



## Drawing for reproduction: Toward recreating surface prepared papers for making prints and exploring creative practice.

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[Drawing / Desenho]

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### Abstract

Alois Senefelder, developed the first technique to transfer images into different surfaces while systematizing lithography and the use of prepared paper as an intermediate surface to multiply original drawings. Already in 1850, Firmin Gillot patented gillotage, a manual transfer process based in the use of a transfer paper and greasy lithographic transfer inks to reproduce original drawings onto zinc plates. As surface prepared papers became more complex and competent by the end of nineteenth century, with his son, Charles Gillot continuing efforts to improve both the process papers, and its new combination with photographic reproduction, reproducing drawings and making prints, was facilitated. This article reconstructs the production of process papers and variants in a fine studio workshop using basic manual equipment. These last attempts to recreate surface prepared papers, aim to review its historical application use in drawing and print based outputs as accessible alternative methods for reproduction. Within the framework of this analysis, we connect three lines of research: (1) select and reproduce reproductive versions based in the use of process paper and photosensitive paper, (3) improve, adapt and combine original formulas, both non-photographic and photographic, and explore specific methods suitable to current need of to produce such surfaces in fine art printing facilities; (4) Last, to identify creative potential and develop image-making modes permeable to historical and material complexity, plastic wealth based on revised methods and basic protocols initially present in commercial printing contexts. We intend to discuss and extend the scope of fine art printing and call attention to lost histories, such as of surface prepared papers, as examples of what may be needed in a creative process.

### Introduction

Stone and image have a long history of intertwining. Due to its material characteristics, stone as a printing medium is the optimal surface in lithography. The value of bavarian limestone, discovered by Alois Senefelder in late XVIII, defined a long line of innovations first materialised in lithographic as a graphic art, and continued in its fundamental principle, the chemical printing, in the practical combination with photography. Soon, other printing surfaces were used and developed, by Alois Senefel-

finder himself, starting with transfer paper up to short lived methods with odds names such as artificial stone, papyrographie, or stone paper, as alternatives to drawing and even printing [1].

This paper outlines the purpose and context of production surface prepared papers, starting in the original surface, the stone, up to the transfer papers and its transformation into complex coated papers used to facilitate photomechanical printing.

The research outlines the recreation of handmade paper remaking coating formulas, combined with the artistic exploration of image transfer, as a basis for understanding creative thinking and its potential as drawing surface in the visual arts. In a contemporary art practice, hand making such papers, learning how to use reproductive printing techniques as to create and reproduce printed surfaces offers print practitioners a range of creative backgrounds and the opportunity to develop, challenge and extend their print and drawing practice. Even if manuals insist on the limitations of the alternative surfaces, such as the variety of work, constant constraints to the ways transfers or coated papers must be handled sought as a strong limit, coated papers, were a simple revolutionary invention whose effects are not only to confirm paper as printing intermediary surface as much as a matrix in itself.

### **Other lost stories to multiply the image: process papers**

In the nineteenth century, the relation between photography and printing for image reproduction brought new developments in the influence of technology to the final product-print. As part of these relations, the frontier between art world and manufactured printing got blurred through the new possibility of mass reproduction of images [2].

*Gillot paper*, a specially prepared thick paper, stands in use for its original texture for the drawing possibilities it provides, but also for the potential combination with photographic reproduction. Already in 1850, Firmin Gillot patented *gillotage or zincography*, a manual transfer process based in the use of a transfer paper and greasy lithographic transfer inks to reproduce original drawings onto zinc plates. It was conceived to be used as a non-photography transfer paper [3]. In late 1870 Charles Gillot (Firmin's son) developed a new drawing medium, firstly called *papier procédé* or *scraperboard* that allowed to effectively reproduce halftones making it possible to photographically transfer images into a relief block and, consequently, print [4]. In 1893 Paper *Gillot* was listed in seven types in *The Studio*: embossed or printed patterned with black lines or grains, to be used in a simplified procedure for the photomechanical reproduction of the image. Nowadays, drawing for print may be a rather limited use, for such surfaces features and improvements, extensive variations, may suggest not to be restrict such surfaces to his original application. In fact, if the reduced commercial products still available in the fine art market, namely scraperboard seems to have as only application illustration, it's the author's conviction that its full potential has not yet been explored and its current use in artistic creation stands for that fact. The refinements of the commercially prepared *Gillot* paper, one of the versions for this earlier non photographic paper used as to transfer original drawings, is just one echo of

the stone textured paper described in lithographic treatises since beginning of the nineteenth century. And it is not just a coincidence, it was invented by a lithographer. The many sources, where already Pennel, disappointed with the protectionist trade culture of lithographic printers, found “the most practical manual on the subject as yet appeared” are available as then, at the time of lithography revival at the turn of the nineteenth century, for recreation [5]. Still, knowledge and understanding is needed to undertake innovative research and creative practice in illustration, printmaking.

