An Industrial Craft Reinstated:
A Printmaker's Perspective on Tissue Transferware

Lisa Sheppy

A thesis submitted in partial fulfilment of the requirements of the University of the West of England, Bristol

For the degree of Doctor of Philosophy

Faculty of Arts, Creative Industries and Education
University of the West of England
March 2023

Abstract

Underglaze tissue transfer printing, termed transferware, is a genre of industrial printmaking on ceramics. This genre was practiced inside the factory and is described in my doctoral study as an industrial craft. Much of the knowledge surrounding this craft has been lost as the pottery industries have closed or have replaced printing on ceramics with newer and more cost effective forms of decoration. Unlike many industrial forms of printmaking tissue transfer printing has never made the transition from industry to contemporary art practice.

This doctoral research was conducted to unravel and interpret the industrial craft knowledge so that tissue transferware will become reinstated for contemporary printmaking practice. The foremost aim was to demonstrate its artistic value to artists working in the field of ceramics and print to enable it to become an open and accessible form of printmaking on ceramics in the future.

The study begins with an appraisal of tissue transferware, through studying historical records. These records reveal much about the historical context and how transferware became one of England's largest exports, peaking in around 1850. However, whilst historical records provide knowledge of the lineage, highlighting the main producers, very little accessible information exists about the methods of production. The literature review positions tissue transferware within the Industrial Revolution and the division of labour, finding that knowledge of the whole process is therefore concealed from the literature. Much of this knowledge is tacit and held within the individuals who worked in the potteries. Mass production of tissue transferware has finished and many of those individuals are now deceased.

A multi-method research framework was used to gain insider knowledge of the methods of production. Oral history interviews documenting lived accounts from ex-pottery professionals have supported this investigation and enabled it to progress. This was reinforced with archival research which provided access to material relating to the production of tissue transferware. The printmaker's scrutiny was at the forefront of this

archival investigation, seeking evidence of insider knowhow, with an opportunity to observe, reflect and respond artistically.

A demonstration of a new method of tissue transferware for artists is the principal contribution of this study. Furthermore, insider knowhow has been preserved for current and future interpretations before being locked inside a closed factory. Material making and reflection-in-action resulted in emergent knowledge linking traditional, autographic, and manual material practices with the digital and mechanical.

The new method does not replace the original industrial craft but serves as a contemporary interpretation of it. In the concluding chapters the research has been materialised through a series of art works, produced with a palette of tools and materials familiar to artists working in the fields of printmaking and ceramics. This new method is open, accessible and within reach of future artists to realise its creative potential.

Contents Page

List of Illustrations Page

Chapter Four

Chapter Five

Chapter Six, Part One

Fig. 144. International Ceramic Biennale 2017, Korea 195

Chapter Seven, Part Two

Chapter Eight, Part One

Chapter Eight, Part Four

Chapter Nine

Acknowledgements

I would especially like to thank my primary supervisors, Dr Sarah Bodman and Professor Dave Huson who have provided endless support, encouragement, and kindness every step of the way.

Thanks also to Dr Tavs Jorgensen for supervision, who with Sonny Lee Lightfoot provided help and inspiration with technical expertise. This extends to other important people at UWE who were at hand to have insightful printmaking conversations especially Dave Sully, Phil Bowden, and Dave Fortune. Thank you particularly to photographer Frank Menger whose beautiful images translated my study so eloquently.

Paul Holdway's knowledge of tissue transferware has been at the heart of this study, and I will be forever thankful for his contribution. Paul and Kath Holdway have made me welcome in their home in Stoke on Trent, whilst sharing stories of Spode transferware production.

I would also like to thank the community of ceramic industry professionals in Stoke-on-Trent and Worcester who have encouraged and given support with invaluable advice in particular Dr Neil Brownsword, Pat Halfpenny, and John Raftery. I also include Louise Price and Sophie Heath from the Museum of Royal Worcester who welcomed me to their archive, providing a focus and creative stimulus for this study.

It was Richard Anderton and my dear late friend Dr Liz Bird who encouraged me to apply for this project in the first instance. I thank them for believing in me and making me believe in myself.

Without my PhD friends this would have been impossible, so I would like to thank Laura-Beth, Verity, Sophie, Becky, and Sam who have all been there for me the whole of the time.

Sending all my love to my family, Nick, Esme, and Scarlett who have made it possible every day for me to do such a thing. Lastly, this is for my parents, Iris, and Ron, as I know you would be very proud.

An industrial craft reinstated: a printmaker's perspective on tissue transferware

Chapter One

Introduction

1.1. What is tissue transferware?

A domestic resilient printed ceramic product, tissue transferware was mass produced in Stoke-on-Trent during the Industrial Revolution, with overseas exports peaking in 1880. After that time exports declined and the industry slowly diminished, resulting in just one sole company, Burleigh Pottery, still in production today.

Fig. 1. The willow pattern dish: an example of the most renowned transferware pattern

Tissue transferware is a genre of decorated ceramics manufactured using a particular method of production. In simple terms, the pattern is printed with ink containing ceramic material and oil, onto thin tissue paper, derived from an intaglio printmaking process and the use of copper plate engraving. The printed pattern on tissue is transferred onto the ceramic ware and remains in place, assisted through skilful manual manipulation and the viscous consistency of the ink. The pattern is underglaze and kiln fired on the ware before a final glaze firing renders the ceramic object resilient to constant domestic use.

Fig. 2. Tissue transferware can be defined by its distinctive aesthetic, recognisable as an intricate image constructed from lines and dots in a monochrome colour. The distinctive *halo* effect to the blue printed marks is achieved with the use of cobalt oxide, an active colourant, which flows readily into the clay body when fired to high temperatures. The printed marks appear painterly with soft tonal ranges

1.2. Background to research

1.2.1. Knowledge under threat of obsolescence

I refer to tissue transferware as an industrial craft in this doctoral study as it was practiced in factories during the Industrial Revolution within the system of work defined as the *division of labour*. This is discussed further in the thesis with reference to industry and how the mechanisation of the industrial process contributed to its demise. The knowledge of the methods of production are historic and concealed within insider knowhow. This tacit knowledge is under threat of disappearing as it was embodied in the individuals who worked with the process, many of whom are now deceased.

It became clear from my initial reading and investigations that the copper plate engraving printmaking process was pivotal to achieving refinement and effective final outcomes. The professional engraver was trained in pottery making through a long apprenticeship, following the master engraver with the repetitive and laborious tasks of making faultless symmetrical lines and punch dots with chisel-like tools. When considered ready, the time-served apprentice would begin making patterns and designs on copper plates designed for tissue transferware. The engraved copper plates were traded as currency between potteries and highly valued.

Fig. 3. Original copper plate from Royal Worcester, 1867 (image reproduced by kind permission of Paul Holdway), photographed by Lisa Sheppy, Stoke-on-Trent, 2019

This profession is now redundant and, as engravers are no longer needed in the ceramic industry, the process has almost died out. It would be difficult for artists to attempt to recreate some of the distinctive autographic mark making possibilities with an engraving process for tissue transfer, as much of the knowledge was undervalued and subsequently under threat of obsolescence.

1.2.2. Burleigh Pottery

Burleigh Pottery in Stoke-on-Trent is now trading as the only tissue transferware manufacturer in the world (Burleigh Pottery, 2022). The Centre for Print Research (CFPR) at the University of the West of England (UWE) had worked with Burleigh previously on a

Knowledge Transfer Partnership (KTP) from 2015 to 2017. Burleigh employs the use of a roller system of engraving, which mechanised tissue printing in the Industrial Revolution, however many of their rollers were becoming damaged and unworkable. The partnership worked to create digital enhancements for damaged engraved rollers, embracing the potential to complement the engraving process with new engraving technologies. This is now established and ongoing at Burleigh, as the last remaining copper plate engraver has retired.

Burleigh Pottery was recently featured in the BBC's *Inside the Factory* programme, demonstrating their tissue transferware method in their current mug manufacturing process (Inside the Factory, 2022).

Fig. 4. Engraved rollers: produced by the KTP between Burleigh Pottery and the CFPR, photographed at the Ceramics Biennial, 2017

Fig. 5. New rollers in operation at Burleigh Pottery: fabricated as a result of the KTP partnership, photographed at Burleigh Pottery, 2018

1.2.3. Motivation for this project

Tissue transferware is being practiced industrially on a small scale by Burleigh, however for artists who work with printmaking and ceramics, this method of production is inaccessible. The documentation that exists is historic and obsolete; documented through observation and not practice. The knowledge of the process is held with those individuals who worked inside the factory and with the process daily until it became practised and tacit. Tacit skill is difficult to describe in words as the actions become performative; perfectly practised, intuitive and nuanced. A motivation for this study was to document this practised, tacit knowledge, make it explicit and demonstrate a new interpretation through my thesis.

As an artist I am attracted to the alchemy of printmaking and ceramics from a creative experimental position. Tissue transferware is an exact and precise craft, the knowledge is derived from each component part with the skill and accuracy of each one. Whilst the study aimed to be experiential and document a precise method of production, making creative interpretations was a key motivation. To demonstrate its value to other artists, two distinct approaches of practice were combined to produce an effective method of production but also explore its creative potential.

1.3. Aim and objectives

1.3.1. Aim

The underpinning aim of this study was to design, carry out and document a practice-based study on tissue transferware through the lens of contemporary printmaking. This was to reinstate a historic and near-obsolete industrial craft and preserve the knowledge for future creatives.

1.3.2. Objectives

1.3.2.a. A new method of production

This study aimed to demonstrate a new method of producing tissue transferware for artists to exploit further through their own interpretations. It was materialised through practice and is documented through written text in this thesis. This was a practice-based investigation combining experiential and creative approaches. The textual and visual language spoke of a palette of tools and materials within the reach of an individual artist working in their studio. The derived method presented in this investigation does not set out to replace the original industrial craft process but serves as a new interpretation of it.

1.3.2.b. Literature review with a focus on the history of transferware

The detailed literature review surveyed the available information on the history of the tissue transfer process. This looked at the origins of the process and ascertained how it developed into a mass produced export during the Industrial Revolution. The context of the industries were also reviewed, demonstrating the process's lineage and how it arrived in Stoke-on-Trent. The acquisition of a solid understanding of the historical origins provided a base on which to build the contemporary position of the process and indicate under-researched areas of study. This survey included scoping visits to industrial contexts of current potteries such as Burleigh and Portmeirion, and the closed potteries, now museums, of Royal Worcester and Spode.

1.3.2.c. Oral history interviews with ex-pottery workers

I obtained ethical approval to approach ex-pottery industry professionals prior to interviewing, to seek their participation in the study. As already stated, it is the individuals who worked tacitly with the tissue transferware process daily who have authentic knowledge of the production method. This study therefore included these voices as a vital source from which to make explicit, and interpret, a new method of tissue transferware production.

1.3.2.d. Literature review with a focus on industrial craft

The literature review was extended to familiarise myself with historical and contemporary theoretical perspectives on craft and its relationship to industry, to frame the study and explain why tissue transferware has become a discarded craft.

1.3.2.e. Archival study

An archival study examined physical primary material connected to the historic production of tissue transferware. This gave a presence to under-examined artefacts, with the intention of piecing together concealed knowledge of the process. A haptic interaction with unseen objects provided an opportunity to observe, reflect and respond.

1.3.2.f. Dissemination

The overall aim of this study is to demonstrate the value of a new method of tissue transferware production for artists, so disseminating my outcomes was vital for facilitating this exchange. This took place in public spaces, both physically and online, and provided a means for the research to be presented publicly for others to decide whether this new method of tissue transfer has a future.

1.4. Knowledge gap and other research in this area

1.4.1. Current literature relating to the technical method of the underglaze tissue transfer print process

When commencing this study, I made wide-ranging online searches using key words and phrases such as:

- Tissue transferware
- The techniques of transfer printing
- Printing tissue transfer
- Transfer printed ceramics
- Ceramic printmaking
- Ceramic decoration
- Blue and white ceramics
- Transferware processes
- Pottery decoration

The results produced directions to websites and books based on antique shops selling transfer printed ceramics, collecting transferware, and several films of pottery workers on

YouTube. This provided some background information which I used to familiarise myself with recognising this genre of decorated ceramics. To take this further I made more detailed searches in the UWE libraries and scrutinised the bookshelves for any useful books or articles on ceramic transfer printing. However, the information I found was based on the history of the process and the patterns used as decoration. I considered these sparse initial searches a good sign, as the information on the technical methods of tissue transferware was rare and this could be evidence of a knowledge gap.

1.4.2. Current practice and knowledge in this area

There appears to be no significant contemporary research which contributes specifically on the tissue transfer method of production. In this thesis I refer to work by Dr Kevin Petrie, Dr Paul Scott, and Dr Richard Halliday, which offers a useful overview of the historical aspects of the process and an illustration of how the process works technically. Although this does not offer any new knowledge, all three authors are significant in providing some starting points on which to build this investigation.

The technical terminology used throughout this thesis is given in ***bold italics***, with definitions provided in the Glossary.

1.4.2.a. Dr Kevin Petrie

Dr Kevin Petrie's (1999) contribution to ceramic printing *on-glaze* with a water-based system was documented in his PhD thesis, *Water-Based Ceramic Transfer Printing* (UWE, 1999). The investigation was based on a ***screen printing*** method used to produce an innovative and safe system of printing ceramic transfers for an on-glaze ceramic printing method. More recently, in *Ceramic Transfer Printing*, Petrie (2011) defines the appearance of early ceramic printing with the stylistic characteristics of bat printing on-glaze, and tissue printing underglaze methods. Both these printing methods will be examined in detail in Chapter Four on the history of tissue transferware. He refers to tissue transfer printing as requiring the most creative exploration and suggests a challenge to this is having a good supply of ***potters' tissue*** (Petrie, 2011: 29-32).

Petrie's (2011) examination of further methods of transfer printing uses a ***photopolymer plate*** as the ***matrix*** and substitutes copper plate engraving as another illustration of a method of printing tissue transfer. The printing plate has a ***relief printing*** surface where the ink is rolled onto the upper surface and printed onto tissue using hand pressure. The tissue print is then transferred onto a ***biscuit fired*** ceramic tile, ***hardened on*** and ***gloss fired***.

A demonstration of the tissue transfer process is illustrated by Petrie (2011) and offers a general overview but, as Petrie suggests, needs further research and investigation.

1.4.2.b. Dr Paul Scott

Dr Paul Scott's (2002) *Ceramics and Print*, now in its third edition, is a guide to printing on ceramics which is widely referred to and used within the community of artists and students. It illustrates a range of traditional printmaking and ceramic techniques, with step-by-step guidelines and references to art practice. The text provides an overview of print and ceramic projects for practitioners, introducing them to the potential of ceramic decoration. This was useful at the preliminary stages of this investigation, for providing some introductory knowledge on the subject.

Scott's (2010) PhD thesis, *Ceramics and Landscape, Remediation and Confection*, is an appraisal of ceramic decoration and an in-depth study of the designs on transferware. As an artist he is well known and widely referred to as a leading advocate of the transferware aesthetic. In 2014 he worked in the Spode archive with Charlotte Hodes under the direction of the master engraver at Spode, systematically categorising the copperplates to produce a taxonomy of designs. Through this experience he gained an intimate relationship with the engravings with reference to their patterns and how they were made technically. He indicates the importance of Spode's contribution to the transferware narrative and how lost knowledge can be recovered through participation and dialogue (Scott, 2014).

Fig. 6. Paul Scott – Scott’s Cumbrian Blue(s) Fukushima: in glaze decal, collage on partially erased, cracked earthenware platter marked Ocean, Sakakibara, Japan (c1960), 2012,
Scott, P. *Ceramic Review*, 270, p.15, November/December 2014

1.4.2.c. Dr Richard Halliday

Dr Richard Halliday’s (2018) PhD thesis: *The transferware engraver: training, practice and scope at the Spode Works*, discusses the role of the copperplate engraver on the tissue transfer production process. His study is based on material evidence from Spode’s archives and contributions from ex-pottery workers. Halliday is an antique dealer and has a lifelong interest in transferware, therefore his study is from a traditional historical position. He confirms my observation that very little useful information exists in the literature to reveal technical knowledge about materials and the direct handling of tools and processes (Halliday, 2018: 5).

Halliday’s study is a comprehensive appraisal of the role of the engraver and the transmission of skills from master to apprentice, reflecting the ideas presented by Sennett (2008) on the acquisition of tacit skills (Halliday, 2018: 22). He presents a survey of the traditional trope of the engraver and apprentice, becoming a mock apprentice himself for the purpose of his study, but does not offer any new versions or interpretations of this tradition. Halliday's study defines engraving as central to the transferware method of production, and this assumption will be revisited throughout this investigation.

1.5. Artists referencing the visual language of transferware

I have not found any examples of contemporary artists manipulating their unique aesthetic with tissue transfer methods of production. Paul Scott, Charlotte Hodes and Andrew Raftery are all artists who respond to the visual language of transferware; however, their technical printing methods and materials make use of ***on-glaze transfer*** printing processes. This method is documented in subsequent chapters through a practice-based investigation that illustrated the differences in production and overall characteristics of both *on-glaze* and *underglaze* methods.

1.5.1. Charlotte Hodes

Charlotte Hodes worked as artist in residence at the Spode factory when it was operating as a leading ceramic manufacturer of transferware in 1998. She responded to the pattern books and copper plates, which she repurposed and assembled with her own drawings to create imaginary narratives based on the lives of women in history (Coldwell, 2005). She used an assemblage methodology to decorate existing Spode platters and plates using cut and torn silhouettes of inspirational women in history, such as Eve and Elizabeth I, merging this imagery with readymade Spode patterns. The domestic Spode ceramic ware was the canvas for decoration and a compositional device, but also referenced women's position historically, as represented in the crafts. The resulting series of ceramic pieces were presented as an installation consisting of a table set for dinner containing fragments and pieces with female figures moving across the designs against a backdrop of Spode's instantly familiar *Blue Italian pattern* (Coldwell, 2005).

Fig. 7. Charlotte Hodes' dish: painting, copper engraved and enamel transfer on china, 1998, https://charlottehodes.com/portfolio/ceramics-at-spode (Accessed 30 June 2021)

1.5.2. Andrew Raftery

Andrew Raftery, Professor at Rhode Island School of Design (RISD), is a printmaker whose practice incorporates the engraving process with ideas based on narrative and daily rituals. He worked on the series *Autobiography of a Garden in Twelve Engraved Plates* over eight years to create twelve earthenware plates, using a method of transferring engraving with the appearance of the tissue transfer process. In a conversation with Mary Jones documented in *Artcritical* he discusses his collection of tissue transferware and his devotion to the genre. He came across technical issues involved in printing the engraved images onto the plates and states that it was a challenge to identify any useful existing information about the technical process. He makes this statement, which is pertinent to my study:

Just how to get an engraving onto the ceramic was also a dilemma. Millions and millions of pieces were produced in the 19th century in England, but that industry is really gone. I had a really hard time finding any concrete factual information about the process (Jones, 2016).

He clarifies that he has developed his own ink recipe from historical recipes and uses an on-glaze technique. The engraving is inked with ceramic components onto a decal paper to produce a water slide transfer. This is fired onto the already gloss glazed plate, akin to digital ceramic transfers (Jones, 2016).

Fig. 8. Andrew Raftery, *February: Planting Seeds, 2009–16*: engravings transfer printed onto on-glazed white earthenware, diameter: 12½ in (31.8 cm). The Huntington Library, Art Museum, and Botanical Gardens. Purchased with funds from Richard Benefield and John F. Kunowski. © Andrew Raftery. https://ryanleegallery.com/artists/andrew-raftery/ (Accessed 30 June 2021)

Fig. 9. Andrew Raftery, *May: Cultivating Lettuce,* 2014: engravings transfer printed onto on-glazed white earthenware, diameter: 12½ in (31.8 cm). The Huntington Library, Art Museum, and Botanical Gardens. Purchased with funds from Richard Benefield and John F. Kunowski. © Andrew Raftery. https://ryanleegallery.com/artists/andrew-raftery/ (Accessed 30 June 2021)

Fig. 10. Andrew Raftery, *January: Reading Seed Catalogues,* 2009–16: engravings transfer printed onto on-glazed white earthenware, diameter: 12½ in (31.8 cm). The Huntington Library, Art Museum, and Botanical Gardens. Purchased with funds from Richard Benefield and John F. Kunowski. © Andrew Raftery.

https://ryanleegallery.com/artists/andrew-raftery/ (Accessed 30 June 2021)

Paul Scott, Charlotte Hodes, and Andrew Raftery use the visual language of transferware with on-glaze methods of image transfer. These artists use traditional ceramic domestic ware as a canvas to place their designs on, which reference the familiar narrative genre found in historical transferware. Based on these initial findings, this study aimed to fill a knowledge gap by providing:

- A detailed informative and accessible practitioner perspective on a new method for producing tissue transferware.

- Findings from archival research from previously under-researched collections based on the materials of production of tissue transferware to inform new directions.

- Insights from oral histories obtained from ex-professional pottery workers with tacit knowledge and skills, to make this knowledge explicit to benefit current and future interest in this area.

- An artist's response to the transferware narrative using tissue transferware as a method of production.

1.6. Structure of the thesis

Chapter One has introduced and defined tissue transferware, the subject of my PhD study, stated my motivation for the project and discussed the underpinning aim and objectives. I have outlined existing other research in this area and concluded that my investigation would offer different findings and a new area of study. I have explained how I pursued initial searches but found no examples of contemporary practice where a method of tissue transferware is being fully exploited artistically. I have given examples from Scott, Hodes and Raftery, who respond to the narrative of tissue transfer through the visual language of the genre but do not demonstrate the unique characteristics of the method of production. In this chapter I have therefore conclusively asserted evidence of a knowledge gap, based on my initial findings.

Chapter Two presents a replicable methodology for this study. My research design incorporated established research methods which were clearly defined within the given qualitative and practice-based approaches. Frayling's ideologies on art-based research and my previous professional experience as a teacher contributed to the methodology that justified the research design as I took on the role of both researcher and artist in this investigation.

Chapters Three and Four provide an overview of historical literature in this field. They are focussed on historical research, surveying the historical production process, and highlighting areas for further investigation. These two chapters establish and define tissue transferware, from primary source interviews with an ex-pottery professional as well as direct handling of his original historic examples of transfer printed ceramics. Ethical approval was obtained from the university for this research involving human participants. Secondary sources were examined for information on the technical aspects of the process. This was achieved by joining online academic paper depositories such as the *Northern Ceramic Society* and the *English Ceramic Circle*, on advice given from Pat Halfpenny, curator emerita ceramics and glass at Winterthur Museum and a leading writer on transferware ceramics. In the literature review chapters I state that, as few useable texts existed in UWE's physical or online library, this access was crucial to this part of my investigation.

Chapter Four continues the historical investigation with an examination of the tissue transferware process from literary sources and from spoken word oral history interviews with Paul Holdway, collector, writer, and ex-master engraver at Spode. During these sessions Holdway recounted technical information not easily sourced in the literature and allowed for haptic interaction with rare historical examples of transfer printed ceramics, beginning with the earliest examples of transferware, tiles produced by *Sadler and Green.* This dialogue was recorded photographically whilst notes were taken based on pertinent details of the shared information. This allowed for a natural flowing conversation not being encumbered by a recording device.

I visited the archive at the Museum of Royal Worcester several times, where I accessed historical books as essential starting points for further searches. Based on these scoping visits

I returned for further in-depth access to the paper and material archive, as discussed in Chapter Five. This provides more detail of the transferware narrative and Worcester's contribution to it. In the archive I had open access to primary material, from which I was able to record, reflect and respond creatively. The printmaker's scrutiny was at the forefront of this part of my investigation, looking for evidence of the technical processes as I became an intuitive historian. The evidence I found was examples of anonymous artistry, with hand-rendered facsimiles of decorative domestic ware produced at Worcester Porcelain throughout history. My response to this visual material resource through practice is described in Chapters Seven and Eight.

Chapter Six highlights practice-based research methods in a series of tests undertaken using an interpretation of tissue transferware based on the principles derived from historical, archival, and oral history accounts. In this study I name the engraver as the craftsman, as he initiated the process and the whole operation would not have been possible without him. However, I state that the whole operation is not straightforward, and, in this study, I have unravelled the parts to achieve a unified method, combining printmaking and ceramic knowledge. A set of principles were customised and presented as an effective method of tissue transferware. Empirical pragmatic testing of the process produced developments with controlled variables in the production of a measurable method of transferware. Some of the data was collected as units of measurement, and this is documented in the body of the text, along with reflection and material thinking.

The contextual review continues in Chapter Seven and is divided into two parts to demonstrate theoretical understanding from the position of craft and industry, and contemporary art. The first part addresses industrial craft and defines historical transferware as being a process in parts operated by divisions of labour. This is framed through a wider discussion on historical and contemporary perspectives relating to industrial craft and the current demise of the ceramics industry. This chapter also provides some explanation as to why tissue transferware has never made the transition from industry to contemporary art practice.

The second part of **Chapter Seven** provides a context to my art practice, from the perspective of contemporary printmaking. It describes my previous work, establishing the motivation for making it whilst unravelling the progression of ideas. I discuss my visual literacy in relation to ideas generation, making the distinction between material tests and finished artworks. The visual language imbued in the artworks was achieved symbiotically through material processes and conceptual interpretation.

The technical methods of making were observed, recorded, and are visualised in **Chapter Eight**. This chapter presents a clear and detailed walk-through of the technical details for each intricate part of the process. It shows how the creative works and reflective observations have produced an open, accessible, and inclusive hybrid method of art practice which makes the transition from closed industrial knowledge to contemporary printmaking practice.

The thesis concludes in **Chapter Nine** with a discussion of my dissemination of outcomes. In this chapter I explain why the physical dissemination of research material was limited, since workshops and exhibitions were cancelled due to the Covid-19 pandemic, and show how this was mitigated, forcing the research into a different trajectory. I return to the title of the PhD: An industrial craft reinstated: a printmaker's perspective on tissue transferware and evaluate what has been achieved. This chapter also proposes further research for tissue transferware, with projects planned to illustrate its future life beyond this investigation.

Chapter Two

Methodology

2.1. Introduction

This chapter begins with a summary of the main aim and objectives of this research, using a definition of arts-based research offered by Barbara Bolt (2007) in the book edited with Estelle Barrett, *Practice as Research: Approaches to Creative Arts Enquiry.* Early in this study her set of principals relating to *material thinking* and the terms *idiosyncratic and emergent* established new ways for me to approach and consider this practice-based investigation. *Reflection in action* is also discussed as an approach promoted by Donald Schön (1983) to solve problems with intuitive action.

The next section outlines the research design of this inquiry, with an adaption of ideas delivered in a paper at the Royal College of Art by Sir Christopher Frayling (1993) titled *Research in Art and Design*. He presents three the modes of research as being *research into, research through* and *research for art and design*, taken from the original principals fostered by Herbert Read (1958) in his book *Education through Art*.

I relate Frayling's (1993) ideas to my previous professional experience as a lecturer and course leader on the foundation art and design course, as I observe the familiar three modes as phases in the research and a structure which mirrored approaches to championing creative thinking and practice in others.

Based on the three mode methodological structure offered by Frayling (1993) and my previous teaching experience, I adapted it for the design of my research project into *research into art*, *research through art* and *research for art*. Each overarching mode is subdivided into qualitative and practice-based research approaches, using corresponding research methods for each approach. The individual research methods are explained within the context of this inquiry and a rationale given for each one.
This chapter is divided into the following four sections:

- Background to research
- The research design: methodology
- Research methods
- Conclusion and chapter summary

2.2. Background to research

Tissue transferware is a genre of industrial printmaking on ceramics. This genre was practiced inside the factory and is described in my doctoral study as an industrial craft. Much of the knowledge surrounding this craft has been lost as the pottery industries have closed or have replaced printing on ceramics with newer and more cost-effective forms of decoration.

The aim of this investigation is to unravel and interpret the industrial craft knowledge so that the form of printmaking will become invigorated with new possibilities and potential for creative artists. The foremost objective is to demonstrate its artistic value to artists working in the field of ceramics and print, to enable it to become an accessible form of printmaking on ceramics in the future.

2.2.1. Practice-based research

Bolt has contributed to defining practice-based research in the book she edited with Barrett (Barrett and Bolt, (2007), *Practice as Research: Approaches to Creative Arts Enquiry*, and at the outset of this inquiry proposed new ways for me to think about and approach my practice-based study.

Bolt is the Associate Dean of Graduate Research at the Victorian College of Arts and Music, University of Melbourne. As well as being an academic she is a practising artist and, in her essay taken from the book *The Magic is in the Handling* (2007), Bolt uses David Hockney's 2001 investigation, *A Secret Knowledge: Rediscovering the Lost Techniques of the Old Masters* as an example of practice-based research. In this essay she refers to Hockney (2001) as the experienced artist whose investigation led him to prove a *hunch* as to whether the French painter Ingres (1780-1867) had used mechanical devices to assist him to draw small scale accurate portraits. Bolt describes Hockney's *idiosyncratic* methodology which emerged from his professional understanding of drawing and used projection devices in his portrait drawings. He developed his own particular methodology to carry out a series of tests to visually prove his hypothesis that Ingres was utilising a ***camera lucida*** to produce accurate portrait drawings. The practice is informed by theory and at the same time the theory *emerges* from practice (Bolt, 2007: 29-30).

Practice-based research is the approach that applies to my inquiry, and this essay provided reassurance and a framework I could identify with as an artist and researcher early on and throughput this investigation. I am an artist working with printmaking, driven to research a potentially obsolete process for the benefit of future artists. This has been achieved through a research process that can be described as *idiosyncratic and emergent*. Throughout the investigation I have discussed the problems and gathered materials and *processes of production*, to demonstrate what Bolt describes as *material thinking* (Bolt, 2007: 29-30).

2.2.2. Material thinking

Bolt refers to *material thinking* as the production of knowledge acquired through the artist's engagement with tools, processes and equipment applied to research. In Hockney's case he used *material thinking* in selecting the equipment and tools of his art practice to solve a mystery and investigate his *hunch*. The materials Bolt described are those involved in the making part of the practice which are not just *passive objects,* but have their own *intelligence* brought to life in collaboration with the artist. Bolt supports her thinking with the ideologies of the German philosopher Martin Heidegger (1962) who, in his book *Being and Time*, asserts that knowledge and theory are acquired through the direct handling of the materials needed for a task. Thus, theory emerges from physical interaction with ordinary tools and equipment and is not a precursor to this interaction (Bolt, 2007: 29-31).

The material thinking, I have used in this inquiry comes from this ideology; while the knowledge has emerged through this investigation and comes directly from my handling of printmaker's materials, tools and equipment. The printmaker's perspective comprises the recording of this emerging knowledge through the critique in this thesis, but also physical interaction with the tools and materials. This has resulted in physical art works that visually support and are embedded in the research. Throughout this study I have reflected on the creative actions and decisions made by myself as the artist and researcher.

2.2.3. Thinking in action theorised by Donald Schön (1983) in *The Reflective Practitioner*

I have applied a practice-based approach to this study, enabling me to bring my previous experience of art practice to the project, which has been fundamental to progressing the research. I already possess the visual literacy of making, so have been able to apply this to every stage of the investigation. All stages were documented in the thesis as they happened and written in my authentic voice. This investigation is for the benefit of other creatives who I considered when documenting the practice through making and writing. I had a conversation with myself using an approach termed *reflection in action* by Schön (1983) in his book *The Reflective Practitioner*. Schön (1930-1997), an influential philosopher and Professor in Urban Planning at the Massachusetts Institute of Technology, describes his reflective model as being divided into the three areas of *knowing in action, reflection in action* and *reflection on action.*

Knowing in action refers to tacit knowledge of a commonplace everyday activity which an individual does without consciously thinking about. As a printmaker the actions or procedures you learn tacitly are performative and so natural that they become difficult to describe in words.

Schön believes that *reflection in action* focuses on problem solving and intuition by *thinking on your feet* or *learning by doing*. He implies that, as an influential model for instinctive action and problem-solving, it is a means to track what is *going* on, but also infers that this reflection will generate future actions and progression (Schön 1983: 51).

I have tacit printmaking knowledge but found tissue transfer printmaking unfamiliar and therefore challenging. Throughout this project I documented the research taking place as it happened, reflecting at key moments to initiate improvements. I recorded this in notebooks, voice recordings and photographs so that the moment is not lost. Working with the tissue transfer process and *reflecting on action* has been a method articulated throughout this study.

2.3. The research design: methodology

2.3.1. A methodological design offered by Sir Christopher Frayling (1993) in *Research in Art and Design*

In his paper *Research in Art and Design*, Frayling (1993) debates what art research means in terms of art, craft, and design, and presents a methodological design I have adapted for this research inquiry. Written in 1993, when arts-based PhD study was new, Frayling cites Read's (1958) paper *Education Through Art* as an influence on his thinking. Frayling's three phase model for practice-based research positions – *research into*, *research through* and *research for art* – are prerequisites for an arts practice-based inquiry.

