Write with the machine,
research project ,
Tanguy Vanlaeys
—2017

SOMMARY

Until the beginning of the 20th century, drawing letterpress characters was a privilege for a few professionals. Nowadays, thanks to digital technologies, the emergence open-source, and communities such as FabLabs, the field of creation is open to amateurs.

The increasing number of self taught non professionals has changed the approach regarding typography, which pushes forward the boundaries set up by traditional techniques to consider the letter with new esthetics, a new economic pattern and a new professional horizon.

The democratization of some machines, easy access to software and the knowledge sharing in FabLabs led to different typographic use and needs. The status of those new amateurs dealing with contemporary creation will be enforced. The position of FabLabs will be questioned - is it simply a technical place enabling new techniques or does it lead to innovation in the typographical landscape ?

The advantages of using 3D printers, laser cutters, digital milling machines, plotter cuts [1] for example are numerous, but what is their creative scope and what interactions with the user ? How to use these machines which sometimes give impression of acting alone in total autonomy.

1. The plotter is a computer printer for printing vector graphics. It draws pictures on a paper using a pen. Plotters are used to print designs of ships and machines, plans for buildings and so on.

In this essay I only question the practice and use through type-design, but these questions can be extended to any other fields of design. With these machines, a passive attitude can be established because they are based on a language that may seem impenetrable, abstract and incomprehensible by those who want to interact with them.

The aim of this essay is to better understand the creative relationship that the type-designer, mainly amateur, can operate with digitally-controlled machines. This topic can be developed when they are not considered as mere means of execution but as a system to experiment the material and to generate specific and innovative forms in the current typographic landscape. That is why, from an innovative point of a view, I question the process of creation in type-design more than the final result, echoing Pierre Damien Huyghe [2]. As conclusion, I will analyze the relation of the typographer and the type-designer with the machines, their working places and their time.

2. Pierre Damien Huyghe conference's, from 08.10.13 at l'ENSCI, *L'innovation comme maître-mot*.

Pierre-Damien Huyghe is a professor at the University Paris 1 Panthéon-Sorbonne, member of the Laboratory of theoretical and applied aesthetics (LETA), responsible for the "Design and environments" and the "Forms of urbanity" program. His research involves philosophy and aesthetics and focuses on the conditions of openness of artistic behavior to the practices and inventions of technology and industry.

Chapter 1

MACHINES AND TYPOGRAPHER

The industrial revolution began in Great Britain at the end of the 18th century with a series of major technical innovations such as the development of steam engines, the extension of railways, and an economic opening towards the international market.This change considerably changed the relationship between the worker and the machine, especially in the field of typography and printing.

Four main techniques for the composition of a text stand out in history.

— Manual composition (with metal characters / fonts)
— Mechanical composition (Linotype & Monotype)
— Photocomposition (the end of metal characters)
— Offset and computers

The evolution helped work faster and more efficiently, which gradually took the worker out of his workshop and greatly reduced his ability to interact with the machine in the creative process. In the first part, I deal with the printing industry, but this conclusion can apply to all the sectors that have undergone industrialization.

PLACES AND TYPOGRAPHER

Chapter 2

As mentioned in the first part, a workshop generates a type of interaction between the worker and the machine - the political, social and technological needs, the social dimension and the relation with the machine. In this second part, I will analyze in more detail the evolution of this relationship and the new workshops available to the contemporary type-designer.

The evolution of machines has reached the social dimension of work. It has reduced the creative contribution of workers, their involvement and thus his mistakes and experiments. The logic of the automation of the production chain relegates the intervention of the human being to the maintenance of the production machines. At the same time, there has been a break in the space of technical action. Indeed, the workshop has become factory.

Such an evolution of the environment and the means of production, based on automation, the search for profit and the increase in production rates, limits the involvement of the worker in his work.

Today, thanks to digital technology like the internet, blogs, software, the typographer's studio with its expensive, noisy and voluminous equipment is replaced by a computer.
The software associated with the computer simulates the process of those obsolete machines making them more accessible to the layman.
As Jürg Lehni[3] argues, the computer, through its software and user interface, takes the role of a

machine simulating other machines or process by making the previously expensive equipment obsolete. This definition allows us to consider the computer as a new metaphorical and virtual workshop open to anybody. However, the virtual technical space differs from its predecessor on a very important point: it is accessible both to the professional and the amateur.

