From the Eye of the Gods to the Eye of Google? Reflections on the Influence of Aerial Photography on Architectural Design

Irene Ruiz Bazán, Gianluca Emilio Ennio Vita

Abstract

The representation and communication of contemporary architecture is going through a moment of paradigm shift in which the presence and use of photography is becoming increasingly prominent both when it comes to images of the actual building and when the image is synthetically generated from a three-dimensional mode. Already during the first modern movement we thought of buildings seen from above, from a biplane flight, and even earlier the bird's eye perspective showed how on some occasions the compositional effort was concentrated on a part of the building that would never be seen directly, but only perceived through its representation. Nowadays, aerial photography is gaining increasing importance both in communication and in the conception of the architectural project thanks to the existence of satellite applications, which mediate our perception of it to the point that it is possible to argue that the roof has transformed into fifth facade of the building and that this is, at times, the most important one. In this contribution we present a reflection on the importance that the point of view from above has acquired in the photographic narrative of architecture. Proposing an analysis of the various circumstances that have propitiated it such as: the digital use of architecture, the massive use of systems that favor the aerial view of the city and finally the expansion of the possibilities of aerial photography using drones and other devices.

Keywords: aerial photography, contemporary architecture, Google Maps*, drones.*

Introduction

The representation and communication of contemporary architecture are going through a moment of paradigm shift in which the presence and use of photography is becoming more and more prominent both when it comes to images of the real building and when the image is synthetically generated from a three-dimensional model, the so-called rendering. This situation, as Joan Fontcuberta theorized on several occasions with his reflections on the post-photographic era, affects many other contemporary areas but, above all, it ended up influencing and, in a certain way, guiding the architectural design.
The relationship between photography and architecture has been extensively studied and discussed since the advent of this medium [Fontcuberta 2017] and as explained in the quote contained in the essay *Conversazione tra Jacques Herzog e Jeff Wall:* "Da un fotografo ci aspettiamo delle immagini ma forse non era previsto che anche l'architettura cominciasse a pensare in termini d'immagine" [Becthler 2005, p. 22].
This report becomes particularly interesting if we analyze some recently built projects related to aerial photography. Already during the first modern movement we thought of buildings seen from above, from a biplane flight, and even earlier the bird's eye perspective showed how on some occasions the compositional effort was concentrated on a part of the building that would never be seen directly, but only perceived through its representation [1].

Fig. 1. Spiral Jetty, Smithson.

Nowadays, aerial photography is gaining more and more important both in communication and in the conception of the architectural project thanks to the existence of satellite applications such as *Google Earth* and *Google Maps*, which mediate our perception to the point that it is possible to argue that the roof is transformed into the fifth facade of the building and that this is, sometimes, the most important one.

