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**The Aristocrat of Homespuns:
Reinvigorating Shetland's "forgotten" tweed industry?**

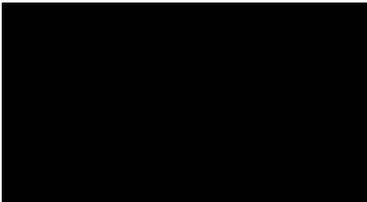
**Master of Research Degree submission to Glasgow School of Art
School of Innovation**

Researcher: Andrew Ross

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Declaration

I, Andrew Ross, declare that this submission of full thesis for the degree of Master of Research (MRes) meets the regulations as stated in the course handbook. I declare that this submission is my own work and has not been submitted for any other academic award.



Andrew Ross
The Innovation School, The Glasgow School of Art
January 2021

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It was with trepidation that I embarked on this Master's Degree with Glasgow School of Art in 2019. It is with no little sense of accomplishment and pride that the research has been finished in this, its eventful second year. Through it I have learned much. The project has been a life-saving task at a time of upheaval and chaos in a pandemic-hit world, offering discovery, peace, routine and serenity when it was needed. For that I am grateful, as I am to many people, some of whom are no longer with us. All are remembered in this work.

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This research is dedicated to Professor Ann Sutton, MBE. In gratitude.

A WEAVER'S PRAYER

**WHEN THE LAST LONG SHADOWS TRAIL
ACROSS THE EVENING'S BLUE,
AND TO THE FRIENDS I LEAVE BEHIND
I BID ADIEU:**

**OH! MAY THERE BE NO BROKEN ENDS,
WHICH THESE POOR HANDS CAN TIE,
LEFT UNREPAIRED BY ME,
WHEN THE SHUTTLES I LAY BY.**

(HUNTER, 1937)

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Glossary of Terms

bagging: the sagging of fabric caused by the loss of elasticity in the fibres of the yarns

beam: a part of the loom upon which either warp threads are wound (at the back of the loom) or onto which cloth is wound (at the front of the loom)

blankets: a sample set of patterns and colourways used to retain manufacturing information and as marketing to potential clients

caa'ing: herding together

claith: dialect word translating literally as 'cloth'

dressing: the term used to describe passing threads on a loom through heddles and then the reed.

finishing: the final process in weaving, consisting of washing, pressing, brushing, coating, etc.

gamps: a sample set of patterns and colourways used to retain manufacturing information and as marketing to potential clients

gansey: a jumper in Shetland dialect

handle: the way a textile feels to the touch

heddles: eyed string, nylon or metal ties through which warp threads are passed on the loom

herring-bone: a twill structure that appears as a staggered chevron

home stuffs: woven cloth originally produced in the home for domestic consumption

homespun: yarns made in the domestic dwellings of islanders

houndstooth: generally a two-colour pattern in a broken check or a four-point shape; a tessellation

katmoget: a sheep with a light coloured body with dark belly and legs and characteristic face marks for this type

kemps: brittle fibres in some fleeces that do not accept colour well and are hard to the touch

lift: the action of raising or lowering a set of warp threads to create a shed

mixtures: the blending of different colours to create an optical effect

moorit: literally 'moor-red', the yellow-brown colour of some Shetland sheep and wool

pick: a single pass through the shed by a weft thread

pilling: the surface accumulation of small balls of entangled fibres pulled from a fabric

plaiding: a length of coloured cloth, most likely in a twill weave

reed: a slotted frame through which warp threads are passed to separate them. The reed is also used as a beater to pack weft threads together when weaving.

rolag: a carded roll of wool fibres with an airy, lofty appearance

rubbed: the abrasion damage caused to textiles by contact with another textile

sett: the number of warp threads in a defined measurement.

shaela: grey

shafts: the frames on a loom upon which heddles are strung and that raise or lower to create a shed

shed: the gap between two sets of warp threads through which a weft thread is passed when weaving

shuttle: a carrier for the weft thread to enable each pick to pass easily through the shed

skatt: payments originally to the representatives of the Norwegian Crown for the use of land in Shetland

spindles: small conical tubes to be inserted into a shuttle upon which weft yarns are wound. The spindle allows thread to be unreeled evenly as the shuttle travels through the shed

structure: the interlacing of warp and weft threads to produce a fabric. Sometimes this results in a discernible pattern on the cloth, sometimes not, but structure gives the cloth strength

tweels: a twilled fabric

twill: a weave structure that causes a diagonal rib and variations thereof to run across woven fabric

wadmál: a coarse woollen cloth, from the Norse for 'cloth measure'

warp: threads under tension that run from back to front of the loom, each thread passing through a heddle on a shaft

web: a warp; a woven cloth; the structural part of a cloth

weft: the threads that go from side to side through a shed when weaving

woollen: a spun yarn with some of its individual fibres parallel to the others

worsted: a spun yarn with all its individual fibres lying parallel to each other

Abstract

This thesis, a Master of Research study at The Glasgow School of Art, is about the history and heritage of Shetland Tweed, a once-iconic cloth, and the future for the tweed industry on the islands. Its intention is to present a clear understanding of what makes the fabric unique, and to provide evidence of its importance so that the islands can continue to benefit from tweed manufacture and public awareness by:

- providing a context for the support of the tweed industry of the isles, in order that the fabric can continue to be made in Shetland now and in the future,
- underpinning efforts to ensure that public knowledge of Shetland's textile heritage is broadened.

The objectives for achieving that aim are to formulate and present a clear and comprehensive understanding of the Shetland Tweed industry and the role that it has played in the life of Shetlanders, prior to its organisation in the 1840s through to its contemporary, 2021, incarnations.

The research has been guided by the Research Question: Can Shetland Tweed be reinvigorated through an understanding of its history and heritage? Answering this query has provided insights into the origins of Shetland Tweed, the industry and the role that tweed has played in supporting economic and social development in the islands. This research focuses on two particular aspects of Shetland Tweed. Firstly, what makes it different to other tweeds and secondly, how can that difference be exploited for a more secure future?

The research is timely. Across the globe awareness of environmental impact and demand for local production is gathering pace as consumers become more aware of the positive impact of local production (Sustainability For all, 2019). Consumers are becoming more aware of the actual costs of manufacturing – pollution, environmental degradation and climate change. In addition, growing numbers of people are moving to organic production and traceability in their purchasing of goods. The islands' tweed industry produces a luxurious cloth with many of the

desirable attributes that people are looking for, and this research aims to provide evidence of those credentials.

The Shetland Tweed industry is not only important for its economic value but also for its social implications. For centuries cloth has been woven on the islands and tweed from Shetland was a valuable and desirable commodity for trading internationally. Although a precarious existence for most of its manufacturing life, Shetland Tweed still provides insights into the lives of weavers and their families, and those who traded in the cloth. It can hold stories and engender feelings and emotional responses beyond its mere colouring and patterns and it is far more than simply a Scottish tweed. It is truly “a very human thread”.

Prelude to the research

“The Aristocrat of Homespuns”: Reinvigorating Shetland’s “forgotten” tweed industry.

Shetland lies in the far North of the United Kingdom, mostly Arctic-wards of 60 degrees latitude. The isles are peppered by sheep that graze on the peat moorland and seaweeds, thrown up by frequent winter storms. The Shetland sheep have traditionally been used for meat and for producing the yarns for which Shetland is known. For many centuries, since at least the 18th when islanders were noted, by the Victoria and Albert Museum in an online article as “trading hosiery” (Victoria and Albert Museum, 2020), knitting has been the predominant focus for yarn produced with this wool, however there is another industry that has largely been forgotten. The woven cloth from Shetland comes from an ancient lineage, as carved bone weaving tablets and loom weights found at Jarlshof archaeological dig and dating to at least 200 AD, attest. Possibly as old as the sheep and far older than knitting, weaving’s roots have been lost in contemporary discourse. This research focuses on “Shetland Tweed”, a comparatively recent designation, from the 1840s onwards, in an attempt to support the provision of income and employment, that links the oldest practices in the isles and the fabrics that are being produced in Shetland today.

My experience with the tweeds of the isles has been through work on the island of Yell where I established GlobalYell, a charitable company underpinned by education and training aims. In 2005 the original aim of the charity, music appreciation and education, was amended to include textiles. This change came about following a project at the London School of Economics to develop an innovation space for business: BOX.

BOX aimed to create a “new type of hybrid academic/commercial space that blurs the boundaries between the classroom, the laboratory, the office, and the club” (Harrison, 2006), and included artworks and cultural artefacts as stimuli for creative discussion. GlobalYell was a partner in this project and worked with the Ann Sutton Foundation to create a sculptural whirlpool, *Maelstrom*, made from Shetland wool and copper wire ([Figure i](#)).

The Aristocrat of Homespuns



Figure i - Maelstrom: The woven whirlpool

Made from Shetland wool and silk-covered copper wire, and designed by Lucy McMullen, who also wove it, the whirlpool uses the Fibonacci Sequence to organise colours and structures in a complex weaving process whereby one, two or four layers are simultaneously created.

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At the finish of this innovation project GlobalYell was gifted the weave equipment, a textile library and textile collection from the Foundation, which had announced its imminent closure. The equipment included warping frames and wheels as well as looms of varying sizes, most of which are linked to computers and use computer-aided design although the looms are hand- and foot-operated. The collection and library included tweeds with a small collection of the cloths and samples.

It is from these small beginnings that my interest in weaving began, and from that an interest in using research to inform cloth designs. Out of that interest has come an awareness of the tweeds from the islands. Finding out what makes Shetland Tweed unique has quickly become a passion, matched with an urgency for action, given the state of the industry. This is the driver for the current research.

1. Introduction

For more than fifteen years I have worked in the textile industry and have come to realise how fragile tweed weaving has truly become in Shetland. At its height in the middle of the 20th Century thousands of yards of cloth were made and sold. A recently donated (early 2020) box of articles, letters, documents and books from a company, Pole Hoseason, in Mossbank, to the Shetland Museum and Archives includes an uncatalogued set of papers giving lengths of cloth and sales figures for the company for 1948 to 1954. The table below shows these figures, clearly indicating the rise in tweed weaving over a period of 7 years for this company, and the considerable income that could be made from the industry: £16,751 in 1954 is the equivalent of almost half a million pounds in 2020 (Webster, 2020).

	Sales of tweed	Production in yards
1947	-	
1948	1119	7750
1949	6982	14000
1950	7460	15000
1951	13518	29000
1952	9674	11000
1953	16131	26000
1954	16751	21000

Now the industry is in a parlous state, one tweed mill remaining of at least eleven that were identified in the previous research undertaken by GlobalYell. There are various reasons for the decline - lack of protection for the Shetland brand and name, small importance attached to the Shetland sheep with the result that the breed has been exported, lack of protection for "Shetland Tweed", new materials that do not require as much care... the list goes on and on. With the retirement of the last weaver at the last traditional weave mill, Jamieson's, in February 2020, the state of the industry in islands renowned for producing fine, soft fabrics is particularly tenuous. By 2015 I realised that there was the need for a new company to create tweed in the islands and I established The Shetland Tweed Company to make contemporary cloths, working alongside GlobalYell on research and development

and hiring GlobalYell's new production weaving equipment to make fabrics. These textiles are based on the weaving traditions and heritage of the isles, and include cloth, blankets and rugs, with particular attention paid to those cloths identifiable as "tweed".

Since that date the company has evolved, influenced by my practice whereby research is undertaken to underpin the creation of cloths. This research happens in local archives and stores and through visits to houses and public buildings where tweed is stored, used and on display. It is undertaken through GlobalYell, which gains expertise and knowledge to use in its teaching and education programmes, and it directly benefits the charity through commercial income for its weaving services (GlobalYell added a production loom to its assets list in 2015, and purchased the buildings in which all the equipment is housed. The production loom is now weaving cloths for The Shetland Tweed Company which pays commercial rates for that service.)

The benefits of research are clear: it has facilitated the creation of a new company in an area of little employment and has supported the industry, preventing the complete collapse of tweed manufacturing in Shetland.

It has been a narrow escape. In February 2020, the retirement of the last weaver of traditional Shetland Tweeds meant The Shetland Tweed Company was and remains the only textile business to be making the iconic fabric in the isles. As the present coronavirus pandemic illustrates, a single event can have a detrimental effect on industries with such a fragile infrastructure. At the start of the lockdown I had to move to London and my company and the charity were temporarily closed. If there had not been someone else trained on the use of the equipment, Shetland would have lost its weave industry completely.

The use of research in my practice is important and never more-so than now. As a practicing designer/ weaver, I use it to create new cloths by referencing the fabrics of the past, colouring and adapting them to contemporary taste. While this may seem, on the face of it, to be a simple task of relating one to the other, in reality it is anything but. A cloth from one of the archives in Shetland on first examination may

look like an ordinary traditional fabric, but the wealth that is revealed in the detail once that cloth is scrutinised closely can lead to unexpectedly colourful results, or unusual combinations of hue and shade. It is this aspect that intrigues me as a designer/ weaver working in textiles. The underlying architecture of a fabric is more interesting and rich than a simple first reading allows, and it is on this that I have built my practice and my company.

In addition, the “meaning” in cloth is an element I am constantly looking to explore. Having grown up in Africa where cloth not only embraces knowledge and signals information in many subtle ways – personal wealth may be referenced by the printed motif of a dollar bill, or an educated person may wear a fabric printed with an alphabet and a computer on it – but also communicates social standing and relationships, I adhere to a social constructivist view of the world; that people create their own meaning by reference to the culture in which they live. In Shetland where crofting with small numbers of sheep has produced the raw materials for the textile industry, the role of familial relations in keeping tradition alive cannot be underestimated. Just as in spinning and knitting where grandmothers sit alongside granddaughters to pass on techniques and knowledge, the tweed industry was similarly sustained, mainly through the work of men. That is why some parts of the islands were noted as weave-producing areas as can be seen on the partial map in [Figure ii](#) at the end of this section. Brothers learned from uncles, sons from fathers, and in rare cases, daughters, sisters and wives were involved, as noted, for example, in the Census of 1861 when 21 women were registered as weavers of various types including “of wool” (Registrar General of Scotland, 1861). In the days when transport was not as accessible as it is today, these families would have earned income from weaving in and for the community.

It is not surprising that fabrics produced in such a way gather and retain power, stories and anecdotes as well as memories of a bygone age, noted by Jane Schneider and Annette B Wiener as manifesting in many cultures across the globe (Smithsonian Institution Press, 1989), something that I have chosen to refer to as a “social fabric”. The oral transmission of information about textiles has proved to be a useful method of gaining knowledge that is simply not accessible otherwise. (Schoeser & Boydell, 2002, pp. 167-173). Just as people who are familiar with Fair

Isle knitting can tell where in Shetland a hand-knitted “gansey” has originated, so might the same have been true for tweed. Tweed is not as well-known as it once was – few people have a living connection any longer with the industry - and the meanings that may once have been attached to the cloth – social status, property-owning, etc – have been lost to the general populace. It is now a matter of urgency to gather those stories so that they are not lost forever, remembered only in books and images.

For these reasons, I believe that the interpretation of colour and pattern in these once-iconic cloths requires another strand of interpretation: one that fully repositions the cloth in its island culture. This, in my view, should sit alongside the structural elements of a cloth, and be used to create – and embody - meaning within each fabric, through reference to history and heritage, an acknowledgement of present-day style and tastes, and that more elusive element: “Shetland-ness” with its sense of community and values.

This is why I use research for my own work. Reinterpreting heritage tweeds for present tastes may result in a beautiful cloth but one that could be deficient in terms of an emotional response that links to Shetland-the-place. Creating contemporary fabrics that have roots deep in the history of the isles and that appeal to modern-day tastes precisely *because* of the location in which they are made is a driving force behind my practice and company, and may, I believe, be the key to preserving and supporting the Shetland Tweed industry.

What I intended to do through this project is to educate; learning about, and applying, methods of research to support that industry. Through Primary and Secondary research I have now built up a picture of its history by using various research methods, including book and archive research, fabric sampling, interviews and analysis of collections in the islands. I planned to gather and analyse data using an Action Research methodology so that I could build a rich and dynamic picture of this once-thriving industry to create new and innovative ways to produce Shetland Tweed, and to share these findings with others.

The Aristocrat of Homespuns

In so-doing, I hope that this heritage from Shetland can survive and thrive. It deserves to, for it is a fascinating subject with a rich and colourful history, which I have been lucky enough to participate in. I passionately want the industry to continue so others can share in it and research is part of enabling that story to endure.



Figure ii: Partial map from 1966 showing areas noted for production, including weaving (The Scotsman, 1967)

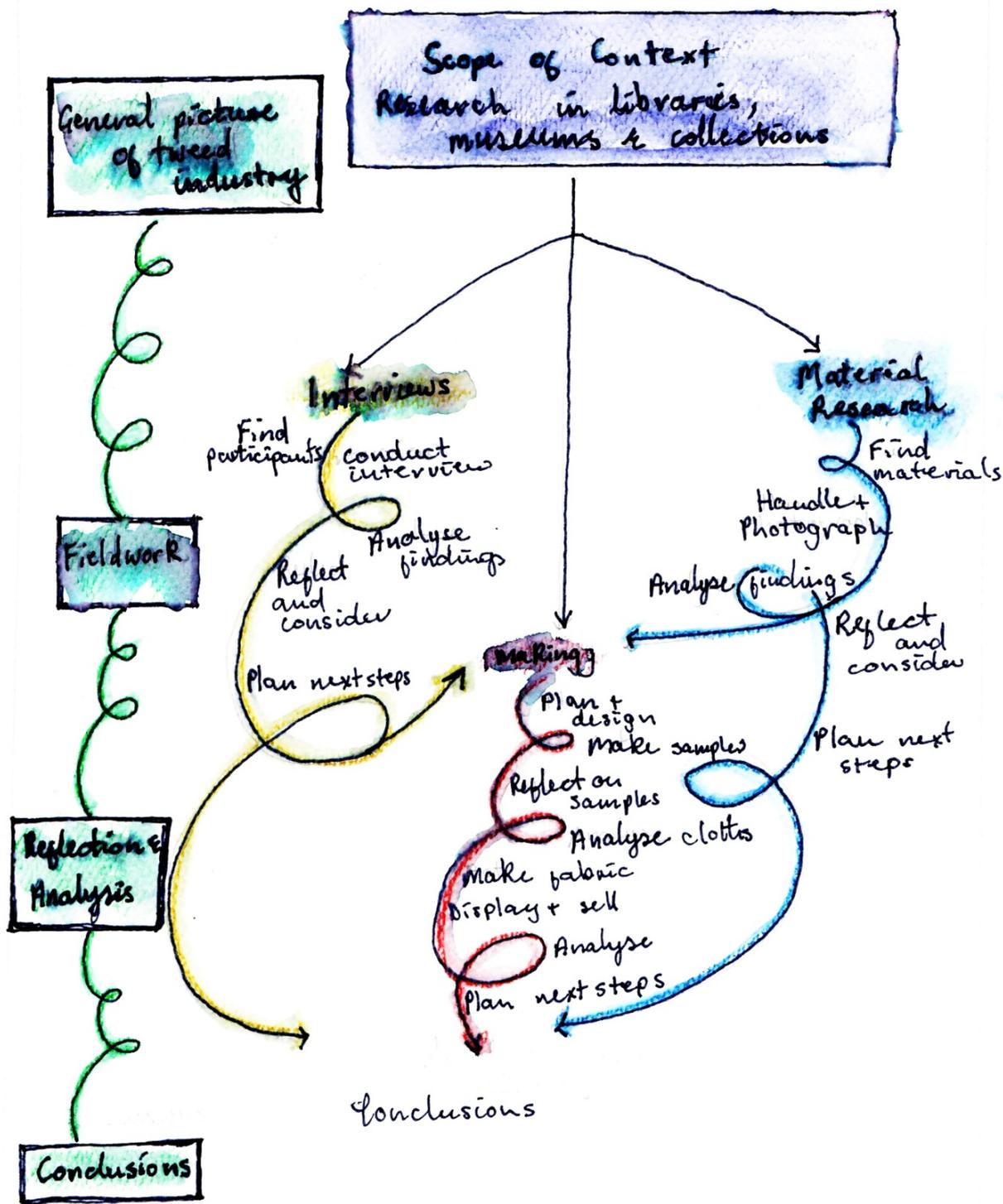


Figure iii - the process of researching Shetland Tweed

1.1 The craft of weaving

Weaving, a craft of fascination and intrigue across the globe, can be directly connected to advances in technology including the development of computers. Present-day computers owe much to Jacquard looms, and their binary operating system of punched cards that allowed a thread to be actively manipulated or not. The influence of weaving is also ubiquitous in culture. Ancient Greeks used weaving as a synonym for their lives, something we continue to do today when we speak of the “web of life” (Barber, 1995). It could be contended that there is almost no place in the world where weaving is not practiced in some form or another; the weaving together of raw materials is a vital way of providing strength and flexibility. This can be observed in nature whereby animals and birds use it - the weaver birds of Africa and the Asian sub-continent create intricate nests of grasses and reeds and some even build communal nests that dwarf the branches of their supporting trees.

Cloth weaving is even more complex. The interaction of threads is only one component of a woven cloth. Add to that colour and texture and it can become very complicated indeed, especially when utilising the more sophisticated looms. In making Shetland Tweed on the croft, the looms were not of the Jacquard type but were far simpler, and only one type of material was used in the yarns: wool. Nevertheless, these cloths still display a virtuosity and depth that should not be overlooked. For ease of discussion the explanation in [Appendix viii: A simplified explanation of the craft of tweed weaving](#) illustrates how twills and plain-weave fabrics are created on these types of loom.

1.2 Origins - Island weaving before the 19th Century

This section presents an historic overview of weaving in the islands before the advent of “tweed” in the 19th Century including the creation and use of wadmal, and the native sheep of Shetland and their wool, with a note on different methods of yarn production.

Physical evidence in the shape of spindle whorls and loom weights indicate that people were spinning yarns and weaving cloth at least six thousand years ago in Shetland (Johnston, 2016; National Museums of Scotland, Undated). The oldest fabric from the isles dates to the Iron Age (800BC to 400BC), a pair of woollen gloves, currently in storage in the Shetland Museum and Archives ([Figure viii](#)). Although it is not possible to prove that the gloves were created in Shetland they do demonstrate that woven articles were present in the isles. While there is no evidence of weaving being for pleasure or entertainment or, for that matter, decoration, enough material exists in the gloves and from other fragments, found in the 1970s on the island of Papa Stour and dated to the 13th Century, to show that these ancient cloths featured *structure* in the fabrics. These provided different qualities, such as stretch, mobility and drape, to the cloth and could be decorative in addition to being useful.

