Project

Documentation of the Reviving the William Liddell Damask Design's project research and resolution
The Project themed book focuses on detailing the scope and content of the Reviving the William Liddell Damask Collection project. The different perspectives and approaches of Professor Barbara Dass and Senior Research Fellow Trish Belford are documented using images from their research journals, sketchbooks and distinctive workshop practices. The contextual influences of each new work are explained with reference to material and technical challenges.
The Project

The Heritage Lottery funded project ‘Reviving William Liddell’s Damask Designs’, concerns a unique collection of 1600 photographic glass plates discovered in 2007 during the dismantling of the Dart-Liddell factory at Donacloney, County Down. The photographs document the design and production of new work for the exhibition. The research is disseminated through the ‘Recall: Shuttles and Shafts’ exhibition, Lisburn Museum, September-October, 2010, and a series of public lectures given at several venues across the province. Belford and Dass have also partnered with local community groups and the Lisburn Museum to run workshops that encourage participants to respond to the archive using simple weaving techniques. A key aspect of the project is the exhibiting of new contemporary textile work designed and developed by Dass and Belford in response to the Liddell Damask collection.

The complete collection of digitised photographic plates has been arranged into four key classifications: logistics (shipping, trains and air lines), hospitality (cafés, restaurants and hotels), organisations (clubs, societies and institutions) and domestic patterns (with sub-themes of florals, rural scenes, geometric, Celtic, neo-classical and constructivist). The project team have collaborated with graphic designer Paul Kelly to design the exhibition space and website for the archive.

Professor Barbara Dass

Professor Barbara Dass lectures in the Bellelt School of Art and Design, Ulster University. Her subjects include design studies, textile design, relationships between science and art and design, with a specialised expertise in crystallography and woven interlaced structures. Professor Dass’ most recent research has focused on investigating, and responding to Irish textile heritage. The ‘Worked Destruction’ project is one such example when a collaboration with textile printer Trish Belford was formed to respond to a collection of Berte law held by the Kavanagh family at Berta House, County Carlow. The final piece was exhibited in the ‘Materialisation: Mapping the Making archive’, Carlow Arts Centre, 2014.

Professor Dass has also conducted educational research in the field of creativity and resilience (sustainable development) and was awarded a national Teaching Scholarship for a project entitled ‘TRANSITIONS’, which funded a cross-disciplinary symposium on Rathlin Island, Communication in the Age of Wind: Exploring the path of natural energy, Autumn 2010.

Currently Dass and Belford are collaborating on ‘Reviving William Liddell’s Damask Designs’, funded by Heritage Lottery Fund. The exhibition held in Lisburn Museum, Autumn 2018, presents the initial findings of investigations into the archive, which holds an extensive collection of photographic glass plates of Damask design work from the Donacloney factory, County Down during 1900s to 1970s.

Trish Belford

Senior Research Fellow Trish Belford lectures and is an active researcher at the Bellelt School of Art, Ulster University. Her main areas of expertise are working in a wide range of collaborative projects spanning architecture, science, fashion and archives, subverting textile technologies for new uses and diverse audiences. Belford began her career originating Belford Prints Ltd in 1986, developing new print techniques for the UK fashion industry. Vanessa Westwood, Zandra Rhodes, Jasper Conran and Helen Storey. In 1998 Belford was awarded an Honorary Fellowship at The Royal College of Art for contributions to the Textile Industry. Relocating back to Northern Ireland in 2009, Belford formed a collaborative partnership with Ruth Morrow, Professor of Architecture, to create new surfaces combining textiles and concrete, this resulted in three patents and several international commissions under the umbrella of Tactility Factory Ltd. This collaboration is strengthened by a current AHRC follow on funded grant to develop new Linen Lace textiles working with Myers Textiles, Scotland and Queen’s University Belfast.