Designing 'to be seen from above', the first experiences

In this analysis it is essential to try to establish the path that led to aerial photography becoming an essential element in architectural design and not a consequence that 'happens' once the building has been built. We therefore propose a reflection on the importance that the point of view from above has acquired in the photographic narrative of architecture.
Thus, even if the relationship between aerial photography and architecture began to be analyzed as early as the beginning of the past century [3]we can point out as one of the first experiences in designing 'to be seen from above' the work Proposals for the Dallas-Fort Worth Regional Airport (Tippetts-Abbett-McCarthy-Stratton, Architects and Engineers) in which, in 1966, lead land art artist Robert Smithson was brought in as a consultant.
As Janna Eggebeen states [Eggebeen 2011, p. 88] this complex public works project was of such magnitude that it was compared to the construction of the pyramids. A unique collaboration, which lasted a year, which coincided with significant changes that occurred in both contemporary sculpture and architecture towards non-objectivity, i.e. away from the singular and autonomous work, and towards a new relationship with space and the weather. At the forefront of this change were the airport's innovative architectural design and rethinking process and Smithson's writings and proposals related to the DFW project.
Smithson opens the door, already at the end of the sixties of the last century, to an important idea that will later change many paradigms, when he states that: "Aerial photography and air transportation bring into view the surface features of this shifting world of perspectives. The rational structures of buildings disappear into irrational disguises and are pitched into optical illusions. The world seen from the air is abstract and illusive. From the window of an airplane one can see drastic changes of scale, as one ascends and descends. The effect takes one from the dazzling to the monotonous in a short space of time– from the shrinking terminal to the obstructing clouds" [Smithson 1969, p. 180]
Smithson develops his thought by suggesting that through this vision the infinite can be grasped in a finite way. For him, the straight lines of airfields and runways give rise to a perception of 'perspective' that eludes all our conceptions of nature. The naturalism of seventeenth, eighteenth and nineteenth century art is replaced by a non-objective sense of place.
Smithson's reflection on designing from above revolves around the concept of 'visibility' of the work which according to the artist is often marked by both mental and atmospheric turbulence. According to the North American artist, simply looking at art at eye level is not a solution. If we consider the aerial map as a thing in itself, we will notice the effects of scattered light and weak tone reproduction. Aerial photography at high altitudes shows us how little there is to see.
Inverting the formula of bird's-eye view as sovereign vision, Smithson argues that the merit of aerial photography is to show that the lack of objectivity in vision, which we might think arises from confusion and peculiarity on the ground, is a general condition and a scarcity in the concept of art and in the aesthetic gaze.
The work proposed by Smithson for the airport was subsequently developed with Spiral Jetty (1970) (fig.1), a work that played on the rotation of the point of view. Looking through the artwork from the ground the concept of him was not visible. It could be photographed from above and this photograph held in the hand and the picture of him in the mind, but all of this was impossible to relate adequately to the palpable experience on the ground. Concept and experience are separated and articulated as horizontal and vertical axes. In the visual arts Smithson's work has had important effects in the ongoing criticism of the art object and has even become semi-institutionalized as a contemporary art genre of everyday
Going forward in time we can name some examples of this approach where the view from above becomes a key element of the project. West 8's work for Schiphol Airport and the Netherlands' sea defenses is an early example of this. The uneven distribution of open

spaces and built-up areas in an airport; the variety of sizes, shapes, and architecture of buildings; the contrast of sizes of vessels, equipment and vehicles, and the multitude of activities and logistics of airport operations, require careful visual management to avoid the looming emergence of chaos. This is developed on two levels, that of the user, at eye level, but also that of aerial vision. The Schiphol Airport project is not about theory but about images. As Geuze and Buijs, [Geuze, Buijs 2014] indicate, the absence of solid theoretical knowledge on landscape design is perhaps indicative of a moment in the history of this discipline between the late 1980s and the beginning of the 90s. When West 8 was asked to take on the project, the question arose as to whether it was actually possible to do the landscaping of an airport. In such a dynamic environment, there seemed to be nothing to design; no drawing of a durable plan to deliver. West 8's designers had no precedent or example; it hadn't been done before. This forced the team to start thinking in terms of some sort of 'menu' rather than a final design. A list of landscaping elements has been compiled that could be serially applied in certain places and under certain conditions. The aim was no longer to develop a lasting and defined landscape, but rather to address the aesthetics of the landscape in the short term, thinking in images. The effectiveness of that 'menu' opened our eyes and perhaps can now be considered a theory in its own right.
Macarthur [Macarthur 2017] reads in the point of view from above in architecture a tendency towards the picturesque and argues that designing taking into account the aerial view of the building was a general trend in many architectures of the 90s and states, in 2000, that "Iconoclastic contemporary architects are fascinated with the shaped plan forms of the modernist buildings excoriated by the urbanist of the '70s, precisely because they are figures recognizable without a ground" [Macarthur 2017, p. 117] MacArthur recognizes an evolution of Smithson's ideas on thinking about a new point of view, in the way in which the visual experience is taken into account in the fruition of architecture that characterizes the works of the OMA studio, in the design of Toyo Ito, in the fascination for the roof surfaces of the Sejima Foreign Office and in some works by the MVRD studio. All these architectural studios do not hide strong formal research of great visual quality, as often indicated by the authors in the description of their works. The description of Senday's Media Library made by Toyo Ito (2001) is valid as an example "This striking visual quality that is one of the most identifiable characteristics of the project is comparable to large trees in a forest, and function as light shafts as well as storage for all of the utilities, networks and systems" [Sveiven 2001]. Indeed, Toyo Ito's project takes great care of the view from above, where circular structural lattices that extend from one floor to another form a clearly identifiable formal composition.
Following this idea, the projects elaborated according to this principle of searching for a strong, decontextualized visual image, only perceptible from above, would be easily identifiable by their lack of relationship with their own urban context as opposed to the search for the creation of a perceptible figure above all conceptually (from above).
These projects obviously work on the plan, but also on the materials and the final rendering of the surfaces of the roofs and roofs, trying to produce an image and a concept that detaches from the context.