A *twill*, identified through characteristic diagonal lines that run across the fabric, is apparent in the gloves. Twills are a diverse family of structures, providing stretch as well as strength to fabrics, and allow for warmer, denser and stronger cloths to be produced that in turn wear well in comparison to, for example, plain-weave fabrics which do not have any discernible pattern. Given that these weave structures were being used in the 13th Century, it is possible that the makers of these cloths took advantage of the structure to create patterns.

Fiona Anderson, in the most comprehensive book to explore the history of tweed and one that this research has had to use frequently given the dearth of published information about tweed in general and Shetland Tweed in particular, states that patterned cloth from Scotland started a “novelty trade”, involving “strong and

important connections with London-based cloth merchants” in the 19th Century (Anderson, 2016, p. 26) Herein lies an important clue to the nature of tweed in as much as that patterns were a distinctive, desirable element to these cloths, something that is apparent in fabrics that pre-date tweed.

The Iron Age gloves are certainly an instance of patterned weaving. Sadly, the colour in the articles has not survived - most early textiles from the Medieval period do not - due to the fact they were made of natural fibres and coloured with natural dyes that faded and disappeared. However the structures remain, and a tantalising clue to what these gloves could have looked like.

Wadmal, plaiding and claith

Aside from garments and until at least the 1840s, the islands produced “*wadmal*”, a “coarse woollen cloth” (Hamilton, 1951). Alexander Fenton (Fenton, 1978) notes that girls in Quendale, Central Mainland, wore scarlet wadmal petticoats in 1842. The fabric was stated as being made in blue / black or red and it was used as an article of trade, taking the place of coin. Rents were paid in wadmal material too (Crawford & Smith, 1999). Intriguingly, “tweed-like fragments” (Crawford & Smith, 1999, p. 194) were discovered at The Biggins archaeological dig, proof of tweed’s long lineage.

Weaving played an important role in the development of Shetland’s economy. It was an important part of home production, for rent and *skatt* payments (the dues on crofting land), clothing and even as form of currency (Heckett, 1991). In 1766, Lady Mary Mitchell wrote to Arthur Nicolson in Lerwick about a weaving loom for the “North part of the country”, asking for the equipment to be sent and used to train men up in Fetlar, Unst and Foula (Mitchell, 1766). In much the same way that Harris Tweed was linked with a seemingly-benevolent aristocracy, so, it seems, was Shetland.

As the value of cloth lay not in its quality but in its quantity it is perhaps not surprising that a decline in the quality of wadmal brought with it a decline in exports of the cloth that, it could be argued, contributed to ending the production of the cloth. By the end of the 18th Century production of wadmal was waning and other fabrics, such as

cotton and linen, were being imported into Shetland, although at the end of the 19th Century it was observed that wadmals were still being worn on the island of Foula as skirts (Fenton, p. 461). This cloth was heavy and not suitable for much except informal, everyday wear. Documentary evidence from books, advertisements and letters in the Shetland Archives indicates that linen (some from Orkney), cotton of various weights and woollen cloths were ordered in for more formal wear (Fenton, 1978). These fabrics would have been intended for quality clothing and tailoring, such as, suiting, skirts and blouses, and the like, with advertisements for tailors, dressmakers and seamstresses to be found in the almanacs and newspapers of the time. In 1829, a manufacturer in Galashiels avoided taxes by ferrying his cloth on a fishing boat to the Northern Isles where he sold it for “twice the price” of its southern sales (Gulvin, 1973).

However home production of woven *claith* and *plaiding*, made using dyed, home-spun yarns, for everyday use also continued. These contributed to clothing for the household. In 1808 it was noted that “Vanity characterised the Shetlander” and that everyday dress was made out of home-made cloth, “claith” in the island dialect, and home-spun yarn, while Sunday formal dress was either “Scotch or English” (Fenton, 1978, p. 461).

The qualities of Shetland wool

In the textile and costume collection of the Shetland Museum and Archive is a woman’s jacket and skirt, woven from what appears to be handspun yarn in natural colours. Judging by the pattern and cut of the jacket and the length of the skirt, it seems that the outfit dates from the 1920s or ’30s, something that could easily have been confirmed with a photograph and an expert eye had the pandemic not cut short research in the collection. Although the skirt is badly *rubbed* where constant usage has resulted in *pilling* and thinning of the fabric, the jacket is in good condition; it may be that this was used as more formal wear, and the garment has been carefully hand washed and pressed before being put away.

What is striking about the set is not the look (a *houndstooth* variation) or the colouring (natural colours of black, white and brown) but the distinctive *handle* and

lustre imparted to the jacket by the use of Shetland wool, a quality that appears to have connected the cloth across nearly two centuries. Not all the Shetland Tweeds from the Shetland Museum's extensive collection of costume and dress, samples and lengths, nationally recognised as significant, are similar in terms of their handle; this set is unique in its softness. Many of the islands' tweeds though do offer a softer handle than, for example, vintage Harris Tweed. This skirt and jacket appear to fit an ancient description of Shetland wool as being of "a glittering appearance as though varnished" (Tulloch, 1791).

Weaving in Shetland has been important for centuries, and the limitations of weaving equipment has meant that the structures in Shetland cloths have remained relatively simple. The weaving of wadmal for the making of clothing was replaced by imports of finer fabrics such as cottons and linens that were used on more formal occasions but wadmal continued to be produced, as previously described, on the islands into the 19th Century after which it was replaced by claith and plaiding, colourful, homespun cloths that were for household use. These new cloths, the precursors to "Shetland Tweed", were not as heavy as wadmal, nor as coarse. The reason why is due partly to the native sheep.

The Shetland sheep

A report, commissioned in 1791 by the Society for the Improvement of British Wool in Edinburgh, entitled "Report of the state of sheep-farming along the eastern coast of Scotland, and the interior parts of the Highlands. By Andrew Ker" (Ker, 1791) was aimed at protecting the wool industry in the British Isles. Attached to this report is a separate article written by John Tulloch, "a native of Shetland" about the sheep of the islands (Tulloch, 1791). This article appealed for the protection of the native sheep due to the quality of the fleece, that quality coming from two types of these fine woolled Shetland animals. One of the types produced, according to Tulloch, short, close fibres fit for carding while the other produced longer fibres, useful for combing. The former is "close, curled or waved..." and presents the lustrous sheen that John Tulloch wrote about. The latter was noted as being "often as soft but seldom as fine... more open in the locks and straighter in the pile". These

differences, it is to be presumed, would produce both combed and carded yarns, one for *worsted* spinning and the other for *woollen* spun yarns.

Carding and combing / woollen and worsted

The difference between carded and combed yarns lies in their preparation. Carding is a method that leaves some of the woollen fibres bent prior to spinning while the majority of them lie parallel to each other. Generally speaking, carding is a process that pulls fibres through teeth, either on a hand carding pair of paddles or, in industrial production, drums. Repeated carding produces a rolag that is then twisted to produce a woollen-spun yarn.

Combed yarns by contrast are, as the name suggests, combed and this has two effects: removal of the shorter fibres and no bend in those that are left. Combing produces a less airy yarn when spun, but, because the fibres all lie parallel, it is generally stronger. This yarn is a worsted-spun type.

Worsted is the kind of yarn most often used in weaving because of its strength, except in the case of Scottish tweed, which, to be authentic, must be created by the woollen-spun process, known as The Scotch system.

John Tulloch's report states that the intermixing of the two qualities of wool, those fit for carding and those useful for combing, give the varieties of colour in the finished yarn as well as different tactile qualities. It is apparent from this account that the sheep from Shetland were noted for these characteristics and it is still the case that the native sheep are known by the names for their markings and colouration: *katmoget*, *shaela*, etc (Shetland Sheep Society, 2020).

While John Tulloch's appendix to an important report may have come about for a variety of reasons, amongst them the influence of absentee landowners who wanted to increase the numbers of sheep on their holdings, it is important to the story of Shetland Tweed to note that it exists. Shetland at the end of the 18th Century was known for its wool production, *and for the lustrous softness of the resulting yarns* (Italics mine). It is outside the scope of this research to delve deeply into Shetland

wool and yarns; suffice it to say that these qualities have been valued for centuries in the native sheep breed.



Figure iv – The Foula glove fragment.

This photograph, courtesy of the Shetland Museum and Archives, shows the twill structure as well as the fineness of the yarns used in the article.

1.3 Shetland Tweed arrives - the 19th Century

This section looks at the effects of expansion due to the popularity of Shetland Tweed and its beginnings as an industry.

The words “Shetland” and “tweed” can reliably be linked by the end of 1849. In an advertisement from Freeman’s Journal published on the 10th October 1849, Shetland Tweed was available for purchase from Richard Allen’s two establishments in Dublin (Richard Allen, 1849). Although the islands had been producing “wadmal” “plaiding” and “claith” for centuries, the vogue for “tweeds” for sale to an international market was growing, fueled by the desire for country living and country pursuits by the middle classes looking for fashionable clothing. According to Fiona Anderson, “urban contexts were central to the development of the early tweed trade” because the merchants who sold on the fabric to end users “were based in either Edinburgh or London” (Anderson, 2016, p. 26). Linking an already-existing production to a new market through the coining of the word “tweed” helped to guide the development of the fledgling tweed industry in the isles: “The early development of the tweed trade involved the evolution of traditional Scottish textiles of the shepherd’s plaid, *tweels* (an old Scots word for what we now know as “twills”) and Highland *home stuffs* into a group of constantly changing, fashionable commodities...” (Anderson, 2016, p. 39). Fashion was the driver for the burgeoning interest in tweed. The idea that Shetland produced tweed would have been, as elsewhere in Scotland, a natural extension to what was already being made, especially where plaids and claith were concerned (MacLeod, 1995). Plaids, with their twill structures and natural colouring, would have been an ideal fit for the industry, and Shetland, with its native sheep producing the fine, naturally-coloured wool designed to be principally hand-spun had intrinsic qualities that would have satisfied the demand for unique tweeds.

It was also at this time that the linking of tweed with the Romantic notions of “natural and authentic experiences” became a powerful tool, effectively marketing the fabric to take advantage of the search for the real (Anderson, 2016, p. 39). This connection between the historical, rural pursuits and therefore “real” experiences amongst the

newly affluent classes was strong enough to act as a marketing concept for Shetland Tweed for decades, explored further in

In looking at the context of Shetland Tweed at the commencement of the project it has been necessary to understand how other small-scale producers of Scottish goods operate. Shetland Tweed, with its small-scale production and its emphasis on manual labour and handmade provenance, can be compared to Scottish spirit production, such as whisky, from craft distillers, such as Edradour in Perthshire. This link has not gone unnoticed by the Isle of Harris Distillery, which has joined forces with Harris Tweed to create unique clothing, only available made-to-order. The collaboration serves both to reinforce the handmade aspects of the distillery's products by linking them with handmade tweed, and to show the unique credentials of this production from the Island of Harris. The company also sends a strong social message in its education programmes and provides employment in a fragile area of Scotland.

Small-scale producers in Shetland's textile industry have been useful comparators in this research, particularly in Fair Isle knitwear. On the island of Fair Isle, producers of this highly-patterned knitwear, such as Exclusively Fair Isle and Marie Bruhat make by hand. The latter combines knitwear crafting with holidays on the islands so that visitors can see the products being made and can become part of the experience of its making. On the Mainland of Shetland small-scale producers use facilities at the Shetland College Textile Facilitation Unit to knit their products, or produce, like Ninian, in-store. Fair Isle knitwear has retained its island name and associations although it is made worldwide. In addition, Fair Isle made on the island may use a "Star Motif" to indicate its origins and place of manufacture.

Accessories from Scotland provided a useful context for studying Shetland Tweed from the point of view of small producers hand-making their products far from urban centres and selling to a worldwide market. Brooches and pins made with feathers by Wendy Goode are marketed as ideal for those who value country pursuits. This marketing is very much like that of tweed, which also looks to the romance of the rural for its markets. Ola Gorie in Orkney has been creating jewellery since 1960 in

the islands, reinventing a forgotten craft. As Shetland Tweed has also been largely “forgotten”, albeit relatively recently, the jewellery business has been useful to the research, particularly in view of its success and longevity.

This overview of these companies has provided another layer of understanding from which to approach the contemporary version of Shetland Tweed. It has also offered a different viewpoint on the historic and heritage aspects of the research and its analysis.

2.2 Marketing of Shetland Tweed

A unique aspect of this was the idea of “creating *mixtures*”, the colours of which were “designed to blend in with the rural Scottish landscape”. Anderson, in the only definitive and recent publication about tweed to be found, states that by the 1830’s vivid colours were being used to create tweeds for menswear. These bright colours were different to the way in which they were used in tartans in that they were “influenced by rural landscapes” (Anderson, 2016, p. 27). While it may not be possible to directly link Shetland’s tweeds to landscape, the influence of colour on the fabrics is clear by the move away from heavy wadmal to lighter claith and plaids, their characteristic colouring followed by tweed. It could be asserted that the vibrant fashionable shades, created by the trend elsewhere towards yarns and fabrics influenced by the landscape, in turn influenced Shetland manufacture. This trend towards colourful fabrics was further refined in use by the diversity of the naturally-coloured yarns made from the native sheep, a feature which, in the 1890s, became a significant driver in the design of Shetland cloths.

It appears that the economic opportunity arising by using the label “tweed” was also a significant driver for change in the weaving industry. By the 1870-80s, “specialisation was appearing in different areas” (Fenton, 1978, p. 463). Here census records are useful in tracing the advent and rise of the fledgling industry - occupations were identified in these records, as can be seen in [Appendix i: Census data](#) - with 1881 registering the first use of the word “tweed”: Mr. David Tulloch of South Yell is identified as a “Weaver of Shetland Tweed” (General Register Office for

Scotland, 1881). Prior to this date there are many permutations for weavers: “Woollen weaver”; “Worsted weaver”; “Hand loom weaver”; the designations are varied. By 1901, the last census available in print, there are five weavers making “tweed” in Shetland and one of those is attributed to making tweed from “handspun” (General Register Office for Scotland, 1901).

By the end of the 19th Century, tweed weaving was increasing in Shetland and with it a consolidation, and consequent reduction in numbers, of weavers to certain areas. It is likely that this apparent contradiction of expanded output with decreasing numbers of workers came about because of the industrialisation of the industry for efficiency and economic reasons.

1.4 A successful industry - Shetland Tweed in the 20th Century

This section tells the story of the rise of Shetland Tweed and the reasons for its rapid decline in the latter part of the 20th Century.

By the early part of the 20th Century Shetland Tweed had ‘arrived’ and was widely recognised by tailors, fashion houses and the public across the United Kingdom and Ireland. So rooted in the public psyche and culture had the fabric become that D.H. Lawrence used it as shorthand for somewhat precious middle-class preoccupations of the English in his 1923 work “Surgery for the Novel - or a Bomb” (Lawrence, 1926)

“Is my aura a blend of frankincense and orange pekoe and boot-blackening, or is it myrrh and bacon-fat and Shetland Tweed?” (O'Hare, 1957, p. 299).

The positioning of “frankincense, orange pekoe and boot-blackening” against “myrrh, bacon-fat and Shetland Tweed” perfectly delineates the town / country divide, the former, rarified and sophisticated suggesting drawing rooms and polite teas along with delicate scents, the other, somewhat more robust and down-to-earth, reminiscent of the countryside and farming life redolent with earthy smells, a distinctive feature of wool that visitors to the studio in Yell still comment on when encountering the scent. Shetland Tweed had succeeded, for Lawrence at least, in positioning itself as part of the land-owning gentry, particularly those who had, or wanted, links with the islands. With its “island tweed” derivation and designation, the cloth was ideal for those with wealth and those who aspired to emulate them. The industry was seen as potentially so successful that “The old-time industry of loom-weaving” was started again on Fair Isle by Mrs R.S. Wilson, paying for weaving by the yard of cloth (Shetland News, 1914).

It was also making its presence felt on the world stage. In the collection of the Museum of English Rural Life at the University of Reading, two lengths of cloth are preserved in store. Their accession numbers (60/779 and 60/780) include notes on the pieces and, with them, the detail that these two lengths were handwoven in Shetland by Thomas Adie and Son. Adies was the largest of the tweed producers in the islands, the original business, established in the 1830s, having been taken over

by the son and the grandson and in 1945-6, when these two lengths were woven, they became part of a British Council travelling collection. This took handcrafts out to the former colonies of Australia and New Zealand to show “samples of traditional handcrafts which were then being practiced in the British countryside” after the Second World War ended (Museum of English Rural Life, 1961). Amongst the tweeds from Shetland were others from the Harris Tweed industry, Scotland, Wales and England, and a diverse array of artefacts, from rabbiting spades to woven baskets. Shetland Tweed was considered to be one of the handcrafts that epitomised the British Isles.

It could be surmised that the Second World War helped catapult Shetland into the eye of the general public. A most-likely apocryphal story has it that one of the first sets of bombs dropped onto British soil was over the isles, the only casualty being a rabbit or two. The event was captured in a song “Run, Rabbit, Run, Rabbit” that became popular with a public full of nationalistic pride. The idea of the remote islands being the first land hit by enemy bombs may have led to a greater appreciation of their strategic, national importance even if the story was fabricated. It certainly helped to engender a pride in, and a desire for, goods made in a postwar-constrained Britain. Celebrations signaling the end of the conflict included hand-made articles from Shetland, in light of this perceived and actual importance, a recognition of the islands’ contribution to the war effort. In 1947 the young Princess Elizabeth celebrated her twenty-first birthday and was presented with lengths of hand-woven Shetland Tweed to select from as a gift from “the Shetland people” (Aberdeen Press and Journal, 1947). One of the pieces the Princess chose was hand-woven for her as a “suit-length” by “Mr James Hawick, Nibon, Northmaven”, while the second was made by an unknown weaver in “pink and *moorit herring-bone* pattern”. The lengths went along with knitwear, not a particularly unusual pairing at the time because matching or co-ordinating knits were a natural combination to skirt lengths of cloth, often manufactured and sold together. Colourful tweeds were once as important as knits for the islands’ textile economy.

In the years after the Second World War, from the late 1940s and into the 1960s, Shetland Tweed experienced a rapid increase in demand, an increase that resulted in more production. Records, such as a graph ([Figure vi](#)), held at the Shetland

Museum and Archive, of production and sales from 1946 to 1948 by Pole Hoseason in Mossbank, clearly indicate the upward trend as well as seasonality; the graph is plotted by month. This business was making island tweed for sale in London at 112 Jermyn Street ([Figure vii](#)) and the manufacturing and selling trend was echoed across the isles.

It was during this period that vibrant colour became a feature of the cloth produced by Adies of Voe and L J Smith in Hoswick . Prior to the advent of colourfast artificial dyes the cloths in both collections are not much different to other Scottish tweeds although they do offer a range of colourings that did not rely solely on dyeing because of the native sheep colours. However in the middle of the 20th Century, when designers such as Bernat Klein were creating vibrant cloths for the fashion industry, the Adies collection shows a marked increase in the use of bright colour. The L J Smith collection also shows more use of bright colour, although applied in a more naïve way. As Shetland Tweed had been well-known for its natural colouring because of the variation in the native sheep and wool, the introduction of dyes allowed for more experimentation at a time when post-War Britain was experiencing high demand for these more vivid hues, particularly from the fashion industry.

Famous fashion houses in the post-War period such as Chanel and Dior often used the fabric in fashionable clothes, creating coats, two-piece suits and skirts from the material for women. Dior's show was covered by the Kensington Post on Friday 27th June 1958 for the "Exclusively for Women" section, with a photograph showing Miss Marty Jane Batten modelling a skirt and shawl, available in "pure wool Shetland Tweed" (Kensington Post, 1958). Also in 1958, [Chanel and Pierre Cardin](#) used Shetland Tweed in their collections.

The romance with which tweed was imbued was exploited for national and international markets, particularly in London and New York. Shetland wool lent itself to menswear including jackets for the United States market, as can be seen by the advertising for Norman Hilton ([Figure viii](#)). "Gentlemen" who wished to appear sophisticated were encouraged to wear tweed overcoats with the vague promise of romance and sophistication.

The rise of the tweed industry was swift. Just as sudden was its decline brought about partly by a decline in the quality of the wool itself.

Shetland wool had been bred to be particularly fine, probably for hand-knitting purposes (Christiansen, 2003). As knitting yarns do not need to be under the same amount of tension as weaving yarns do, it was desirable, and possible, to breed for the finer fibres. However Shetland sheep only produce one to three kilogrammes of wool per animal, some of which is lost during processing. When the market for wool fell away in the middle of the century because of the influx of man-made yarns such as rayon, viscose and acetate, crofters started to breed larger lambs by cross-breeding with, for instance, Blackface and Leicester breeds. This introduced coarser fibres such as *kemps* into the coats of previously-pure Shetland flocks. John Tulloch's warning from two and a half centuries before was still relevant.

Given that this threat existed to the sheep of the islands in spite of a flock book (Shetland Sheep Society, 1927) that had been established with the intention of maintaining the sheep standards, any use that could be made of the wool was necessary. Tweed is often thought-of as a hardwearing cloth, suitable for outerwear and even shoes. Shetland Tweed did not fit into this category. It was not robust enough for heavy use but it had found a ready market in travel and sporting coats, informal jackets and suits. With its drape and its soft handle, and its colouring, Shetland Tweed was considered a luxury cloth but gradually the reputation of the fabric as a soft and desirable product gave way to the notion of Shetland Tweed as "itchy and scratchy"; a direct result of the intermixing of sheep breeds. Folk wisdom has it that a fleece is only as soft as its hardest part; if a thicker and less supple hair is in a fleece it is that one which will be felt, no matter how soft the rest of the fleece. The intermixing of breeds brought the brittle and hard kemps, and thicker fibres into the flocks.

At the same time as this deterioration in quality was continuing, Harris Tweed was rising through the ranks to become the well-known brand that it is today. In 1993 the Harris Tweed Act was enacted by Parliament in London and became enshrined in law. This Act (UK Government, 1993) outlined the methods of production of the cloth and required that only tweed made by this certified method could be stamped with

the famous “Orb” mark. Harris Tweed is, according to the 1993 Harris Tweed Act, only to be “made from pure virgin wool dyed and spun in the Outer Hebrides” (UK Government, 1993), mainly with wool from “Blackface, cross bred and Cheviot sheep” (Harris Tweed Isle of Harris, 2019). This means the cloth is harder wearing because the fibres in it are coarser and tougher, unlike Shetland Tweed with its softer handle because of the native sheep wool. The Harris Tweed Authority, taking over from The Harris Tweed Association Ltd. that had created the Orb in 1910, came into being in 1993 and continues to protect against copies, copyright and trademark infringement.