No overall study of the subject from an art technological recreation seems to have been attempted, mainly because such techniques are still to be identified as creative and not as reproductive. Still attached to this prejudice and the notion fine art print must involve a level of artistic involvement contradictory to solutions commonly adopted by commercial contexts: our revived interest in the making of lithography or in the use of a medium, is certainly not restricted to certain operations. [6].

More interesting finds are to be expected and the practice open to further experiments. As main ethics, we trust on basic manual equipment and consider an art practice where one may move in between drawing and print based outputs. Also, on the creative potential of image-making modes permeable to historical and material complexity, plastic wealth based on revised methods and basic protocols initially present in different kinds of printing contexts: artistic and commercial.

Drawing for reproduction and the so-called *process paper*; a prepared paper (scraperboard) created within a craftsmen culture where the means of image making need to be repurposed. Textures in scraperboards coatings as much as its purpose, can no longer be justified in its fitness for photo-mechanical reproduction. Comparative examination to what is available on the market today helps to unravel the loss of the visual complexities of a technique. As said, “Scraper board sketches almost invariably represent a maximum of effect with a minimum of work, and for this reason alone such an adaptable and simple medium should soon win its way into general favour” [7].

Surface prepared papers became rather complex and competent by the end of nineteenth century, with the continuing efforts to improve both the process papers, and its fitness for photographic reproduction [8].  
3. Based in different coating formulas and in the need to perform with efficiency for drawing for reproduction, a competitive market place and the needs of the trade, surface prepared papers were produced by different brands, promoted in articles and books for illustration, appeared in sample sheets in the end of technical books [8], and showed a remarkable variety (fig). For us, such products as earlier formulas included in lithography treatises describing coated papers, represent a past, stemming in rich possibilities of analogical manipulations, that may help to work our concepts of drawing, printmaking against rigidity, imitation, derivation, repetition and the single criteria of fidelity and efficiency. At the same time, we address attention to the material matrix of the different media

3 Scraper boards allow a direct reproduction : they are simple medium as a drawing done on such surface is composed of dot and line. As such, it can be copied for photo reproduction without further use of half-tone screens. Its fitness for process reproduction is described at the time as its major advantage.

involved in the process of actually making the coated surfaces, and how they may be worked through in illustration, printmaking, drawing.

Already just based on the few recordings found, samples and short descriptions, we are undoubtedly overwhelmed by the appearance of such papers, changing dramatically whether based in straight coatings embossed, printed. Careful examination of the nature of the lines, textures, observation of the illustrations describing how to use such surfaces in drawing for illustration, exhibits how remarkable and suggestive these products were. In nineteenth century, artists, illustrators, experimented with what seemed to be an accessible drawing surface and we question why such materials are no longer available in the market, besides some limited offers based in smooth scratchboard versions. Further reading shows, examples of its use, by artist such as Camille Pissarro [9], Seurat [10], Auguste Renoir [11], whom, at certain point tried in more or less successfully ways, to experiment with such surfaces, reinforce the interest. Evidence of their attitude and concerns, mixed sentiments and comments are given in articles where the former limitations such as the use of tools, reductive technique are intrinsic part of the work. As Pennel prevented on the subject of drawing for illustration in *The graphic art modern men modern methods*, one may use all methods available, being and careful in the making of such drawings as if for wood cutting. So crosshatching must be “open and all black”; it’s possible to use grained papers, as this breaks the lines and converts them to the photographic syntax, although it is not always possible to control its quality of printing. Best solution being the white board, smooth and Indian ink, contrary to the lined scraperboards, the so called “tinted ruled papers” which may be not only carefully thought out, but carefully worked out” [12]. But the fact remains, their eagerness to experiment with those surfaces. To some, commercially prepared *Gillot Papers*, punctuates a practice where print, drawing and photographic techniques as well as related effects merge into a materiality of a matrixial ground. As is often the case, it took time for a new technique potential and limitations to become truly understood. Just as transfer paper, invented by Alois Senefelder himself, both tend to be most frequently discussed in connection with nineteenth-century industrial printing.