The digital 'revolution'

At the same time as these advances in the field of architectural perception theory, what some theorists such as Mario Carpo have defined as the first 'digital turn' in the field of Architecture (1992-2012) [Carpo 2012] this turn took place where the first software for and computer aided manufacturing (CAD/CAM) generated a style of smooth, curved lines and surfaces that gave visible form to the early digital age and left an indelible mark on contemporary architecture. In these considerations we can indicate one of the reasons that led to the idea of architecture for images that is rooted in the process of architectural design.
In fact, digital tools make it possible to get out of the classic design based on a reasoning anchored in plans, elevations, and sections and to conceive the building directly in its volume from which the canonical representations then derive which become a consequence and no longer the generating element. This type of architecture, born from the digital and three-dimensional manipulation of abstract forms, is closer to a type of representation based on virtual images, the so-called renderings, which are nothing more than virtual photographs

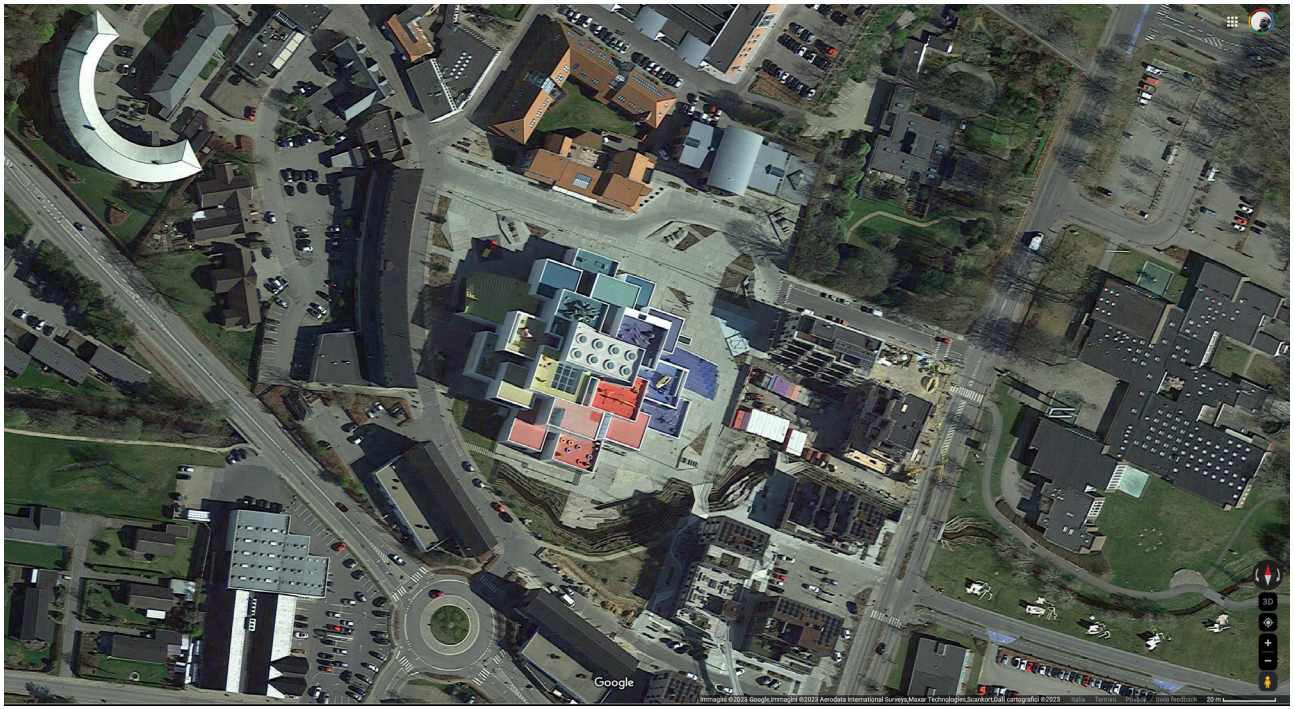

Fig. 2. Lego House, Bjarke Ingels.

