Roman Histories by Louis Kahn

Rubén García Rubio, Al Ghurair University, United Arab Emirates
Tiziano Rinella Aglieri, Al Ghurair University, United Arab Emirates

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Abstract
The architecture of Louis I. Kahn changed radically in the 1950s. Such was the transformation that it is difficult to find its unmistakable tracks in works so different like the miesian Parasol House (1944) or the palladian Fleisher House (1959). All these differences have been widely recognized by leading architectural critics, and some of them even venture to place that process of change while he was at the American Academy in Rome (1950-51). They are absolutely right in terms of time and place. But the real question arises when it comes to establishing the reasons for such a radical change in his short stay in Rome. The answer, however, is more difficult.
The three months that Kahn spent in Rome as a Resident Architect were really intense. Contrarily to what one might think, he was more a college friend than a Professor. His job allowed him to travel and also encouraged him to do so, so Kahn used to do it a lot. Some of these trips were nearby, but he also made a far journey that got him to Egypt and Greece. This Mediterranean journey is also widely known because of the great drawings he made. Some architectural critics even point out that this trip may have had a potential influence on his late work. But no one has dwelt upon it so far. Therefore, the present paper will try to find the roman histories in Louis I. Kahn's late work.

Keywords: Kahn, Rome, Yale, Reinterpretation

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Introduction

Louis I. Kahn´s architecture witnessed a critical changed in the 1950s. This transformation was so radical, in a way that it looks challenging to discern the touch of the same designer in the works he made before and after this turning point. In fact, this change is reflected through the two unbuilt houses that the architect designed almost symmetrically to reach that point: the *miesian* Parasol House (1944) or the *palladian* Fleisher House (1959).

On one hand, the Parasol House project (1944), designed in collaboration with Oscar Stonorov, is a proposal for a competition promoted by a furniture company[1]. The result was a composition of five different typologies of houses which were based on the repetition of a single prefabricated element shaped as an "umbrella"(Kahn 1987, 56). This solution could be arranged in a form of a large plane that shapes a continuous and homogeneous space (even in various levels) which, in fact, solved the structural problem. Thus, all load bearing walls allowed their structural functions to be overtaken, and the space could be designed just with lightweight materials, which could move freely underneath. This means that even the same furniture could be a part of these light partitions. The result was a limitless, ambiguous, light and functional domestic space that could be configured independently to the rules dictated by the grid of the "umbrellas".

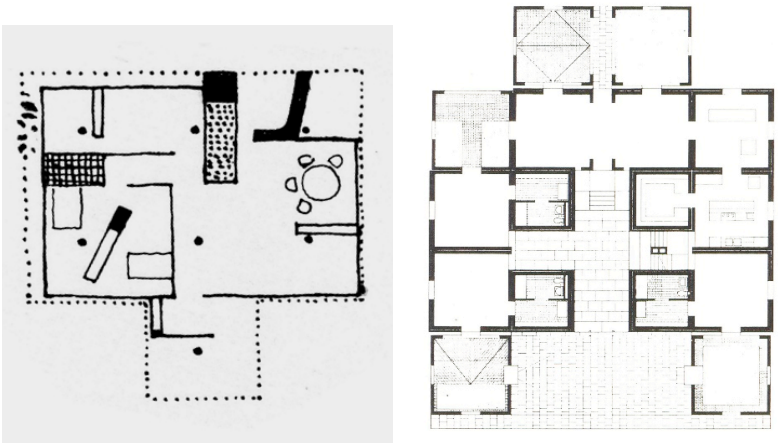

Figure 1: Parasol Houses, 1944 and Fleisher House, 1959.
Source(s): Brownlee and De Long 1991.

