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## Design Made in France: Perspectives on “Industrial Aesthetics”

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**Abstract**

If the very term “design” was not really in use in the french academic field between the fifties and the eighties, an important thought concerning design appeared in this period under the name “industrial aesthetics”. This text try to follow this activity in France between 1951 and 1984 and the development of an original design theory rooted in french philosophies of art and technology. Thus, this movement is based on an anti-kantian aesthetics introduced by Paul and Etienne Souriau, acknowledging technology as a real issue for aesthetics. Then, it is also connected with a philosophy placing technology in relation to its cultural and vital milieu (Mauss, Leroi-Gourhan, Friedmann, Simondon). In this way, this paper follows the development of the Institute of Industrial Aesthetics, created in 1951 by Jacques Viénot, relating the continuous dialog between this specific design theory and their philosophical backgrounds. Indeed, during this period, a design theory based on technology and its socio-cultural effects has been developed, accounting for an ecology of technology.

**Keywords**

industrial aesthetics, history of design, technology, implied art, milieu, technical culture, ecology of technology.

The very term “design” became late established in French institutions. It was only in 1984 that the Institute of Industrial Aesthetics (*Institut d’Esthétique Industrielle*), created in 1951 by Jacques Viénot, became the French Institute of Design (*Institut Français du Design*), promoting and enhancing design creation in France. However, this lack of the term “design” in the institutional field during the fifties does not mean a lack of activity in the area of French design. Instead, by the end of the Second World War, the practice of design simultaneously grows with a significant French thought of design. The object of this paper is to account for this consideration: a thought of design before the very term “design” has even become generalised in French.

This French thought of design can be defined as a *non-technical* understanding of technology, considering technology as always linked to a cultural and human environment. This philosophical and industrial problematisation and organisation of the practice of design in France in the years 1940-1950 have been called “industrial aesthetics”. The figure of Jacques Viénot polarised this field of thoughts concerning the aesthetics of technology, the place of this aesthetics in the development

of industry and its role in the dwelling environment.<sup>1</sup> The singularity of this movement is to appear as symptomatic of a moment of *synthesis* in the history of European design. It highlights a tension between an aesthetics invested in industrial production and consumption (as developed in the United States) and the legacy of the European artistic avant-gardes invested in the social transformation of the dwelling environment through the development of technology.<sup>2</sup> The very term “industrial aesthetics” expresses this tension, translating the US “industrial design” and confronting it with the European aesthetics tradition.

The originality of the French industrial aesthetics lies in the reinvestment of these issues at the institutional level. The Institute of Industrial Aesthetics, created in the early fifties, functioned as an original apparatus for allowing academic philosophers (Étienne Souriau, Georges Friedmann) to interact with industry (Dunlop, Philips, Arthur Martin, etc.), artists and designers (Fernand Léger, Charlotte Perriand), and representatives of public authority (especially Eugène Claudius-Petit, Minister of Reconstruction between 1948 and 1953). This kind of composite dialogue continued in the following decades, accompanying the development of design in France. From the “industrial aesthetics” of the fifties to the promotion of an “industrial creation” in the eighties, we will sketch a path following three cardinal concepts polarising the understanding of design during this period: *aesthetics*, *milieu* and *technical culture*. The discussion will involve, firstly, showing that the theoretical constitution of design in France inherits a reconfiguration of philosophical aesthetics by integrating an aesthetics of technology (Paul and Étienne Souriau, Jacques Viénot). We will then highlight the cross-development of this aesthetics with a reflection on “technical culture” trying to connect technology with cultural value. The concept of “milieu” in these debates (Georges Friedman, Gilbert Simondon) appears thus as an important contribution to shifting the question of an aesthetics of technology onto the premises of a design understood as an ecology of technologies: opening technology to cultural and vital fields is thus engaging design to create objects opened to alteration.

## 1/ Industrial aesthetics

### *Paul and Étienne Souriau: rethinking philosophical aesthetics through technology*

The originality of the very term “industrial aesthetics” manifests a

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<sup>1</sup> Jacques Viénot founded in 1948 the pioneering French design agency *Technès*, and the journals *Art Présent* in 1945 and *Esthétique industrielle* in 1951. In the same year, he founded the Institute of Industrial Aesthetics, an organisation dedicated to making connections between designers and manufacturers.