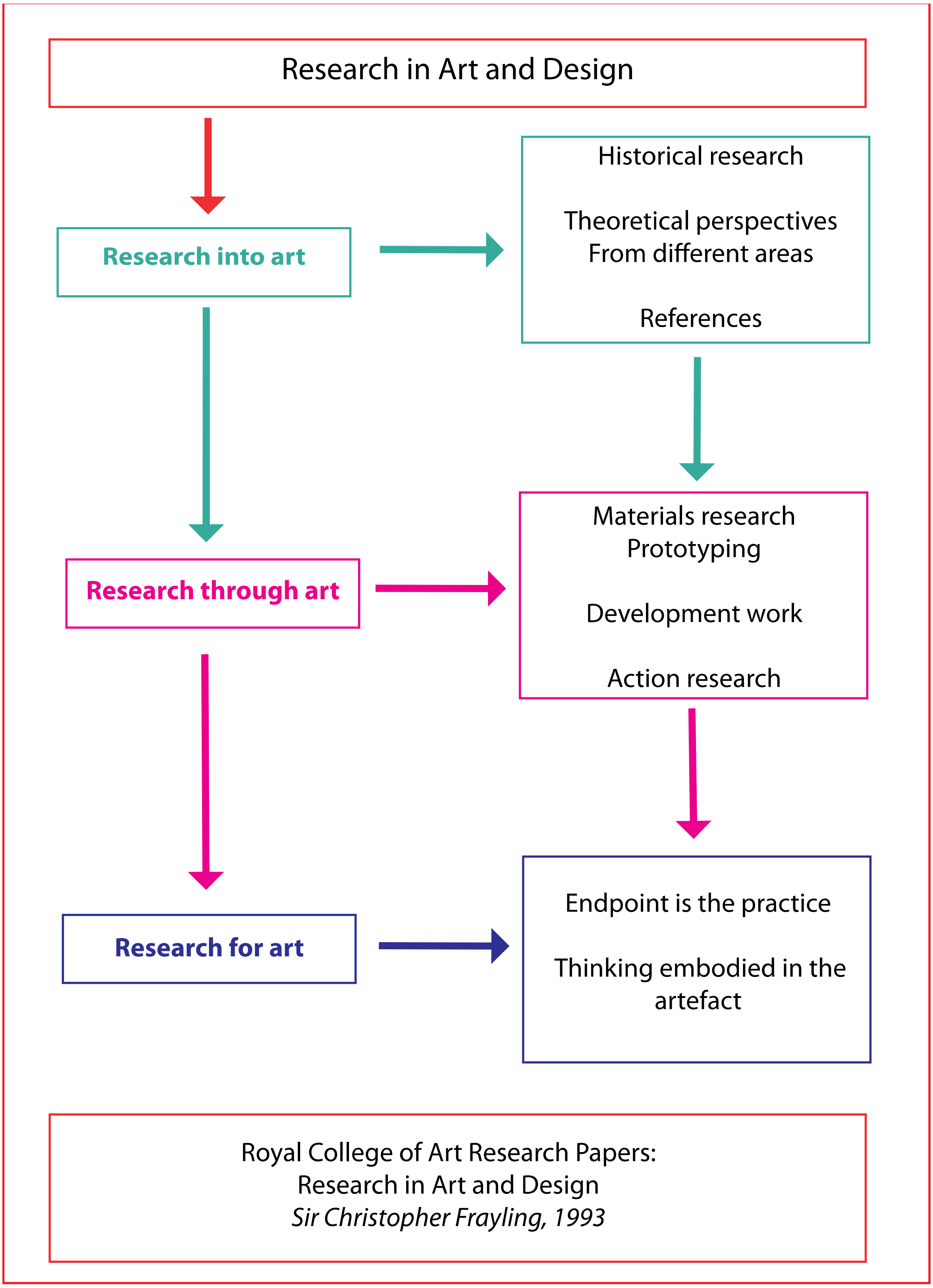


Fig. 11. Adapted from Frayling's arts-based research: with three divisions as different modes of arts-based practice. Diagram by Lisa Sheppy

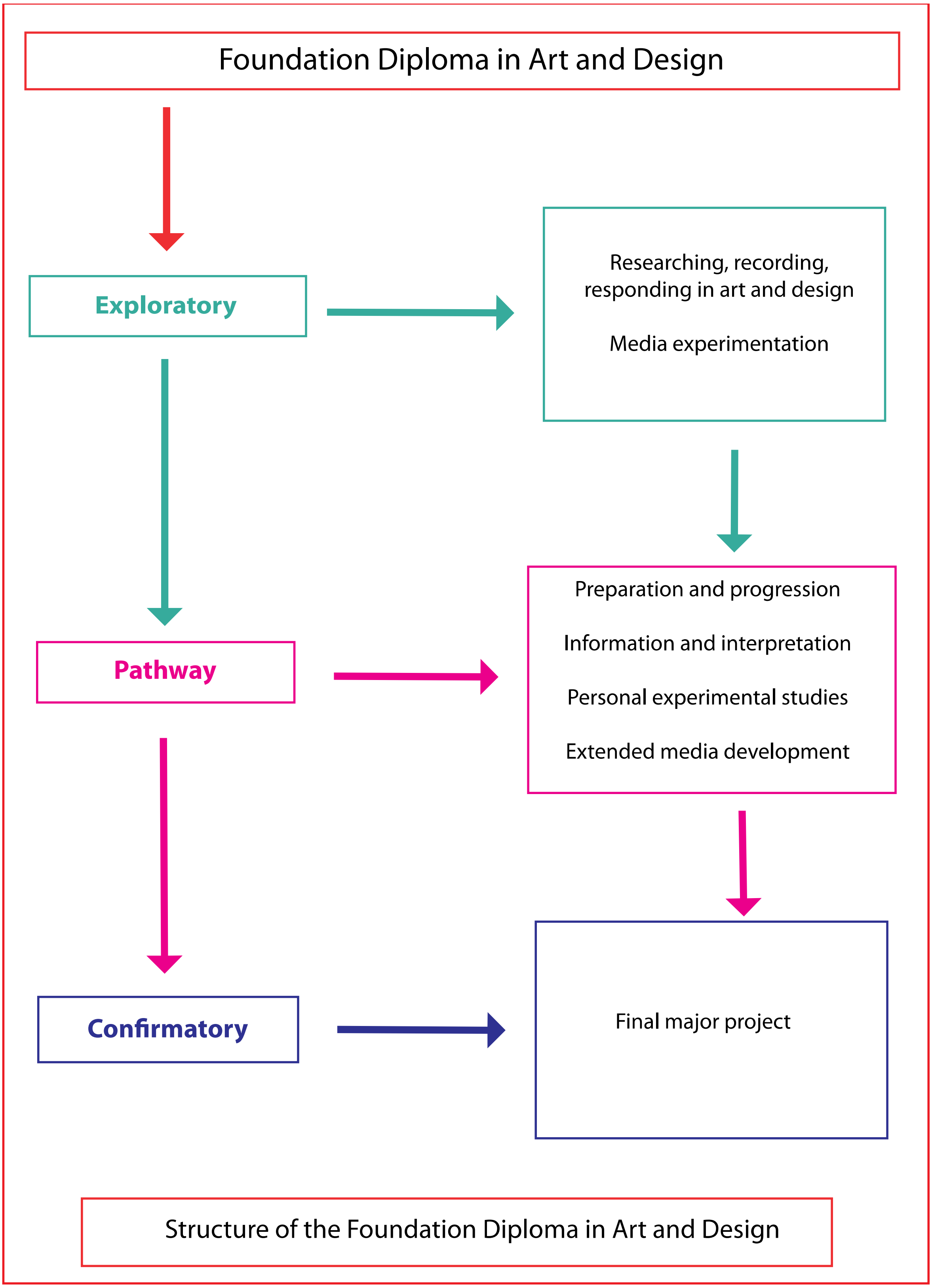


Fig. 12. Foundation diploma in art and design: comparable to Frayling's (1983) three mode structure.

Diagram by Lisa Sheppy

Before starting my full-time PhD study, I worked professionally as a leader on a foundation diploma course in art and design, and I observed a connection between Frayling's structure, and the approach used to encourage creative thinking and practice in others. The foundation course in art and design was historically a requirement for entrance to undergraduate art and design courses, and the Bauhaus model of education underpinned its philosophy. The model and foundation course were diagnostic, offering students an art and design experience based around technical craft, art and design, using an exploration of workshop-based materials and processes. Tutors were also encouraged to be practitioners so that the teaching position was from professional practice. Students were encouraged to think diversely through the making process before choosing a final pathway. The final assessment was a sole project formally graded which constituted a body of work devised by the student, evidencing a range of practical, personal and study skills. Many of the acquired study skills were *life skills* and incorporated abilities such as independent inquiry, reflective learning, self-managing, creative thinking, team working and effective participating (Pearson (2017).

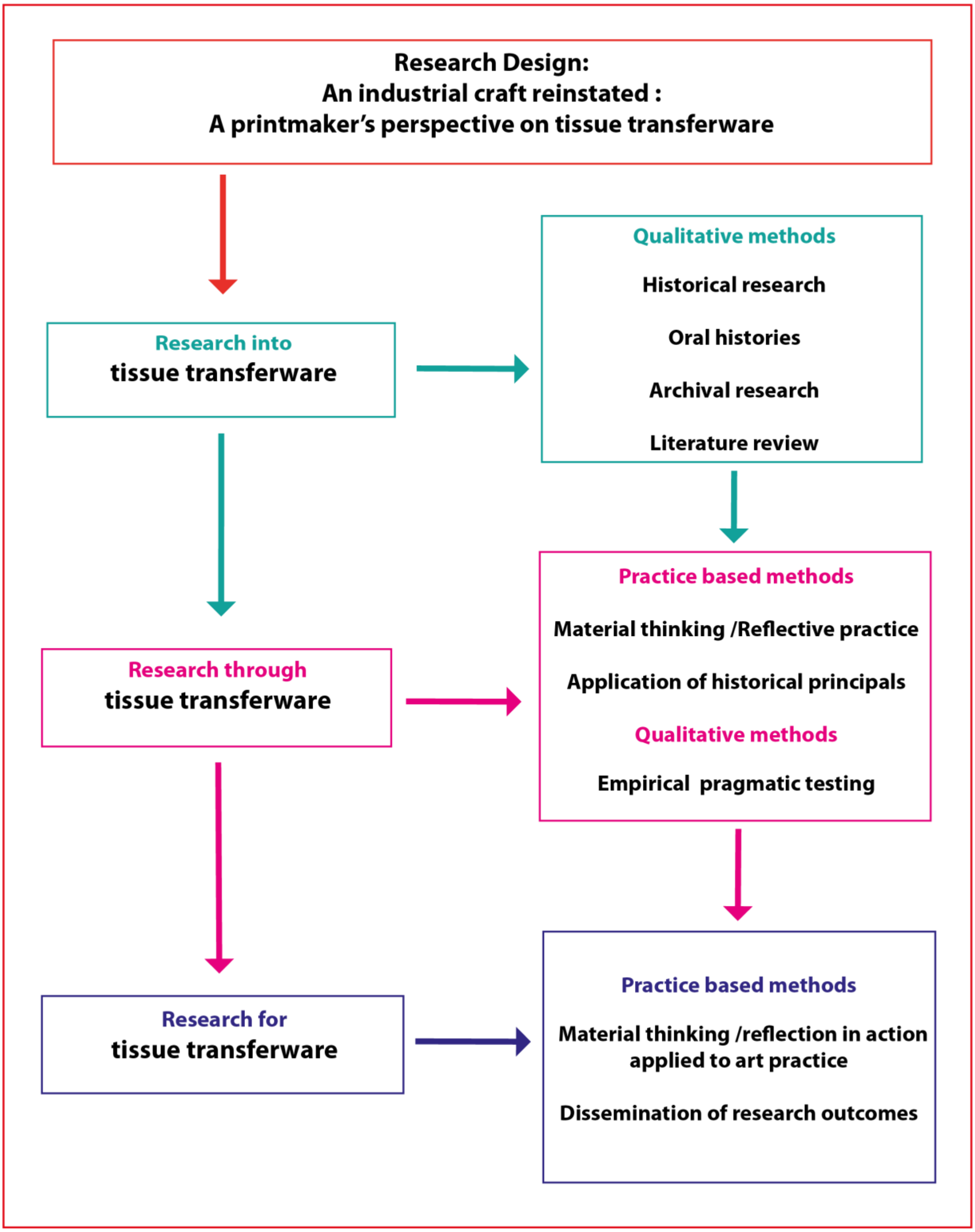


Fig. 13 Research design: diagram by Lisa Sheppy

Combining Frayling's three phase methodological structure and my previous teaching experience, I adapted the model for my study as *research into art*, *research through art* and *research for art*. The research methods are described in section 2.3 below.

In his paper *Knowledge and research in art and design,* Darren Newbury (1996), Professor of Photographic History at Brighton University, supports Frayling's three phase design as a sound methodology for arts-based research. He discusses an example of a research project working effectively across all Frayling's three categories for art-based research and describes how they can produce a successful doctoral study. He suggests that *research for art* should be the final phase driven by the researcher, an artist, to make physical works which have *value as an end product* (Newbury, 1996: 218-219). I concur with this: as a printmaker and researcher I was motivated to create outcomes in the final phase of the research which would visually demonstrate an application of knowledge to support the written text.

2.3.2. Qualitative and practice-based research approaches

The methods I have used to conduct this inquiry fit principally into the definition of qualitative and practice-based research. I have conducted multiple tests and empirical experiments with measurements and variables, which I have documented in text, using reflection to confirm the results.

Gjoko Muratovski (2016) suggests that selecting a qualitative research position is useful for complex situations where there is little existing information. The research evolves over time and ultimately becomes focussed and more resolved through the practice of a range of mixed methods being used to collect data (Muratovski, 2016: 48). I used a range of mixed methods from qualitative and practice-based approaches to conduct the inquiry, as this was an effective fit for my research aim and objectives.

2.3.3. Research methods

I have visualised my research methodology in the following three diagrams to illustrate and provide clarity about the design. I have undertaken the adapted three modes of arts-based research and subdivided those with a mixed research method which encompasses both qualitative and practice-based approaches. In the subdivisions I provide a summary of each research method and signpost the readers to the specific chapters in this thesis.

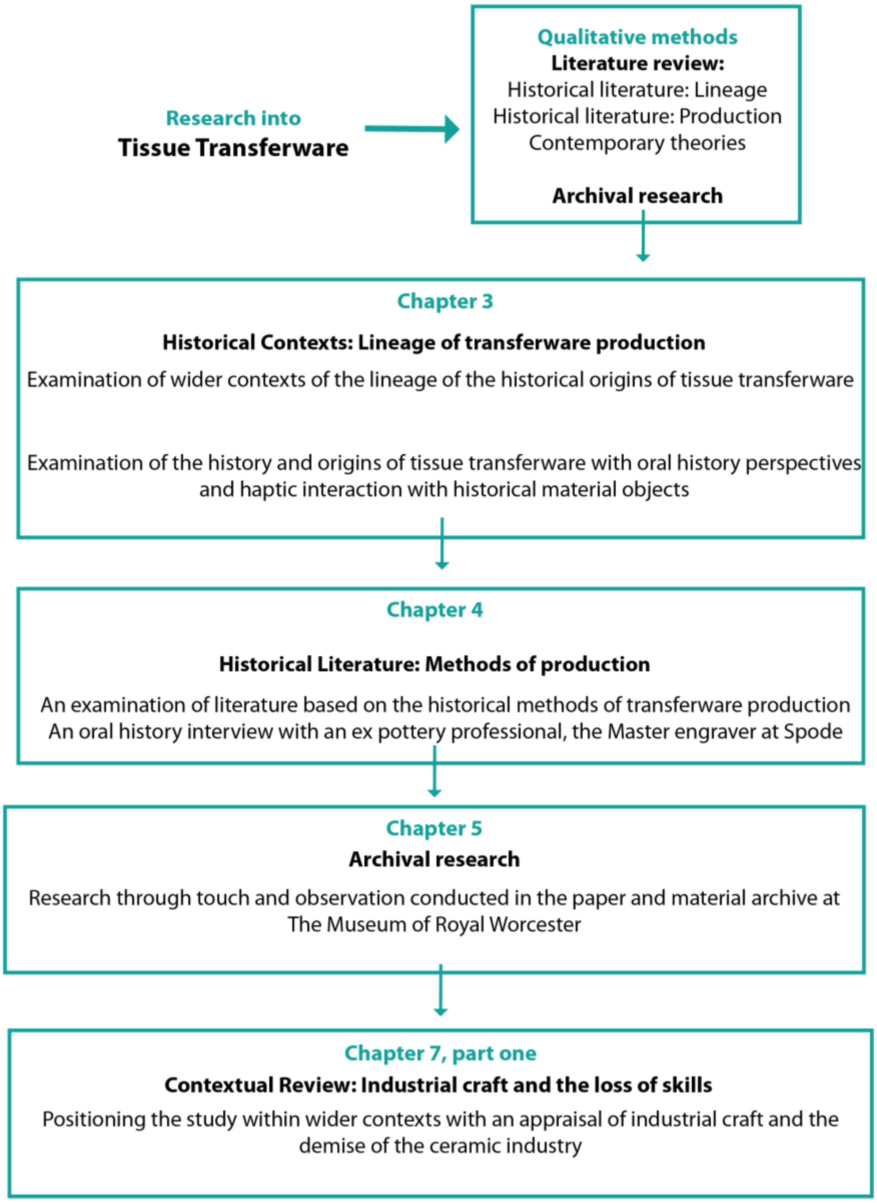


Fig. 14. Research into tissue transferware: phase one. Diagram by Lisa Sheppy

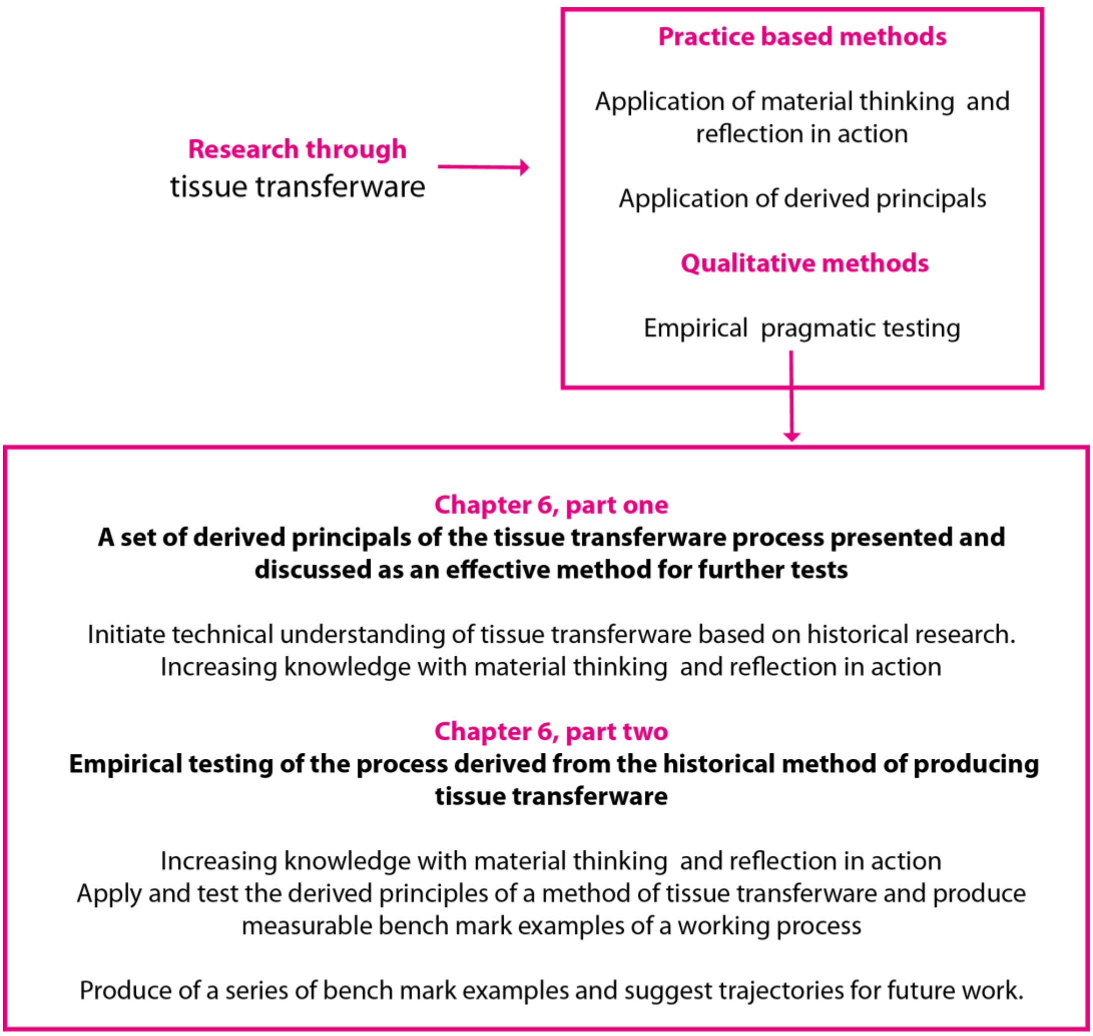


Fig. 15. Research through tissue transferware: phase two. Diagram by Lisa Sheppy

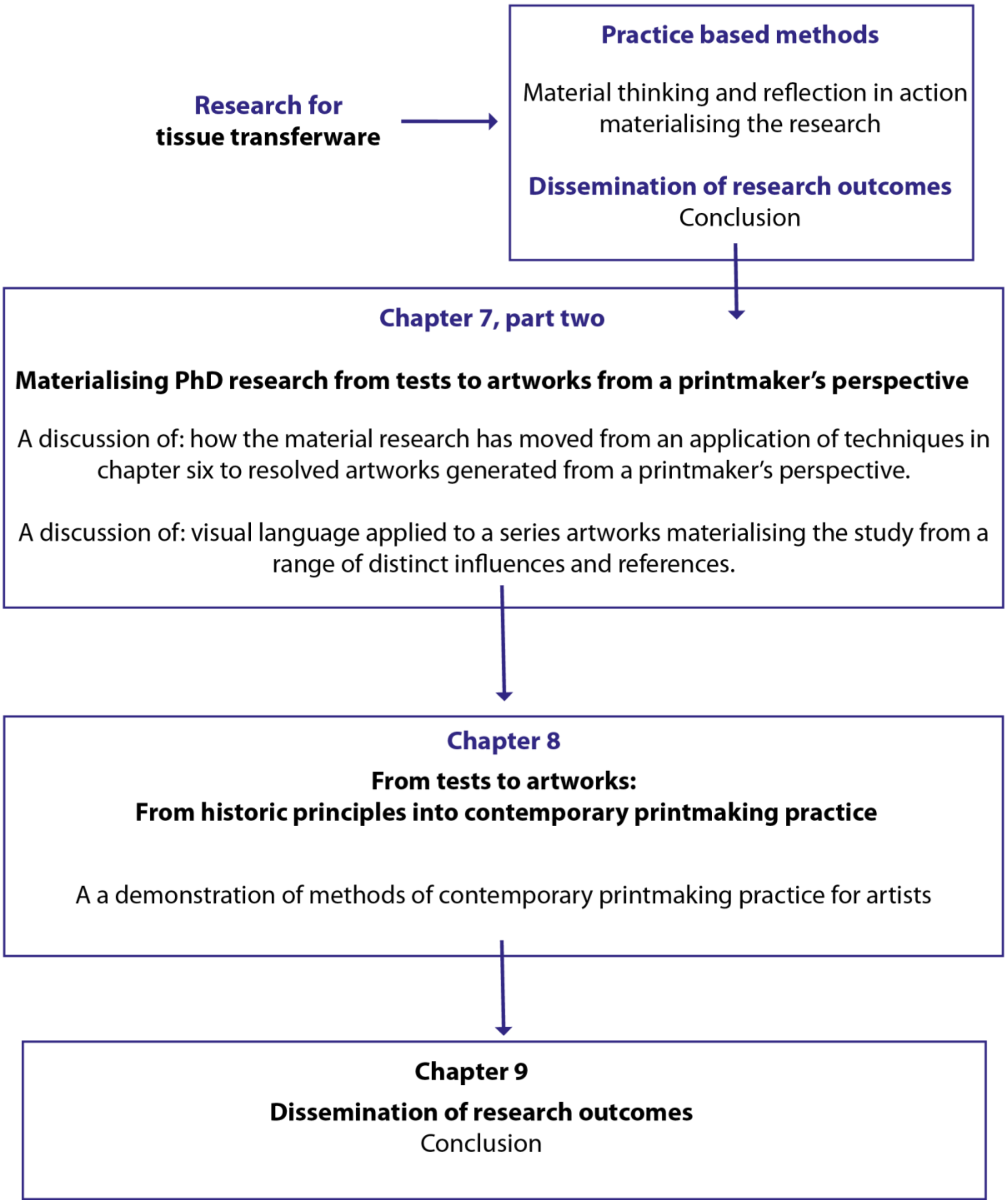


Fig. 16. Research for tissue transferware: phase three. Diagram by Lisa Sheppy

2.4. Conclusion

At the beginning of this PhD study, I discovered Bolt's ideas (2007), which provided guidance and background knowledge. This helped me to define creative practice research and offered a suitable approach, *material thinking*. This approach established new ways to advance my study with an emphasis on thinking through the printmaker's tacit skills to create a new form of expression for artists. *Thinking in action*, an approach outlined by Schön (1983) was also beneficial as a means of intuitive thinking and problem solving throughout this study. This is evidenced in the body of the text and in the production of the artefacts that have emerged from the study.

The research methods are clearly defined within the given qualitative and practice-based approaches. Frayling's ideologies on art-based research and my previous professional experience as a teacher contributed to the research design, that clarified as a structure as I took on the dual role of researcher and artist in this investigation. The design is replicable and incorporates established research methods which are discussed later in this thesis.

In the next chapter the history of transferware will be presented with an examination of the lineage of the process and an explanation of how a small scale craft method of production became Stoke-on-Trent's biggest export during the Industrial Revolution.

Chapter Three

The origins of tissue transferware

3.1. Introduction

This chapter is a survey of the origins of tissue transferware. My initial findings establish who initiated the process and how it became situated in Stoke-on-Trent, from where it was subsequently mass produced. Some specialist knowledge of the lineage and origins of the process will lead to a range of options for future developments, combining historical and practitioner knowledge.

As stated in the introduction of this thesis, preliminary searches revealed a lack of comprehensive literature on the method historically. Therefore, this chapter documents knowledge of the historical method of producing tissue transferware through:

- Accessing literature not instantly available on library shelves and online searches.
- Participation with an ex-pottery professional to gain access to insider knowledge of the history of tissue transferware.

This chapter contains sections on significant people, events and places, establishing the origins of the early tissue transferware trade, including:

- The Doccia Factory, Florence.
- Sadler and Green: Liverpool.
- John Brooks: Birmingham and Battersea.
- Robert Hancock: Battersea, Bow and Worcester.
- Thomas Turner: Caughley and Spode.

3.2. Ethical clearance and participation

I applied for ethical approval to approach ex-pottery industry professionals to seek their participation in the study (refer to Appendix section A.3.2). In March 2019 UWE's Research Ethics Committee approved my application

On the application I detailed my plans to approach key members of the Spode Museum Trust, as ex-pottery professionals from a now closed industrial context. Spode ceased trading in 2008 but was historically the leading manufacturer of tissue transferware, so input from this leader in the field would contribute significantly to my understanding of industrial methods of production.

I made it clear that I did not intend to reproduce the industrial process, but to modify aspects of it technically so that individual makers could use its aesthetic characteristics in a contemporary art and craft field. Thus, revitalising a process under threat of becoming obsolete and creating a new field of material use for it. Before any participation took place, I sent details of the study to the chosen individuals, with information detailing consent and other issues that may arise after the interviews. I also sent a copy of the consent form ahead of any meetings to be signed by myself and the participant, to protect both parties.

The main participant and contributor to this study is Paul Holdway, ex-master engraver at Spode. Holdway is also a researcher, author and collector of rare, original examples of tissue transferware and the materials associated with its manufacture. His contribution on the history of tissue transferware is documented in this chapter, with physical examples he kindly shared with me for the study. This survey is expanded in Chapter Four by Holdway when he shared knowledge of industrial methods of production through manual demonstrations of the process. I was introduced to Holdway by Dr Neil Brownsword, who I had met during his residency at the Victoria and Albert Museum. In Chapter Six Brownsword is introduced in more detail, as a contributor to the section on industrial craft and its significance to the field of contemporary art. I met Holdway in 2019 and interviewed him at his home in Stoke-on-Trent on many occasions. He and his wife, Kath Holdway, supported this study, invited me to Spode events where I met other ex-pottery professionals and had many informal but pertinent conversations with me about the now historic tissue transferware industry at Spode. My oral history methodology used note taking and photography, rather than voice recording as it seemed more appropriate; allowing for a natural conversation to take place. Several visits took place over the months of June and July 2019, during which time I corroborated information with Holdway and made corrections when required.

John Raftery was also an important participant in this study, and I include his contribution in Chapter Eight, based on his memories of working at Spode, where he initially trained under Holdway as an apprentice engraver (refer to section 8.1.2.c.). Raftery is now the product manager at Portmeirion Group PLC, Stoke on Trent, where I met him to discuss his apprenticeship at Spode and how today the manual engraving process is now predominantly digital, with ***on-glaze*** fired decoration.

I sought the guidance of other pottery professionals, who I thank in my Acknowledgments but have not cited directly in this thesis. I was introduced to Pat Halfpenny, with whom I discussed the problem of accessing informative literature on historical methods of producing tissue transferware. Halfpenny advised joining *The English Ceramic Circle* and the *Northern Ceramic Society* for immediate access to academic papers based on the history of the process. These papers are not available outside these repositories. Halfpenny is the curator emerita ceramics and glass at Winterthur Museum in Delaware, USA, and a leading writer on transferware ceramics, co-ordinating lectures on different subjects associated with historical and contemporary ceramics. Since becoming a member of these organisations, I have been able to view many of these lectures online, which has opened up more access to specialist knowledge.

3.3. A historical overview: Who invented the tissue transfer process?

The significant development of the commercial manufacture of the tissue transfer process occurred in England around the 1750s and was linked to the existing artisan trades of engraving, enamelling and porcelain. Halfpenny (1994) refers to *a particularly English form of* decoration when describing *transferware* and suggests that the ***copperplate engravers*** John

Brooks and Robert Hancock, and the printers John Sadler and Guy Green made considerable progress with the process from the 1750s onwards, and can each be named the originators of transferware (Halfpenny, 1994: 7-8).

The engraver enabled a method of reproducing an intricate image to decorate the ceramic object, making it more economical to produce than hand painting. The geographical origins of the process in England were in several cities across the country, but finally migrated to Staffordshire where the industry established the potteries in Stoke-on-Trent as a major producer of transferware by 1784 (Drakard and Holdway, 1983: 10).

3.3.1. The Doccia Factory, Florence

There is some evidence that the tissue transfer process was being practiced earlier than 1750, in the Doccia Porcelain Factory in Florence. Examples of this are held at the Victoria and Albert Museum, dated to 1742-5, implying that Italy was the instigator of the process.

Fig. 17. Doccia Porcelain Factory, Florence, 1742-5: photographed by Lisa Sheppy at The Victoria and Albert Museum, London, 2017

Fig. 17a. Doccia Porcelain Factory, Florence, 1742-5: photographed by Lisa Sheppy at The Victoria and Albert Museum, London, 2017

Mallet (2011) describes visiting the Doccia archive in Florence and examining the ceramic pieces from the 1740s and comments that the printed decoration has *clear visual evidence of discontinuous printed lines only partly concealed by retouching with a brush*, suggesting that the decorative marks were evidently made through engraving but finished off with a brush. He notes that Doccia produced highly refined luxury products but the industry was small and never developed on an industrial scale (Mallett, 2011: 95).

3.3.2. Sadler and Green: Liverpool

Turner (1907) describes the myth surrounding the origins of the transfer printing process, in which John Sadler, a printer from Liverpool, observed a group of children sticking discarded prints onto broken pottery shards and it occurred to him to use engravings transferred onto earthenware (Turner, 1907: 6). At this time printers would have employed engravers in their businesses, as that was the earliest way to reproduce an image before the invention of photography. The story of the shards of pottery, retold by Turner (1907), has been quoted in many of the literature sources. He states that it was Sadler and Guy Green, an engraver, who succeeded in producing ceramic tiles on an industrial scale. In 1756 under the partnership *Sadler and Green* they applied for *an affidavit* claiming a patent for the transfer process, in which they described how their new process had taken seven years to perfect and could produce 1200 earthenware tiles in six hours – the time it would take over 100 skilled painters to produce the same number using hand painting. Their claim was detailed and referred to replacing ***porcelain*** with ***earthenware,*** the speed of the process, and the benefit of no longer needing to import painted ***delftware*** tiles from Holland; producing a replica for the growing demand in decorated tiles in England. The claim was not pursued as it may have resulted in disclosing details of their process publicly and run the risk of others imitating their process and business ideas (Turner, 1907: 6).

Fig. 18. A delftware ***tin glazed*** tile dating from the 18th century. Researcher's own, photographed by Lisa Sheppy, Worcester 2022

Holdway kindly gave me permission to photograph early examples of transfer printed ceramics from his collection in Stoke-on-Trent in June 2019. I was able to handle these rare objects, which gave me an intimate engagement with original primary sources. All the following photographs, unless stated were taken by me at Holdway's home and are from his personal collection. He gave me permission for all of them to be reproduced in this thesis.

Fig. 19. Back of Liverpool delft tile, 'Couple Dancing in Tartan' by J. Sadler, 1758-61

Fig. 19a. Liverpool delft tile, 'Couple Dancing in Tartan' by J. Sadler, 1758-61

Fig. 20. Liverpool delft tile, by J. Sadler, 1758-61

Fig. 21. Liverpool delft tiles, 'Aesop Fables', by J. Sadler, 1758-61

Creamware was a cream coloured ***earthenware*** which Josiah Wedgwood had perfected as an alternative to porcelain by the 1760s. He met Sadler and Green in 1761 and rented a shop for them to retail his products in Liverpool, which became part of *Wedgwood and Co's* expanding trade. It was of mutual benefit to both businesses and because of this arrangement Liverpool dominated the pottery printing tile trade in the 1760s and '70s. The arrangement between Wedgwood and Sadler and Green lasted until 1770, when the printers retired (Halfpenny, 1994: 12-15). The business was referred to as a *Printed Ware Manufactory* and an advertisement in the *Liverpool General Advisor* of May 1767 indicated that the range of printed wares were sold to both wholesale and retail markets under their own name, making Liverpool the most prominent market place at this time for these printed ware ceramics (Wyman, 1977: 192).

Fig. 22. Three views of Wedgwood and Co, 'Susan's Farewell', 1760-70

Fig. 23. Three views of Wedgwood and Co, 'The Tithe Pig', 1760-70

3.3.3. John Brooks: Birmingham and Battersea

John Brooks, an engraver from Ireland, has also been cited as inventing the transfer printing technique for ***enamelling*** and ***porcelain***. He is connected to the enamelling trade in Bilston near Birmingham and in 1753 moved to the *Battersea Enamel Works* to work with Sir Stephen Theodore Janssen Brooks, where he attempted to patent transfer printing on enamels, emulating a French style of illustration (Halfpenny, 1994: 12).

Holdway has a Bilston ***patch box*** in his collection which he kindly allowed me to photograph and use in this study as an example of early transfer printing made effectively in the enamelling trade.

Fig. 24. Two views of a ***patch box*** from Bilston, 1753

Holdway described how his creative interest led him to respond to the patch box enamelling style below with these transfer printed enamels:

Fig. 25. Holdway's response to Bilston enamel: bat printing 1979

Fig. 25a. Holdway's response to Bilston enamel: bat printing 1979

3.3.4. Robert Hancock: Battersea, Bow and Worcester

Robert Hancock, an engraver from Staffordshire, is referred to in the history of the transfer process as producing some of the finest examples of transferware at Worcester. His contribution at Worcester is discussed in Chapter Five, based on my studies of the Royal Worcester archives. Before he worked there, under the management of Theodore Janssen, Henry Delamain and John Brooks, Hancock worked at the Battersea enamel works from 1753. He was apprenticed under the French artist Simon-Francois Ravenet and trained to copy many of the French masters such as Watteau, Boucher and Lancret from the ***French Rococo style***. Hancock's style of decoration is described as delicate, refined and the highest quality work with line engraving and mezzotint engraving (Cook, 1948: 2-7).