On the other hand, the Fleisher House (1959) was a private commission[2]. The house is a large square that is divided into 16 small ones, while leaving a monumental central void. Besides, there are four other smaller squares, in that central space, which form a cruciform heart. Actually, these four squares are the “servant spaces” of the house, thus the other twelve squares may remain without these functions and just be as “served spaces”. However, the main characteristic in this house, is the spatial

[1] The competition, entitled "Equipment for living", was sponsored by an American furniture company called Hans G. Knoll Associates. Hence, the ultimate aim was the design of furniture that they could subsequently make and sell, although the architects decided to focus more on architectural elements than in the furniture themselves.
[2] Unfortunately, Kahn could only work on it for a couple of months, although this was enough for him to develop a clear proposal that showed its new architectural and domestic thought.

autonomy of all squares introduced through the powerful appearance of its construction made by loadbearing perimeter walls. This means that there is a high and recognized spatial independence on each of them. Hence, the entire house was designed as a spatial concatenation of autonomous units that is arranged in a grid, so that each unit owns its domestic space[3].

If both houses are compared, the space of the Parasol House will be conceived in a centrifugal movement, and the space of the Fleisher House will be a centripetal one. The first example promotes an unlimited, ambiguous and continuous space, whereas the second promotes bounded, clear and closed spaces. When the first proposal asks for dematerialization, asymmetry and functionality, the second calls for gravity, symmetry, and monumentality.

Both examples clearly illustrate the change that Kahn's architecture experimented between the 1940s and the 1950s. This transformation has been widely recognized by architectural critics. Even some of them venture to place it during his stay at the American Academy in Rome between 1950 and 1951, and they are right. However, the real question arises when highlighting the reasons for this strong transformation in just three months; a question that this paper attempts to answer.

The American Academy in Rome (AAR)

Fortunately, after many failed attempts in the last years, Louis I. Kahn arrived at the American Academy in Rome (AAR) in December 1st 1950. He went to the AAR to work as an "Architect in Residence" and, in that year, he was in charge of five Architectural Fellows (Amisano, Byrd, Daltas, Jova, and Dawson) and two Landscape Fellows (Hawkins and Patton)[4]. However, he was not their professor, or at least in an orthodox way, as his duties were just "to act as an advisor" and "to accompany" the Fellows (both Architecture and Landscape) "on occasional trips". They travelled frequently around the Mediterranean Sea.

[3] Except for the Living Room, which was formed by two spatial units.
[4] There was not a "Landscape in Residence" that year

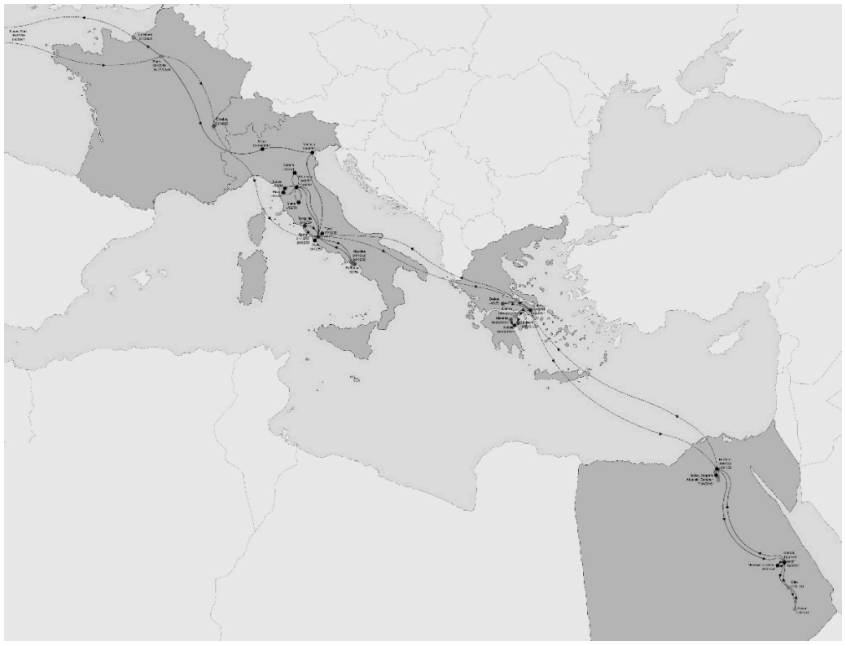

Figure 2: The trips that Kahn made during his stage at the AAR.
Source(s): Author.