Fig. 3. Aomori Museum of Art, Jun Aoki.

of a virtual model. Once the building has been modeled, the colors and materials have been decided, a point of view is chosen, then the lighting and finally an image, a still of the designed building, is 'taken'.
Even more today, in what is already defined as the 'second digital turn' [Carpo 2017], the unprecedented power of algorithmic calculation favors a new type of science, in which prediction can be based on pure information retrieval and in where the search for shapes through simulation and optimization can replace the deduction from mathematical formulas. Designers have also been playing with machine thinking and machine learning for some time, and the seemingly unfathomable complexity of the physical forms they are creating already expresses a new form of artificial intelligence, outside the tradition of modern science and foreign to the organic logic of our mind.
All these architectures and the concepts associated with them are increasingly difficult to represent under the canonical views, plan, elevation, section, but above all they also need a different spatial conception. Hence, perhaps, the need for an abstract point of view, often from above, in some divine way, which adequately represents the paradigm shift taking place in architectural design.
We can then add that the way of knowing and enjoying the city has also changed through the massive use of systems that favor the aerial view of the city itself. In 2004, Danish brothers Lars and Jens Eilstrup Rasmussen brought to Google the idea of a web application that displayed static maps but at the same time gave users the ability to search, move the map, zoom, and other functions. In the space of almost twenty years this application has become the most used tool for 'navigating' the city, offering a view of the city from a bird's-eye viewpoint which increasingly becomes the way to get to know and travel through the city in a virtual also 'from within'.

Projects for the eye of the Gods (or Google)

Numerous recent projects therefore seem to respond to the phenomenon that we have just explained, a fact that undoubtedly opens up a new debate on the aestheticization of architectural design and its relationship with photography.
We can name for example the Lego House designed by the Bjarke Ingels group in Billund, Denmark, which was inaugurated in September 2017 [4] (fig.2).
It is a 12,000 square meter building which aims to represent the Lego brand. The building comprises 21 staggered blocks resembling Lego bricks, with nine roof terraces containing different play areas for children. The building consists of a series of interconnected modular spaces, which house the exhibition and experiential areas for visitors. The entire construction consists of 8,500 m² above ground and 3,400 m² of basement. The modular spaces can be visited using a series of stairways, ramps and bridges, each designed however to be used independently. In 'human sight', the building is clad in white ceramic on its exterior to reflect light and create an understated form, to avoid overloading Billund with too much color. The Lego color palette has been used with care and has been mainly confined to the interior spaces, particularly the floors, to create fluid movement between spaces and to help direct visitors within the building.
In contrast to its light appearance from the ground, visitors arriving by plane or those viewing the building via digital means such as *Google Maps* are able to get an aerial view of the primary colors which reflect the unmistakable physiognomy of the Danish brand.
Both the renderings of the project and the photographs of the building, taken by the well-known architectural photographer Iwan Baan, portray the zenith views of the building, necessary to understand the compositional effort that revolves around this captivating and strong image, an out-of-scale of the well-known bricks, which has become a landmark of the city.
The roof of the building of the Aomori Museum of Art, in Japan, designed by architect Jun Aoki can be interpreted in a similar way [5] (fig. 3). The museum consists of a structure that is flat on top and irregular on the bottom superimposed on a landscape where the ground is crossed by some trenches. In addition to the white cubic galleries within the structure, there are interstitial spaces at different scales and proportions between the structure and the ground which function as exhibition galleries that are inserted into the site. The parts of the trenches that do not intersect with the structure are used as exhibition spaces. The outer wall is a brick wall, but the joints that are drawn with a separating wall and are hidden by the absorption of the outer wall.

