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IN PRAISE OF SHADOWS OR THE RATIONAL INTUITION OF LIGHT

POCHWAŁA CIENI LUB RACJONALNA INTUICJA ŚWIATŁA

Abstract

In my opinion, intuition is not in opposition to rationality. "Rational and irrational tendencies do not stand in contradiction to each other", as the thesis of this XVII International Scientific Conference of Kraków states, although I don't believe that we should associate intuition with irrationality.

I have always believed that even in the most miserable and obscure place we live in, where shadow or darkness have permanent shelter, a tiny light beam will enable us to connect with reality, with the immensity of the universe of the stars and the planets through the natural light. Enclosing the light, capturing it in an interior space has become at all times a difficult architectonic aim to achieve. It is like trying to hold water in your hands.

Some pedagogical exercises and our last projects can serve as an illustration, especially the "patio" of our studio that we have turned into a laboratory with the intention to examine and observe natural light closely.

Keywords: Intuition, rationality, light, shadow, project.

Streszczenie

Moim zdaniem intuicja nie stoi w opozycji do racjonalności. Jak głosi teza XVII Międzynarodowej Konferencji Naukowej w Krakowie „Racjonalne i irracjonalne tendencje nie stoją ze sobą w sprzeczności”. Nie uważam jednak, że powinniśmy utożsamiać intuicję z irracjonalnością.

Zawsze wierzyłem, że nawet w najbardziej nędznym i mrocznym miejscu, w którym żyjemy, gdzie cień lub ciemność znajdują stałe schronienie, maleńka wiązka światła pozwoli nam połączyć się z rzeczywistością, z ogromem wszechświata gwiazd i planet przez naturalne światło. Zamknięcie światła, uchwycenie go w przestrzeni wewnętrznej stało się trudnym zadaniem architektonicznym. Przypomina ono próbę trzymania wody w dłoniach.

Niektóre ćwiczenia pedagogiczne i nasze ostatnie projekty mogą służyć jako swoista ilustracja, szczególnie „patio” naszej pracowni, które zostało zamienione w laboratorium, z zamiarem dokładnego zbadania i obserwacji naturalnego światła.

Słowa kluczowe: intuicja, racjonalność, światło, cień, projekt

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In my opinion, intuition is not in opposition to rationality. “Rational and irrational tendencies do not stand in contradiction to each other”, as the thesis of this XVII International Scientific Conference of Kraków states, although I don’t believe that we should associate intuition with irrationality. Only extreme positions can deform the way in which we normally think about architecture, producing both: random projects supported by whimsical fantasies and repetitions of typological models based on normative rules. These models contribute nothing to the creative development of the architectural project. Virtue is, as always, the happy medium between two extremes that allows us to evoke intuition from a maximum knowledge of the profession, because intuition intervenes in our creative thinking in the same way that a shortcut transforms a very long deductive reflection into a spontaneous inductive idea, only useful when it is based on extensive knowledge of the environment in which it is developed. However, the project activity must always be conducted considering all the dimensions of architecture: physical, executive or material, as well as sensitive or emotional.

Therefore the title of this presentation is not simple wordplay. It represents the continuing objective of my research field and professional work during the last fifty years. I have always believed that even in the most miserable and obscure place we live in, where the shadow or darkness have a permanent shelter, a tiny light beam will enable us to connect with reality, with the immensity of the universe of the stars and the planets through the natural light. Our activities are controlled by the light, which also intervenes in the rhythm of the days. This light that reflects on the walls of our room, takes us closer to sidereal distances and to the movements that describe seasonal orbits of celestial objects. All this reflected on the luminous terminal of our room, that is: architecture becomes the final goal at the end of a large journey that we measure in light-years.