During his first month at the AAR, Kahn and the Fellows made several tours around the Ancient Roman architecture of the city. In fact, they visited the Imperial Roman architecture guided by famous American archeologist Frank Brown (Brown 1961). Unfortunately, there were no documents reflecting the places they visited. However, in that year, Brown focused on the great Imperial Roman architecture, both in the city and its surroundings. They also travelled to cities nearby Rome like Ostia, Tivoli, Tarquinia, and even Naples. Nevertheless, the most important trip for Kahn took place in early 1951 with other five Fellows[5].

Their first stop was Egypt, where they arrived in January 6th 1951. There, the group visited the most important places of its ancient civilization (Upper and Lower Egypt) as common tourists. Then, twelve days later, they took a plane to Greece. In this country, Kahn and the Fellows made only two trips; one around the Peloponnese and other to the Delphi Sanctuary. The reason was because all of them wanted to see Athens in depth. After spending ten days in Greece, the entire group went back to Rome.

This was another crucial moment for Kahn's career, as he got hired by Yale University to design the extension of its Art Gallery, as soon as he arrived to AAR. Thus, he immediately bought a ticket back to the US[6]. Nonetheless, he had enough time in February to make another trip to Tuscany, where he visited Firenze, Siena, Pisa, Lucca and Bologna with some Fellows, and Venice and Milan in his way back in the last week of that month.

[5] Architects Spero Daltas, Joseph Amisano and William Sippel (Paris Prize), and landscaper George Patton. Amisano's wife, Dorothy, is to be added to this group.
[6] Louis Kahn was at the American Academy in Rome from December 1st, 1950 to February 25th, 1950.

Consequently, it can be stated that the three months that Kahn spent in Rome were intense. Even more intense as he spent most of his time travelling, painting and studying the same old European architecture that had encouraged him to become an architect thirty years before. The same architecture that walked with him for the rest of his life from that moment.

> This trip collapsed the mental barrier that the International Style had erected in his mind [Kahn's] between the present and the past; in this case, literally, […] the past that he had loved and he had soaked up in at the University of Pennsylvania returned tumultuously to him: Rome above all. (Scully 2001, 9)

Reintroducing the mass. From Rome to New Haven

Louis Kahn spent nearly all January travelling with some Fellows across Egypt and Greece. When he came back to Rome in late January, as mentioned before, he found a letter from the Director of Yale University's Department of Art offering him the possibility to design the extension of their Art Gallery.

This was a great opportunity for an architect, thus Kahn didn´t hesitate. Accordingly, he bought a ticket a few days later to return to his country in late February. Even if that includes not finishing his duties as a Resident Architect in the Academy.

Once again, fate smiled to Louis Kahn. not only because this was a great opportunity for any architect; or because this challenge took place at the same university where he had been teaching for several years; or even because this opportunity meant to increase the tight volume of work he had in his office at that time. All these reasons were true. However, the main reason behind accepting this offer, is because he could apply the lessons learnt in Rome. An implementation that he couldn't apply twenty years before after his first trip to Europe because of the Wall Street Crash of 1929[7]

[7] His first trip to Europe was between May, 25th 1928 and April, 23rd 1929.

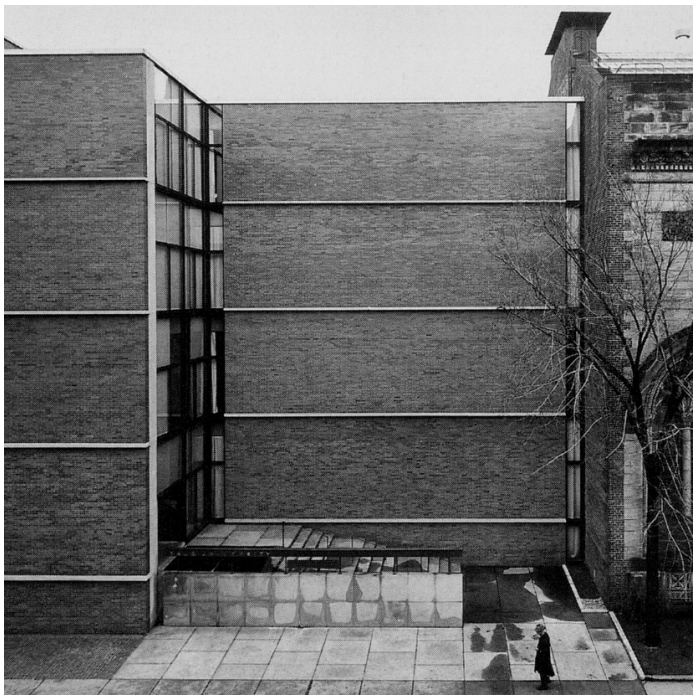

Figure 3: The South-East wall of the Yale Art Gallery.
Source(s): Brownlee and De Long 1991.