<sup>2</sup> Including, for example, John Ruskin, William Morris. Henry van de Velde, Walter Gropius or Hermann Muthesius.

double ambition: to transform simultaneously industrial creation through philosophical aesthetics and the old philosophical discipline of aesthetics – founded by Baumgarten in the eighteenth century – through the context of industrial production. This very term “industrial *aesthetics*” has often been misunderstood as suggesting a determination of design as a by-product of Fine Arts, connoting simply a decorative and cosmetic attitude to technical reality. However, this confusion is not valid if we restore a part of the evolution of French philosophical aesthetics in the second half of the twentieth century. The figures of Paul and Étienne Souriau, father and son respectively, had an important role in this recasting of philosophical aesthetics through an original industrial aesthetics thinking.

Paul Souriau took interest in the issue of an aesthetics of technology, notably in his seminal work *Rational Beauty (La Beauté rationnelle, 1904)* which would remain a reference for the proponents of industrial aesthetics during the fifties. If French aesthetics, in the new century, turned to an experimental approach being influenced by Claude Bernard and Hermann von Helmholtz scientific methods, Souriau sought to rethink aesthetics by restoring its philosophical principles. He operated an aesthetic re-reading of machines and other items typically excluded from the aesthetical field by questioning particularly the principle of “purpose”. While Kant denied any aesthetic claims to technical objects due to their utilitarian purpose, Paul Souriau intended to reverse Kantian aesthetics by problematising the very notion of purposiveness.

Kant expelled the technical object from the aesthetical sphere both for the user and for the producer. From the perspective of the user, the technical object is perceived only as a means to utilitarian satisfaction. To use an object is just to follow a personal and interested satisfaction, making the universality of this experience impossible. From the perspective of the producer, the technical object is the product of an unpleasant activity carried out only for a salary (Kant, 2001: 182-183). In both cases, the value of the technical object is characterised by a personal appeal: its utilitarian dimension, both for the user and the producer, prohibits its admission in the aesthetical field, which is disinterested by definition.

Against Kant, Souriau reinvested the aesthetics of utility by giving it an objective value: there is a *disinterested pleasure* in usefulness (Souriau 1904: 204). Technical objects can be aesthetically experienced *by the very fact* of their usefulness, not in the sense that they are useful *to me*, but insofar as they present a viable functioning. This return to the notion of “purpose” does not have to be understood as an apology for an abstract concept, but instead as a heuristic principle exciting feelings and reason in the understanding of objects in the world. As such, according to him, there is not *one* purpose but as many purposes as singular objects. Therefore, there is, in the technical object, “as much thought, intelligence, purpose or, in a word, true art as there is in a masterpiece or a statue” (Souriau 1904: 392). Thus, Paul Souriau appeared in the fifties

as the founder of a renewed French aesthetics seeking to expand its sphere to technology (Huisman and Patrix 1961: 14).

However, even if his views differed from the Kantian aesthetics in force at that time (especially through the person of Victor Basch), Paul Souriau remained ensnared by Kant's formulation of the aesthetical problem in terms of "beauty". This is the limit his son, Étienne Souriau, points out: focusing on "purpose" as a criterion, Paul Souriau was condemned to a *static aesthetics*, an aesthetics of "work made" (which is what it is in accordance with its purpose), whereas Étienne Souriau would question "work *in the making*" (Souriau 2009).<sup>3</sup>

Abandoning the work made for the "making", Étienne Souriau became the main theorist of an industrial aesthetics less defined by the objects it produced than the processes it instilled in the industrial world. Presiding over the Chair of Aesthetics in the Paris-Sorbonne University, he was also one of the members of the patronage committee of the Institute of Industrial Aesthetics (Souriau 1952, Souriau 1954).

