

Theoretical Bases Regarding the Relationship Between Drawings and Architectural Form

Paper Session: Humanism and Disegno

Arch. **Stefano Milani** Msc

Researcher and PhD candidate at TU Delft Faculty of Architecture (NL)

s.milani@tudelft.nl

This paper attempts to offer an account on the condition of the relationship between drawing and architectural form in a moment in which the multiform territory of architectural representation and of architecture, more generally, is undergoing radical mutations that imply a general reformulation of theories and techniques. If this relationship which was once centred on the ambiguity of the image; in its double structure of being a simulacrum (of a reality) and reality (itself); nowadays, computer technologies applied to the design process tend to transform the inventive adventure from an unknown and ambiguous journey to a programmed trajectory through a series of describable phases.¹

The architectural drawing, herein, is understood not as a tool or instrument, nor as an illustration of an architectural object or as a representation of a design process, but in its very nature of image, a 'vessel' that conveys the world to the 'thought' and vice versa. The place where the need of the subject-architect to think its 'world', it is manifested and rendered through a "logical" form of abstract signs.

The text dwells upon the considerations of the legendary origin of drawing as illustrated by Pliny the Elder in his *Hystoria Naturalis*, the concepts of *Disegno Interno* and *Disegno Esterno* (Inner Drawing and External Drawing) by Federico Zuccari, - fundamental concepts that establish theoretically the need for representation and the dignity of the work of art -, and on ideas coming from Purovisibilism, in particular theories by Konrad Fiedler attempting to reintroduce potentially relevant questions relating the architectural form, its genesis and research with a particular attention to critical aspects posed by digital architecture.

Drawing has often been considered the native place where the form appears in its purest and most durable essence.

Despite the fact that common and practical sense regards it as a tool through which an idea is expressed and represented, it would be more appropriate to say that drawing is a pure form of thought. When drawing, as in all activities that require a synchronized and fluid interconnection of receptive and executive functions, we have the participation of the same principles, the same mental representations, and logical procedures that are usually attributed to what we normally call thought.

The architect “thinks” precisely through a system of *lineamentis*, a system of lines through which he unfolds and progressively defines his formal ideas along the creative moments of the design.

The drawing is the place where the formal thought is exclusively manifested; consequently, as a postulate, it could be valid to argue that there is no formal thought before its elaboration within the drawing.

This paper, after recalling the mythical origin of drawing, will try to discuss some elements of the theoretical context that sees within drawing the primary scene of the form, focusing mainly on the concept of Inner Drawing and External Drawing, conceived by the artist and theorist of Mannerism Federico Zuccari. It is in the work of Zuccari, in fact, that we could find the foundation of a series of studies, mainly through the Italian sphere, in which the specificity and centrality of drawing is underlined within the wider and more complex system of arts. According to this tradition, in fact, the drawing has always been felt as a *doubly significant instrument of representation: as a moment of knowledge (therefore adjusting the idea to fit the object), and as an act of creative construction, capable of modifying the passive perception of the real and refocusing it within the dimension of theoretical and practical construction, often with a pronounced ideological content.*² The theoretical framework delineated by Zuccari will be subsequently integrated by a series of considerations on the origin of the work of art of Konrad Fiedler, who provides us with a very accurate singling out of an autonomous dimension of artistic creation intended as knowledge compared to both science and philosophy. Finally the paper will attempt to set a framework through which more contemporary issues regarding the genesis of architectural creation would be discussed.

The Mythical Origin of Drawing

The legend of the origin of drawing comes from Pliny the Elder’s *Historia Naturalis*.³ The myth narrates the history of Diboutades tracing, on a surface, the shadow of her departing lover, a Roman soldier being deployed abroad. By placing a light source in front of the soldier, Diboutades creates a profile of her lover’s head, from which her father Butades, later, builds his relief: *Placing a lamp in front of the young man she drew around the profile cast on the wall behind. Butades then pressed clay onto the silhouette to produce a relief of the young man’s face.*⁴

Although in this simple scene the complex nature of the genesis of drawings is not discussed by Pliny, nevertheless, it seems to offer already all the elements to structure its question: the reality/virtuality of the object; an object of which the drawing is a projection; and the virtuality/reality of the drawing itself. More specifically the legend serves to highlight the distance that occurs between a sign and its referent. In

Diboutades' case the invention of drawing is initiated by removal and separation so that it immediately speaks of a loss and of a mimetic substitution. The implications of this are immediately apparent in the fact that this origin has two distinct components: the first being, the projection and initial recording by Diboutades, and the second being, the point at which Butades makes this recording permanent with clay. This genesis also contains an inevitability of loss, and death. Butades records (draws) the profile of his daughter's lover so that she doesn't need to forget both who he is, and who he was - a condition concerned with place and time, motivated by the prospect of his loss. Without this drawing the soldier suffers an inevitable death at his new posting, a death through posting. Represented in this way the soldier is relegated to an act of memory, but this too is a dissolution, a separation through time and space. The relief of the soldier is, in fact, a death mask.

