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Ade

THE BRICK ARCHITECTURE OF CARLOS MIJARES

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ABSTRACT

The extremely original work of Carlos Mijares has to be taken as a landmark in Contemporary Architecture. His ideas are taken from the most significant periods of architecture and from the very different cultures that have existed throughout the history of mankind.

In his work the interrelation of internal and external space, in which the spectator follows journeys through time, allows us to grasp the dimensions of each time as if they were tangible objects rooted in nature.

Light which serves as the main motif of his spatial arrangements and brick which defines the specific dimensional composition of all his work, combine in the architecture of Carlos Mijares to form constant light and shadow, where each moment of the day and season provides an instance of perpetuity formed by different hues and modulations which makes any visit to his work a memorable experience.

In his writings: "Reflections", "Readings", "Sketches", "Meetings" and "Metaphors", Mijares reveals the wide range of perspectives behind his thinking and the depth of ideas which served to create his architecture.

However, the unique nature of his work cannot be revealed by illustrations, drawings and words alone, no matter how profound or poetical the reflections expounded by Carlos Mijares. His architecture is capable of providing a richness of space and light which goes far beyond its environment and time.

The personality, original thinking and work of this Mexican architect has extended beyond the borders of his country and he has rightly been established as a virtuous master of the harmonisation of space enveloped by brick.

Key words: Architecture; Masonry; Clay Brick; Arch; Bond; Pattern; Pendentive.

2. METICULOUS COMPOSITION

Mijares does not allow any concessions in his architecture which would impede an absolute control over composition. For Mijares the interior of a building is as important as the exterior and similar emphasis is placed on the arrangement and use of each and every part of his work.

All his architecture is characterised by the care and attention paid to the entire building down to the smallest detail. It may well be said that each part of his constructions are absolutely essential to the whole and if any of these parts, no matter how small, had to be changed this would have repercussions on the whole of the building.

Space, time, light and materials form a select symphony, perfectly tuned by the composer, in which the slightest variation of a single note within the established keys and melodies would be discordant to the beauty and harmony of the architectonic assembly.

The use of brick in the walls and roofs of Mijares work reveals an ever increasing development of simple architectural composition, which is based on the proportions of the brick itself and which defines the elements and components of his architecture. Mijares' use of brick, the simplest and smallest building unit, provides a maximum enhancement of the spatial arrangement.

The apparent complexity of Mijares' work is not actually the case, as it responds to a simple building technique carried out by skilled bricklayers and following the shape and form suggested by the brick itself.

However, the architect, on the basis of experience, has first skilfully established the basic outlines of a balanced composition which then allows the bricklayer to complete the work satisfactorily without requiring any other guidelines than those suggested by building logic.

3. THE BRICK, MODULAR ELEMENT

The geometrical element employed, the regular parallelepiped brick, with proportional faces of 1, 2 and 4, allows the unit to be spatially arranged and set in different positions in each course, thereby establishing the rich patterns which have been masterfully exploited by Mijares in his brick architecture, on the basis of this modulation of elements (Fig. 1).

Mijares knew how to obtain maximum plasticity from masonry with *flat, edged or stacked* brick arrangements, using single or double units within *a same course or in successive courses*, singly or repeated, together with all manner of combinations of the brick itself: exposing its smaller face or *header*, its intermediate surface area or *stretcher*, or its largest surface area or *bed*.

Figure 1.

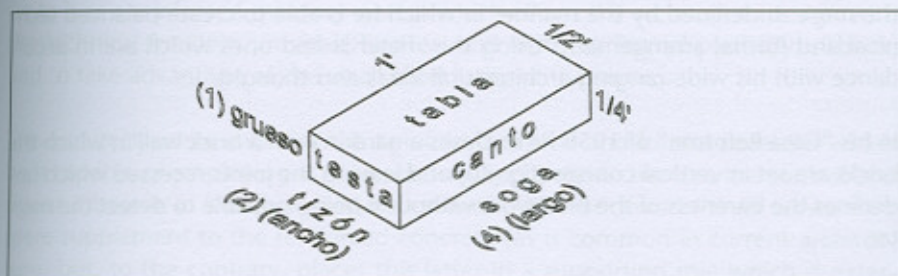


Figure 2.