From Battersea Hancock studied mezzotint engraving under Thomas Frye at the Bow porcelain works where he worked until 1756 when he moved to *The Worcester Porcelain Company*. As well as being a mezzotinter he was also an accomplished portrait painter and, by the time Hancock arrived at Worcester, he was described as introducing a method of transfer print which was unrivalled in terms of its clarity and detail. This became a highly valued and desirable genre of ceramics. The success of Hancock's transfer technique helped to establish Worcester as a leading manufacturer of transfer printed porcelain and he subsequently became a partner in the business with Dr John Wall in 1772 (Ballantyne, 1885: 4-8).

The very early methods of transfer printing applied an ***on-glaze*** transfer process; however Worcester was the first of the ceramic industries to perfect the technique of ***underglaze*** tissue transfer on porcelain (Halliday, 2018: 15). This is discussed further in Chapter Eight, with reference to Henry Sandon's 1968 excavation of the original Warmstry House site in Worcester (referenced in Section 7.2.5.c.i.).

Fig. 26. Two views of 'La Cascade' from a plate by Robert Hancock, 1765. Available from: https://collections.vam.ac.uk/item/O71276/the-tea-party-cup-and-saucer-hancock-robert/ [Accessed 16 February 2022]

Fig.27. ‘The Tea Party’, Robert Hancock, 1765. Available from: https://collections.vam.ac.uk/item/O71276/the-tea-party-cup-and-saucer-hancock-robert/ [Accessed 16 February 2022]

3.3.5. Thomas Turner: Caughley and Spode

Thomas Turner had connections with Hancock at Worcester and opened the Caughley Factory in Shropshire, where it is suggested the first *Willow* pattern was designed and produced (Des Fontaines, 1968: 123).

In 1783 Josiah Spode employed the engraver Thomas Lucas and printer James Richards from Caughley and it was after this date that the transferware technique was established (Halliday, 2018: 15).

In this period the copperplate engraver worked on the production of plates and pattern designs, however large manufacturers such as Spode and Wedgwood employed their own. Independent engravers also worked for themselves in print shops and freelance for other potteries, evidenced through examples of identical patterns appearing throughout different manufacturers’ products. There were twelve such workshops in 1818, twenty-six in 1830, and thirty in 1834. After this there was a decline in registered numbers, suggesting that the popularity of the industry had peaked (Des Fontaines, 1968: 126).

Fig.28. Two images of a willow pattern teapot by Thomas Turner: Caughley Pottery, 1790

Fig.29. Willow pattern Chinese hand painted bowl: pre-1800

Fig.30. Willow pattern transfer printed bowl by Thomas Turner: Caughley Pottery, 1790. The close interpretation from the hand painted to the tissue transfer version is evident in these two bowls from the same period

Fig.31. A willow pattern transfer printed bowl: by Thomas Turner, Caughley Pottery, 1790, gold gilding by Chamberlain at Worcester

Based on the examples shown above, during my visit to Holdway's house in July 2019, he discussed the introduction of the willow pattern at Caughley, founded on Chinese painting on porcelain, which he explained must have arrived in England through the tea trade at that time. I did not voice record this conversation but made written notes as he explained how Thomas Turner continued his relationship with Worcester whilst at Caughley and sent many of his pieces to be gold gilded at the Chamberlain Factory in Worcester. The bowls illustrate how the engraver has interpreted the willow pattern from an original painted Chinese bowl, the first bowl image, owing much of the design to the original pattern. This fascinating explanation clarifies how the transfer printed willow pattern bowl would have been mass produced therefore achieving a much more cost-effective product than the Chinese import.

3.3.6. Background to the blue on white willow pattern design

In his essay *True Blue: Exploring the Myths of the Blue and White Tradition*, Valle (2015) provides some background to the conception of the willow pattern. He suggests that it was the *embodiment of exoticism*, beginning with Chinese porcelain imported from the Ming dynasty (1368–1644), which became fashionable with the upper classes. In Europe the demand for such a desirable object led to new developments in clay bodies which emulated porcelain such as ***soft-paste Medici*** porcelain and ***hard-paste Meissen*** porcelain. Ceramics produced by these manufacturers consequently became more expensive and desirable than the Chinese imports and *blue on white* patterns became synonymous with the exotic refined tastes of the rising middle classes (Valle, 2015: 26-28).

The blue coloured decoration was achieved by adding ***cobalt oxide*** to the glaze. Cobalt is the most reliable oxide when painted onto pre-fired porcelain and yielded the best results when fired to high temperatures (Valle, 2015: 26).

Des Fontaines (1968) discusses the discovery of cobalt in Cornwall in 1807 as a major factor in developing the transfer process. After that date it became readily available and affordable in England, and was supplied to the expanding transferware industries (Des Fontaines, 1968: 124).

Copeland (1980) suggests that it was Josiah Spode who first developed the blue printed willow pattern on a mass scale, from an original Ming Dynasty pattern called *mandarin*. The myth surrounding the design is thought to be a fictitious romantic story, with the main components being instantly recognisable. The story, like the pattern, was an English interpretation of a Chinese tale, and its popularity in the Victorian era reflects the obsession with ***chinoiserie***. The components of the willow pattern are: the willow tree, based on a *salix buddleia populus*, the bridge with three people crossing, the boat with a fisherman, the main tea house, two lovebirds and a fence unifying the design at the bottom of the composition (Copeland, 1980: 33).

3.4. Conclusion

This review of the origins of tissue transferware has highlighted a vast subject which I have endeavoured to simplify and unravel some of the principal events and leaders who innovated the process, using examples from primary sources. Engaging with material objects first hand with the practitioner and collector Paul Holdway was instrumental in providing a unique insight into the background and material knowledge surrounding transferware. This gave me specialist knowledge and recognition of individual manufacturers, and how the pieces were produced technically. This enabled me to take a more informed position throughout my study and assisted with decisions for developments during the study.

Chapter Four continues this historical overview by examining the historic tissue transferware derived from primary research material in the archive at the Museum of Royal Worcester, lived accounts from Holdway, and academic literature sourced from ceramic history repositories. Furthermore, it also recounts how Holdway invited me to his home where he demonstrated unexamined aspects of the tissue transfer process which are not documented in detail in any literature source.

Chapter Four

Tissue transferware: The historical method of producing a decorated ceramic object

4.1. Introduction

The historical evidence presented in Chapter three placed engraving at the centre of the tissue transferware method of production, indicating that it was the individual engraver who initiated the sequence of methods to industrially manufacture transfer printed ceramics. This section examines the materials and processes associated with the method of achieving a printed image onto the ceramic ware through:

- Historical accounts from specialist literature accessed from *The English Ceramic Circle* and the *Northern Ceramic Society*
- Paul Holdway, an ex-pottery professional
- Art practice and a knowledge of printmaking
- Visits to the archive at the Museum of Royal Worcester

This chapter will unravel component parts of the historical tissue transferware production defining:

- 4.2. Engraving
- 4.2.1. Planishing and the copperplate engraving plate
- 4.3. Bat transfer printing
- 4.4. Tissue transfer printing
- 4.4.1. Ink formulation
- 4.4.2. Potter's tissue
- 4.4.3. Printing and transferring methods
- 4.5. Roller printing
- 4.6. Murray Curvex printing

The conclusion to this chapter presents a series of illustrated diagrams clarifying each of the component parts of tissue transferware production based on historical deductions. Making explicit knowledge of the whole process provides the essential background and context from which this study was able to progress.

4.2. Engraving

As stated in the introduction, it has become clear from the historical review that the copperplate engraving printmaking process was pivotal in achieving refinement and effective final outcomes for tissue transferware. I refer to engraving as an industrial craft and the engraver as the craftsman. This is surveyed further on in Chapter seven, Part One, based on theories from leading writers on industrial craft and tacit knowledge.

The engraving printmaking process initiates the industrial method of production, requiring technical and manual skills but also the autographic interpretative skills of the individual craftsman. Engraving is a highly skilled method of printmaking and was the first means of reproducing an image, before the advent of photography (Scott, 2002: 18) Despite studying printmaking twice, on my undergraduate and postgraduate courses, engraving was never a process taken up by myself or other printmaking students. The industrial connotations of the process never appealed to me as a form of expression, but also, I believed it would be too technically challenging. Holdway explained the process to me in some detail and demonstrated several fundamental techniques and tools required to do the job when I visited him in Stoke on Trent in June and July 2019. His initial training was a five-year apprenticeship and when he retired in 2006, he had worked at the Spode factory for over forty years.

Fig. 32. *'The engraver instructs a learner'*, donated from a colleague's archive
(no author, date or details of publication)

This image was donated by a colleague and shows the apprentice engraver being instructed by the master. Although this kind of engraving apprenticeship is now historic, the tools and techniques remain the same, as Holdway explained. All the images, unless stated differently are taken by myself during time spent with Holdway at his home in Stoke-on-Trent in June and July 2019 and he has given me permission to publish them in this study.

Fig. 33. Paul Holdway's engraving tools: used for many years at Spode and still used by him today. In this photograph, from the bottom of the image is a ruler, burin or graver, compass, hammer, pencil, small ruler, and scraper.

The engraving process begins by creating a design manually, incising marks into a resistant surface. The incised lines are made by a small chisel-ended steel hand tool called a ***burin*** or ***graver***, achieving a V-shaped groove into the copper. Areas of tone are achieved with stipple punches, scrapers and burnishers.

Holdway followed his father working at Spode; Harold Holdway (1913-2002) was the artistic director from 1956 until he retired in 1978. When Spode closed in 2008 the team of twelve engravers became unemployed and never again worked professionally with the engraving process in an industrial context.

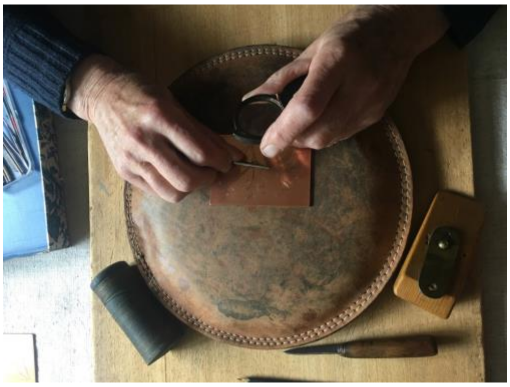


Fig. 34. Two views of Holdway demonstrating the engraving process, seated holding a magnifying glass in one hand and engraving tool in the other

Fig. 35. Holdway taking part in a collaboration with Neil Brownsword. This image was taken at Brownsword's *Alchemy and Metamorphosis* exhibition at The Potteries Museum and Art Gallery in September 2021. In this exhibition Brownsword built on the history and cultural value of Stoke-on-Trent by capturing previous artisans' contributions to its cultural heritage. I spent a day with Holdway and his wife visiting this exhibition and The British Ceramics Biennial in September 2021. Photographed by Lisa Sheppy, Stoke-on-Trent, 2021

Sandeman (1917) discusses tissue transfer process techniques in detail in his *Notes on the Manufacture of Earthenware* with reference to producing the copperplates, and suggests that the engraved marks made into the surface of the copper should be delicate but *deeply incised* to extend the life of the plate (Sandeman, 1917: 295).

This is a highly skilled and time-consuming process; to complete an engraving for one dinner plate would take approximately two months, for a large serving dish up to six months (Holdway and Drakard, 1983).

The images in this chapter have been reproduced by kind permission of Paul Holdway and of the Museum of Royal Worcester © Dyson Perrins Museum Trust. Those images from the archive at the Museum of Royal Worcester are taken by me in 2019 and 2020 and are the © Dyson Perrins Museum Trust and captioned as such.

Fig. 36. Original copperplate from Royal Worcester, 1867

Fig. 37. Detail of the copperplate

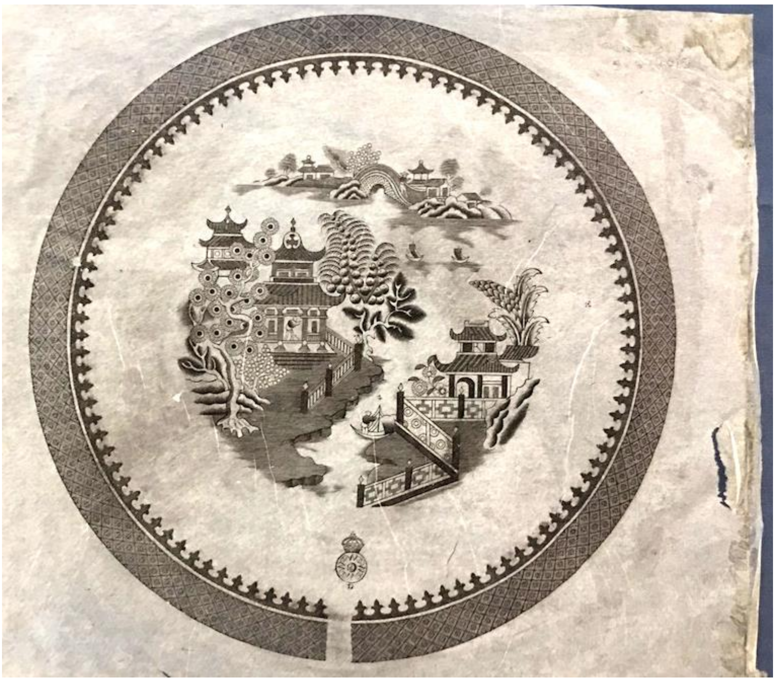


Fig. 38. Tissue print from the copperplate

Fig. 39. Original Royal Worcester plate, dated 1933, indicating the plate was in use from 1867 until 1933

Fig. 40. Original Royal Worcester plate, designed in 1867, manufactured in 1933

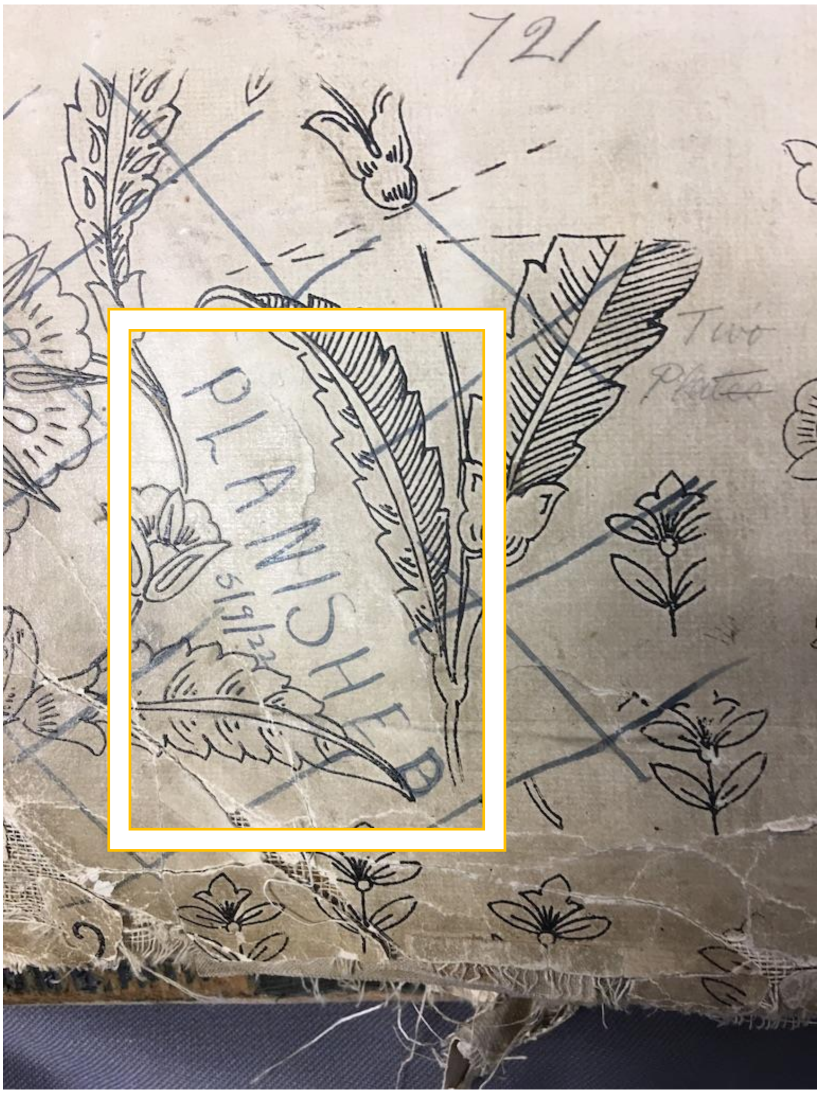
4.2.1. Planishing and the copperplate engraving plate

I visited the archive at the Museum of Royal Worcester during summer 2019 and had open access to the material archive. This was a preliminary scoping visit to assess whether I could spend a more concentrated period of time there in the future. I was initially directed to the original pattern books containing a taxonomy of tissue transfer designs.

Fig. 41. Pattern book from the archive at the Museum of Royal Worcester, photographed by Lisa Sheppy, 2019. © Dyson Perrins Museum Trust

This engraving pattern book revealed oil stained paper and handling marks of the printers with handwritten notes and the word ***planished*** written across many of the patterns.

Sandeman (1917) has been suggested that each original design was kept in a pattern book so that the engraver had a reference for repair and re-engraving when the copperplates became blemished (Sandeman, 1917: 296).



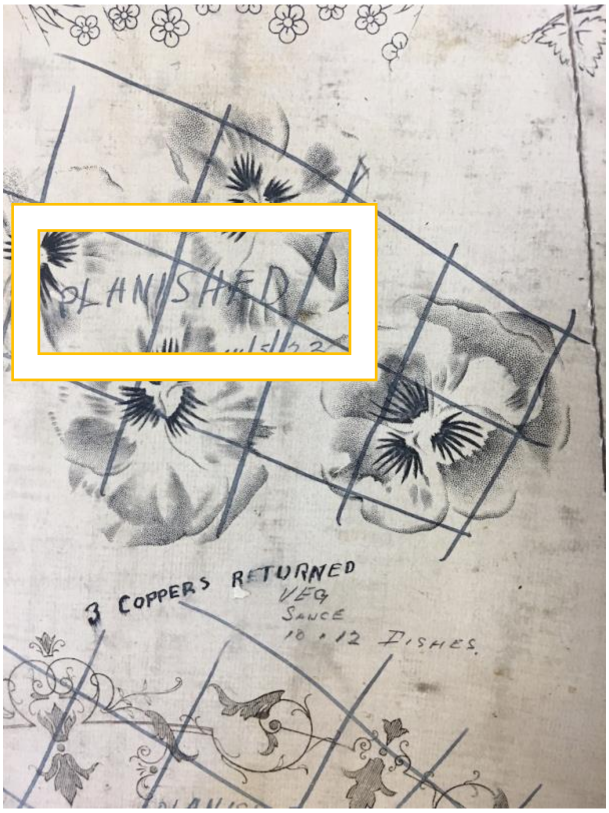
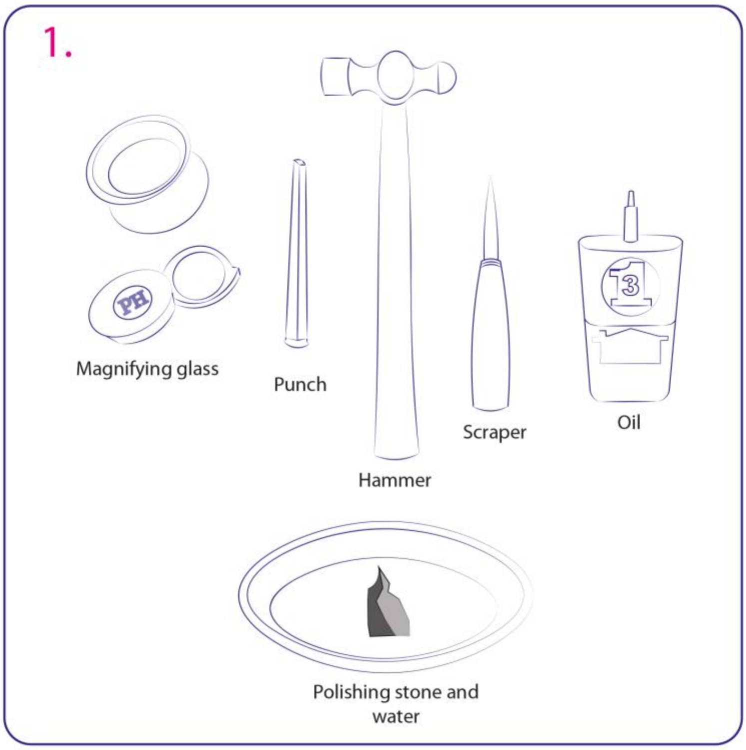


Fig. 42. Two views from pattern books from the archive at the Museum of Royal Worcester, photographed by Lisa Sheppy, 2019

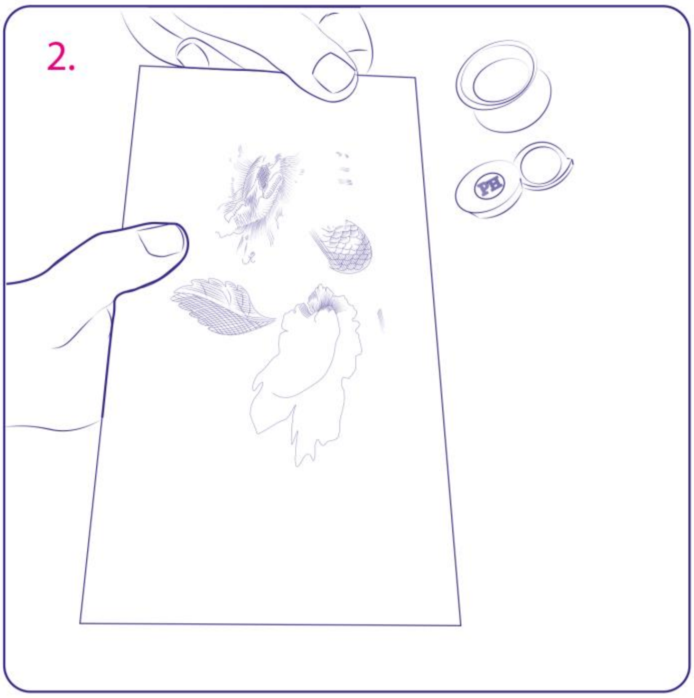
Holdway explained ***planishing*** as one of the practices engravers used to both prepare and extend the life of a copperplate. Constant application of ink and oils caused abrasions on the engraved pattern and subsequently the transfer pattern, so the engraver would constantly be *planishing* and *re-engraving* the designs. Furthermore, new copperplate would arrive at the Spode factory from the coppersmith, and it was the engraver's responsibility to prepare the *coppers* for engraving to make sure the surface was free from any scratches and indentations. The copperplates would be prepared and in pristine condition for the engraver to start work.

Holdway demonstrated this process using a damaged copperplate with tools including a burnisher, oil, scraper, ***tam o shanter*** polishing stones and magnifying glasses. The illustrations below depict the planishing process, based on Holdway's physical demonstration and spoken explanation.

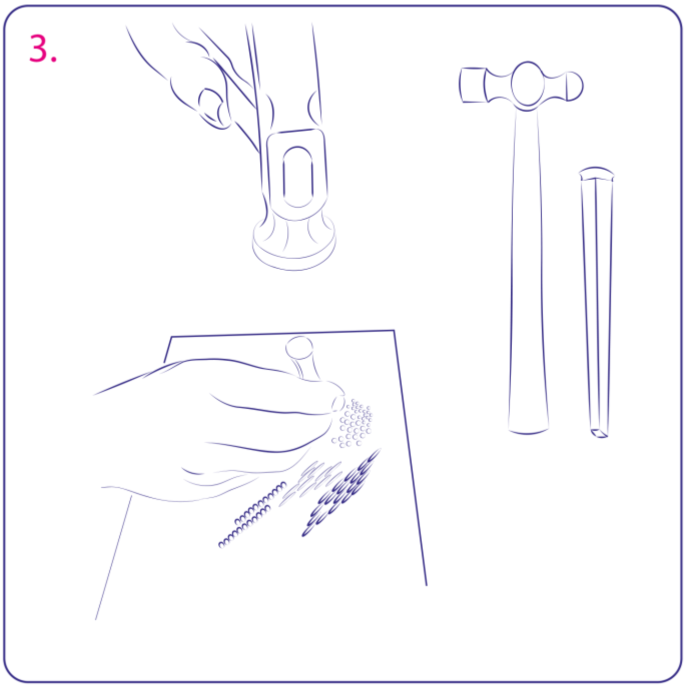
Diagram illustrating the method of planishing



Planishing involves the use of traditional hand tools and materials

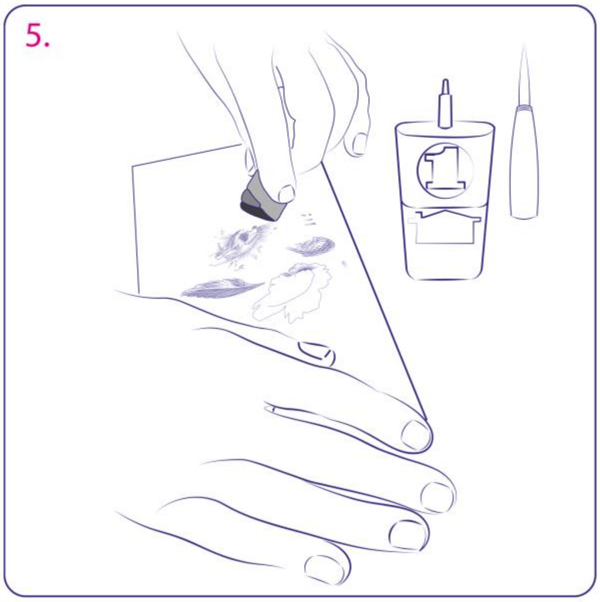


The worn engraved pattern is assessed to decide to what extent the pattern needs reworking or removing

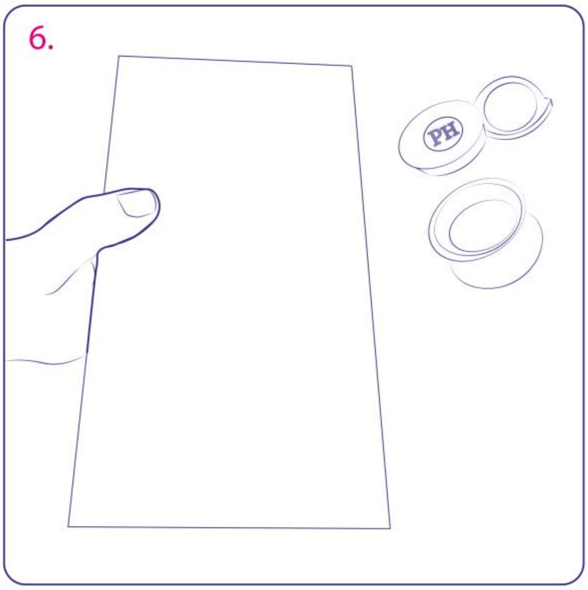


The plate is worked on from the under surface and knocked up with a hammer and punch. This compresses the copper and pushes the engraving back out onto the upper surface

To remove the pattern on the upper surface, the copper plate is ground with the use of polishing stones and water. The stones used would provide different grades of abrasion, starting with a textured grade and finishing with finer stones to create a smooth unblemished surface for further engraving



The copper plate would be ground and finished with a fine grade stone. Further unwanted marks would be removed with a scraper and oil



The copper plate is now clear from marks and previous patterns so can be re-engraved with a new pattern

Fig. 43. Six diagrams illustrating the method of planishing shared by Holdway in July 2019. Illustrations by Lisa Sheppy, 2022

4.2.2. Chromium electro plating

After 1976 all the nickel and steel plating process were replaced by ***chromium electro plating*,** which helped protect the copperplate engraving and increase durability (Copeland, 1980: 30).

The images below illustrate a number of original Worcester chromium coated engraving plates from Paul Holdway's collection. He refers to this engraving as *clean*, constructed through a series of punch dots and cross hatching. Areas of tone are achieved by engraving the dots and lines closer together and at a greater depth.

Fig. 44. Two images of a Worcester engraving plate

Fig. 45. A Worcester engraving plate

I questioned Holdway about the term *clean* he had used to describe this engraving, and he explained that the edge is sharp and cut cleanly into the face of the copper, as opposed to an etching, which is rough and open. The edge of the engraved mark is smooth, cut cleanly with a deep recess, capable of holding ink for printing onto the tissue, then transferring onto the ceramic. He made this comparison using the examples below.

Fig. 45a. Worcester engraving plate, detail

Fig. 46. Etching plate

4.3. Bat transfer printing

Early methods of ***on-glaze bat printing*** and ***underglaze tissue transfer printing*** processes refer to two distinctly different manufacturing techniques which have a direct influence on the distinctive appearance of the resulting transferware produced.

Holdway discussed ***bat printing*** in our conversations and was convinced that the early examples manufactured by Sadler and Green were bat printed with on-glaze firing. When he co-wrote, *Spode Printed Ware* (1983) with David Drakard, they challenged the established idea that early transfer printed ceramics were not tissue transfer but produced with an on-glaze bat printing transfer method. He thought that many ceramic academics were not happy with his claim and findings at the time as the common belief was that *Wedgwood and Co*. wares were printed by *Sadler and Green* using tissue transfer.

Together we watched a film he had made with Robert Copeland in 1994 documenting the practice-based tests he carried out to support his claim. He explained that printers such as Sadler and Green would be sent an engraving on paper of a commercially popular painting or pattern. There were no copyright restrictions in the 1800s so the prints were based on popular interpretations of famous painters of the day.

Fig. 47a. *The Haymakers* engraving on paper, 1763

Fig. 47b. *The Haymakers, Wedgwood and Co* creamware plate printed by Sadler and Green, based on the paper print, 1760-70

Fig. 47c. *The Haymakers, Wedgwood and Co* creamware teapot printed by Sadler and Green, based on the paper print, 1760-70

4.3.1. The process of bat printing

Holdway explained that an image would be scaled up or down to fit the ceramic form and reproduced using delicate and intricate marks, as for the engraving process for paper prints. The copperplate would be inked and wiped with a thick viscous oil coloured slightly with a stain. The bat, made from animal glue, would be placed on a flexible pad-like cushion and, using hand pressure, the plate would be pressed onto the bat, assuring direct contact with every mark in the engraving. The glue bat would be pressed into the ceramic base, firmly transferring the image made of oil and stain, referred to as a ***cold process***. The glue bat was then peeled away from the ceramic base and the oil dusted with a fine powder containing a colouring oxide, to reveal the printed image on top of the ceramic base. It would then be cleaned to remove any imperfections and low fired to an enamel firing schedule of 800^{o}C. The colours were mainly black, red, and purple, the designs were often ***vignettes*** with plant forms and scroll-like borders. Many of the prints on the ceramic ware contained unrelated vignettes, for example, the jug below comprises an image of a pub scene on one side and a romantic pastoral landscape on the other.

Fig. 48. Two sides of a *Wedgwood and Co* jug printed by Sadler and Green, 1760-70

Holdway took his argument further, describing the distinctive noticeable characteristics in bat printed pieces and stating that he can always identify a piece by the *eyes*, as they were often touched up and finished off with a brush, as seen in the *Sadler and Green* tile and the *Wedgwood and Co. The Tithe Pig tankard* below. If this was under the glaze the painted mark would be less noticeable and merge into the print.

Fig. 49. *Sadler and Green* delft tile, 1760-70, revealing hand painted filled-in eyes on the figures

Fig. 50. *Wedgwood and Co*, 'The Tithe Pig', 1760-70, revealing hand painted eyes on the figures

Based on the examination of original examples during our conversation, Holdway discussed other distinguishing features of bat printed ware, including how the main pattern appears in isolated areas and there are imperfections in registration with patterns running off the edges, creating distortion. He explained that the glue bat was difficult to manipulate over the whole ceramic accurately, making it impossible to transfer print with a continuous pattern and resulting in a stretched distorted image. Also, the printed image is fine and detailed and sits on top of the glaze, fired to a low temperature and therefore not resilient to normal domestic use.

Fig. 51. Two sides of a *Wedgwood and Co* jug, printed by Sadler and Green, 1760-70

4.4. Tissue transfer printing

The move from bat to tissue transfer printing changed the distinctive characteristics of the transferware, and Copeland (1980) describes this transition as gradual in *Spode's Willow pattern and other designs after the Chinese*. The most significant and unique appearance of tissue printed transferware is the proficiency of a printed *continuous monochrome pattern* on all of the surfaces of the ceramic object. This enabled whole collections of domestic wares to be printed with an all-over pattern of the same design. The print was transferred onto a ***biscuit fired*** ceramic base and then ***glazed*** with a transparent gloss glaze. The printed image is therefore under the glaze and remains resilient and capable of continuous domestic use.

Fig. 52a. Spode jug, 1998, researcher's own, illustrating a continuous monochrome all-over pattern, photographed by Lisa Sheppy, Worcester 2019

Adapting to the tissue transfer method of production, transferware moved from a craft process to an industrial one, utilising white ***earthenware*** as the clay body, a cheaper and more accessible version of ***porcelain*** and ***bone china***. The pattern covering the whole surface of the ceramic enabled the introduction of inferior clay bodies, as the pattern could cover up imperfections in clay and still produce a superficially refined object (Des Fontaines, 1968: 126).

4.4.1. Ink formulation

Many examples of early tissue transferware used the effective cobalt oxide as a blue colourant as it was a predictable colour for firing up to high temperatures. Other coloured oxides were pursued as colourants, such as chrome to produce green, gold to produce pink, iron to produce red, copper to produce green and turquoise and manganese to produce brown (Binns, 1898, p.232).

Historically the ceramic underglaze ink was prepared in-house, therefore very few recipes exist that could be repeatable by today's health and safety standards. Holdway remembers ink being made at Spode, but in more recent times the ink was bought in from manufacturers in Stoke-on-Trent.

Fig. 52b. Detail Spode jug, 1998, highlighting the concentrated blue colour cobalt oxide, which remains vibrant after the final high temperature gloss firing, causing the pattern to have a slight burr when the ink *vitrifies* and becomes part of the clay body, photographed by Lisa Sheppy, Worcester 2019

Fig. 53. Two views of an Enoch Wood plate, 1830, researcher's own, illustrating two monochrome patterns used on a single piece, and variant in the colourant oxide, photographed by Lisa Sheppy, Worcester 2019

Based on a historical recipe, the oxide was mixed with printer's oil which contained boiled linseed oil, Stockholm tar, lead and resin, to create a thick viscous ink. Sandeman (1917) describes mixing oil which needed to be boiled and the scum removed for two hours, which created such a noxious smell that it should be executed outside. In another recipe he mentions adding sulphur and common tar to the mix, making the resulting ink tacky enough to stick to your finger (Sandeman, 1917: 299-300).