Deviating, like his father, from the psychological aesthetics advocated by Basch, he focused his works on the *genesis of form*. In this regard, he defined aesthetics neither as beauty nor art, but as a cross-discipline he called "science of forms" (Souriau 1929: 9). Thus, rethinking aesthetics involves a redefinition of the concept of "form": form is not a static essence but a certain unity engaged in a becoming. Souriau intended to reconcile the bergsonian thought of becoming with the notion of form: while Bergson reduced form to be only a "snapshot view of a transition" (Bergson 1944: 328), Souriau considered forms as units of becoming. In this way, the aesthetical study of *forms* shifts to considering processes of *formation*, what Souriau calls *instauration* of forms. Instauration process considers creation as a transitive relation between the producer and the form in becoming. To understand a form is not observe it as a final result but to understand its genesis, its instauration. This attention to the creation of coming forms resonated strongly with the practice of industrial design as the Institute of Industrial Aesthetics conceived it. According to Jacques Viénot, design did not determine some plastic quality of objects, but a singular *process* involving technical and artistic operations. Viénot did not define the industrial designer as a creator of objects, but as someone who primarily led the development of "prototypes", first phase of industrial production (Viénot 1939: 77). In the same way, Souriau understood the practice of industrial aesthetics as an instauration of a material dwelling environment. The industrial designer is responsible for "instaurating forms of the world where today and tomorrow's men will practically live" (Souriau 1952: 19). Thus, the Institute of Industrial Aesthetics seeks to justify its existence as an organisation interlinking industrial with "industrial aestheticians": to instaurate the form of an artefact cannot be improvised and must call on

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<sup>3</sup> Souriau clearly states: "I will avoid any advocacy of the idea of purpose" (Souriau, 2009: 200).

real professionals.

### *Towards implied arts*

Abandoning the classic expression “applied arts”, Étienne Souriau coined the term “implied arts” to demonstrate the instaurative power of industrial aesthetics (Souriau 1952: 12, Viénot 1953: 22). The notion of applied arts is a recent one, contemporary with the aesthetic upheaval produced by industrialisation. This is an abbreviation of the “arts applied to industry” phrase formulated in 1863 with the founding of the *Central Union of Fine Arts Applied to Industry*, which would become the *Central Union of Decorative Artists* twenty years later. The concept of “applied arts” suggests that technology, taken by itself, would have an aesthetic *defect* that would need to be repaired by adding an aesthetic dimension. Instead, the notion of *implied* arts involves that technology is not a separate field from aesthetics. Technology – and furthermore industrial technology – is aesthetic due to its role in the transformation of conventional aesthetics standards, creating new material forms.

The main feature of an “implied” art is to be a *reticular* art diffusing simultaneously throughout the different levels of industrial production and throughout the different elements of the dwelling environment. Industry is primarily a technical whole, it is “a complex of [...] different modes of work, grouped together for particular practical convenience” (Souriau 1929: 142). To penetrate the industrial environment is venturing into a systemic universe, into a network of machines, crafts, raw materials and operations. While the French modernist avant-gardes of the early twentieth century took the single machine as a model (Duchamp, Picabia), the industrial aesthetics in the fifties was more interested in industry as a technical and economic complex. Therefore, industrial aesthetics is constituted as a proliferating aesthetics, developing step-by-step and spreading over the entire dwelling environment. Industrial aesthetics extends “from the dam to the pen” to borrow a phrase from Viénot (Viénot 1948). The work of industrial aesthetics is not focused on an isolated artefact, but polarises on the resonance existing between the different artefacts populating our environment. Industrial aesthetics designs a “society” of objects before designing individual items, a dwelling environment before isolated artefacts. Forms of refrigerators, machines tools, telephones and radios, health equipment and a thousand other devices refer to each other forming the unity of our living space. Aesthetics operates more in the relations between forms than in the form itself. Art is thus *implied* in all folds of everyday life:

Implied is a word having a rich meaning; it means that art should be everywhere, art is implied (or should be) in all works: in a camera as much as in a teapot; in a telephone switchboard as much as in a furniture; in a typewriter as much as in a watch case. (Viénot 1953: 22)