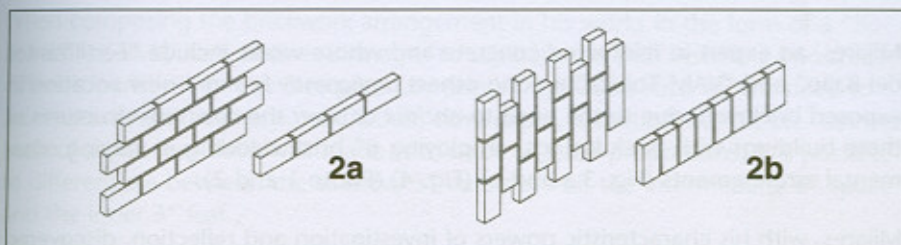


Figure 3.

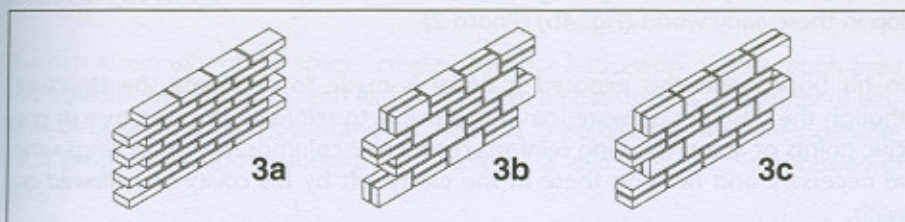


Figure 4.

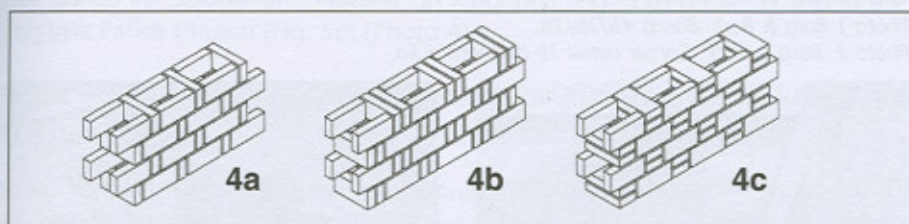
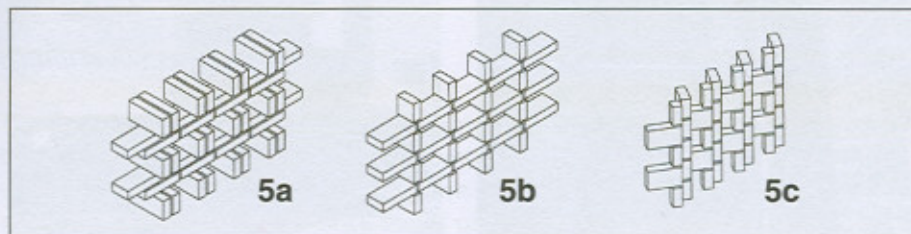


Figure 5.



Brickwork plays a leading role in the architecture of Carlos Mijares and this is all the more underlined by the manner in which he is able to create balanced technical and formal arrangements using this material and ones which are in accordance with his wide-ranging architectural ideas and thought.

In his "Casa Reforma" of 1958 he encloses a garden with a brick wall in which the bricks are set in vertical courses (fig. 2b) and leaving the joints recessed which underlines the bareness of the brickwork without it being possible to detect the mortar.

4. REINFORCED BRICK WALLS

Mijares, an expert in reinforced concrete and whose works include "Fertilizantes del Bajío" and "VAM Toluca" among others, *apparently* found a new vocation in exposed brickwork due to the need to *enclose or cover* the concrete structures of these buildings with brick facings, employing 6" brick cladding in varying ornamental arrangements (Fig. 3.a and b) (Fig. 4) (Photo 1 and 2).

Mijares, with his characteristic powers of investigation and reflection, discovered the possibility of embedding the reinforced concrete structure inside the brick enclosure walls by means of using "hollowed out" walls which he started to develop in these early works (Fig. 4b) (Photo 2).

