Teaching the rules of the space: the Olympic Theater in Sabbioneta

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Abstract

Purpose:
Visual perception is a phenomenological interpretation but it is unable to return exactly the essence of reality, the sight returns some apparent and exterior qualities of things as shape and chromatic features, the only way to bend the space and to create views of apparent worlds is to know the intimate truth of perception.

Method:
The conscious utilization of geometric optics is a valuable tool to disseminate the scientific and intellectual aspects of the building art, but it is essential to confront not only geometric theory but also practical examples, possibly following the most distinguished architects.

Result:
snatching space deformation process and taking a further step towards self-interpretation and design.

Discussion & Conclusion:
student training to the comprehension of the space and its geometric rules; the space control can generate an illusory, but not for this reason less realistic, landscape.

Therefore, the main way that the mind has to understand the truth remains the abstraction, a real stripping process of sensible phenomena, capable of highlighting the essence of things, once it has reached a deep understanding of rules, Plato's Aletheia, it is possible to conquer and manipulate the Doxa. Transposing these words to our specific case, it could been stated that if the designer is able to steer the scientific and geometric processes of the space, he will be able to generate an architectural landscape, certainly fantastic, but not, for this reason, less realistic.

The procedure that deals with ad hoc deformations of the space, anticipating the optical processes of vision, is called solid perspective, a space design that underlies sophisticated geometrical knowledge, which can not be ignored if the architect wants to get a proper optical coherence.

If we look in the history of architecture, it is possible to find many examples, the most famous are: the Bramante's Santa Maria presso San Satiro in Milan, Palladio’s Teatro Olimpico in Vicenza and Borromini's Galleria di Palazzo Spada in Rome. In this short essay it has been reported the results of a study conducted on the original scenes designed by Vincenzo Scamozzi for the Olympic Theatre in Sabbioneta, now lost. The aim is to demonstrate how through the analysis of a concrete example we can reach the rules of the space and, from this starting point, we can generate an illusory, but not for this reason less realistic, landscape.

1 Platone. Timaeus, 45 B, 45 D, 67 C 4.
3 In this essay it has been reported the drawings produced by Paolo Ruggero e published with the title: La scena assente. Ricostruzione delle scenografie scamozziane per il Teatro Olimpico di Sabbioneta. In G. D'Acunto, Geometrie Segrete, Il Poligrafo, Padova 2004, pp. 277-294.
improve, through education, the design knowledge of the space to build.

2 Method and Result

Sabbioneta is a Renaissance city which could be considered as an open-air theatre because its street were conceived to constitute the background for the daily pièces de théâtre of the Duke Regent, Vespasiano Gonzaga Colonna (1531-1591). The Duke intentionally replaced the spontaneous development of his town with an attempt of design, based on an ideal geometric order⁴ (fig. 1); he also commissioned the execution of the theatre, asking to the architect Vincenzo Scamozzi from Vicenza to design and built it, its location has a mediating role between the ducal palace and the private residence.

The interior of theatre shows the architect's deep ability to manipulate the space, which manifests itself as a seamless continuum between the open gallery, the cavea, the orchestra and the scene; the path starts from a porch (a semicircular peristyle), passes through two views of Rome (two frescos on the side walls) and arrives to the scene, which is a typical ideal square of the fifteenth century. Further, Scamozzi accentuates the spacial continuity, thanks to the use of a false ceiling, that simulates the blue sky, creating a sort of connection between different parts and functions of the space, rightly the Ricci insists on this point:

"Scamozzi does not treat the scene like an old theatre because it would be a hindrance to the architect's idea of the urban space, he broke with tradition and exalted the continuity between stage, auditorium and illusion"⁶.

The fixed scene, who accompanied the performances until the eighteenth century, when it was replaced, is even mentioned in the treatise published in Venice in 1615 by the architect: "the perspective of buildings represents a large square, with a noble road in the middle, and then, here and there, other many and different buildings made with colourful wood to mimic the actual houses"⁶. Scamozzi, therefore, created a conventional solid perspective of a portion of an ideal city, planning and projecting oblique elements, following the model of "square and road" set by Baldassarre Peruzzi and later codified by Sebastiano Serlio in his teatrise'. Therefore, the design of the theatrical environment goes beyond the function of the building itself to fit in a wider and complex context, namely that of a real and material urban reworking. An attempt that is well integrated in the cultural context by Magagnato, in fact, he observes that during the Italian Renaissance some parties became an excuse to model a new and ideal cities⁸. So the Scamozzi's architecture, created for the stage, threw the spectators into a further noble fantastic town inside another ideal city, the second one was a fruit of the plan carried by the prince Vespasiano Gonzaga, instead the first was an utopian dream of the architect from Vicenza.

Fig. 1 J. Chafrian, Plan of Sabbioneta, print. Milan 1687.

Fig. 2 V. Scamozzi, The Theater in Sabbioneta. Drawing 191A, GDSU, Florence, 1588.

⁵ G. Ricci, op. cit., p. 102.
⁶ V. Scamozzi, L'idea di architettura universale, Venezia 1615.
The drawing signed by Scamozzi, dating to 1588 and kept in the Cabinet of Prints and Drawings of the Uffizi in Florence (fig. 2), reproduces the layout of the stage and the scenic view of the left side, so this drawing is a good reference, as starting point, to re-create what has been lost. But as this drawing is not sufficient to complete the reconstruction of the whole scene, other graphic records were consulted: the drawing named 198A and served as well at the Uffizi, some depictions of the Garden Palace in Sabbioneta and some paintings of sacred representations, hanging in the private chapel of the Duke.