The Italian architect Franco Purini, reflecting on Pliny's history, underlined another crucial aspect by stressing the fact that the tracing of the profile of the lover "*is able to represent a nostalgic element not through its content, but through its very form*".⁵ The nostalgia, the broken heart of a young woman for the loss of her beloved man, are expressed and represented through their contour, through a line that binds them together, through their "*very form*". The question of form, as suggested in Pliny's description, seems to have, within the field of representation, a higher relevance than the one of the content itself.

Federico Zuccari's Concepts of Inner Drawing and External Drawing

But when does the drawing, in spoken terms, become "*the drawing*"? During the fifteenth century, with the advent of graphite, the practice of drawing which until then was only used by craftsmen, became for the first time, the subject of the imagination that projected one's self further, ... it became a project. From this moment on, the drawing started to be investigated also philosophically.⁶ With Leon Battista Alberti we have the first theoretical formulation that organically binds drawing with architecture where lines and structure express a creative phase strictly connected to its object: "*res aedificatoria lineamentis et structura constituta est*".⁷ Thus, the drawing is not considered as a mere graphic device for the work of the artist, but becomes the field where an *Idea* is elaborated. Nevertheless, Alberti, notoriously attentive to aspects of execution, considers the transfer from the *Idea* to the hand a difficult journey full of obstacles, where *the artist proceeds wandering like a blind*.⁸

More generally, the artists of the Renaissance, placed the drawing at the foundation and origin of visual arts, and Giorgio Vasari, highlighted this primacy by coining the notion of "*arti del disegno*", arts of drawing. By re-uniting the three arts of painting, sculpture and architecture, along a single origin, the confrontation between painting and sculpture that animated the artistic debate of the time ceases to be poignant. Moreover, drawings become the unifying model able to overcome the discrimination among all arts, establishing a common artistic foundation. From drawing, follow all the arts. This perspective was shared by Federico Zuccari, who considers Vasari's definition of drawing as the "father" of the three major arts reductive.

Federico Zuccari was one of the most renowned personalities of the Roman artistic scene at the end of sixteenth century, and the influence of his work, which spread

through the whole Italian peninsula and beyond, has been more significant than any other contemporary. Zuccari had an important role within the history of the artistic didactic as well, by being a member of the *Accademia del Disegno* in Florence. He also promoted the refoundation of the *Accademia di San Luca* in Rome, the centre of a wide and ambitious program of reforms in the field of arts. Zuccari, investigating the multiplicity of artistic expression and the immense creative opportunities generated by the drawing, reduces to drawing any human activity that presides over the intellectual and material production. It must be taken into account furthermore, that when Zuccari was writing his notes, it was already the later period of Mannerism and the concept of drawing was not affected by the infective enthusiasm for the perspective anymore. The meaning of the supremacy of drawing consists instead on the Idea that lightens the mind of the artist and that finds its natural external realization in the drawing itself. The notion of Idea covers a particular importance within the treatise production of the second part of the sixteenth century and constitutes the theoretical substratum of the artistic production of Mannerism that abandons the study and the imitation of nature. The drawing, associated with the concept of Idea, consequently, becomes the originary form of all that a human mind is able to conceive. A form, when further studied and developed, leads to its finalized definition. In his major work *‘L’idea de’ Pittori, Scultori et Architetti’*, Zuccari does not make any distinction between drawing and idea (as in the case of Vasari, for instance) and he theorizes the existence of a *Disegno Interno*, an Inner Drawing, and *Disegno Esterno*, an External Drawing. The Inner Drawing is a concept of the mind assumed from a universal principle, a category of knowledge, which is at the origin of both the artistic and the geometric-mathematic drawing. Invention, model, form, style are concepts that are annexes to the Inner Drawing by attributing to the human faculties both a practical and speculative dimension. The finalisation of the work of art from the inside to the outside, the external drawing, becomes the founding principle of the intellectual dignity of the artistic work. Federico Zuccari, thus, describes the excellence, the need and the logical principle of the relationship between an Inner Drawing (an idea) and an External Drawing, (its representation), and the consciousness that “*the philosophical act is a metaphorical drawing*”.⁹ He sees within the sign an intellectual light, an act of “illumination”, a revelation outside the limits of the language. The precision of his analytical approach and the theoretical interpretation of the drawing lies in this very moment of general consciousness of the world, a general disposition (or faculty) of the human being to give *meaning and form* to the external world. Zuccari ends his definition of the Inner Drawing, with a metaphor: “*Drawing is like a mirror made of the finest crystal, that reflects objects of art placed in a room, thus [...] drawing is the concept and the object known within which our intellect knows the things represented in it*”.