In his brick works this exposed material is made to dominate the structure, though the designer is aware that it is possible to reinforce the structure in specific points or areas, by using reinforced concrete columns, beams or rings where necessary and housing these in the cavity left by his *cavity or hollowed out* walls.

Photo 1 Borg & Beck. Bonds 4b/3b/3a.

Photo 2. Borg & Beck. Corner detail 3b and lattice 5a.



Mijares referred to this combination as “reinforced brick” and we could widely refer to it as a reinforced masonry system which allows the architect to design with the technical freedom provided by steel and with the formal plasticity of brick, and to take advantage of the small modularity of the same.

The architect, while aware of the twifold technical and formal potential which he is capable of employing in his works, always brings to the fore the control and rigour inherent in the tectonics of brickwork. The brickwork never serves as a mere supplement to the reinforced concrete (as is common in current architecture) but, to the contrary, places this latter in a supporting role which is externally invisible.

When composing the brickwork arrangement in his works in the form of a “hollowed” or *cavity* wall, Mijares manages to separate the wall assembly into three different parts, when this is required by prevailing factors such as: the need to incorporate reinforcement, ventilation, downpipes, esthetical bonds, etc. On the basis of a one foot thick wall made with brick of 1,2,4 proportions, it is possible to differentiate between the external 3” external leaf, the intermediate 6” space and the inner 3” leaf.

5. BRICK LATTICES

The rich luminosity of the spaces created by brick latticework is very much tried and tested in Mijares’ work, and with this system he has formed all manner of patterns of *open* brickwork, by arranging the units in accordance with their geometrical proportions and including the system of a *void created by suppression of brick*.

The simplest forms may be seen in “Borg & Beck” (Fig. 5a) and the more elaborate bonds in “Salones and Notaría” in Jungapeo (Fig. 5.b) (Photo3) and in the San Jose Parish Church (Fig. 5c) (Photo 4).

Similar systems were employed in “Christ Church” in order to *dress* the large windows.

In the “Espacio Ludico” or Recreation Area, the *pendentive* or curved triangular vaulting opened on the outside rises from a profuse ornamental assembly of cantilevered brickwork, though in this case not in an open form.

6. BRICK ARCHES

The Architecture of Mijares knowledgeably combines stretches of blind or open brickwork with the aforementioned combinations, together with hollow forms which are frequently arranged in the form of an arch. The arches are generally of a circular shape and built in brick bands or leaves.

Photo 3. Latticework 5b in "Salones y Notaria" and arch 5c.
Photo 4. Latticework 5c in San José Parish Church.

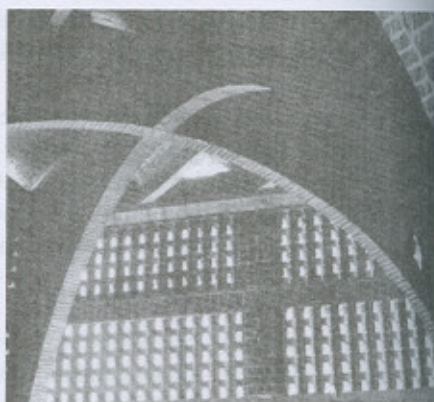
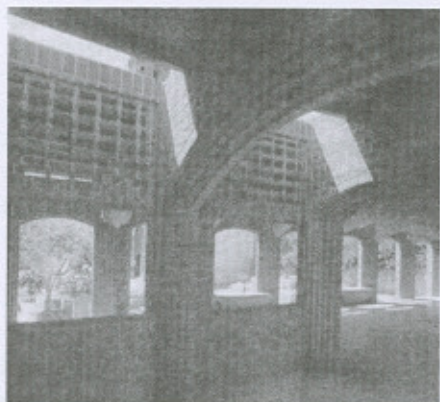


Photo 5. Pantheon Chapel.
Photo 7. Espacio Ludico.