Following the instructions of the architect, set out in the treaty *L'Idea dell'Architettura Universale*, the 191A drawing could be considered as an “invention in poor and little shape” and then as part of a design phase of the scene; so the drawing is probably just as a provisional note that had to be brought before the Duke. But the document is not for this reason less precious in terms of graphics, in fact, it is accompanied by explanatory notes and measures that have allowed to complete the more likely reconstruction of the left front of the scene. The analysis operation, based on the rules of the projective geometry, had led to the privileged position of the viewer (certainly the Duke Vespasiano Gonzaga), setted about 5.80 m away from the proscenium, and to the main solid point, which is considered as the physical place of convergence of the different architectural elements; in this way it has been highlighted the inherent deception of the scene, which, through ad hoc deformations of the architectural elements, anticipates the physiological processes of the vision. Another step was made legitimately assuming that the pavement of the noble road was made up of harnesses, that can be considered solid images of square tiles. Once that the architectures created with the solid perspective have been isolated, the elevations of the urban façades, in their ideal forms, have been obtained through a reverse projection of the three-dimensional scene on the real space, still three-dimensional but not deformed (fig. 3).

The consideration relating the apparatus on the right scene are more interpretative, because it has found inspiration from another drawing by Scamozzi, named 198A (fig. 4). From a comparison of the two sheets some correspondences emerge between the right side of the plan prepared for the Olympic Theatre in Sabbioneta and the buildings designed in the 198A drawing, as well as stylistic similarities can be picked between the third building of the design sheet and the house on the 198A drawing in the same position. However, beyond the ambiguities (the most significant inconsistency concerns the poor match of the principal solid point (this is why it was necessary to use a double orthogonal projection); by the way the latter sheet constitutes the most valid tool to reconstruct the scene on the right. A monumental arch completes the philological reconstruction, which allows to the viewer to see far beyond the illusory urban limits. The reconstruction of this element, which takes place in the
background, was inspired by a careful reading of the 191A document and by a comparison with a fresco of Palazzo Giardino and a contemporary iconographic source, the painting by Bresciani, dating back to 1599, that represents a triumphal arch very similar to the end of the stage, which Scamozzi had drawn on the 191A drawing (fig. 5).

Reconstructing, step by step, every single part of this scene produced finally an image to the modern viewer; it should be very close to the original theatrical front, to be more clear it represents what the Duke and his Court should have enjoyed during the theatrical performances (fig. 5). The Scamozzi’s geometric skills were manifested not only for the design of the theatre in Sabbioneta, but also for urban houses, as proof that every known tools can be used for design purposes; an example of this transposition between city and theatre is the rear elevation of the Palazzo Priuli in Padova. The building is located in a historically crucial position for the city, along Altinate street, the road that linked, since the Roman times, Padova to the lagoon; the deformed elevation faced a small canal, now covered, along the line generated by the fourteenth century walls. A deep study of the solid perspective of this building has not yet conducted, but the intention of the artist is enough clear, Scamozzi wanted to carry on any activity design starting from his knowledge and experiences, instilling, thus, an intellectual value to architecture, in which all the skills take part, for the geometric control of the space to build.

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3 Conclusion

In this case, the study of the most distinguished architects’ works was based on the analysis of the deformation processes of the space. This methodological approach that takes inspiration from the past as tool to address the present and the future is well summarized by a sentence of Philibert de L’Orme:

“The good architect is different from the bad one because he has three eyes: the first eye is turned to the future, the second to the past and the third looks at the present.”

The euclidean space has three dimensions and is governed by fixed and irrefutable rules. The knowledge of these rules is the only way, that the man has got, to bend and shape his space; but it can not refer only to the phenomenological aspects, if the Plato’s Episteme is the real object of a scientific and cultural research, then it must go further and extend the interest in the intimate truth of Nature. The geometry can be considered a good tool as complement to the architectural design, not only to control the compositional and formal aspects of a project, but also under an aesthetics and optical point of view, as well as in conveying ideas and thoughts, especially if one considers that the ultimate goal of architecture is to “improve” the space in which a man lives. To address these problems, the architect or the engineer can not solve his problems just referring to the modern technology, because the digital programs are only tools at the service of ideas and, if one is not able to control and to envisage the space and the geometric rules, which make it possible, never an architectural design can be defined as a true intellectual act. It is known that part of contemporary architecture in recent years has watched with interest in intentional sculptural effects, subjecting the act of design to complex geometric processes, between them it is possible to count designers such as Zaha Hadid and Frank o’Gary. Of course, this design makes use of advanced digital tools, but their use is aimed at virtual testing of reality and at accelerating the representation and communication of the ideas, in fact, even in these extreme cases, the architect conceptually prefigures in his minds and support his “wonder buildings” with formal considerations, that tie the geometric space to the continuity of the fluid paths and shapes. The conscious use of geometric optics by the architect is thus a valuable tool and an useful act to infuse scientific and intellectual support to the art of building. For this reason it is especially desirable in the training phase of a designer to deal successfully with both theory and practical examples, possibly walking in the footsteps of the great architects, first to snatch the secrets and processes of space control, second to take a step towards an independent interpretation and design.

References

Fig. 6 Rectification of the oblique left scene taken from the 191A drawing by V. Scamozzi. Drawings by P. Ruggero.