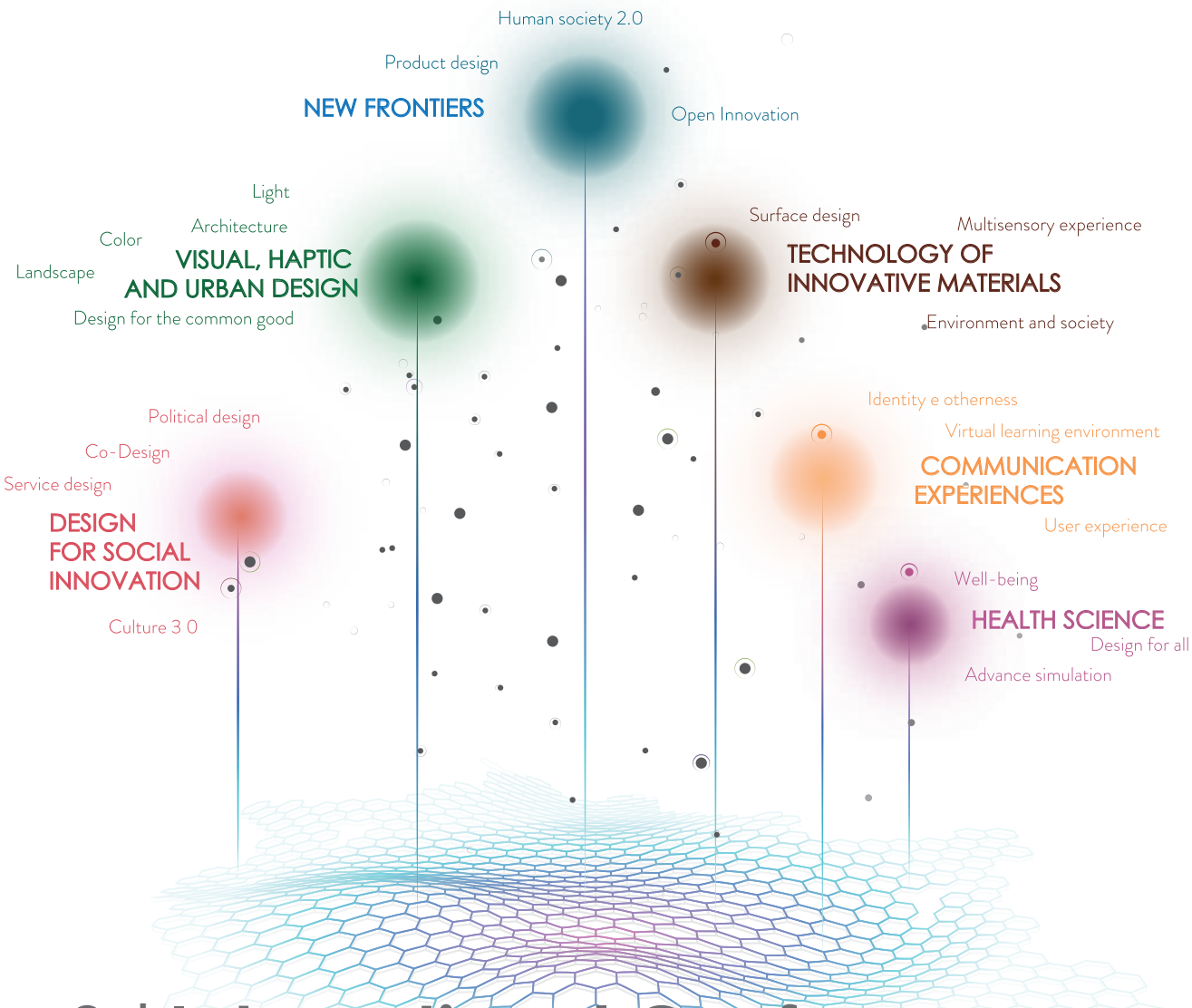

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The contemporary production of movable types. Research perspectives for letterpress printing between typographic culture and digital craftsmanship

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Abstract

My contribution wants to be an attempt to lay the foundations for an overall discourse on the subject of letterpress printing.