The central assumption here is the attribution to the Inner Drawing, imaginary and spiritual, the quality of concept and object known, that means to give to the drawing the epistemological status, a device able to generate knowledge and “even” truth. Consequently the drawing should be a subject matter for our comprehension of the world.¹⁰

Konrad Fiedler and the Origin of the Work of Art

The work of Konrad Fiedler, whose ideas are still little known in the field of visual art and art education, contributed in a decisive way to the foundation of an autonomous knowledge of the artistic work: he examined and demonstrated that the problem of the (artistic) form can be grasped only by art. With Fiedler, the revolution started by Kant through the analysis of the processes and mechanisms of knowledge, is accomplished through art, by studying the epistemological potential of the artistic activity. In his first book, *On Judging Works of Visual Art*¹¹ (1876) the author draws the conceptual framework towards which, in the future, he would ground his theoretical formulation that would lead to the foundation of the critique of art. It would be a key reference for the development of the artistic consciousness of the artists who have contributed the most to a radical and substantial redefinition of the pictorial language like Cezanne, Kandinsky and Klee.

In *On Judging Works of Visual Art*, the question of the content is reconsidered within the field of artistic form. Fiedler believed that artists engaged with their work through a mental process involving a specific artistic cognition different from an abstract and conceptual cognition. The artistic activity becomes thus an autonomous thinking form. The judgement of the work of art only by its subject matter is not sufficient; and is, therefore, necessary to see them as an integral whole with the artistic form, within a unified structure that grounds it upon an artistic understanding of the world. We could draw conceptually and, at the same time, not be able to see the visual facts of what we have drawn. *Only who is able to hold onto his perceptual experiences in spite of both sensation and abstraction proves his artistic calling*, claims Fiedler¹².

If it is possible to conceive an autonomous artistic form, consequently, any form of subordination in relation both to the scientific knowledge and to philosophy becomes unacceptable, notwithstanding the conceptual need to imitate nature through a process of mimesis, for the same reason that science doesn't. In that sense, art and science share the concepts of necessity, given by the human need to express itself in front of the visible appearance of the world, and the dignity that comes from the intuitive logic (specifically cognitive) being manifested through the work of art. As in the case of Zuccari, here, the necessity and dignity of the work of art are underlined. If according to Zuccari the externalisation of drawing was needed to make visible an Inner Drawing, in Fiedler, conception and realization are indissoluble and reciprocally bounded to one another. While Zuccari dwells upon the Idea, the concept of the origin of artistic creation as intended by Fiedler, is not conceived as a principle able to begin a story; rather as a '*sempiternal vortex*', the irreducible, non-concretizable foundation, of the becoming and of life. This implies, *de facto*, the autonomy of the work of art from any historical determination. Fiedler argues, that the work of art begins where the vision ends, and where the continuous flux of the visible leaves space for the activity of the hand to consolidate through form the stream of images. Almost as a paradox, when the impulse of an act of representation activates the movement of the hand, it takes the place of the eye and of the mind, vanishing the visual movement. For Fiedler, it is the tactile values that qualify the exclusive knowledge of art. The continuous creative stream between perception and representation allows for a constant production and reproduction of signifiers and significates.

And it is in its very being a fountainhead for signifiers and significates, that drawing has been able to express, its poignancy within architectural thinking, investigating the limits of the divorce between language and content that has characterized the Modern times; a content that became always more socially controlled, while the language became always more free, self-referential, but being substantially a *bachelor machine*. However this condition, paradoxically, proves to be very fertile in terms of creativity. Through drawing, or within drawing, some architects of the avant-garde at the beginning of the twentieth century, like De Stijl, and, more recently, among the radical and conceptual experiences of the sixties and seventies, have been capable to explore and represent this condition of separation. It only through a full acceptance of this new dimension, representing it, and investigating its mutations, that could be possible to be truly conscious of our contemporary condition.