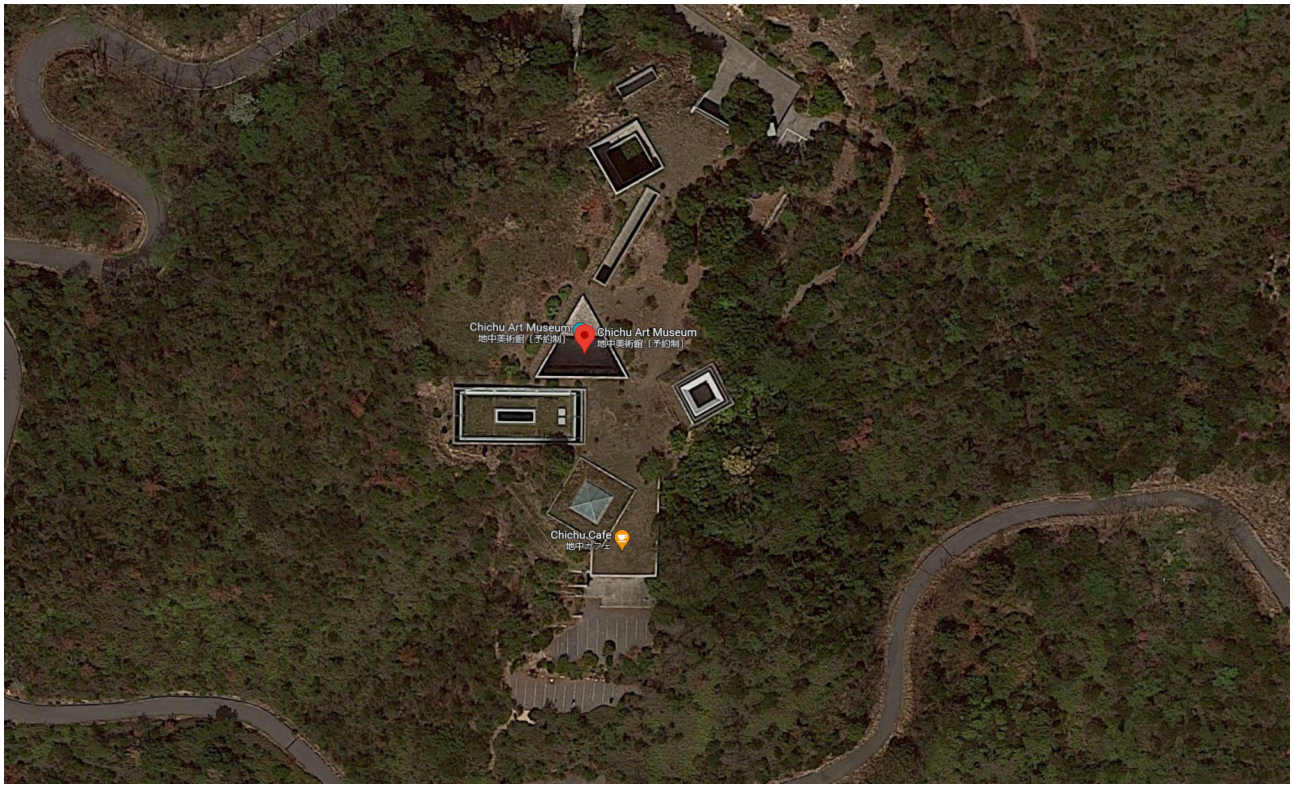

Fig. 4. Chichu Museum, Tadao Ando.

As a result, the building seen from eye level looks like a brick construction structure floating in the air while the trenches in the ground serve to relate the museum to the important archaeological site of Sannai Maruyama which is located nearby. Seen from above, however, the building is oriented on a perfect north-south axis (evident from the view of *Google Maps*) which defines a flat white surface, crossed by the trenches with which the symbol is almost entirely drawn. Of the museum's corporate identity, designed by designer Atsuki Kikuchi.
Also in Japan, on the island of Naoshina, the same game seems to have been proposed a few years earlier also by Tadao Ando in his project for the Chichu museum [6] (fig. 4). As the name suggests, Chichu is located underground (Chichu literally means 'in the ground') so as not to detract from the beautiful natural scenery of the Setoe Inland Sea, the museum houses a permanent collection by just three artists: Claude Monet, whose works occupy the heart of the building, Walter de Maria and James Turrell.
Seen from above, the various geometric figures that make up the space are organized around an equilateral triangle with a perfect orientation on a north-south axis of symmetry, an arrangement, again deliberately imperceptible at eye level, which takes on all its compositional sense in front of the 'eye of Google'.