I introduced the theme with a brief historical excursus: the aim is to make fully understand the innovations underlying the crisis of this particular printing process. Then I have concentrated on the reasons that still lead to printing with movable types, traced back to both the printing process and the final artifact. Reflecting on the needs of those who deal with letterpress, I have collected some case studies of those who still make types today. Finally, I have identified some possible research topics in this field, involving the study of the History of Typography, the use of a range of technologies, and the need for a methodological and interdisciplinary debate.

Historical Introduction

Movable type printing was introduced in the West around 1450 by Johannes Gutenberg, a goldsmith from Mainz who perfected a printing process that remained substantially unchanged for about four centuries.

This procedure involves the hand-engraving of a metal punch that is pressed against a copper plate in order to create a matrix. An alloy of lead, tin, and antimony is cast within the matrix and, as soon as it cools, it forms a single piece of type. This consists of a metal parallelepiped with a letter (or any other glyph) engraved in relief and reverse: by aligning the types together with furniture, metal elements of lower height which are used to get white space, the printer gets the so-called lock-up, that has to be secured with quoins and placed inside the printing press. Then the surface is inked with a brayer – just the letters, thanks to the different height of the elements – and pressed against a sheet of paper with the aid of the printing press. Starting from the famous 42-line Bible, this was the process that allowed men to spread their knowledge through the press, with the advantage of working with decomposable, reusable, and easily replicable elements.

Simultaneously with the birth of movable type printing, the need to reproduce images to illustrate the texts arose. Initially, these were produced with the xylographic technique, progressively abandoned in favour of metal engraving – chalcographic technique – but never completely disappeared.

The first substantial innovation concerning the making of movable types occurred in 1827, when Darius Wells, a native of New York, developed a process for the mass production of wood types, which did not involve the use of a pantograph yet, but of a cutter. This invention must be placed in the broader context of the American industrial development and, in particular, of the instrumentation inherent in the press. In fact, in the United States, there was a growing need for communication material, often in a large size; wood type could not, therefore, continue to be engraved by hand, and the American production drove this development also on the European continent.

The wood types did not have the same refinement as the lead types, but they were much less expensive, larger, and easier to handle due to their low weight (Roy Kelly, 1977). From that moment, lead and wood type coexisted in printing houses all over the world.

At the beginning of the nineteenth century, a new stone engraving system known as lithography began to spread, this technique opened up new possibilities for reproducing illustrations and immediately met with great success. With the substitution of the stone in favour of zinc, which took place in the middle of the century, it became possible to introduce the first cylinder printing presses, which will gradually replace letterpress printing by working with the process called offset. Simultaneously with the introduction of lithography, the innovations derived from the invention of photography were also perfected: thereafter the first clichés were created using photomechanical procedures (Fioravanti, 1984).

A real revolution in the preparation of text matrices came with the introduction of Monotype and Linotype, at the end of the nineteenth century. The first photocomposition systems will derive from these technologies, towards the middle of the twentieth century, and they will make the use of lead and wood type obsolete. A last attempt to keep the hand composition alive was with the introduction of the polymeric material, during the second half of the twentieth century: in particular, at the end of the seventies, some hard plastic types were marketed, and in the eighties, the photopolymer – a plastic material that changes its properties after the exposure to ultraviolet rays – began to be used. From a contemporary perspective, this last introduction was fundamental, since still today those who print with vintage printing presses use photopolymers to reproduce single images, if not even the entire graphic layout, starting from a vector base (Fig.1). This method allows printers to choose not to use movable types: the reasons are due to speed, availability of typefaces but also to the possibility of printing with a strong pressure without wearing out types.

