WARPED DESTRUCTION

A Collaboration between
a printer    Trish Belford
a weaver   Barbara Dass
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Forward

In response to the Carlow Arts festival call mapped against ‘new materials and technology, group production’ a collaboration between textile printer (Trish Belford) and weaver (Barbara Dass) was formed. We had previously talked about working together and this opportunity was timely, to bring together our own specialised knowledge whilst keeping at the forefront of our thoughts the words of 1920’s Textile Designer Minnie McLeish

‘we are so made that nothing but using hand and brain together, in some way or other enables us to grasp facts’

Weaving begins with yarns and a conception of their interaction in three dimensions, preparatory work is extensive and determines in large measures the final outcome. Printing starts with a fabric and takes it through a set of transformations, usually focusing on colour and pattern; it is very direct and interactive. To mix the two practices will be an interaction between long and methodical (weave) and quick and spontaneous (print) processes and thinking.

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Mo Morrow – Print Technician
Deborah Toner – Print separations

The Kavanagh Family for their kind hospitality, we felt privileged to have been allowed the opportunity to rummage through the archives and browse through notebooks.

Bobbie Smith, Lorum Old Rectory, Carlow.

Bibliography
Moorman, T (1975) Weaving as an Art Form A Personal Statement, USA, Schiffer Publishing Ltd.
DESIGN INSPIRATION

One of the suggested sources of inspiration was Borris Lace, a form of tape lace produced in the small town of Borris, County Carlow between 1846 and the 1960’s. When the industry closed, all unsold stock materials and records were packed away in the Borris House, fortunately for Borris Lace two Australian women (Marie Laurie and Annette Meldrum) became fascinated by the collection, spending time photographing, conserving and cataloguing the lace designs and associated artefacts. The Kavanagh family resides at Borris House and granted open permission to have the collection catalogued. On the 2nd March 2014 artists and makers involved in the Materialisation: Mapping the Making project were fortunate enough to visit Borris House and freely rummage through the suitcases, drawers, books and files. This trip was a pivotal part of the design inspiration for the project.

Key themes to emerge from the images were transparency, layering, voids and construction, paralleled by a study of colour. Agreement was reached early on that the work would be a series of recorded stage by stage trials and experiments evaluating which yarns would sacrifice themselves to destruction through a devoré burn out print process. Systematic assessment and discussion shaped each stage, initially beginning with a test blanket using only simple circles to form the basis of understanding the complex material changes as a result of weft and warp yarns clashing with two opposing print devoré recipes. Devoré was developed in C17th France as a means of creating a poor man’s lace and therefore an appropriate technique to look at new materials, inspired by the patterns of Borris Lace. Learning from the knowledge gained by printing circles, designs were drawn and screens printed inspired by the patterns of Borris lace.

The design of the woven final test blanket was informed by early experiments but only when the piece was printed the true and final result was exposed; some parts more successful than others. This was not about creating a final and finished piece but about the collaborative process of testing two opposing practices and evolving continual new work.

This project has presented an opportunity for unwrapping the vast knowledge gained in yarn construction and repacking this in new ways by exploitation of print and finishing processes.
THREADS USED

For Hems, Bars, and Loop Stitches

"L. C." Linen Lace Thread, Skeins
Gimp Linen Lace Thread, Spools or Skeins
"Falcon" Linen Lace Thread Spools or Skeins

Supplied in White, Grey, Natural, Ecru and Paris

For Flat or Satin Stitches

Linen Floss Skeins Sizes 1" to 7"
All sizes supplied in White
Colours in 3" and 7" only as per Knox Colour Card
Linen Floss White, Skeins Sizes 1" to 7"

SAMPLE LINEN

Samples of Numbers not included in this Envelope can be had on application

COMMUTING a piece of work, a sufficient quantity of the coloured materials required should be obtained, as shades may vary slightly from the envelope and sample.
The visit to Borris House in the small town of Borris, on the river Barrow in County Carlow presented a rich and untapped heritage to mine for the Materialisation: Mapping the Making project. An ancient leather suitcase was opened in the banquet hall revealing a wonderful array of extraordinary lace pieces. The textiles were laid out for perusal on the long white tables bathed in the low spring light pouring in from the gentle Carlow landscape. Tablecloths, pillow covers, hand towels, handkerchiefs and doilies gradually seemed to occupy the space; like ancestors returning to declare the wisdom and beauty of times past. Faded linen cloth in hues of blue and green; silks in washed-out lavender and the myriad shades of once-white lace: faded with hints of grey, ochre, rust and lichen.

