Drawing/Design: Figuration Configuration Interaction

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> Drawing is not an autonomous reality.
> It is not: neither as an action nor as the result of an action.
> What makes drawing a heteronomous reality
> is its submission to that which is not drawing.
> [Maldonado 1967, p. 217, redactional translation]

The play on words proposed by Vanni Pasca [2010] and, not surprisingly, used as the incipit of the call of this issue of the journal *diségno*, should be taken very seriously: the relationship between drawing and design as an element for triggering a broader reflection on the two disciplines and their theoretical and practical-operational foundations. Taking this relationship seriously means not only addressing the long-standing etymological analysis of the term '*disegno*' (drawing) and its kinship with the umbrella word 'design' (and vice versa), which on many occasions has ended up mixing linguistic issues with the substance of the problems, creating, rather than a play on words, a veritable pun. But puns are often illuminating.

A blatant example of a pun carried to the limit of misunderstanding is found in the translation of a text by Tomás Maldonado, which passes from the Spanish *Diagnostico del diseño* [1967] to the Italian *Diagnosi del disegno* [1974, pp. 217-227]. As is well known, in Spanish the word that defines drawing is '*dibujo*', while the meaning of '*diseño*' is definitely 'project/plan', 'design' [Cravino, 2020-2021]. The translation of '*diseño*' with the Italian '*disegno*', which when read in the quote in the exergue makes us wince at the nonsense of the content, is symptomatic of a linguistic-cultural uncertainty [1] typical of Italy between the 1950s and 1970s. At that time, our sophisticated and, at the same time, provincial nascent design culture did not know how to express in Italian the idea, still not metabolized, of the new design activity. Design

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was slowly occupying the field held until then by the artisan and proto-industrial traditions, which were currently showing themselves unable to respond adequately to the design of types of communicative artifacts, objects, machines, tools for the new social and market demands, completely foreign to the dominant Arts & Crafts tradition.
In the most historiographically widespread view, this transition has been interpreted as the question of the applied arts or the industrial arts or the minor arts [Bologna 1972], a theme long central to the thinking of aesthetics, the arts and architecture. For example, just think of the nineteenth- and twentieth-century debate, from William Morris, Henry Cole, Gottfried Semper, Alois Riegl, etc., to, in Italy, Camillo Boito's *I principi del disegno* e *gli stili dell'ornamento* [1887] or Alfredo Melani's *Decorazioni* e *industrie artistiche* [1889], to mention but a few. And then, in the first half of the twentieth century, to its crystallization around a few major figures of architects and artists who also worked as designers and theorists (in synthesis, the protagonists of the Modern Movement and of the various organizations and schools with, first and foremost, the Bauhaus).
This tradition has undoubtedly been one of the founding components of design culture, but it has ceased to exercise its exclusive function since at least the 1930s, when in Europe and the United States the process toward the autonomy of industrial design and graphic design was being initiated, and both recognized effectively as autonomous design and professional activities. An autonomy, it must be said, sought with respect to the artistic matrix as well as that of modern architecture, that is, to the two trends that have contributed to the erroneous identification of the entire history of design with that of modern design. In this tradition, the elements of prefiguration through drawing and those of design implementation of the final form of the product were considered to all intents and purposes a unitary process, semantically, stylistically and in terms of realization; not least because they referred to the same figure, not infrequently regarded as authorial. Often it was the designers themselves –who, let us remember, were in good measure artists or architects– who willingly adhered to this tradition, for the obvious reason that they had been trained in it. Moreover, in this way they felt that they could culturally qualify –or even justify– their engagement in the design activities of editorial and advertising graphics and of industrial product design, which were initially seen as standardized forms of creativity, as a commercial capitulation of 'pure' art.

