


have already been demolished, their photographs constitute a very valuable historic document.

In democratic societies, massified like ours, architecture photographs and magazines are, potentially, powerful instruments for the teaching of architecture. But as it happens to many parents with television, instead of forbidding them, they have to be read critically because they are not innocent, they are loaded with ideology. 

NOTES

- (1) Note from the editor: a room for the Egyptian aristocracy, whose roof was supported by columns.
- (2) Note from the editor: Le Corbusier and Paul Dermée founded L'ESPRIT NOUVEAU in 1920.
- (3) Note from the editor: DE STIJL was published by Theo van Doesburg between 1917 and 1927.
- (4) Note from the editor: MODERNE BAUFORMEN, published by Julius Hoffmann since 1901, became a promoter of nazi architecture.
- (5) Note from the editor: This group, active in London between 1952 and 1955, aimed at overcoming the modernist approach to culture.
- (6) Note from the editor: Alice and Peter Smithson were a married couple of British architects. They were part of the Independent Group.

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Sinergies between design models and their after images in the practice of UNStudio

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Concepts

UNStudio (United Network Studio), led by Ben van Berkel and Caroline Bos, is presented from the beginning as one of the few internationally renowned offices which sustains its entire production on a projective, critical, experimental and rigorous analysis that challenges the status of our profession.

UNStudio developed its discourse mainly at the beginning of the 1990s, in clear opposition to the linguistic rhetoric coming from the latest years of de-constructivism.

UNStudio considers matter and image in an inseparable, indivisible way. Image and matter are two synergic forces that fluctuate complementing each other. Van Berkel, in two of his last public lectures (entitled "Trained Judgment" and "A New Understanding") enunciates some features of our profession: a contemporary architect behaviour is very different from what it used to be; the image of the architect as a self-sufficient professional is

declining; the architect, as the sole actor in the expanded field of the profession, does not find a fixed and central place anymore. Permeated by new parameters and influences, the current architect's role is oscillating.

The starting point for both conferences is the concept of "expansion of the profession", a whole new approach carried out by UNStudio during its last years of practice. According to van Berkel, since the modern movement, architecture has fluctuated between function and aesthetics in a very restricted and asphyxiating way. It is practically impossible to assimilate and endorse this relationship today. Van Berkel proposes expanding the limits of these two pillars asserting that, nowadays, the function is complemented and influenced by numerous external agents (global and local regulations, specialists collaboration, new functional programs coming from new market demands, etc.). Van Berkel applies the same expansion strategy to aesthetics. Art, fashion and industrial design increase the current aesthetic horizon. In this new scene, where architecture deals with so many parameters, it is possible to ask what the new role of the architect is and how he or she should take a position in this expanded field.

Here UNStudio presents the notion of "trained judgment". For them, the architect is a "scientific being" crossed by an infinity of knowledge. In this sense, there are two fundamental questions in order to understand the expansion of the profession: How do we generate and disseminate knowledge? And how is knowledge controlled and managed? Through a new critical

operationality, van Berkel wonders whether architecture could become objective again. But, how is judgment trained?

After two decades of exhaustive project research, UNStudio reinforces knowledge control and, therefore, trains judgment by means of some instruments or tools. The latter are part of what UNStudio conceives as “matter”: a mere cognitive and intellectual matter where the new “scientific being” works through the image with an imperative and critical eye. “The eye is the instrument of what we do” (van Berkel, 2011a).

Some images that emerge from these projective instruments produce, in turn, an infinity of new images with new meanings, which differ from the original one. After long years of concern for the image and its effects, UNStudio enunciates another theoretical perspective named *after-image*. «After-image refers literally to the lingering visual impression caused by intense or prolonged stimulation of the retina. The term means something slightly different to us: we use it to include the entire scale of sensory perceptions caused by intense impressions» (van Berkel y Bos, 2006). Van Berkel says: “Through motion, things matter, concepts matter, we know more... more after images. You have to step out of the object and then you discover what the object was about” (van Berkel, 2011a). The notion of these instruments gains a radical importance as a primary project matter in UNStudio praxis (over the literal concept of material as a physical and constructive fact). A synergic relationship between matter and image begins to take shape, but we should expand the taxonomy of

the instruments developed by UNStudio in order to understand more precisely how they work.