This triple threat to Shetland Tweed, wool quality, artificial fibres and the rise of Harris Tweed with its protection from the Authority, was not the only obstacle facing the Shetland Isles’ cloth. As manufacturing moved away from the UK to other areas of the world, it became less and less desirable and economic to produce on the islands, and, having already lost the breed of sheep to mainland UK and America, Shetland found itself in the position of having its name used on textiles that had nothing to do with the islands. In 1981, a court case in the United States of America took place that pitted an American “importer of 100% Shetland wool full-fashioned ladies’ sweaters from the People’s Republic of China” against the United States Government with regard to quotas (United States Court of International Trade, 1983, p. 52). The islands themselves were not mentioned despite the 100% Shetland wool designation of the garments in dispute.

In spite of attempts over the years to create a “Shetland” brand and trade mark, the islands’ producers have never been able to agree what they were trying to protect and officialdom has not either. In 1952, the Minister of Parliament for Orkney and Shetland, Jo Grimmond, asked for Government support for knitwear and tweed by giving protection to the name “Shetland” and to the manufacturing processes and wool which, it was suggested, should be in and from the isles. The response to the speech was given by The Parliamentary Secretary to the Board of Trade, Mr. Henry Strauss, who was in favour of protection but not of the name because it was “wholly geographical” (House of Commons, 1952). The loss of the name was, and continues to be, devastating to the textile industries of Shetland.

Shetland weaving once again came before the House of Commons, this time in 1956 when Jo Grimmond implored the House to treat the islands of Foula and Fair Isle, and the whole of Shetland and Orkney, as radically different to the rest of the UK (House of Commons, 1956). His proposition was that support for “some effort...to be made to organise better the knitting - hand or machine - and perhaps weaving” be forthcoming from the Government. Once again though the response was not encouraging albeit it was sympathetic to the idea of a Trade Mark.

By the end of the Century, there was only one tweed mill remaining in Shetland of the eleven or so enterprises from the previous seventy or so years that had been in existence.

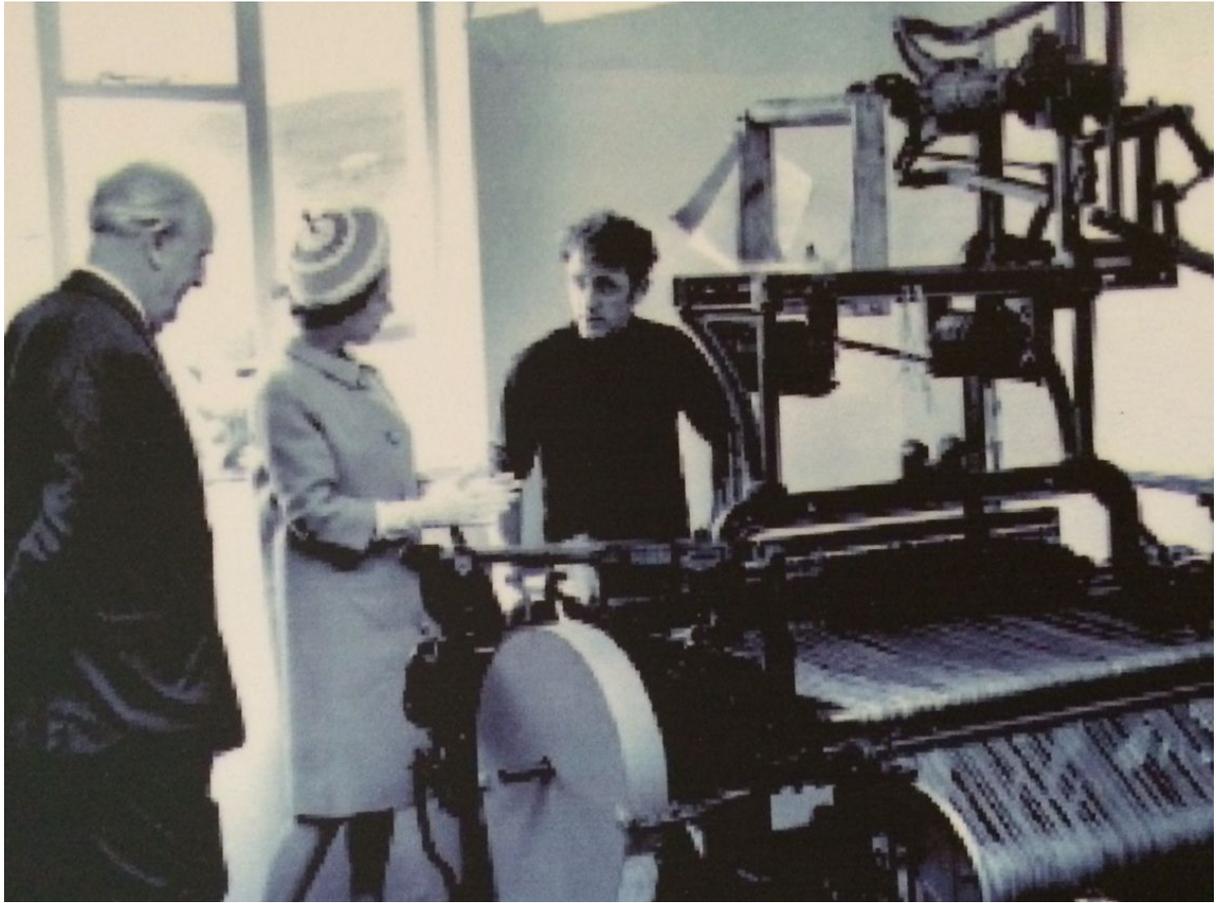


Figure v: Queen Elizabeth II visited the weave mill in Hoswick in 1969, meeting Cecil Duncan, a former weaver from the mill.

(Photograph courtesy of Hoswick Visitor Centre).

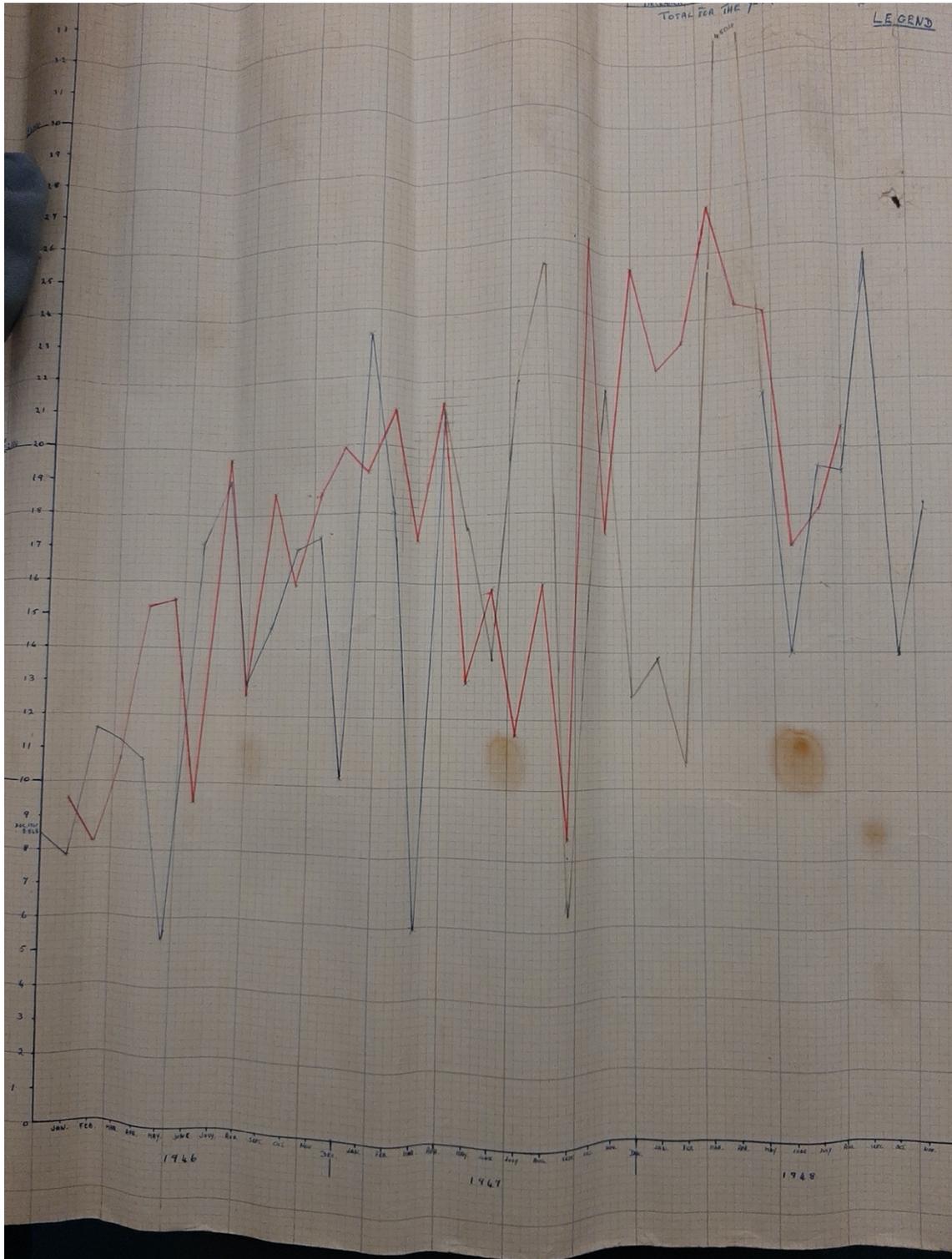


Figure vi - Graph of tweed production and sales: Pole Hoseason, Mossbank.

The graph covers the period 1946-48.



Figure vii - 112 Jermyn Street.

Pole Hoseason sold Shetland Tweeds from this shop in Central London.

Image removed for copyright reasons

Figure viii - Norman Hilton advertisement.

Classic tailoring from 1960s America.

1.5 Era's end or a new start? Shetland Tweed in the 21st Century

The chapter concludes with a description of Shetland's Tweed industry as it entered the 21st Century.

By the beginning of the 21st Century, Shetland's local tweed industry had largely disappeared, with only one mill left. Jamieson's Spinning had moved their production from a base at Aith to Sandness, keeping production within Shetland, and was the last of the industrial producers. Still in place though were producers outside the islands. England, primarily in Yorkshire, and Scotland, mainly in the Borders, were weaving tweed with Shetland wool, and the United States was using this production, not that from the islands. These producers recognised the uniqueness of Shetland as a type of yarn and of cloth, as well as Shetland as a geographical designation with world-wide recognition for its textiles heritage. Much of that recognition though was based on knitting - the ubiquitous Fair Isle and the delicate lace knitting in particular - and gradually Shetland Tweed made in the islands was fading from memory.

In 2005 a new attempt began in Shetland, on the island of Yell, to revive weaving. The gifting of assets from the Ann Sutton Foundation in Arundel, England to a charitable organisation, GlobalYell Ltd, resulted in there once again being a weaving studio in the North Isles. GlobalYell commenced teaching and training using the equipment for residencies for weavers and artists, and textiles education as a community development tool. In 2007, the first tour dedicated entirely to textiles in Shetland was delivered by the charity and quickly became the main income-generator for the organisation, running alongside educational and training activities. The charity's residency programme resulted in a collection of woven fabrics for sale to support GlobalYell.

By 2015, it was obvious that tweed weaving in Shetland was declining fast. The last remaining mill in the islands, Jamieson's Spinning on the Westside of Shetland Mainland was still producing wool and tweed made from that wool, but the industry was a fraction of what it once had been.

The solution to the problem of the decline of tweed manufacturing in the islands with the loss of employment and opportunity lay in establishing a new production studio, one that replicated the “cottage industry” aspects of traditional practice yet took advantage of technology and other advances such as new colours of dye for yarns. In 2015 an industrial production loom was sourced from the USA by GlobalYell Ltd for the purposes of reinventing the traditional weaving model.

In 2016 The Shetland Tweed Company was established to make tweeds on the island of Yell using GlobalYell’s facilities. In 2017 a scoping project was undertaken into Shetland’s tweed history and heritage by the charity, with The Shetland Tweed Company as weaving partner to make contemporary cloths based on the research. The following year The Shetland Tweed Company was weaving contemporary cloths in its own right with an apprentice training on the industrial loom, and that company continues today. The business specialises in colourful fabrics, basing them on the availability of highly-coloured yarns from the islands and on interpretation of the land and seascapes of Shetland. In this way it takes its cue from the traditional, colourful fabrics and brings Shetland Tweed into the 21st Century, just as others have brought the industry up to date through the bold use of colour in the past.

As the last weaver of traditional Shetland Tweed retired in 2020, it was, in retrospect, a timely moment to begin a new company; Shetland could have lost its tweed weaving traditions completely.

2. Scope of Context

This chapter draws together tweed's history and culture thematically before moving into the historic marketing of the cloth, a working definition of Shetland Tweed, and into the fieldwork.

2.1 Introduction

Through this part of the research various themes have emerged through analysis of data, each of which has been significant enough to merit further study because of its bearing on the making of cloth in the isles. These themes are:

Design, Economy, Personal attachments, Yarn, Qualities, History, Business and employment, Sheep and wool, and Reminiscence with the addition of *Tweed* as a catch-all term for aspects that did not fit into any of the other themes.

Some of these themes – *yarn, sheep and wool and qualities* – relate to the handle and look of the cloth, including colour. Others – *design, economy, business and employment* – speak to the importance of the industry in the islands. *Personal attachment, history and reminiscence* are linked to the nostalgia that the tweed industry evoked in writers and recorders of heritage. These themes informed the fieldwork choices, analysis and discussion elements of this research.

In looking at the context of Shetland Tweed at the commencement of the project it has been necessary to understand how other small-scale producers of Scottish goods operate. Shetland Tweed, with its small-scale production and its emphasis on manual labour and handmade provenance, can be compared to Scottish spirit production, such as whisky, from craft distillers, such as Edradour in Perthshire. This link has not gone unnoticed by the Isle of Harris Distillery, which has joined forces with Harris Tweed to create unique clothing, only available made-to-order. The collaboration serves both to reinforce the handmade aspects of the distillery's products by linking them with handmade tweed, and to show the unique credentials of this production from the Island of Harris. The company also sends a strong social message in its education programmes and provides employment in a fragile area of Scotland.

Small-scale producers in Shetland's textile industry have been useful comparators in this research, particularly in Fair Isle knitwear. On the island of Fair Isle, producers of this highly-patterned knitwear, such as Exclusively Fair Isle and Marie Bruhat make by hand. The latter combines knitwear crafting with holidays on the islands so that visitors can see the products being made and can become part of the experience of its making. On the Mainland of Shetland small-scale producers use facilities at the Shetland College Textile Facilitation Unit to knit their products, or produce, like Ninian, in-store. Fair Isle knitwear has retained its island name and associations although it is made worldwide. In addition, Fair Isle made on the island may use a "Star Motif" to indicate its origins and place of manufacture.

Accessories from Scotland provided a useful context for studying Shetland Tweed from the point of view of small producers hand-making their products far from urban centres and selling to a worldwide market. Brooches and pins made with feathers by Wendy Goode are marketed as ideal for those who value country pursuits. This marketing is very much like that of tweed, which also looks to the romance of the rural for its markets. Ola Gorie in Orkney has been creating jewellery since 1960 in the islands, reinventing a forgotten craft. As Shetland Tweed has also been largely "forgotten", albeit relatively recently, the jewellery business has been useful to the research, particularly in view of its success and longevity.

This overview of these companies has provided another layer of understanding from which to approach the contemporary version of Shetland Tweed. It has also offered a different viewpoint on the historic and heritage aspects of the research and its analysis.

2.2 Marketing of Shetland Tweed

The inherent challenge of protecting Shetland as a textile brand has resulted in confusion. There are different uses made of the name, each legitimate, and, with no protection for its use, the islands have been powerless to retain "Shetland" as a label for its own production from its native sheep breed. Nowadays Shetland can mean "made from Shetland wool which comes from Shetland sheep bred on the islands" but it can also mean "made from wool from Shetland-bred sheep, regardless of

breed” or “uses wool from the Shetland breed which live elsewhere than in the Shetland Isles” (quotes mine). Even within the industry in Shetland there is confusion. Some local production uses wool from the islands, either from the breed or from sheep reared on the archipelago, while other manufacture trades on the association of the name “Shetland” with the name “wool”.

The situation is even more muddled when it comes to national and international manufacture. In the UK, a “Shetland Type” yarn is being sold online with no Shetland wool in the product (Uppingham Yarns, 2020) while a woven cloth is labelled as made from “Shetland type wool” despite being woven in Portugal (Brixton Textiles, 2020).

It could be argued that this particular problem started once the native sheep were exported from the islands but the issue has been exacerbated in recent decades by globalisation. The availability of less-expensive labour overseas has certainly led to the decline of the Shetland Tweed industry but, along with the lack of protection for the name and the wool, it has been devastating. Once manufacturers and retailers realised the profitability of the Shetland name, it became impossible to keep control of it, as the 1981 court case in the United States has previously described. In China, a 50% merino/ 50% polyester blend (Alibaba, 2020) is being sold as 100% wool under a label that includes the word “Shetland”. The softness and handle of the cloth, the romantic associations the name provides, and even the perception of Shetland’s inclement island weather lending a degree of hardiness and authenticity to jackets and coats have all been exploited for commercial gain, oftentimes without any thought about the damage such use is doing to the local industry.

With its cultural identity inextricably bound up with adventuring Vikings and remoteness it is not surprising that the marketing of Shetland Tweed has been a combination of mythology and romance, and is actually an artefact of the islands’ own making - Vikings are mentioned in a “Kay’s of Shetland” advertisement in “Punch” magazine of October 16, 1935 ([Figure ix](#)). An advertisement ([Figure x](#)) for New York-based Norman Hilton in 1964 goes further and rather floridly posits “handwoven Shetland” as “probably the most expensive tweed in the world”. Associating this “string of sea-battered islands” with “no trees... stark landscape...

barren moors... lonely cliffs and beaches”, the advertisement speaks longingly of “the ruins of time and the elements” and the “rare breed of sheep” being the “source of all Hilton Norman Shetland Tweed” (Norman Hilton, 1964). Furthermore, “the cloth is woven on primitive hand-looms when the Islanders can spare the time from their farms or fishing boats” (Norman Hilton, 1964). This association of romantic ideas and hardship has become wedded to the quality of Shetland Tweed precisely because it is so evocative and picturesque.

This image of history, harsh island conditions and manufacture is not without its challenges. Bernat, an American company, in producing their “Real Shetland” yarn from the “rare sheep” waxes lyrical about the “true Shetland colours... soft as the sky above the Highlands” in an undated advertisement ([Figure xi](#)). Once again the colours of Shetland wool are a selling-point, even if, in this case, they are mistakenly linked to the scenic Highlands rather than the islands. The illustration for the advertisement with its strapline “From those misty, far away Isles where the shepherd is king” is of a man with staff, Tam o’shanter cap, and full Highland dress, surrounded by sheep. This does not take account of the fact that Shetland is not in the Highlands of Scotland, and islanders do not generally wear kilts, especially not when “caa’ing” sheep. By creating this picturesque image of a rural idyllic lifestyle allied to Scottish history, the island identity has been conflated with that of the Mainland of Scotland. Romantic, perhaps, but accurate it is not, and in the long run, this type of stereotype has done a disservice to Shetland Tweed. After all, if Harris Tweed and Shetland Tweeds are comparable, at least in the public’s mind, in colouration and patterning, and if Harris Tweed is competitively priced with a protected heritage and name and recognition the world over for specific fashion use in comparison with Shetland, why buy the relatively obscure, fine-textured Shetland with its narrower range of possible uses?

Image removed for copyright reasons

Figure ix - Kay's of Shetland advertisement.

It is interesting to note the "No obligation, on approval parcel post".

Image removed for copyright reasons

Figure x - Norman Hilton's Shetland.

The romantic notions of wind- and rain-swept islands helped to sell the durability and warmth of outer wear.

Image removed for copyright reasons

Figure xi - Real Shetland by Bernat.

This advertisement conflates ideas of Scotland and Shetland, presenting the islands as part of Highland myth and lore.

2.3 What is Shetland Tweed?

Towards a definition

In February 1944 a pamphlet was produced by the National Association of Scottish Woollen Manufacturers entitled “What is Tweed?”. Its writer, Edward S. Harrison, Chairman and Managing Director of Johnston’s of Elgin, concluded that a description rather than a definition was the best way to categorise the cloth because of tweeds’ wide variations. His description includes the weight (“medium”), texture (“not very smooth... tending towards Cheviot qualities”) and colour (“tending to broken effects... either by pattern or by blends”) and he was also emphatic about the wool being spun on the “Scotch System”, i.e. woollen, not worsted, spun (Harrison, 1944).

In the 1960s the British Wool Cloth Sample Book was published which linked tweed with informal suits and overcoats, and sports wear. The book states that many grades of wool are used to manufacture tweed, and so the term “refers to the colour and design of the cloth rather than to the material and weight.” (Scottish Woollen Publicity Council, Undated)

It seems that defining tweed has been causing confusion for nearly two centuries and with those inherent difficulties characterising tweed of the Shetland variety is also elusive. Yet there is an implicit understanding of the constituent and inherent qualities of tweed, including colouring, as is evidenced by Lady Denman during the Second World War. “Lady Denman...was overheard expressing shock that an interviewee...would arrive from London by train in Sussex wearing pink. Lady Denman, sure that pink was a city colour, drove to collect the woman in a cloud of cigarette smoke and concern, only to greet her warmly as she stepped down from the train, saying “What very smart pink tweed” (Summers, 2015, p. 12).

Nowadays there are the variety of cloths described as “Shetland Tweed” but not only do these cloths make use of different manufacturing techniques, colours and patterns, they are also made on and off-island. They may use wool from the native sheep, or simply feel like they do. Mentioned in Anderson’s book as a “Named Variety”, the author notes that the majority of “Shetlands” (sic) have not been made

from pure wool in these islands, although also noting that in 1929 a manufacturer from the Scottish Borders considered a real Shetland Tweed suit “distinctly a luxury” (Anderson, 2016, p. 18). The seemingly insurmountable issues around the name “Shetland” are legion.

One way to understand what makes a cloth “tweed”, and what makes Shetland Tweed different to others has become clear through this research: a comparison of colour, pattern, handle and intrinsic qualities such as softness, linked to the complex history and economy of the cloth. This comparison and compilation would help to make the argument for the uniqueness of island cloths.

Shetland Tweed is made from wool but, unlike other tweeds, is not similar to Cheviot in its qualities. Cheviot is harder wearing simply because it is a coarser fibre, and it has kemps in it which make it prickly and hard to wear next to the skin. Although some Shetland has similar kemps, it is by no means a characteristic.

