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PIERCING TRANSLUCENCY

On Light

I have always argued that Architecture is and must be a true labor of research. An architect must attempt to advance in every project step by step, and through baby steps advance one more step in the long history of the architecture.

Architecture is not just the construction of capriciously conceived forms, built with enormous effort and expense, only to amaze the ignorant crowd and, at times, the wise who are ignorant of almost everything related to architecture.

Recently, I had the opportunity to participate on a tenure committee as the lone architect among numerous individuals of both professional and personal merit. All of them were much more accomplished than I in their own fields, and all full professors, yet none of them understood that architecture is legitimately a labor of true research. In my opinion, their idea of the architect "par excellence," with his or her names and titles, would be the most frivolous among living architects. I had no recourse but to resign from the committee. Before doing so, I attempted to make my case, using an address that I return to many times: the acceptance speech of Xavier Zubiri,¹ Spanish philosopher and disciple of Ortega, given upon receiving the National Research Award in 1982. In that speech, wherever he says "philosophy", I write architecture to unimpeachable effect.

I am convinced that what Palladio, Bernini, Mies van der Rohe, and Le Corbusier did, to name a just few, was true research. All of them deeply understood their time and they used technology as a key to unlock new ways of conceiving of and constructing space. They researched new technologies and studied space as true scientists, not merely as artists. Mies van der Rohe could never have conceived of continuous space if he hadn't had steel or been able to make use of plate glass in large dimensions. Understanding technology, he was able to create new possibilities of architecture.

SOLID LIGHT

I have written extensively on light in architecture and built many works in which light is a central design consideration; so much so, in fact, that some people associate my name with the use of the light. I will never get tired of repeating it: light is the most luxurious and precious material used by architects. However, because it is free, many of them don't place a high value on this so divine of an ingredient. Ask any scientist, light is as material as stone and there can be no architecture without it. As I have written many times: *Architectura sine luce nulla Architectura est.*

In well measured and controlled quantities, according to desired effect, the solid light of the sun enters a building through holes drilled into the ceiling or the walls: skylights in the uppermost horizontal plane, the plate roof, or windows opened in the vertical plane, the walls. This solid light, piercing the shadows, is not only of capable of illuminating the space, but also tensing it, tuning it, and creating contrast within it. Solid light from the sun allows spatial friction, thus giving a space its own unique tune, much like the passage of air between the holes, strings, and within the resounding chamber of a musical instrument gives birth to a its own sound.

TRANSLUCENT LIGHT

If the situation of a space in shadow, pierced by contrasting solid light is understandable, that of a translucent space pierced by solid light should be equally clear. But in order to understand it better, we will first need to go deeper in our understanding of simple translucified space.

When the Goths first raised their stone cathedrals, the whole point was to get more light from heaven, quite literally the sky. They rose upwards not just because of the spirituality of the form of the construction, but also in pursuit of the greatest quantity of light that could stream through their stained-glass windows. In order to achieve this, and maximize it, they invented the clerestory, the upper level of the nave of a church, which was a very effective in redoubling exposure to light. The light was the central consideration of the entire operation.

Given that the quality of glass at that time was not perfectly transparent, we can imagine those spaces first filled with a very special, translucent, and beautiful light. With the ornaments of the glass, they at once filled with the pedagogical spirit of colors and doctrines. As a result, those gothic spaces lost clarity. Medieval architects probably did not think, or realize, that the rational and primary impulse for what they had done was, in fact, motivated by the search for a greater quantity of light. They forgot this and filled the space with more doctrine, extinguishing the luminous potential of the churches; more spiritual light and less material light.

In only a very few cases did those naves fill with celestial, translucent light, the sort we might call more "whitish," and which, in a certain way, enveloped the space as if it had passed within a cloud. Yes, a majestic cloud whose verticality, emphasized by a stone structure raised as high as possible, made it a glorious sight. However, besides a few exceptions, the "*horror vacui*" latent in every human being had its way, resulting in the loss of that brilliant translucency. More doctrine and less light.

Centuries later, the Baroque period saw the rebirth of light as the central focus of design. The best architects of the time, such as Bernini and Borromini devised new ways of treating light. The diabolically brilliant invention of Bernini, "*luce alla Bernina*," was magnificent: he hid the entry point of the brightness of the light behind constructed forms such that the space appeared mysteriously flooded by divine light. In order to accomplish this feat, he scrupulously controlled his design with such mathematical precision that every millimeter of its dimensions and orientation accounted for and reconciled.

Many years later, the invention of the "glass block" brought along the ability to erect an enclosure, an entire wall, soaked in light. The glass block was the *in situ* precursor of translucent concrete which some, in our century, desire to patent. In my estimation, it adds hardly anything substantially novel to the marvelous and old-fashioned "glass block."

In any case, the wife of Doctor D'Alsace, the owner of Pierre Chareau's Maison de Verre² in Paris, would recall that while it was under construction, a peculiar character outfitted with thick, black-framed glasses and a hat would pass by every morning to inquire about those pieces of "glass block," a complete novelty at the time.

That person was none other than Le Corbusier. The Maison de Verre (1930) was not only bold statement in favor of "translucent light," but also, because of its dimensions and proportions, one of the most beautiful spaces in the history of modern architecture.