### *Reinventing a European tradition of industrial design against American competition*

As reported by Jacques Viénot, industrial aesthetics is nothing if public authorities and industry do not make industrial aesthetics a priority. According to him, the context of the major projects of reconstruction has to be used to spread industrial aesthetics and to strengthen the influence of France in a European Common Market under construction. The purpose of the journals created by Viénot (*Art Présent* in 1945 and *Esthétique Industrielle* in 1951) explicitly aims to question public authorities about design. These intentions are clear from the first issue of *Art Présent*:

Art Présent is for: public authorities to inform them about the real needs of our time, to help them to know the deserving creators and their works, to decide what needs to be done or encouraged for the city, for the country. (Viénot 1945: 4)

The aim of industrial aesthetics in the fifties is not to reform public taste, as was the case for the design movements in the early twentieth century (like *Bauhaus* or *De Stijl*), but instead to target exclusively industrial producers and governments. The Institute of Industrial Aesthetics was inaugurated in January 1951 for this purpose. Viénot wanted to develop an apparatus influencing on the interface between manufacturers and industrial designers based on the *Council of Industrial Design* model created in London in 1944 (Le Bœuf 2006: 91). Similar organisations developed throughout Europe, especially in Germany around the Ulm *Hochschule für Gestaltung* directed by Max Bill, or in Italy with the Olivetti artistic advisor Egidio Bonfante and his sponsorship-based policy. Viénot brought these figures together during the International Industrial Aesthetics Congress in Paris in 1953, seeking to make the Institute the federative outpost of European industrial design. Then, Viénot worked on creating an *International Liaison Committee of Industrial Aesthetics*, first step leading to the founding of the *International Council of Societies of Industrial Design* (ICSID, still active) in 1957 (Le Bœuf 2006: 119-127).

The wish to develop an international anchoring of design while claiming a French and European singularity in this field reflects a paradoxical historical situation of industrial design. While the origin of this practice was located in Europe through movements such as the *Deutscher Werkbund* or *Bauhaus* at the beginning of the century, the concrete industrial development of design was mainly carried out within US companies after 1930 under pressure from competition following the 1929 crash. Thus, North America appeared as the origin of a *truly industrial* design. James S. Plaut, founder and first director of the Boston Institute of Contemporary Art, noted that American designers pictured themselves as the source of the discipline:

Some claim that industrial design is a purely American phenomenon, rooted in mass-production conditions and owing its development to American industrial and technological skills. Some of our most famous and most successful specialists in this field claim, basically, to have invented industrial design and pictured themselves as pioneers. (Plaut 1954: 133)

A European delegation composed of representatives from ten countries, future members of the Common Market, was even mandated at the end of 1955 to visit American companies concerned with industrial design (O.E.C.E. 1959: 5).

In the fifties, this “double” origin made the understanding of historical constitution of design as a discipline opaque: it is therefore no coincidence that some art historians, in the forties and the fifties, questioned the origin and foundation of this practice. The question of a “history” of design arises in this period: to write a history of design is to found a discipline by assigning it an origin, a tradition and common events.<sup>4</sup> The design history books that proliferate in this period (from Pevsner to Banham) participate in a “rediscovery” of the European sources of industrial design (from William Morris to Bauhaus).

The French concept of “industrial aesthetics” is part of this movement of rooting the discipline in European field, trying to stand out from the United States model after World War II. To translate “industrial design” into “industrial aesthetics” means to assert its European identity to stand the competition of the United States in a period of a global economy. Limiting the meaning of industrial “aesthetics” to a return to the “beautiful” in the field of technology can absolutely not catch the real issues of this moment of French design: it is rather to unify and situate a practice reinventing its tradition. Thus, Viénot claimed the choice of the term “aesthetics” to translate “design”: “Industrial aesthetics is a 100 percent originated in Europe discipline and expressing it by a misnomer English term seems shocking to us” (Viénot 1955: 30).<sup>5</sup>

The French industrial aesthetics operates as a paradoxical and constitutive moment in the history of European design, simultaneously assuming the US model as an industrial and economic achievement and rejecting the same model to consolidate a European historical specificity. It is a matter of differing oneself from the United States while comparing oneself to this country. Industrial aesthetics occurred when the aspirations of European avant-garde design were converted to fulfil market demands, requiring the accomplishment of the early century functionalist ideals in industrial and commercial terms.