Kahn introduced his traditional sources through Yale Art Gallery, as he represented in this work one of the main architectural concepts of the Roman Architecture: Mass. Besides, he highlighted this concept in two different places. The first one is the blank brick wall of the main façade of the building. While the second one reveals its famous tetrahedral concrete slab.

The wall: mass

One of the main characteristics of the Yale Art Gallery is its main elevation. This façade prevents the unpleasant south sunlight from getting through the building, because its main function is to exhibit pieces of art. Besides, this façade plays the role of a barrier between the Gallery and one of the busiest and noisiest streets of the city. Hence, those reasons drove Kahn to design a blank wall. Nonetheless, he wanted to add another meaning to the wall. Therefore, he did not cover the thickness of the wall, so that he could express a new feeling; the same feeling of mass that he felt in Rome.

Consequently, several Roman walls were reflected in his work. However most of them are anonymous and they are in different states of conservation- or even ruined. Nonetheless, there are few famous walls like the great *Pecile* wall in Hadrian's Villa, which is very similar to the Gallery's one because both have some horizontal rhythms of shades. Nevertheless, if an ancient Roman wall with a direct influence on the Gallery, is to be considered, the back wall of the Forum of Augustus would be the most accurate one. A wall that Kahn undoubtedly noticed as any tourist could ever observe nowadays.

The aim behind this text is not merely to analyze the concept of this wall but rather to focus on its material condition. This wall is mainly built in *opus quadratum* based on

two grey stones called *peperino* and *pietra gabina*. It has also three lines made with travertine marble which divide its façade horizontally. Those two elements design a façade similar to the Gallery's one, as it can be seen by comparing both of them.

In addition, there are further similarities between these two buildings. If this Roman wall is being approached from *via Tor de Conti* -across the *piazza del Grillo-,* then a hole can be seen on the upper side and through this hole, the entablature and the first marble columns from the Temple of Mars Ultor can be noticed.

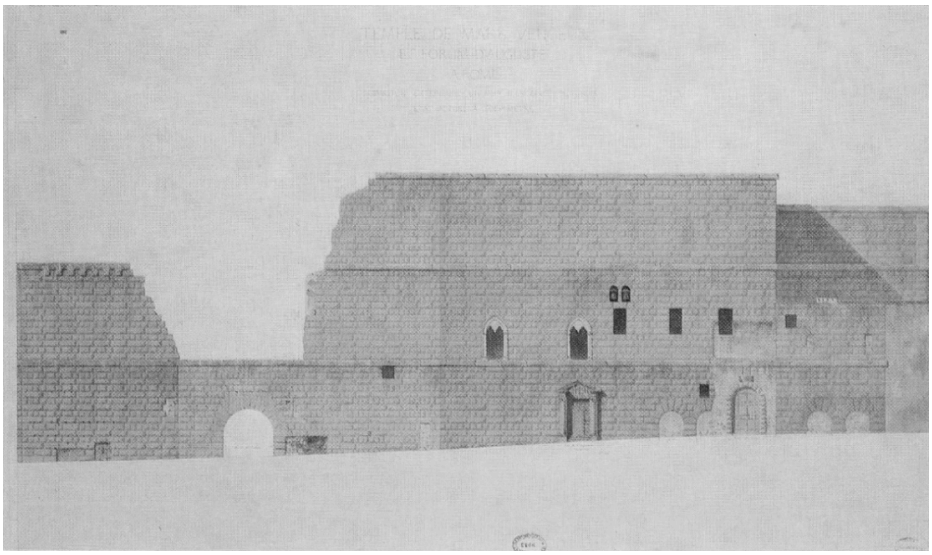

Figure 4: The back wall of the Forum of Augustus.
Source(s): Jacques, Verger and Virlouvet 1985.