Further rummaging in the depths of the case revealed other remarkable artefacts relating to the sourcing of materials, purchasing records, design instructions and suppliers’ catalogues. Crumpled brown stationary, blue folders filled with cotton and silk threads, letters and postcards. Well-worn envelopes adorned with faded postmarks, a tattered stamp suggesting the vibrancy of its original rose-red colour and a jagged rip recording it’s impatient opening.

A mahogany cabinet drawer in the family room revealed more wonders – a portfolio of design work with the spontaneous marks of a designer’s intuitive artwork, a ledger with everyday entries in exquisite script and images of Borris family members who championed the lace making.

A rich and living narrative emerged from the drawers and suitcase, visual narratives of a place and community, of creative skilled makers and entrepreneurs endeavouring to create and sustain a successful business for the community at Borris. The muted but rich colours captured the essence of the past, echoes of its vibrancy and vitality, the utility of its business operations and the creativity of the makers and producers.

The colour encountered in the Borris House became the catalyst for the colour palette of the project. The names of the contemporary colours of the cotton warp capture the essence of the Borris story...linen...mushroom...terracotta...oyster... powder blue...lavender...grape... lichen. The names of the wool and silk weft colours resonated the ancient earthy Carlow landscape... vole...elk...fawn...sage... pebble... moss...coral...sky blue...berry...leaf...olive.
PRINT PROCESS
The definition of a textile screen print process (as opposed to digital) would be through the application of colour onto a fabric, whereby the surface of the material is altered, this is usually perceived as being a purely visual alteration via pattern and colour. Design is the first source of inspiration; each colour (screen) is separated and engraved on individual screens. Once printed together each individual screen forms the complete pattern. In the context of this project initially circles were used to inform both printer and weaver a clear and consistent visual reference as to how the yarns were reacting to the two print devoré recipes. Devoré literally means to devour or eat away, the intention being to use a hand screen-printing method to remove or destroy selected warps and wefts. Each screen was initiated by painting the selected and separated shapes onto tracing paper using a photo opaque paint; this method is the original way screen separations were made. Current methods would use some form of computer aided design tool. Hand painting was specifically chosen to prepare the design separations in response to the hand drawn line effect of the original design work found in the Borris House collection. This hand-driven method is a cathartic but time consuming process allowing space to imagine what the final outcome would be. Printing trials were carried out in parallel with the weaving of the cloth. Occasional visits to the loom increased the sense of intrigue as the structured warps looked beautiful in their own right; the notion of the impending destruction of the cloth was somewhat daunting.

WEAVE PROCESS
The loom used in the project was a four-harness treadle loom with a single beam. The shaft threading sequence (draft) was fairly straightforward; shafts 1 and 2 control the warp for the ground cloth and shafts 3 and 4 the binding warp. There was a single binding warp end for every two ground warp ends. The ground cloth warp was composed of 2/16s-mercerised cotton and the binding warp 0.25mm monofilament fishing line. Mercerised cotton, bourette silk, lambs wool, Shetland wool and felting wool were used in the weft of both the ground cloth and the inlay. As the loom only had a single beam weighted rods were used at the back of the loom to help maintain tension in the binding warp (monofilament). An 18s reed was used (18 dents per inch) with 3 ends per dent (2 mercerised cotton and 1 monofilament). Whilst the Theo Moorman technique was originally developed to give the weaver a more effective way to weave expressively on the loom it has other key qualities that are relevant for the project. The combination of the ground weave and the inlay can be thought of a form of double or bonded cloth with two distinct basic layers. The inlay layers can be built up further into multiple bonded layers on the surfaces of the ground weave. The strong binding warp provides a stable but invisible core to the whole cloth thus allowing the weaver the capacity to significantly manipulate both ground and face cloths. This type of fabric, although not normally used for Devoré, provides interesting face and back surfaces composed of combinations of weft yarns with different ‘burn-off’ properties.
Images of lace placed in front of the sash windows in the Borris House exposed the intricate details of its structural composition and inspired connections to analogous textiles. Viewing the lace in this way revealed structural dimensions and densities that would otherwise have remained hidden. There are numerous textile fabrication processes that play with the elements of light and density.