01

01
Sample of text on photopolymer plate

An ambiguous definition

Given the various evolutions of the phenomenon over time, the term letterpress has assumed an ambiguous value which, however, can change depending on the linguistic context of reference. In his recent volume, Gerard Unger (2018, p.223) defines letterpress as "printing from a raised, relief surface, traditionally from movable type, but also encompassing more recent techniques such as stereotyping and photo-etched printing blocks". In this definition, centred on the technology and not

on the artefact, both the historical and the contemporary attitudes of letterpress find their place; and the 'purist' meaning, more attentive to cultural value, as the more commercial one, are also taken into consideration. However, in Italy the term "letterpress" is often used to mean the relief print (the so-called 'debossing'), often very marked. The use of old printing presses is still one of the best ways to obtain this kind of impression, even if it is not the only one. This confusion has therefore led those who still print with movable type to specify it, to distinguish themselves from the common use of the term 'letterpress'. In fact, in movable type printing, debossing was something widely discouraged, since it could damage, if not break, the types, whose cost was very high; naturally this problem also involves those who still print today, with the addition that the risk of wearing out a type is not only an economic issue but a very difficult damage to repair. "Without a type industry making new metal and wood letters, and with so much old type thrown away and gone forever, the remaining stock is treated carefully: type wears when used, so a shop that prints frequently can find itself having less and less over time, even when printers take extreme care" (Fleishman, 2017).

It is interesting to note that at the dawn of the so-called "revival" of the letterpress, those who pursued it were opposed by those who thought that the materials should be preserved in more traditional ways. In fact, at least in Italy, the birth of various private realities (Passerini, 2016) made sure that a lot of materials didn't get lost, but that on the contrary it could be recovered and restored. This attention to typographic culture has led to partnerships between those who have made movable type printing as a commercial activity and those who have worked to create hybrid spaces halfway between museums and printing houses.

In this contribution, I will intend letterpress printing and movable type printing (not necessarily vintage) as synonyms.

Why keeping on letterpress printing?

It is legitimate to reflect on the motivations underlying this renewed attention, at an international level, towards movable type printing. These reasons belong to two very distinct spheres: the one concerning the process and the one concerning the final artefact.

In the first chapter of her book Proto tipi. Farsi una stamperia, Claude Marzotto Caotorta identifies one of these possible reasons in the relationship between the design process and manual skills: "where increasingly complex devices take charge and shape our actions and communications, manual work remains as a claim to a right to direct knowledge. (...) Where the sight is limited to slipping on the surface of the universe, the hand remains the organ, even before of creation, of knowledge" (2007, p.14).

From a purely professional point of view, therefore, reclaiming this manual ability, the 'right' time frame to complete a job, the attention to detail, allows us to bring the labour issue back to a human dimension, escaping from an alienating production chain. In fact, in a letterpress workshop, the graphic designer returns to take care of the entire production process, putting into the project a specific artisanal knowledge that is a precious heritage of another age. "Places combine space and time. In entreprecariat, time dominates space. It is a fragmented time that prevents us from developing a sense of belonging to places since everything appears neutral, temporary and changeable. The measured time produces merely logistic spaces. The by-product of the spaces dominated by time is anxiety: the subject that travels or lives in a space is adapting its rhythm to a suggested or imposed temporality. To alleviate this widespread anxiety, it is necessary to create the conditions so that non-logistic temporalities, generated within productive or unproductive places, emerge. In these places space, through the totality of its relational qualities, modulates time" (Lorusso, 2018, p.199).

An educational aspect is undoubtedly present in this relationship with manual skill. Having to deal with the physical representation of concepts that on software are completely drained of their substance – not only typefaces but also margins, leading,

spacing – undoubtedly brings greater awareness in the design process (Fig.2). This is probably the main reason why many institutes have introduced some designing by hand experiences within their courses, collaborating with existing realities or even setting up new workshops, where possible, in their spaces.

Another issue is the relationship with history. In manual typesetting, the type becomes a medium that goes beyond geographical and temporal boundaries, to connect potentially very different printed matters and testify a cultural continuity to feel part of. The past of typography is in one's own hands, tangible, and this contains a disruptive potential. It is rare that those who set up a printing workshop are not even scholars of History of Typography – and often also cultural animators – and these factors can find concreteness during the design phase. Recognizing the context in which one typeface was designed, in addition to knowing how much pressure is necessary for a "right" print, is a valuable skill.