Given the continuity and persistence of this academic annual event, the XVII INTERNATIONAL SCIENTIFIC CONFERENCE, I have decided to revise under the title “Praise to the shadow” my first lecture presented in 2002 and titled “Praise to the controlled light”. Dual concepts like sound/silence or light/shadow allow us to understand the complexity of the space that surrounds us to introduce us into the infinite gradients that lie between opposite concepts. Even if we will never get to experience absolute darkness, between this and the external noon light there is a gradual lighting increase that we can detect any morning from the interior of an architectonic space. Drawing a comparison with mathematics, it would be like integrals between zero and infinite of intangible but perceptible materials, like the sound or light.

While the light has been given to us, the shadow is the result of our creative activity. Trees, fences, bars, poles, steps, terraces, houses and towers describe the sun’s movement during the day with their shadows in an specific landscape. Only architecture is capable of creating interior spaces where the relationship between light-shadow is reversed in connection with the exterior. While on the landscape the light is the environment, background, and the shadow is the figure, as it happens with the shadow of a tree, a post, a tower or an Eagle flying above the land, in an interior space the terms are reversed and the darkness becomes the background and the light appears like a figure.

Enclosing the light, capturing it in an interior space has become at all times a difficult architectonic aim to achieve. It is like trying to hold water in your hands. The moment a sunbeam bursts into a dark space, a new full and different landscape appears. If we agree with Leon Battista Alberti’s famous saying: *The city is a big house*, that supports the theory of the harmony between the parts and the whole, we can also state that each room or space

illuminated by natural light becomes an entire and different landscape. When we observe the constant movement of the sunbeams through the darkness under the starry vault of an Arabian bath or into the Hagia Sophia of Constantinople (Istanbul), who would dare to deny that a new landscape is created? That is why the dichotomy between the light and the shadow is the principal cause of the natural rooting of the architectural artifice: what makes architecture plausible and real.

Everybody, depending on their age and sensitivity, has an experimental knowledge of light, changes that happen through the day or seasonal alterations, regardless of the scientific knowledge, of the spring or autumn equinoxes, of the azimuth and the solar altitude, or the changes of perception depending on the place where they live, in one or another hemisphere, in Ecuador or in Iceland. The permanent variability of the natural light – we could affirm that a similar situation never happens again over a year – makes it difficult to use the light as an essential dimension of the architectural project, it is for that reason that we need the intuition, together with a basic knowledge of light, to project new spaces that confine and assimilate the natural illumination.

Among the scientific experiments related to light, the “Camera Obscura” stands out, due to its direct connection to architecture. If we enclose the darkness in a room, that is, if we guarantee the luminous impenetrability of their walls, we can control the contact with the exterior space through only a hole. Since the beginning of the seventeenth century, we have documents about the “Camera Obscura” (term coined by Johannes Kleper), as an instrument or optical mechanism; a small hole opened in one of the walls that allows the luminous beam to access the camera, projecting an inverse image of the outside on the opposite wall. At the beginning, the images were captured and drawn over a paper to fix them until light-sensitive materials that fixed the images automatically were developed. The improvement of the “Camera Obscura”, its reduction of size until it was turned into a manageable gadget and the development of the optical lens, together with the discovery of other light-sensitive materials, allowed the invention of the photographic camera that fixes images without time, snapshots, of the real world. The word photography could be translated as “light drawing”. In Greek, *photo* means “light” and *graphis* means “drawing”.

Architecture could be compared to a big optical instrument that reproduces in each interior space a “camera obscura”, a photographic camera whose sensitive materials are all of us: the inhabitants or users of it. In the physical duality of the opposition between light and shadow the architectural project has to deal with two main conditions: the architecture as a frame of the outside landscape and the interior space as a reflection of the mutant natural light. The photographic compositions by Mies van der Rohe, an incipient version of Photoshop, shows us projects such as museological spaces that frame a specific landscape. This architectonic use of the space as a frame of the landscape is so evident that in the Resor House (1937–38) there are interior perspectives that frame two photographs of two different places. Mies makes us think of architecture as a theatrical scenery or a movie screen. The Resor House can also be understood as a camera lens.