Belford has previously conducted archive translation work through a Leverhulme grant in collaboration with Dr Philip Sykas, Manchester Metropolitan University, resulting in a publication in 2013 ‘The Beauty of Expertise’ investigating the shadow tissue prints from restored Lancashire based textile company Tunstall Design Ltd.

This new body of work ‘Reviving the William Liddell Damask plates’ with Professor Barbara Dass follows on from a previous collaboration responding to a collection of Berte Law, exhibited in the Materialisation: Mapping the Making exhibition, Carlow Arts Centre, 2014.

This Heritage Lottery funded project has not only enabled the cleaning, preservation of a rich part of our heritage but has also been a rich source of visual information to facilitate this collaboration between a printer and a weaver in order to generate a new body of work.
The Company

William Liddell set up William Liddell & Company in 1866. At that time Belfast was the largest linen-producing centre in the world, a position held until the beginning of the First World War. William Liddell & Co was especially prosperous driven by industrialisation and the factory’s perfect position on the River Lagan, providing export routes to the rest of the world. By the beginning of the 20th century the company had offices as far afield as Belfast, London, Melbourne, Toronto, Christchurch New Zealand, Buenos Aires, Rio De Janeiro and Capetown, South Africa. In 1908 the company took part in the British-France Exhibition and won the prestigious gold medal for bringing linen from field to home. During the 20th century William Liddell & Company was the preferred linen supplier of bed linen, table linen and bath linen to the Oceanic Steam Navigation Company, owners of the White Star Line. The company won the order for providing linen ware for the Titanic. After the Second World War the linen industry started to decline rapidly as the demand for cotton and easy-care fabrics increased. By 1964 one third of Northern Ireland’s mills had closed. In 1973 William Ewart & Sons and William Liddell & Co merged to become Ewart Liddell and were acquired as part of the Coats Viyella Group. In the 1980s, Ewart Liddell underwent a major modernisation programme. During the 1980s and 1990s the company’s luxury linen products could be found in stores such as Harrods, House of Fraser, Marks & Spencer and Bloomingdales in the US. The company’s international clientele continued to expand in the sales of linen tableware to airlines, including British Airways, Qantas, Continental Airlines and Air New Zealand. Hospitality clients included Raffles Hotel, Singapore, The Mandarin Hotel, Hong Kong, and the Ritz Hotel, London.

At the turn of the century Coats Viyella put Ewart Liddell up for sale. Irish fashion linen supplier Baird McNutt bought the company renaming the company Liddell Limited. In 2004 the company was acquired by Hilden Manufacturing Ltd. In 2008 Vision Support Services acquired Hilden and Liddell. The Ewart Liddell factory no longer exists however the rich design heritage of Damask linen design has been preserved in the photographic glass plates archive currently housed in the Belfast School of Art, Ulster University.
The Archive

The William Liddell Collection is an archive of 1500 photographic glass plates that were discovered during the dismantling of the Ewart-Liddell weaving factory in Donacloney, County Down, Northern Ireland in 2007. On first viewing the faint monochromatic images on the glass plates look like ghosts from bygone days of refined domesticity (Figure 1-5). However, it became clear that these tracings of linen splendour are but a hint of the unique and extensive records of an era of craftsmanship in both the design and production of Irish linen hidden within the William Liddell Collection. The discovery of the photographic plates has provided a rare opportunity to uncover and celebrate the often-understated artistic, design and technical skills of the generations of individuals working in the design offices of the textile industries in Ireland.

The photographic plate preceded film and was used to capture images on a light-sensitive emulsion of silver salts that coated the glass plate. The use of glass plates for photography declined after the 1910s yet this method of photography appears to have been used to record design work produced in the Liddell design office throughout seven decades of the twentieth century. The earliest recorded date of 1919 can be found on an image of a design for the Hans Crescent Hotel (Figure 6). The latest date recorded is 1972 on a design for South African Railways (Figure 7). This documentary practice appears to have effectively ceased after the William Liddell Company’s merger with the William Ewart Company in 1973 to form Ewart Liddell. It is extraordinary that this form of photographic record was kept and perhaps more astonishing that the observation of everyday affairs of a textile manufacturing design office were the subjects of such an extensive and persistent documentary Endeavour.