For the reasons concerning the final artefact, the first consideration is that many of the questions related to the process find a direct, visual consequence in the printed matter. The physicality of the objects, the stories suggested by their imperfections, the attention to detail, are all tangible signs that we find in artefacts. This contributes to creating a particular quality, which, due to the fact of involving more senses, we could identify with the word taste. Let's start with an assumption: it is not true that letterpress prints are by far the best one could get. Technological progress has meant that some machines capable of perfect yield printing were produced – and it is not a matter of dichotomy between hi-fi and low-fi. However, "letterpress printing has the advantages of bright colour, clear edge, and rich false scoring feel. So, it is remarkably different from ordinary printing techniques in vision and touch. No wonder people say letterpress printing has set out to demonstrate the revival of handmade crafts" (Lo, 2018, p.11). This handcrafted aspect is a focal point. In letterpress printing, the circulation is considerably lower than in other modern techniques (sometimes, precisely this low number of impressions is one of the factors that leads to the choice of a particular printing technology rather than another), and there is not a copy perfectly identical to another one. The human factor affects the process too much; and besides, released from the need for standardization, letterpress printing is free to respond to the request for more personal prints, in fact, each is a unicum with an aura in a world characterized by seriality.

02
People attending a workshop at p98a studio in Berlin (credits: Norman Posselt, 2018)

02

The need for new types

Once the importance of the phenomenon has been ascertained, the reasons for the growing demand for new types to print using letterpress are clear. This request can be summarized in two kinds: historical types and types with an original design.

The first concerns specifically the integration of precise missing glyphs in the surviving type sets. This operation is made especially for wood type: some specialized artisans, mainly in the United States, provide to compensate the sets with specific missing type or to enlarge the ones that have such a small number of glyphs that cannot be used. The tool primarily used is the pantograph, even if some finishes are then made by hand. It is a sort of integrative restoration, intended exclusively for the use of the types, and which therefore involves more the realities with commercial connotation than museum institutions. However, there may be exceptions. For example, during research on History of Typography, one often comes across letters printed on the type foundry catalogues, but no physical type has survived. In this case, it may be interesting to start from the printed alphabet to recreate a particularly significant set and return to using the typeface.

Since the revival of the letterpress reached considerable proportions, some companies have begun to produce and market their own type sets, starting from both historical and contemporary designs. This is the case, for example, of the Wood Type Customs originated within the Petrescu Press experience, in Romania, which in addition to proposing various wood type sets, holds a very wide sampling of borders and ornaments (Fig.3); or of the Schriftgießerei Rainer Gerstenberg, in Germany, which in addition to still casting lead type (as many as 102 typefaces are available), has developed a particular metal alloy of zinc and aluminium, more resistant and therefore suitable for debossing. Nowadays, in Europe, there are about ten realities that can provide for the need for new types, mainly produced with Monotype technology.

If the attitude of these operations is the serial one, which seeks to actualize the productive model of historical foundries, it should also be noted a more experimenting soul, still focused on the precise needs of the projects and not on selling the type sets.

Currently, there are several ways in continuous development to try to adapt modern technologies to the production, possibly serial and economically advantageous, of type. The enhancement of machinery based on numerical control (CNC) has introduced new possibilities, allowing to experiment with some innovative methods for the manufacture of types for letterpress printing. However, both the milling machines and the laser cutting machines demonstrate problems related to the precision of the edges of the surfaces involved, particularly evident in the case of serif typefaces smaller than 48 Didot points (about 1.8 centimetres). This fact strongly compromises the quality of type design.

To date, the method with the best margins for improvement appears to be 3D printing. After various experiments by members of the letterpress community who are more inclined to innovation, the first certain result that has been achieved is the unreasonableness of producing the entire type with this technology: rather, it is preferable to 3D print only the inking surface with a few millimetres base, and then glue it to a wooden parallelepiped of the right height, thus drastically reducing production times and costs. However, some fundamental problems remain: the largest is linked to the resistance of the material, which is currently struggling to sustain the pressure of a press; another is related to the finishing of the upper surface, which does not guarantee adequate uniformity within the printing process.