4.4.2. Potter's tissue

The paper used for printing is a thin but strong tissue paper which is initially sized with ***soft soap***. The sizing enables the tissue to remain flexible, helps the printed image stick to the paper and pick up the detail of the plate, and stops the oil from soaking into the tissue. The application of size renders the tissue transparent so that it can be placed more accurately on the ceramic before printing (Copeland, 1980: 23-30).

Fig. 54. Holdway demonstrating sizing the tissue paper before it is placed size-side down on top of the inked plate

Technical improvements to paper manufacturing enabled the production of a strong, flawless tissue paper for the transferring process. It was perfected by the Fourdrinier company and in 1827 they moved from Hertfordshire to the potteries to supply the expanding ceramic printing trades (Des Fontaines, 1968: 125). Their paper making machine could make long continuous sheets of paper at a time, supplying the potteries with potter's tissue for the tissue transferware industry.

Fig. 55. Print on tissue: from the archive at the Museum of Royal Worcester, photographed by Lisa Sheppy, 2019. © Dyson Perrins Museum Trust

Fig. 56. Prints on tissue taken from plates in the Holdway's garden studio

4.4.3. Printing and transferring methods

Fig. 57. The original press used for demonstrations by the Spode Trust. The printing uses an intaglio method, and the printing press is very similar to one used for etching and engraving on paper (reproduced by kind permission of The Spode Trust), photographed by Lisa Sheppy, Stoke-on-Trent, 2017

Printing the copperplate onto the tissue involved a team of people working together to print and transfer the print. Historic accounts of this process mention a male printer who worked with a number of female transferors, and was responsible for the overall success of the transferring process onto the ceramic. To achieve this, ink is loaded onto the copperplate and worked into the recesses of the engraved marks, with the help of a hot plate. The plate is wiped firmly and continuously until the ink remains in the recessed marks and the uppermost surface is clean. The wiping material is a *boss*, which is a pad covered in corduroy fabric (Copeland, 1980: 23-25).

Fig. 58. The printer. Donated from a colleague's archive (no author, date, or details of publication)

Fig. 59. Transfer decorating. Donated from a colleague's archive.

(No author, date, or details of publication)

The two images above were donated from a colleague's archive and feature the printer and transferors in the pottery print room. I include these as they capture the historic working environment of the industrial methods of production which were dependent on the manual skills of small groups of individuals

Wyman (1977) discusses the earliest account of the transfer printing process from the Liverpool Albion from 1827, from an eyewitness at the Herculaneum Factory in Liverpool. It describes the print room as a busy and crowded place with stoves used to keep the copperplates warm during the printing process. The ink was glutinous and a dark purple colour and, as soon as the tissue was printed, the centre pieces of the design and borders were placed on the unglazed plate, excess paper cut away and then rubbed *stoutly* with a piece of flannel. The friction smoothed the paper so there were no wrinkles, then the barely noticeable paper was washed away, revealing the *colouring matter* on the ceramic (Wyman, 1977: 187).

Binns (1898) describes a comparable printing and transferring process in *The Story of the Potter*, in which two or three women and girls were seated along one side of the room opposite a male printer. The youngest girl, called a *cutter*, would take the tissue print from the plate and cut out the pattern with her *deft fingers*. The senior woman coated the ceramic with a clear varnish to help the print stick to the form and then positioned the print carefully with a pin. The tissue was pressed onto the surface and rubbed *firmly and evenly* with a flannel lubricated with soap. As the ink was still warm it hardened immediately on the cold surface of the biscuit fired ceramic, enabling the ink to stick firmly and the paper to wash away (Binns, 1898: 227).

Both Wyman and Binns' accounts refer to a ***hot process*** of transferring the prints onto the underglaze ceramic which matches the contemporary practical demonstrations I have observed at both the Spode Museum Trust Heritage Centre and Burleigh Pottery. In both contexts the transferring technique seems to have altered little since these accounts were written. In the next section I document demonstrations from the Spode Museum on a historical method of printing and transferring, and a current method from Burleigh Pottery of transferring.

4.4.4.a. A demonstration of the printing and tissue transferring process at Spode Museum Trust Heritage Centre.

The following images are reproduced by kind permission of one of the demonstrators at Spode Museum Trust Heritage Centre and photographed by myself in Stoke-on-Trent in 2017.

Fig. 60. Hot plates in the Spode Museum Trust Heritage Centre are used to heat the plate and ink. The plate is inked up intaglio with a ready mixed product which contains the cobalt oxide colourant and an oil carrier. This is a hot process which is carried out on warm plates to assist the inking process

Fig. 61. The tissue is painted with a thin layer of size and placed face down onto the inked plate

Fig. 62. The plate and tissue are covered with the blankets and pulled backwards and forwards through the engraving press

Fig. 63. The printed tissue is removed from the plate

Fig. 64. The printed tissue is cut to size and placed face down onto a small biscuit fired ceramic disc. The image is transferred onto the disc using hand pressure. The warm print adheres to the cold ceramic surface and produces a bond and permanent printed image

Fig. 65. When dry the printed disc is submerged in water the tissue dissolved into the water revealing the print on the ceramic

Fig. 66. The printed pieces are dried and ready to have a harden on firing, to remove printing chemicals and allow for a further glaze firing

Fig. 67. Fired and glazed ceramic disc, printed from the willow pattern from an original Spode copperplate from the demonstration, researcher’s own, photographed by Lisa Sheppy, Worcester, 2017

4.4.4.b. A demonstration of the tissue transferring process at Burleigh Pottery

The following images are reproduced by kind permission of one of the transferors at Burleigh Pottery and photographed by Lisa Sheppy in Stoke-on-Trent in 2017.

Fig. 68. The printed tissue is delivered to each transferor in lengths from the mechanical roller printer. The tissue print back stamp is cut out to be placed on the bottom of the cup

Fig. 69. The sheet of printed tissue is placed on the biscuit surface following the contours of the cup

Fig. 70. The transferor wraps the print around the compound shape of the cup and secures it with pressure from a silicone kidney and damp felt pad

Fig.71. The whole surface is covered with the printed tissue and rubbed down with a stiff brush

Fig.72. The excess tissue is cut away from the cup, forming a neat edge

Fig.73. The cup is now ready to be dried and tissue washed off to reveal the printed pattern

Fig.74. The finished cup, printed in blue calico at Burleigh Pottery.
[Available at] https://www.burleigh.co.uk/collections/tableware
[Accessed 20th February 2020]

4.5. Roller printing

The mechanical use of roller printing to supplement printing copperplates began at Spode in 1847. This was predominately used for sheet patterns such as the Burleigh example given in the previous section. At first the copperplates were bent into cylinders to fit the rollers, but this created a seam in the pattern, so eventually the engravers worked on the cylinders directly. This increased productivity and mechanised the printing process (Halliday, 2018: 104).

Holdway provided some insight into this practice, explaining that the cylinders were worked on in the traditional manner and secured in a *cradle* for the engraving to take place. The engraved roller at the Victoria and Albert Museum is one of Holdway's engraved rollers from Spode made in 1975 – the last one surviving after the rest were all destroyed when the factory closed.

Fig.75. Engraved copper roller with *Blue Italian* pattern, Staffordshire, 1975. Roller engraved at Spode's factory by Paul Holdway, chromium-plated with wooden stand, photographed by Lisa Sheppy 2017. ©Victoria and Albert Museum, London

Fig.76. A historic poster for the *Pottery Printing Machine*, manufactured for tissue transferware in Stoke-on-Trent, photographed by Lisa Sheppy, Spode Museum Trust Heritage Centre, 2019

Fig.77. Redundant *Pottery Printing Machine* represents how the print is positioned in between two rollers, the upper one being the engraved roller. The engraved roller is attached to the machine with heated elements running through the core to warm the ink as it works itself into the pattern. Photographed by Lisa Sheppy, Spode Museum Trust Heritage Centre, 2019

Fig.78. Redundant *Pottery Printing Machine*. The ink is applied manually into the well at the top of the engraved roller using a palette knife. The scraper blade below the well removes the excess ink before the tissue passes through the inked rollers. Photographed by Lisa Sheppy, Spode Museum Trust Heritage Centre, 2019

4.6. Murray Curvex printing

Murray Curvex bomb printing was invented by Guy Murray in the 1950s with Spode and became a new method to replace tissue transfer, using a gelatin bomb.

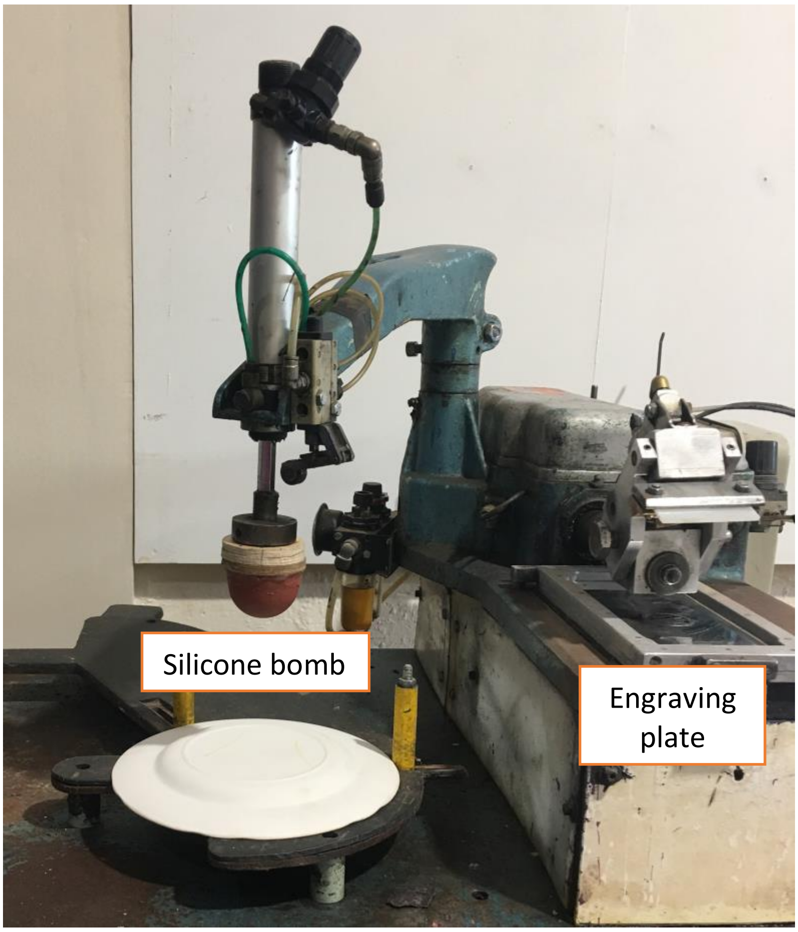


Fig.79. Murray Curvex printer. The gelatin bomb could pick up the printed pattern directly from the engraving and transfer it cleanly onto a flat ware ceramic such as hollow ware bowls and plates. The bomb was flexible and removed the need for transferors. This was replaced with a silicone version in the 1980s, which is still in use today at Portmeirion. Photographed by Lisa Sheppy, Spode Museum Trust Heritage Centre, 2019

4.7. A summary of the timeline of key events in the history of transferware

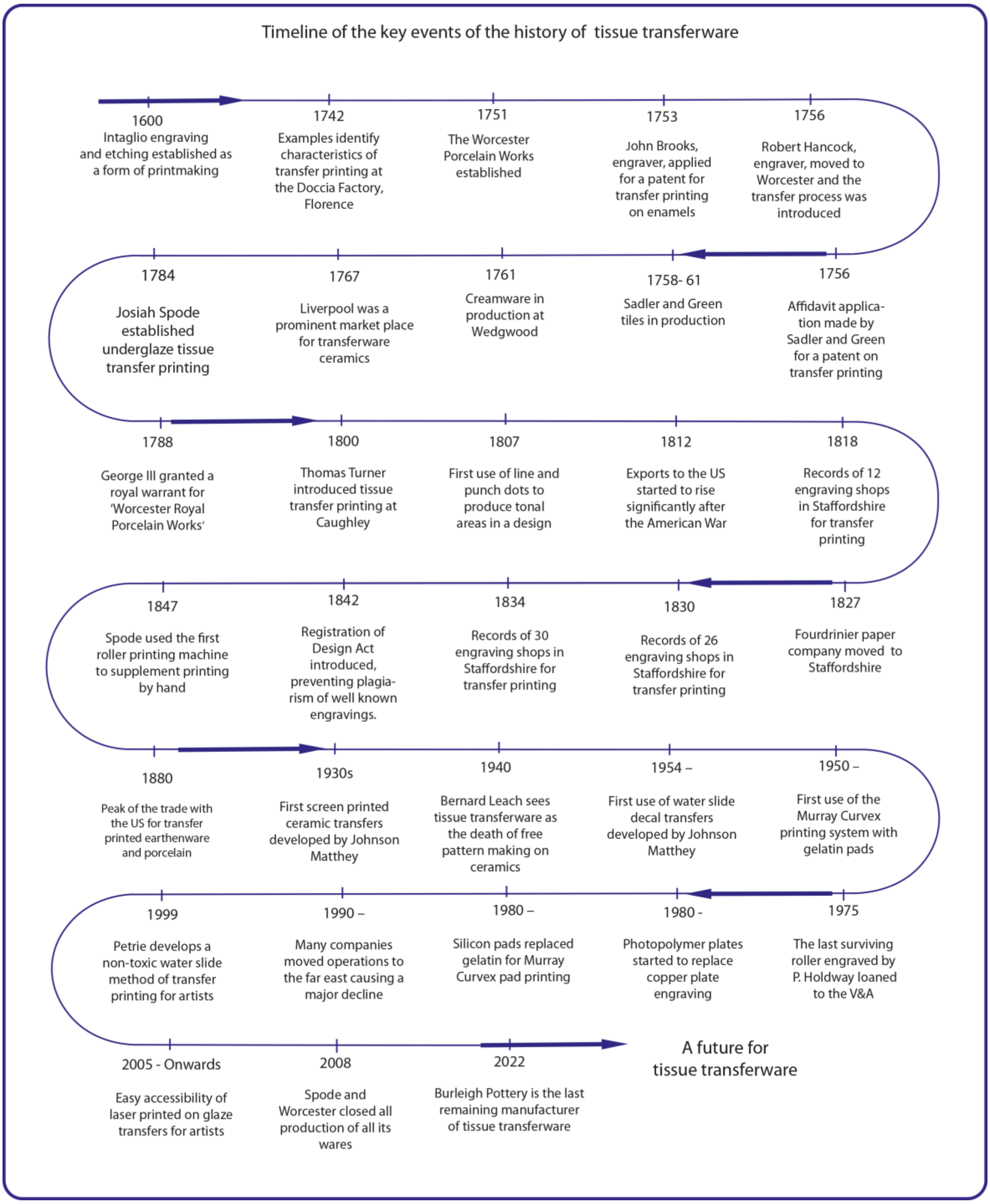


Fig. 80. A summary of the timeline of key events in the history of transferware.

Diagram by Lisa Sheppy

This timeline of key events is a summary of research findings from Chapters Three and Four and depicts the historical developments of tissue transferware. It is clear from documented exports of printed earthenware and porcelain to the US that transferware was at its peak in 1880, with 97% of it originating from the Staffordshire potteries (Ewins, N. 1998: 7-8). After its peak and moving into the twentieth century there were several new systems of production, such as the Murray Curvex pad printing machine, water slide decal transfer methods and photopolymer techniques set to mechanise the process, thus making it more cost effective. However, after the global financial crash of 1980, the UK went into recession which had an economic hit on manufacturing. Many potteries were forced to close and move their business abroad to developing countries which were able to produce more cost effective and affordable ceramic products. The technological advances in the mechanisation has also resulted in many of the skilled jobs associated with the industry being lost (Brownsword, 2021). This is discussed in more detail in Chapter Six, with a focus on craft and industry.

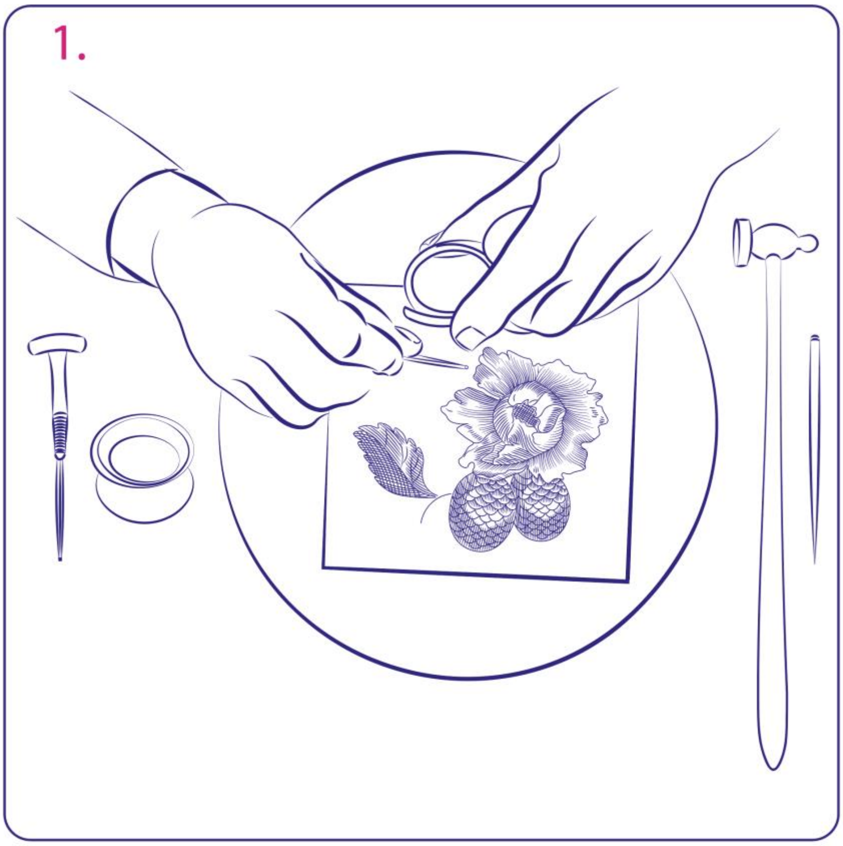
By 2008 many of the major ceramic manufacturing companies, such as *Spode* and *Worcester* were forced to close, which had a detrimental effect on the production of tissue transferware. In 2022 one small company, Burleigh Pottery, has managed to retain manufacturing for a niche marketplace. A resilient product that was at one time mass produced on a global scale is now only available to buy in *Harrods* or *Fortum and Mason.*

For artists there have been some positive developments since 2000, with the introduction of safe water-based ***screen printing*** methods for on-glaze decoration (Petrie, 1999). Now digital ceramic transfers are readily available from many producers in Stoke-on-Trent. However, for artists wishing to creatively exploit tissue transferware methods of production in their practice, the tacit knowledge is close to becoming obsolete and subsequently lost.

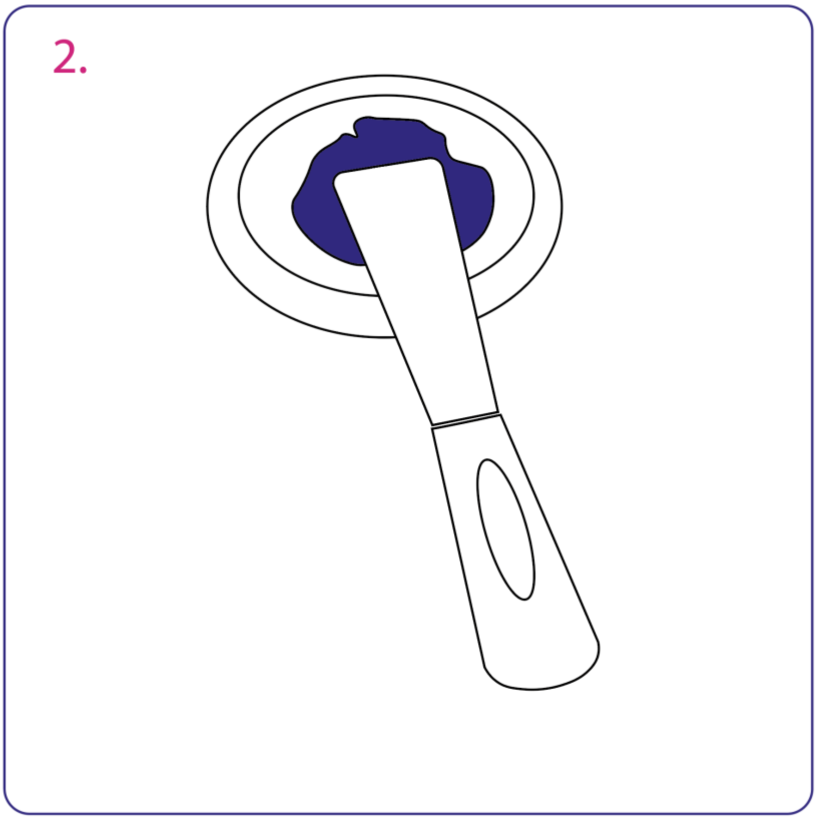
4.8. Conclusion

I stated in the introduction of this chapter that engraving was at the centre of the tissue transferware method of production. I have endeavoured to unravel the other component parts to this method of production and demonstrate their equal importance to achieving finesse in the resulting product. In the conversations I have had with Holdway it is beyond doubt that his knowledge of engraving for tissue transfer is unequalled, and this study has progressed much further with his contribution. A knowledge of the historical method of producing tissue transferware technically has been made explicit in this chapter and firmly establishes the thread of understanding which is progressed in the subsequent chapters of this thesis.

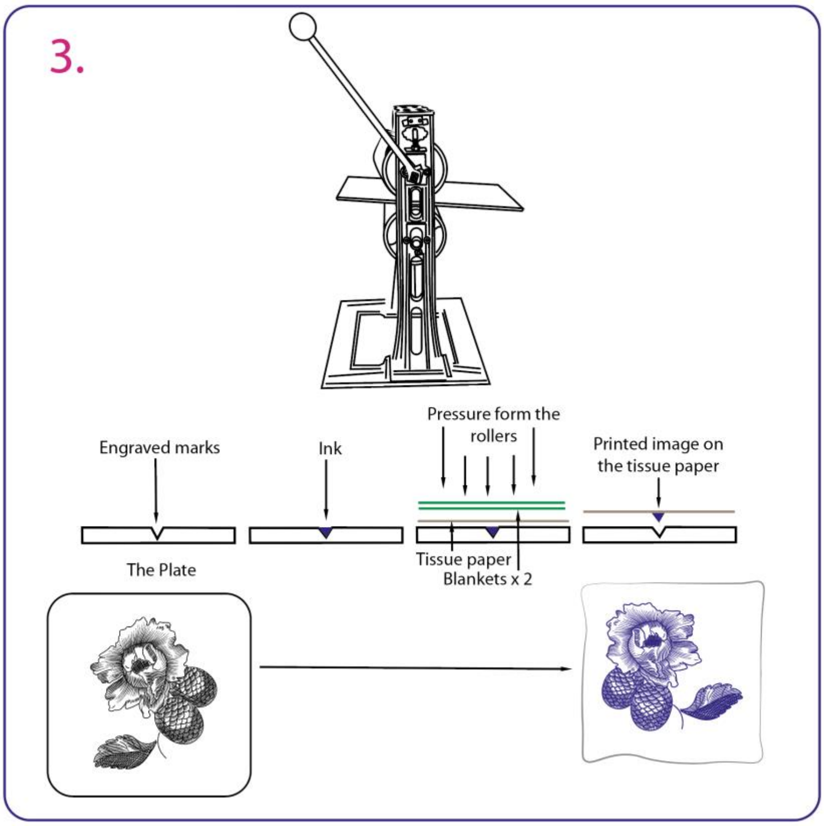
A visual summary of the sequence of production methods for tissue transferware derived from this historical study



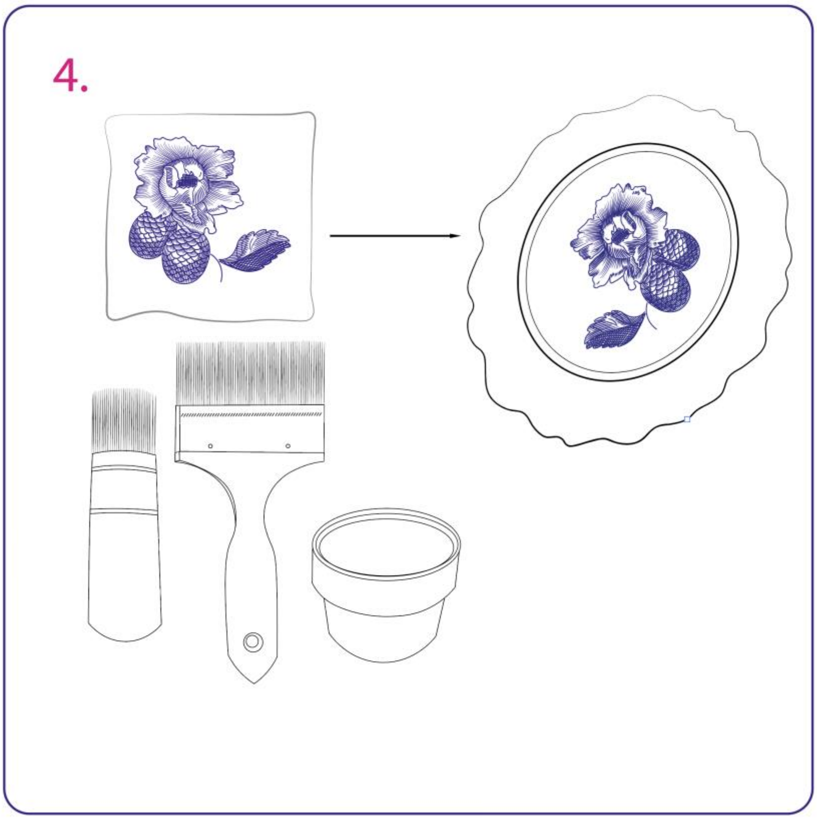
Engraving



Ink mixed on site based on a guarded formulation



Inking up and printing for tissue transfer echoes the method for intaglio printmaking



The printed tissue is transferred into the biscuit ware and secured in place with hand pressure and rubbed with stiff brush and soft soap lubrication

The print is hardened on at 800- 850°C

The final glaze firing is approx. 1050°C and laminates the printed pattern under the glaze

Fig. 81. A diagram of six views visualising the sequence of production methods for tissue transferware derived from this historical study. Diagram by Lisa Sheppy

Chapter Five continues the historical review; based on the paper and material archive at The Museum of Royal Worcester and contributes more detail to the transferware narrative and particularly Worcester's contribution to it. Access to historic objects related to the creative and technical production of tissue transfer decorated ceramics allowed time in the project to observe, record and reflect on the DNA of pottery production and human endeavour.

Chapter Five

The Museum of Royal Worcester: archival study

5.1. Introduction

I was awarded a three-month extension to my doctoral study to spend time working in the paper and material archive at The Museum of Royal Worcester. This extension provided the additional opportunity to spend an uninterrupted and concentrated period of time investigating a taxonomy of historic objects related to the technical production of decorated ceramics from Worcester's archive. The archive has been under-examined for arts-based research, so this material exploration brought new knowledge to the study.

In his book, *The Dictionary of Worcester Porcelain, Volume 1, 1751-1851* John Sandon (1993) states that the invention of underglaze printing at Worcester was established by 1760. He describes the excavation of Warmstry House in 1968 led by Henry Sandon, his father and curator of the Dyson Perrins Museum, now The Museum of Royal Worcester, in which underglaze printed porcelain shards from 1751 were amongst the archaeological findings (Sandon, 1993: 197). Warmstry House was the original site of the Worcester Porcelain Works, established in 1751.

The excavated shards give clues to the origins of the process and Robert Hancock who worked as the primary engraver. By 1760 Worcester had perfected the process and its use became widespread, however in that year the engravers Hancock and Thomas Turner (mentioned in Chapter Three) left Worcester for Caughley, where Worcester's process was copied and eventually perfected in Staffordshire (Sandon, 1993: 75).

Fig. 82. Two views; Tea bowl from the *Dr Wall Period* 1757-60. The marks have a halo effect with a burr to the image, the colour is a dark blue, Worcester's crescent moon monogram used from 1757-60 is on the bottom of the rim and made of porcelain. With the the characteristics of tissue transfer printing, with the image contains linear marks used to construct the Chinese-inspired pattern. Researcher’s own, photographed by Lisa Sheppy, 2020

5.2. Haptic research: Collating primary material at the Museum of Royal Worcester

Initially I focused on the archive as a whole and searched for any material related to tissue transferware production, such as copperplate engravings, transfer pattern books and tissue print pulls. However, I soon discovered other primary material meaningful to the project. This included design pattern books dating back to the early nineteenth century, a design reference library and original paintings and drawings made by artists who were designers working at the pottery. Apart from the printed literature other material contained hand-rendered content such as written notes, letters, ledgers, recipes, drawings, designs and paintings: a visual arrangement of connected ephemera associated with Worcester's ceramic manufacturing past.

All images in this section were photographed by Lisa Sheppy at the Museum of Royal Worcester in 2019 and 2020 and are reproduced by kind permission of the Museum of Royal Worcester © Dyson Perrins Museum Trust.

5.2.1. A discussion of selected objects from the archive pertinent to this study

5.2.1a. Pattern books

Fig. 83. Collection of pattern books: the earliest one dates from 1852 and the most recent ones from the 1990s

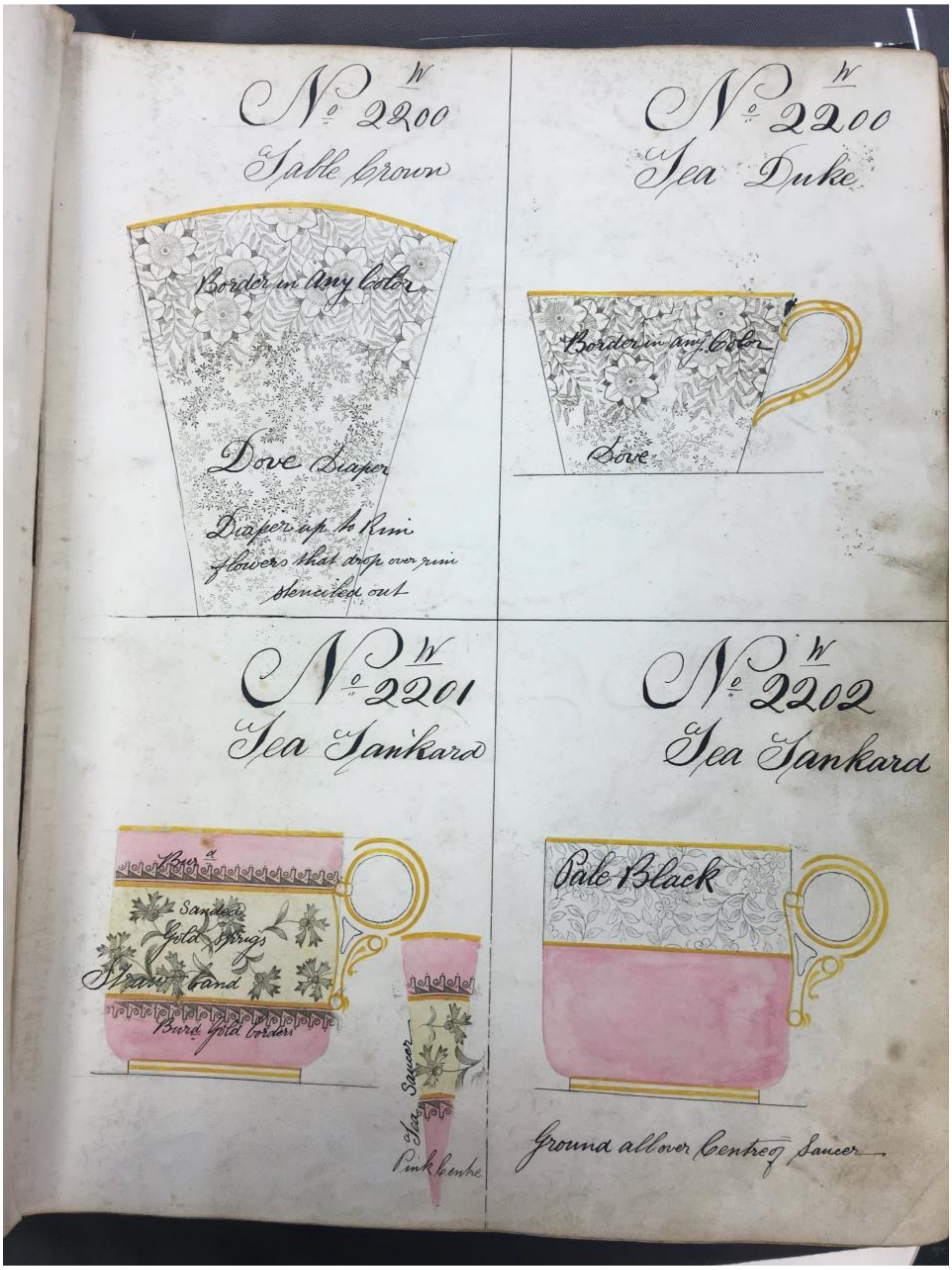


Fig. 84. One page of four designs from Pattern Book 14, 1886-1887.