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<sup>4</sup> The publication of *Story of Modern Applied Art* (1948) by Rudolph Rosenthal and Helena Ratzka, the reissue in 1949 of *Pioneers of the Modern Movement* (1936) by Nikolaus Pevsner, renamed *Pioneers of Modern Design* for the occasion, the publications of *Art and Technology* by Pierre Francastel (1956), *Origins of Functionalist Theory* (1957) by Edward Robert Zurko, *Theory and Design in the First Machine Age* (1960) by Rayner Banham, mark the construction of industrial design as a recognised discipline.

<sup>5</sup> The practice of American designers connotes for him a cosmetic and too commercial approach: “Industrial Aesthetics returned from US in the form of “industrial design,” that is to say, as a method of sale singularly reduced to a problem of turnover” (Viénot 1955: 30).



## 2/ Towards a technical culture

### *Techno-logy as a social science: importance of technical milieu*

Industrial aesthetics in the fifties echoed another developing discipline: “techno-logy” understood literally as an epistemology of technology. As we have seen, industrial aesthetics differed from engineering because promoting a not exclusively technical view of technology. In this way, it participated in the development of the concept of techno-logy as it had developed in the social sciences in France from the work of Marcel Mauss. The latter considered technology as a total social fact engaging the whole human being (Mauss 2012: 288). The “technology” section in the journal *L'Année sociologique*, in which Mauss was involved, increased at the end of World War II. Georges Friedmann, who is a sociologist, a philosopher and a future member of the Institute of Industrial Aesthetics, was in charge of this section. He particularly emphasised the importance of the psychosociology of technology (Mauss 2012: 421-429). The thought of Friedmann changed during this post war period: between the forties and the sixties, he moved from the Marxist critique of capitalist illusion to a moral criticism of technicist illusion. In the pre-war period, he criticised technical progress, after the war he claims the importance of technology and the necessity of humanising it.

This conversion in his work specifically coincides with its commitment to the Institute founded by Viénot (Friedmann: 1954). This interest Friedmann shows in technology gives birth to his concept of “technical milieu.” According to him, industrial aesthetics is a way to understand that any technical milieu is also a psychosocial milieu (Friedmann: 1954). This notion of “technical milieu” was developed by both André Leroi-Gourhan (Leroi-Gourhan 1945) and Georges Friedmann (Friedmann 1966) thinking that human beings are constituted by this technical milieu. However, both do not understand this notion in the same way. For Leroi-Gourhan, a paleoanthropologist, “milieu” designates a general category for analysing technology: the “technical milieu” means above all the product of human evolution. For Friedman, a sociologist of labour, “technical milieu” refers rather to the industrial stage of technology development, in which the space and time of a “natural milieu” has dissipated. Nevertheless, for both Leroi-Gourhan and Friedmann, technology does not have to be considered under the category of “means” but in terms of “milieu”. Understanding the concept of “milieu” requires to make the difference between “milieu” and “environment”. The term “environment” presupposes human being as *external* to this environment. Technology is precisely not a simple environment because technology is not external to our being: it is constitutive of our lives. A flint or an assembly line, as technical milieus, are at the same time biological, psychological, and social facts.

The importance of the concept of “milieu” for thinking technology resonates also with the work of Gilbert Simondon. Simondon takes a new look at the understanding of this notion: this category does not

apply only to subjects but also to technical objects themselves. According to him, a technical object becomes a *technical individual* creating its own “associated milieu” when its configuration becomes more efficient (more “concrete” following the simondonian term) and self-regulating with respect to its external milieu. The technical object creates the conditions of possibility of its functioning, such as in the case of the Guimbal turbine working only if it determines a “techno-geographical milieu” that in return conditions it (Simondon 1958: 54-55).