Among those who are achieving the best results in redefining the boundaries of letterpress printing, it is important to point out the case of Dafi Kühne, which, combining technical expertise, artisanal research, and digital knowledge has reached a peculiar and contemporary visual language, far from vintage flavoured or hand-made romanticism. "Dafi Kühne designs using both digital and analogue techniques in two and three dimensions; he considers how the design could be printed, and he prints it himself. [...] He continues to design during inking and printing. [...] His design process ends when the final print is trimmed, not when the data is delivered. This multistage process of developing and implementing ideas encourages diversity of concepts, forms of visualization, and practices using different printing techniques" (Barmettler, 2017, p.5).

In Dafi Kühne's work, the educational component and the attitude to sharing are very marked, and this is evident in the videos that illustrate the process behind each poster – the medium he favours – and the general problems that he has found himself having to face and to solve. Among these, there is also obtaining new types made in metal alloy, wood or plastic material (Fig.4).

It is also essential to highlight the possibility of starting from contemporary technologies such as 3D printing to develop specific visual languages. Born from the collaboration between Richard Ardagh (printer), Henrik Kubel (type designer) and Mark Lim (model maker), A23D "is an exuberant typeface for titles full of intricate details in the tradition of the nineteenth century, but completely contemporary. Somehow A23D creates an illusion of volume and a sense of transparency" (Walters, 2014, p.5). After several attempts with different 3D printers, it was decided to use a 3D PolyJet, which sedimented 400 layers of acrylic resin, after each had been individually irradiated by a UV lamp to polymerize it. The result is an eighteen ciceros complete set (about 7.5 centimetres tall), which however required hand scraping to guarantee a perfectly suited printing surface (Fig.5).

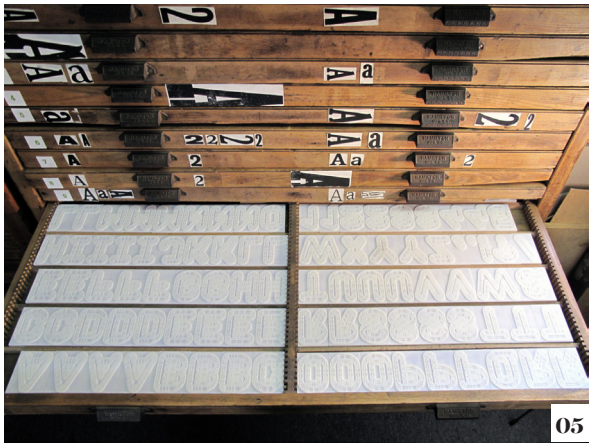
03
Ampersand wood type specimens by Wood Type Customs

04
36pt Normal Grotesk, comparison between existing lead types and new plastic types crafted by Dafi Kühne

05
A23D, a complete 3D printed set at New North Press in London

03

04



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Conclusions

Purvis, at the end of the milestone Megg's History of Graphic Design, observed that "in the midst of the technological revolution, designers using centuries-old techniques and processes are enjoying a renaissance, particularly those artisans concerned with preserving the art of letterpress printing" (2016, p.617). In this context, many realities and individuals combining technical skills of the past and the study of new technologies are working to fulfil the need for new movable types, partly to compensate gaps in historical sets and partly to satisfy the need for contemporary languages. However, being an extremely narrow field of exploration, research on the use of new technologies suffers, on the one hand, from the difficulty of accessing instruments of greater precision and the competence of specialized professionals; and on the other hand, from the lack of coordination between the various experiences, in order to share errors and results. I believe that the scientific community, which until now has tended to be extraneous to the topic, holds the resources and the skills to intervene in the matter, making available not only methods, instruments, and platforms for sharing, but also well-established practices in the management of interdisciplinary projects. Finally, I believe that the academy should be strongly present within the contexts that study the history and culture of typography, in which we are potentially building the conditions for the development of new visual languages.

Therefore, research in this direction is desirable, intending to provide a theoretical and technical apparatus and laboratory experiments for methodological, didactic, linguistic, and potentially industrial purposes.

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