Shetland Tweed mainly uses structures/ patterns which generally are some variation on a twill, one factor in common with other fabrics designated as “tweed”, and it can be found in many colours and hues. Crucially, however, it is Anderson’s view that most tweeds feature two or more colours, the interplay of which is fundamental to their being defined as “tweed”. The majority of Shetland cloths and samples seen during this research do have this as a feature. In addition they seem more colourful than other tweeds. This may be a function of the small-scale of the isles’ industry. One mill using bright colours in its Shetland Tweed production would have been, as a percentage of the whole industrial output of the islands, significant. More research into this aspect of island tweed would be useful, to ascertain the true extent of this difference in colouration, once the restricted access to collections and archives is lifted.

It has also been noted during this research that Shetland Tweed makes use of small motifs in the patterning. While this may seem to be a defining characteristic it is most likely due to fashion and style and not to any island-specific tendency towards the diminutive, although this is an open question and requires future research.

Given the softness of the tweeds produced from Shetland wool, it is perhaps not surprising that the cloths are not particularly suited for formal wear. The cloth tends to sag in use, and does not retain its shape as well as other, more robust fabrics. In this Shetland differs from other tweeds which are used in formal wear. The idea that Shetland Tweed is different from other tweeds is a little more complex than simply colouration and formality. The yarns used traditionally in the manufacture of early tweeds were homespun: yarns spun by hand on the croft. Sometimes these fabrics were known as “homespuns”, the label beginning as a descriptor of cloth made from yarns created in the home by hand and extended to apply to “coarse, or coarse-looking tweeds made in mills by mechanized methods” (Anderson, 2016, p. 16).

The Shetland Tweeds were also differentiated from others by their soft handle, the way they feel to the touch. While softness may be a comparative term, Shetland as a natural fibre is softer with more crimp than other UK sheep breeds produce (North American Shetland Sheepbreeders Association, 2020). It is this characteristic softness upon which the reputation of Shetland wool is built, and it is this that epitomises Shetland Tweed.

2.4 Defining Shetland Tweed

From the above paragraphs it is possible to create a working definition of Shetland Tweed.

The fabric should be:

- Woven in relatively small, short-run ;
- Using the wool from the Shetland breed of sheep;
- On the islands;
- Preferably hand-woven and/ or hand-warped;
- Using woollen-spun yarns, generally in one or two plies;
- Taking advantage of natural and dyed colour;
- Finished on or off the island in such a way that the resulting cloth can be used for informal wear, or soft furnishings.

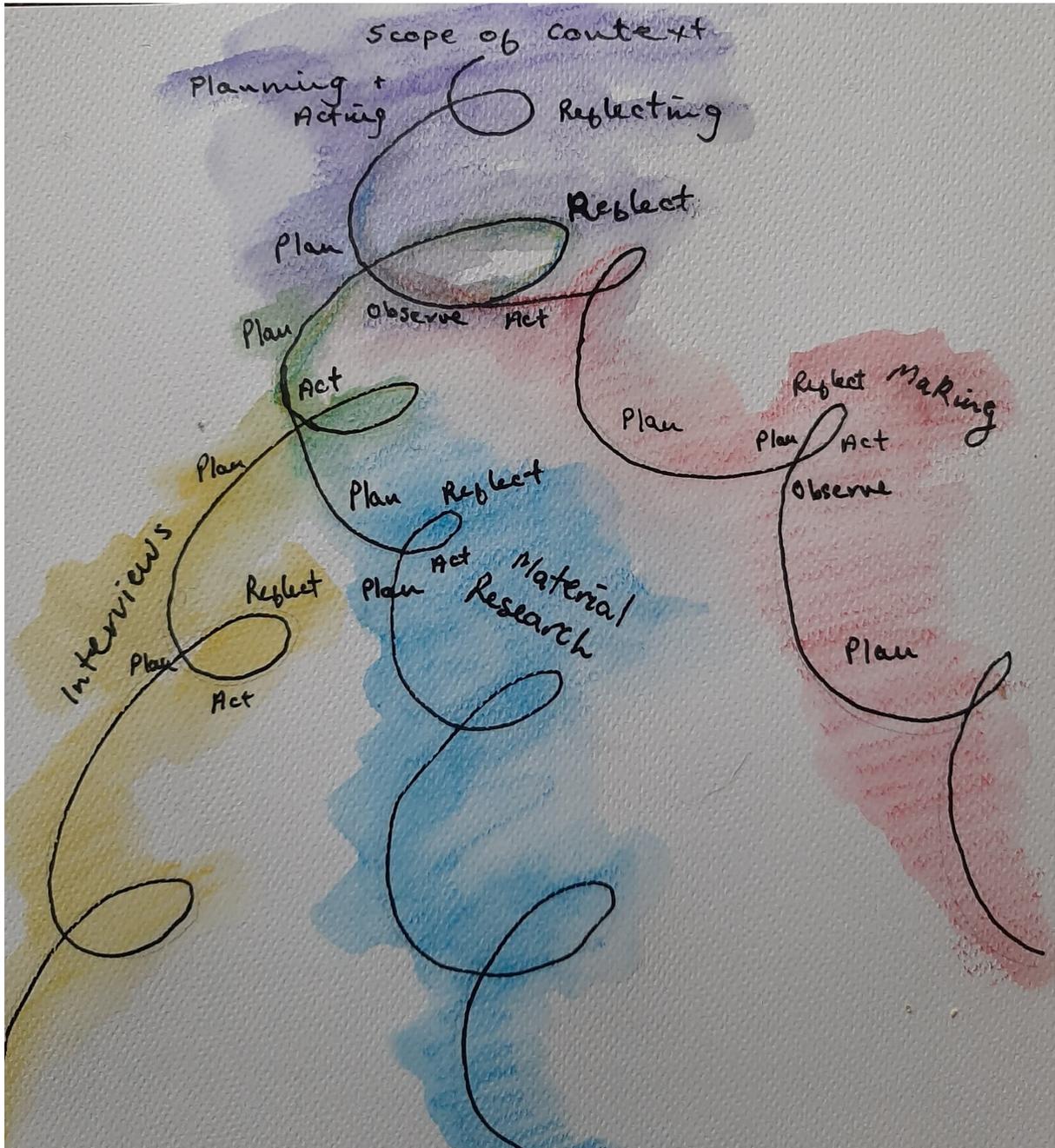


Figure xii - Action Research as it pertains to this research.

The three different research areas – interviews, material research and making – were subject to a repeated cycle of learning, action, refining and reaction.

3. Dressing the loom – A Methodology

3.1 Research Design

Researching Shetland Tweed has been important in my practice as a designer/weaver of island tweed for more than a decade, and applying the results of research has been the starting point for the many designs produced in the studio in Yell. Now, with the industry in terminal decline, this research seeks to support what is left. In the design of this research I wanted to find out what future, if any, there is for Shetland's Tweeds by using, and extending, a practice-based approach to research through design and its application.

Approaching research as an academic exercise for this project was little-known territory. Although I had published a book about Shetland Tweed in 2017, *Shetland's Tweed Heritage: A century of industry* (Ross, 2017), that particular project was undertaken as part of a team and there was a limited amount of original solo work. Scholarly research and the rigour of academic practice proved to be enlightening, not only in the data unearthed, but also in the ways in which the deep understanding, rich insights and methodical linking together of the subject through time revealed information that could influence my practice.

This chapter lays out the epistemology, theoretical underpinning, methodology and, finally, the methods used to obtain and extract data relating to Shetland's Tweed past, present and future.

The research project commenced with the Research Question: "Can Shetland Tweed be reinvigorated through a deeper understanding of its history and heritage? Positing the project in this way offered a unique opportunity to apply research to practice in a body of work built-up through that academic application. In addition, it offered the chance to present a comprehensive analysis of Shetland Tweed and its past through academic research in archives, collections and the memories of people who worked in the industry. These were brought together to form this research

project with benefits to my creative and research practice and the wider tweed industry, not only in Shetland but potentially nationally and internationally.

This research focused on two particular aspects of Shetland Tweed. Firstly, what makes it different to other tweeds and secondly, how can that difference be exploited for a more secure future?

The aims of the research are to:

- support the tweed industry of the isles, in order that the fabric can continue to be made in Shetland now and in the future,
- ensure that public awareness of Shetland's textile heritage is broadened.

The objectives for achieving that aim are to formulate and present a clear and comprehensive understanding of the Shetland Tweed industry and the role that it has played in the life of Shetlanders, prior to its start in the 1840s through to its contemporary, 2020, incarnations.

3.2 Shetland Tweed: A Social Constructivist Epistemology

The Shetland Museum and Archive holds an extensive array of textiles, including an important collection from the largest of the tweed manufacturers, Adies of Voe, that attracts researchers from across the globe. Appreciation for these (and other) textiles comes from a particular understanding of the ways in which they affect and influence society. My understanding of textiles comes from the social interactions that take place around the fabrics. I was raised in Zimbabwe where cloth plays an important role in the identity of people and culture, as it does across Africa. Given my background and my knowledge of historical uses of textiles this thesis is aligned with a Social Constructivist viewpoint; in other words, people add meaning, so that a gold cloth, for instance, may be worn to symbolise wealth or hierarchical importance. In working through that alignment, the research reveals insights and understanding of what was thought of the fabric historically, and the need to create a new identity for it, reclaiming it for the islands as an integral part of Shetland culture and an important part of the “social fabric” of the islands.

3.3 Theoretical perspective

Through this practice-based critical enquiry, the intention has been to learn and understand more about Shetland Tweed, as a mode of research through design. The decision to focus the enquiry in this way is informed by Christopher Frayling's work. In Royal College of Art Research Papers, Frayling outlines three approaches for research: into, through and for art and design (Frayling, 1993). While my research contained elements of all three, the overarching concept was to research, evaluate and analyse, then design using that research, and then analyse again. It was not a straight-forward research project looking at design, nor one that focused solely on designing but one that offered ways in which research could contribute to an industry by using design and research together.

Using research through art and design naturally led to this being a practice-based enquiry. According to Linda Candy at the University of Technology in Sydney, practice-based research has, as its basis, the use of a creative artefact contributing to knowledge (Candy, 2006). As this project used cloths woven at GlobalYell's studio as a major contributor to the knowledge generated, it aligns the research to practice-based methods and an Action Research methodology.

3.4 Action Research

The choice to use an Action Research approach as a methodology was influenced by a desire to support a small but important part of the industry of the isles: tweed manufacturing. Through my contacts in the industry I was able to formulate a plan for collaboration in action, which involved and included many different facets of the creation of this iconic fabric. Along with the practice-based foundation to the critical enquiry - coupled with the iterative nature in which I work - making following research is followed, in turn, by reflection and re-making, as described in Jean McNiff's "Action Research Principles and Practice" (McNiff, 2013). I intended to create contemporary cloths while also creating an holistic view of the tweed industry in Shetland. The diagram of the process of Action Research – plan, act, reflect, plan, observe, repeat – illustrates the cyclical method of research enquiry and the refinement of ideas into an "imagined" cloth, in this case, a 2/2 twill ([Figure xiii](#)).

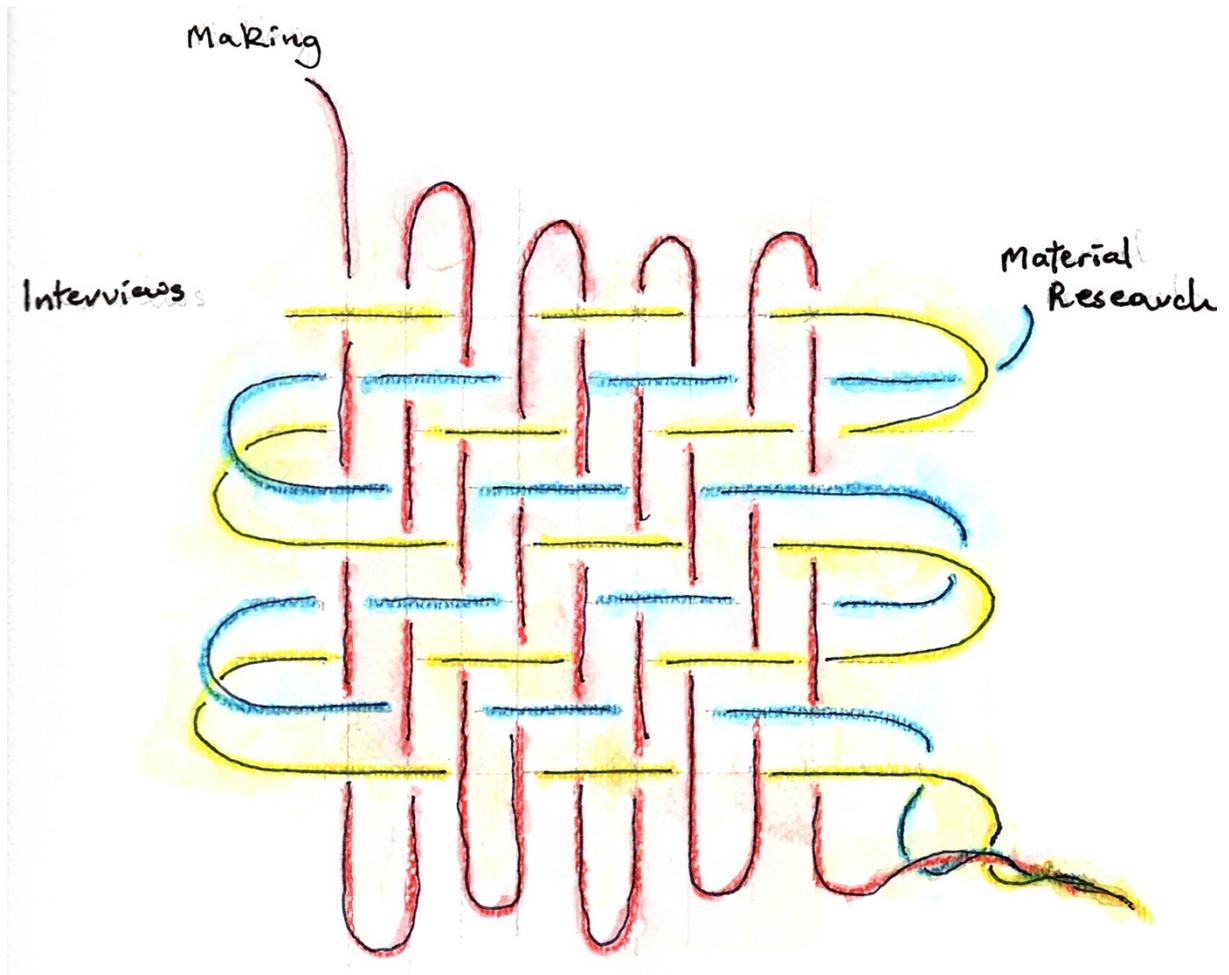


Figure xiii: An imagined cloth.

Formed by the weaving together of the three research elements: interview, making and material research, making forms a strong warp through which two coloured wefts are interlaced.

3.5 Methods

Since 2007, all of the cloths made in the studio in Yell have been influenced by research in Shetland's textile archives at the Shetland Museum and Archive Store. These enquiries afforded a first step into applying the current project's research to practice; it being important to establish baseline data against which future designs could be compared.

In 2019, alarmed at the decline of the industry and the increasingly deleterious effects of appropriation of the name "Shetland", this Master of Research project commenced. The practice of working with existing collections to influence contemporary cloths proved to be a useful starting point and it was augmented with secondary research online. The bibliography includes the online sources in libraries and archives, those being the British Library in London, the library at the Museum of English Rural Life (MERL) in Reading and, primarily, the Shetland Museum and Archive. The latter holds the majority of documentary resources relating to the islands and provided a useful overview at the start of the project, as well as an on-going resource for consolidating and cross-referencing. This part of the research provided a broad reach demonstrating the extent to which Shetland Tweed was made and known, as described in the opening chapters of this thesis.

During this initial phase of the research, which started in January 2019, fieldwork commenced. The fieldwork fell into three distinct component parts - interviews, material research and making, described below.

3.6 Interviews

During the fieldwork stage of the project, interviews were conducted with weavers past and present, and people who had some connection, family or business, with the industry. The participants were chosen by word of mouth or through my dealings with them, and they were selected to represent a diversity of views and opinions about different aspects of the industry. Choosing these interviewees gave the broad range of experience and knowledge required to understand Shetland Tweed holistically, as a manufactured cloth and the conditions under which it was made, and as a repository of knowledge about island life “as it was”.

I have spent over a decade working with Shetland’s tweeds, the tweed industry and those who care for the isles’ heritage. This experience has allowed me to make extensive contacts in the community because of the trust placed in me for my work in Shetland, and this privileged position was extremely valuable in selecting the sample of those who should be interviewed for the project. It was not, however, the only way in which participants were chosen for an interview. Word of mouth played a significant role in introducing unexpected viewpoints and experiences. For instance, following a visit to the studio in Yell by her granddaughter, one interviewee was recruited. This interview was filled with laughter and tenderness as the interviewee recollected her brother who had woven at Adies in Voe.

A scoping research project in 2016, initiated by GlobalYell as a route to begin to understand the tweed industry of Shetland, had interviewed past weavers. Due to oversampling in the islands, it was imperative to be cautious about going over old ground. It is important that the process and rationale for including these interviews in this research is made clear. Those previous interviews were original research and formed a solid base of information upon which to build along with those conducted specifically for this project. In summary, five interviews were conducted for this Masters degree research, and three others used from the previous project. All the interviews were recorded and the audio forms an integral part of the heritage of tweed weaving in Shetland. These recordings will be given to the Shetland Museum and Archives as a record of the industry’s history.

The choice to transcribe or not was made more difficult by the dialect, meaning that transcribing would have to be done by someone who understood it and could write it down phonetically – Shetlandic has no standardised spelling. In transcribing conversation, listening and writing it down before typing up, the rhythm of voices is lost and this is particularly poignant when it comes to Shetland dialect. The rich and poetic sound is part of the history of the isles, and to hear a weaver talking about his trade, or a sister talk of her brother, in broad dialect was inspiring. Much like weaving demands the attention of even the most skilled practitioner, these interviews demanded attentive listening in order to capture the emotional content as well as the actual words. Instead of transcribing, I listened over and over again to each interview and made notes. Gradually in this way, I identified the significant themes which emerged.

Determining the length of each interview was not an accurate science. Rather than allocating a specific amount of time to each it proved to be beneficial to allow the interviewees to respond in their own time. If the conversation flagged an interjection could be made or question could be asked to maintain the flow. In this way it was possible to gather discrete information that was not necessarily immediately identifiable as “research data”. An example of this was the smell that interviewees remembered from the tweed sheds; a piece of information that added richness to the picture of Shetland Tweed that was being built up but was not originally included in the interview questions.

Each interview was brought to a close when either information became repetitive or it became apparent that the interviewee was tiring; the latter indicated through body language. It was important to be aware of this aspect of the interview. Although it was not always necessary or, indeed, possible because of the pandemic to return to interviewees to clarify information, I felt that it was a privilege to be able to ask people about their experiences and did not want to close-off communication if more information was needed.

3.7 Material Research

The material research took place in three collections in the isles - Shetland Museum and Archive Store, Hoswick Visitor Centre and my personal collection of tweeds and blankets gathered together prior to and throughout the project. Although many photographs of the tweeds in these different collections were on-hand through my previous project, it was decided to take more photographs so that a comprehensive catalogue of cloths could be created. This catalogue was planned to include data about each cloth: date of manufacture if known, type of yarn and its twist, colouration, structure and place of manufacture. The database would become a reference tool and a guide for others to recreate these cloths and for my own making to be influenced and bound by. One of the most important descriptors would be “handle” - the way a fabric feels - for the reason that Shetland Tweed is said to be “soft” and “silky”. This research would have necessitated handling and draping the fabrics, and working in amongst cloths was to be a major part of the cataloguing process, scheduled for 2020. Once again, coronavirus put a stop to this.

The present cataloguing system has relied on my own understanding and feeling about the cloths depicted in photographs, and I have made a judgement on their qualities as far as that is possible. In order to do this I used a freely available application – XnViewMp – that is used to compile images into a usable database. In this case, I created folders and sub-folders that echoed the research timeline. For example, one of the folders is titled “Collections” and in that folder are subfolders called “Hoswick”, “Shetland Museum”, “GlobalYell”, etc. Within each of these subfolders identical subfolders were created: Yarns, Tweeds, Advertising and Marketing, People and so forth. Images were then placed into the appropriate subfolder.

Appendix ii: A Shetland Tweed Catalogue shows a screenshot of part of the entry for the Adies collection in the Shetland Museum and Archives Store, a demonstration of the next step in the process of cataloguing the photographs. I created a set of keywords that related to the research; for example, the name of a mill or the emotional response attached to that cloth. Following this it was possible to tag each image with keywords curated from careful consideration of the entire catalogue of

material collected. This has been valuable in creating different juxtapositions of images, cloth colours and patterns as well as the people and places involved in their making.

3.8 Making

Throughout the interviews and material research, making continued. The process of making cloth was cyclical: an idea followed by warping up, weaving, finishing and finally either creating products out of the cloth or selling it by the metre before starting again with a refinement or a new idea based on careful consideration of the preceding process.

During this part of the research data was gathered, some of which took the form of sales of cloth and products. This proved to be a somewhat blunt tool to measure the success of fabric design but the only one available to indicate the commercial viability of the cloth. I also coined the term “desirability”, meaning the attractiveness of a fabric and the reasons why people found it attractive, and this has been a useful concept upon which to anchor the design of cloths. Other information was gathered through conversation and comments by visitors to the studios and this supported the sales data with less concrete but equally important information about emotional response and feeling to the cloths being created. This element of the fieldwork was continuous throughout the summer of 2019 and would have been repeated in 2020 if it were not for the closure of the premises due to the coronavirus pandemic in March of that year.

The analysis of sales and of the public response to cloths informed each successive cloth; by way of an example, deep blues and greens were the most popular choice for colour, and variations on a twill were most successful in terms of structure. As each piece sold the information pertaining to it was used to inform the design of the next fabric.

At the end of the fieldwork phase in the project, during one of the “Book Clubs” that Glasgow School of Art had established during the pandemic on the 23rd July 2020, each student was asked to present work in progress and I chose the opportunity to test out various cloths, old and new, through the presentation of photographs. This

testing was done so that I could gauge knowledge, understanding and emotional responses to cloths. The results were recorded on video and used to inform the analysis and discussion chapters of this project. [Appendix iii: Workshop with GSA students 23rd July 2020](#) contains the PowerPoint slides used in the presentation.

3.9 Mode of Analysis

Thematic Analysis, rather than other forms of interpretation such as Interpretative Phenomenological Analysis, grounded theory or situational analysis, all of which were considered, was the most appropriate approach to analyse the data across the three different elements of fieldwork. By locating themes within the first two processes - interviews and materials - information could be extracted which was then triangulated with the practice-based component to inform emerging ideas and concepts.