With the undeniable integration of computer capacities in the architecture project processes, UNStudio has always maintained a vibrant relationship between matter and image (or, as from now, between project instruments and after-images). The expansion of the profession exposed by the study challenges the architect status and the project concept or the way in which this should be dealt with. If the limits of the profession have expanded, it is almost impossible to use the same generative principles for projecting that had been used previously. In fact, it could be considered that there should be no projects at all, only flexible and adaptable instruments capable of acting according to the external and internal parameters of architecture. UNStudio guides, channels, generates and disseminates the huge amounts of knowledge that an architect has to deal with nowadays. That is why we can see UNStudio as a project research platform.

The digital era set UNStudio free from the existing styles, allowing its development of a new discourse in relation to knowledge manipulation. At the beginning of the 1990s, UNStudio used one of its first cognitive project instrumental resources, the diagram, in clear opposition to the linguistic discourse in which architecture had based its principles: deconstruction. The meaning of diagram, according to UNStudio, is the continuation of Gilles Deleuze’s (1998) meaning described as an abstract machine:

“...diagram, that is to say a function, abstracted from any obstacle or friction –and which must be detached from any specific use. The diagram is no longer an auditory or visual archive but a map, a cartography that is coextensive with the whole social field. It is an abstract machine. It is defined by its informal functions and matter and in terms of form makes no distinction between content and expression, a discursive and a non-discursive formation. It is a machine that is almost blind and mute, even though it makes others see and speak. The diagram is highly unstable or fluent, continually churning up matter and functions in a way likely to create change».

Through the diagram, UNStudio uses some spatial mathematical models in an informal way, theorizing and questioning the status of architecture typologies. In this case in particular, the use of Moebius Ribbon⁽¹⁾ and Klein’s Bottle⁽²⁾ should be mentioned.

It is interesting to notice the character of the diagram matter, a matter quasi-malleable or transformable. UNStudio found, in this adaptable proliferation quality, a safe and comfortable place to continue researching the status of our discipline. In the decade of the 1990s, UNStudio continued working on the diagram, but with a totally new strategy and perspective. During this period, the studio developed the idea of serial manipulation. Through recursive and repetitive methods, it started to establish a kind of diagram taxonomy. The computing resources applied to project research allowed the mutation of the diagram concept: it is no longer a static and isolated moment, but a sequence of

transformative moments. The diagram is not an abstract concept anymore, but a model of thinking: the "design model". The design model can be considered close to a genotype, capable of containing all information necessary for its future development. Thus, every time the design model is confronted with the specific development needed for a new project, it is adapted to the new influences like a phenotype. Bos and Van Berkel (2011) point out:

"But as types they are visceral; there are no fixed functions ascribed to them, nor scale dimensions, unlike typologies that are based on uncomplicated categories such as museums, churches, tall buildings, long buildings and so on. Therefore they also withstand the transition between scales, the distinction between urban and architectural scale is irrelevant to our reading of types. The types proposed still need to acquire site-specific, user-specific and structure-specific meanings along the way. This happens not just over the course of an individual project, but by reusing and redefining the type over time in different projects. In this way, the architectural practice gains control over its work, by working in series not as an aesthetic choice, but as a way to acquire knowledge. And in that way, now that the age of the icon may come to an end, control exercised in a thoughtful, knowledge-building manner replaces style».