It is also through the consciousness of these works, avoiding any historicization of their content, that I will describe the processes that translate the inner drawing in the mind of the subject, into something concrete, and communicable, an external drawing. Above all I will try to highlight what its specific relevance for the architectural conception.

The Construction of the External Drawing

The translation from an Inner drawing to an External drawing does not occur merely through intuition, or metaphorical illumination, but is mainly a constructive process that makes use of logical operations, or *idée-force*, that are critical-operational ideas giving concreteness to the passage. When we go from a mental image to a drawing, generally, we use conventions, a code (i.e. the roles of the perspective or axonometry). But the use of the code is never objective; there are always exchanges between the objectivity of the code and its subjective use. For instance, we acknowledge immediately the difference between a perspective done by Frank Lloyd Wright and one by Le Corbusier, a sketch by Alvar Aalto and one by Alvaro Siza, whose research recalls the one of Aalto. More generally a drawing always reflects the specific artistic approach of an architect to his work. The *ductus* of a sign is what constitutes its uniqueness; what makes the way through which it has been traced transparent; the way the artist handled the tool, its expressive character and its artistic personality.

However, the ability to draw, alone, is not enough; between idea and image the architect needs, a field of mediations, through which the imagination is filtered before it can meet the instrument of representation (being both a pencil or a computer). In this intermediate discursive space, an autonomous figurative embryo, establishes a dialectic, often oppositional, with the instrument itself to orient the form and the modality in which it could be received within the universe of representation we have chosen (i.e. the paper or the digital sphere). This normative device polarizes both the external drawing and the inner drawing. The idea, therefore, is not conceived as a narcissistic container but open to carry values that are wider than the one of the subject. During the last century, while architectural design has become more and more self-referential, these notational systems acquired an increasing importance and different articulations. Instances of this formal device could be found in the work of

many architects: the five points in the work of Le Corbusier, the circular column, the cube and the triangular beam in the work of Aldo Rossi, the nine square grid for the development of the Texas Houses by John Hejduk, the *Classifications by Section of Spatial Situations* in the work of Franco Purini, to name only a few.

The primary character of the drawing as thinking form consists not only of the possibility to forecast the outcome of a future construction, but of its very essence of being a propelling event of inspiration, and a moment of construction centred on the ambiguity of the image. Drawing is a simulacrum (i.e. of a future building), characterized by an absence and by a presence: it is absence because it is testimony of the difference and of the distance with the real object of which it is only a “projection”; it is presence because it is, in itself a real object. Beside the denotative character of a building, the drawing preserves an irreducible self-referential dimension, capable of incorporating, other aspects such as its documentary memory and the norm of the formal process. The translation of a design from a system of representation to another is a complex and delicate step, because it implies always the creation of different semantic spheres. The passage from the reality conceived on a drawing to the one of the building is never a simple “translation”¹³ of lines and colours into material forms, but it consists of a complex and mysterious intertwining of transitive and intransitive phases that establish a projection of a different kind. Some architects are able to build surplus value within the sphere of representation, others on the sphere of construction. Precisely because of this semantic diversity, as it is obvious, it is not possible to formulate an aprioristic *judgment on the relevance of one sphere in relation to the other*.

Notes on Digital Drawings

This last aspect gives us the possibility to attempt a series of considerations regarding the impact of the computer a tool for both production and representation. Design and fabrication are now linked together.

According to the French urbanist Paul Virilio the emergence of the engineering of an architectural project through computer-aided processes is ridding the architect of the act of representation. Although Virilio does not dismiss the potential creative value of the computer-aided design, he warns us about the threat that the programmed images pose on the ‘mental images’. For him, architecture is essentially a “*causa mentale*”, a mental thing, in the same way that painting was “*causa mentale*” for Leonardo da Vinci. “*The architectural project is a projection. If this projection is not mental but projected on a computer screen, somehow the architect is dispossessed to the project. If the images are not mental, then they are instrumental*”.¹⁴ Diana Agrest, instead, acknowledges in the ‘*reunification of the process of representation in the production of a design and the process of construction*’¹⁵ a ‘*paradox*’ asking what is the meaning of this unification. This is probably not a paradox but more a signal of a conceptual problem. The unification of construction and representation proposes anew the question on the nature of their specific identity and finality.