As previously outlined, the interviews were either transcribed or listened to many times to interpret them. Different themes became apparent through this process and, by using a spreadsheet with one theme per column, the interviews were marked with a recorded time and a note about what was said. Through repeated listening to the interviews it was possible to find data that was related by more than one person. Although some of the data was interesting, unless it was said by two or more people, it was not included in the themes because I considered it was discrete to that person.

The themes identified through this method of analysis were: Design, Economy, Personal attachments, Yarn, Qualities, History, Business and employment, Sheep and wool, Reminiscence, and Tweed. Each of these was used as an enquiry into the themes that had come out of the Scope of Context, informing those discoveries. They also inform the discussion chapter of this thesis. Part of the analysis is included to illustrate the process as [Appendix iv: Interview Analysis](#).

Following this work on the interviews, the cloths were analysed using the same themes, this time by using photographs of those fabrics, both close-ups and of entire lengths. The close-up images contain information about structure and colour while those taken from further away were used to determine emotional response because

the intense colouration was muted and blurred together. These photographs of cloths were defined by pattern and colour, and by, as stated previously, handle where my own memory could serve once the pandemic had removed the possibility of working directly with the fabrics. I also added my personal understanding of the cloths where it was applicable, in order, for example, a herringbone patterned cloth in muted colours might be coded as “Memory” under “Personal attachments” as well as “Sea” under “Design”.

The themes from the interviews, material research and making through practice-based responses were then triangulated to reveal deep insights, presenting a unified and coherent body of work that is thoroughly supported by documentation and first-hand accounts.

3.10 Making meaning

An important part of this research was to create meaning in the cloths that I weave in the studio. While it is certainly possible to recreate antique and vintage cloths, the making of new fabrics that contained the history of the old but embodied research findings was crucial. One element that could easily be used was that of colour because of its effect on emotions (Moltz, 2014). If, for example, I wanted to capture a particularly poignant interview then a darker, richer blue would evoke a similar response in anyone viewing the cloth.

Working through the cloth catalogue in a cyclical process of interpretation and reinterpretation aided the understanding of my emotional responses to historical cloths in terms of colour. Following on, I aimed to reinforce that emotion in a cloth by looking at and interpreting the fabric structures. Although this is an abstract concept, the resulting fabrics were, I felt, successful in evoking a sense of “Shetland-ness”, and proven to be so by the rapidity with which they sold. An example is included as [Appendix v: The “Shetland” cloth.](#)

3.11 Ethics

Ethical approval was sought, and granted, from Glasgow School of Art at the start of the project. Considerations in ethics included business confidentiality, personal stories and names, and information that could be attached to an individual.

Accordingly all of the research presented in this document has been anonymised with the intention that it goes into a public archive at the Shetland Museum and Archives. At the start of each interview a set of questions regarding privacy and consent was read out to participants and agreement given by them. The questions were informal in order to ease the conversation. Following this, a statement about the availability of research following graduation was read out and interviewees were asked if they would like a copy of this thesis at that point. None of the participants objected to any of the questions and all asked to be kept informed after graduation.

Since completing the interviews, one interviewee has sadly passed away. The family asked me for the recording, and, as the family members were present at the interview and contributed, I would like to give them a copy of our conversation.

3.12 Limitations of Research

Researching in Shetland requires careful planning and timetabling. The islands are long, more than one hundred miles from top to bottom, and ferries are necessary to access most outer islands. As the research was based in Yell, a ferry journey of half an hour plus at least another hour of car travel was necessary to use archives, libraries and collections in Lerwick and the South Mainland, except for GlobalYell's own reference materials. This put a limitation of time on the project, especially in the winter when weather conditions meant transport constraints and disruptions.

The small population of the islands was also a constraint. Over-sampling in the isles is an issue for anyone researching textiles, and often, with a single person responsible for a broad range of services in an organisation, it is difficult to find adequate and convenient times to undertake in-depth collaborative research.

An integral part of this research project has been the handling of materials as well as the smell of wool and weaving. These senses have been useful in determining age and provenance of woven fabrics and invoke a strong response that has been hard to capture in the research data. To deal with this issue it has been necessary to rely on photographs and the recollection that these evoked.

The main limitation in this research would potentially have been the coronavirus pandemic that closed the studios in Yell as well as other sources of information across the UK and removed the possibility of sampling for new cloths. Although the virus did mean that the "making" element of the research was curtailed because I was dislocated from my studio and thus my weaving practice, enough data had already been gathered, by March 2020 when the pandemic started, to allow the project to be analysed and written-up. Any additional information was to be found on the internet or in digital sources so this limitation was not as severe as it could have been.

4. Fieldwork

The fieldwork was comprised firstly of background information from discussions with the public and with others in the industry to inform interviews and conversations, an understanding of archive collections, and making. Following on from this, interviews were scheduled and completed, archive research was undertaken and making of cloths through a cycle of sampling, analysis, production, display and sale began.

Throughout this research, the focus has been on understanding the history and heritage of Shetland Tweed with a view to ascertaining its viability in the 21st Century. The various data sets that have been gathered have been part of this process of discovery, and analysing them has been foregrounded by the research question and by practical experience that has come from using the data to create woven cloths. This has meant that any data has had to be irrefutably relevant and applicable to the study. There are any number of paths down which to travel in a study such as this but in choosing to focus on specific areas such as colour, texture, structure and emotional response, the arguments for Shetland Tweed continuing as an industry could be supported. The use of “themes” as discussed previously helped to categorise and organise the data.

The three different parts to the fieldwork - interviews, material research and making - provided an holistic view of the breadth of Shetland’s Tweed industry, each part contributing to the whole in relating to the others. By linking interviews with cloths, and by combining that with the creation of new cloths, not only has it been possible to create a broad view of the Shetland Tweed industry, but it has also allowed the developments of textiles in which knowledge is embodied.

The idea that these contemporary cloths should have a “use value”, a transactional exchange currency of money, objects or esteem, has been instrumental in dictating the path of this fieldwork (Schoeser & Boydell, 2002, p. 8). It has been central to the positioning of these designs so that not only colour and pattern would be influenced by the research but also the value placed on the cloths, value engendered by history

or nostalgia and memory or a pride in the islands of the origins of Shetland Tweed. This is enlarged upon in the Discussion chapter.

4.1 Interviews

In this project, it was important to interview weavers, both of yesteryear and of today. The rationale behind this was to gather supporting evidence for the published sources of information about Shetland Tweed. By interviewing those who had actually been there, historical accuracy could be verified, and by interviewing contemporary weavers, a continuum of practice could be established.

However, there was another group of people who were not directly involved in weaving but who had a connection with the industry, either through family or business. These interviewees could present a more nuanced account of what life had been like during the tweed era and could also offer unique insights into the industry itself.

The interviews were useful in establishing technical data for the manufacture of cloths, such as the sett or finishing. They were also helpful in creating a picture of what a weaver's life was like, both at work and at home. It was possible through these conversations to learn more about the economy of Shetland during the tweed period and to understand how important this industry had been to the islanders.

Although the interviews were conducted in English, a certain amount of Shetland dialect came with the territory. As a researcher it was fascinating to hear what life had been like before the oil eras, starting in the 1970s, which altered the traditions of island life very quickly. Listening to someone nostalgically talk of days gone by in the accent of the islands was sometimes a moving experience. What was not immediately apparent from the interviews was that there would be so many personal stories. These gave added intangible dimensions; it is through the lived experience and memory that the smell of "tweed and oil" is evoked, like "...some form of narcotic" as one of the interviewees related (Johnson, 2018). That sense of history is powerful; a true living archive told through recollection.

4.2 Material research

The Shetland Museum and Archives Store holds a great variety of textiles curated by Carol Christiansen. This collection is much in demand by scholars, designers and fashion houses from across the world and gaining access can be difficult for that reason. It was a source of great pleasure to be able to go into the Store, just outside Lerwick, and to spend hours poring over boxes of fabric samples, cloths, yarns and patterns, mainly from the Adies of Voe collection. This had been gifted to the Museum and Archives upon the closure of the factory and, although it has not been catalogued, is in good order for looking through and gaining a sense of a company's history and output.

Not so for the second of the collections; Hoswick, in the South of Mainland Shetland, had been well-known for its weaving. Laurence J Smith had a factory there and when that closed, piles of samples, pattern books, ledgers, yarns and equipment had been boxed up and put away in the basement of what is now the Visitors' Centre. Unknown to the public, it was only the chance mention by a visitor to the studio a few years ago that provided a clue to the treasure trove that was stored there. The collection is stored in cardboard and plastic boxes, and there is additional material across the road in the old L J Smith premises. Many of the cloths were packed away when the company closed in the 1980s and unpacking each box revealed cloths, samples, yarns, tapes, labels, equipment and ledgers. It was not possible to revisit the collection to make a start on cataloguing it because of the pandemic, but photographs were taken prior to lockdown to use for this research.

Both of these collections hold samples, also called "gamps" or "blankets". For an explanation of how these samples were and are created, please see [Appendix vi: Sampling and gamps.](#)

4.3 Making

Making has been a major source of information in this research and, for that reason, has been ongoing since the project commenced. Before the start of the project, cloths were being created in the studio, these had been designed *for*, not *by*, the company as part of a label: "X Creates For...". This process was based on

contemporary methods of producing cloths for industry and formed part of an educational programme for young designers. In this process in industry a designer creates the fabric using patterns and colourways of the season, or style, etc. Those patterns are then woven, often by someone else, and often in a different place from where they purport to come. This method of production for the studio, by contrast, had come about of necessity – the need to create an income from weaving cloth - *and* opportunity – the wish to help graduate weavers to understand commercial design by creating saleable fabrics.

The expense associated with purchasing equipment and premises, and the length of time it takes to design and weave a cloth means that few companies can afford to set-up and run a production studio. Large factories therefore have been established in Scotland and elsewhere to weave on commission. For this project though it was necessary to weave original cloths rather than those designed for the company under the *X creates for* label. This was much more akin to the traditional way of creating Shetland Tweed in that the weaver was also the designer.

After having seen cloths in the archive and collections, and in speaking to weavers and others who had some involvement in the industry, one fact became evident – Shetland Tweed made in the islands had always been limited in its availability in comparison to, say, Harris Tweed. That was due to the availability of the raw material: Shetland wool, as well as to its handmade provenance. This presented an opportunity. By virtue of the availability of wool spun on the islands and the painstaking process of warping up the production loom in the studio in Yell, it was possible to produce cloths that had a significant amount of handwork in them but that could be quickly woven once the warp threads were on the beam and through the heddles on the loom. This would give the cloth a handmade provenance at the same time as a “rarity value” because of the provenance of the wool used in its production.

Design in contemporary cloths has become a specialisation. Design is taught in Higher Education institutes, including The Glasgow School of Art, and each year, large numbers of designers graduate from Further and Higher Education establishments in the UK, going into business for themselves, or working in the industry. At the height of the tweed industry in the isles, by contrast, weavers were

working to set patterns and colours chosen by the client, owner or manager of the business. This allowed a certain flexibility in the placement of colours and the choice of patterns in the cloths, especially where sample gamps were made. In this last case, the weaver had almost complete autonomy over the colouring and structure.

Approaching the weaving of tweed in this way offered an exciting, somewhat daunting, prospect. By removing the need to design prior to warping, one of the steps in the creation of cloth could be cut from the process, replaced instead by consideration of colour, and then by sampling for the structure. In this process, design became an intuitive element in the creation of the cloth, an integral part of the process rather than a process in itself.

In order to explain this more fully, the following paragraph gives an example of the method of warping up in the studio in Yell, done by hand using a mechanism called a tensioning device and warping in sections rather than, as is usual, an entire beam. A set of diagrams to accompany this explanation is included ([Figure xiv](#)).

Sectional warping in Yell

Threads from cones of wool bought wholesale from suppliers in the islands are wound onto *spindles* and those spindles are placed onto upright rods on a frame. By working out how many threads per inch there will be in a cloth – the number that determines the closeness and handle of the final material, with more threads making a denser fabric – and by warping up in sections, each section either being one or two inches wide, the number of spindles necessary at any one time is known and can be prepared with threads. For example, using 14 threads per inch as the count for the cloth and wanting to weave at 60 inches wide, 840 (14x60) individually wound spindles would be needed. In the studio, there would not be enough spindles for the operation to be completed in one step and it would be impossibly confusing to have 840 threads all going evenly onto the beam at the same time, hence warping up in sections. If two inch sections are used, then only 28 spindles are necessary at any time. Working in this way slows the process considerably because the spindles have to be filled with yarn for each section as well as when they empty, but it is far more efficient in the long run.

Once the spindles have been placed on the frame each of these threads is drawn upwards and through the eye of a hook suspended above the spindle. The threads are passed through the tensioning device and then drawn through a reed before being tied together and hooked onto the back beam. Upon turning the beam, the threads are drawn through the tensioning device and reed and wound onto the beam, the number of turns dictating the length of the threads in the section. Once the section is filled, the process moves to the next section and is repeated. In a warp that has a repeat, it is usual to complete all the sections that are the same before moving onto the next set of threads but this method also allows the warp to have no repeat at all; every section can be different.

This method of warping up is not as efficient as warping directly from cones, and it is not possible to mechanise it for various reasons: space; expense; and breakages in the threads that need to be mended as soon as they occur. It takes time to warp up in this way but the advantage of doing so is greater control of thread tensions, and the ability to make changes quickly and within each section. On larger equipment the warping is completed on a much bigger scale by machinery and resulting in a repeated warp colouration i.e. one set of thread colours is repeated across the whole warp.

By using the time needed to warp up on the studio loom to study and consider colours of threads near to each other, and by stepping away from the work to look at the overall effect of the warp, it became apparent that a design approach to making warps was possible. Rather than designing on paper or computer before warping, it was feasible to design on the loom, using paintings and photographs for reference, at the same time as warping up. The effect of colours sitting next to each other could be immediately seen, and alterations to the balance of hues and shades could be made as the warp progressed. It is a similar approach to that of the designer, Bernat Klein, who studied fine art and used art techniques to inform his textile practice (National Museums Scotland, 2020). The photographs overleaf show spindles on the frame ready for passing through the tensioning device onto the beam ([Figure xv](#)), a close-up of filled sections ([Figure xvi](#)) and the almost-completed warp on the beam ([Figure xvii](#)) as an example of what can be achieved with this method.

An additional advantage came through the seeming obstacle of the time necessary to work in this fashion. While the process is certainly slow, it also creates shorter runs of cloth than other, larger-scale industrial processes. By turning this into an advantage and creating Limited Editions of fabric, it should be possible to ensure exclusivity, driving up demand and the consequently the price per metre of cloth.

With that in mind, the process of making could begin. This was a systematic helical approach: creating and selling cloth, analysing the responses to the fabric by the public and through sales, then refining the methods before repeating the process. The first material made in this way was made into cushions, small bags and cases, and sold as lengths. The response was enthusiastic, and it was gratifying to hear comments like “It IS Shetland”, “It looks like the view outside your window”, and “That is going to be a reminder of our holiday in the islands”. Comments like this proved that the results of combining historical research with spontaneous design created cloths that people, both islanders and visitors, identified as evocative of Shetland.

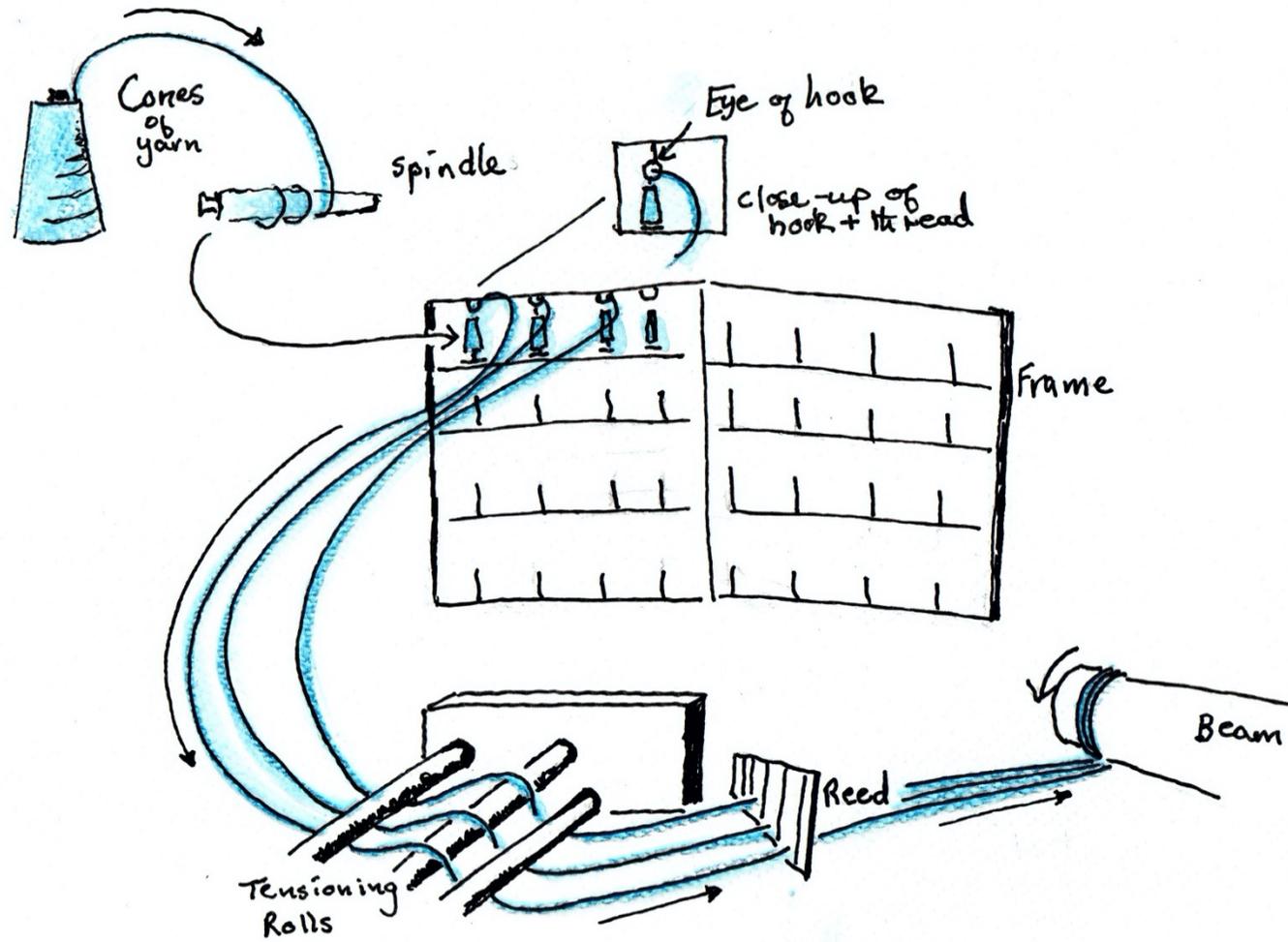


Figure xiv – Setting up a sectional warp



Figure xv - Spindles wound with yarn for warping up



Figure xvi - Five completed sections of a warp



Figure xvii - The almost-completed warp.

Showing the gradual colour changes across the width.

5. Discussion

This chapter sets out thoughts about the research process and then places the Shetland Tweed industry in relation to this research. The chapter concludes with a possible future for the tweed industry through seeking legal protection for the island fabric.

5.1 Interviews

From the interviews, both those conducted as a precursor to the research and those conducted during the fieldwork, different themes became evident (Appendix iv: Interview Analysis): Design, Economy, Personal Attachments, Yarn, Qualities, History, Business and Employment, Sheep and Wool, Reminiscence, and Tweed and the Name “Shetland”. Each of the interviews was analysed according to these themes, and those themes in turn were linked to the cloth research, the insights and research findings.

In writing about the interviews it seemed natural to let the stories flow, one from another, across themes. For example, in the paragraphs below the analysis moves from the theme of “Design” to “Yarn”.

The theme of “Design” was created in order to gather information about the look of tweeds in Shetland, for use in the future sampling process. Only one of the participants spoke in-depth about the design of Shetland Tweeds in the past, reflecting on the way in which the industry worked. “Design” was not something that these weavers consciously did. Instead they wove to existing patterns using colours selected by the client. Only on one occasion did an interviewee actually “design” a tweed and that was for a personal project. Interestingly, according to this weaver, it was partly the use of “tappet looms” (at Adies of Voe) that was responsible for this lack of design input from the weaver. It was apparently difficult to change the patterning because of the gearing mechanism on these looms and so no “fancy weave” was used. Nowadays, with computerised looms and the ability to quickly change a set of lifts by altering the design on a computer, design has become the route through which cloths are created.

The “standard” weight of yarn used in the production of cloth was “16 cut” at the time. The “Cut” system refers to the Galashiels count for yarn weight and is indicated by a small “c” after the number given to the yarn. According to another of the themes, “Yarns”, and a different weaver, the 17 cut yarn was “picked” at 20 threads per inch while the 21 cut was picked at 21 or 22 threads per inch. These were “singles” yarns, i.e. the yarn used was one single thread of 16 or 21 cut rather than plied with another to make a 2/16 or 2/21 c(ut) yarn, or even plied with two others to make a 3/16 or 3/21c yarn.

In those days the warps would arrive at the loom ready-made either in-house if the loom was in a mill or from elsewhere if the weaver was working at home. This warp was accompanied by the weft colours and patterning. A minimum of ten yards was required for each order. One of the most enjoyable jobs for one of the interviewees was to translate the “graph” into the weave. (For an explanation of how these graphical plans could be read, please see [Appendix vii: How to use a threading and a lift plan.](#)) Working from “piece tickets”, much like the one depicted overleaf ([Figure xxii](#)) the weaver would hand-thread each of the heddles and set the loom to make the required lifts. According to another of the interviewees, this time one with family connections to the industry, weavers were generally considered to be thoughtful people, and this painstaking work would have suited anyone with the “weaving temperament”. This was not considered to be a creative endeavour, as it is nowadays. The telling phrase uttered by a interviewee, “16 colours of brown”, referring to the hues that were used in the tweed in one factory, speaks volumes, but at a time when work was scarce the lack of employment, especially just after the Second World War, returns again and again in the interviews - any work was better than nothing. People spoke of twelve-hour working days to earn extra money when the work was paid hourly. Sometimes though it was paid as “piece work”, a piece being a length of specific measurement. In that case, speed was of the essence and weavers worked quickly to make as much tweed as possible, up to thirty yards in a day for one of the interviewees, although 15 to 20 yards was more usual.

5.2 Material Research

There are two collections that were the focus of investigation for this project: Adies of Voe and Hoswick in the South Mainland.