Undoubtedly in FabLabs and Makerspaces we find the most complete realization of the wish to modify the relationships to tools and machines, to share knowledge in an amateur and self-taught practice outside the traditional professional aim.

3. in *Type Face As Programm*, François Rappo, ECAL, 2010

Jürg Lehni is graphic designer and works collaboratively across disciplines, dealing with the nuances of technology, tools and the human condition.

Chapter 3

TIME AND TYPE DESIGNER

FabLabs, new places of creation, can lead to the creation of characters thanks to new needs, new uses and new practices. They reflect our time and a community that rejects industrial production and standardization. They can also propose a new way of thinking and designing, and that is why I question them as space of innovation in type-design.

A typeface can reflect a time being and mark the change with the previous one. Helvetica typeface drawn at the end of the Second World War is a case in point. The design of a new typeface could be innovative, responding through its drawing to the expectations and spiritual need of a specific time period. Are the typographic forms emerging from a FabLab creation process innovative ?

Through the image of the amateur and these new places, the individuation process is pervasive. We are no longer in mass production. We are outside the professional context. FabLabs generate new practices and new uses in design. These new communities reveal an unusual dimension, as Patrice Flichy (in his book Technological Innovation) notes. This is the social dimension of the technique observed through the interactionist approach. The emergence of FabLabs, and quoting P.Flichy, we can speak of innovation through interactionism and philosophy of doing in opposition to our current capitalistic economic world. Another equally important dimension to be dealt with is the

status of the amateur.

Patrice Flichy describes the amateur with the advent of the internet as an emblematic figure of a new form of expertise. He is an amateur at the intersection between ignorance and professionalism, building his competence through his experience. The author defends the idea that information and communication technologies have emphasized learning by him self. Learning, through networking, allows the emergence of a "collective intelligence". These new amateurs tend to gather in communities (like FabLabs) to share their opinions and to compare their practice for example.

Type design is made possible to the amateur thanks to new technologies. Unlike professional type-designers, amateurs don't learn the orthodoxy of a classical learning. Moreover, an amateur, compared to a professional, does not have the same expectations and constraints in terms of creation. The economic question which the practice of the amateur is undoing is not negligible. There is no order, no delay, no budget, only the will to create, then share and offer to the world. According to Jean Baptiste Levée [4], imposing technical constraints or a field of application, can be an effective way to stimulate the creation of characters. It is a research that technical. FabLabs can become a fertile ground for amateur type design, as they bring together all the necessary conditions for this new amateur practice. Indeed, the amateur will find there as a foundation of creation a set of technical constraints on which it will be based.

The FabLabs can also be analyzed from the point of view of the particular relationship they have with technology, machines, knowledge and diffusion. The amateur can find in this relation to the machines a source of motivation and a solid

base to the creation of characters. If the user chooses to interact with the machine and solicits it in terms of its potentialities and its ability to shape the material, there can be innovation in the process of creation. An example can be seen in the study project TypeFace As Program [1—3] of David Keshavjee and Julien Tavelli (studio Maximage [5]). These graphic designers decided to develop their own tool. In this case, we can observe this relation between man and machine mentioned above.

Their strong body of graphic works often explores the idea of errors and aberrations in the process of the making and how to accept them and let them create their own new aesthetic.

In a conference, Pierre Damien Huygue defined the term innovation as being possible in the chain of operation itself.
Hence to my mind, type design and its creative process as innovative.

Type-designers whether professional or not emancipate thanks to the computer and the democratization of some machines emancipate from a logic of standardized creation.

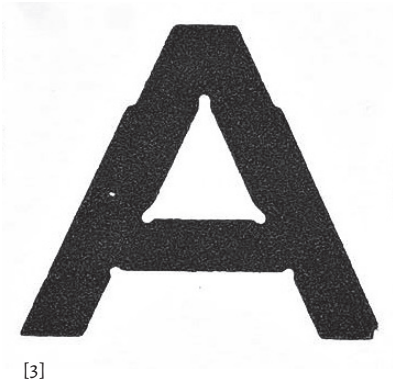
4. Jean Baptiste Levée has designed over a hundred typefaces for industry, moving pictures, fashion and publishing. He runs the retail type foundry « Production Type ».
5. Berlin-based graphic designers Julien Tavelli and David Keshavjee are active within the group Maximage Société Suisse, a loose structure of designers, photographers, and artists working either on commissioned works or self-initiated projects.