In weave there are several woven techniques that create open lace-like fabrics such as, huck lace, leno, Spanish medallions, crammed and spaced warps to name a few. In weave the openness is usually created by a combination of yarn thickness, the number of warp ends per inch and techniques that distort warp ends and allow successive displaced interlacements to occur. Different densities of woven textiles can be created with a variety of weave processes, structures such as double cloths, satin and sateen, the interplay of yarns with varying degrees of opacity and the application of inlay techniques, in particular, the Theo Moorman technique.

In printed textiles lace-like fabrics can be created using the Devoré technique where a Devoré paste is applied to mixed fibre fabrics. A cellulose devorant burns off plant fibres such as cotton and linen. A protein devorant is used to burn off animal fibres such as wool and silk. The paste can be applied by hand or through the screen-printing processes thus creating a decorative pattern that is semi-transparent.

Inspired by the qualities of the lace experienced in the soft but illuminating light that poured into the banquet hall of the Borris House a conversation began between the printer (Trish) and the weaver (Barbara). These initial musings matured into what became the essence of the collaboration between printer and weaver, the tension between beauty and stability on the one hand and ruin and fragility on the other. The weaver and the printer (arachnid and alchemist) tentatively collaborated weaving beautiful fabrics and planning their destruction. The focus for the Materialisation Mapping the Making project defined by experimentation with hybrid fabrication processes (Devoré and the Theo Moorman technique) would be to explore the multifaceted materiality of the Borris lace collection.
Cellulose Devoré – recipe 1 (Burns away Cotton / Linen)
500gm Indalca Pa3R thickener @ 10%
20gm Glycerine
250gm Aluminum Sulphate A12(SO4)3
200gm H2O

Cellulose Devoré – recipe 2
500gm Indalca RA3R thickener@10%
20gm Glycerine
300gm Aluminium Sulphate A12(SO4)3
250gm H2O

Protein Devoré – recipe 1 (Burns away Silk/Wool)
500gm H2O
50gm Solvotose thickener mixed into H2O
50gm Sodium Hydroxide (Caustic Soda) NaOH
50gm H2O

Protein Devoré
500gm H2O
50gm Solvotose thickener mixed into H2O
100gm Sodium Hydroxide (Caustic Soda) NaOH
150gm H2O
CHEMISTRY - Devoré
‘the study of the composition, structure, properties and change of matter’

There are two ways of printing a devoré process – one is to erode the cellulose fiber (cotton, linen) and the second one is to erode the protein fibre (silk, wool). The printing method for both is the same but the after processing method is different. Cellulose devoré requiring hot dry heat (baking) to destroy the fibres and the protein devoré requiring hot, wet heat (steam). The challenge in this body of work is to combine both recipes in the one process, this required many trials varying strength, penetration (number of squeegee passes) heat and time. Therefore the analysis of what is successful and what does not work is as significant as success. A devoré process is only possible with blended fabrics such as silk blended with cotton, and it is with this knowledge in mind that layers of mixed fibers in the cloth’s warps, ground and inlay wefts were developed in the warp and weft constructions. A recipe containing Aluminium Sulphate is mixed with a print gum carrier and printed in selected areas on the woven fabric dissolving away the cellulose viscose yarns, and leaving behind the silk fibers, creating a “burnout” pattern. The chemical does not affect the protein fibers. In the case of removing the silk or wool fibers a print paste is made up of Sodium Hydroxide and printed in the same manner, this removing the silk or wool fibers. Many trials were processed to establish the correct level of penetration; the number of squeegee passes controls this.