In his “Interviews About Technology” (*Entretiens sur la technologie*) conducted in 1965, Yves Deforge, close to Simondon’s work, highlighted the significance of the notion of “milieu” to think a techno-logy: “To summarise, we can say that technology is the knowledge of the correlations that make the technical object in agreement with itself, with the milieu and with the user” (Deforge 1966: 4). This interviews led to interrogate the intellectuals of the time about the sense of techno-logy: thus, Leroi-Gourhan explained that “it is impossible to separate techno-economics, socio-economics, and techno-logy” (Leroi-Gourhan 1966: 9) and Simondon pointed out that “techno-logy could be presented as including a normative aspect, an aspect of integration within culture, an aspect pretty close to aesthetics and perhaps morality” (Simondon 1966: 24). In this way, a techno-logy understood as a *human science* (Haudricourt 1995) developed, resonating with questions about industrial design engaged by Viénot and Souriau.

According to Simondon, the technical nature of an artefact is defined by *relation* to its genesis and its milieu. Connected being and connecting being, the technical object is essentially a *mediation*, i.e. the opposite of a substance. Technology is never entirely within the object, but within the object and its milieu. This point directly echoes with the industrial aesthetics issue as expressed by Georges Patrix. Patrix is an industrial designer pioneering this profession in France (especially for the use of colour) and an active member of the Institute of Industrial Aesthetics. According to him, the purpose of industrial aesthetics is not to focus on a particular object but to take into account the object in relation with its milieu. Industrial aesthetics is interested in a scale bigger than the object scale, which is why we should “go on from the little problem to the big problem which is truly the environment of Human being” (Patrix 1962: 101). Industrial aesthetics must therefore lead directly to an *environmental design* as Patrix suggested it (Patrix 1973).<sup>6</sup> Thus, industrial design expresses a view on techno-logy attentive to both the milieu of the object and the object as a milieu. Design deals with technical objects as they are a *milieu*, in both senses of the word: as intermediaries or mediators of relations, and as ambiance or dwelling environment. The reticular dimension of implied arts defended by

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<sup>6</sup> Patrix uses the terms “environment” and “milieu” interchangeably, leaving just floating the idea of “milieu” as not being away from us as the term “environment” would seem to presuppose.

Étienne Souriau thereby culminates in this notion of milieu.

### *Technical culture*

In the early eighties, Jocelyn de Noblet, director of the *Research Centre on Technical Culture (Centre de Recherche sur la Culture Technique – CRCT)*, deplored the fact that the term “design” was not widespread in the French industrial field.<sup>7</sup> While public authorities began to examine the question of design,<sup>8</sup> the CRCT, established in 1979, was one of the main proponents of design in France. The main task of the CRCT was to defend “technical culture”, that is to say to integrate technology into the general culture. While we often speak of literary and artistic culture or scientific culture, technology is generally banned from the cultural field. The CRCT, through the journal *Technical Culture*, intended on defending the cultural value of technology, promoting its history and its use. Leroi-Gourhan, in his preface to the *Manifesto for the Development of Technical Culture* coordinated by de Noblet, stated that “‘design’ [...] is one of the best ways of promoting technical culture” (Leroi-Gourhan 1981: 6). This manifesto assumed that technical culture was the only way not to be subservient to the technical milieu:

The person who lacks technical culture lives in ignorance of his own milieu. He is, therefore, doubly subservient: firstly he does not control his own environment, and secondly his lack of control makes him permanently socially dependent to organisations and individuals who have the skills he is missing. (De Noblet 1981a: 11-12)

The lack of technical culture promotes design and use of objects as “black boxes” (characterised in particular by the famous Kodak advertising slogan: “You Press the Button, We Do the Rest”). Following this way, the technical object becomes “as foreign as a foreign language” (Simondon 2014: 66). Against this “black box” design, authors of the manifesto understood technical culture as “the thinking at work when a technology is beyond any user control” (De Noblet 1981a: 43). Technical objects have to cease to be “foreigners” for users and the development of technical culture must go through an educational reform:

It would be essential to instaure a general common-core syllabus devoted firstly to the ‘genetic lineage’ of technical objects and to the knowledge of their ‘milieu’, and secondly to a teaching about the ‘use’ and knowledge of machines. (De Noblet 1981a: 55)

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<sup>7</sup> Despite the European adoption of the term “design” (made official by ICSID in 1959) it diffused in France with difficulty. Moreover, in the eighties, the term “industrial aesthetics” is not understood as defended by Viénot (as implied arts) but on the contrary as applied arts: “The term ‘industrial aesthetics’, still commonly used, is often considered as pejorative in the fields close to the practice of industrial design because it is inadequate and confusing, but also because it points out a false practice of industrial design” (De Noblet 1981b: 15).