[1]

[2]

[1] p.45 of *Type Face As Programm*, cut process for letters

[2] view of typographic case created by Maximage for their study project



[3]

[3] preview of typeface

The changes brought about by the advent of digital technology and the internet have had great impacts in typographic world.

A easy access to characters and the tools allowing their design has pushed an amateur public to take ownership of this design domain before reserved to an elite.

Then, the emergence of FabLabs, facilitates the accessibility to machines with digital controls and allows to find a creative relation with some machines. I think that all these elements in the same place can potentially be a source of innovation in type design, with a few conditions. First, the individual must adopt an attitude involving some technical and aesthetic concerns. Then, the machines used must allow possible transformations and adaptations (assembly, disassembly, diversion, open coding, etc).

These new places will not change the future of typeface creation, but in light of all the elements developed in this essay, I think they can be a source of singular creations reflecting an era and a way of thinking about its relationship with new technologies. A report that reconsiders our citizenship (sharing knowledge and know-how) and that restores the legitimacy of technology in its social dimension.

Stroke font,
my end studies project ,
Tanguy Vanlaeys
—2017

SINGLE LINES LETTERS

Thanks to my research and experiments carried out in a FabLab using CNC (Computer Numerical Control) I realized that the processing of letters by their strokes outlines caused a "fight" against the machine in order to get a result that is closest to the screen result. Whichever machine is used, the letter will be distorted. The most egregious example is plugged counter-forms.
During my meetings with members of the OSP collective at the Rencontres Internationales de Lure and my research, I discovered the processing of letters with Single Line, Stroke Font or Hershey font.

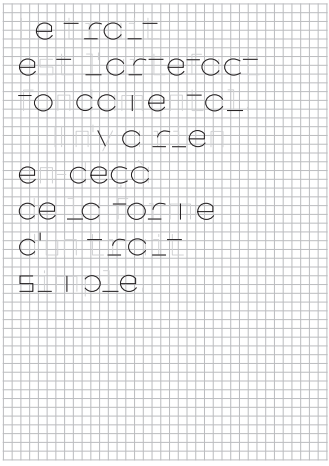
The drawing of a letter by its single lines can add ductus[1] forward. "Sending" the single line of the letter instead of its stokes outlines allows to work with the machine, not against it, and accept or not , the trace that it proposes. Moreover, the machine, in files process, will interpret and deconstruct "traditional" ductus so as to optimize it. This, can potentially open lead to optimize the perspective of the trace by the machine, by studying its gesture [1—4]. I think that just like calamus, pens and brushes, CNC machines can be considered as plotting tools. In this context, the hand is no longer directly related to its instrument, but this practice allows a close relationship and interaction with the machine.

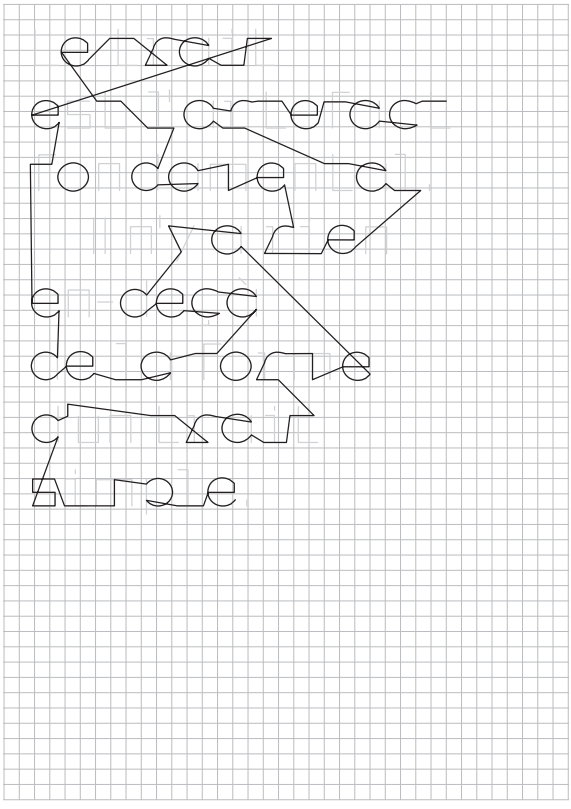
1. The number of strokes that make up a written letter, and the direction, sequence and speed in which they are written.