The taxonomy of patterns neatly presented as reference material represents slow, quiet work rendered by the tactile touch of pen and ink on paper, watercolour washes of mixed colour with handwritten notes making references to glazes and numbered copperplates

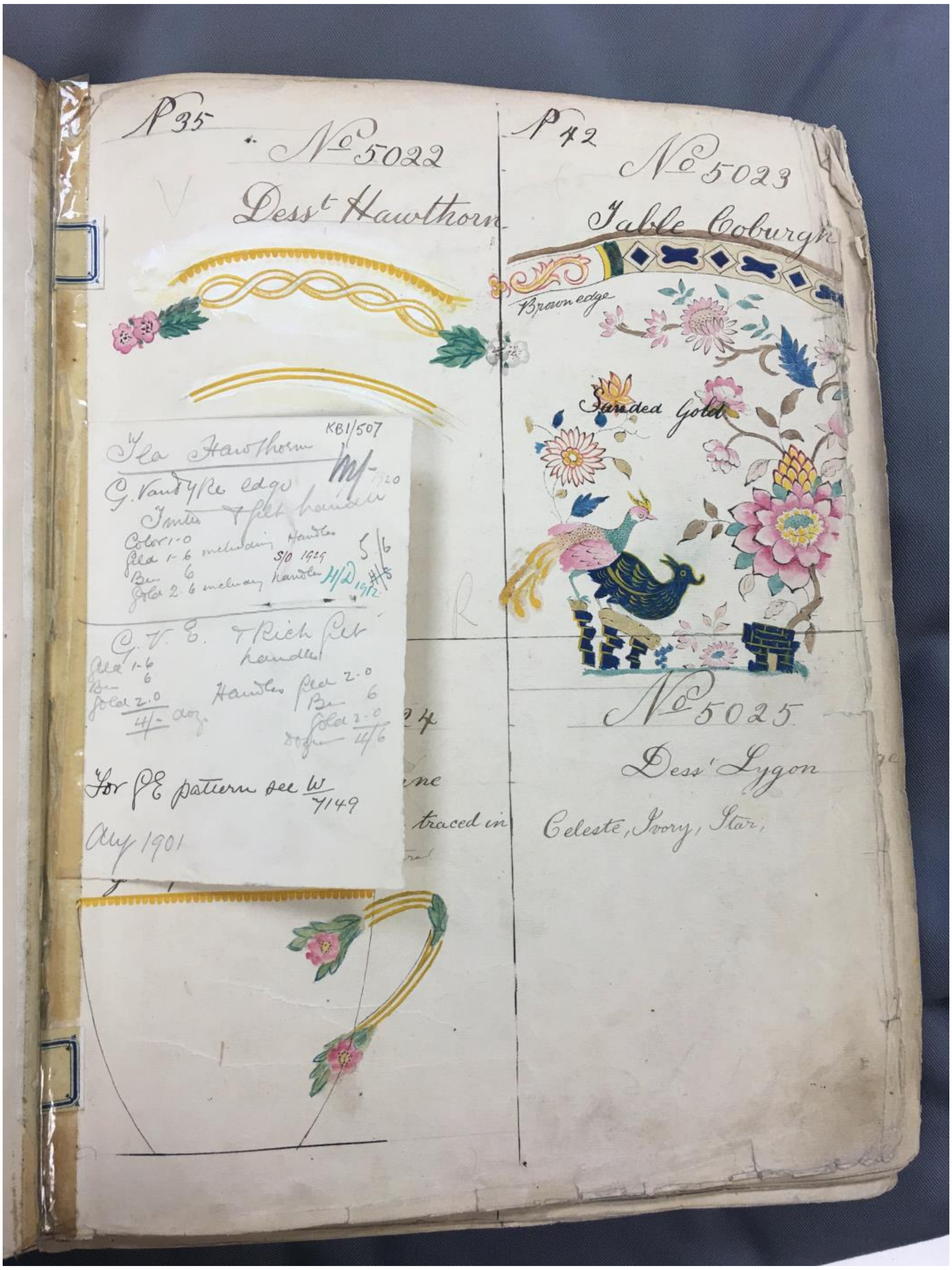


Fig. 85. A page from Pattern Book 14, 1886-1887. The books contain oil stains, annotations, dates, fingerprints, paint splashes and Sellotape, all indicative of constant use within a historic ceramic industry

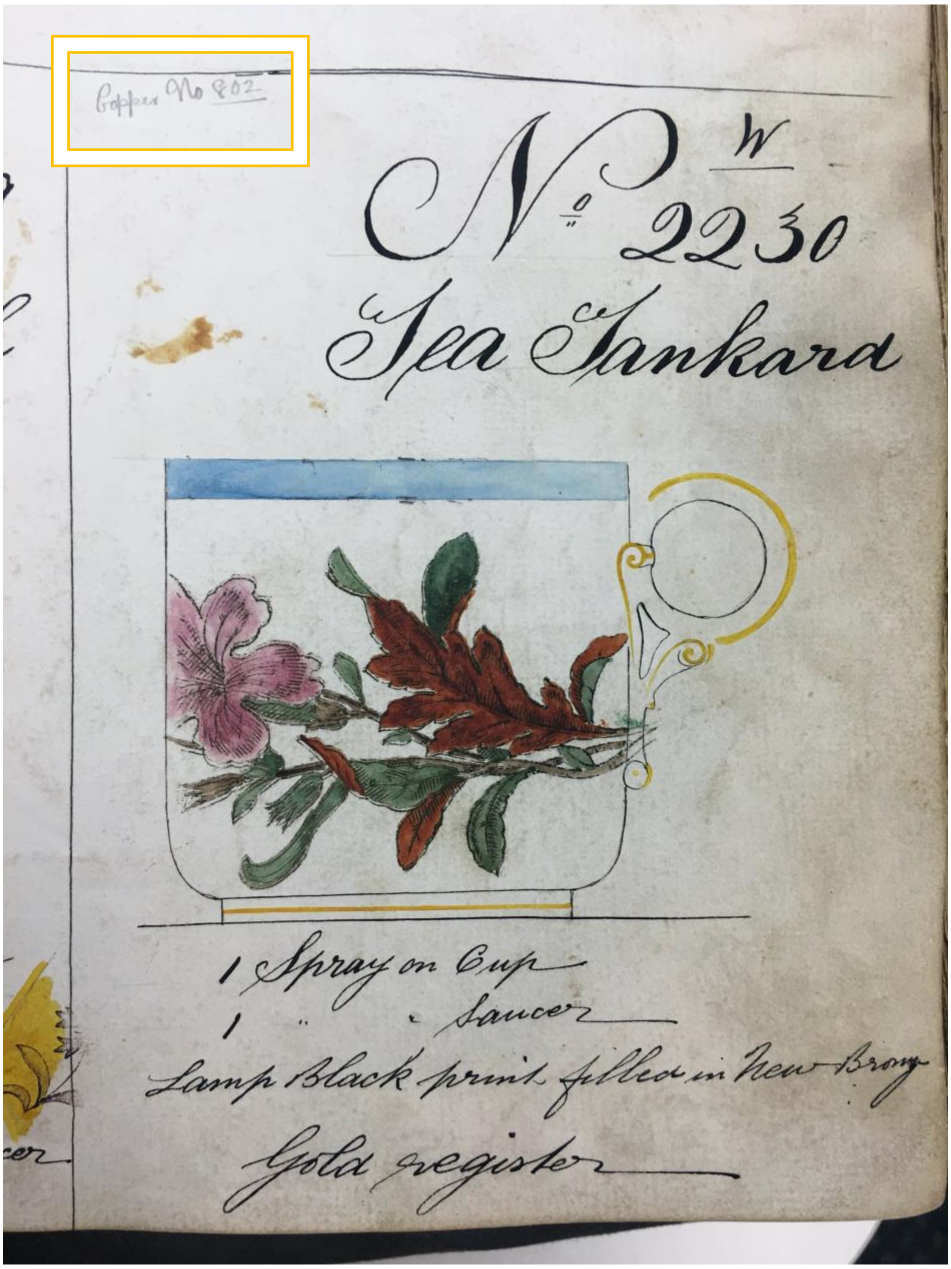


Fig. 86. One of four designs on one page from Pattern Book 14, 1886-1887. A reference to the specific copperplate is written in the left corner. The illustrations throughout the pattern books have slight variations in autographic style and annotation, as new designers replaced old, but the format remained the same

The arrangement of the design sheets in the pattern books was standardised, the style unique and the artists anonymous. A facsimile of each ceramic vessel was represented in the designs with variations of colour and pattern named and numbered.

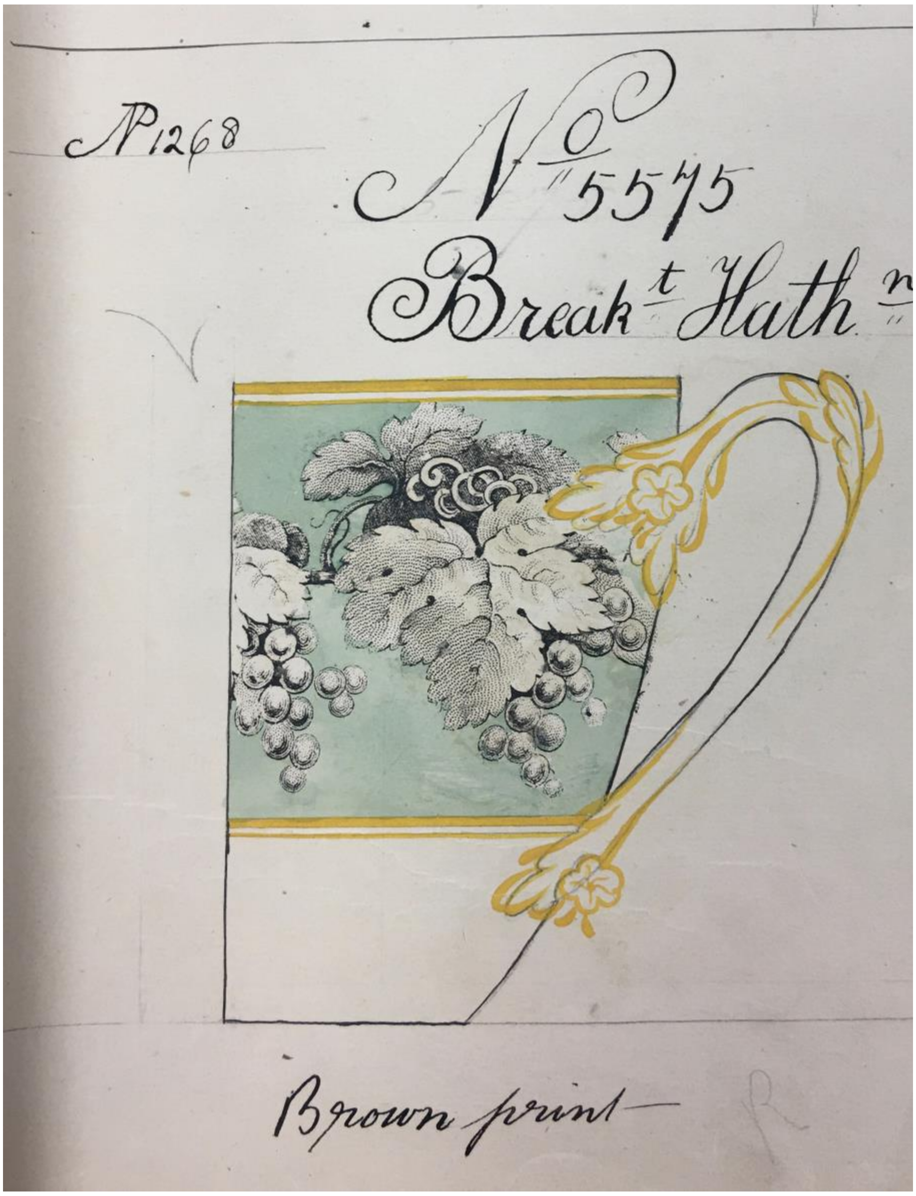
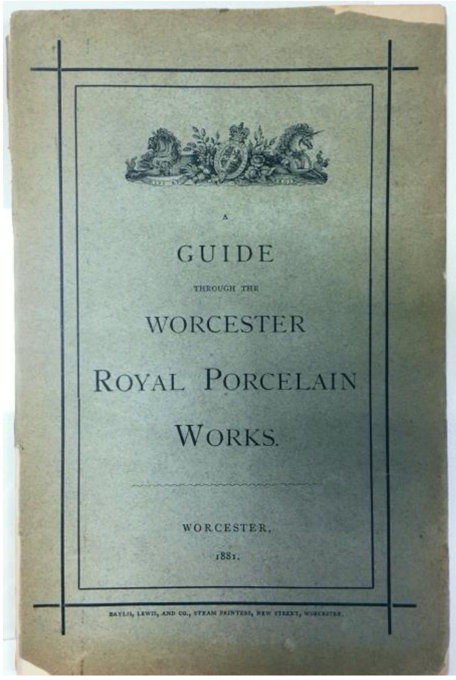


Fig. 87. The design drawings replicate the material qualities of the finished object, using the engraved pattern as an outline to the decoration hand rendered with watercolour and combinations of intricately written titles in copperplate handwriting. It appears from the design books that engraving was an integral part of the ceramic decoration process, providing an outline for the painting in the final stages



A

GUIDE

THROUGH THE

WORCESTER

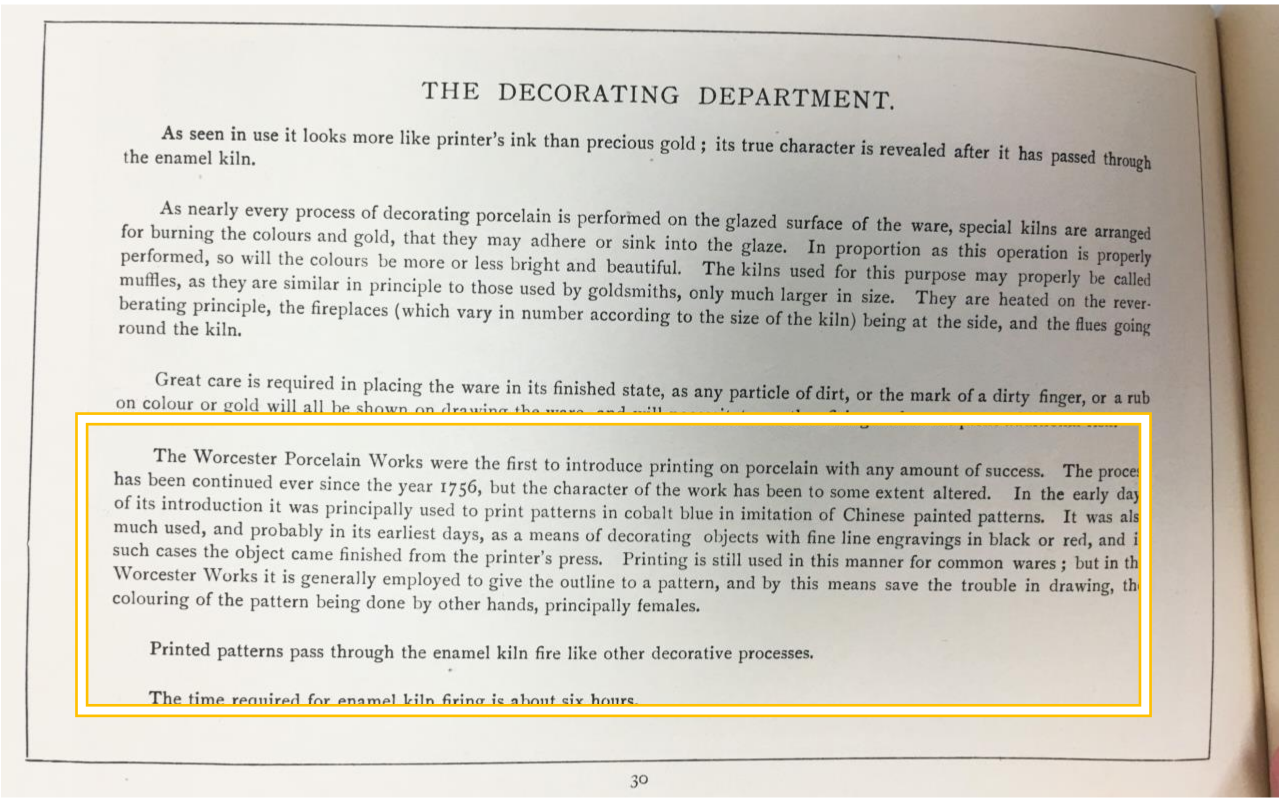
ROYAL PORCELAIN

WORKS.

WORCESTER.

1881.

BAYLIS, LEWIS, AND CO., STEAM PRINTERS, NEW STREET, WORCESTER.



THE DECORATING DEPARTMENT.

As seen in use it looks more like printer's ink than precious gold; its true character is revealed after it has passed through the enamel kiln.

As nearly every process of decorating porcelain is performed on the glazed surface of the ware, special kilns are arranged for burning the colours and gold, that they may adhere or sink into the glaze. In proportion as this operation is properly performed, so will the colours be more or less bright and beautiful. The kilns used for this purpose may properly be called muffles, as they are similar in principle to those used by goldsmiths, only much larger in size. They are heated on the reverberating principle, the fireplaces (which vary in number according to the size of the kiln) being at the side, and the flues going round the kiln.

Great care is required in placing the ware in its finished state, as any particle of dirt, or the mark of a dirty finger, or a rub on colour or gold will all be shown on drawing the ware, and will ...

The Worcester Porcelain Works were the first to introduce printing on porcelain with any amount of success. The proce has been continued ever since the year 1756, but the character of the work has been to some extent altered. In the early day of its introduction it was principally used to print patterns in cobalt blue in imitation of Chinese painted patterns. It was als much used, and probably in its earliest days, as a means of decorating objects with fine line engravings in black or red, and i such cases the object came finished from the printer's press. Printing is still used in this manner for common wares; but in th Worcester Works it is generally employed to give the outline to a pattern, and by this means save the trouble in drawing, th colouring of the pattern being done by other hands, principally females.

Printed patterns pass through the enamel kiln fire like other decorative processes.

The time required for enamel kiln firing is about six hours.

30

Fig. 88. Two views: A Guide through the Worcester Royal Porcelain Works, 1888. This was a guidebook produced for visitors to the factory. The highlighted area details methods of decoration in which printing is used to outline and as a guide for the painting. The printed patterns pass through the ***enamel kiln***, suggesting an on-glaze transfer print method

5.2.1b. The design library

Fig. 89. The design library houses reference books relating to many different subjects, which gives an indication of the popular themes for decoration. Unsurprisingly, botanical and nature illustration are the biggest sections, as Worcester is known for nature and animal painted decoration

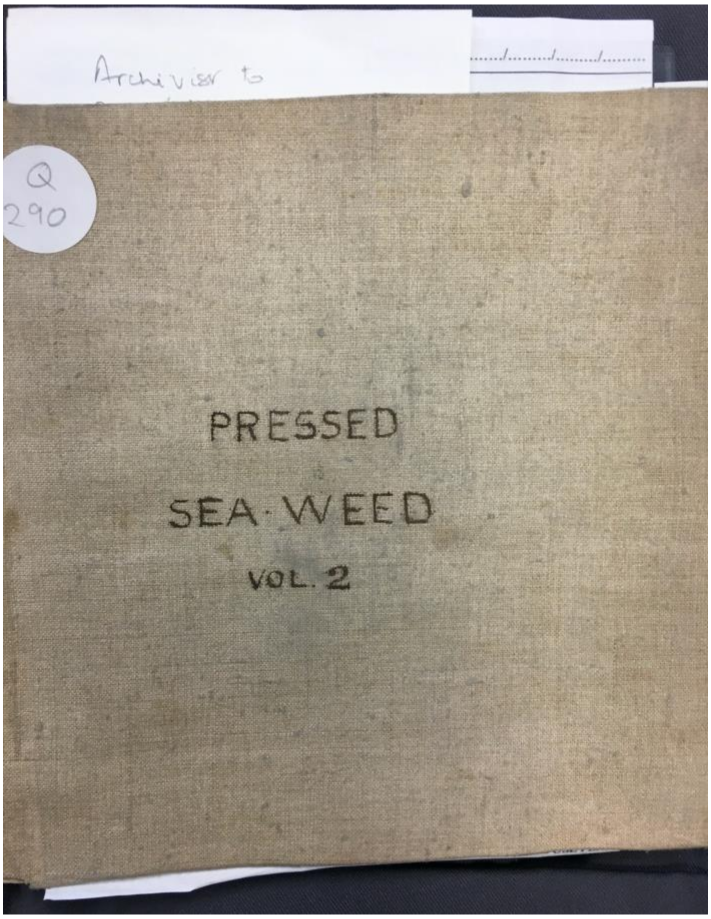
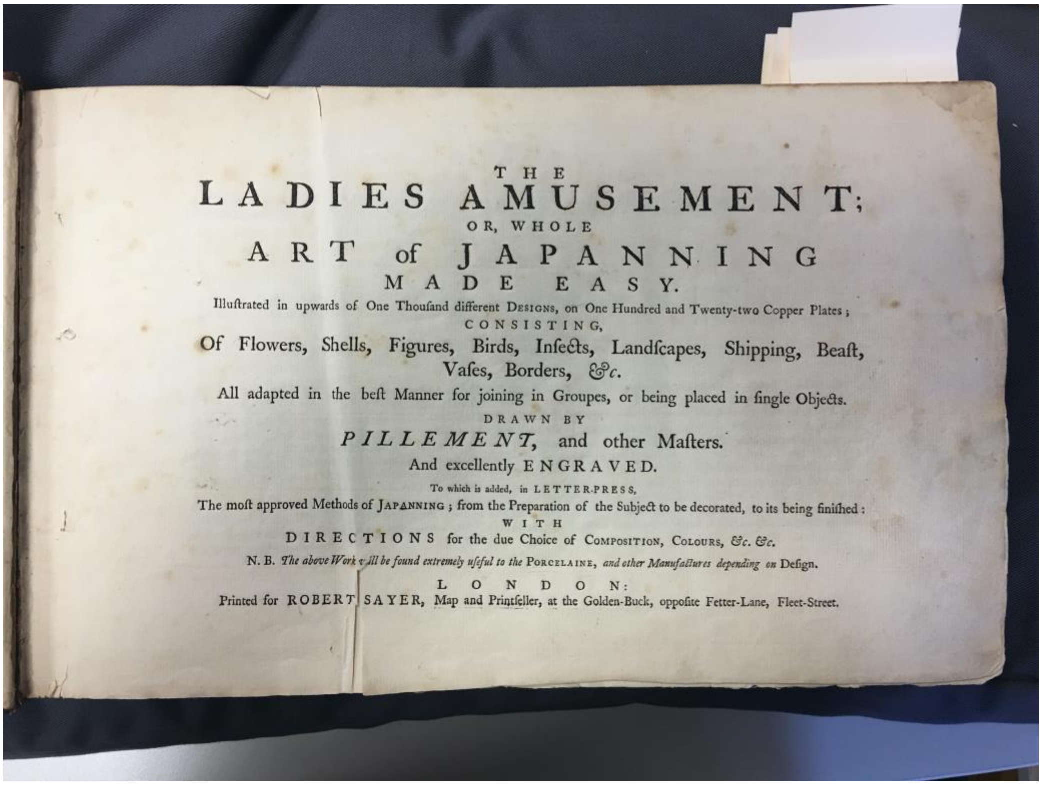


Fig. 90. Two Views: *Pressed Sea-Weed Vol 2*: a beautifully preserved book containing pressed and dried seaweed. The fragments presented in the book discoloured to a pink colour with crystals of salt attached

This book, together with the others, represents a valuable resource for the designers at Worcester. It was intriguing to view the design library as evidence of the reference material used historically, investigating the visual world as a component of the design process.

5.2.1c. *The Ladies Amusement:* a picture book compiled by Robert Sayer, 1762



THE
LADIES AMUSEMENT;
OR, WHOLE
ART of JAPANNING
MADE EASY.
Illuſtrated in upwards of One Thouſand different DESIGNS, on One Hundred and Twenty-two Copper Plates;
CONSISTING,
Of Flowers, Shells, Figures, Birds, Inſects, Landſcapes, Shipping, Beaſt, Vaſes, Borders, &c.
All adapted in the beſt Manner for joining in Groupes, or being placed in ſingle Objects.
DRAWN BY
PILLEMENT, and other Maſters.
And excellently ENGRAVED.
To which is added, in LETTER-PRESS,
The moſt approved Methods of JAPANNING; from the Preparation of the Subject to be decorated, to its being finiſhed:
WITH
DIRECTIONS for the due Choice of COMPOSITION, COLOURS, &c. &c.
N. B. *The above Work will be found extremely uſeful to the* PORCELAINE, *and other Manufactures depending on* Deſign.
LONDON:
Printed for ROBERT SAYER, Map and Printſeller, at the Golden-Buck, oppoſite Fetter-Lane, Fleet-Street.

Fig. 91. *The Ladies Amusement*; or, *Whole Art of Japanning Made Easy*, Robert Sayer (1762).
I was directed to this book by the museum's collections manager. The museum has two copies, one with the original black and white engravings and the other with hand-coloured embellishments. The coloured one was in better condition to handle and observe

The Ladies Amusement by Robert Sayer (1762) is a compilation of images produced by fashionable illustrators from that period for the purpose of inspiration and interpretation. The title of the book on the inside cover appears with a curious table of contents designed to attract women, to *amuse them,* to use the illustrations for *japanning,* a term based on cutting and sticking ornamental images onto a black lacquered background such as a small piece of furniture or a decorative object.

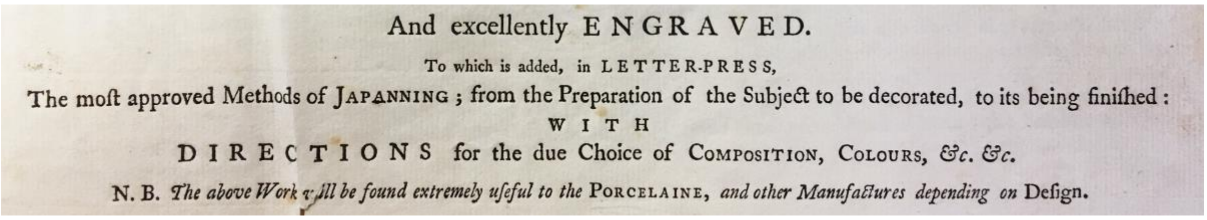

And excellently ENGRAVED.
To which is added, in LETTER-PRESS,
The moſt approved Methods of JAPANNING ; from the Preparation of the Subject to be decorated, to its being finiſhed :
WITH
DIRECTIONS for the due Choice of COMPOSITION, COLOURS, &c. &c.
N. B. *The above Work will be found extremely uſeful to the* PORCELAINE, *and other Manufactures depending on* Deſign.

Fig. 92. The inside cover states that the images are drawn by Pillement, 'And *excellently engraved*', and that the book '*will be found extremely useful to the Porcelaine, and other Manufacturers depending on Design'* (Sayer, 1762)

Two notable artists in the compilation were Pillement and Hancock. Pillement was a French artist working in a ***rococo*** style depicting ***chinoiserie*** scenes, living in London at the time of this publication; and Hancock was the engraver at Worcester who adapted his style for the early use of transfer printing (Gordon-Smith, 2000: 135). Hancock has already been discussed in detail in Chapter Three.

For a period, Worcester's transfer print designs can be attributed to this publication with Hancock's fine detailed engravings, so this volume has a direct association with Worcester and its sources for decorative patterns. Pillement's work can be attributed to the decorative arts from all genres during this period, including silverware, tapestries and textile design (Gordon-Smith, 2000).

Fig. 93. A page from *The Ladies Amusement* displaying an engraved design with hand colouring

Fig. 94. A page from *The Ladies Amusement* displaying an engraved design with hand colouring

5.2.2 Copperplate engravings

Fig. 95. Copperplate engraving: wrapped in newspaper in a box previously used for vegetables. This was part of a collection including this name plate suggesting they were made by Hancock and Ross. Ross was Hancock's apprentice at Worcester (Sandon, 1993: 290)

Hancock used *RH* as his identification initials, which appear on a number of pieces in the public museum at Worcester. I was surprised that original engravings were not stored with more care as, if they are original plates, they are the earliest examples of engraving for transfer printing.

I selected a number of the copperplate engravings from this collection to examine the autographic engraving marks and compare how the engraving translates onto printed paper and ceramic outcomes.

Fig. 96. Copperplate engraving of Queen Charlotte

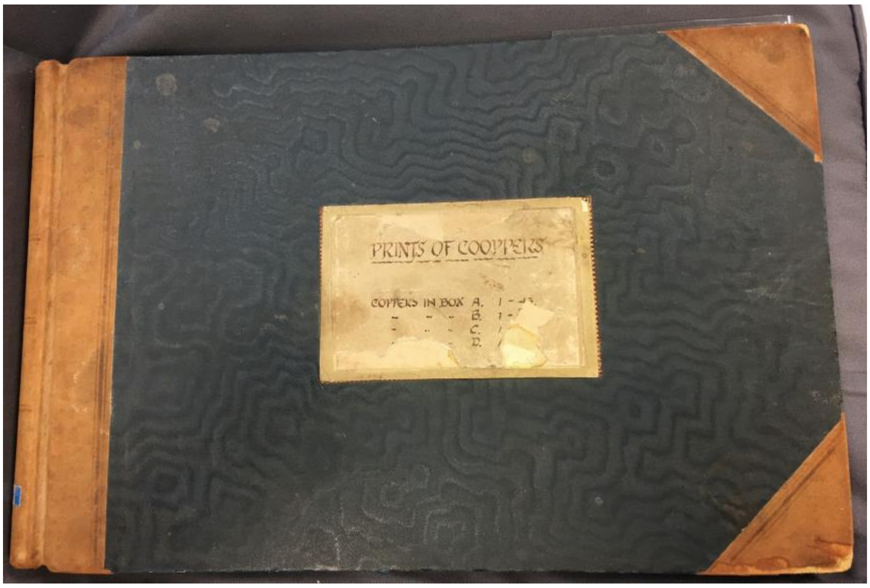


Fig. 97. Prints of Coppers: *(spelled Coopers)* the print from the Queen Charlotte engraving appears in this reference pattern book

Fig. 98. Two prints of Queen Charlotte: indicate a transfer from a tissue print, not a print from the plate, as the image is not mirrored

Fig. 99. Printed ceramic mug from 1763 featuring the *Queen Charlotte* engraving. The detail and defined printed image suggest an on-glaze transfer printed method rather than tissue transfer. Available from:

https://www.museumofroyalworcester.org/collection/queen-charlotte-mug/

[Accessed 5 March 2022]

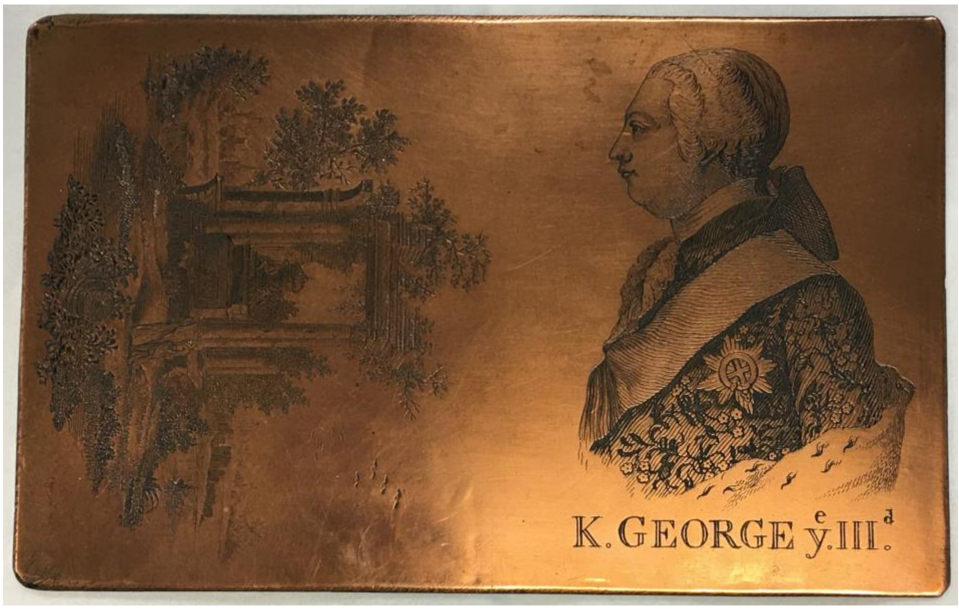


Fig. 100. King George III copperplate: suggests the high monetary value of copper and the economy of means, as one plate has been utilised for two separate engraving designs

Fig. 101. Engraved patterns were printed as a transfer and held as a visual record in the pattern books

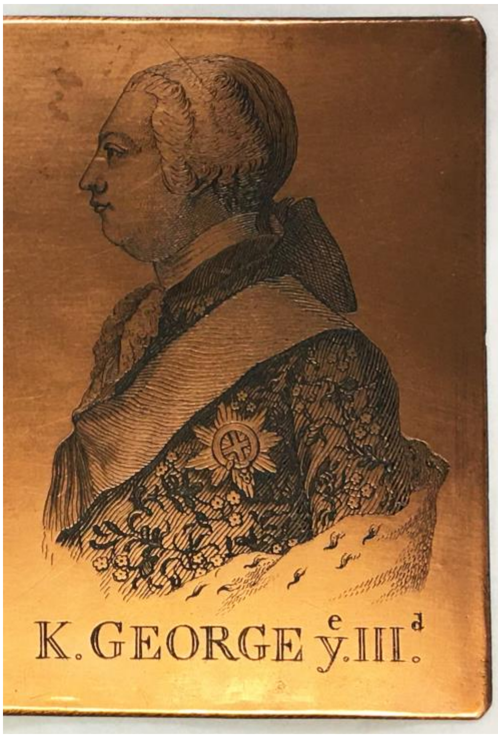


Fig. 102. The print and copper plate side by side. This printed image appears in Ballantyne's book, *Robert Hancock and his Works* (1885), and is identical to the original engraving, suggesting that it is original and not a later copy

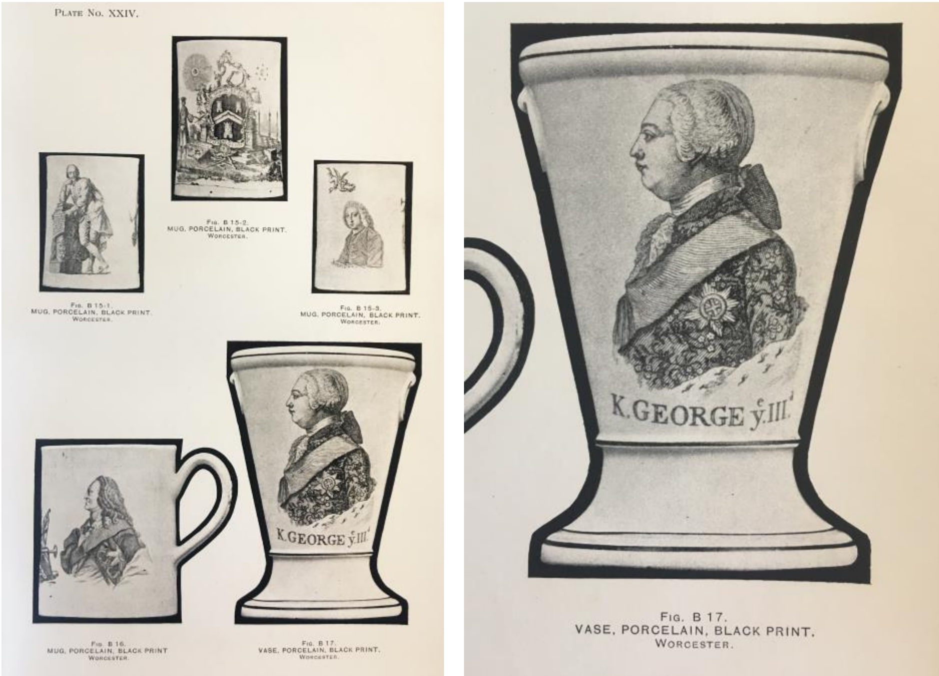


Fig. 103. Illustrations from Turner's (1907) Transfer Printing: displaying the transfer printed George III on a vase and referred to as a ***black print***. In this book he suggests the black transfer print was probably engraved by Hancock before he left Worcester in 1774 (Turner, 1907: 136)

5.2.3. Botanical art

Botanical influences are evident in much of the decoration of ceramic production, and the next series of observations illustrates this. In the selected series of hand-drawn and painted design works I aim to piece together the lineage of the traditional ceramic design methods used for decoration at Worcester.