CONSTRUCTION – Theo Moorman

A British weaver developed the weave technique used in the project during the 1940s. The Theo Moorman technique of weaving bears her name and was first described in detail in 1975 in Moorman’s book “Weaving as an Art Form - A Personal Statement”. The challenge that prompted Moorman to develop this technique was her aspiration ‘to express an artistic concept in terms of weaving’. Traditionally tapestry would have been used to achieve more expressive free forms and patterns in weave, however tapestry construction techniques are labour intensive and time consuming. The technique Moorman developed involved inlaying weft yarns on the surface of a stable ground cloth of plain weave. The inlaid weft yarns are bound down to the ground cloth by an additional ultra fine warp yarn. The ‘binding’ yarns are very fine, almost invisible, and extremely strong and able to withstand the strains of the weaving and inlay process. A key feature of this technique is that the ground cloth is be made up of wefts running from selvedge to selvedge; this ground weft always lies at the back of the inlaid yarns regardless of how many layers of weft inlay are added in single pick. The ground cloth essentially acts as a form of constructed canvas and the fine binding yarns as stabilizing agents allowing the yarn to be applied to the surface of the emerging cloth. The transforming feature of this technique is that the ground weft disappears behind the inlay threads thus allowing the build up of solid areas of colour. The finer the sett (warp ends per inch) in the ground cloth the more definition and clarity in the edges of shapes and in the sophistication in the layers of shapes and intensity of colours.
PRINT DESIGN

Borris Lace as a design influence was inspirational and challenging. One of the key challenges was not to merely mimic a lace pattern but to utilize the voids and structures, or in the language of Borris lace the bars and nets. This configuration was a good vehicle for the challenge, to print a warp and weft devoré on the same cloth within the same process. Thus leaving both horizontal and vertical threads working together to form a new pattern etched out by the print process but defined by the weave structures and yarn selection. Shapes and designs were analysed and reflecting on the results and findings from the circles experiment four motifs were selected to be developed for silk screens. It was important to try and keep the design simple, and following on from the circle inspiration have curved lines, open spaces, voids and solids having equal emphasis from a design and print perspective. A large body of photographs documenting the visit to Borris House on the 2nd March provided a rich source of visual data. The following designs were selected and which are all noted specifically in Laurie and Meldrum’s book ‘The Borris Lace Collection’:

Catalogue entry No 3: Small circular doily, spoked design displays the use of both bars and net within the one piece, p43.
Project 1: Round Shamrock coaster – This beginner sampler using all Borris techniques, p53.
Project 2: Square Shamrock pincushion, p59.
Catalogue item No 1: Square trademark doily, buttonholed center; shamrock; spoked, p72.

For the purposes of definition an outline was drawn around the shapes, this was printed in a pewter foil process, and ‘held together’ some of the elements that may have otherwise been lost in the printed destruction. The final piece of work is not intended as a finished article more an exploration into the never ending variety of effects that can be achieved by altering warp and yarn construction in conjunction with design and print.
A different back silk colour in m. cotton:
1. m. cotton inlay
2. m. cotton inlay

nylon warp

nylon invisible

Interesting - great warp capture in 0

Gathered at top - bottom

Purple/yellow stood - wet

Blue island in leaved - silk warp

Silk purple - grey wool
WEAVE DESIGN

Designing for woven fabrics has four key elements that interplay with each other shaping, to varying degrees, the fabricated outcome. These elements are:

- The fibre content and twist of the yarns
- The structural composition
- The colour values of warp and weft yarns
- The finishing process

Traditionally in weave design a ‘colour blanket’ is woven to test combinations of warp and weft colour with variations of the basic weave structures of twill and tabby. This test blanket generates samples that form the design content for the compilation of a design collection.