I do not think there can be any doubt that the context from which design emerged conditioned in no small measure the way in which drawing has been interpreted, and continues to be interpreted, in the field of design [2]. But just as the history of design does not coincide with the history of modern design, in the same way the relationship that binds drawing to design is only partially identified with that process. Indeed, it can be said together with Giovanni Anceschi that it is precisely the gap between the two moments, between "the sphere of possibilities pre-figured –but perhaps it would be better to say pre-visioned– through drawing, and the sphere of implementation, of the final fixation of what has been pre-determined, that lies at the basis of the modern distinction between representation and design" [3]. However, the awareness that the final form of artifacts (products), whether graphic-bidimensional or three-dimensional, cannot be traced back to the linear process from conception to realization, from sketch to executive design, has been slow to gain ground. A first difficulty in explicating the elements of discontinuity in the cultural, linguistic, as well as operational sense of the relationship between drawing and design undoubtedly stems from the fact that design has struggled to construct its own epistemological framework, to develop its own methods necessary for breaking free from both the design tradition of architecture and the representational tradition of art [4].
A first timid attempt in this sense was made within the Bauhaus. It is well known that, at least at a programmatic level, Walter Gropius's project went in the direction of a synthesis of the arts in a single form, through which the proximity of artists and artisans could be made evident.
Nevertheless, he called Johannes Itten, Paul Klee and Wassily Kandinsky to teach at the school. They were all artists who, well before their arrival in Weimar, had already shown that they did not interpret this synthesis in a merely figurative or formalist sense, but rather in processual or methodological terms. The best way to understand this difference is perhaps to go to the first Italian translation of Klee's book *Das bildnerische Denken* [1959]. Faced with the difficulty of translating '*Gestaltung*' (by which the term 'design' is defined today in German), Mario Spagnol and Francesco Saba Sardi explained, "Among the proposed translations for *gestalten* and *Gestaltung* we have chosen, for many reasons, *figurare* [to form] and *figurazione* [figuration, the act of giving form]; keep in mind, however, that the German words indicate a shaping activity that is not only proper to the figurative arts, but also to nature and to any formative force"[5]. Once again we

are faced with a subtle linguistic question, which –at least in this case– leads us back to the substance of the issues. In this semantic ambiguity lies the theoretical node of design, namely the transition from "figuration" –a term that pertains to the realm of art and, therefore, to drawing– to "configuration." Although this passage is barely hinted at in artists such as Klee and Kandinsky, it was also their presence in a school of design that activated those processes and lines of tension that allow us to say today that design is above all *Gestaltung*, that is, a shaping activity that gives form to artifacts and not an activity that prefigures such artifacts (although prefiguration is now a much more articulated activity than in the past, thanks in part to the contribution of digital technologies).

It was necessary to wait until after the end of World War II for these processes to find a theoretical systematization and to be elaborated and clearly laid out in design theory and pedagogy. This was especially the case within the Hochschule für Gestaltung Ulm (Ulm School of Design) (1953-1968). It was here that the definitive break with the representational aspects in art, including abstract art, took place, in favor of principles of spatial and surface organization coming mostly from the concretist wing of the avant-garde and neo-avant-garde movements. This was made possible by the coexistence, in the School's early stages, of three central figures of Concrete Art, namely, Max Bill, Tomás Maldonado and Friedrich Vordemberge-Gildewart.

What concretism infused into design theory was the radical idea that art should in no way have references in the world of reality and that reality, rather than represented, should be configured starting from a constructive elaboration, arising solely from the cognitive-imaginative dimension of the author. This conviction had important reflections in the elaboration of a pedagogical and design methodology, as well as decisive implications in design theory [6].