Fig. 104a. An observational study: a derived design offers material evidence of responding directly to nature in the design process

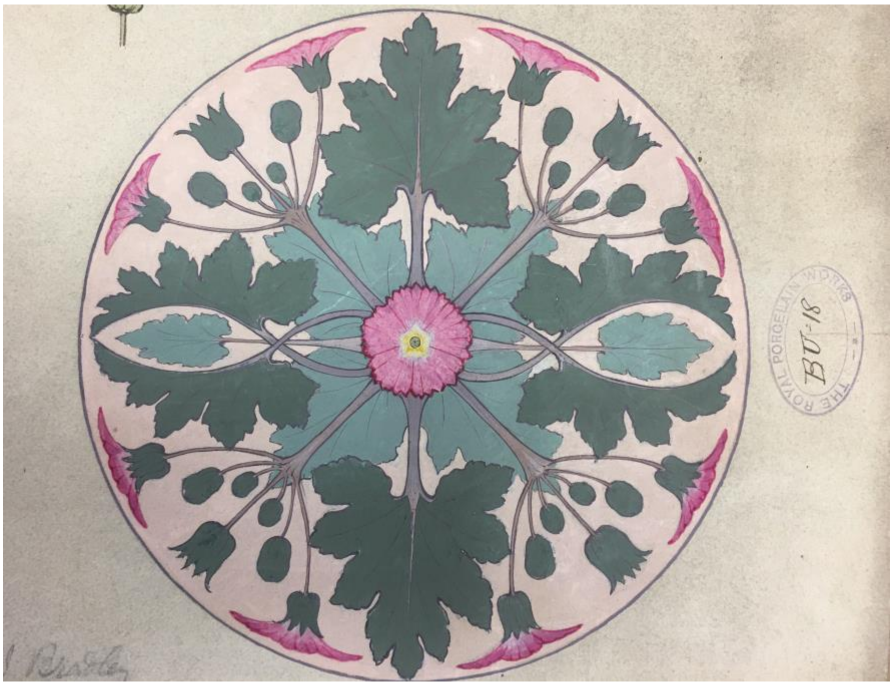


Fig. 104b. Detail, a design created in response to an observational study of a flower

Fig. 105. Observational and analytical drawings of natural forms housed in the archive

Fig. 106. The design highlights an observational study transformed into a decorative pattern

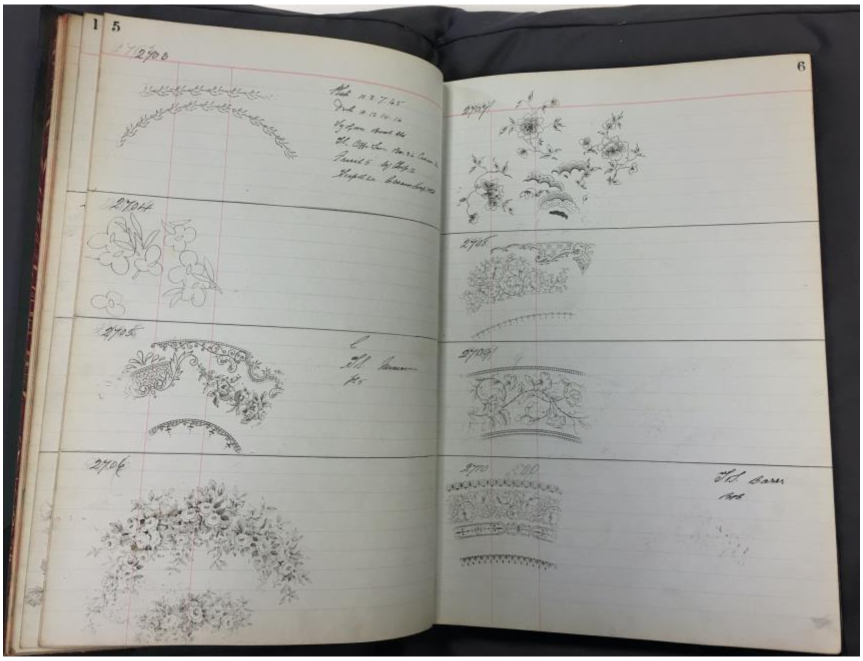


Fig. 107. Printed versions of translations of floral displays, taken from the repository of designs in the engraving pattern books

Fig. 108. A detail of one of the printed floral decorations

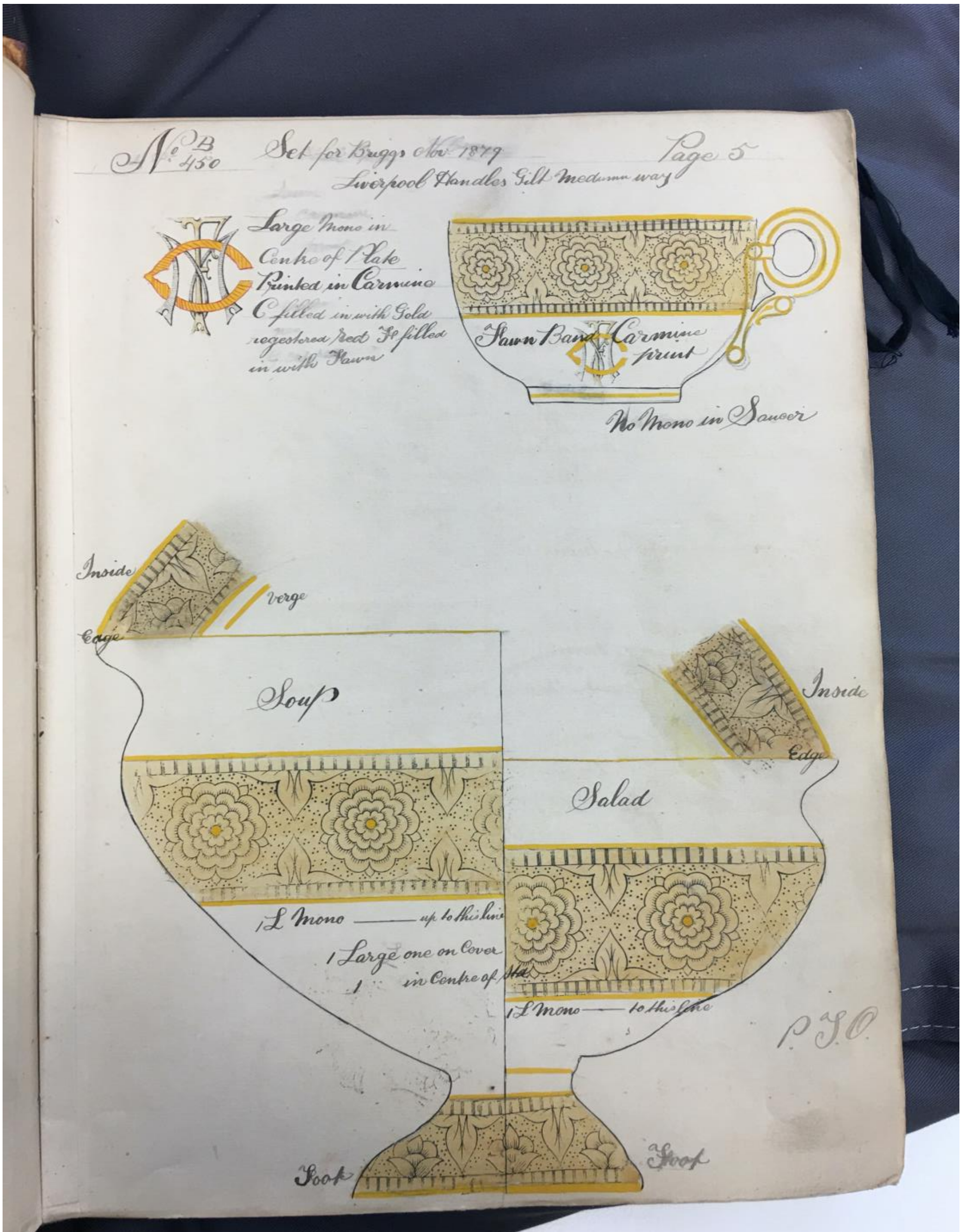


Fig. 109. A design sheet in one of the pattern books highlights the printed pattern assembled to visualise the facsimile of the finished ceramic product

5.3. Conclusion

The placement in the archive at the Museum of Royal Worcester ended when lockdown restrictions began due to the Covid-19 pandemic.

During my archival placement at Worcester, I was able to study the unseen artefacts which contain the human hub of ceramic production at Worcester. Rarely are we able to view such undocumented behind-the-scenes material and place importance to Worcester's contribution to decorative ceramic production. As stated earlier, the material archive has been under-examined for arts-based research, so this was an invaluable opportunity. The experience was instrumental to my study, delivering direct and personal interaction with tangible materials connected to creative human endeavour. A discussion of how this impacted my creative practice and perspective as a printmaker is revealed in chapters seven and eight.

The study continues in chapter six with a derived method of production based on the principles of historic transferware production derived from historical and archival research. The method serves as an interpretation of transferware with a series of tests generated directly from my perspective as a printmaker.

Chapter Six, Part One

Derived principles: a method of producing tissue transferware

6.1.1. Introduction

The derived principles I recommend for a series of tests were generated from interpretations of historical literature, archival material, pottery professional contributions and my specialist knowledge of drawing, painting, and printmaking.

The fundamental stages discussed below are:

- 6.1.2. Design
- 6.1.3. Plate making by means of laser engraving
- 6.1.4. Underglaze ink
- 6.1.5. Printing
- 6.1.6. Transferring the printed tissue onto the biscuit fired ceramic
- 6.1.7. Kiln firing schedule one
- 6.1.8. Kiln firing schedule two

6.1.2. Design

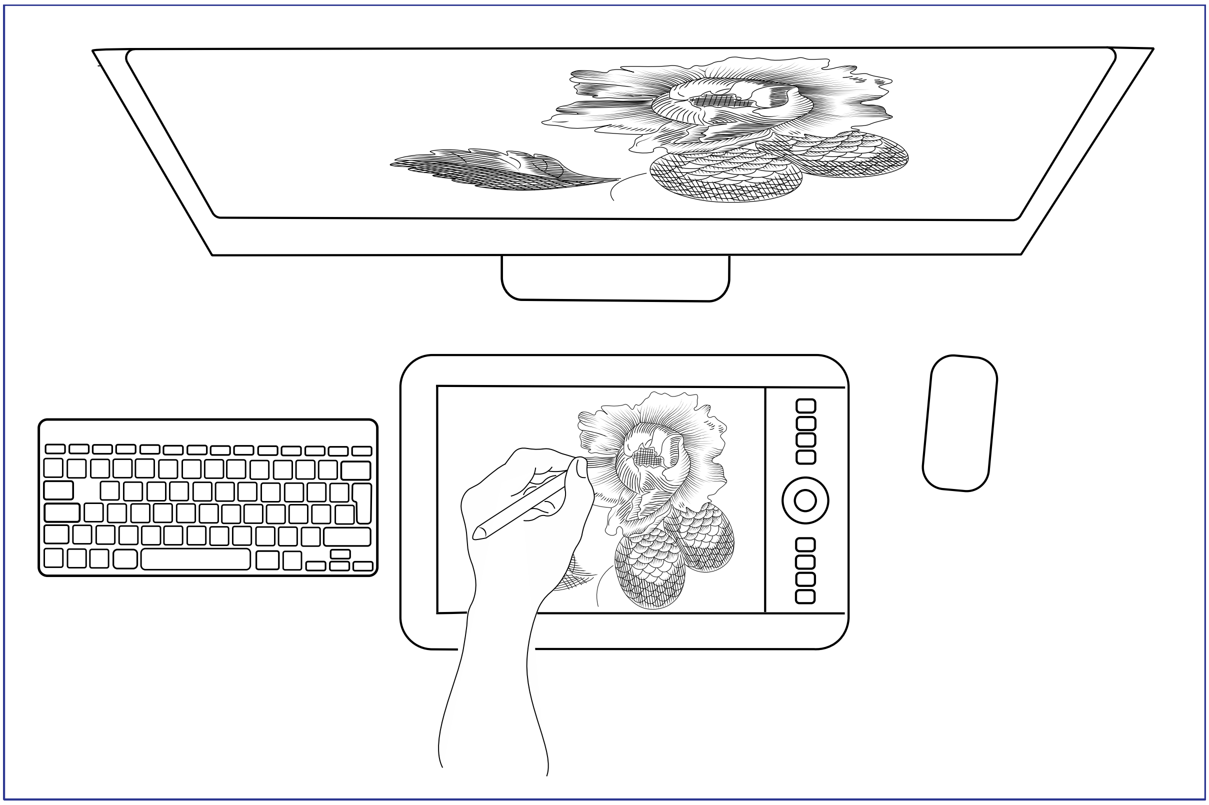


Fig. 110. Illustration of the vector drawing process by Lisa Sheppy

- The design stage was initiated by digital drawing to replicate the physical action of the point medium on paper to create a design to test the process.

- I selected the Adobe Illustrator drawing programme using a Mac Book Pro touch pad to produce a design. Drawings created in Illustrator are vector path images which remain sharp when enlarged or scaled down. I subsequently undertook a series of tests to prove whether this worked effectively.

- Finally, I advanced the design creation stage by using the Illustrator programme on an iMac with a Wacom tablet, pen and mouse

- Each digital vector drawing was tested with alterations to the design aesthetic using a range of marks associated with traditional line engraving.

- The drawings were saved as an image bank and database and used later on in the study.

6.1.3. Plate making by means of laser engraving

Fig. 111. Illustration of the engraving plate by Lisa Sheppy

- I chose laser engraving technology to produce an engraving plate. This was available in the Fabrication department at the UWE Bower Ashton campus, however, the studios were closed during the pandemic. Instead, a Bristol company, *Laser Lab*, which remained open during the pandemic, was able to produce laser engravings from my designs remotely.

- The design in Adobe Illustrator was uploaded through *Laser Lab's* website and then laser engraved onto a clear acrylic substrate.

- The engrave setting was 85% power and 100% speed for all tests, which is a standard laser engrave setting on clear acrylic.

- The plate pre-set size was 150 mm x 150 mm x 2mm. I chose this because it is the same proportion of the pre-biscuit fired tiles I used for the tests.

6.1.4. Underglaze ink

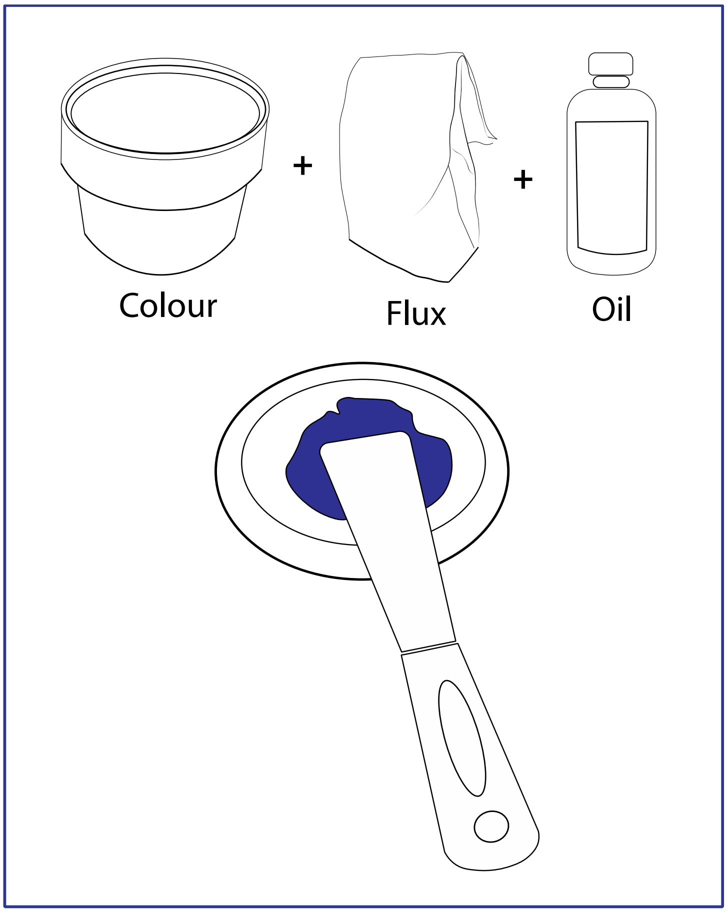


Fig. 112. Illustration of ink making by Lisa Sheppy

- Formulating the underglaze ink was the most challenging stage of the process. No ready-made ink was available and historical recipes would not be safe to replicate in terms of health and safety today.

- The only way forward was to create an ink with the components available and retailed to the general public. The ink I devised is a mix of three components in different proportions: the colour, the flux and the oil carrier.

- The colourant and main component was *Mason Stain,* a powdered pigment made of a combination of oxides and frits that creates a uniform colour. This is readily available form *Scarva Pottery Supplies*.

- Flux was added in a smaller proportion. Its primary function is to lower the melting temperature of glass formers so that the underglaze adheres to the ceramic. Without the flux the underglaze would form a powdery surface and wipe off. Flux is readily available form *Scarva Pottery Supplies.*

- The oil was made of linseed and acted as the binder, to mix the stain and flux together in order to perform as an etching ink. It had to be smooth and workable to ink up the plate and print intaglio, but remain viscous enough for transferring.

- Whilst the mason stain and flux was added in variable proportions, they were kept constants for all tests, however, the type of oil carrier changed. The key limitation to the effectiveness of the ink was the viscosity of the oil, so I aimed to find an oil which performed well but was also readily available in the UK for artists to purchase.

The five linseed oil carriers were selected for their high viscosity:

1. Lithographic varnish: *Charbonnel*, no longer available in the UK and purchased on an online auction site

2. Tint base extender: Graphic Chemical Etching Ink, readily available from *Lawrence Art Materials*

3. Vacuum-Bodied Linseed Oil: Rublev Colours, available from *The Supreme Paint Company (*online only)

4. Extender: French 88 Etching Ink, readily available from *Lawrence Art Materials*

5. Plate oil, thick: readily available from *Intaglio Printmaker*

- The ink was the independent variable of the tests I undertook, based on a range of differently performing linseed oil carriers. Each individual oil was mixed with the colour and flux to test its effect on the printing, transferring and final printed decoration.

- For every test, the plate was inked up with an intaglio method. The tacky ink was applied cold to the plate with a small palette knife, then worked into the indentations of the engraved marks. The excess ink was removed and polished off with a coarse then fine grade *tarlatan*, sometimes known as *scrim*.

- The inked plate was then ready to be printed into the tissue.

6.1.5. Printing

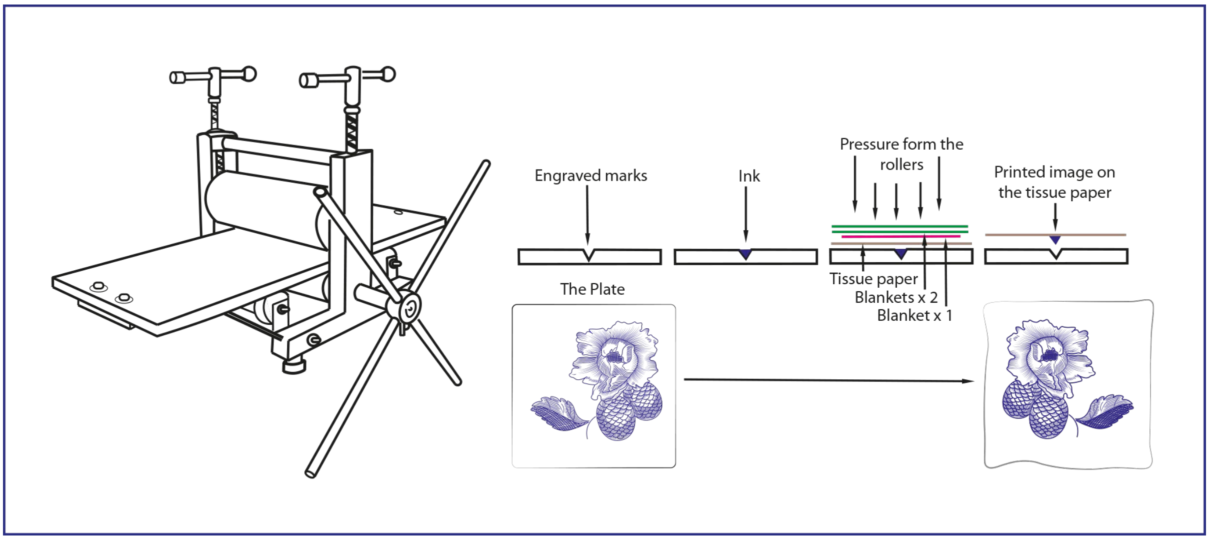


Fig. 113. Diagram of the intaglio printing process by Lisa Sheppy

- In the tests I used my printing press, made by Gunning Arts in 2004, and two blankets made from felted wool, stacked on top of the press bed which passed under the rollers at pressure. The blankets assisted the printing process as the ink from the engraving printed onto the tissue under the pressure from the press, moving from the plate and printing onto the tissue. The blanket arrangement was composed of two thick felt blankets and a smaller one made of fine wool next to the tissue.

- Setting up the printing press was important and I arrived at the correct pressure through a series of tests to ensure that the rollers were at the correct height for the plate. A layer of *soft soap* was applied to the back of the tissue with a large brush, then placed on top of the inked plate before printing. This allowed the tissue to become soft so that the fibres imprinted into the plate recesses to receive the ink.

- The inked engraving plate was passed through the press twice, based on the method observed by the printer at the Spode Museum and other historical references. This would not normally be the case with paper printing for intaglio process printmaking, when the plate passes through the press once.

6.1.6. Transferring the printed tissue onto the biscuit fired ceramic

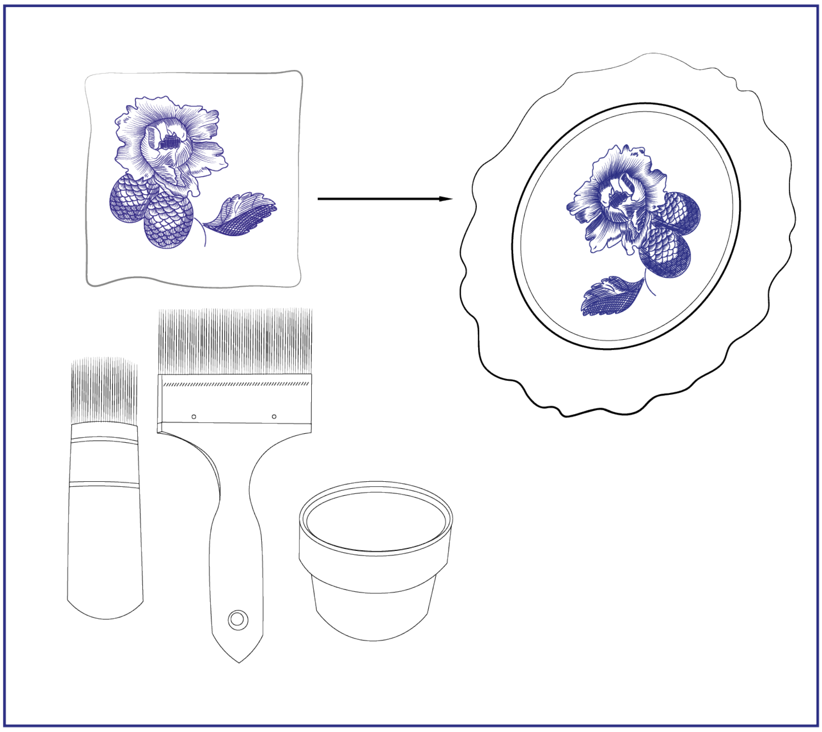


Fig. 114. Diagram of the transferring process by Lisa Sheppy

- When the tissue was printed with the design I assessed the effectiveness of the print and, if areas were missing, then I repeated the inking and printing process.

- The printed tissue was placed print side down onto the earthenware biscuit ware. The transferring process relied wholly on hand pressure and the manipulation of tools. Once the tissue was placed onto the ceramic more soap was painted onto the back, which helped with lubrication and tearing when agitating the tissue to transfer the print.

- The transferring process was rapid. Print side down, the tissue was placed onto the surface of the ceramic ware with the use of brushes, stamping the bristles for further friction to help the print transfer onto the surface. The bisque ceramic substrate has a rough texture which enabled the print to adhere to the surface.

- The transferring process did not always achieve uniform results as it was based on manual pressure and dexterity with the transferring tools. When the transfer went well and all of the printed design was on the biscuit tile the ceramic was ready for the next stage.

6.1.7. Kiln firing schedule one

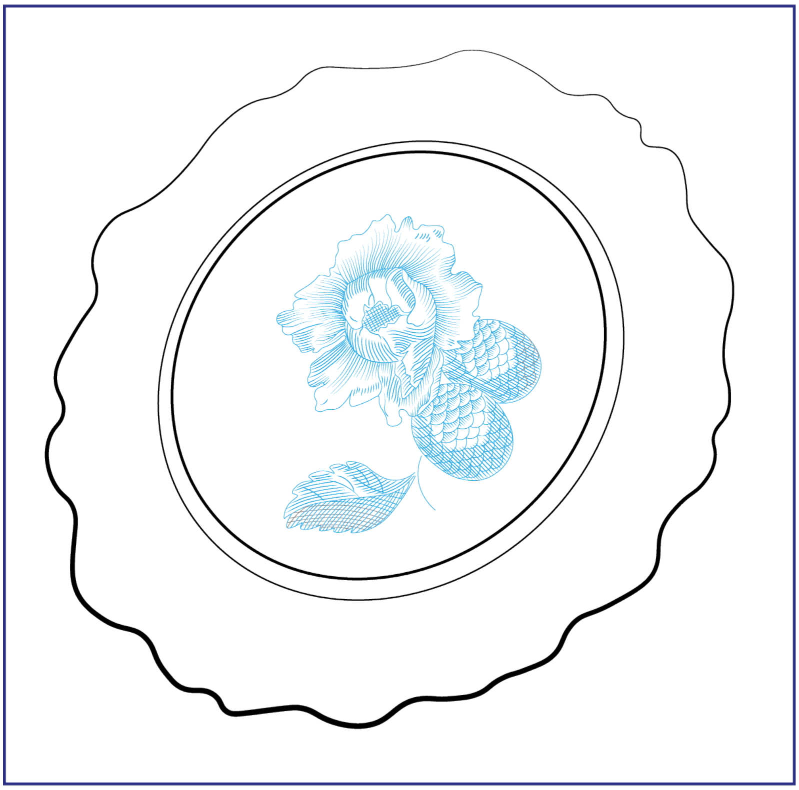


Fig. 115. Illustration of the transferred pattern after the hardening on firing by Lisa Sheppy

- The next firing is referred to as the ***hardened on*** firing. This firing fuses the pattern to the ceramic, burning off the oils from the ink and preparing the surface to take the glaze. The kiln reached a maximum of 1000°, which burnt off the oils from the ink and the flux fixed the print.

- When the printed design was fired the colour of the underglaze glaze was a dull matt colour.

- The hardening on firing did not change in any of the tests.

6.1.8. Kiln firing schedule two

Fig. 116. Illustration of the transferred pattern after the glaze firing by Lisa Sheppy

- At my supervisor's recommendation I used a *low solubility gloss glaze* for the tests. These glazes incorporate metals, especially lead, which are present in a form that is not readily dissolved by the action of acid on the fired ware. *Low solubility glazes* conform to health and safety requirements and are therefore safe for dinnerware when fired correctly.

- The powdered glaze was mixed with water at a ratio of 270 g glaze: 300 ml water, and applied with a soft brush in selective printed areas. The firing was taken up to 1050°C.

- The glaze firing did not change in any of the tests.

6.1.9. Conclusion

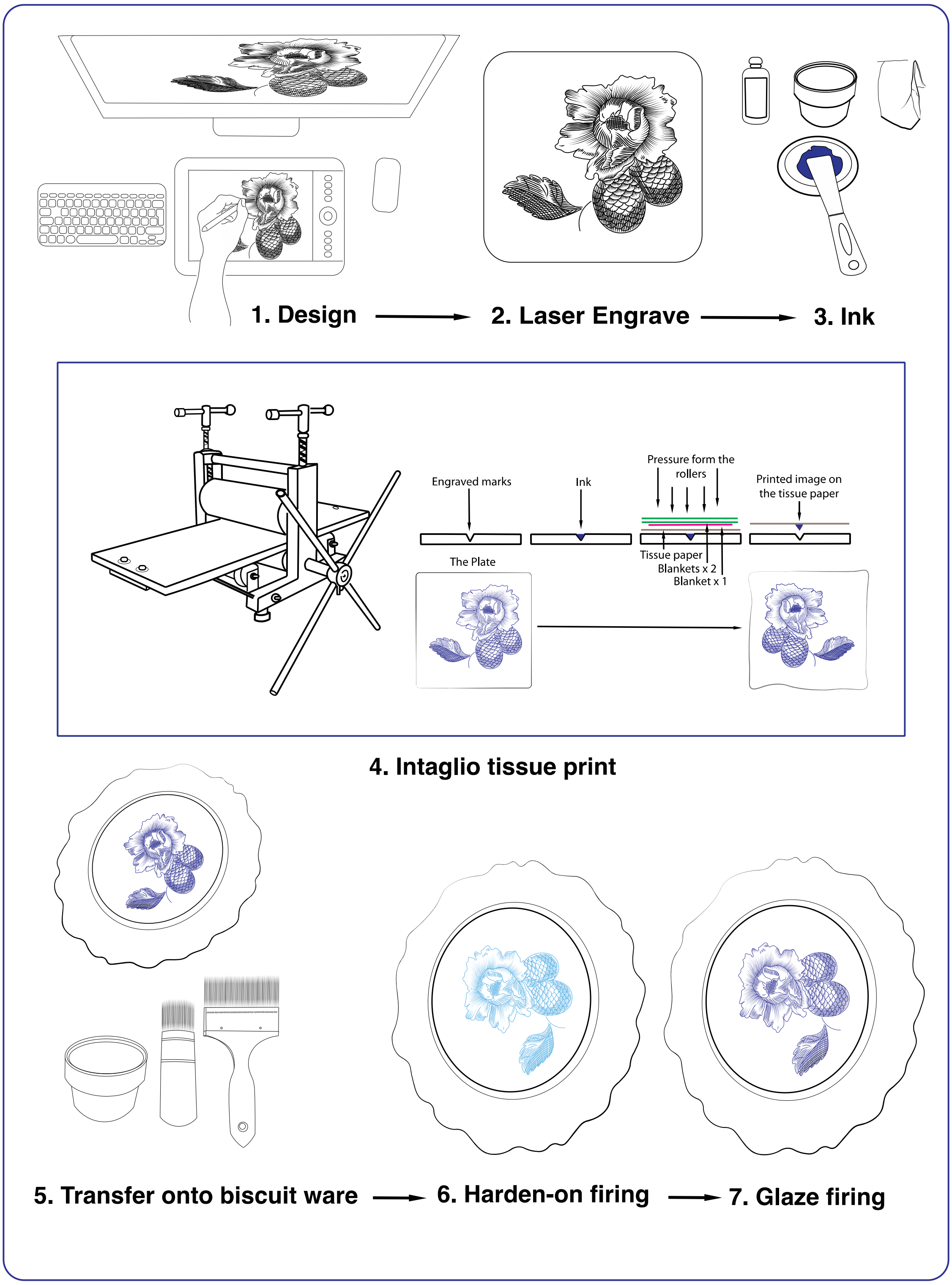


Fig. 117. Diagram of the whole underglaze tissue transfer process by Lisa Sheppy

In the numbered list below, I have highlighted the ink as being the independent variable in the tests. This was the factor that changed in each test, whilst all the other stages were control variables, remaining constant throughout.

1. *Design – control variable*
2. *Plate making laser engraving – control variable*
3. ***Underglaze ink – independent variable***
4. *Printing – control variable*
5. *Transferring – control variable*
6. *Firing schedule one – control variable*
7. *Firing schedule two – control variable*

Setting out the fundamental stages and variables provided a template which I applied to all the individual tests, to illustrate their effects on the outcome. The tests used an empirical and pragmatic method, isolating the independent and control variables which had a direct effect on the dependent variable; an effective method and a benchmark example of underglaze tissue transfer printing.

The next part of this chapter presents this method of production applying the principals set out and derived from historical deductions. This will highlight the developing knowledge and ongoing material thinking emerging with practical examples of a tangible working process.

Chapter Six, Part Two

Principles into practice: tests as a benchmark for future work

6.2.1. Introduction

Part two of chapter six documents a series of tests I undertook which illustrate the parameters of a method of producing tissue transferware based on the derived principals detailed in part one. As explained, the design, printing, transferring and firing processes were all constant variables, with the underglaze ink formulation acting as the independent variable for all tests. The tiles used for all tests were 150mm x 1500mm and pre-biscuit fired to 1120^{o}C.

The critical approach I used in this testing phase of my research was material thinking and reflection in and on action, to improve my material and technical understanding of tissue transferware production methods. I assessed each outcome based on the specified criteria below. The testing cycle was repeated to make improvements with further iterations until an effective method was achieved.

This section documents the testing as it happened, with reflections at key moments based on the specified criteria. I recorded these in notebooks, voice recordings and photographs so that the moment was not lost. Reflection to improve the outcomes for each phase was based on specific criteria by posing the following questions:

- Can the process be duplicated?
- Is the decoration readable in terms of the level of intended detail and mark making?
- How did this ink formula perform in the printing?
- How did the pattern transfer?
- How effective was the hardening firing?
- How effective was the glaze application?
- How effective was the gloss firing?

- Does the finished printed decoration have the visual indicators of the transferware aesthetic?
- Is this process an effective method overall?