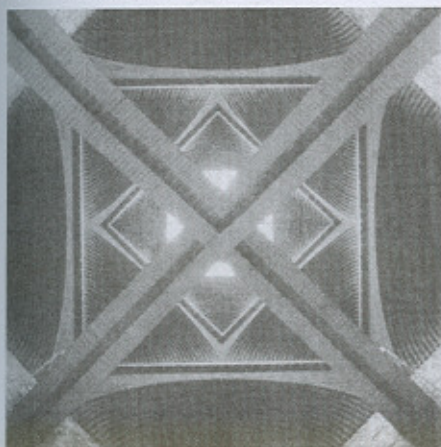


Photo 6. Ciudad Hidalgo Parish Church.
Photo 8. Christ Church



Photo 9. Christ Church. Twin arches, pendentive, skylight.

Photo 10. Christ Church. Twin arches 6b



In the "Capilla del Panteon" or Pantheon chapel, the semicircular opening arch has a one foot thick band of brickwork recessed 3" into the wall on either side, in the form of an archivolt. Above this there is another identical band which is finished on both internal and external sides with two 3" thick leaves (one on each side) leaving the bed of the brick exposed, and running flush with a one and a half foot thick "hollow" wall.

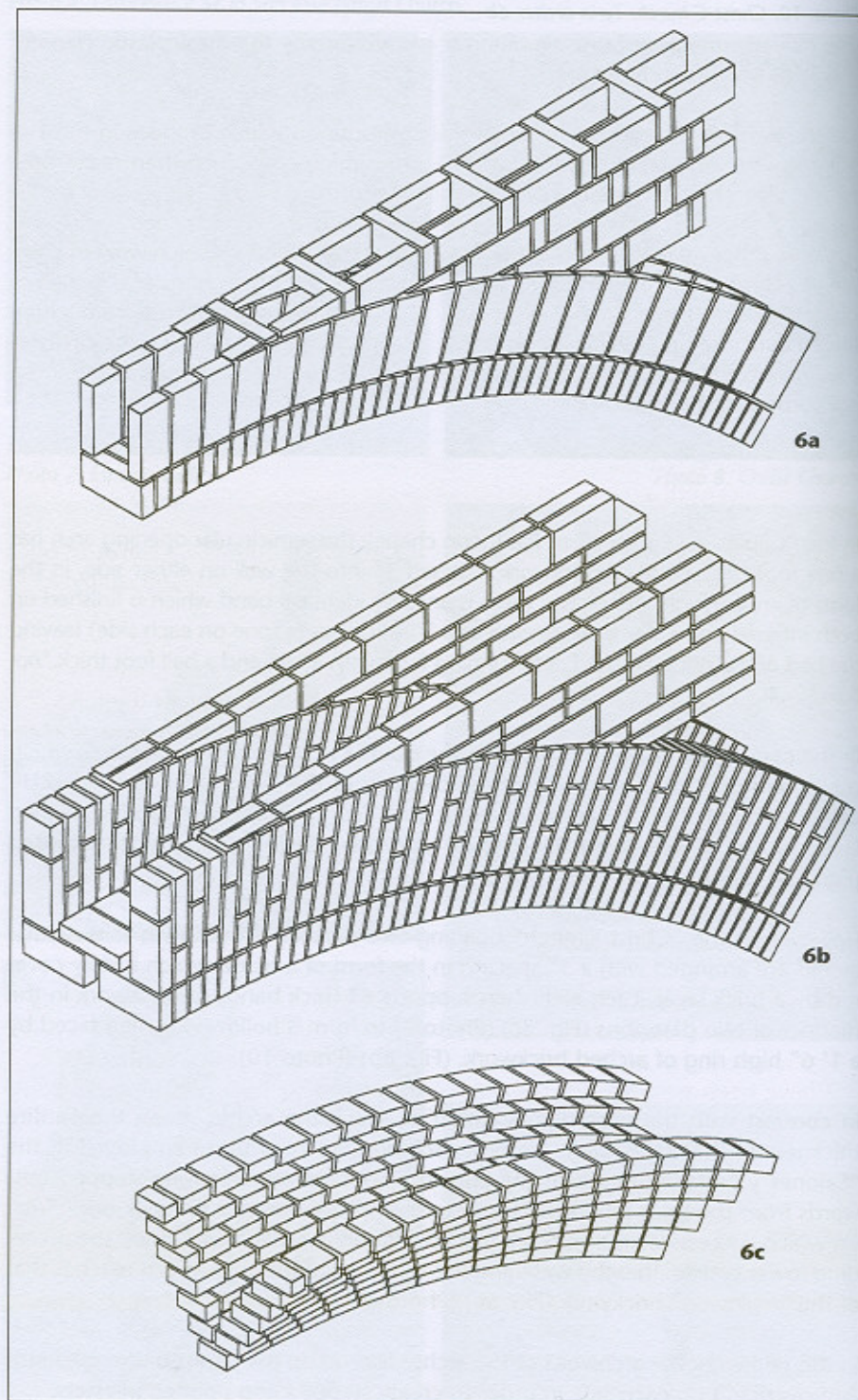
In the case of the arches employed in the double walls (with 1 m spacing), which act as bridge plates and which define the area of the "Parroquia de Ciudad Hidalgo", a band of brick is lined a one foot thick "cavity" wall (Fig 4.a) which is then faced by two 3" leaves of brick (one on each side) leaving the brick bed exposed (Fig. 5.a) (Photo 6).