Adies

The largest of the tweed producers in Shetland was T M Adie and Sons. Established in the early 1830s by the splendidly-named Thomas Mountford Adie, the company enjoyed over a century and a half of trade in fishing, baking and weaving. The weaving shed at the shore in Voe still stands, a testament to the legacy of buildings that Adies left on Lower Voe's shore.

Looking through the remains of the Adies archive, which now reside in the Store of Shetland Museum under the care of its curator, is a revelation. Not only are there cloths, mostly as samples (see [Appendix vi: Sampling and gamps](#) for a description of sampling), but also threads and yarns, labels and some small machinery for labelling. There was a large amount to go through, for the purposes of this research project, I decided to use the boxes of samples, photographing those that were indicative of the industry and some that were unique. This required two visits to the Store where the curator and I had conversations about the cloths, their methods of production, the colours, handle and structure. It was a fascinating experience to spend time with these precious remnants of a once-proud company, one that had been famed for its tweed, as well as for the Everest Jumper.

Hoswick

The cloths and records at Hoswick were equally fascinating and equally complex. While many of the cloths are samples, some are lengths and others were clearly woven for a particular reason. One set was very interesting because they were variations of tartan.

While Shetland may be considered a part of Scotland, tartan is not regularly worn, or seen, in the isles. "Tartans", in the modern Scottish context and generally speaking, are the checked and striped cloths that designate a clan, estate or geographical area. Shetland does not seem to have used tartan in the same way, but there does

exist, in the Hoswick Collection, a selection of cloths which have been made as samples of well-known tartans. These have the keyword “tartan” in the catalogue of this research project. Labels on the pieces indicate they are “Red Fraser” or “McDonald”, etc; known names for specific tartans. It is probable that these were woven in order to test out new markets, either as a commission for a third party or by the mill owner or weaver creating them as testing samples. Whatever the reason, such cloths are very much the exception than the rule in the collections I have studied. Aside from those tartan samples, the other cloths in the Hoswick collection are traditional Shetland Tweeds.

The Photographic Records

To make sense of these cloths, especially after the coronavirus pandemic closed the studios and forced a move to London thereby removing the possibility of revisiting any of the physical objects, these photographic records became vital. Looking again at them brought back the feel and the distinctive smell of wool and dusty age. Such intangible things cannot be represented adequately in words, but words and pictures together might add a certain sense to the experience of handling these fragile pieces of history. I decided to make a table to catalogue the photographs and create some order firstly before settling on the computerised recording and cataloguing system referred to previously: [XNViewMp](#). [The National Archives](#) were a useful resource in understanding how to archive and catalogue.

In both collections, it is possible to trace the advent of different colours and the impact of fashion on the cloth designs. By the 1960s and ‘70s, the cloths in each collection have become very bright in many cases. It is not possible, because of the virus impact, to go back and place the cloths into chronological order; the process requires space and time to lay out ledgers, cloths and pattern cards, matching each through reference to the number sometimes stitched in a contrast colour onto the bottom of the sample “blanket”. However, it is possible to see the progression in the numbering and colours, and from that, make an educated guess as to the period the sample was woven. It has been possible to place some of the cloths at a specific date because the stitched numbering on the fabric corresponds to documentation. At

other times there is no indication of the date and, as this is a searchable database, it has not been necessary to place the cloths in any particular order.

5.3 Making

The creation of cloths in the studio of Yell, their subsequent displaying and their sale has resulted in a considerable amount of information, not only financial but also about design and use of the fabrics. There have been various processes in use during this stage, starting from the creation of a warp for a specific purpose and ending with the sale of the resulting cloth or products made from that cloth. At all stages, information was gathered from visitors to the studios, mainly anecdotal and conversational in tone. This was a useful exercise particularly for ascertaining the “Shetland-ness” of cloths; one of the design concepts upon which the production of these new cloths was built.

6. A Very Human Thread –Analysing Shetland Tweed

“I spent the morning gazing at piles of paper and books, photographs on my laptop and ‘phone, interview transcripts..., wondering how I was ever going to be able to make sense of the mountain of information in front of me. How was it possible to put all of it into any coherent, cohesive order?”

Then the light dawned; I should be weaving it. Create a strong warp out of research methods and use the research as weft. An awesome task had just been made manageable by looking at it through the lens of what I knew best.”

Throughout this research, the idea that Shetland Tweed sits along a continuum of cloth production in the isles, making it much like the origins of the rest of the tweed industry, at least in Scotland, has been a central tenet. After all, if it can be proved that what is being produced in the tweed industry has a long pedigree, a degree of historical authority, authenticity and prestige is inferred. This, however, has been identified as the downfall of the 20th Century Orkney tweed industry by Sarah Pedersen and Andrea Peach (Pederson & Peach, 2019). According to the authors of “Highland Romance or Viking Saga?” Orkney chose to link the islands’ tweed manufacture to Viking heritage with the result that it competed with the stronger Scottish romantic notions that had become firmly embedded in the public’s idea of tweed. Contemporary producers in Orkney focus on “‘natural’ properties of the fabric and the production of easily portable souvenirs”.

Shetland however stands separately to Orkney. Like its neighbour it has a native breed of sheep but, unlike in Orkney, Shetland sheep are still marketed for their wool, the fibre is widely used in the textiles industries of the islands, and it has become known for its qualities worldwide. Perhaps this difference is enough to permit the use of Shetland’s rich history in the marketing of Shetland Tweed?

The success of Shetland Wool Week, an annual event that focuses attention on the textile industries of the isles, points to a worldwide fascination for the product of the

Shetland sheep and the brand recognition of the name “Shetland” in relation to that wool. As the breed is ancient, and partly originates with the Viking introduction of the Northern short-tailed variety, a Viking lineage has already been established. The difficulty with making this Viking link explicit and an integral part of the marketing of Shetland Tweed are the associations of the term “tweed” with negative qualities. Firmly set in the public’s mind are the qualities of tweed, whether these are real or imagined, those being “coarse”, “rough” and “scratchy”. What is needed then is a different approach, a “romantic lens” that plays on the ancient links Shetland sheep have with Viking exploration and one that dispels the misguided notions about the handle of this unique fabric.

One obvious way to go about repositioning Shetland Tweed that takes account of both of these positions is to move towards the upper-end of the market for the cloths; that is, the luxury market. This presents a problem. Shetland Tweed is not often viewed nowadays as a “luxury” item because of the softer handle of materials such as alpaca, merino and cashmere. It has its roots in utilitarian weaving for the household and has never managed to shake off those beginnings. It is known for “bagging”, being unable to maintain its shape for tailored clothes without being mixed with other fibres, but mixing the fibres with others to give the desired fabric strength goes against the main identity of Shetland wool: its softness and lustre.

This is a familiar issue: the same dilemma where breeding of Shetland sheep with other breeds is concerned. It seems an insurmountable problem. Without the purity of the breed and the softness of the wool derived from that breed, Shetland Tweed would not be making the most of its esteemed qualities. It seems inevitable that it is not destined for the luxury of tailoring. Harris Tweed has successfully managed to negotiate this tricky issue by concentrating on the handmade aspects of its manufacture, linking it with the hard-wearing characteristics of the wool. For Shetland, however, this is not feasible. Certainly it is possible to make a strong case for the “handwoven”; Shetland Tweed was once known as a “handspun”, a cloth made from yarns spun at home. The tying of the handmade aspects to the characteristic of the cloth – its softness – would not lead automatically to the market for tailored garments because, as previously stated, it is simply too soft without being mixed with other fibres. In addition, this path takes Shetland Tweed into direct

competition with Harris Tweed and, in fact, it then puts Shetland into competition with all other tweeds. Simply stated, Shetland Tweed needs to make the most of its unique softness along with its colours and patterns and its handmade provenance in order to differentiate it from other tweed fabrics.

6.1 Identifying markets

Shetland Tweed, in order to thrive, calls out to be identified as a luxury product, one that is distinct from other tweeds and one that makes the most of its characteristics. Two other qualities can help with this differentiation. For as long as cloth has been woven in the islands, the small population and amount of raw material has meant that the quantity of fabric it is possible to make is necessarily limited. This is already linked with the image of Shetland as a production area of great antiquity, making quality textiles. Here then is a real opportunity to create something that is very different to what is currently on offer to prospective buyers. At a time when those buyers are actively searching for certain qualities: natural, unique and traceable among them, the availability of a limited amount of cloth from islands generally regarded as remote, wild and romantic should be highly desirable.

As noted in the Scope of Context chapter, The Shetland Tweed Company, is based at GlobalYell's studios in Yell. With a production small in scale, based on heritage and traditional practices and with an outward-looking, inclusive ethos, the working partnership of the Shetland Tweed Company and GlobalYell operations for mutual benefit closely aligns with the "Innovation through Tradition" model as described by GSA researchers, McHattie *et al* (McHattie, et al., 2018). This model is one that could be replicated for the benefit of Shetland. It takes account of the handmade nature of Shetland Tweed in its production and it uses local wool to produce its cloth. It is also selling cloths that are more expensive to produce due to their method of production, and consequently the fabrics are more expensive to buy. This benefits not only the company itself, but also GlobalYell, which rents out its weaving equipment for this production. It supports the local wool industry, taps into the trend towards sustainability, traceability and local production, and through its marketing increases public awareness of Shetland Tweed and Shetland wool. This appears to be an ideally suited model for future production in the islands.

One other crucial difference in the way The Shetland Tweed Company operates in comparison to traditional manufacturing is that of the design of the cloth itself. The Company produces one-off lengths as Limited Editions. Each of those lengths is unique because of the way it is produced. With reference to a photograph or a painting, each cloth is hand-warped and spindles hand-wound, allowing for an artistic interpretation of colour and texture, not something that can easily be done in industry where speed is of the essence. It is slow work, this kind of weaving, but cathartic and reflective, leading to subtle and responsive outputs. It also allows for design decisions to be made quickly and efficiently with reference to the whole. By working in this way, the traditional handwoven production of Shetland has come full-circle in a pleasing nod to the past.

7. Conclusion: A possible future

In 2020, there is only one company producing tweeds in Shetland. Jamieson's of Shetland which spins its yarns in premises in Sandness on the Mainland ceased weaving in February of 2020 when their traditional tweed weaver retired, and that left The Shetland Tweed Company.

An analysis of the data gathered from almanacs and census records has revealed a hidden truth. Although Shetland has experienced what might be considered a catastrophic decline in weaving, it must be remembered that the industry in Shetland has always been small in scale, compared to other tweed producing areas of the UK. Even at its height in the 1950s, when Shetland was exporting thousands of yards of cloth (Hoseason, 1954), other producers such as Harris Tweed, despite numerous difficulties and conflicts, were producing far more (Macleod, 1993). This small output only required the employment of a few weavers. In a place like Shetland where the population is small any decline in the numbers of people employed in any industry appears, and is, drastic as a percentage of the whole.

This goes both ways, however. The increase in employment in any industry is just as dramatic when compared to the total involved in that industry. While the last weaver of traditional tweed has retired from the isles' manufacturing of cloth, the concept of Shetland Tweed has not been lost; two weavers are employed at The Shetland Tweed Company making contemporary versions of the fabric.

This is a positive view of the island context and it offers a path for the continued success of Shetland Tweed. By making a virtue of the small population, i.e. having only a few people creating artisanal cloth, the output becomes more desirable because there is less of it. The quality of fabric can be maintained because there are fewer people actually making the cloth, and individuality can be embedded into the cloths through artistry: unique viewpoints and characteristics. At a time when populations and governments are turning towards more localised production for sustainability and ethical reasons, Shetland can capitalise on what has traditionally been seen as a negative – lack of people to work in these types of industry.

Standing alongside this is the concept of “hand” work: hand-spun, hand-woven, hand-made. Throughout the literature studied for this project, and the making of Shetland Tweed, the idea of the cloth being made by hand is strong. With the rise of the industry in the 1950s, and the advancement of machinery for spinning yarns, the idea that Shetland Tweed is made from “hand-spun” yarns has disappeared, but the fabric can still be called “hand-made” or “hand-woven” by virtue of the Harris Tweed model (Macleod, 1975) (Macleod, 1993).

In order to support Shetland’s Tweed industry and its growth of the industry on the islands, it may be necessary to give it protection. While it has not been possible previously to provide a trademark protection because the word “Shetland” is a geographical designation, this research has provided enough evidence to prove that Shetland Tweed is different to others. The stumbling block in going down the trademark protection route is the fact that the cloth is produced elsewhere in the world by legitimate manufacturers because the wool used is from Shetland breed. It is the same conundrum that has bedeviled Shetland’s textile industry for decades.

There is one possible solution though. By combining the hand-made/ hand-woven aspect of the cloth, the island context, native sheep wool and its traceability with individuality and artistry, it should be possible to achieve significant protection of some sort so that Shetland Tweed should not be a ‘forgotten industry’. It seems that the future for these desirable, iconic and once-famous cloths, with an ancestry that predates “tweed”, may be saved by making the most of that most important of designations: Made from and in Shetland.

8. Future Research

In order to secure this kind of future for Shetland Tweed a body of evidence needs to be built and made available to others so that the industry can be strengthened and supported. This thesis, the collected materials for this project, audio recordings and images, the catalogue of cloths and samples are intended to be gifted to the Shetland Museum where they will form a small but important part of the history and heritage of the isles. This will have the added benefit of being made available to researchers and designers.

There is still much more that can be done. One of the major pieces of work I shall undertake is to write a definitive book about Shetland Tweed, including photographs and stories, and patterns and designs from the isles. This is a long-term project and in the interim there is a lot more information that needs to be gathered together. This can commence, possibly in early in 2021, once the pandemic has eased.

Throughout the thesis and the research, different paths have revealed themselves and it has been difficult to choose which stories to tell and which to leave out. The anthropological aspects have been touched on but more could be discovered about the ways in which people made and used the cloth and the culture that surrounds it. Historically tweed is interesting because it influenced other cultures far away such as in Southern Africa and New Zealand. Those stories have yet to be traced and told.

More research into the style of Shetland Tweed is needed, with comparisons made between other tweeds and those of Shetland of specific date. By this comparative method it should be possible to ascertain the likelihood of Shetland Tweed having its own distinctive style of motif, noted by the weaver Ann Sutton as possibly being smaller than in other tweeds, and colouration. That research is outside the scope of this project; suffice it to say that it would be an interesting future project for a researcher.

My one disappointment in this research has been the curtailment of the collection of tweed artefacts, and their collation into a catalogue. Particularly in case where cloths are stored and one day may be discarded, such a project should be undertaken as a matter of urgency. Already the tweeds of yesteryear have disappeared and are being

lost. They may look like scraps of not-very-interesting fabric but these pieces of woven cloth need to be collected, conserved and treasured because of their rich past. It is not too late. Shetland Tweed deserves much more than to be a footnote to the islands' textile heritage.

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Appendix i: Census data

Date of research	Date of item	Source	Record held at	Title	First name	Last name	District	Occupation	Count										
2019	1841	Census of 1841	SMA		John	Williamson	Delting	Wool Hand Loom Weaver	1										
2019	1841	Census of 1841			Andrew	Robertson	Delting	Wool Hand Loom Weaver	1										
2019	1841	Census of 1841			Robert	Robertson	Delting	Wool Hand Loom Weaver	1										
2019	1841	Census of 1841			John	Nicolson	Delting	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			Gilbert	Manson	Delting	Worsted Hand Loom Weaver	1										
2019	1841	Census of 1841			Henry	Manson	Delting	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			Adam	Nicolson	Delting	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			John	Johnson	Delting	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			John	Williamson	Delting	Worsted Hand Loom Weaver	1										
2019	1841	Census of 1841			James	Gilbertson	Dumrosnes	Weaver	1										
2019	1841	Census of 1841			James	Lisk	Sandwick	Hand loom weaver	1										
2019	1841	Census of 1841			Hendre	Jemson	Cunningsburgh	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			John	Williamson	Fetlar	Woolen Weaver	1										
2019	1841	Census of 1841			Andrew	Hughson	Fetlar	Woolen Weaver	1										
2019	1841	Census of 1841			Charles	Hart	Fetlar	Woolen Weaver	1										
2019	1841	Census of 1841			Magnus	Spence	North Yell	Woolen Weaver	1										
2019	1841	Census of 1841			James	Coutts	Lerwick	Weaver	1										
2019	1841	Census of 1841			Henry	Manson	Lerwick	Weaver	1										
2019	1841	Census of 1841			Robert	Brown	Lerwick	Hand loom weaver	1										
2019	1841	Census of 1841			John	Williamson	Mid and South Yell	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			Daniel	Guthrie	Mid and South Yell	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			William	Guthrie	Mid and South Yell	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			James	Omond	Mid and South Yell	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			John	Guthrie	Mid and South Yell	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			Nicol	Johnson	Mid and South Yell	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			Thomas	Tait	Nesting	Weaver	1										
2019	1841	Census of 1841			Thomas	Shclair	Lunnasting	Hand loom weaver	1										
2019	1841	Census of 1841			Peter	Thomason	Northmavine	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			William	Smith	Northmavine	Worsted Hand Loom Weaver	1										
2019	1841	Census of 1841			Adam	Thomson	Sandsting and Aithsting	Weaver	1										
2019	1841	Census of 1841			Arthur	Nicolson	Sandsting and Aithsting	Weaver	1										
2019	1841	Census of 1841			Andrew	White	Sandsting and Aithsting	Weaver	1										
2019	1841	Census of 1841			James	Ridland	Sandsting and Aithsting	Weaver	1										
2019	1841	Census of 1841			Robert	Fraser	Sandsting and Aithsting	Weaver	1										
2019	1841	Census of 1841			James	Johnson	Sandsting and Aithsting	Weaver	1										
2019	1841	Census of 1841			John	Mitchell	Sandsting and Aithsting	Woolen Weaver	1										
2019	1841	Census of 1841			William	Henry	Tingwall	Hand Loom Weaver Wool	1										
2019	1841	Census of 1841			John	Hunter	Weisdale	Hand loom weaver	1										
2019	1841	Census of 1841			William	Syblison	Weisdale	Hand loom weaver	1										
2019	1841	Census of 1841			Nicol	Spence	Unst	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			James	Jameson	Unst	Woolen Hand Loom Weaver	1										
2019	1841	Census of 1841			James	Lawenson	Unst	Weaver Coarse Cloth	1										
2019	1841	Census of 1841			Edward	Harper	Unst	Hand loom weaver	1										
2019	1841	Census of 1841			Thomas	Fordyce	Unst	Hand loom weaver	1										
2019	1841	Census of 1841			Thomas	Millar	Unst	Hand loom weaver	1										
2019	1841	Census of 1841			Henry	Anderson	Unst	Weaver	1										
2019	1841	Census of 1841			Magnus	Mouat	Unst	Weaver	1										
2019	1841	Census of 1841			Arthur	Deyell	Walls	Weaver	1										

Appendix ii: A Shetland Tweed Catalogue

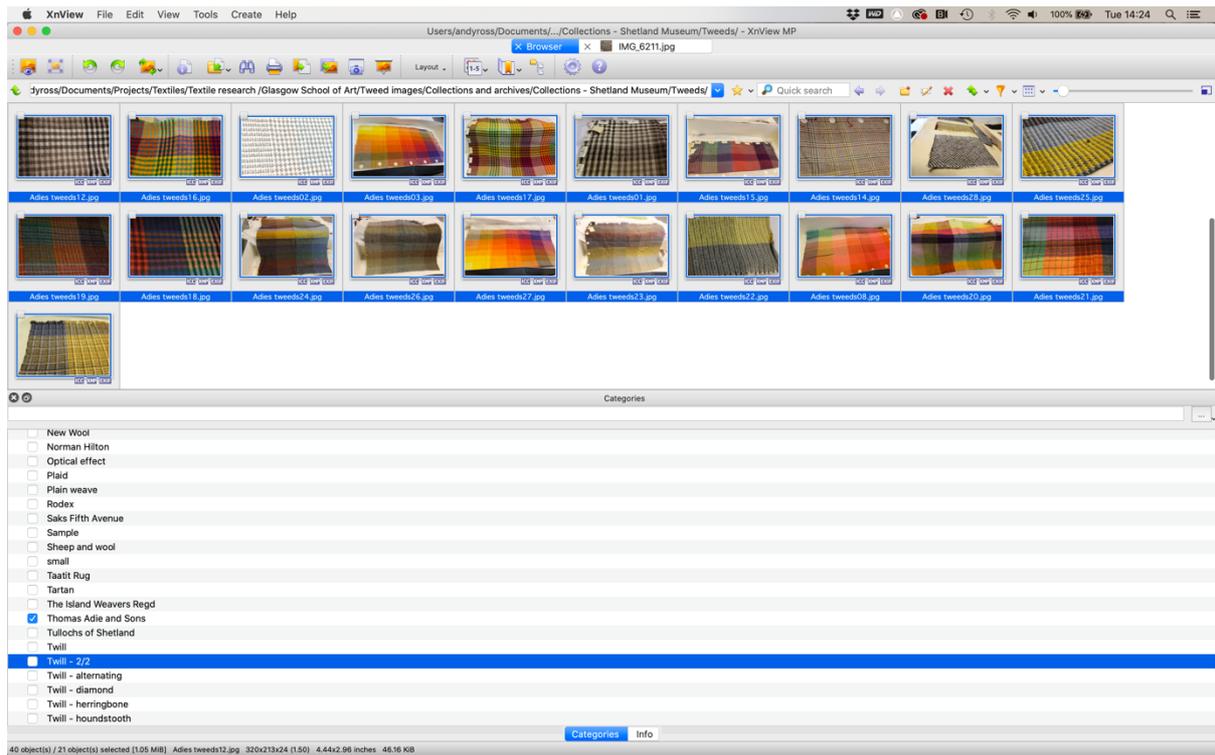


Figure xix: A sample from the tweed catalogue

A HUMAN THREAD

Researching Shetland Tweed's
past, present and future.

Andy Ross

What is the project?

- Historical research
- Fieldwork – interviews and samples
- Looking to the future for the industry

What is this part about?