6.2.2. Test one

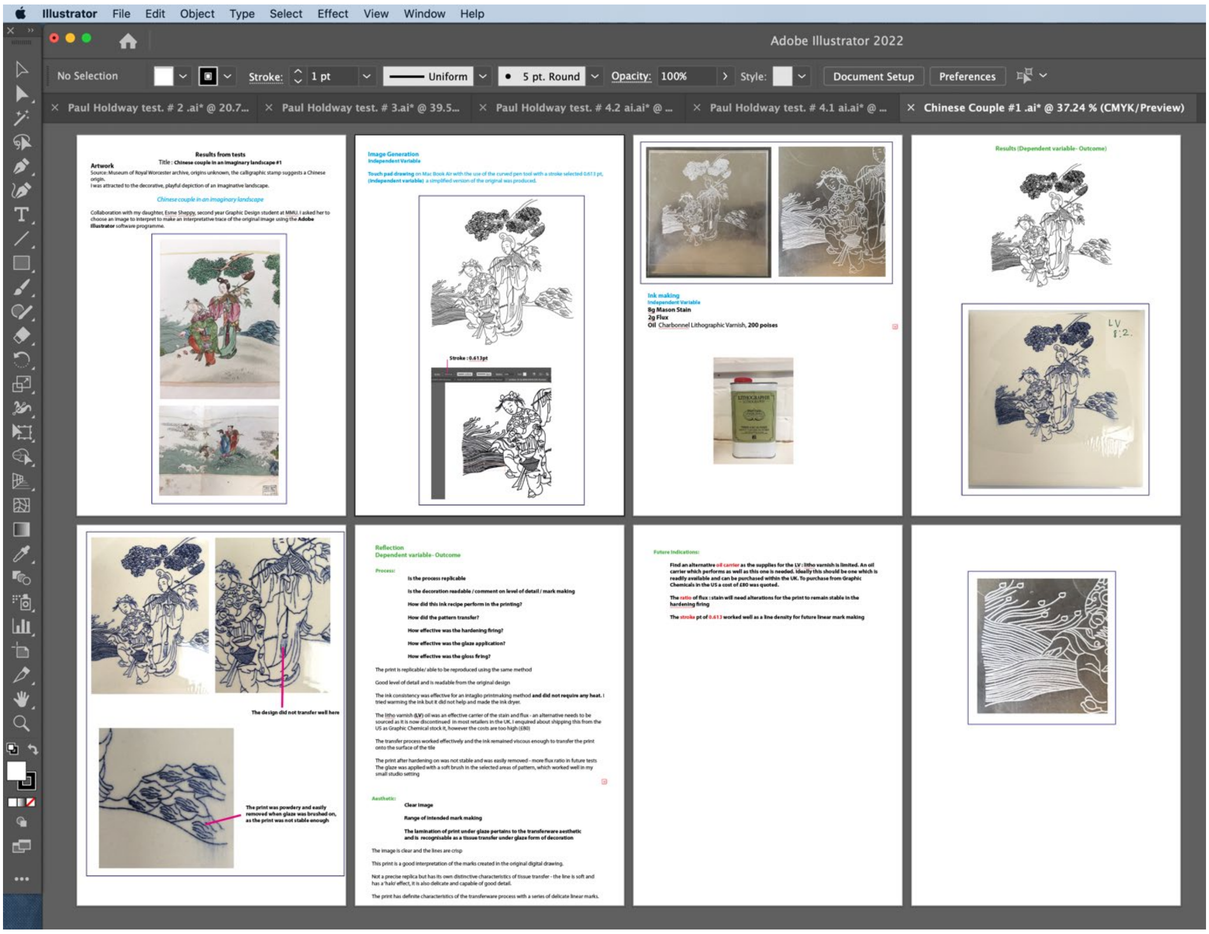


Fig. 118. An interpretation of an image selected from the archive at Worcester I name, *A couple in an imaginary Chinese landscape.* A screen shot of my working method of testing documented in an Illustrator file. This worked for me as a way of editing, notetaking with observation and reflection in one file

Fig. 119. Original image with no title or details. I name *A couple in an imaginary Chinese landscape*, from the Museum of Royal Worcester archive. Photographed by Lisa Sheppy, November 2019. Reproduced by kind permission of the Museum of Royal Worcester © Dyson Perrins Museum Trust

I asked my daughter, Esme Sheppy, to collaborate on the early design stages of the tests, as she was also working from home as a second year Graphic Design student at Manchester School of Art, MMU. She selected this image as she was attracted to the decorative, playful depiction of a couple in an imaginative landscape. I asked her to make a digital drawing on her MacBook Air with touchpad, interpreting the original using Illustrator software to make a linear vector path -based image. This contributed to the project whilst allowing me to work on another design, discuss any issues we were both having and make improvements. Her contribution also enabled conversations to follow the test and help with reflection.

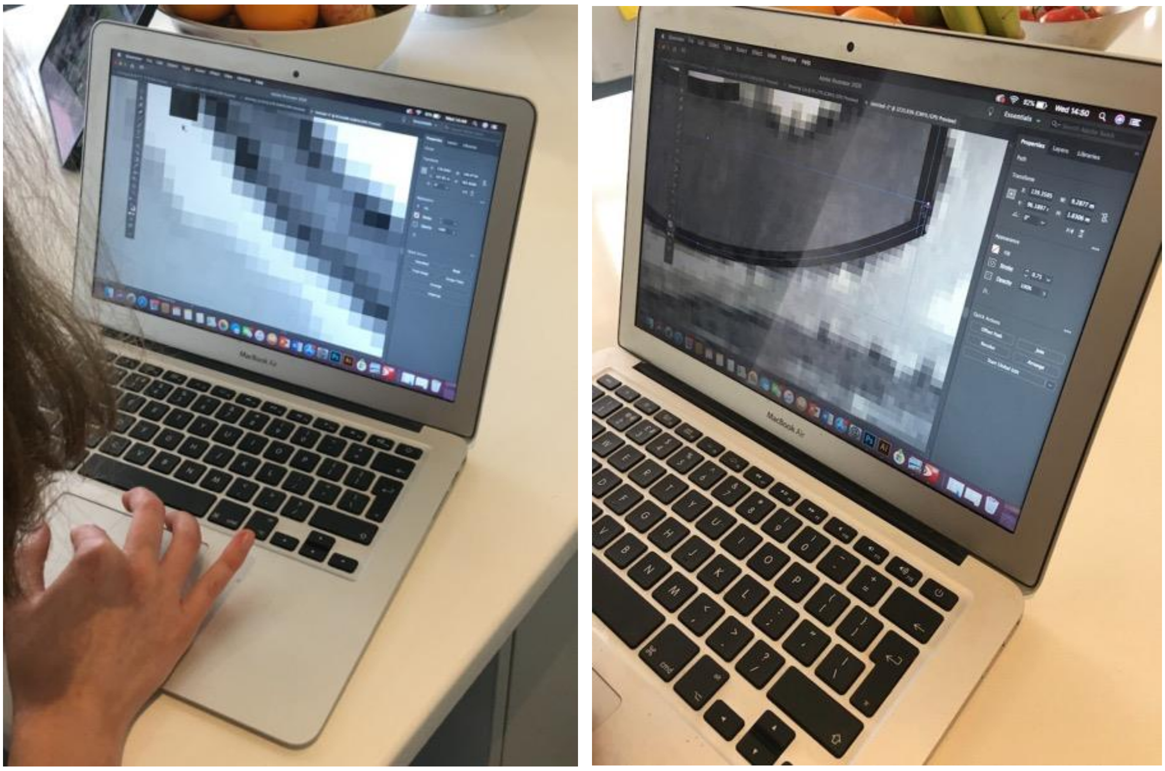


Fig. 120. Two images here show the contrast between a pixel-based line on the left and a vector path line on the right. The original source image for the test was a high resolution jpeg which was used as the background layer to work from. The enlarged source image on the left can be seen as a series of pixels. The line drawing on the right illustrates the digital vector linear path which remains defined and does not deteriorate when enlarged

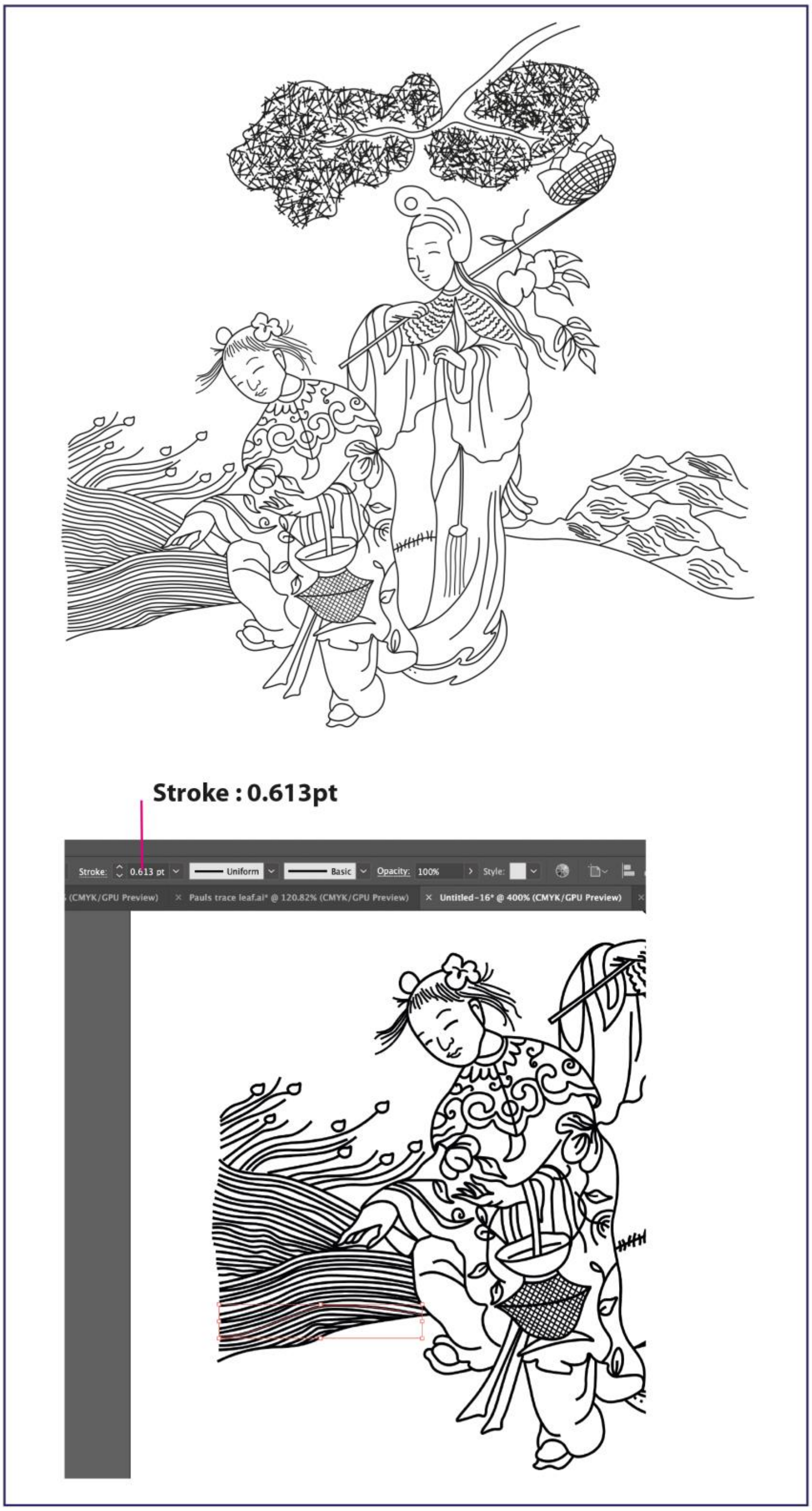


Fig. 121. The touchpad digital drawing made using Illustrator,
created with vector paths and the curved pen tool with uniform stroke value of 0.613pt

Fig. 122. Laser engraved plate used for tests. The Illustrator file was emailed and exported to *Laser Lab, Bristol.* The design was laser engraved onto a 2mm acrylic sheet and sent by post back to me

Fig. 123. Detail of the laser engraving: the lines are slightly coarse which raised issues with the printing in the later stages

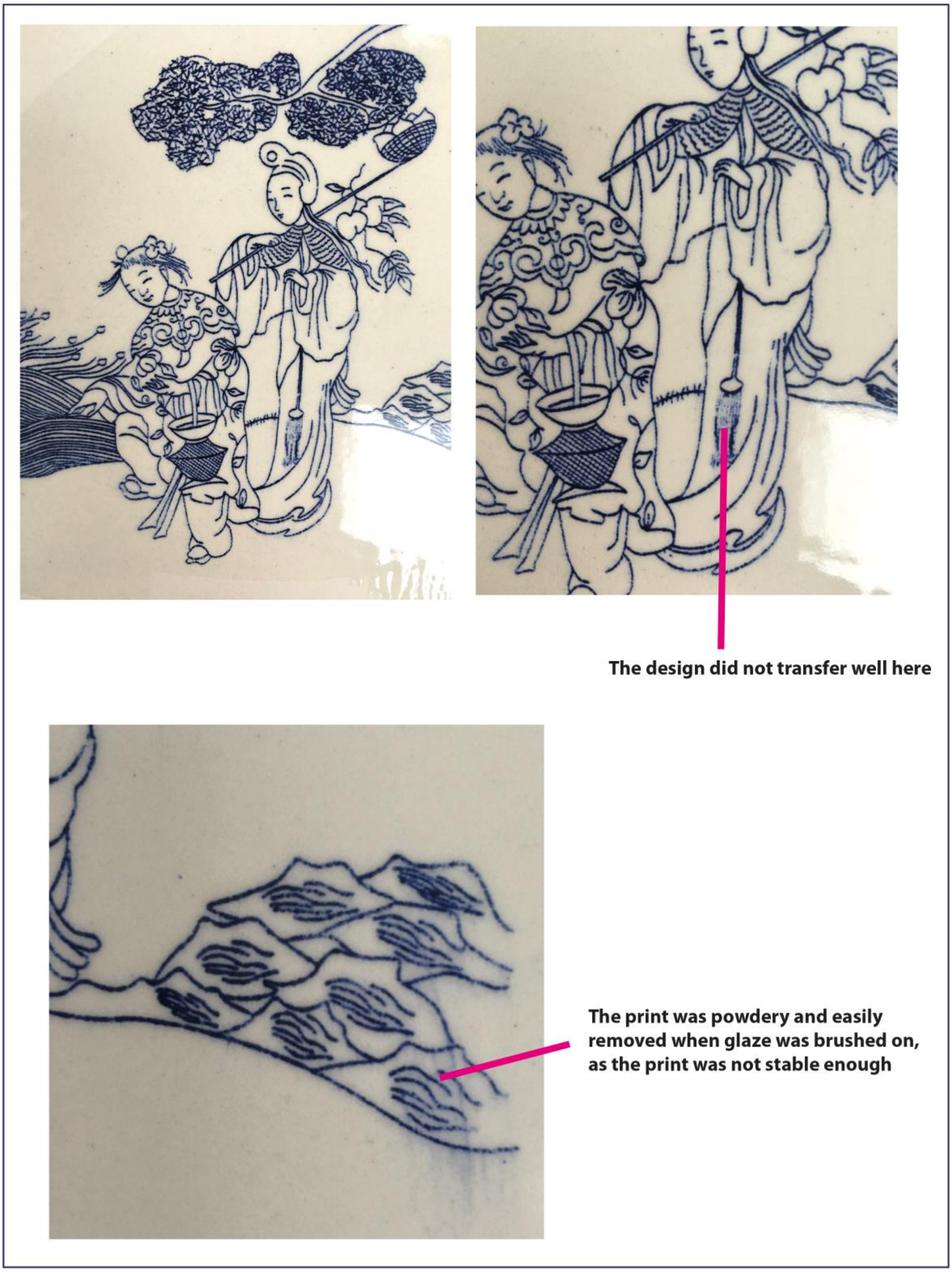
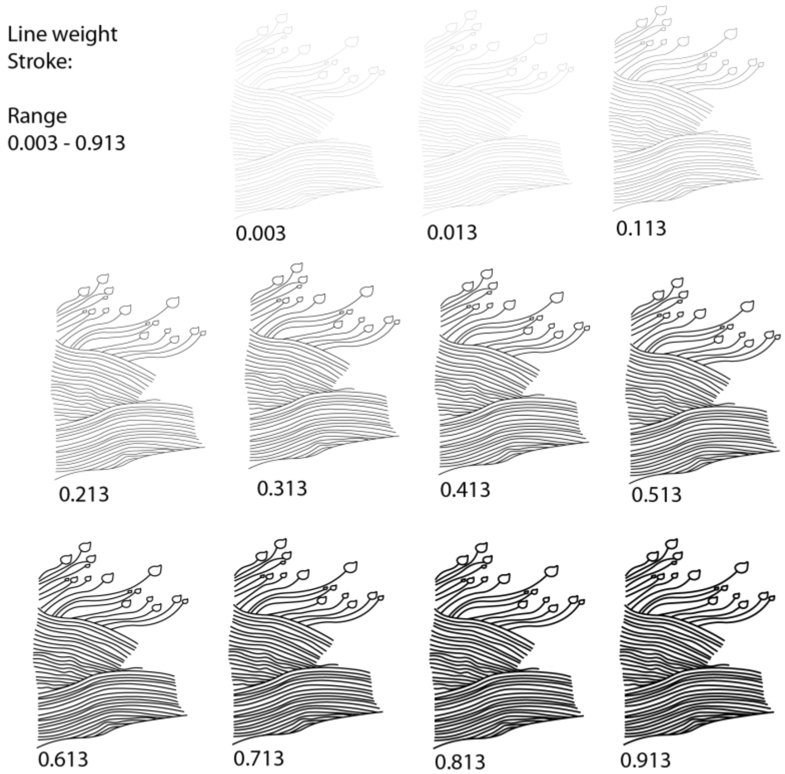
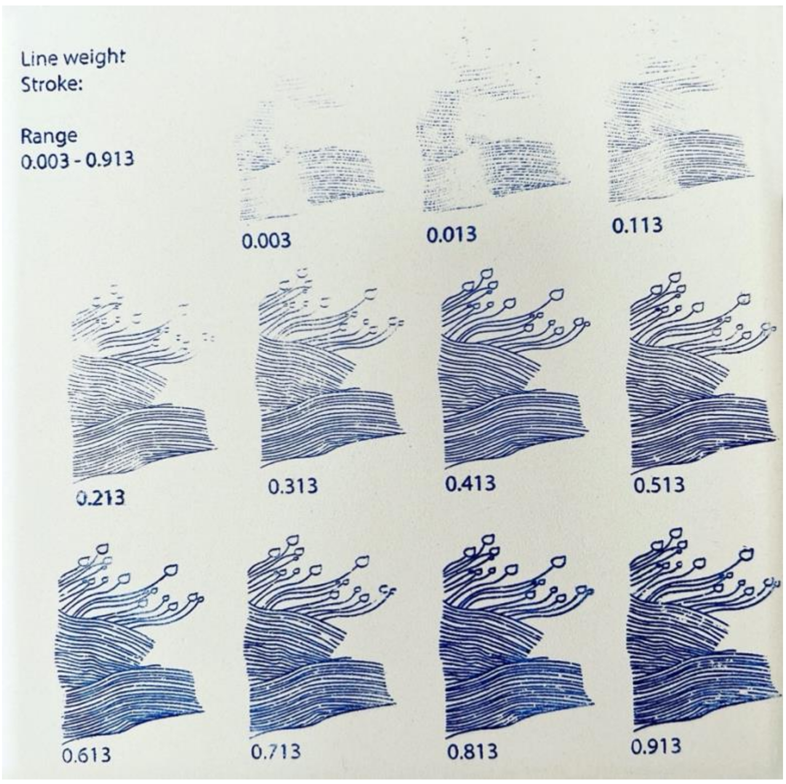


Fig. 124. The outcome of Test One: inked, printed, transferred, hardened on fired and glaze fired

Fig. 125. The outcome of Test One: inked, printed, transferred, hardened on fired and glaze fired

6.2.2a. A range of line weights to provide clarity for future tests





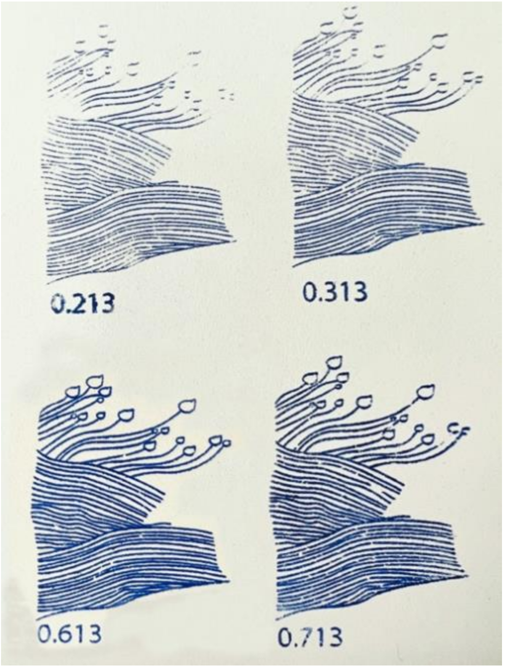


Fig. 126. Four views showing a series of tests to demonstrate a range of line weights. Based on this the line weight with a stroke value of 0.613 was maintained as a constant variable

6.2.2b. Future indications

The results of this test indicated issues with the ratios of the stain and flux components. The print was very easily disrupted when agitated after the hardening on firing. Discussions with my supervisor on this technical issue highlighted the need for a greater amount of flux in the underglaze ink. This would help the ink fuse with the ceramic biscuit layer and remain stable for gloss firing. Whilst the lithography varnish performed well, this carrier oil is not sustainable. I discovered this was a discontinued product in all the suppliers in the UK. It is made in the US, and I was quoted £80 to purchase it via post from *Graphic Chemicals*. Based on the line weight testing the stoke value was maintained as being 0.613 in all the future tests.

6.2.3. Test Two

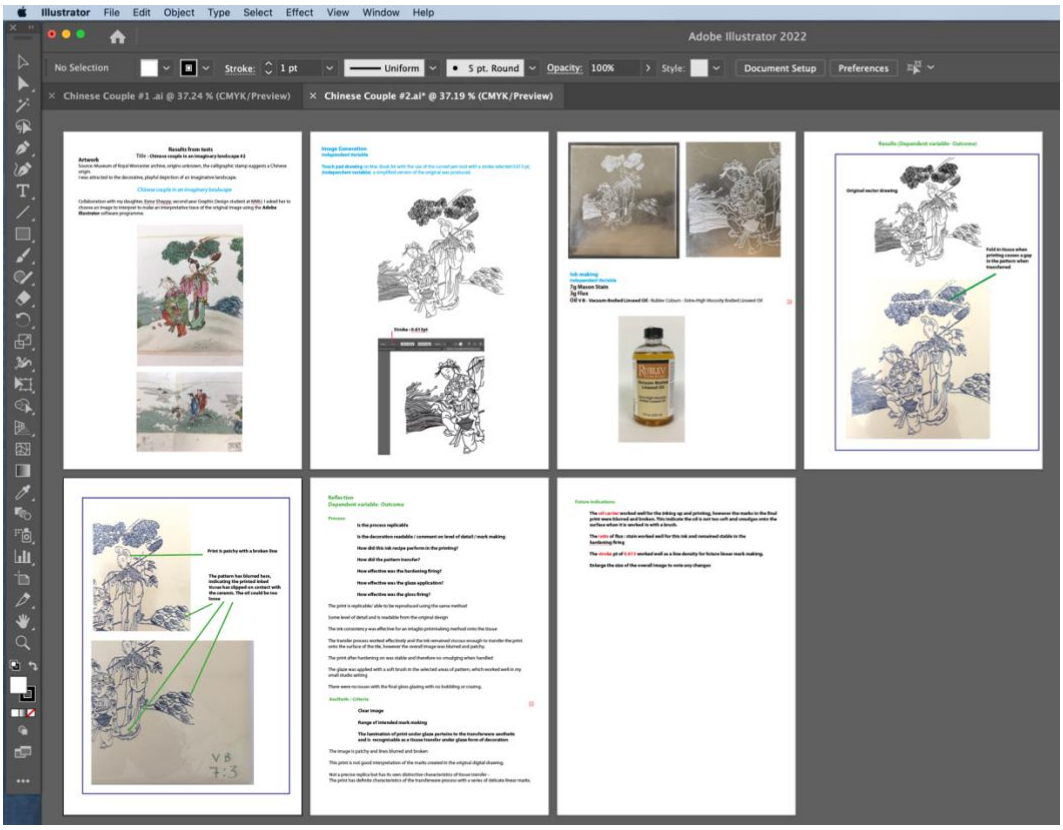


Fig. 127. A screen shot of the working method of testing

For the next test the ink was altered to contain 7g mason stain 6308, delphinium: 3g flux plus Rublev Colours' extra high viscosity vacuum-bodied linseed oil as the carrier. This oil was sourced from *The Supreme Paint Company*, an internet company selling traditional oil paints and varnishes.

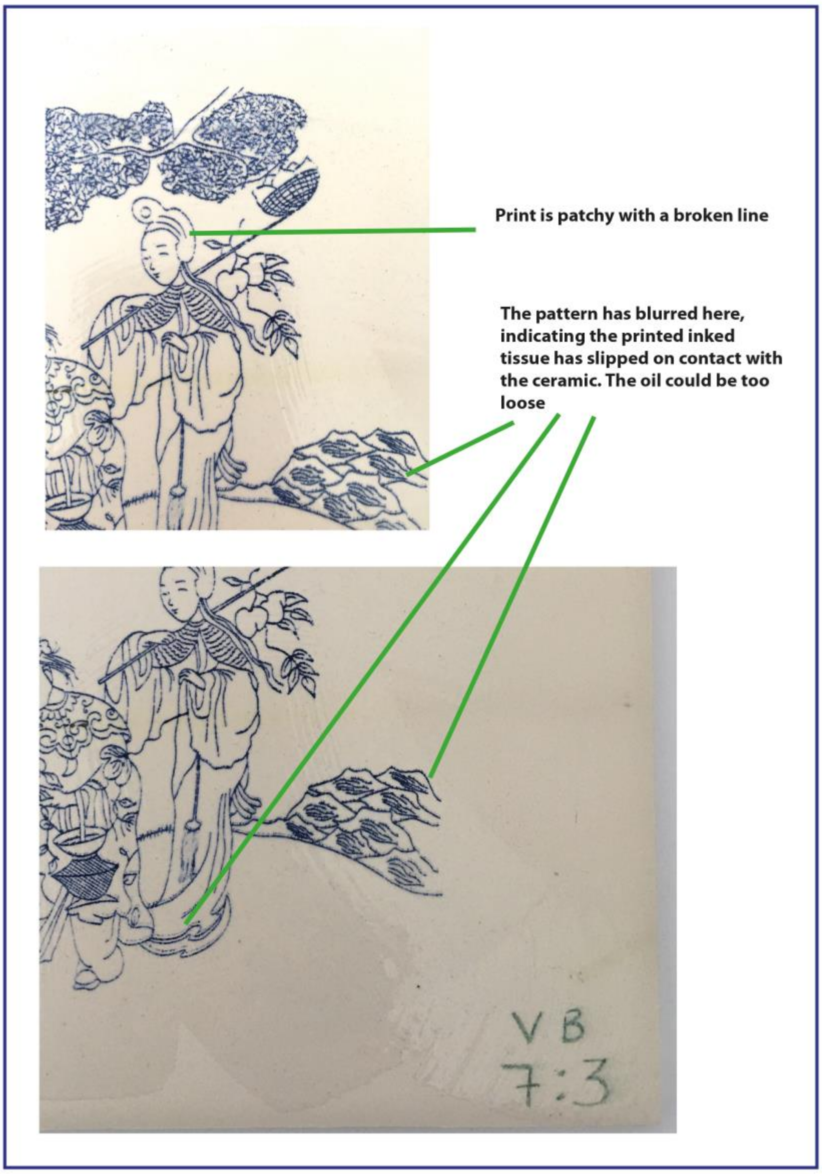


Fig. 128. Outcome from Test Two. The ink consistency was effective for printing. However, during the transferring the print slipped on areas, indicating that the ink was too thin and did not attach to the surface of the ceramic sufficiently. The tissue can sometimes crease during printing, and this results in breaks in the image

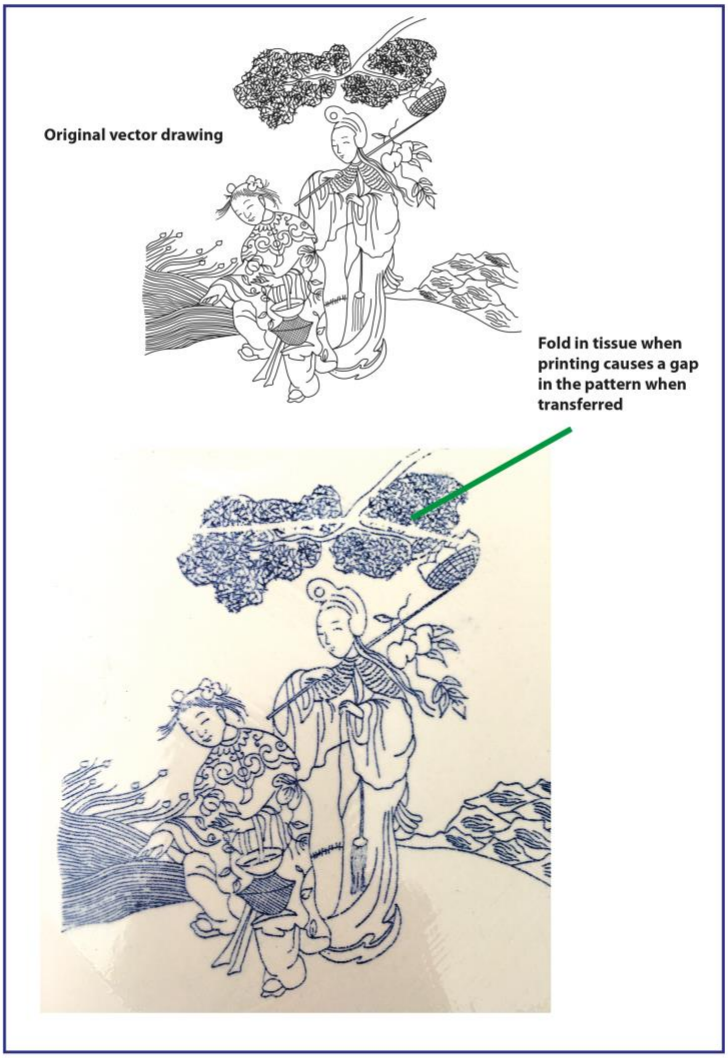


Fig. 129. The outcome of Test Two: inked, printed, transferred, hardened on fired and glaze fired

6.2.3a. Future indications

The oil carrier worked well for the inking up and printing, however the marks in the final print were blurred and broken. This indicates that the oil was not tacky enough to print and transfer, causing distortion to the print on contact with the bisque ceramic surface. The tissue had to be worked very vigorously with brushes for the print to transfer. If the ink was slightly too thin the marks would blur and distort. The ratios of stain to flux appeared to work more effectively and the print was stable after the hardening on firing. The stroke value of 0.613pt worked well as a line density for future linear mark making,

6.2.4. Test Three

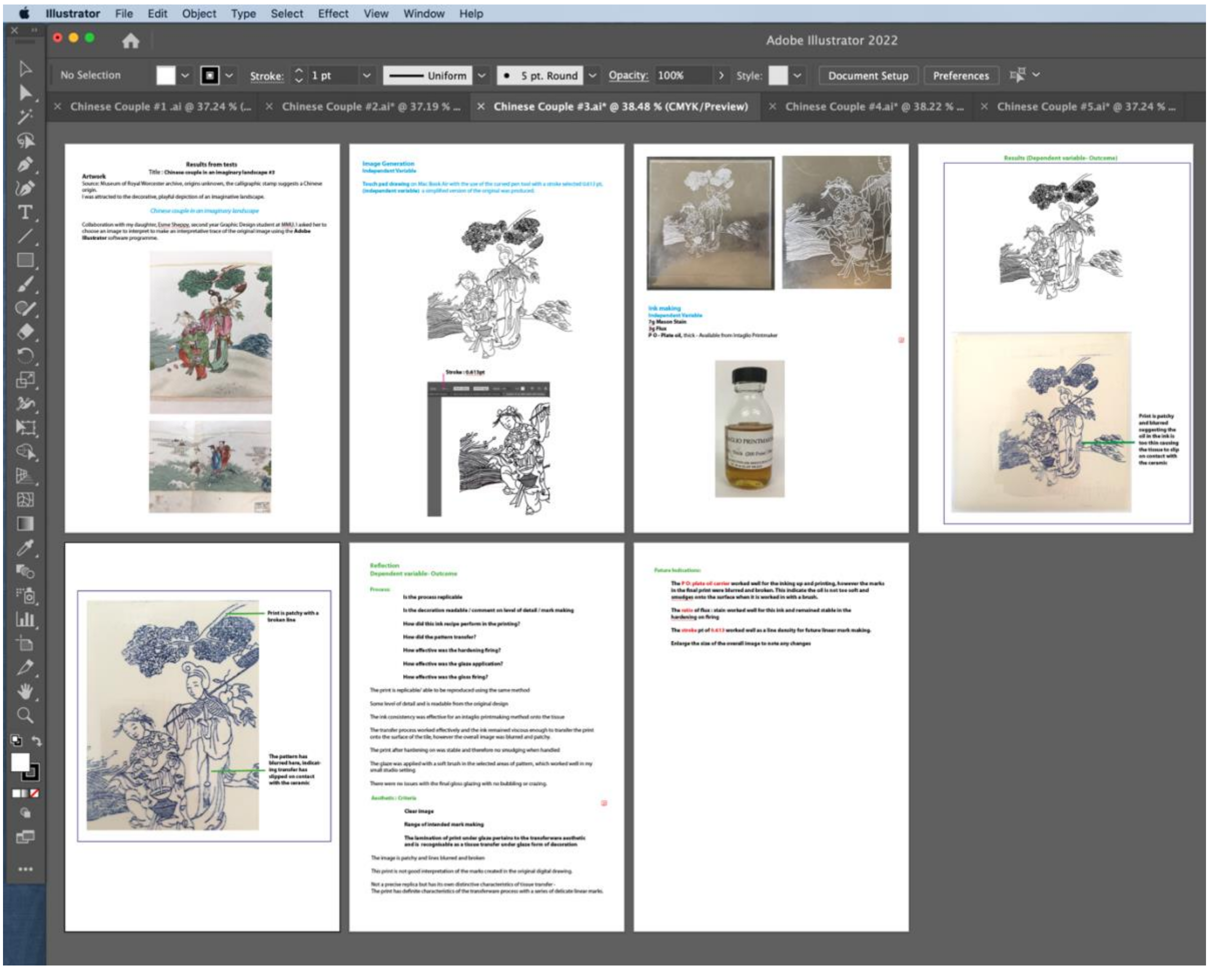


Fig. 130. A screen shot of the working method of testing

For the next test the ink was altered to contain 7g mason stain 6308, delphinium: 3g flux plus thick plate oil as the carrier. This oil was supplied by *Intaglio Printmakers,* a shop in London and internet company selling traditional printmaking supplies.