CNC machines can be diverted because they are no longer used for industrial mass production. They allow experiments on a wide choice of materials. For example, by replacing the blades with a modelized adapter printed in 3D, I managed to use a large choice of tracing instruments (pens, brushes, felt pens ...). All these experiments led me to produce "stoke alphabet", which, has an almost infinite possibility of results. Then I get closer to the work of Donal Knuth. D.Knuth, with Metafont, proposed a parametric font, simulating the plotting of a pen, which also allowed an infinite number of results. Like him, I agree with the idea that a "stroke font", certainly parametric, leaves some space for sensitivity.

Drawing single lines may seem like impoverishment of the form, however of reminds us of the history of writing. Imagined for being traced on various environments, stroke font can bring out unique forms and innovative creative process.

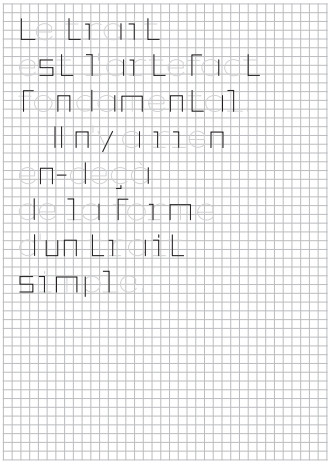
I think about developing a typeface using stabilization and digitization of a font plotted with a machine. The different weights and their design will thus be directly linked to the use of several instruments or tools. A single line version will be added to experiment new uses. The fundamental axis of this research could be the link and not the opposition between written / traced forms (tool, machine, gesture, and speed execution being intimately linked) and constructed, stabilized forms (typographic characters).

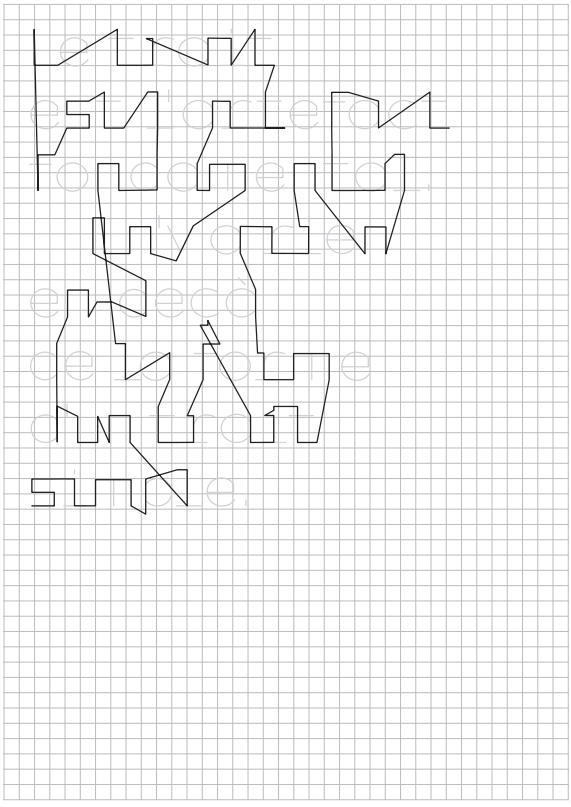




[1]

