Introduction

Recreating The Process
The series of projects presented in this opus have one common characteristic: they have all gone through a manufacturing process development phase. As the case may be, they replace one material with another in an existing process, transpose industrial processes to a small scale, reuse abandoned techniques or invent whole new machines. Their production effects a shift in the designer's role, from the development of forms and uses for a given industrial system, to the development of its own manufacturing process. This shift raises a series of new questions: why invent small-scale processes? Are they shared? Are they visible, or even put on display? What new economies do they entail for these designers? What new skills do these designers develop? Are they part of a locally organised production and consumption systems' revival? Do they give rise to prototypes, products or models?

The development of manufacturing processes by designers is not a new phenomenon. breadedEscalope studio makes explicit reference to the work of Michael Thonet, the German cabinetmaker who developed a process for bending wood at his business, founded in 1819. A brilliant pioneer, he developed the world-famous Chair No.14, at the request of Anna Daum for her café, the Kaffeehaus Daum in Vienna. The chair revolutionised the market and its production rapidly increased after its launch in 1859. Simple, light and elegant, he industrialised the manufacturing process as demand grew.

Another interesting German example is Marcel Breuer. Legend has it that Breuer had the idea of using curved steel tubes while cycling to the Bauhaus one day. Looking at the handlebars and observing that they employed an industrial technique unexploited for furniture, he designed a first chair on this principle: the famous Model B3, better known as the Wassily Chair, designed in 1925 for his friend and colleague Wassily Kandinsky. Production orders very quickly became considerable. He then went to see cycle makers to produce them, but met with incomprehension and inability to adapt cycle production tools to his type of scale and form. He was forced to proceed differently: he took on a skilled craftsman and together they produced almost 500 handmade chairs over the first few years of production. It was only from the 1960s that the global success of his chairs ensured that they could be produced on an industrial scale. Breuer was a pioneer, not only for his exploration of processes, but also for his experience regarding the difficulty of transposing a novel use of a technique to industrial production.

Technical Process As Theatre
One of the big differences from these historical practices is that production processes are intended not only to produce objects of novel design but also to be shown. In fact, all the designers' proposals in this work give rise to videos, performances or workshops, making it possible to see how objects are produced. This act is linked to a consideration of our time, which is the desire to show the origin of things. Whether that be for health reasons (knowing what materials are used to make everyday objects or foods), social reasons (seeing and understanding working conditions), or territorial

(knowing where goods are produced), numerous initiatives currently capitalise on a form of transparency about their production. These actions help to provide information about implementation and thus bring acts of production and consumption, usually so disjointed, closer together.

Yet, digging deeper into the issue through the compilation of essays, one realises that the projects move beyond pure transparency to tackle the question of scenography. During our discussion, studio Glithero talked about two choices they make in the course of developing their projects. First, the processes themselves are selected to be visible. If the process does not permit visual perception, if it is microscopic, or if it is too slow or too fast, it is not selected by the studio. So there is a first discrimination stage, which exists not only in order to make a technique transparent, but to choose processes that can be shown, and through that permit the creation of a public.

A second choice is made within the process itself. Sarah Van Gameren expresses it very well: not everything is shown, they choose within the way it is shaped. They select the "relevant moment", the part that shows a decisive transformation of the fabrication technique. Neither the prior preparation nor later shaping is shown. Only one section, judged the most interesting, will be presented. This means that, again, we are not only dealing with transparency but rather with staging a production. As in a show, some actions are suggested or deduced offstage, the actions presented are those that create the narrative. It is about putting on a show of manufacturing.

This idea of the designer as showman has already been widely discussed in the history of design, particularly by Alexandra Midal who compares the designer to an illusionist. With the aid of tricks and machinery, the designer/illusionist sets out to deceive our senses and preconceptions to create surprise. Following in the footsteps of Vilém Flusser, who had already established a link between the artist and the illusionist, through design and the machinery associated with deception[1], Midal proposed a view of design as a maker of fables intended to give each sleight of hand the appearance of truth where "the pleasure of believing undermines the bother of being fooled"[2].

Yet the illusionist remains a controversial figure, because it does not involve transmission of why or how. The illusionist does not reveal how tricks are done, they remain mysterious, and the ability to manipulate is central to his practice. But in our case, there is no wish to deceive. Theatrical stratagems and devices are used, but the aim is certainly not to lie about these processes. On the contrary, their objective is to ensure they are seen, to make often simple and ingenious principles comprehensible. Machines, although theatrical, show their workings, inform the audience about the intelligence of their purpose.

In theory, a contradiction lies here between dramatisation and authenticity, between partial staging and transmission of a world's reality. This ambivalence, which could be compared to the problems of the journalistic documentary (which is always staged and partial, but without being "false" or "misleading" necessarily), is a tension that runs through most of the projects of this opus.

Exemplars

The projects give rise not only to a manufacturing performance but also to end products. Throughout these essays and discussions, it is interesting to study the status of these objects, and their uses. What are they? What exactly is the point of them? Eventually these things have a number of statuses and several functions. The first is simple: it is to show the potential of the machine or process invented. In this sense, these things have the same status as samples for a manufacturer. They make it possible to see the appearance, the surface finishes or technical capabilities specific to the process presented. Most of the time, designers use design archetypes (stools, lamps, bowls, etc.) to communicate these aesthetic and mechanical properties. In making a chair, Anton Alvarez gives information about the properties of his objects. Using 3D printing for blown glass to make vases, Studio Unfold very instinctively reveals the specific potential of printed ceramics as opposed to plastics, which cannot be used with high temperature glass. They thus have a transmission and communication value, in the sense that the technical process is carried out on a particular object to demonstrate its potential. They are exemplars in every sense of the term: examples of work, first examples in a series and the exemplary use of a technical principle.