The computer produces images that seem more authentic than the real buildings, pushing thus to the extreme the fiction of an apparent truth. Somehow, to verify the design intentions, these drawings, *substitute* entirely the real construction. On the

continuous exchange with its representation, the building dissolves itself conceptually. Regarding the conception of the architectural design, the numerous graphic and computational performances offered by the new digital technologies, that by default, indexes data in polarized configurations and in coherent classes, have indeed produced a real transformation of the visual repertoire and of the cognitive maps of the architect. While this represents indeed a new operational material for the architectural design on the possibility to generate conceptual and new syntactic paths, or more simply to manage the construction of complex shapes, it is more difficult instead, to identify a radical change on the *formation* of architectural ideas.

Conclusions

Probably it is still too early to evaluate the extent of the mutations on the whole field of architecture. Surely within the field of representation we are witnessing a general reformulation of techniques and practices, and therefore, there are all the premises to assert the urgency for a reconsideration of the ontological couple represented by drawing and form.

The drawing needs to rediscover its necessity and universality within the architectural domain, without which, there cannot be any true experience of beauty, nor a real knowledge. This new finality of architectural drawing cannot be prescribed a priori, since it is foreign –as indicated by Fiedler– to any socio-historical contingency, nor can it be remitted to an instrument or to a technique, rather it can only be found within the freedom accorded by its own norm. Through the norm, drawing can become a form of writing, investigating the inner legalities of its praxis, and perpetuating its inscription inside the domain of the form. In this space will be, perhaps, possible to foresee, an apposition of the idea and the work it produces, of the language and of the content of architecture.

¹ A deeper analysis of this aspect can be found on: Stefano Milani (Ed.), *Franco Purini. Drawing Architecture*, (Nijmegen: SUN Publisher, Forthcoming 2007).

² Francesco Moschini, *Sign*. In Franco Purini, Livio Sacchi, Nicola Marzot (Ed.s.), *The New City. Italia-Y-26. Venice Biennale. The Italian Pavillion at the 10th International Exhibition*, (Bologna: Ed. Compositori, 2006), p. 414.

³ Pliny the Elder. *Natural History; a Selection*. Trans. John F Healy (London: Penguin Books, 1991).

⁴ *Ibid.* p. 336.

⁴ See: Franco Purini, *Una lezione sul disegno*, (Rome: Gangemi 1997), p. 44. My translation.

⁶ See: Manlio Brusatin, *Storia delle linee*, (Turin: Einaudi, 1992).

⁷ Leon Battista Alberti. *L'Architettura*, (Milan: Edizioni Il Polifilo, 1966), Vol. 1, p. 19.

⁸ “(...)ne mentre che s'avolgerà fra quelle tenebre d'errori e quasi come il cieco con sua bacchetta, così lui con suo pennello tasterà questa e quest'altra via”. See: L. B. Alberti, *De pictura*, II, (Rome-Bari: Laterza, 1980), p. 100. My translation

⁹ “il filosofare è disegno metaforico”, See: Federico Zuccari, *L'idea de' pittori, scultori et architetti*, (Turin, 1607). Reprinted in: Detlef Heikamp (Ed.), *Scritti d'arte di Federico Zuccaro*, (Florence: L. S. Olschki, 1961). My translation

¹⁰ A more extensive account and an actualisation of these ideas can be found in: Ruggero Pierantoni, *Verità a bassissima definizione. Architettura e critica del quotidiano*, (Turin: Einaudi, 1997).

¹¹ Konrad Fiedler, *On Judging Works of Visual Art*, trans. H. Schaeffer-Simmern and F. Mood, (Berkeley and Los Angeles: University of California Press, 1949), pp. vi-ix.

¹² *Ibid.* p. 37.

¹² This theme has been thoroughly studied by Robin Evans. See: Robin Evans, *Translation from Drawing to Building*, in: AA Files no. 12, (1986), pp. 44-55.

¹⁴ *Paul Virilio. An interview by Charles Bessard, in: AD Profile, Back to School – Architectural Education, the Information and the Argument, no. 171, (2004).*

¹⁵ See: Diana Agrest, *Representation as articulation between theory and practice*, p. 176. In: Stan Allen, *Practice. Architecture, Technique and Representation*, (Amsterdam: G+B, 2000).

Stefano Milani, architect, is PhD reseacher and lecturer at the Faculty of Architecture at TU Delft – The Netherlands.