- Finding out what you think about
 - Tweed
 - Colour and Pattern

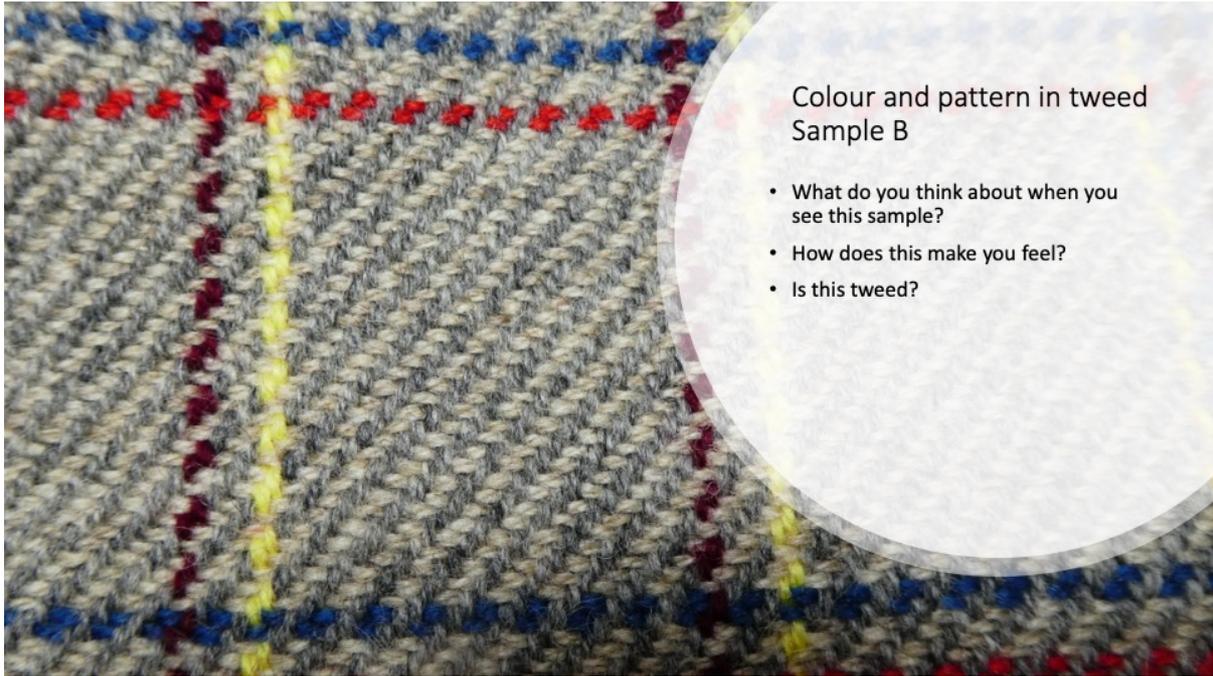
Tweed

- What is it?
- Have you heard about tweed?
- What do you think of when you hear the word?

A note about the next images

- Weaving is the interlacing of sets of threads called warp and weft, generally at right angles to each other.
- These are samples woven with different warps and wefts to give different effects in the colour and pattern.
- For the next part we will be looking at five different samples.





Colour and pattern in tweed Sample B

- What do you think about when you see this sample?
- How does this make you feel?
- Is this tweed?



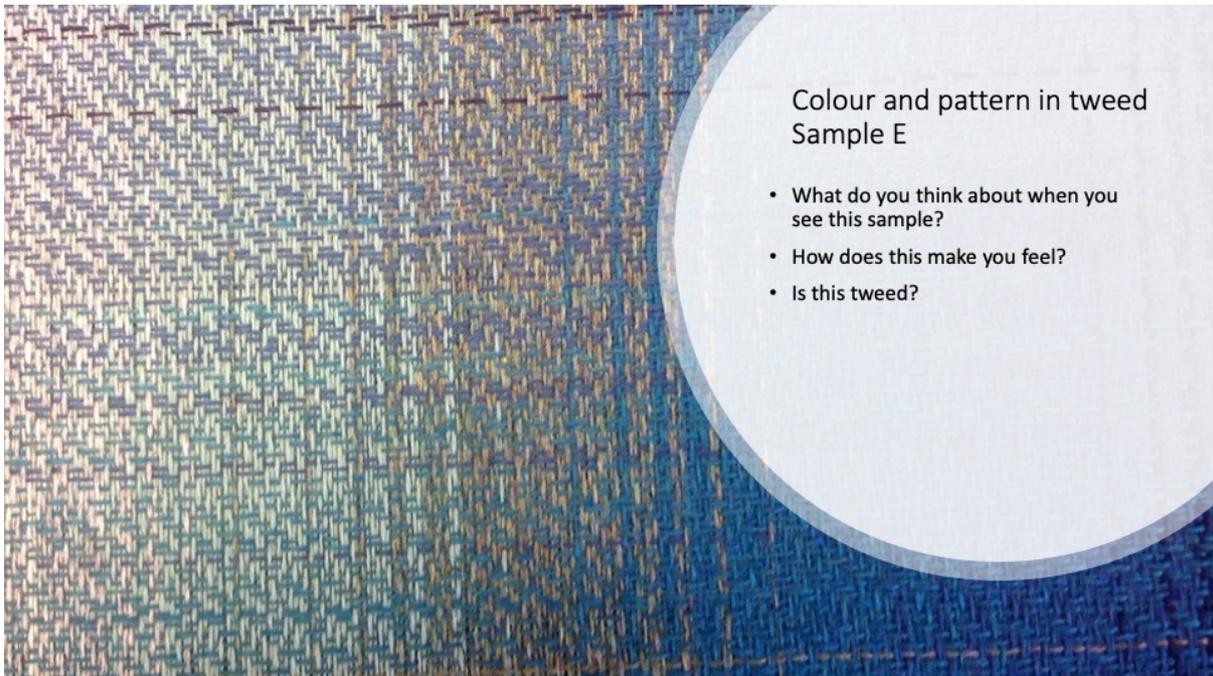
Colour and pattern in tweed Sample C

- What do you think about when you see this sample?
- How does this make you feel?
- Is this tweed?



Colour and pattern in tweed Sample D

- What do you think about when you see this sample?
- How does this make you feel?
- Is this tweed?



Colour and pattern in tweed Sample E

- What do you think about when you see this sample?
- How does this make you feel?
- Is this tweed?

Anything else

This session will help inform the work I am doing to secure a future for the Shetland Tweed industry.

Thank you very much for participating.

If you have any questions or comments please email or use our mobile 'phone group.

Appendix iv: Interview Analysis

Part of the anonymised interview analysis.

Theme	Design	Economy	Personal attachments	Yarn	Qualities	History	Business and employment	Sheep and wool	Reminiscence	Tweed and the name
A Wool Man		27:29 weaving something other than carpets	23:00 Jacket		Worsted - for the cloth I made. Not woolen. Not napped or pilled. Hard wearing	10:34 Sought- after before man-made fibres		7:15 Katmoget vs Shetland		1794 - two distinct sheep in Shetland. Welsh coat resembling - long guard hair.
		31:08 Organic	1:17:00 Jarl squad wearing kirtle, etc		16 Strong for carpets	Mixing of sheep - Viking breed and local sheep		Katmoget is different fibre to moorit, grey or black.		
		47:40 Wages and			45:20 Not Shetland yarn perhaps?	11:45 Spelsow is longer in the staple		Katmoget is finest		

payment
to crofters

49:51
knitting
and weave
economics

52:20
1980s not
buoyant
market

53:50
Created
market for
carpets for
the lower
grades.
1992

Convenient
story.

50:25
Strength
and
elasticity
from crimp

51:20
1980's no-
one
wanted
grades 3
and 4.
Hunters or
Stewart
Brothers.

52 Colours
not
wanted.
1980s.

16:24
Gunnister
Man

23:00
HRH 1999
Jacket.
Hunters of
Brora
Tweed

35:36 -
Gunnister
Man -
kemps so
the
clothes
might be
mainland

9.11 Moorit
is
historically
short in the
staple

Introduction
of katmoget
for the
staple.

10 Kindly
wool

56:50
Breeding
for wool
today.

1:00:30
Shetland
name

54:20 All
uses on
one fleece
- crofter
had
everything
on the croft

54:50
Hand
sorted and
hand spun

44:02
Adies for
Everest
jumpers
from
Number
one. Wool
from
Sheepie
spun in
the
Borders at
Wright
and
Jobson,
Galshiels.

12:30
Katmoget
looks
completely
different
and is
longer in
the staple.

20:20 Soft -
Harris
Tweed
comparison
35:10
Kemps
introduced
from
mainland
sheep

55:45
Lustre in
1791. Not
lustrous
now.

Two weavers from yesteryear	3:30 10 yards minimum. Reverse twill overcheck.	00 tweed went down	6:40 swapped piece for a pattern and so didn't pay.	00 1956 16 cut and 24 cut. 16 is thicker.	40:50 Soft compared to Harris	0:51 ten in weaving shed. 1 for mending, one warping, one boss and seven weaving.	21:30 Knitting and weaving in Mossbank	57 Older boys would make the looms heavy. Interviewee would get a couple of hours work to sort it out. Trying to get the loom working better.
	7:30 In Museum. 2 nieces came across tweed. Green/brown.	4:57 Piece-work. 1 shilling/yard. 5 days a	7:30 In Museum. 2 nieces came across tweed. Green/brown.	38:45 80% Shetland and 20% other. Pure		1:15 Light desk. 2 threads wrapped over and then tied	22:30 Two men from Toft, 2 from Firth. Rest from Mossbank.	

accompanied
by pattern
and weft
colours.

38:15 16 cut
was
"standard"

Three
weeks
then tax
and etc for
the last
week.

38:27 1-16
colours of
brown

1954-57 -
worked at
Mossbank.
Paul
Hoseason.

Came in
cheeses.

pedals for
the finer.

7:15
Mossbank
weaving

Adies had
a big
number.
Big payoff
in 1957.
Hillswick
Shop paid
off at the
same
time.
Stuarts -
Galley
Shed in
Lerwick -
continued
through

24:00
1948/49
started
weaving.

1946
Standen and
Company.
112 Jermyn
Street,
London.
Murphew
directors.
Bought shop.
Increased
staff to 25.

59 Design.
Graph into
the weave.
Enjoyable.
Threading
heddles. All
morning
translating
graph onto
loom. Edge
had to match
in the ten
inch. Four
blocks in
width, nine
inches. Nine
inches and
then edge in

14:30
Fixing
loom - off
piece work
and then
onto repair
work.

the 70s.
Brian
Smith's
Dad in
Staurts.
Smith in
Hoswick.

8 or ten
machines
where pub is
now.
Winding
machine for
winding onto
shuttles. 60
shuttles at
one time.

11:50 End
of Jan
1957 -
Mossbank
ended.

same colour
as warp.

1:00 No
design. Boss
did the
colouring and
design. Size,
how many.

15:40
Adies
home
weavers.
Weaving
twelve
hours a
day. Extra
money.

12:19
Adies.
Tappet
looms
without
overhead
gear.

Appendix v: The “Shetland” cloth

The cloth that was ultimately named “Shetland” came about through a fortuitous accident, albeit one informed by the years of research I had undertaken in the archives and collections across the UK. It is interesting that this cloth was only made during the current research, probably because my own confidence in making had increased through this learning since commencing the project.

The idea of create a cloth that embodied “Shetland” as a place and as an emotion for me came about during a snowy day in late autumn and winter. In these days in the islands, especially in Yell where the vistas are long and weather is visible as it sweeps across the landscape, snow-showers are quite frequent although do not last long. On this particular occasion, the showers came from the West, sweeping down the voe that lies before the studio while over the studio itself the sun shone. This strangely lovely juxtaposition of bright, clear light with luminous snow falling across Yell’s bleak landscape and inky-blue sea was spellbinding. The idea for a cloth that captured all those colours and also echoed the history that the snow was falling over - ruined crofts and the outlines of enclosed fields having left a reminder of past lives – formed.

To warp up the cloth, I used the view from the studio window as inspiration. Starting with the rich dark hues I gradually altered the overall shade or tone of subsequent sections by replacing yarns with others to achieve lighter or darker areas in the warp. This graduated warp looked striking on the beam and, as an added benefit, would be impossible to replicate because the choice of colour was instinctive and location-specific with regard to the light and view

When it came to weaving, again with reference to the view and to the threaded warp, I chose colours that blended from light to dark and back again. The interplay of colour created patches of light and dark cloth.

The colouring of the fabric was complemented by the lifts that I chose to employ. As a way to reference the sea and the peat cuttings in the hills across from the studio as well as the traditions of weaving in Shetland, the structure had to be some sort of twill but an ordinary twill would have been too orderly. I wanted to create the

impression of memory fading in and out while retaining the connections so the lifts were created to have formal sections of twill that faded into disorder and then back to order again. From a distance the cloth looked like a solid piece of light and dark but closer inspection revealed its complex structure and colouring, and the twill drew the eye across the fabric and upwards when a piece was hung on the wall in the studio.

The response to this piece (shown below) was gratifying. The remainder of the roll of finished fabric was made into products and lengths and these all sold very quickly to visitors because, so the purchasers said, the cloth “reminded them of Shetland”.

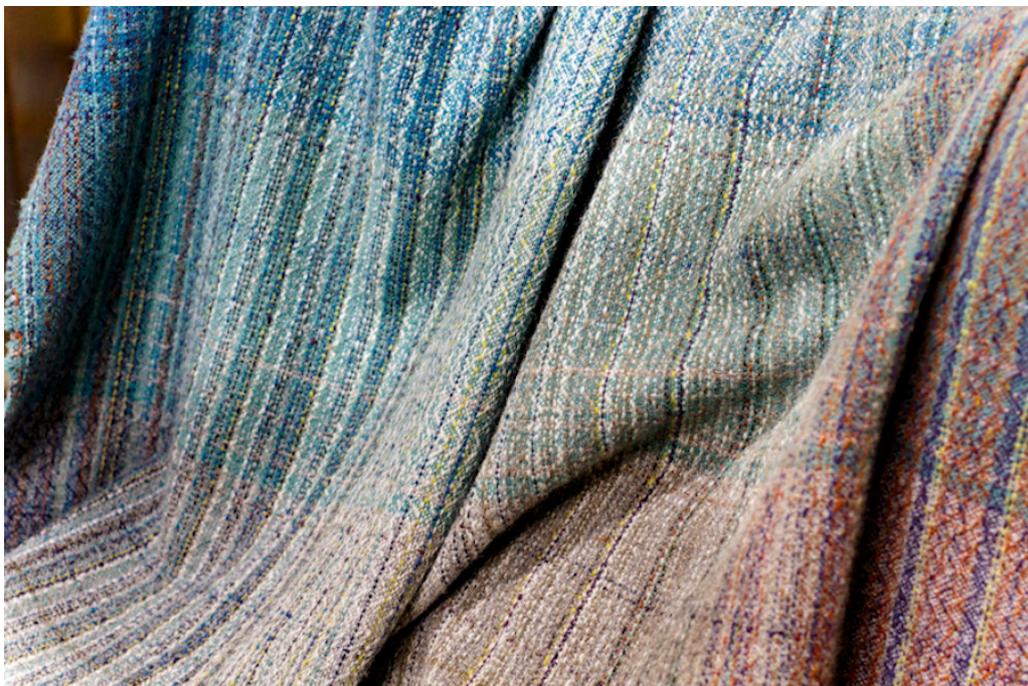


Figure xx: The "Shetland" cloth, originally called "Shetland Autumn".

This cloth features a fragmenting twill pattern.

Appendix vi: Sampling and gamps

In industry, regardless of the size, making a sample is a standard way to produce a set of cloths with particular patterns and a variety of colourways efficiently and economically.

To make these samples or gamps, a set of warp threads is placed on the loom, separated from the next set by one differently coloured thread. Each set of warp threads is different *in colour* to the previous set, so, for example, there could be 16 black, 16 brown, 16 grey, and 16 cream threads in one set, one bright yellow thread, and then 16 red, 16 pink, 16 purple, and 16 blue threads in the next set, and so on. By weaving the same colours in the weft as those in the warp it follows that where one weft colour crosses the same colour in the warp a solid block is created. Where the colours are different, a colour-mix occurs. [Figure xxi](#) below shows this “in action”. It goes practically without saying that the colours outlined above would not ordinarily be on the same gamp; weavers would be making for specific reasons or clients so they would not mix-up the hues to this extent.

If the *threading* in the different sets of warp threads was altered to, say, a straight-draw in one set, a herringbone in the second, and so on, it would be possible to weave different structures and patterns in each. By simply weaving one set of lifts using these threaded blocks, different structures will be produced, one per set. By further altering the lifts by, say, reversing them a different pattern will result: the opposite in this case. [Figure xxii](#) below shows what this achieves on a plain coloured warp with a contrasting coloured weft.

Combining threading with colour produces a wide range of coloured AND patterned cloths, in blocks outlined with the differently coloured threads. [Figure xxiii](#) below shows a plain coloured weft going across a warp created using the same colours as in the first diagram. It is possible to see how many variations there are, even with a four-shaft loom.

These gamps or blankets are produced to show to prospective purchasers and that is why so many of them in the various collections used in this research have holes in them. There could be a colour gamp or a pattern gamp or one that combines both

but, whatever kind of sample it is, the warp sets will be labelled with, for example, numbers while the weft sets would be allocated letters. This is for identification purposes.

If a client wanted a sample of twills a set of these would be woven, clipped from the gamp and mailed out with a covering letter. These samples would be labelled with the warp numbers and weft letters that corresponded to their manufacture and the client would then be able to order, for example, ten metres of 1A or 4D as their cloth for a jacket. Most of the time the mill would have kept a sample book with each gamp section represented in it, along with the instructions for making that particular piece of cloth. Some mills though did not keep records like this, instead retaining the entire blanket, folded or rolled with its labels. This is not as efficient (although it may be good enough for the mill's purposes) because there is no date of manufacture or other record that can easily be matched to an individual client. Where one weaver is creating the cloth the latter system is not problematic because the maker would readily recognise the client and the characteristic styles of tweed they would regularly order. For study purposes, or for a new weaver however, the former system is much more straightforward and accessible.

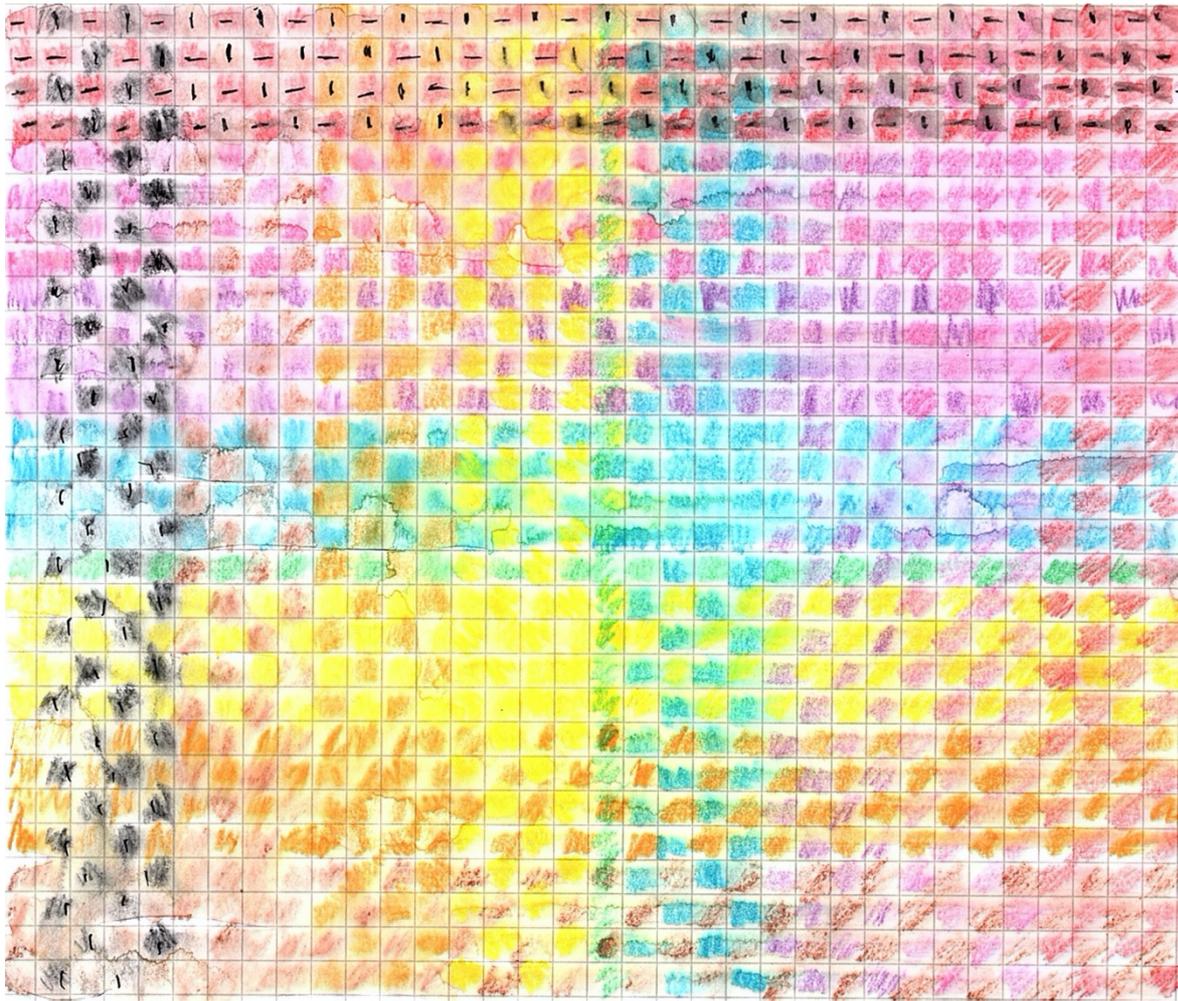


Figure xxi: The effect of different colours in warp and weft

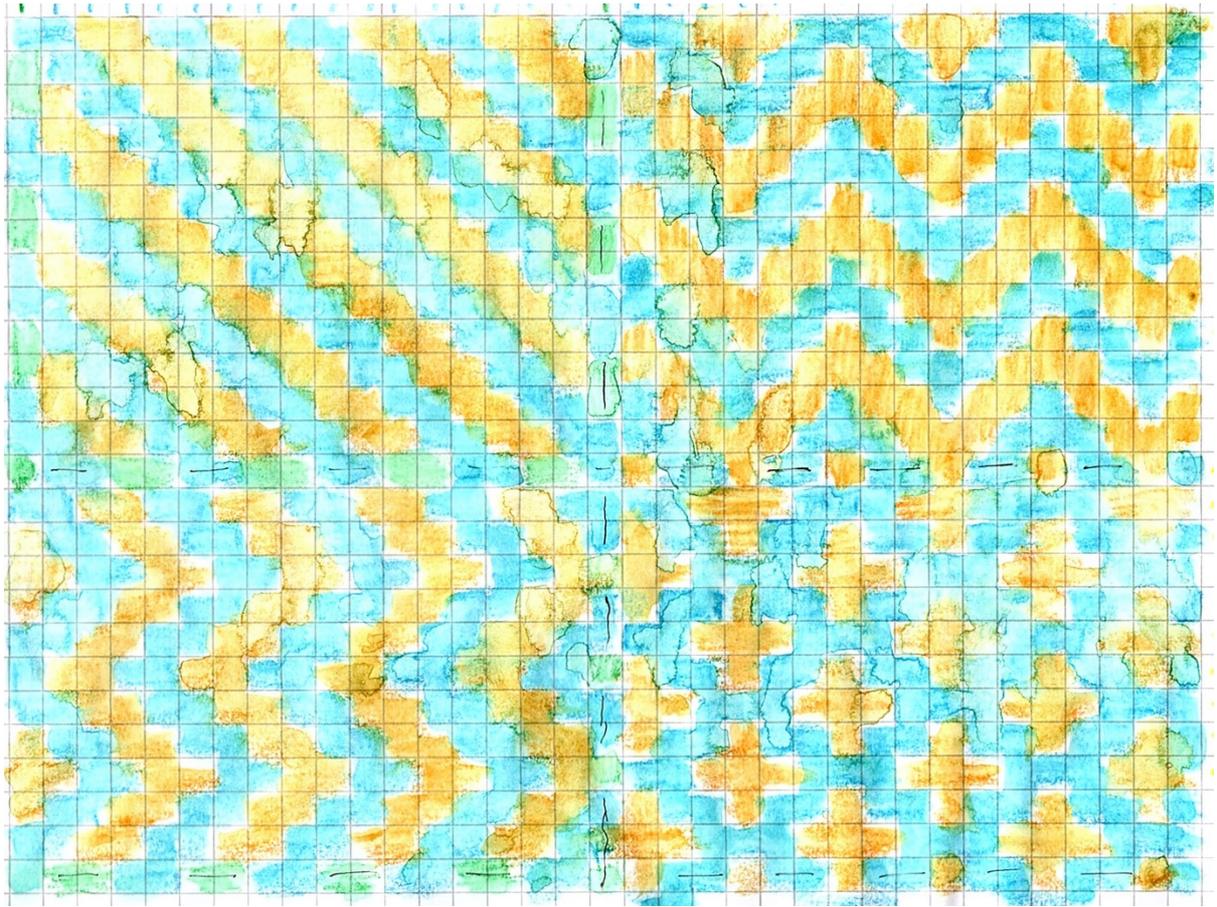


Figure xxii: The effect of structure on pattern in a two-colour cloth



Figure xxiii: The effect of different colours and structures on cloth

Appendix vii: How to use a threading and a lift plan

A set of instructions for weaving is called a threading and lift (or peg) plan or, sometimes, threading, tie-up or peg and treadling plan. The difference between the two is the difference between looms – a loom that has lifts independent of each other uses the former while one that uses pedals to which sets of shafts are tied makes use of the latter. For the purposes of this explanation a simplified threading, tie-up and treadling plan will be used because that is a variation of how traditional tweeds were recorded in the days of the Hattersley looms. These looms did not use a tie-up but instead a system of tappets engaged the shafts to be lifted. Power was provided by the feet pedalling the loom, a picture of which is below.