Projects would not be isolated or self-absorbed, but a transformative sequence of knowledge models. In some way, these new knowledge matters define a new project process that delays design, producing a more critical view when

dealing with projects. The following are Design Models strategies used by UNStudio: Deep Planning, Box-to-Blob, Inclusive Principle, Crossing Point, Corporal Compactness, Asymmetrical Curve, The Oblique, V-Model, Pivotal Point and Hollow Core.

Conceptually, we can consider that images work through meaning. On the other hand, its effectiveness lies on the psychological sensations that exist separated from the world of signs and mental representations. UNStudio intensifies these psychological sensations through the use of after-images.

Through the densification, condensation, accumulation and intensification of sensations, the combination of images have an effect of after-image. UNStudio has developed a classification of images which generate after-images: expanded hybrid images (an interconnection of different images); images related to spatial and temporal structures, and finally, images which relate movement and future issues. Each of these three groups releases alienating sensations, but images never trespass the shock of novelty, since they always allow visualizing the traditionally known remains in our discipline.

«Rather than condemn the inescapable image, more prevalent than ever, we believe the answer is to generate multiple and surprising after images by strengthening each image's logic of structure, spatiality and vision». (van Berkel y Bos, 2006).

Projects

The concepts developed above have been put into practice in a series of UNStudio projects and works. Although the projects selected for this analysis constitute only a small part of the Studio's extensive work, they reflect entirely their operative project method.

In UNStudio's career, they have materialized a number of temporal pavilions. Pavilion design offers many possibilities to put into practice these theoretical project principles in a limited period of time. Two of the pavilions developed by UNStudio in recent years, "The Changing Room" (Venice Biennial, 2008) and the "Burnham Pavilion" (Millenium Park, Chicago, 2009), belong to a wider repertoire of pavilions which share similar project instruments. In them, it is possible to analyze the applied design model and its after-images.

The evident starting point for both pavilions is the manipulation of a spatial mathematics principle articulated through a center and a tripartite series of extensions. It is interesting to observe that the transformative evolution of this design model is different in both cases. The pavilions come from the same genotype, but their phenotypes have adopted different variations according to the external and internal influences.

On the one hand, "The Changing Room" is structured according to continuous relations between architectural elements. The consecutive transformation from line to surface and from surface to volume organizes the work. This synthesis defines the relationship structure-infrastructure-

construction. The organizational movements in "The Changing Room" engage the relationship between the pavilions' interior and exterior, diffusing the border between them. They clearly guide the spectator, even though he finds himself in an oscillating way between centripetal and centrifuge forces. The vertical limits guide the user, leading him from the exterior into the interior, passing through the center, remaining in any of its extensions to finally go back to the exterior. This subtle articulation produces a slight cadence in the visitor, making him repeat the same action through the three extensions. Inside the installation, a series of interactive projections intensify the perceptive experience of change between a contemplative-reflexive interior and a physical-real exterior. The pavilion elaborates an experimental, formal and constructive dialogue with some of the previous UNStudio works, such as "Villa NM" (2000). This dialogue (or crossing point) expands some ideas and concepts beyond the traditional notion of scale, typologies, uses, etc.

The "Burnham Pavilion", on the other hand, starts from the same design model, but it consists of a rigid geometry in a parallelepiped shape. This element is repeated and rotated three times, generating an hexagonal framework. The structure articulates the relationship between two elevated horizontal surfaces: the podium and the roof, connected through the manipulation of three double curve surfaces which generate gaps in the roof. The "Burnham Pavilion" lacks vertical parameters and its space is organized through the horizontality and fluidity with which

the gaps generate interior divisions. In "The Changing Room", the relationship between floor, face and roof is articulated in an entirely different way.

The concepts of interior and exterior are also opposite. In the "Burnham Pavilion", the exterior is the interior and the inside is the outside. The roof gaps integrate the structure, infrastructure and services. Orientation relates the work with its immediate micro context, also with the city's macro scale. UNStudio describes the visual (or sensory) effects produced by this pavilion and many of this studio's works as "kaleidoscopic views". The "Burnham Pavilion" is an urban observation machine, a public social platform, a point of attraction and an urban icon.