FIGURE 1 — Point paper design, corner and border.

FIGURE 3 — Point paper design, corner and border.

FIGURE 4 — Point paper design, corner and border.

FIGURE 5 — Proof cloth, corner, border and centrepiece.

FIGURE 2 — Point paper design, corner and border.

FIGURE 6 — Hans Crescent Hotel, dated “1919”.

FIGURE 7 — South Africa Rail Dated “1972”.

HANS CRESCENT HOTEL
1919
The photographic glass plates were stored in the original Kodak and Ilford cardboard boxes (Figure 8) and were in an extremely fragile condition. The deteriorating residual chemicals on the plates had produced brownish-bluish tinges sometimes damaging the images (Hilton Around the World (Figure 9). The glass itself was in very poor condition with sharp and often chipped edges making the manual handling and viewing of the plates extremely precarious. However through a painstaking process of digitally scanning each plate the content of the archive has become accessible for closer scrutiny for the first time in over 50 years. In their digital form the plates reveal an astounding detailed and unique record of the working methods of the talented and highly skilled individuals who worked in the design office of the Liddell factory.

The William Liddell Collection contains designs and sketches produced for a worldwide clientele from the transport and hospitality industries, clubs, societies, universities, hospitals and government organisations, not to mention the extensive designs of linen ware for the domestic market. The archive documents customer exchanges and design responses to orders with the Liddell Company spanning seven decades of the Twentieth century. Customers purchasing Liddell’s Irish linen were located across the world, including: North and South America, Africa, Europe, Asia, Australia, the Caribbean islands, New Zealand and Singapore.

The archive provides not only a rich and extensive collection of patterns but also the paperwork generated for all stages of design development through to technical instructions for manufacture. The beginning of the process can be described as the design brief and was frequently captured on scraps of letter headed paper, envelopes or business cards with the companies logo and hand written instructions concerning changes, placement or measurements (Figures 10-14).
The quality of the Damask linen cloth produced by William Liddell Company was world-renowned. The focus of our admiration is often drawn to the cloth itself, its crisp and luxurious feel, the light-scraping designs and the nostalgic recall of the past pomp and glory of the industry. The William Liddell Collection project seeks to uncover the quiet, diligent and patient work of artistic endeavours, to celebrate and wonder at the talent and dedication of the individuals who laboured long hours with their sharpened pencils and fine bristled paint brushes to produce the amazing body of artwork captured in the collection. The scripts and scribbles, brush strokes and rubbings, guiding lines and markers connect us personally to the individuals of the William Liddell design office. The more we allow our eye to be drawn to the traces and traits of their working practices the deeper our appreciation grows of the creative and artistic heritage of the Irish Damask linen industry.
Design Traces

William Liddell Collection’s Design Traces

The photographic plates document various stages in the design-weave production process all of which are essential to understanding the decisions, which needed to be made by designers and technicians in the design-production process. These have been documented in the folio book collection. In summary these are:

- The client’s brief often captured on a scrap of paper such as a coaster, envelop, business card or letter headed paper (Figure 22).
- The artist’s sketch could be in the form of a rough pencil outline or a more carefully painted drawing (Figure 23).
- The development sketch provides an accurately drafted pattern usually painted on graph paper with evidence of trial and error (Figure 24).
- The repeat layout provides a motif as an all over repeating pattern in one of the standard textile repeat configurations: brick, block or half-drop (Figure 25).
- The point paper design always meticulously and accurately painted. Several sheets of the blue graph paper would often be attached together to accommodate the full design. Each individual square would be either painted in red ink or left blank indicating whether or not the warp end would be raised or lowered, essentially the binary code of the cloth (Figure 26).
- The proof cloth was woven as a test piece on an unbleached linen warp with a red linen weft. The cloth would be used to identify mistakes in the design or the card cutting process before going to full production (Figure 27).