Conclusions

The relationship between architecture and aerial photography has always been discussed, practically since the first advent of the latter, thanks to its ability to better understand cities and the urban development it provides. Important projects such as *Collage City* [Rowe, Koetter 1978] have made use of this mode of vision to present different possibilities for analysis and reflection around urban development.
Aerial photography has undoubtedly changed the way we see the environments in which we live and has been one of the main vectors that has led to the construction of a visually complete global space in which –thanks to contemporary digital technologies– it is now also possible to navigate.
The real paradigm shift we are witnessing is, as we have tried to illustrate, the fact that the view from above becomes a founding element of the architectural project and not a consequence of it; therefore, not just one more possibility to carry out an 'a posteriori' analysis but a real design element to consider when designing the building. Therefore, it is not a question of reworking what has already been built under a new vision, as happens in the works proposed by many artists, among which we can point out that of Aerial Facades by Camilo Monzón Navas [7], or the 'site specifics' of the Italian artist photographer Olivo Barbieri [Panaro 2017] but to propose new subjects designed to be portrayed with this technique.
We have briefly mentioned what happened in the projects of Robert Smithson, a salient figure of Land Art, to find a first approach to this idea of moving the fruition point of the work upwards and towards a different gaze that manages to capture a sense of fulfillment only from a point of view unattainable by natural means to the human eye.
The evolution of certain architectural trends with a clear search for visual effects has then led to projects in which the interest seems to increase when viewed from above, losing contact with the context and elevating the proposals to a new formal plane in which they acquire a clear protagonism in relation to their environmental context.
The question becomes new and interesting if we consider that we are reaching a point in which we design not only considering the 'real' user of the building, but also the virtual one, the one who, in fact, makes use of the so-called 'Eye of the Gods' to get to know, discover and enjoy architecture. This relationship between aerial photography and design ideas is not usually made explicit by the authors themselves, but it is increasingly common to find references such as that of MAD Architects regarding the new terminal of the Changchun airport (China) where the architects explicitly state that they have worked for create "a tranquil and inviting atmosphere, both from a distance and from inside" [8].
At a time when the development of parallel realities that are still not clearly definable, such as the Metaverse, or the so-called Artificial Intelligence, seems to want to re-orient part of our daily life, some areas of architecture are coming to terms with this new situation by proposing solutions that take into account this reality in which we are immersed and by which we are sometimes submerged, in what Fontcuberta defines as the *Furia de las imágenes*, where the digital and the virtual take over the real.

Notes

[1] Among the multiple essays who have addressed this topic we use two clear references.

[2] The relationship between aerial photography and architecture has been extensively studied in the context of the Bauhaus we can cite among other reference essays *Malevich, Suprematism and Aerial Photography* [Lodder 2004].

[3] One of the first reference texts is Holt [Holt 1919].

[4] The images of this project can be consulted in <https://big.dk/projects/lego-brand-house-2740> (accessed May 20, 2023).

[5] The images of this project can be consulted in <https://www.aokijun.com/en/works/%E9%9D%92%E6%A3%AE%E7%9C%8C%E7%AB%8B%E7%BE%8E%E8%A1%93%E9%A4%A8/ and the view from *Google Maps* in https://www.google.com/maps/search/aomori+museum+art/@40.8087733,140.7021636,847m/data=!3m1!1e3> (accessed May 20, 2023).

[6] The images of this project can be consulted in <https://arquitectura-aviva.com/works/museo-de-arte-chichu-naoshima-> and the view from *Google Maps* in <https://www.google.com/maps/place/Chichu+Art+Museum/@34.447582,133.984656,205m/data=!3m1!1e3!4m6!3m5!1s0x3553ee2be7ee61e1:0x3ca35265668478091!8m2!3d34.4477479!4d133.9847175!16s%2Fm%2F03wdjd0> (accessed May 20, 2023).

[7] The work of this artist can be consulted online on the site https://camilomonzon.com/aerial-facades

[8] <https://www.designboom.com/architecture/mad-architects-changchun-airport-t3-china-02-06-2023/> (accessed June 2, 2023).

Authors

Irene Ruiz Bazán, Department of Architecture e Design, Politecnico di Torino, irene.ruizbazan@polito.it
Gianluca Emilio Ennio Vita, Politecnico di Milano, Urbino Academy of Fine Arts, gianluca.vita@accademiadiurbino.it

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