Although with a very different severity depending on its protagonists, art was a topic almost banished from theoretical elaboration within the Ulm School. However, on closer inspection, an artistic residue –of a concretistic nature– lingers in the curriculum of studies itself. I am referring to the teaching called *Visuelle Einführung* (visual introduction), which constituted the most conspicuous teaching of the Basic Course in the first year that –until 1961– all students were obliged to take before choosing their specialization. The teaching consisted of drawing and painting exercises that, from their first formulation, were intended to train the hand and the eye and improve their coordination. If one takes a look at the results of these exercises, it is easy to understand the closeness between the solutions found by the students and some concrete art paintings. As Pierfrancesco Califano pointed out, "It is true that there is a certain formal continuity between concrete art and Ulm's exercises; it is also true that the visual introduction exercises are abstract, not oriented towards practical application and their focus is on the principles of configuration. However, in their didactic use, these principles are not used with an aesthetic function, but to train the student's critical capacities. The same can be said of all those branches of mathematics and geometry that are used in concrete art as well as in visual introduction: for the first they are sources of formal inspiration, for the second they serve to elaborate a rigorous methodology for the study and design of the configuration of technical objects" [Califano 2022, pp. 61, 62, translated by the author].

As can be seen, therefore, concrete art in this case is training in configuration. And with that the meaning of drawing also changes, losing its prefigurative characteristic to become a tool for indicating and visualizing technical, perceptual, manipulative and, finally, signifying configurations.

The shift from figuration to configuration is undoubtedly the moment when the reflection on design abandoned the age-old form-function question and opened the debate to new issues, such as the structural complexity of artifacts. This, especially at Ulm, led to an attention to the methods and processes of designing, rather than the form of the products. The artifact is no longer considered as an isolated creation but is thought of from a systemic logic of product planning, which takes into account economic, constructive, production and distributional, systemic factors. But moving from figuration to configuration also means paying more attention to the functional complexity of the artifacts. Here, too, aesthetic and cultural factors –which until then had dominated design discourse– even without gaining new meaning and importance, began to be joined by factors related to the use and enjoyment of products. It is no coincidence that, precisely at Ulm, a discipline such as ergonomics made its appearance for the first time in a school dedicated to design. It is a sign of a maturity, also epistemological, of the discipline. But it is also the sign of a shift in the priorities of design practice, which, precisely through the concept of configuration, led to a new awareness: design is interaction.

This insight anticipates two issues that are central in contemporary times. The first concerns the transformation of the material framework that founded the modern world: the panorama of objects has been disrupted by technologies, primarily digital technologies, that modify the way we think

about, design, make, and use artifacts (both old and new). The problem of form has lost its centrality in the world of products, many of which have disappeared, others have been combined and hybridized, and still others have been embedded in technical or biological structures. As a result, among the many shaken certainties of the 20th century, the historical form-function dualism, a veritable paradigm for design [Riccini 2015], has given way to the pre-eminence of the relationship of artifacts with users.

The second issue, which I would now like to focus on, is the centrality of the body in the drawing/design dialectic.

On another occasion [Riccini 2021], I tried to use –perhaps taking a certain risk– the metaphor of the human body as a machine for understanding one of the crucial aspects of the drawing/design relationship: the body as model and the body as agent. This is, of course, a well-known and widely used metaphor, throughout history and even more so today [7]. In his anatomical drawings, Leonardo da Vinci treats the body as a "marvelous human machine" and, in his technical drawings, treats machines as a real organisms. The body is thus likened to a fluid mechanical system, disassembled into its components and its joints, its layers, and its structures analyzed. [Galluzzi 1996]. Before becoming the Vitruvian ideal type in the celebrated drawing of 1490 conserved in the Cabinet of Drawings and Prints of the Gallerie dell'Accademia in Venice, the human body in Leonardo corresponded to a model that has "mechanical elements" at its center. If design were to look to the great Leonardo da Vinci, it would certainly be for his anatomical drawings and not for his Vitruvian ideal type. The body inscribed in fundamental geometric figures was to become a reference for design only when, more than four and a half centuries later, it took on the appearance and names of Joe and Josephine, the protagonists of the anthropometric charts devised by American designer Henry Dreyfuss [1955]. The average man as design's ideal type.

