following viewpoints that are part of the promenade designed by the architect.

The case of Diar El Mahçoul presents a model of housing estate. Its composition in the image of an urban complex with squares and promenade that form an interior

21 These four housing typologies are only in the "confort moyen" part, while in "simple confort" part, there are only two-rooms apartments.



[Fig. 10] Diar El Mahçoul simple comfort with visual symmetry along the main axis of perspective, and viewpoints following the course.
Source: Author.

landscape distinguishes it from the great complexes of the fifties and their problem of integration in the urban fabric.

Therefore, Pouillon was able to ensure the continuity between architecture and urbanism by considering the housing complex with its interior landscape as a part of the city. This is what confirms the timeliness of Pouillon's solutions: he considered the inhabitant as the central point in housing estate design, and he built the city through the composition of urban complexes considered as parts of the city. This is the principle of continuity between the urban complex and the city. As he wrote in *Ordonnances*, "The architect can rely only on himself to organize a space. It is imperative that each realized work to be a completed composition in and of itself. Whoever takes over and continues the work will do so in the same spirit."²²

Bibliography

- Barazzetta. G, 2001, «Exigence de la construction», in Jean Lucien Bonillo, «Fernand Pouillon architecte méditerranéen», Edition Imbernon, Marseille.
- Barazzetta. G, 2016, «Composition, structure, matériaux: une simultanéité sans concession», Entretien Fernand Pouillon, trentenaire de sa disparition 1986-2016, «l'héritage de Fernand Pouillon, le rôle social de l'architecte», 13 Mai 2016, Rodez-Aveyron-France.
- Caruso. A and Thomas-H, 2014, «The Stones of Fernand Pouillon, an alternative modernism in French architecture», gtaVerlag, Zurich.
- Choisy. A, 1899, «Histoire de l'Architecture», Gauthiers-Villars, Tome 1, Paris.
- Doxiadis, 1972, Architectural space in Ancient Greece, The MIT press, London.
- Le Corbusier, Jeanneret. P, 1984, «Œuvre Complete 1929-1934», Editions d'architecture, Zurich.
- Lucan. J, 1997, Fernand Pouillon architecte, Edition Arsenal, Paris.
- Lucan. J, 2009, composition-non composition ; Architecture et théories, XIX-XXe siècles, PPUR presses polytechniques, Lausanne.
- Pouillon. F, 1968, «Mémoires d'un architecte», éditions du Seuil, Paris.
- Pouillon. F, 1953, Ordonnance. Hôtels et résidences des xvi, xvii et xviii siècles, Ordonnances des cours et des places, ensembles harmonieux d'Aix en Provence, relevés et dessinés par l'atelier de Fernand Pouillon., Cercle d'Etude Architecturale, Aix en Provence.
- Sayen. C, « l'Architecture par Fernand Pouillon », 2014, Editions Transversales, Toulouse.

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22 Pouillon. F, Ordonnance. Hôtels et résidences des XVI, XVII et XVIII siècles, in Caruso. A, Thomas. H, « The Stones of Fernand Pouillon, an alternative modernism in French architecture », op. cit., p. 53.