In other words, if these elements are abstractly seen, just as pale grey structural elements, the architectural concept is close to Kahn's building. As a proof of that, the image of the Forum can be compared to the north-eastern corner of the Gallery. Both are built with two different elements. On one side, a big blank and grey wall with white horizontal stripes. And on the other side, a white architrave architecture with voids between its elements. Even if these voids are pieces of glass in the Gallery.

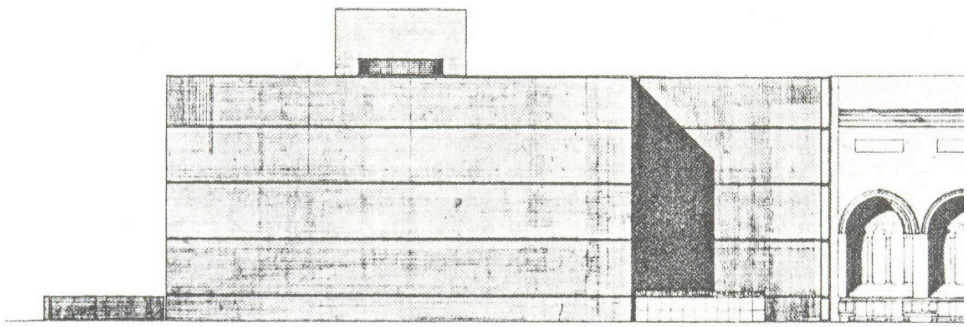

Figure 5: The South-West wall of the Yale Art Gallery.
Source(s): Brownlee and De Long 1991.

Nonetheless, there are more similarities between the Gallery and the Forum. The plan of the Forum of Augustus shows that its wall is non-loadbearing as it just supports itself. While the rest of the building is made with an architrave construction system

apart from that wall. This same difference can be found also in Gallery´s plan, for this building is just a wall attached to a "temple". Therefore, in both cases, the walls are just an enclosure element and they don't belong to the structural system of the entire building. The result looks as if a white Greek temple had been added to a grey Roman wall. Therefore, it can be stated that the blank brick wall of this building launched the change for Kahn's architectural work (Scully 1998, 83–84).

The slab: density

As previously mentioned, Louis Kahn introduced the Roman density in the Yale Art Gallery through its blank brink wall, yet it was not the only place where he removed the characteristic lightness of the International Style. He also transferred the previous Roman density into the structure system. For instance, he introduced the density on the vertical structure -the pillars- just simply increasing their size. Nonetheless, the transformation of the horizontal structure -the slab- was more complex and it needed a deeper analysis.

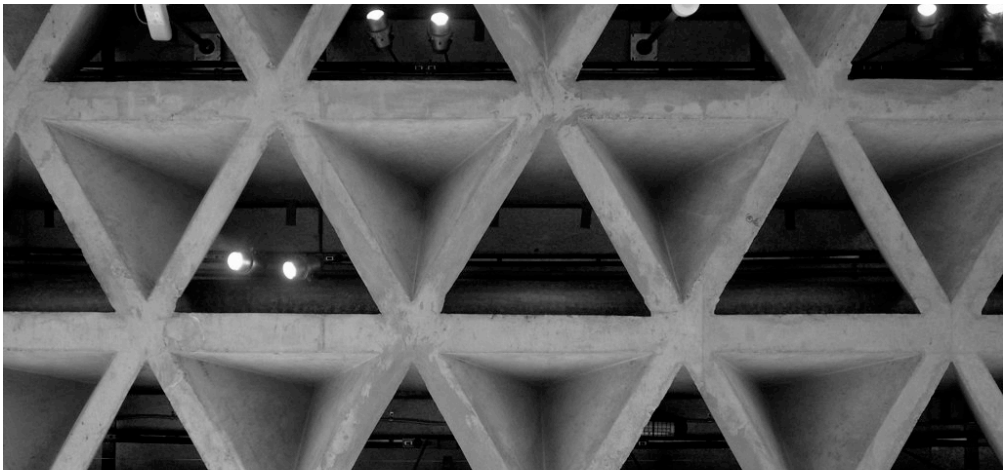

Figure 6: The tetrahedral ceiling plan of the Yale Art Gallery.
Source(s): Author.