The Theo Moorman inlay technique presents the weaver with the capacity to build up layers of weft inlay thus creating subtle changes in the density of the colour. The stability of the ground cloth and invisible binding yarns allows the creation of free flowing forms on the surface of the fabric. Designing for this technique requires the weaver to plan the build up of colour and form weft pick by weft pick. This is normally mapped out on grid paper. The design of the warp for the ground cloth in blocks of colour simulated the traditional sample colour blanket.

Devoré and weave design
The combination of yarn fibres in the warp and weft of the ground cloth and in the inlay is a crucial element in weaving for the Devoré process. The creative conversation between the weaver and the printer focuses on the chemistry (recipes), the number of passes (times the paste is ‘passed’ over the design on the screen), the fibre properties of the warp and weft yarns in the layers of cloth and density of inlay fibres present on the surface of the cloth.
The shared response of printer and weaver to the Materialization: Mapping the Making project generated an immense array of scientific, structural and aesthetic data that immediately prompted the mapping of new pathways of enquiry. There had been three test warps woven and devoréd during the preliminary three months of the project. The exhibition in the Carlow Arts Festival has allowed the cloth to ‘rest’, exposing the work (process and outcome) to fresh eyes and minds, provoking responses and criticism. Meanwhile the minds of the weaver and the printer are contesting the outcomes, eager to continue down paths less well trod or possibly never encountered before.

The first warp (Test Warp 1) brought the architecture of the cloth and the chemistry of the printing together in a very elemental manner. A neutral cotton warp with a rather unruly monofilament yarn combined with a range of different weft inlay fibers. Chenille, bouclé, silk, wool, metal, linen, wool, acrylic, viscose and various other fibers were tested in different densities. The devoré pastes were applied by a brush and rubbed into the cloth by hand. The first tests of a combined finishing process allowed both devoré recipes to react. The aesthetic of the resulting repeating ‘circle’ pattern seem to embed in the minds of both weaver and printer; for the former it suggested the regularity of a plaid cloth and for the latter a coherent shape to further test and evaluate the effectiveness of the recipes on the cloth.

The second warp (Test Warp 2) produced a plaid ground cloth in strong contrasting colours. This warp was woven before the Borris visit so the colour choice was influenced by the need to create a strong visual grid. The wefts selected were based on the results of Test Warp 1. All possibly combinations of protein (silk and wool) fibers and cellulose (cotton and linen) fibers were generated in varying densities in the cloth. Neutral and black weft wool and silk inlay yarns were mostly used on the surface. Screens were prepared with various sizes of circle motifs. Whilst the plaid cloth existed in the ground cloth it appeared and disappeared in rhythm with the densities of the inlay. This had the effect of the printed circles misaligning to various degrees with the plaid. Silver foiling and gum were used to delineate circle edges. The resulting devoréd cloth provided a range of interesting results. Some areas were completely burnt-off leaving only the monofilament (which is impervious to both devoré pastes) in tact; in other areas the chemicals had removed the inlay layer only leaving the ground plaid cloth exposed. Some of the colours remained constant whilst other colours changed. Where cellulose devoré was used in cloth with no inlay the remaining monofilament captured the weft of the ground cloth, this was particularly beautiful when a change between bourette silk and fine felting wool occurred in the weft sequence. Test Warp 2 generated many more wonderful effects to critique.
The third warp (Test Warp 3) reflected the colours of the Borris visit both in the plaid ground cloth and the inlay colours. Muted, earthy and faded the cloth produced was in response to the results of the previous two warps. In addition the inlay was not applied simply in horizontal bands as in Test Warps 1 and 2 but were initially introduced in square blocks that overlaid each other thus producing more interesting densities of yarn. This produced what appeared initially as a very dense heavy cloth but one that had greater capacity to be burnt off in varying degrees of destruction.

The screens prepared were in response to the beautiful motifs of Borris lace. The constancy of the plaid cloth was retained, the experimental nature of the printing process departed from the rigidity and predictability of the circles and played with the symmetry of the motifs and the asymmetrical placement on the whole cloth. The results were stunning. Revealing yet more intrigues of architecture and chemistry to ponder and explore.