However, in the "Christ Church" building two parallel 1' thick twin semicircular arches are arranged with a 3" spacing in the form of a recess which is duly covered by a brick layer. Each arch then supports 6" thick bands of brickwork in the manner of two partitions (Fig. 3c) (Photo 9) to form a hollow wall, and faced by a 1' 6" high ring of arched brickwork. (Fig. 6b) (Photo 10).

In contrast with the preceding solution in which the arches reveal their entire thickness in the soffit, there are other solutions such as those employed in the "Salones y Notaría" in which the curved arches are progressively stepped outwards from the brick pilasters. This system employs a central 6" thick brick "rib" on which successive archivolts are placed with an overhang of 3" over the preceding lower course, thereby widening the thickness of the arch until it reaches that of the "hollowed" brickwork (Fig. 6c) (Photo 3).

In the said work the archivolts of the arches ascend up the jambs of the openings and overhang on each side in order to create stepped and pointed pilasters.

Figure 6.



7. BRICK PENDENTIVES

The curved triangles of brick vaulting are undoubtedly the most plastic element of Carlos Mijares architecture.

On the basis of the reticular geometrical composition which presides in most of Mijares work, the architect employs the orthogonal corners to then make one, two or three spatial gyrations of the reticulate form.

In this manner he is able to construct brick vaults and roofing which work in compression and which only requires steel to hold the bearing sections of the walls in order to absorb these stresses. As such, the pendentives normally rise from a reinforced concrete ring which strengthens the support and is set within the cavity of the "hollowed" wall and if necessary it is possible to place columns at the internal corners of the same wall.

The construction process of the pendentives does not require any formwork as each course of brickwork is set 2/3 on the lower course and only overhangs by a 1/4 brick.

These pendentives rise from two angled outer walls in successive leaves of brick which form semicircular vaulting, each course being supported and cantilevered by a 1/4 brick over the preceding layer (Fig. 7.a).

At their base the said courses bear on two walls set at right angles and, as such, the first layer starts from a brick set in the corner of the walls and the following layers are arranged in a successive cantilever form which require an increasing circular brick arrangement in accordance with the length of vaulting described in each course (Fig. 7b).

Within a square floor space, as in the "Pantheon chapel", when placing four pendentives in the corners, once these have been completed these will then form a *dos-à-dos* or back to back formation in the centre of the four sides, thereby creating a further smaller quadrangle set 90° to the original plan layout (Photo 5).

If the said quadrant is then formed in an equivalent manner by four smaller pendentives this will then provide a further, and even smaller, quadrangle in proportion and parallel to the original plan layout of the building, as a further 90° turn will have been formed with respect to the preceding intermediate quadrangle (Photo 11).

In "Christ Church" this spatial arrangement has been made in the form of three gyrations at different heights which creates an illuminated space and which, due to the large floor area, requires an interior arcade of diagonally crossed twin semi-circular arches (Photo 8 and Photo 9).

In the "Espacio Ludico", the arrangement of pendentives is inverted, so that they open outwards and instead of forming a central skylight over a quadrangle, they widen towards the outside and capture the light in a lateral fashion (Photo 7).