In this case, the slab included both, the structural system and the mechanical requirements necessary for the proper operation of this type of building (museum). The final solution was the acclaimed and well-known tetrahedral ceiling slab. Despite this form, this slab does not work like a space frame, but like a conventional system of inclined "T-shaped" beans (Kahn 1955, 46–63). Nevertheless, the most important characteristic of this slab was not about the way it works or the way it is built; or rather about what is not built.

The slab of the Yale Art Gallery is built with two elements: inclined "T" beans and inclined surfaces. Both configure a hollow tetrahedral structure without a base surface. This form is then repeated throughout the two directions. Therefore, the final image of the slab is composed by a homogeneous horizontal element based on a triangular geometry and its hollowness is its main characteristic. Thus, this slab transmits a strange feeling of lightness as well. Nonetheless, this feeling is not real because this slab is 60% heavier than the necessary one (McQuade 1957, 135–43). Consequently, this feeling is "apparent" and unreal but similar to the one Kahn observed in Rome. as an example, the Baths of Caracalla where "there was the will to

build a 100-feet high vaulted structure where people could bathe. Eight feet would have sufficed. It is wonderful, even in ruins" (Kahn 1961, 34–35).

Nonetheless, this system provides enhanced sound quality and allows the passage of all necessary facilities through their interstitial spaces (parallel beams). Additionally, this system attempts to be cheaper as it combines multiple systems in one, and is left in view without any finish layer to cover.

This tetrahedral slab can also be compared to other two Ancient Rome solutions. The first one is the *hypocaustum* slab, an innovative constructive system Kahn could see during his stage in Rome just a few months before to design his own solution. This Roman slab is the combination of two different systems -structure and facilities- in one single element like Kahn's one. Similarly, this Roman slab was also a very thick and small-density element. The reason behind it, is to allow the passage of the facilities -in this case the heating- by its hollow interior as happens with the slab of the Yale Art Gallery.

And the second one, are the domes or the vaults built, for example in the Pantheon or in the Basilica of Maxentius, respectively. In both cases, their weight is lightened using two different techniques. On one hand, they use coffers to insert some "voids" in the slab. And on another hand, they used a lighter material as they built the layers upwards. Despite this technique, both buildings do not lose the feeling of mass and gravity characteristic on the Roman architecture as well as happens on the Yale Art Gallery.

Figure 7: The coffers of the Pantheon's dome.
Source(s): Author.

Therefore, we can state again that the hollow slab of the Yale Art Gallery is linked with the essence of the Roman architecture by hollowing the structure without losing its massive felling (Tentori 1980, 4–9).

Conclusion

After more than fifty years, the new personality exhibited by the Yale Art Gallery had a great impact in the whole architectural world. The mass of its wall and the density of its slab were a great breakdown with the International Style's ideals of lightness and transparency.

However, this breakdown was especially significant in Louis Kahn's career as previously explained. In fact, the next projects that followed the Yale Art Gallery, paved the way for several researches that influenced his entire career. For instance, from the mass of the Trenton Bath House (1954-55) to the Kimbell Art Museum's (1966-72), or from the density of the Adler House (1954-55) to the Philips Exeter Library's (1965-72).

Figure 8: Trenton Bath House (1954-55).
Source(s): Brownlee and De Long 1991.

To conclude, mass and density were not the only lessons that Kahn learnt from Rome and the Mediterranean architecture (Naegele and Maniaque 1992, 86–97). For example, we can link the space of the Pantheon with the Exeter Library (1965-71), the plan of Augustus Mausoleum with the First Unitarian Church (1959-69), or details of the Ara Pacis with the wood of the Fisher House (1967). Relatively, these new lessons will be discussed in depth in coming occasions…

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Contact email: r.rubio@agu.ac.ae
t.rinella@agu.ac.ae