Afterwards, Le Corbusier would use the glass block in many of his works, but never with the skill and polish of Chareau.

In the same vein as Chareau, Giuseppe Terragni³ put up a breath taking house with a more “vertical space,” if you will, whose large façade of glass blocks (*pavés verre*) boldly retains, by the use of transparent glass from side to side, its intended eye-level evocation of a French Window. We could find more examples in the history of the contemporary architecture. Nowadays, one of the most prestigious architects in the world, winner of the last Pritzker Prize, Kazuyo Sejima, is working with translucent spaces.

ADDENDA

In the most serious attempt advance architectural history in its relation to light, I would like to propose here a new type of space which, based on previous works, opens news paths for the future.

Namely, I would like to realize the creation of a luminous, translucent space—like a cloud pierced by the sun’s rays of solid light—by such means as to such a degree that the operation at work there becomes palpable and visible. Just as it is easy to distinguish the light from shadows in the Pantheon of Rome, this new space would be recognizably translucent and obviously pierced by solid light.

In 2009, intending to win the competition to construct a worthy new entrance to Milan’s Malpensa Airport, the Porta Milano⁴, Paulo Duro, a young Portuguese architect and I conceived of a magic box design: a radical and bare space filled with translucent light which we rippled with a rain of solid light.

The key of the operation was to make possible a harmony, yet with unique contrast, of three kinds of light, like the combined sound of three instruments in a musical composition.

As I said above, I will never tire of insisting on the importance of measurement and exact quantities of the various ingredients which go into the recipe of architectural design, as the dish of the architectural construction requires the same precision that the words of a poem exact of the poet: too much salt or too much pepper, or rather, just a pinch in excess or smidgeon too little, ruin the intended flavor.

My intent is to make a quality space filled with translucent light and pierced by the solid light of the sun in a precise quantity for quality artistic effect.

MIA, MUSEUM OF ITALIAN ART, GARRISON, NEW YORK⁵

There’s a project on my desk at my Studio in New York in which I’ve put all my hopes, good fortune is shining upon it: a pavilion to accommodate the Olnick Spanu Collection of *Arte Povera Italiana*. I had already built house for the Olnick Spanu family outside of New York City, in Garrison, NY in front of West Point. It is a house where, along with the generosity of the client and the effective assistance of architect Miguel Quismondo, we raised a true architectural manifesto.

Now, it’s a matter of making the MIA, the Museum of Italian Art, for their collections of Italian *Arte Povera* and Murano Glasses. The entrance is a special space, a 10x10x10 meter cube whose upper half is translucent.

In the structure, we substitute bones for little bones, if you will permit a slightly inaccurate metaphor. In short, we make the structure delicate and white, as opposed to bold and heavy, and covered inside and out with translucent glass, so that it has the ability to sufficiently resist

gravity while also disappearing by force the light that streams seamlessly through the structure. This structure is made with thin pillars of white painted steel, perfectly suited to define a cubic figure, and it will have a depth of 1 meter allowing movement within for behind the scenes maintenance of installations, artificial lights, and for cleaning.

Like I said, it will be covered with translucent glass. On the outside, it will be with delicate yet strong white metalwork, capable of withstanding water and cold. Inside, since all the problems have been solved on the exterior layer, the glass can be placed with more radical freedom. Looking at it from within, we could even start to think that the glass is supported without metalwork, thanks to a security glass of 6x6 cm bound with translucent butyral.

The ground plane receiving the solid light from both the ceiling and the walls will be entirely white in concrete. Besides offering high performance for the needs of the facility, white concrete most excellently reflects the light and is thus a key material for the operation of the space.

The resulting interior space will be one of translucent light, as if we were inside of a cloud.

From the outside, when the lights are on at night, the space will resemble a beckoning lantern. By day, the natural reflected light will mysteriously emanate from the inside, offering an unprecedented sight.

But now to the crux of the matter: simply put, what we want to do is only possible thanks to new materials and new technologies. Because translucent Butyral can be given precise perforations before installation between the panes of glass, the solid light of the sun will be able to traverse both the inner and outer skin of the glass and pierce what previously could only have been a simple translucent space. The correct order and dimension of these perforations will measure the point of tension of that space. As a result of the natural movement of the sun, the harmony, or lack thereof, that is tension, between the translucent and solid light will reverberate in the space and make visible, touch the light movement.

What may have already appeared in some of the images of the models that were made for Porta Milano, the design for Milan's Malpensa airport, here acquires maximum value and efficiency because of the smaller, more controllable, and more radical dimensions of this space. I am certain that once built, it will be capable, via our minds, of squeezing our hearts.

Moreover, since all the faces of the cube are perforated and full of light, we understand that the entry way to the museum must reproduce the global effects of the architectural operation. We accomplish this through the following mechanism: from outside we made the entrance a darker space in contrast to the cube, so that it opens up into the light within it. Entering into the cube, in passing from shadow into light, the visitor participates in the special spatial transformation of piercing translucency.

I would like the amazing space of the MIA Museum, as something new, to touch the light movement, to be a millennial stone in the advancement of architectural history. I would like it to be a space that would please the master, Bernini himself: a space where translucent light is pierced by solid light.