If we further explore the idea of the body as a machine, that is, an organism capable of developing "mechanical" capacities, from the earliest stages of evolution that led it to become *homo sapiens* to the present evolutionary stage, we can see how these have been intertwined with various forms of "graphical representation." More than any other scholar, it was the French ethnologist and anthropologist Marcel Mauss [1937] who taught us that the first technical object we have at our disposal is our body itself. Even before using tools, we can act in the world through "techniques of the body," that is, using our bodies as a real tool. That is why, for example, in some civilizations the tool used for sitting is not a chair, but one's legs bent in various ways under the torso; the tools for eating are not a spoon and fork, but one's hands. Therefore, by using very precise body techniques –for example, different types of swimming styles– we are able to move quite quickly through water without a boat. Therefore, it can also be said that drawing is first and foremost a "physical act that lives in a spatial dimension […] One draws with the body" [8].

Initially, the body is the drawing. Passively at first. The shadow that is cast on the ground.

Footprints on the earth. Then, handprints on cave walls, as in the extraordinary Cueva de las Manos in the archaeological region of Santa Cruz in Argentina. Here, as in many other cave paintings, even much more remote in time, there are as many as 826 handprints on the cave walls, made between 10,000 and 13,000 years ago. Depicted in different shades of yellow, ochre, brown and red, the handprints were made in two different ways: by dipping the hand in color and then pressing it against the rock surface, or by spraying colored pigment around the hand resting on the wall. The remains of bone tools used to blow the mineral inks onto the wall have also been found. These are evidently something more than the rudimentary wooden spatulas or brushes made from tufts of animal hair or plant fibers. But they are also different from the awls and stilettos used to scratch the surface of the rock walls in tracing graphic marks, illustrations of animals, human figures or hunting scenes there. Those tubes containing color, which were blown into while modulating the output of pigment, were essentially small machines, "machines" intended in the most basic sense of the word as tools that transform energy to achieve a purpose.

Then again, in the very beginning, writing was also drawing, a pictogrammatic reproduction that designed/drew reality in synthetic form: fish, birds, mountains, trees, human hands and feet, figures hinted at with essential strokes on wooden or cloth tablets, so perishable that they had to be replaced with tokens and clay tablets. And so, to trace marks on this new medium, earlier tools were abandoned and the hard calamus, (reed pen), the progenitor of all writing instruments, was increasingly used. Where this tool became popular, the graphic-pictogrammatic form of writing, so difficult and slow to realize, was abandoned in favor of sharp, abstract signs and, finally, by the alphabetic system [Leroi-Gourhan, 1982]. Thus drawing distanced itself from the body. Together with written words, it became structured in the extraordinary visual forms that our civilization has elaborated, in a reciprocal,