<sup>8</sup> On 23 July 1980, the Council of Ministers places the question of design in its agenda (Gaudin and de Vendevre 1981).

Jocelyn de Noblet linked the development of technical culture with the development of design: “one of the consequences of the lack of technical culture in France is our weakness in the field of industrial design” (De Noblet 1981a: 88). This thought of design would engage in what Simondon was calling for: an *action-research* into the unity of culture, in other words, into the unity of human culture and technical civilisation.

This defence of techno-logy as a human science inherited from Mauss, Leroi-Gourhan, Friedmann, and Simondon, found itself formulated in the founding of the Compiègne University of Technology (*Université de Technologie de Compiègne* – UTC) in 1972 (Lamard and Lequin 2006). This university became the first engineering school to receive an industrial design training (Quarante 1981). The evocation of this university is important if we remember that we can speak of a “Compiègne school” around the idea of “technology as anthropologically constitutive” (Havelange et al. 2003: 121). This thesis is especially embodied in the work of Bernard Stiegler, founder of UTC Costech laboratory. Extending the thoughts of Leroi-Gourhan, Simondon and Derrida, Stiegler argues that individuation is made by technical externalisation, this externalisation being never preceded by any psychological interiority. This thesis is opposed to the instrumental conception of technology – reducing the object to a means – and to the anthropological conception of technology – reducing object to its use by a subject.

So, the concept of “technical culture” is more than a concept: it is primarily a program of technical, historical, and cultural understanding of objects. Defending a technical culture includes particularly opening black boxes to place oneself within the machine, and thus valorising the technical object, freeing it from its position of bought, degraded, and discarded means.

### *From aesthetics to ecology*

The prospect of a technical culture manifests a continuity between aesthetic issues and environmental issues in the work of Gilbert Simondon. The collection of essays entitled *On Technology (Sur la technique, 2014)* gathering Simondon’s articles from 1953 to 1983 repeatedly highlights the critique of obsolescence and promotes a new culture leading from techno-aesthetics to eco-design.<sup>9</sup>

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<sup>9</sup> The question of an ecology of technical objects was already present in *On the Mode of Existence of Technical Objects* (1958), but it was really in the seventies that Simondon’s texts made explicit references to environmentalism and ecological technologies. See “Birth of Technology” (1970), “Art and Nature” (1980) and especially his last text: “Three Perspectives for a Reflection About Ethics and Technology” (1983). He emphasised in these texts the major challenges of techno-ecological transition as energy optimisation, recovery of artefacts, limiting negative externalities, etc. (Simondon, 2014).

When Simondon refers to industrial aesthetics, it is to claim that “an almost essential aspect of industrial aesthetics is to organise technophany” (Simondon 2014: 39). The concept of “technophany” is constructed by Simondon as a counterpart of the concept of “hierophany” forged by the Romanian philosopher Mircea Eliade. According to Eliade, hierophany expresses the manifestation of transcendence in an object or a phenomenon in the world (Eliade 1987: 11). Symmetrically, technophany expresses in an object the manifestation of a technical system in which it is inserted. Technophany is the expression within the object of a technical nature exceeding the scale of the object. It is the expression of the object’s milieu within the object. Organising technophany means for industrial design to include data from the object’s cultural and technical milieu and then to operate “mediations between culture and technicality” (Simondon 2014: 43). As such, Simondon shares a basic idea about aesthetics with Étienne Souriau and Jacques Viénot: “aesthetics” have to be understood in its original meaning and not much as a question of art or beauty; aesthetics is a certain mode of being, a relation with a life milieu.<sup>10</sup>

The link leading Simondon from aesthetics to ecology of technology is the issue of cultural obsolescence of objects. Thus, the term of “design” – used only once by Simondon, and in a negative sense – characterises the specific depreciation of objects due to the obsolescence phenomenon: “obsolescence not only happens to things, furniture, clothes, but sometimes even to household equipment or industrial equipment, due to a difference in ‘design’, varying from year to year” (Simondon 2014: 346). This is the same “design” condemned by László Moholy-Nagy in 1947 when he stated that “‘design’ today is generally a bid for quick sale, usually nothing but an exterior cloak around a product” (Moholy Nagy 1947: 34).