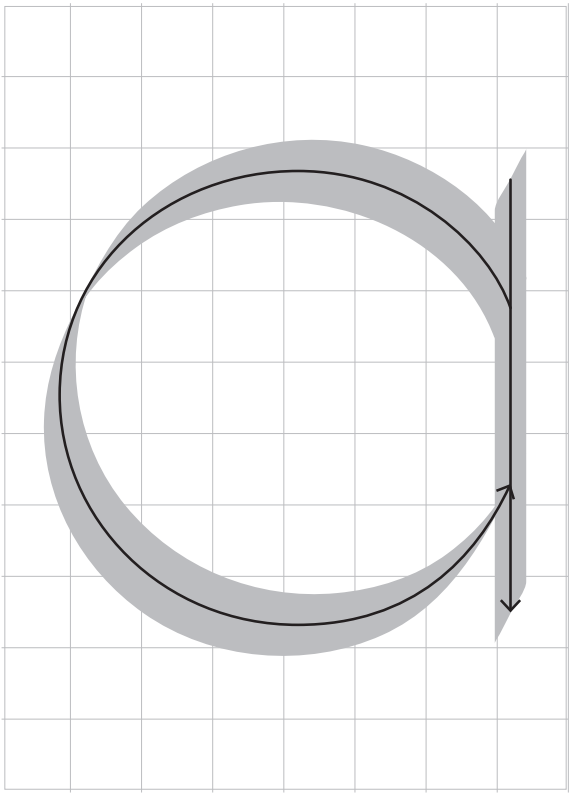
[1] ductus of the machines,
for the curves





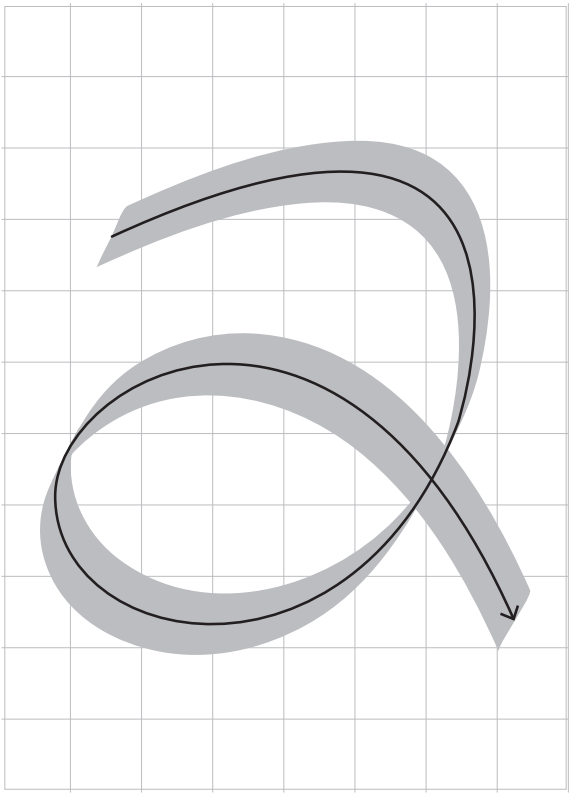
[2]

[2] ductus of the machines,
for vertical strokes



[3]

[3] letter with two strokes



[4]

[4] letter with one stroke (optimized for the machine)

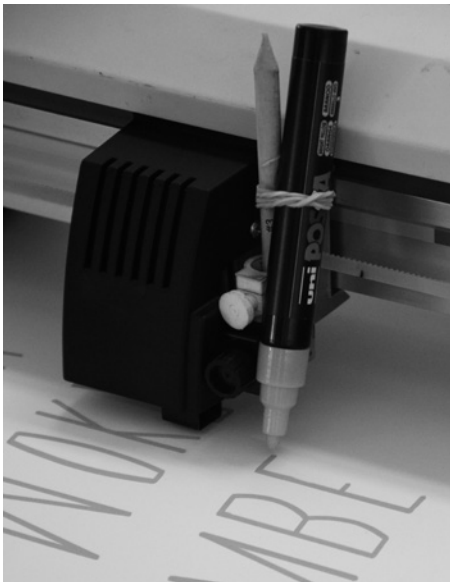
Chapter 2

STROKE FONT, A FACTORY METHODOLOGICAL APPROACH

An important dimension of my research concerns the confrontation with my counterparts and the exchange on the practice of typography with the machine. Several initiatives have been taken to build a research methodology based on my FabLab experience. The idea, is to reveal the typographic richness obtained from the machine. I initiated a workshop [1—2] with François Marcziniak (self-taught type designer) and his graphic design class at ECV in Aix-en-Provence. The workshop consisted in confronting a typographic drawing of single lines with multiple interpretations by using a cutting plotter on which several tools had been added. This process allowed us to engage a practical work with great enthusiasm, curiosity and a concern about the tool. This first experiment allowed me to think about an educational mediation on type design in FabLabs.

I thus have a professional perspective integrating various activities : type design graphic design, university research and educational mediation.

[1]



[2]

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