But it must not be forgotten that for most designers these objects are products. Whether sold in a gallery, museum or shop, they allow some of these designers to live and continue to work. The objects in this case become merchandise, and exceed their status of communication. They are not industrial objects, and are often not intended to be; they are on the borderline between semi-industrial products, handcrafted objects and works of art. This ambiguity is significant, for underlying the advent of a new production system, often called the Third Industrial Revolution, is one major issue: the calling into question of the difference between product and prototype, as Claire and Dries of Studio Unfold very clearly describe in their writings.

Co-Development

There is a tension at work in this system that ties the invention of processes and the production of objects. Classically, when a designer devises new objects based on a defined fabrication process, he or she first has to fully grasp and understand its possibilities, constraints and how it works in order to be able to use it to good effect. Without necessarily mastering it, he or she designs as a function of the fixed techniques of this process or processes. Conversely, in a machine or tool's development course, the engineer develops the operation of this tool as a function of a specific technical objective he or she would like to achieve: a new folding technique, a new type of lamination, etc. The engineer tries to develop the machine in a form of stability and technical repeatability. He varies the technique, but not the fixed objective laid down in the specifications.

But when someone in the same role develops a new process and the objects resulting from it, the two research objectives vary: one can imagine new objects as a function of the process as it has been developed, or change the machine so that it can produce the objects imagined at the start. Contrary to what may be thought, there is no strict succession between a process development stage followed by a design stage. Several interviews show this: the

machine and the design evolve together in a dialogue. The designers need to master the process in order to be able to imagine and produce objects. At the same time, he needs to be able to modify the process so that it achieves the technical, aesthetic and mechanical objectives envisaged for the production of objects. The project unfolds as a collaborative growth between men and materials, it isn't hylemorphic[3]. This dialogue can last forever: once the machine has been modified it gives rise to new objects, which lead to new technical changes, etc. So the tension of this research in a continuous ping-pong comes down to a question of choice: one of the variables must be temporarily fixed, whether the process, or the objects produced, in order to develop the other.

Anton Alvarez describes it very well: he may have started with a manual process, but the objects produced were too weak. He developed a first machine, produced a few prototypes, but realised that the manufacturing process was too long and complex (needing 4 people to operate it): he put his machine on legs and produced new objects. Since these objects were not sufficiently rigid he had to add a glue dipping system. He experimented with a whole series of forms and objects, but wanted to move on to different scales: so he decided to mount the same machine on an articulated arm, which allowed him to produce micro-architectures, opening up new potential uses and forms. Although this method of working back and forth may seem obvious, there is no theoretical basis to these practices and the method is dictated by instinctive choices. It is by revealing these choices and trying to throw light on what underlies them in the shape of constraints and potentials that it

becomes possible to share, compare and develop them for future practices.

Achieving Independence
In a very practical way, this desire to develop one's own means of production, is primarily motivated by a desire for independence. When breadedEscalope explored the essence of rotomoulding and made its own tool, or when Christophe Guberan hacked his own printer to produce objects more efficiently than his handmade folded paper, the creativity in these techniques was primarily generated by a need to produce quickly and without calling on outsiders or exterior skills. This independence through technical invention or diversion may be linked to what Ivan Illitch described in the 1970s as a "tool for conviviality":

The crisis can be solved only if we learn to invert the present deep structure of tools; if we give people tools that guarantee their right to work with high, independent efficiency, thus simultaneously eliminating the need for either slaves or masters and enhancing each person's range of freedom. People need new tools to work with rather than tools that "work" for them. They need technology to make the most of the energy and imagination each has, rather than more well-programmed energy slaves.[4]

While discussions about the "crisis" or reports of "slavery" in this publication are rare, designers nonetheless approve this call to create usable, versatile tools, guaranteeing their creative independence rather than responding to technical, financial or marketing ideas in which they have played no part. By exploring new manufacturing techniques or new machines, they give

themselves the means to work *with* technology rather than *for* a defined technology. In this sense, the intention of these designers can be linked to the famous and largely undefined "maker movement". In each interview, I have tried to see if this movement influenced them, not to link both approaches together, but rather as an entrance to gather clues about the political and social engagement of their work.

The design of processes is not a new phenomenon, and the designers presented here have been widely reported and discussed in recent literature. Some exhibitions have already focused on this type of approach. However, getting these designers to write about their thoughts, methods of development, dreams, objectives or economies, makes it possible to push the problem further than their final achievements alone presented in exhibitions. The designers are affected by tensions, questions, doubts and reflexes not always found in the final work. The aim of this opus is to look behind the scenes, to identify the similarities and distinctive characteristics between these practices. Putting all these designers side by side is not motivated by a desire to create a common movement or give their work uniformity to form a coherent whole, quite the opposite. Each of them finds himself facing similar questions to which they respond in different ways, depending not only on the context but also on choices that necessarily call on distinct technical, aesthetic, social and political concepts. Bringing them together in this second *Obliquite* opus will, I hope, reveal the complexity of the issues they raise.

1. FAUSSER, Vilèm. *Petite Philosophie du Design.* Belfort: Circé, 2002.
2. MIDAL, Alexandra. *De l'assassinat considéré comme design.* Pétunia, 2010, n°2, p.4-5

3. INGOLD, Tim. *Faire, Anthropologie, Archéologie, Art et Architecture.* Bellevaux: Editions Dehors, 2017, p.65
4. ILLICH, Ivan. *Tools for conviviality.* New York: Harper and Row, 1973. p.10