The information recorded about weave structural configurations on the point paper designs and the testing of these designs in the proof cloths provided the inspiration and material for the development of new work.
The Weaver’s Eye

BARBARA DASS

Irish linen conjures up crisp white cloth with subtle patterns of chrysanthemums, shamrocks, pansies or other well-known flora. The light catching and reflecting the fibre’s brilliance in the changing directions of warp and the weft yarns reveals the design. Subtle patterns materialise as you change your orientation; shading, lines, textures and details emerging from the surface of the cloth.

At its most basic level Damask linen cloth is composed of a series of interlacing and there are two potential interlacing types: a warp end over a weft pick; or a weft pick over a warp end [Figure 29]. The interlacing is represented on graph paper or point paper by filling the square (warp over weft) or leaving the square empty (weft over warp). Every row of the point paper design represents a weft pick and is essentially a two-symbol system or binary code [Figure 30]. Translated into the controlling instructions for a Jacquard loom it takes the form of a punched card. Each card represents a weft pick and is laced together with all weft permutations required to complete the pattern [Figure 31].

The individual interlacing is barely visible to the naked eye in fine Damask linen, but it is here, at the binary code of the cloth, that the story begins in the formation of new perspectives on this unique heritage. One of the key aims in the development of this work in response to the archive is to uncover this micro-way of seeing the cloth, not primarily as a floral design or a crisp napkin square but, rather as an intricate set of binary codes replicating, incrementally changing, evolving, reversing and regenerating [Figure 32].

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Sculpting the Linen
Plate 1-01-016

The most common structures used in Damask linen design are variations on twills and satins; incremental changes in the proportion of warp to weft in the structure allow subtle gradations and tonal changes to occur. However a small number of plates in the archive record designs that were most likely developed for Damask brocade, fabrics often produced for furnishings. A single plate was selected as a catalyst for analysis and development (Plate 1-01-016). This particular plate was chosen because of its detailed point paper design that records over 26 different single weave structures and also significant areas of transitional weave where incremental change is used to create free-flowing forms, shading and depth.

The research process began by creating a coded grid on the design to allow for the systematic structural analysis. Individual squares were enlarged and reproduced allowing the identification of each weave structure as it occurred in the design. Areas of ‘asymmetric’ incremental structural change were also identified. The weave structures used in the William Liddell Collection have been commonly used in the design of Damask linen and Damask brocades. Falcot’s 19th century Treatise in Weaving with over 2000 designs, published in 1852, demonstrates the already long established rich and often complex structures that were used in weaving figured cloths.

The weave designer’s skill is in the juxtaposition of these structures and the mapping of the transitional areas to create form while maintaining structural integrity. Plate 1-01-016 demonstrates a sophisticated level of craftsmanship in the structural notation of its design.

Proof cloths are beautiful industrial artefacts in their own right. Although the photographic plates are in black and white, one can imagine the deep red weft contrasting with the unbleached linen warp illuminating the Damask design. There are several photographs of the actual proof cloths in the archive; one of particular interest is the image of the complete proof cloth for a tablecloth design for the White Star Line prior to merger with Cunard in 1934. Many stunning proof cloths from Irish linen producing companies are preserved in the textile collections at the Public Record Office Northern Ireland (ProNI), Ulster Folk and Transport Museum, Cultra and Lisburn Museum. They capture a beautiful stage in the design manufacture process, unfamiliar to most yet they reveal much about the essence of the cloth itself.