## Drawing on stone

Along history, artists continue to prefer the time-honoured method of stone lithography, bavarian limestone, the original printing surface found in lithographic studios all over the world, a natural and a historical resource, although being a surface not all have access to. Due to its physical properties, homogeneity and porosity, limestone stone can be used as a drawing surface particularly suitable for lithographic purposes and surprisingly neutral for graphic reproduction. These properties, in conjunction with suitable inks and methods, provide an immersive potential. The main disadvantage to this process is the lack of convenience of the drawing surface: a superb surface where to draw, unfortunately a heavy surface to displace. Best stones also have the same origin: the quarries of Sonofolen, and some lithographic studios, such as FBAUP, as very limited

number of stones. In any case, artist who get accustomed to drawing on stone, find it hard to replace it. As over stated in treatises, by printmakers, no other surface fulfils the necessary conditions of lithographic drawing and printing so completely as bavarian stones.

Lithography in any case, as a mass- production printing process was redeemed as art later than the etching, and some of the methods used, reinforced the atmosphere of ambiguity surrounding its use as an art form. That is the case of transfer paper, the surface which may temporarily replace the stone, a workshop method, that made possible to pass the drawing directly to the printer. The artist, kept outside the lithographic shop, has no need to access the process and as such, convert it into an active element of his thinking.

### **Transfer papers**

Odilon Redon, claimed, ‘The stone is harsh, unpleasant, like a person who has whims and fits ... The future of lithography lies in the resources ... of paper, which transmits so perfectly to the stone the finest and moving inflections of the spirit. The stone will become passive.’<sup>24</sup>

Arguing in the opposite direction Humandel in the art of drawing on stone remarks, transfer paper being a useful application of lithography, drawing on this kind of prepared paper not being so “pleasant” as common paper [13].

There is a long list of variants on the making of transfer papers as much as descriptions on how and why to use. Most of these surfaces are smooth and flexible, at time transparent. This last reinforces how needs developed solutions. In a technical books introducing the craft, a particular paper, called diaphanic [14],- a thin paper coated to reinforce transparency- is indicated as a suitable for fac-simile: attached to a drawing device [15], subject can be traced; over an existing drawing, tracing can be easily done with key forms. It is also described, as a autograph transfer one understands, no special paper is used. A simple writing paper, drawn with the right ink can do the job [16]. Some of these papers were formulated as alternatives to the compact homogeneous limestone simulating the natural grain of the stone, sawn in quarries into slabs. Attending to the different descriptions, there is no interest to produce the mechanical features later to be incremented, as original fine art lithography sought to escape mechanical looks. Such kind of prepared surfaces recalled how transposition and migration between surfaces, with no need to convert to a photographic syntax as a necessary condition for reproduction.

### **Paper is the surface, stone the reference**

Stone or paper, the same unusual situation as far as printmaking is concerned: in lithography you see everything you do the whole time. As Pennel says, “ your drawing grows under your fingers just exactly as any other drawing , and you know it will print just as you drew it, and that is the reason why lithography felt into the hands of the commercial lithogra-

pher who wrapped it up in mystery because the technique is so simple, so direct, so easy that even he could practice it “[17].

The object of the grained paper is to permit drawings being made which shall have a graduated effect. The drawing is produced by just touching the tips of the grain with a crayon, or the necessary putting in heavy patches of deep shadow by coating or covering the whole superficial area of the coating of the paper raised in a grain....The grained paper must therefore be grained deeply, and must have sufficient body in the composition (coating), and strength in the paper, to prevent the whole mass becoming soft and flattened out at once upon the stone [18].

It’s a fact, whereas the merits of such surface may be founded in the properties of the stone, in its smoothness or grained structure, its avidity of water, efforts to replace the respecting the stone referent, are constant. From the very beginning, transfer papers, as later photomechanical processes, were a solution that made it easier to actually copy and transfer different kinds of drawing- pen, lithographic chalk, washes- and is closely associated with mechanical reproduction and commercial pictorialism. The illustration of books, previously dependant on wood engravings, could be converted into ink-printing matrices created out of paper transfers, as later photographic prints would repeat, preserving the appearances of originals. In this case, as process papers, an intermediate surface, help to preserve the neutrality of reproduction and avoid further steps such as the use of halftone screens.