On the other hand, the question of the illuminated interior space drives us to other concepts and other architectures, a reissue of the Plato’s Allegory of the Cave, where some prisoners without memory of the outside world have to interpret the shadows thrown from the mouth of the cave. In this situation, the permanent change of light and the movement of the shadows represents the passing of time. A paradigmatic example of this camera obscura architecture is the Pantheon of Agrippa in Rome (118–125 AD) traversed by a luminous circle that comes



III. 1. Summer shadow, Study in Seville architects A. Martínez and J. L. Trillo. Photo Olvido Muñoz Heras

from the central oculus of the vault. This is an architecture that confines the natural light and creates a full landscape, where shadows and light show the passing of hours and seasons of the year. This is particularly evident in the Pantheon where the rainwater leaks through the central hole making this artificial landscape real and plausible. Some architectural projects as the ones of Alvar Aalto or Alvaro Siza couldn't be understood without recognizing its origins in the luminous diaphragms or cameras obscura.

The moonlight also intervenes in the illumination of the shadow, always involved in magical and mysterious literary stories and the misnamed "artificial light" that comes from the fire: a little part of the sun light on a different scale. Despite the permanent evolution and development of the artificial light, it always keeps its origin as primary energy, just like the fire. The biggest difference in comparison with the natural light may be the possibility of reproduction in many points of light, as many as we want, that is, in the multiplication of the shadows.

In one of the most recognized houses of the Modern Architecture, Curzio Malaparte House (Capri, 1937), whose authorship has been assigned to Adalberto Libera even though now some critics attribute it to the writer and first owner Curzio Malaparte, we can find an architectonic mechanism able to overlap the photograph frame of Mies' window with the hole of the camera obscura or the camera lens, and also, the natural light with the artificial light. The back wall of the chimney, in the living room, is replaced with a window made of security glass that belongs to the Zeiss Company (German optical instruments Company). Now, through the chimney, we can see the sea and the horizon, at the same time that this window serves as a camera lens. During the night and from the sea, the window becomes a lighthouse that warns the sailors about the presence of the cliff.

The observation of the light and shadow in our projects, its knowledge, interpretation and conscious use can be used as a valid argument to support the architecture project, an element that serves as a validation or confirmation of what is already built and as a development of a new process of the project, where the light turns to be a fundamental rule. Having said this: let's talk about the shadow.

In Praise of Shadows, a well-known essay by the Japanese author and novelist Jun'ichirō Tanizaki, introduced us at the beginning of the twentieth century into the way in which darkness is used in the traditional Japanese house. Through a well-paced and uncomplicated narration, Tanizaki describes and details complex concepts about the perception of the light or, to put it in another way, about the perception of the shadows. What attracts the most about this book is its detailed description of the physical reality dimension that even if it is recognized by everybody, it is usually unnoticed in our everyday life. The text puts its focus on subtle appreciations about the material and its surfaces. To do this, he takes the traditional Japanese house with all its traditional equipment as a reference. It is a house with an extensive roof that extends beyond its domestic private spaces. It serves as a diaphragm that guarantees a continuous gradient between the outside light and the central interior darkness. This house forces visitors to continuously adapt their iris to a darker and darker space. Materials, colours, textures, reflexes, smells are underlined by the writer that acts as the host of the house to enable the reader to see and feel the beauty enclosed in insignificant objects and places.

And so it has come to be that the beauty of a Japanese room depends on a variation of shadows, heavy shadows against light shadows – it has nothing else. Westerners are amazed at the simplicity of Japanese rooms, perceiving in them no more than ashen walls bereft of ornament. Their reaction is understandable, but it betrays a failure to comprehend the mystery of shadows.

(...) *We do our walls in neutral colours so that the sad, fragile, dying rays can sink into absolute repose.* J. Tanizaki (1933).