Image removed for copyright reasons

Figure xxiv: A Hattersley Loom showing the pedals and shafts with gearing

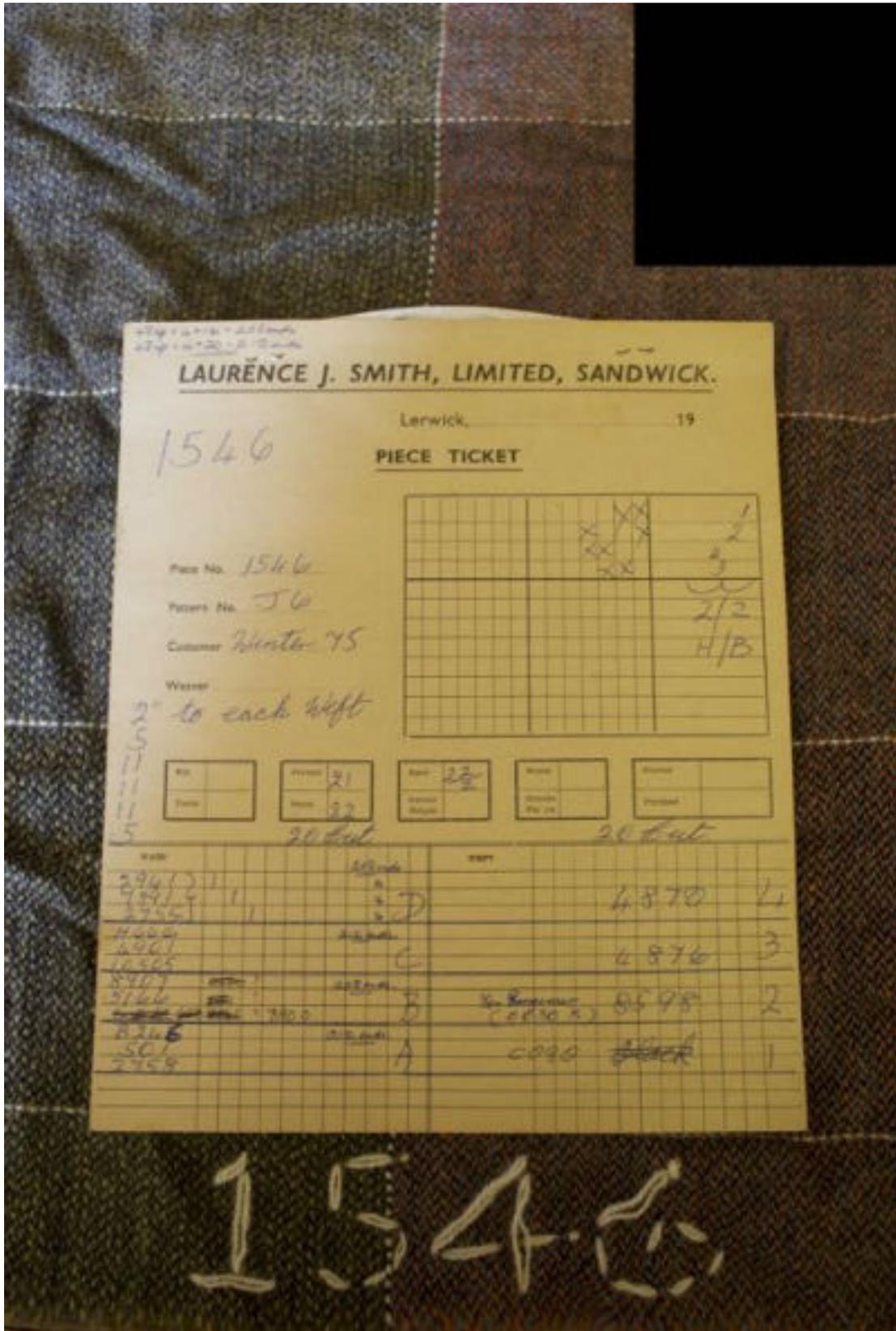


Figure xxv: A piece ticket from L J Smith, Hoswick.

The image above is an original “piece ticket” from L J Smith’s in Hoswick. Behind the ticket is the gamp that was created from these instructions, easily identifiable by the number stitched into the cloth and the corresponding number on the piece ticket: 1546. This number provided a quick and efficient method of cataloguing cloths and tickets for ease of reference at a later date.

For the purposes of explaining how this ticket is read most of the information can be ignored. There is a lot of technical information about the yarns used and how many picks (called “shots” on these tickets) should be woven in a particular colour. Suffice it to say that “20 Cut” indicates a single yarn not a plied one, and the weight of that yarn in a Galashiels count.

On the right hand side at the top of the page is a set of boxes within boxes, one set of which has crosses marked in it. The topmost line has two Xs indicated, one next to the other. These are lifts so in this case, lift shaft one and two. Moving down one line the lifts are one and four. The following is 4 and 3 and the last three and two. On the Hattersley loom these numbers would relate to the tappets; the looms were sold with “four 2/2 twill tappets and four plain weave tappets” (Hattersley Loom Club, 2013). The tappets would dictate which lifts are performed through the gearing on the loom.

Combining those lifts with the threading plan – normally written in the same sort of way with Xs in small boxes indicating where a thread goes through a heddle on a particular shaft – produces the structure or pattern. In this case the weaver has not written out the threading plan but has instead written “2/2” and “H/B”. 2/2 refers to this being a two/two twill, a weft going over two and under two warps for each pick, and the H/B refers to the threading: Herringbone. Any weaver would know this as standard threading, thread one going through shaft one, two through two, three through three and four through four before returning, five through three and six through two.

If, for the sake of clarity, the lifts were in sequence (2+1, 1+4, 4+3, 3+2) and the warp was light coloured while the weft dark, the structure that would emerge would be a V-shaped one and the pattern would be of the classic herringbone. That is

exactly what is visible in the cloth, although, in this case because it is a gamp, the cloth is broken up into sample squares outlined with lighter threads.

Appendix viii: A simplified explanation of the craft of tweed weaving

A typical loom uses *shafts* - sets of frames upon which *heddles* are strung. The heddles are either textile or metal, strung top and bottom on the shafts, and each has a gap in its middle. Every thread in a *warp*, the yarns that go from back to front of the loom, is passed through a hole in a heddle in an agreed sequence, and then through a *reed*, a slotted filter that acts to separate the threads and has a secondary purpose as a beater. The threads are then tied to the front of the loom and tightened to the same tension across the warp. This setup is shown in [Figure xxvi](#).

Once all the warp threads are on the loom, if a shaft is lifted the attached heddles and consequently the threads through those heddles go up too. The resulting gap, the *shed*, is where the weaving of the *weft* thread takes place. A *shuttle*, shaped rather like a boat, ([Figure xxvii](#)) loaded with yarn is sent through the gap and lays a thread along its route. When the shed is closed following this throw of the shuttle (called a *pick*), the reed is moved forward to place the weft thread alongside the previous one. Another *lift* is made and the process repeated.

In plain-weave, alternate sets of threads are lifted and woven; i.e. 1 and 3, followed by 2 and 4, on a four shaft loom. This means that each pick of the weft thread goes under a warp thread, over the next, under the following and over the last. On the next lift, the thread does the reverse, over, under, over, under ([Figure xxviii](#)). The resulting fabric is even with no discernible pattern, and it drapes evenly.

Twills, by contrast, do have a pattern or rather, a structure which is concealed or more likely revealed in the cloth by the colours used in the warp and weft. In a 2/2 twill, one of the most common of the twills produced in Shetland in the past, the lifts are one and two, two and three, three and four, four and one. Each lift advances one shaft and that causes an advancing diagonal line in the cloth, visible if the warp is a different colour to the weft ([Figure xxix](#)).

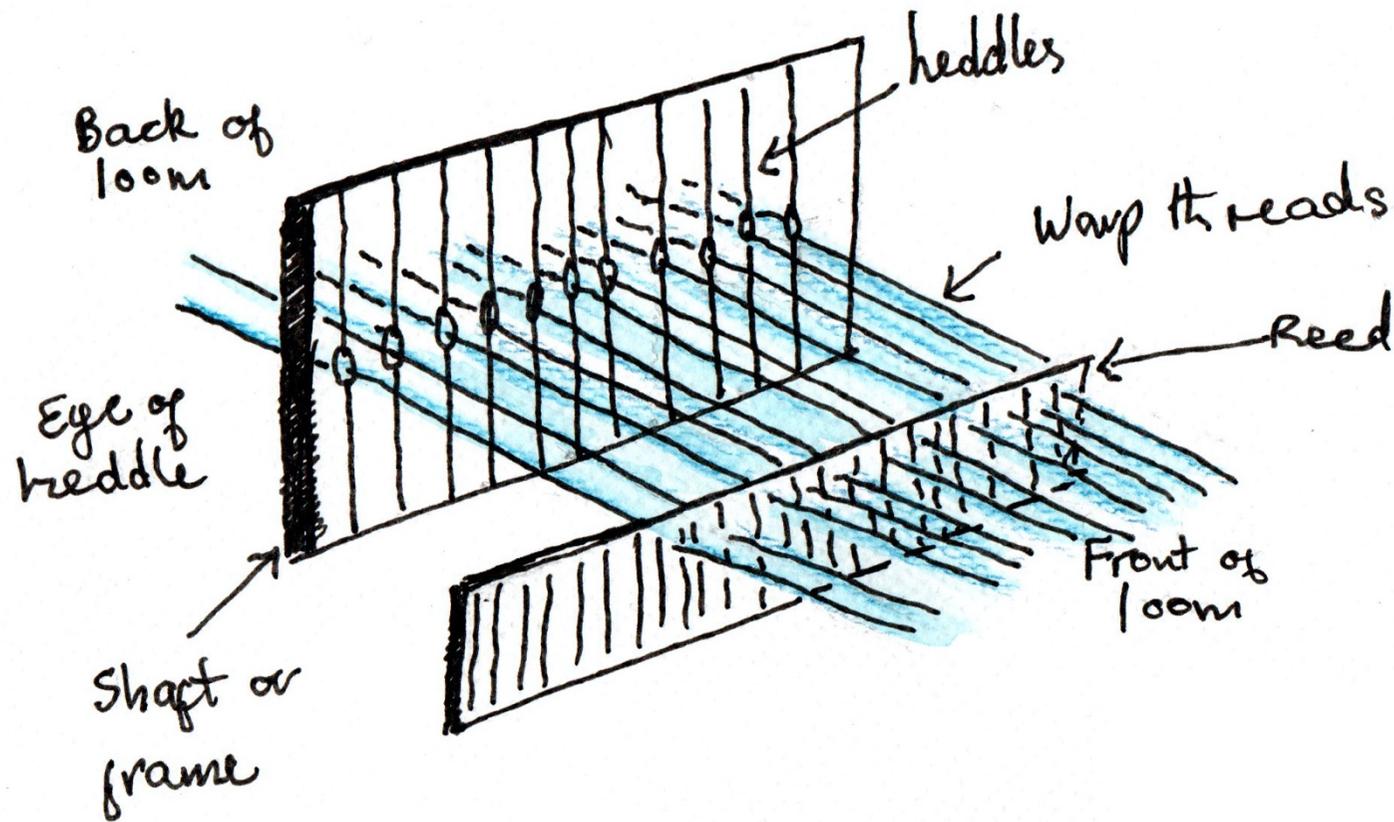


Figure xxvi - a typical warp setup on the loom.

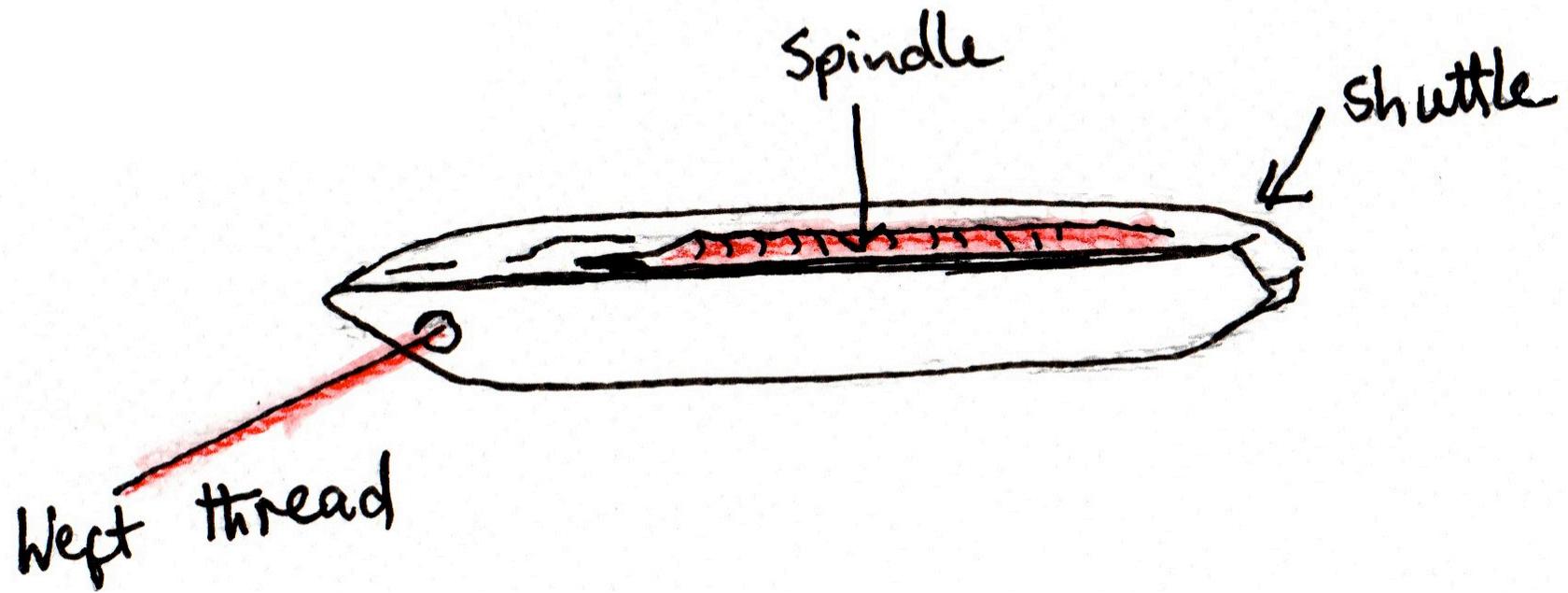


Figure xxvii - A shuttle.

It is loaded with weft threads wound onto a spindle. The end of the weft is fed through a hole in the side of this type of shuttle, but in other types, the thread may feed from the end or centre.

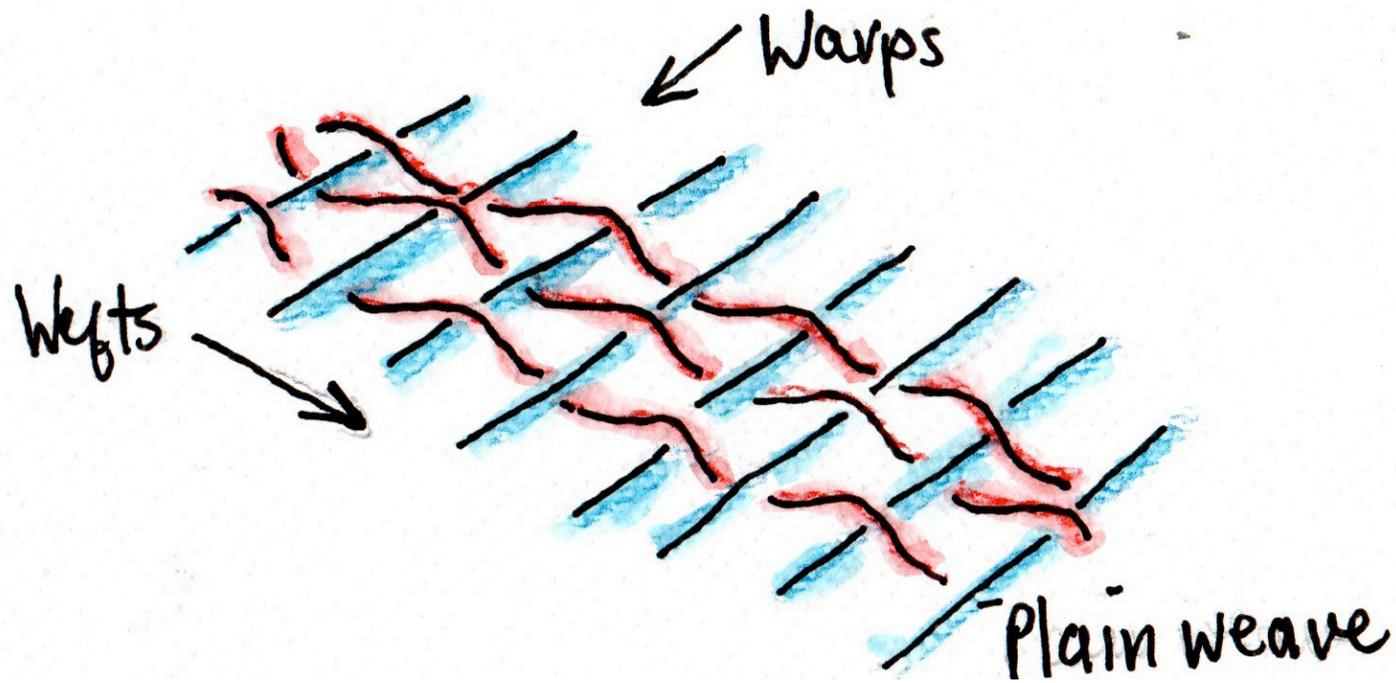


Figure xxviii - Plain (or even) weave.

Weft threads alternate over and under warp threads in one pick direction and then the reverse on the following pick.

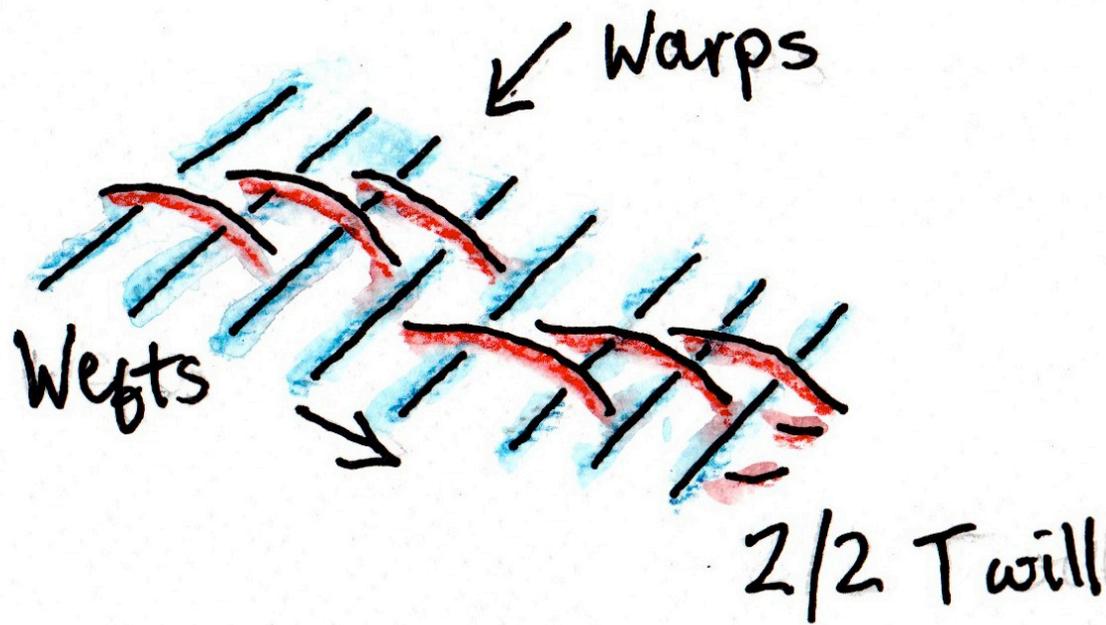


Figure xxix - A 2/2 twill.

The weft threads float over and then under two warp threads. The following pick advances by one warp thread creating a diagonal effect in the finished cloth.