Another strand of enquiry took me to the Belfast School of Art and Design’s library’s fascinating collection of 19th and early 20th century large format folio books that were used by Design Schools and architectural practices as visual references for styles, architectural practices as the key source for styling and design and also by companies as pattern books for clients. A wonderful example of one of these books is the J.S. Brown Damask Manufacturer, Belfast, folio book, which provides a comprehensive list of pattern specifications and descriptions for napkins and tablecloths and a full visual directory (known as). Many of the floral patterns of the J.S. Brown collection resonate with the Liddell designs. The inspirational folio books of the late 19th century, the structural information from Plate 1-01-016 and the woven form of the proof cloth were the key research components that informed the development of the new works whose core aim is to reveal the underlying DNA of the linen cloth and to communicate findings to local communities involved in their design and production.
New Work

Sculpting the Cloth

Liddell’s Compendium of Weaves

The proof cloth sampler piece responds to the tonal and textural effects of both sides of the cloth. There are twenty four different structures with both face and reverse sides of the cloth visible. Unbleached linen was carefully dyed a strong proton red, wound onto a pirn and placed in the shuttle for hand weaving (Figures 41.1–41.2). Unbleached linen warps and the hand dyed red linen weft were used to reproduce both Falcot’s and Liddell’s structures in a sampler piece (Figure 45). The face and reverse sides of the cloth show the contrast in tone and texture that can be achieved by using both manifestations on the design (Figures 41.1–41.2). The single piece of cloth was then cut into 6” and 3” squares. The squares are arranged to reflect subtle tonal changes that are achieved by changes in the proportion of weft to warp on the face of the cloth (Figure 46).
The Code of the Cloth – the Primal Weave

Interesting areas of structural transition were identified in Plate 1-01-016 [Figure 44]. These segments of interlacing captured changes in the juxtaposition of contrasting structures and the formation of curving lines in the design. The monochromatic paper weaves bring to life minute sections of four segments of Plate 1-01-016, thus exposing its most basic or primal state - a binary sequence of interlacing [Figures 45.1–45.2]. The monochromatic paper interlaced work exposes the binary code of a small segment of Plate 1-01-016’s design in its most primal state. Interesting transitional elements of the structural configuration were identified and woven in off-white warp and black weft. [Figure 46]
The William Liddell Collection is a treasure trove of visual history; however I have not approached this work as an historian, but as a printer and pattern maker, interested in rhythm, repeat and design. My hands softly gloved, carefully and repeatedly sifted through the plates, holding them up to the light in order to make a selection of plates to begin the process of deconstruction and re-thinking the designs to take on my mark, considering the multiple possibilities for print development utilizing knowledge of technique and pattern to create a new palette inspired by this remarkable archive.

In the beginning, I was looking at the plates simply as beautiful objects in their own right, but by initially selecting various plates that worked as pattern, with closer investigation I began to look at the repeat possibilities keeping in balance the flow and rhythm of the original design. I can imagine the sketch books and drawings that may have preceded the final designs. A selection of the plates revealed beautifully drawn lines marks and textures to build up a repeat pattern. Once I began to cast my eye across patterns with repeat prospects I considered the wide range of designers that would have worked in the studio. The patterns range from the floral, classic, art deco, contemporary, and whimsical to simple motif arrangements.

It should be noted that the majority of the designs were created as Damask weaves with structure being a main consideration, through my printer’s eye I was interested in the patterns from the perspective of print and painted textures. There was one plate in particular that stood out as possibly a print design in its origination, as it revealed the hand drawn lines of a sketched development, the repeat in the design was less regimented, with a greater sense of freedom (figure 47).

Working with a weaver made me realise their focus is primarily on the structures and the yarn development, in essence the heart of the fabric. A weaver generally thinks and works within a 3D space, this dovetails well with the methods of a printer who work on a 2D plane, creating pattern on pre-formed woven surfaces. Knowledge of print techniques allowed me to choose how best to respond to the designs in relation to the weave and printed samples. These choices were informed by traditional printing methods in conjunction with digital processes, the common link was that the weaver and printer both worked from the same plate (figure 48) yielding entirely different results. This plate was chosen independently, each having our own reasons. This design was selected from the 1600 available, a testament to its beauty, rhythm, pattern, detail and design.