Interviewed about the pavilions in general, Van Berkel (2009) says:

«Pavilions provide a kind of prototypical stepping stone or apparatus for ideas and solutions which can later be expanded upon in buildings. The pavilion can perhaps be seen as an addition, in the sense that it can form an accumulation of many different architectural ingredients which interact and influence each other, but may not as yet provide a perfect synthesis which could be applied to larger, more complex building project».

Another group of three works on different scales and functions display the design model transformative action and its consequent after-images. These works are the "New Amsterdam Plein and Pavilion", built in Nueva York in 2008; the "Villa Bergen", a residential villa in the north of Amsterdam, in construction; and the interior design of

the "Galleria Centercity", a shopping center built between 2008 and 2011 in Cheonan, South Korea.

These works are still in the design model family, where there is a center and a series of extension, but unlike the previous cases, four repetitive extensions are implemented. At the same time, this continuation means a bifurcation within the design models taxonomy, because once the specific model has been put into practice, it is very likely that small but significant variations may emerge, transforming it in a new model to be studied.

Unlike the pavilions previously described, the "New Amsterdam Plein and Pavilion" (with its four petal-extensions) contains certain functions such as a point of information, a cafeteria and public services. Besides working through its immediate uses, this pavilion is also a significant landmark that expresses the historic relationship between the Netherlands' government and the city of New York; it is an urban point of meeting and social attraction; it also fulfills a function of orientation through the specific distribution of its petals in the site. The enveloping articulation is displayed continuously among vertical and horizontal surfaces, generating a relationship with the interior functions in a specific local way: where the function needs to relate the exterior and interior, the enveloping reacts correspondingly opening up to the exterior. In the same way, it closes down where the interior functions are not related to the exterior.

The second Project, "Villa Bergen", shares the same organizational principle. It starts from the following principle: the residential programs are generated exclusively in a correct organizational distribution of functions. In this case, the central design model with four extensions has been adapted efficiently, dividing the public and private functions consecutively in each of the extensions (or petals), according to the site conditions and orientation. In this way, the center behaves as the guiding space, both for the vertical movement and the North-South and East-West relationships. The node also articulates the diagonal views. Unlike the "New Amsterdam Plein and Pavilion", the villa center is the organizational void. There, the spectator becomes an actor who participates in all the residence's possible spaces and directions. The access accentuates this crossing point between the two pairs of extensions. It is accessed by the center, from where circulation flows to the functional petals, in contrast to the "New Amsterdam Plein and Pavilion", which closes down in the center to open up in the extensions.

The last case, the interior design of the "Galleria Centercity", presents a radical shift, not only on a scale and function level (it is a public shopping center, with a built up surface of 66.700 square meters), but also in its conceptual character in relation to the two works previously mentioned. Inside a regular and cubic enclosure, the design model has been conceptualized as the metaphor of a propellant four blade helix. For this project, UNStudio researched the typology of a shopping

center with a central atrium. Again, the Studio adopts a central design model with four extensions, showing total coherence between functional and spatial needs.

The shopping center organizes the accesses over the vertices, accentuating the diagonal directions. The immediate access to the vertical nucleuses releases the atrium void, transforming it into an element of great sculpture character. The borders of the functional floor package were designed with different profiles or silhouettes, in order to produce the effect of levitating platforms. The notion of scale is challenged and the perception of dimensions is totally exalted. It is almost impossible to count the number of strata or levels that compose the atrium. The interior and the atrium, articulated through the design model, are materialized as a negative, that is, producing a subtraction in the interior, the inverse process applied in the "New Amsterdam Plein and Pavilion" and the "Villa Bergen". This organization facilitates the flow of the people through the building from the atrium in the ground floor to the terrace roof. Since the platform has a rotated position, it allows the central space to work as a vertical circulation which guides and acts as the shopping center's main focal point of attraction.