irregular harmonic reference. Thus Giovanni Lussu reminds us that graphics is writing and that the specificity of communication design "consists in applying, combining, modifying, forcing or generating visual codes," and of these, alphabetic writing is the most flexible and complete [Lussu 1991, cited by Falcinelli 2022, pp. 260, 261].
A further look shows that many examples have survived over time in which the body is a machine for drawing, for expressing meanings on a surface. Perhaps the first association that comes to mind is that with the painting of Jackson Pollock, the American artist who embodied the physical relationship between the body and the pictorial surface, where the whole body becomes a technical and expressive gesture for the realization of the work. The reference to Pollock's "drip paintings", which have little or nothing to do with drawing, attests to the fact that in art (and design) there are "situations in which one configures without representing" [9].
Beyond the world of art and representation, the hands or other parts of the body are used as actual drawing machines. In its evolutionary journey, the human species has honed certain manual skills that distinguish us from all other living creatures, including the control of small hand and finger movements, the so-called fine motor skills. From the earliest times, this aptitude has allowed the development of the art of embroidery, a special design technique characterized by being traced on a fabric or by means of a particular weave that constitutes the fabric itself. On the one hand the embroidered design, on the other hand the design as an expression of the mechanical work of the loom, as we are reminded by the image of Anni Albers sitting at her loom in 1937 at Black Mountain College, where she had brought the tradition of the Bauhaus Weaving Workshop, with its signature geometric designs. The needle, crochet hook and lacework bobbin, with their white or colored threads, act as small living machines whose main joint is the hand [Wilson 1999; Sennet 2008; Focillon 2014]. In pillow lace, the skill of the fingers plays a key role within a system of particular artifacts: resting on a special support, a cushion for pinning a sheet of paper with the guiding design of the embroidery to be created. Then there are the bobbins, small wooden spools with one or two heads on which the thread is wound, which must be turned and crossed with great skill and patience.
Finally, drawing and the eyes. The design and the production processes of products and artifacts may depend on extra-representational elements or on those that have only a graphic-visual resonance with drawing. In the 1950s and 1960s, Russian physiologist Alfred Yarbus conducted innovative experiments on eye movements. These observations, performed by means of a method for recording eye movements based on small suction cups attached to the surface of the eye, gave a series of reticular images as a result. These are true visual graphic representations that we cannot call drawings or representations. They refer to the observed object, of which the eye explored some parts more than others, dwelling longer on certain details. On these, the lattice-like pattern of lines become denser, producing an unusual aesthetic effect, and, at the same time, providing precise indications for subsequent steps of application. This method –oculometry or eye tracking– has many contexts of application, from medical to marketing, and is fundamental to the design of websites, interfaces, and typefaces.
The user and his or her characteristics enter into the design process, participating in the definition of communicative artifacts on a par with other design requirements (the grid, type size, arrangement of colors, etc.). The body, perception, and abilities come to determine the configuration of the objects. Thus one can now understand Maldonado's statement in the exergue, substituting "design" for "drawing": "Design is not an autonomous reality. It is not: neither as an action nor as the result of an action. What makes design a heteronomous reality is its submission to that which is not design."
Perhaps for this reason, design and drawing continue to pursue each other, like two dancers in a beautiful choreography, but are destined to never meet.

Notes

[1] This misunderstanding is all the more significant since this is a text by Tomás Maldonado, that is, an intellectual active in the world of design, of which he had proposed definitions, established genealogies and boundaries [Maldonado 1976]. The play on words, however, also triggers a series of particularly stimulating logical short-circuits and short-circuits of meaning, which allow a "*reductio ad absurdum*" especially if one reads the text by attributing to the term "disegno" its current meaning in Italian (the one that is made explicit in the title of this journal, to be clear), as is already evident from the citation in the exergue.

[2] The role that drawing has played in these traditions is not a subject within my reach and therefore I refer only to a few texts of

reference for me, which assert and clarify the centrality of drawing for architecture [Purini 2017] and for art [Griseri 1980]. If we were to indicate emblematic examples of a relationship with drawing in designers who have also turned their hand to [industrial] design, we could not avoid mentioning the names of Aldo Rossi, Ettore Sottsass, and Alberto Meda.

[3] These are the words of Giovanni Anceschi taken from the interview conducted by Enrica Bistagnino [Bistagnino 2018, p. 95].

[4] Also highly complex is the role that, albeit to a lesser extent, technical drawing, borrowed from engineering, has played for design, but [which is] all the more important today in the face of the new perspectives of digital drawing and digital design.

[5] Cited in Klee 2011, p. X.

[6] In the field of architecture, this led to the transcending of the idea of composition in favor of that of configuration. Evidence of this is the fact that, after the very early stages of the School, the Department of Architecture was called the Department of Industrial Building.

[7] We cannot ignore the fact that in today's world, the metaphor has expanded as far as to project us into the cyborg dimension, a hybrid of body and technologies, through which the human person is integrated with circuits, sensors, prostheses and so on. A hybrid that is transforming, according to some, the human into the post-human.

[8] Interview with Tomás Maldonado conducted by Enrica Bistagnino [Bistagnino 2018, p. 89].

[9] This refers again to the interview with Giovanni Anceschi conducted by Enrica Bistagnino [Bistagnino 2018, p. 93].

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