I initiated my final selection of the perfect plate by shortlisting 6 designs (figure 49.1 & 49.2) that were all chosen from the perspective of repeat and pattern offering the potential to alter the repeat. I finally selected 1-01-016 as it had all the qualities a pattern maker dreams of; floral curves, geometric boundaries combined with a strong sense of pattern, something not easy to achieve when combining curves and lines. Other winning attributes were the marks within the shapes, further layers of pattern were revealed in the structures of the weave, begging to be extracted as simple one colour screen prints (figure 50–51). The origins of the design being painted on point paper informed the background but in order to retain this a digital application was the only option (figure 53).

FIGURE 47 — Line and painted sketch

Painted design

FIGURE 49.1 — Sketchbook pages

Painted design

FIGURE 48 — Point paper design

Painted design

FIGURE 49.2 — Sketchbook pages

Painted design in repeat

Painted design

FIGURE 50 — Sketchbook pages

Point paper design

Painted design

1-01-016

Stamper's Mark

TRISH BELFORD

Familiar Pattern Different Language

The Printer’s Mark

Stamping my mark

1-01-016
My specialism would be in screen printed techniques, somewhat of a dying art due to the digital explosions over the last 19 years. Digital print has enabled the designer to work with a wide-ranging colour palette with no boundaries on repeat, colour combinations and flat textures [Figure 52]. Therefore, this plate allowed me to consider the complexities of digital print and colour development in line with simple one colour screen prints.
Hybrid Work

COLLABORATION BETWEEN WEAVER AND PRINTER: BLEACHED COMPOSITION

Weaver’s perspective

Plate 1-01-017 – Pattern 4408

This piece was generated from a process of collaboration between printer and weaver. Blocks of structures were woven continuously in black linen. These structures were drawn from both the Liddell archive and Falcot’s Weave Compendium. The process of discharge printing chemically removes colour from the yarn. Weft was mainly black linen but occasional yarns with different discharging properties were twisted together and woven. Sections of the final piece show subtle transition between structures.
However, despite digital printing being the most common method for textile printing, there are many processes that still rely on screen printing techniques, discharge printing being one of these. Bleaching was an integral part of the linen process, coincidently the weaving factory and bleach works were complimentary in terms of employment, providing a balance in labour requirements. If both operations were financed by the same employer, the woman could be employed in the weaving sheds and the men in the bleach works. Bleaching was one part of the long complicated processes involved in the production of linen, taking multiple steps to complete, boiled over great fires in vats with water and alkali (lye) a bleaching liquid made from burnt wood ash, then rinsed in cold water and steeped in an acidic solution such as buttermilk and salts to counteract the effect of the alkaline lye. This solution was washed out, and the cloth was spread on the bleach green (grass) for a number of days, to allow to bleach in the sunshine. This process of bleaching, soaking, washing and drying was repeated until the cloth reached the whiteness required. Although not a finishing process discharge printing is a traditional screen printing method, of applying a design to a dyed fabric by printing a colour-destroying hydrosulfite agent to bleach out a white pattern from a darker coloured ground. The success of this process relies on the knowledge of dye chemistry to select dyes that will break down once printed with the discharge paste.

The question I posed to myself in this collaboration was: What if I could find a dye that does not break down or discharge? The weave structures and print would come together to create something not possible without this in-depth knowledge delivered by the weaver and the printer. Following discussions, the warp was dyed with a dischargeable black reactive dye and a selection of the wefts were dyed with a non-dischargeable black vat dye. The creators relying on the alchemy of processes, structures and chemistry, to reveal the light and dark of the pattern in a randomly constructed manner. The beauty of this design was the natural rhythm that came from the pattern. A constructivist feeling pattern destructing the dye molecules to reveal the woven structures [FIGURE 56].

![Figure 56](image-url)