### **The craft of scraperboard**

Past research conducted within FBAUP, produced a broad spectrum of transfer papers only and showed us the kind of papers substrates and their formulas of preparation more easily reproduced in such fine art [19]. Adjustable recipes also give to this paper specialized uses, as we were able to identified in a previous research project that helped us to reproduce the spectrum of transfer papers and their specific formulas of preparation. These included gum coated papers, and at least one version anticipating the refinement of *gillot* paper: paper where relief is produced by printing a rough grained lithographic stone.

This initial research showed lithographic transfer paper were developed to match peculiar necessities, and reports mentioned the importance for each printer to produce its own transfer paper. From simple solutions based in gum coated papers, more complex coating continued to be developed as to include papers where relief, colour, transparency or photo sensibility were introduced. Changes in the coatings which consists on gelatinous emulsion, gum solution, albumen can be printed, sensitised and developed, meaning, subject to several kinds of manipulation introduced in connection with its use as reproductive means [20].

A well handmade transfer paper involves a laborious process. The process starts with coating preparation, followed by its application on different layers on to the selected paper or cardboard. Once dried, detached from stretching board, the paper may be imprinted using intaglio or lithographic press, relief printing press. Once the paper dries, it is ready to be drawn.

Described in its essential, process papers were made from a piece of cardboard with hard wax and specially prepared chalk or barium oxide, that were embossed and sometimes printed with lines. The cardboard or hard paper, embossed with a grain pattern, lines, could then be spot painted or rolled with black Indian ink, as professional illustrators wish to create shades. Using blades and scrapers, further lines could be engraved. These drawings could then be easily photographed as to transfer these designs, in halftone dote and line, onto a metal plate and made into a line block for the printer. In an advertisement by *Essede*, one can still read the convenience of such drawing surfaces for the purpose of reproduction in printing. Whereas originally transfers papers and their updated refined versions, the scraperboards, were created by professional printers<sup>5</sup>, in commercial companies, such as gillot, angerer [21], reviewing this process effectively as to produce naturally halftoned drawings, depends on shortcuts and revision on the list of available materials and equipment in a printmaking studio. Our aim, reproduce surfaces that could be used for drawings or for print; whose efficiency in image transfer allowed the transferred image to gain patterns that in the past facilitated its photomechanical reproduction. Solutions found in the printmaking area must be based in the same studio “secrets” applied for developing transfer papers: impressing papers with coating, drying it, and passing the sheet though the press in contact with coarse grained stones, fabrics, grained or lined plates.

The study of preparation of surface prepared papers is the key piece for this research, as the coating or external sizing formulas, such as the one patented in 1850 by Firmin Gillot, needs to be studied if one wish to recreate such surfaces today.

## Tests and results

To create *gillot paper*, is required to use paper with grammage between 200 g/m<sup>2</sup> to 300 g/m<sup>2</sup> or cardboard. Consequently, is applied a preparatory layer - which uses a formula used in 1889 based on Paris plaster and corn starch - used to obtain a surface with, not just the possibility of drawing into and scratching, but also to transfer images into another surfaces. This waterproofing coat has its function as provisional stabilization of the pictorial material that constitutes the image, without letting it penetrate the fibers of the paper. In order to implement the image, oil-based drawing materials such as lithographic pencil, oil pastel or wax pencil, stamping ink or oil-based, paint may be used. To transfer the image successfully from the paper to the matrix, the transfer paper should be placed with the pictorial material facing downwards in contact with the matrix. There are two transfer methods: either by heat or by the combination of water and pressure. The back of the paper should be wet with warm water and a sponge. Pressure is then applied to this assembly through the printing press and the process of wetting the back and, again, using the press. Gradually, the pictorial matter is transferred from the paper to the matrix.

<sup>5</sup> Scraperboard or scratchboards are clay coated boards and are still distributed by companies such as British *Essede* brand scraperboard. They can be white or black only the smooth version continues to be commercially available.

This method is suitable for paper, stone, metal or wood arrays.

The tests were conducted based on preparation of transfer paper, related to scraper board, associated with different amount of coating layers and slightly different formulas aiming to evaluate the behavior of miscellaneous types of papers, and thickness of cardboards. Formula about cornstarch, Paris plaster, water and guma gutta or lithopone. In order to obtain surfaces permitting to regard drawing and scratching based on lines or grains embossed or printed onto, required several extensive coverage (coating). The preparation of the surfaces tended to obtain superstructure as capable of transport behaving as scraper board. Each layer of formula besmeared onto paper or cardboard is necessary to dry several times. When is perfectly dry, it allows to print at its discretion in a almost endless combination of texture and ink.