In his approach to the perception of the illuminated reality, Tanizaki describes the behaviour of materials that are more usual in the Japanese house, like paper, wood, jade or lacquers. He establishes how the shadows of the darkness create depth in the different surfaces when reflected on them. These reflections seem to emerge from the interior as when we look at a lake surface or an eye.

Another memorable book is: *The Wonderful History of Peter Schlemil or The Man Who Lost His Shadow*, by the German botanist and poet Adelbert von Chamisso (1781–1838). He also introduces us to the concept of shadow, but in this case it's about a personal and flat shadow, a free figure that accompanies our body underlining its physical reality. In this beautiful tale the shadow becomes independent of the body and exists as an object. The author warns the readers, in the foreword, about the real entity of the shadow as the section of a volume made by an illuminated body:

A body can't be partly illuminated but by a luminous body, and the private space of the light located behind the unilluminated side is what is called shadow. So, the proper shadow represents a solid whose shape depends, at the same time, on the luminous body, on the opaque body and on the position of this one in relation with the luminous body.

Considering the shadow on a plane located behind the opaque body that produces it, it is nothing other than the section of this plane in the solid that represents the shadow.

Haüy, *Elementary Treatise on Physics*, volume II.

The author, Adelbert von Chamisso, concludes his prologue by underlining an architectural need: *Think on the solid.*

Peter Schlemil, the man who lost his shadow, lives, almost accidentally, fantastic adventures that had its origins in the sale of his shadow. After accepting that it is possible to separate a body from its shadow, the tale becomes an extreme fantasy. Even if it uses reality as a reference, some physical properties are changed so that the main characters, including Mr. Schlemil, happen to be fictional characters. Nevertheless, after the warning of the author in the foreword of *The Man Who Lost His Shadow*, the reader is aware of being experiencing a far-fetched scene.

The shadow does not have any entity itself. It is limited to show the physical geometric section that results from the intersection of two “solids”. In an architectonic space, the light and the shadow draw shapes on the walls that are an effect of the different volumes light-shadow that occupy the totality of the room. We could affirm that architectonic interiors are puzzles in three dimensions, composed of shaded areas in a different way. The loss of the shadow must mean an important alteration to the body to which it belongs, therefore the characters of Peter Schlemil's tale find the relationship with a person without shadow unbearable.

The lights and the shadows occur in a different dimension if we compare it to the architectonic geometry, that is the reason why the shadow outside and the light inside produce diagonal links, that is, shapes that break on the angles and connect pavements, buildings and walls. Nevertheless, the most important and surprising quality that the shadows provides the city with is the alteration of the scale. In Kraków, at the end of November, on the occasion of the International Scientific Conference of the University of Technology, the great length of the shadows projected by the visitors of Rynek or Wawel always surprises me.

The extraordinary and disturbing film *The Third Man* (1949), a British film based on a novel written by Graham Greene and directed by Carol Reed, uses the size gap between the buildings of Vienna and the shadows of people to show us, always at night time, what the city of Vienna in the post–World War II period looked like. The immense and lonely shadow of Orson Welles goes all over the pavements and facades of Vienna, becoming the central plot of the movie: Shadows that chase shadows.

In order to learn how to use the luminous dimension of the reality in our architectural projects, it is necessary to draw from the experience and rational knowledge of our environment. As I said at the beginning of this lecture, I have spent a considerable amount of my life working as a professional architect and university professor with the aim to always get a deeper knowledge of the light and the shadow and research on the mechanisms that intervene in the control of these ones. Its intangible and ungraspable presence, together with its continuous variability require not only an exhaustive knowledge about its physical essence but also about the sensitive use of our intuition that works like a shortcut in the creative process. Some pedagogical exercises and our last projects can serve as an illustration, especially the “patio” of our studio that we have turned into a laboratory with the intention to examine and observe natural light closely.

Translated by Clarines Valenciano and Juan Luis Trillo