Beside the sculpture work in the atrium, the interior's atmospheric character comes from an excessive accumulation and repetition of curve shapes and elements in the platform ceilings, enhancing the central space verticality. Once again, the kaleidoscopic views define the project image. In an interview, van Berkel (2011b) talks about the visual effects of the atrium:

«These platforms, or balconies, are of different shape and sizes. Because of this, from a certain point of view it seems that you are standing in a four-storey building, while from a different perspective you can see all ten levels, or even imagine that you are seeing thirty. What interests me about these illusions is that they seem to alter scales and create double images, giving the impression that no image in the building is permanent».

Conclusion

Architects have inherited a profession in which matter and image are unavoidable parts of critical constructive and reflexive processes. The evident and accelerated expansion of our profession, as well as the undeniable propagation of images coming from the architectonic production, requires a new responsible stance regarding matter and, therefore, its resulting images.

The visual experience dominates the perception of an architectonic work. For that reason, the questioning of matter and image is imperative. UNStudio has committed its daily work to the concepts of matter and image through a conscious theorization of knowledge. The cognitive instrumental principles described make it possible to affirm that UNStudio understands such concepts as a temporal process that will continue to mutate, bifurcating and expanding its theoretical discourse. The synergy between matter and image will continue to generate dialogues in our discipline and beyond its limits. ■

NOTES

(1) N. from the editor: the film *Moebius*, co-discovered by the German mathematicians A. F. Moebius y J. B. Listing in 1858, is a one-face, one-edged surface.

(2) N. from the editor: Klein's bottle is a non orientable surface that lacks interior and exterior, described in 1882 by the German mathematician F. Klein. The original name was "Klein's surface", wrongly translated as "Klein's bottle".

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The desert laboratory: Strategies for three projects

Jean Pierre Crousse

Fluffy desert

The Peruvian coast is a long and thin strip of land limited on the East by the Andes and on the West by the Pacific Ocean, which is the Northern part of the Atacama desert, one of the driest in the world. However, the influence of the Humboldt ocean current produces in Peru a phenomenon of evaporation and reduction of the desert temperature that makes its climate conditions less extreme than those registered in the Atacama desert. The lack of rain and strong winds (except in some specific places) and the comfortable temperature which fluctuates between 15 °C in winter and 29 °C in summer without noticeable variations between day and night (due to a high environmental humidity percentage), make this desert a comfortable and "fluffy" environment. The fast-flowing rivers coming down from the Andes make water supply possible, although expensive, thus making the region inhabitable.

The high humidity of the environment and a uniform layer of clouds during more than two thirds of the year reduce solar radiation considerably.

Summarising, in the Lima region there is a very particular desert, without shade, without heat or cold, extremely dry but crossed by rivers that provide it with water.

These landscape images are project subjects for us. Their singularity allows for a great formal freedom to inhabit and build it. This freedom is a double-edged sword, since only a sensitive approach can avoid the destruction of such a strong and absolute landscape, but so fragile at the same time.

The inhabited desert

Fortunately, the Peruvian desert has been inhabited since time immemorial, offering the invaluable lesson of its pre colombian architectural tradition. The cultures that established themselves in it, modified the landscape noticeably, increased the arable areas thanks to big hydraulic engineering works, and left us great lessons of land randomizig and rational management of the environmental offer.

The ancient Peruvians had the wisdom of establishing themselves between the arable areas and the desert, occupying the highlands, whenever possible, to dominate the territory visually. In the XVI century, the Europeans brought another vision regarding territorial occupation, prioritizing settlements on river banks and using agricultural areas in order to have direct control over them. We suffer this change of strategy enormously today as our cities have grown to the detriment of fertile areas of the desert.

We have recently learned to value the sensitivity of ancient Peruvians to intervene the landscape, diffusing