Prepared areas, as transport paper, perform better when its surface are slightly thinner than scraper board which, itself, requires a ticker surface. However, both give the possibility of constructing image prospects to transfer into any printmaking surfaces including glass and paper. Moreover, scraper board as a surface with pattern, has many varieties: it allows to produce unrivalled copy of photo reproduction, likewise adding crayon and scraper, lithographic pen and ink. Also, it provides a stipple and obtained dots which are truly brilliant for the process of drawing, image reconstruction and printing. The number of coating layers has impact into further treatment and possibilities of matrix. Less structured boards are harder to work with, especially to obtain expected scraper effects.

## Discussion

The reconstruction of *Gillot* paper is generating considerable interest in terms of further usage. Following the words of Donald E. Armstrong: “The experience of the creative work – the aesthetic object – is a visceral response to its material qualities.” [22]. This paper takes a new look into a material mostly forsaken and challenging properties that could transform the medium in artistic approach. The characteristics of the *Gillot* paper, as several other alternatives based in photomechanical reproduction, have not yet been dealt with in depth. Therefore as tangible results, this research was able to conduct tests which allowed the making of images, which brings multiple potential to execute drawings and prints.

Printmaking craft such as paper and ink preparation, choosing the right surface where to draw marks, contradicts such limited interpretation of the process as mere technical. Printmaking incorporates intricate and precise decisions resultant from an extension of the drawing process: old and new processes, surfaces can make their transition into the contemporary studio and this idea of transfer or crossing, disciplines, areas, techniques, historical moments, with diverse objects – industrial, reproductive, artistic- explains the potential of such an art practice. By involving students to understand the creative potential of image making modes, *Ground Lab a Pure Print* research group, proposes an extended understanding of printmaking. Manual and specimens books collect and help to promote in future activities.



During this research we developed drawing surfaces, as to expand the range of paper specimens available from print practitioners and creative people at large. Nevertheless, we are aware, without an understanding of the use of such reproductive processes, and its extensive variations, we may end to be restricted to particular application: such as scraperboard for illustration. Producing them respecting a process paper main function - its capacity to actually transfer the image into a photographic printable syntax- does not restrict such potential. Indeed, such surfaces open up a rich past where variations that attend the making of substrates for printed matter and their filiation to illustration techniques show how much more can be deliberately extended. The “quest for infinity of solutions, of accessibility and material engagement; process and craft; materiality and ephemerality, and the inescapable syntax of technology at a certain point developed as to anticipated the photomechanical solutions explains it’s origins on Printmaking.

Besides giving an overall view on the possibilities in use in the past, any research such as this, based in technological reconstitution, aims to introduce and review historical tools connected to lithography or simply reintroduce practices most common in commercial studios. A certain mystification of the making of lithography, and even a trade culture fueled by secretiveness, rendered in the past artists dependent on printers. Today, shortening of commercial products available on suppliers, may set limits. Printmakers and print practitioners practicing in xxi century do not have to be distant from process, or dependent of the market supplies: they can actually have full control of their final products, whether that may be a surface where to print from, where to print or simply draw on. For the making of surface prepared papers, the gods new is, it can actually be done with very limited resources.

**Fig 1. Graciela**

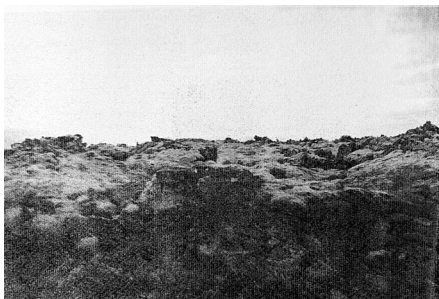
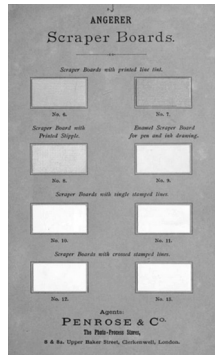
**Machado, Iceland,**

Gillot Paper with embossed grain and printed toner image, 2018, A4, Executed by Graciela Machado and Marta Belkot

**Fig 2. Graciela**

**Machado, Iceland,**

Gillot paper with embossed and printed lines and printed toner image, 2018, A4, Executed by Graciela Machado and Marta Belkot.



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