The thought of Simondon thus accompanies the nascent marriage of “design” and “environment.”<sup>11</sup> In the early seventies, this relation between design and environment bifurcated into two possibilities. The first one would determine the environment as an objective and quantifiable entity in the manner suggested by Buckminster Fuller (Fuller 1963). The second one would identify environment as a qualitative *milieu* relative to its dweller as developed in the work of Victor Papanek

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<sup>10</sup> In *On the Mode of Existence of Technical Objects* (1958), technology and aesthetics appear as two complementary modes of existence. Technology removes objects from the world while aesthetics connects objects to the world. According to Simondon, aesthetics is always a matter of inserting or including objects in a milieu. Aesthetics is not in the single object but in the relation between object and gesture, in the relation between object and its milieu. Simondon goes even further in one of his last texts speaking of “techno-aesthetics” as an “intercategorical fusion” of aesthetics and technology (Simondon 2014: 382).

<sup>11</sup> Georges Patrix noted the historical correlation of the two terms: “The year 1969 saw the introduction of the word ‘Design’, while in 1970 the word ‘environment’ was introduced.” (Patrix 1973: 30).

(Papanek 1971) or Tomás Maldonado (Maldonado 1972). The term “eco-design” can be reserved for this second path (*milieu*) as it gives priority to the relations between society, technology and nature. The importance of an ecology of technology becomes crucial when the life of objects become shorter while the life of wastes is longer. The philosophy of Simondon seems rich for a thought of design because it strives to reconcile production and use in the industrial context without relying on a nostalgia for craftsmanship: “It is in this very emphasis on industrial production, in the deepening of its characteristics that an overcoming of the antithesis between the artisanal modality and the industrial one can be studied with a greater likelihood of success” (Simondon 2009: 22).

One of the characteristics of this industrial reality is its reticular dimension. Simondon invites us to change the emphasis from the machine to the infra-individual technical elements and to the networks, considering notably the modularity of objects. The distinction Simondon operates between “closed object” and “open object” turns out to be illuminating. A closed technical object is sold fully constituted: its only possible becoming is then wear and degradation. On the contrary, an open technical objects is *neotenic*: to some extent, it is always in progress, it is made to be remade, produced to last. The technical object opened to its milieu and to the user-repairer is, according to Simondon, “the essence of what might be called the crusade for the salvation of technology” (Simondon 2014: 401). Today, *fab labs*, in favour of open source and creative commons, seems to pursue this thought of technical culture. As with Simondon yesterday, these new “amateurs” of technology strive to overcome the pair craft/industry through the deepening of industry.

## Conclusion

The originality of this French thought of design stems from its interest for the place of technology in our lives. This attention to technical phenomena accounts for the initial interest of this thought for an “industrial” design. However, this thought is not a *technicist* one because it always tries to open the technical materiality to vital and cultural relations. The originality of this understanding of design is due to the development of a material milieu as a life milieu, as a dwelling milieu. Human being does not exist regardless of a technically formed milieu, especially his or her own body (Mauss, 1973). Opening the dimension of sense to this relations between human beings and artefacts is to get rid of the idea of technology as means to understand how technology mixes with our gestures, how technology *is our gestures*. If this French thought of design from the fifties to the eighties highlighted the “industrial” side of design, it nonetheless appears to be fruitful to think more broadly design as a composite creation mixing technical, plastic, practical, economical, social, moral, etc. factors. Indeed, this authors developed a transversal thought about the design of dwelling

milieu always opening technical materiality to its cultural, social and vital resonances. Opening technology to this different fields is also creating objects opened to alteration. Emphasising on both cultural and technical construction of life milieus is bringing human being into line with what is external to human being: it is to claim that *the intelligence of the object* (intelligence of a durable object opened to transformation) *is the intelligence of the subject* (intelligence of a technical culture individuated in its technical milieu).

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