Photo 11. Pantheon Chapel. Interior view of the 8 pendentives (4+4) with central skylight.

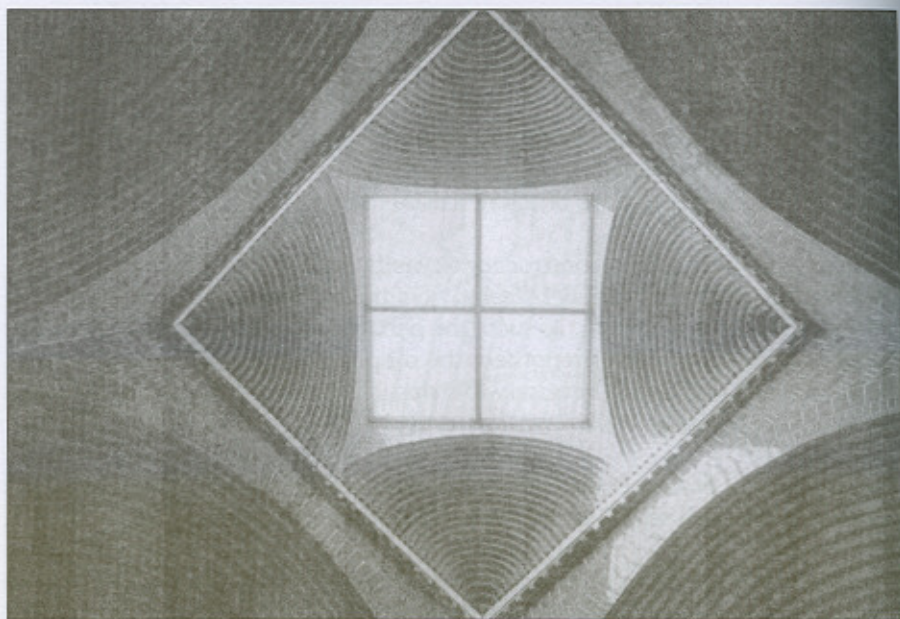


Figure 7.

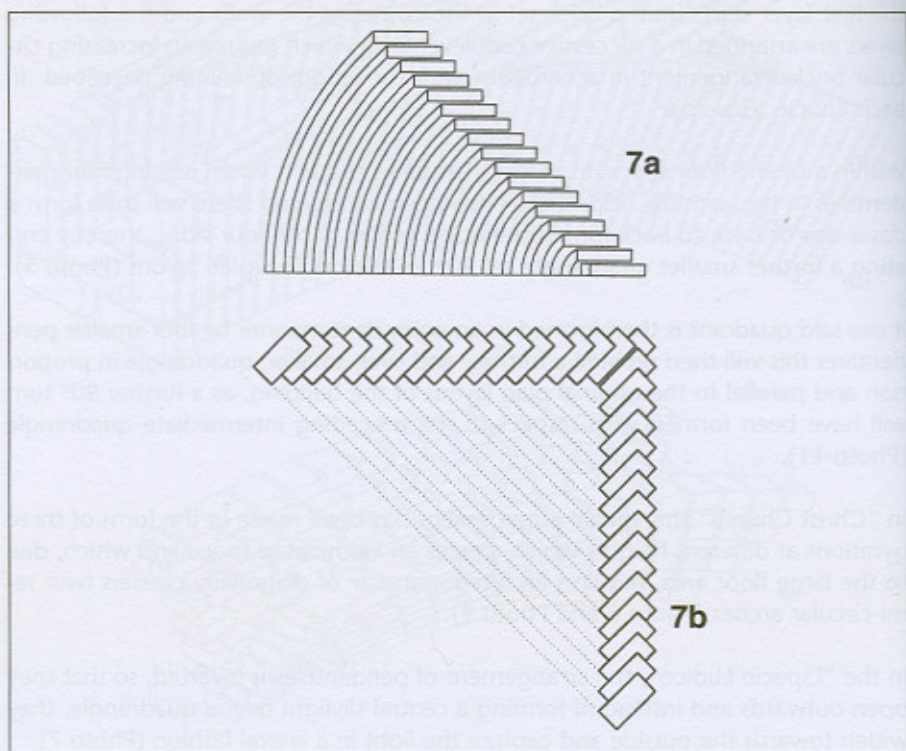
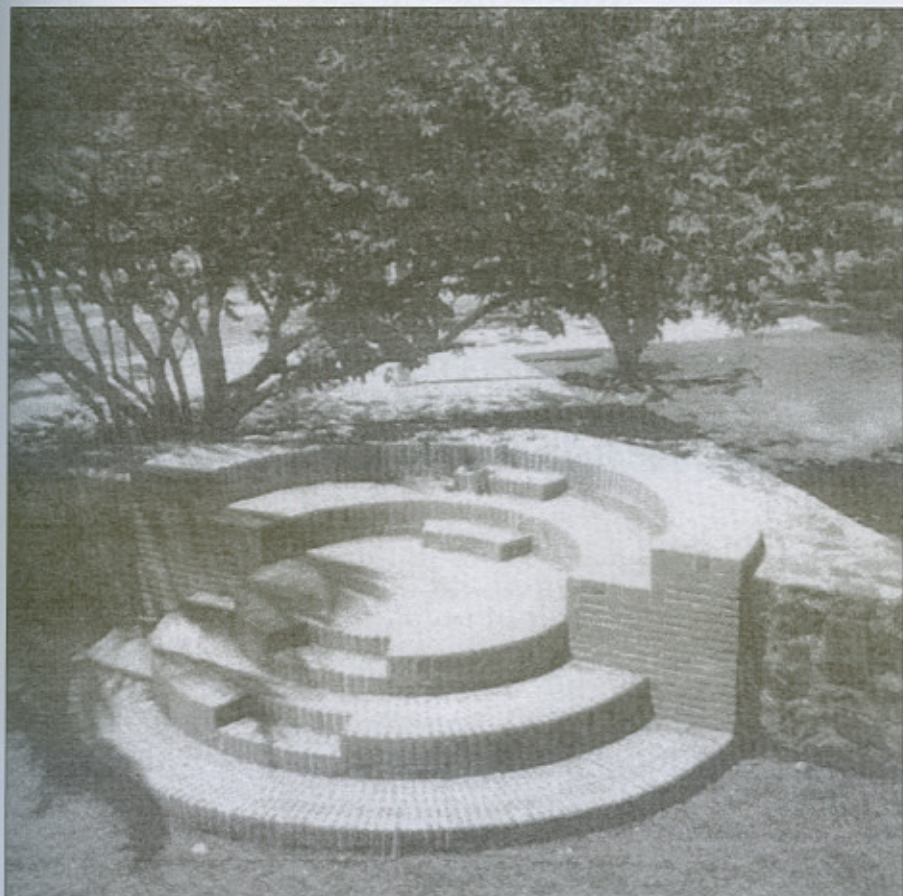


Figure 12. *Space beneath a tree.*



In this latter work, the coping of the walls are employed to drain off the roof water in the manner of gutters, this being somewhat similar to the system considered in the extrados of the arches in "Salones y Notaría", and which takes advantage of the concave opening within the same (Fig. 6c)

8. SPACE BENEATH A TREE: CONCLUSION.

In his "Space beneath a tree" Mijares leaves us a masterpiece created with an apparent simplicity which implies much more, in the characteristic manner of the great masters.

Beneath the natural shelter of a tree, Mijares has arranged a number of concentric circles which create an unbounded area of constantly changing light and shadow (Photo 12).

The succession of circles are set out in platforms at varying levels which are accessible from steps set within or upon the same. These steps being formed by adding or taking away units of platform in the manner of an opposite mirror effect by filling or removing sections of bonded brickwork.

In his "Space beneath a tree" Carlos Mijares demonstrates that by collaborating with nature and associating this with a simple and careful architectonic relationship set in brick, this can be seen as a centre of all life and awareness.

In the architecture of Carlos Mijares and in his "Space beneath a tree", there is a poetry created brick by brick which confirms the reflection of Mies Van der Rhore:

"Architecture begins when two bricks are carefully laid beside each other.
Architecture is a language disciplined by grammar
Language may be used for purposes of daily life as in prose.
But when one is very gifted he may become a poet"