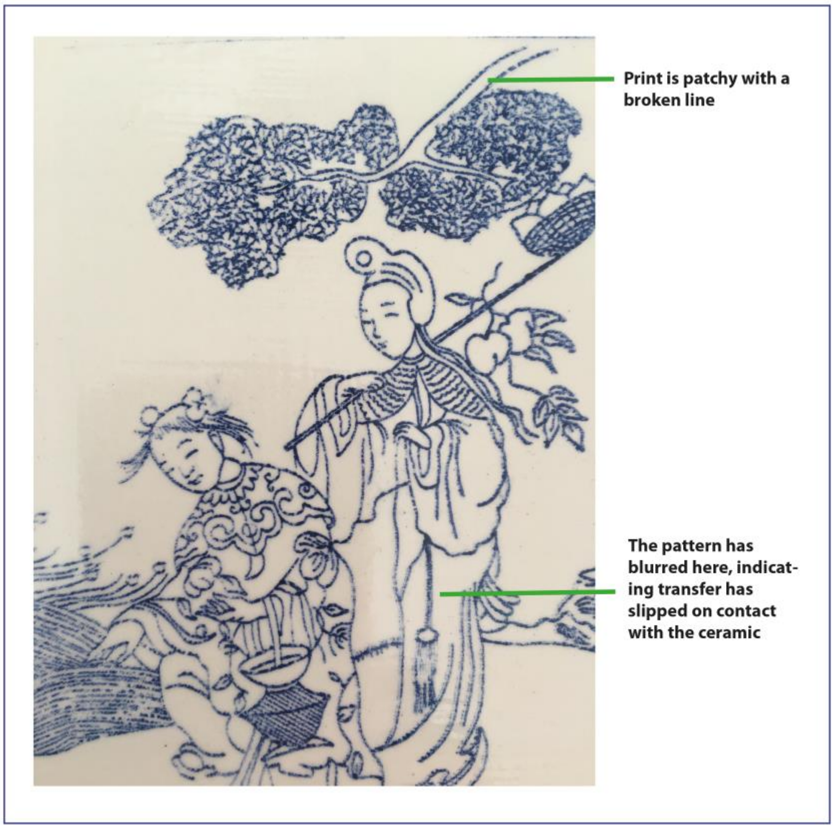


Fig. 131. The outcome of Test Three: inked, printed, transferred, hardened on fired and glaze fired

6.2.4a. Future indications

This was a repeat of the previous test which gave an unsatisfactory result because of the distortion and slipping of the print. The ratios of stain to flux appeared to work more effectively and the print was stable after the hardening on firing. The stroke value of 0.613pt worked well as a line weight but for the next test the original vector line drawing was enlarged slightly to fill the 150mm x 150mm square. A new enlarged laser engraved plate was be used for Test Four.

6.2.5. Test Four

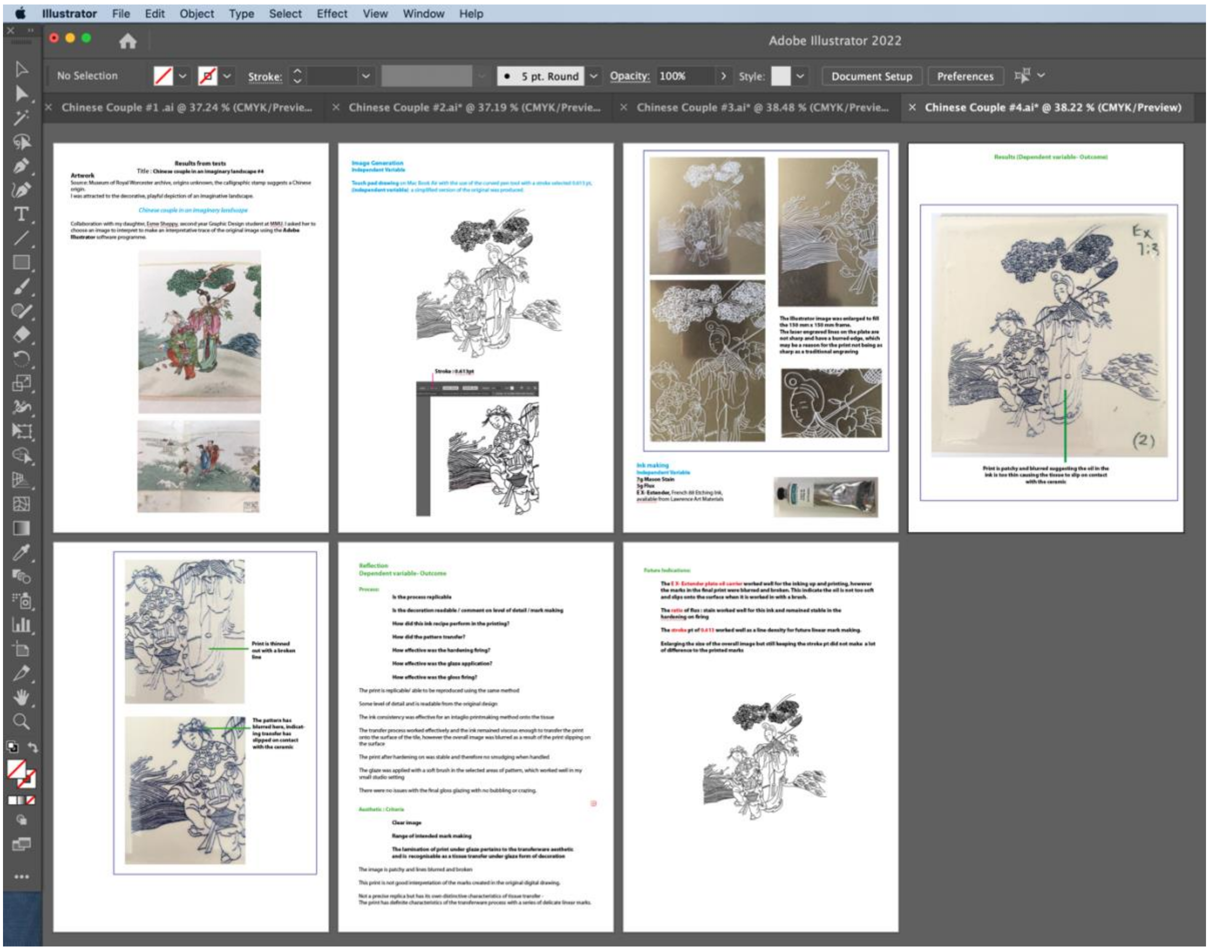


Fig. 132. A screen shot of the working method of testing

For the next test the ink was altered to contain 7g mason stain 6308, delphinium: 3g flux plus French 88 Extender for etching supplied by *Intaglio Printmakers* as the carrier. This was sourced from *TN Lawrence & Son Ltd,* a shop in Hove, West Sussex, that sells traditional printmaking supplies.

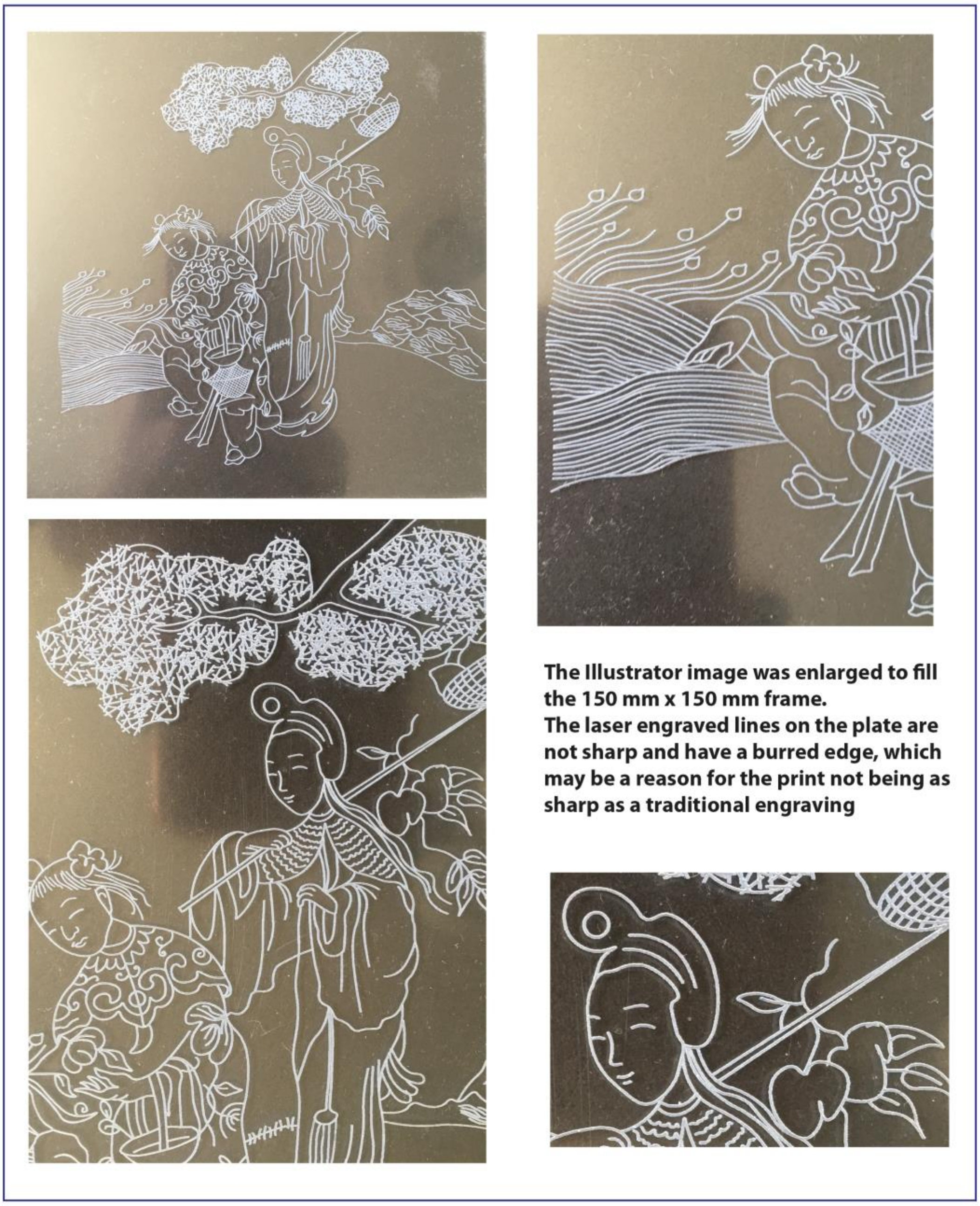


Fig. 133. The new laser engraved plate to fill the 150mm x 150mm frame

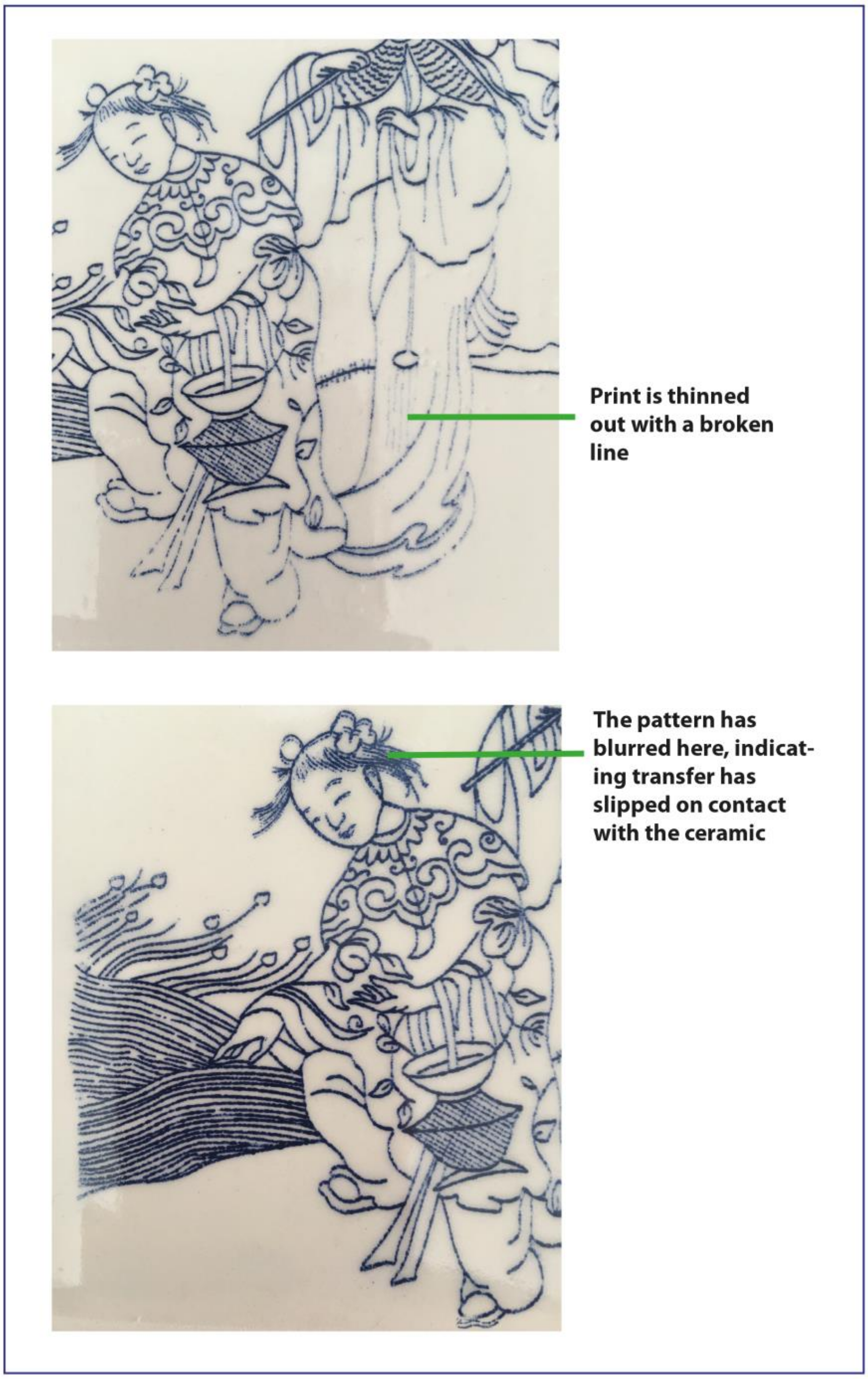


Fig. 134. The outcome of Test Four: inked, printed, transferred, hardened on fired and glaze fired

6.2.5a. Future indications

The oil carrier was still making problems in the transfer process so a different one was used in the next test. Increasing the scale of the original image increased the definition of the lines and marks and improved definition.

6.2.6. Test Five

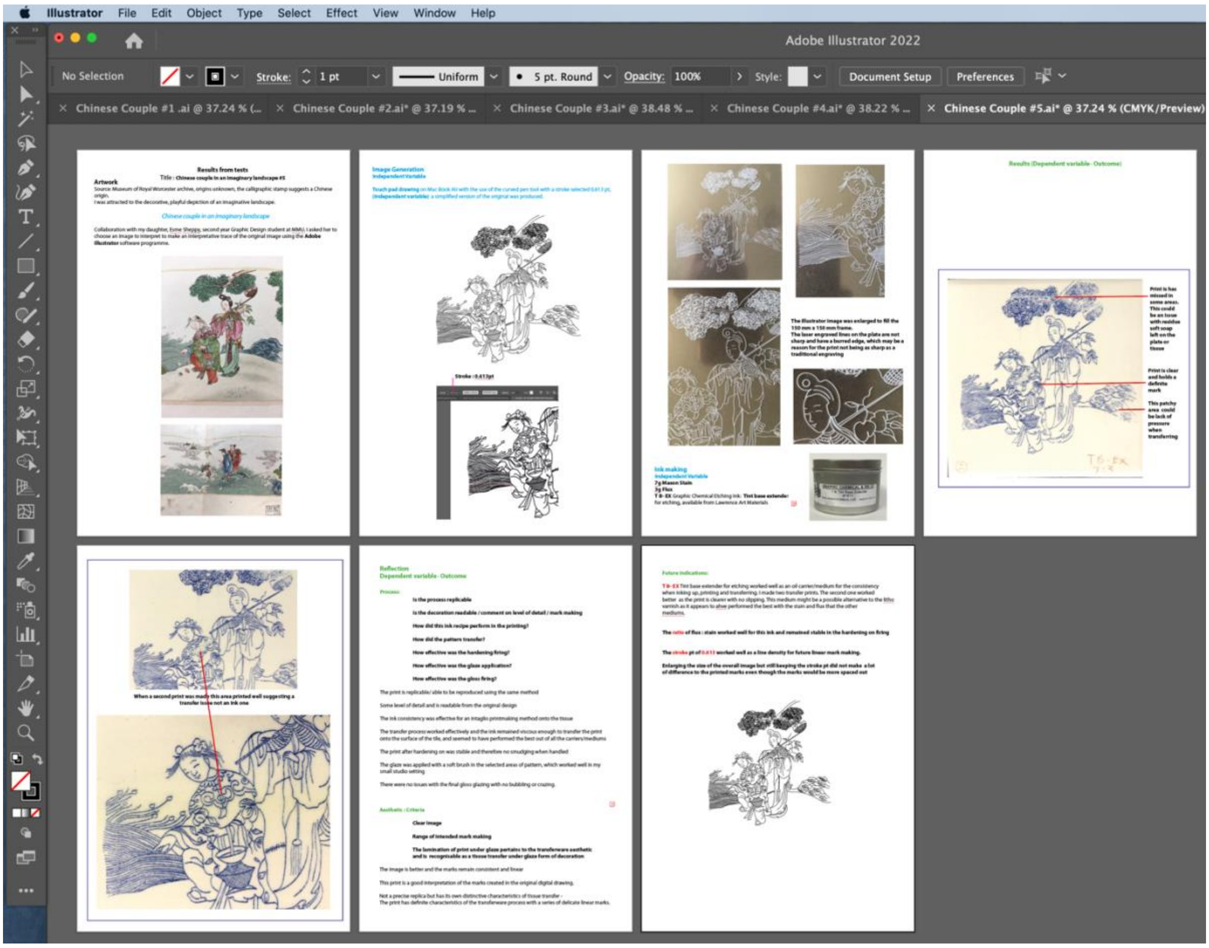


Fig. 135. A screen shot of the working method of testing

For the next and final test, the ink was altered to contain 7g mason stain 6308, delphinium: 3g flux plus with tint based extender for etching made by *Graphic Chemical & Ink Company* supplied by *TN Lawrence & Son Ltd,* a shop in Hove, West Sussex, that sells traditional printmaking supplies.

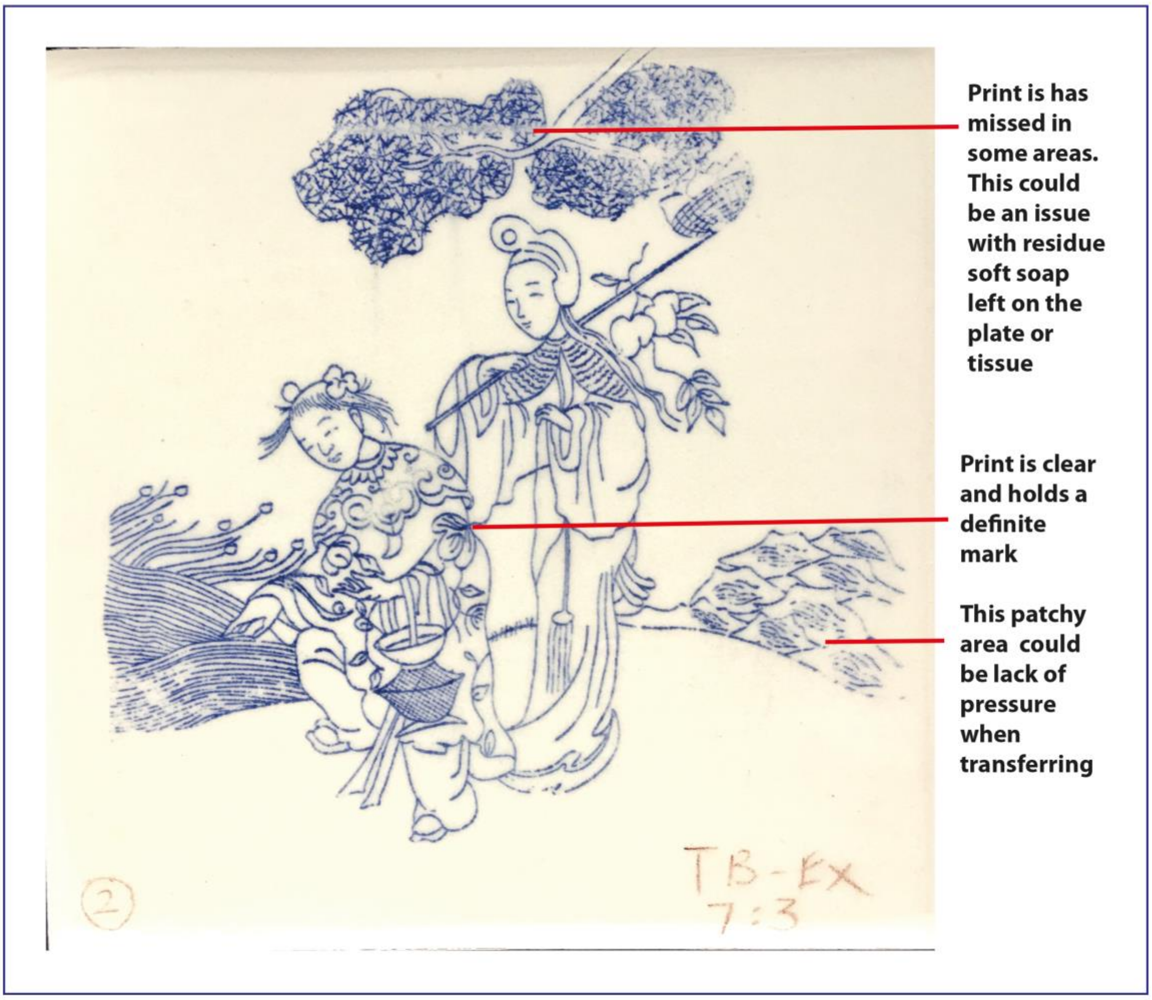


Fig. 136. The outcome of Test Five. The oil carrier was replaced with a tint based extender for etching made by *Graphic Chemical & Ink Company*. The overall effect was better, so another print was produced making improvements to the printing and transferring process

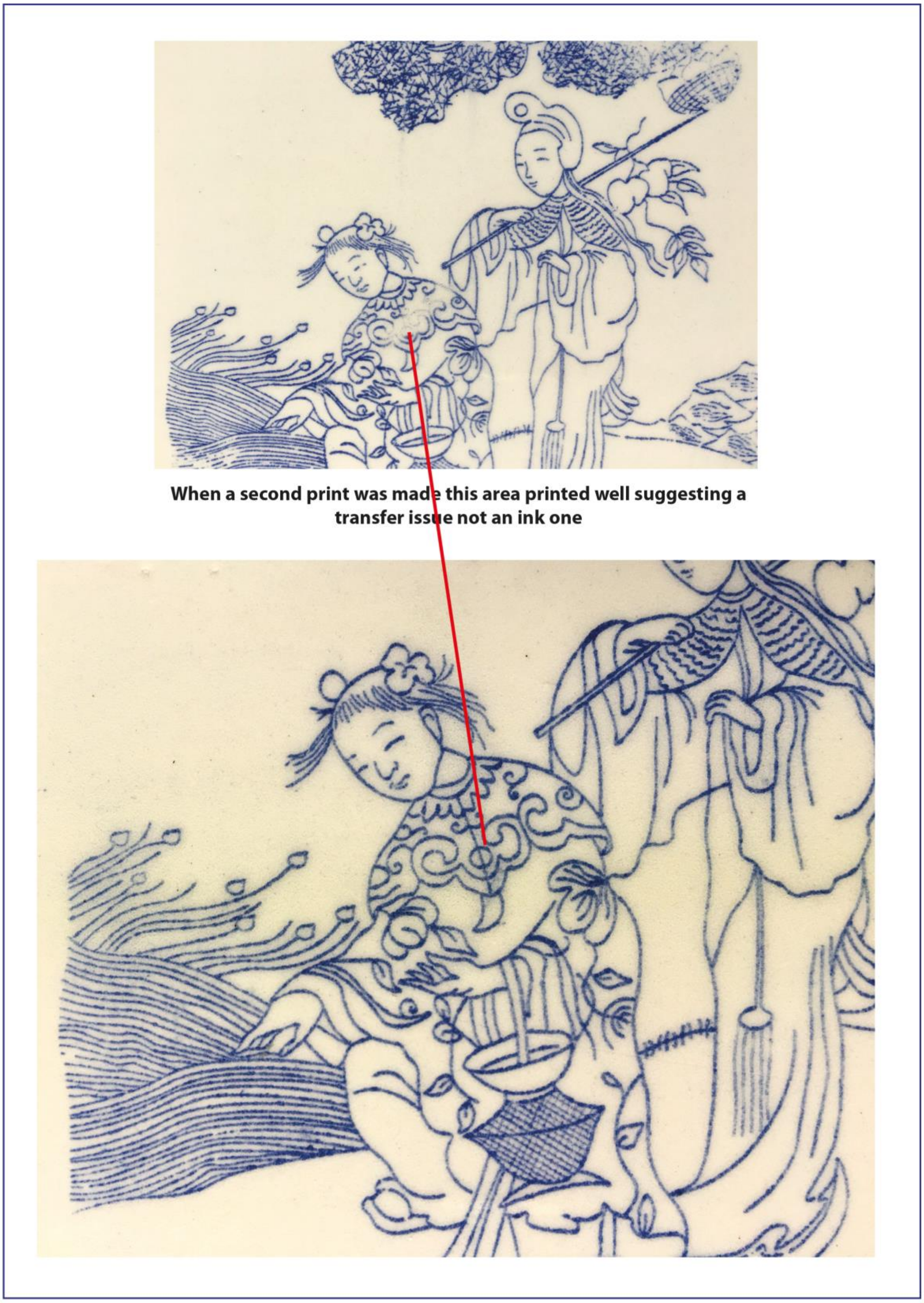


Fig. 137. The outcome of Test Five: inked, printed, transferred, hardened on fired and glaze fired

6.2.7. Conclusion

Test five in this series produced the most effective outcome. This confirmed the benchmark exemplar for future work based on the technical procedure summarised as:

- An illustrator vector drawing with a stoke value of 0.163pt. The design fills a 150mm x 150mm square dimension.
- An ink formulation of 7g mason stain 6308, delphinium: 3g flux: tint based extender for etching.
- An earthenware, biscuit fired tile fired to 1120^{o}C.
- A hardening on firing to 1000^{o}C.
- A glaze firing to 1050^{o}C.

The criteria for an effective tissue transfer printed pattern was defined as:

- This process can be duplicated using the same method.
- The decoration is readable in terms of the level of intended detail and mark making from the original design.
- The underglaze ink formula performed best in the printing.
- The pattern transferred well, and the ink remained viscous enough to transfer the print onto the surface of the tile. The tint based etching medium performed the best out of all the oil carriers trialled.
- The hardening on firing was stable with no distortion when handled.
- The glaze was applied with a soft brush in the selected areas of pattern, which worked well in my small studio setting.
- There were no issues with the final gloss glazing, with no bubbling or crazing.
- The finished printed decoration had the visual indicators of the transferware aesthetic. It had a soft linear effect, and the marks had the distinctive 'halo' effect.
- The final print in this series of tests provided a benchmark for further testing and improvements. This was based on another design aesthetic, keeping the underglaze ink formula from this test.

The following chapter is divided into two parts. The first part defines the wider context of traditional craft and industry, with the loss of skills and the vulnerability of intangible cultural heritage. I relate the ideas of leading seminal writers to my study with reference to historical and contemporary sources, justifying the research as timely, with the preservation of lost knowledge before it becomes incapable of being retrieved.

In the second part I discussed my previous art practice in relation to this study. In this I contextualised the material responses with a rationale to moving the testing of tissue transfer methods into finished artworks evoking the transferware narrative from the perspective of contemporary printmaking practice.

6.2.8. Other tests in the appendix

This production method was progressed with additional tests based on an engraving of a geranium on paper, contributed to study by Paul Holdway. These tests are in appendix six, part two (reference A.6.2.1. to A.6.2.4.) and demonstrate testing of the process with punch dot and linear mark making.

Additional printed designs are evidenced in appendix six, part two (reference A.6.2.5.) to demonstrate this method further.

Another series of tests are in appendix six, (reference A.6.2.6.) using flexography with a photo polymer engraving plate with an ink formulation derived from the study illustrated in Petrie's (2011) *Ceramic Transfer Printing.* The use of flexography to interpret the engraving process was not continued as it required full access to the print facility at UWE's Bower Ashton site, which was closed during the pandemic. This setback was mitigated by changing the printing matrix to laser engraving technology for all these and subsequent tests. This was an available means of fabrication for the engraving process as it could be outsourced to *Laser Lab* in Bristol.

Chapter Seven, Part One

Craft, industry, and the loss of skills

7.1. Introduction

Here I introduce tissue transferware to a wider context, relating it to industrial craft and the current demise of the ceramics industry. I name and discuss seminal writers on craft and industry and demonstrate how my study fits in with some of the topics they discuss. Dr Neil Brownsword is also included as a leading artist and academic who has had the biggest influence on this study from a theoretical and creative perspective. Brownsword's perspective on the loss of skills and intangible cultural heritage places importance on the anonymous labour vital to the collective production of the ceramic product. He builds on the expertise from ex-pottery workers in his performative artworks and brings prominence to tacit knowledge relegated to being seen as redundant skills with the dereliction of the UK's ceramics industry. This part ends on a low note, citing government legislation which has led to the demise of craft and art teaching in our UK education system in favour of science, technology, engineering, and mathematics (STEM) subjects. However, this negative trajectory helps to build a case for the revitalisation of this near-obsolete industrial craft for contemporary printmaking practice.

7.1.1. The difficulty of accessing industrial craft knowledge

Industrial craft knowledge was required through all the stages of tissue transfer production, with a trilogy of craftspeople equally involved. These were: the original artist or designer, the engraver and, finally, the printing and ceramic team of individuals. No one person performed all the tasks required to make the final printed ceramic. In Chapter Six I demonstrated a technically working method performed by myself, through the lens of contemporary printmaking, which placed engraving at its centre. The problem with accessing practical knowledge on tissue transfer methods is the lack of detailed recorded information on the process, as much of what exists is generalised and relates to its industrial and historical past.

The historical information provides some insights into the general information, but I conclude that these accounts were written from an outsider's viewpoint, not by the individuals working with the process every day. These individuals hold tacit knowledge which does not exist in a written form and is therefore impossible to locate, other than through the people themselves.

7.1.2. Historical and contemporary observations on manufacturing systems

The trilogy named above worked within a division of labour system, therefore no individual had knowledge of the whole operation. In his book *The Illustrated Guide to Worcester Porcelain 1771-1793*, Sandon (1969) outlines the tissue transfer process from the viewpoint of the curator of the Museum of Royal Worcester, with a general description of the entire process, from decoration to final gloss firing, summarised in less than two pages (Sandon, 1969: 26-27). This provides a simple description but not enough detail to effectively replicate the process with any technical understanding.

7.1.3. Charles Babbage: the machine is the future for manufacturing

The Craft Reader is an anthology of texts collated and edited by Glenn Adamson (2010), who is a leading writer on craft history and theory, previously Director of the Museum of Arts and Design, Head of Research at the Victoria and Albert Museum, and Curator at the Chipstone Foundation in Milwaukee. Adamson includes an essay by Charles Babbage, referring to him as the *villain* who regarded the *machine* as the future for effective manufacturing, to replace the people required to perform manual tasks. Charles Babbage (1791-1871) was a mathematician and engineer who is said to have invented the first computer with his *'differential engine'*, which he described as a machine for the manufacture of numbers (Adamson, 2010: 48).

Babbage (1932) advocated the benefits of tools and machinery being operated by few individuals rather than a group, enabling one person to complete the job of many. He published *On the Economy of Machinery and Manufactures*, which advocated *the division of labour* as a valuable means by which to achieve efficient manufacturing. He believed in the principle that one individual should be trained on a single process rather than the whole activity, which would benefit production through increasing *excellence and rapidity* (Babbage, 1832: 10, 19).

We know today that repetitive strain injuries are a cause for concern, but Babbage believed working on one task would provide physical benefits to both body and mind, allowing for a repetitive task to become well performed and productive. The idea of an individual's loss of identity through working on monotonous tasks to produce piecework is echoed in today's zero hours working contracts and the gig economy, that is, how workers' rights can be compromised in a capitalist society. Pieceworkers are factory workers who are paid for each item or piece produced, with speed and dexterity being essential skills if a living wage is to be earned.

7.1.4. Craftsmanship in the pursuit of quality, advocated by Richard Sennett

Richard Sennett is celebrated for his writing on craftsmanship and sociology and both a Professor of Sociology at the London School of Economics and a practising musician. He advocates an approach to improving quality in craftsmanship based on democracy and collaboration. In his lecture at The Museum of Applied Arts, Vienna in 2016, he presented some updated thinking on his 2008 book, *The Craftsman*. He began by refuting the statement from his 2008 book that the digital era was not good for craft. He now believes that the digital could potentially be a new form of craftsmanship in relation to coding and the open source model, for producing high-quality outcomes (Sennett, 2016).

My research entailed using a practical method to invigorate a lost process, achieved through developing a series of skills that Sennett calls *tacit* and *rhythmic*. Sennett describes the rhythm of skill and how the individual uses processes learned through repetition, performing a method over and over until it becomes tacit knowledge akin to intuition. He refers to himself playing the cello, how he feels different styles of vibrato through tension in his arms and hands, knowing this through many hours performing the same task over and over (Sennett, 2016).

From my art practice I know how this feels; the nuances of handling materials to achieve results require a physical and bodily connection. At first processes feel clumsy and arduous, however, through continuous practice the tasks begin to feel accomplished and intuitive.

Interpreting an old process to find a new one that communicates a process worth saving requires an approach Sennett calls *problem finding and solving*. He believes that *mastery* should not be the end result and would be paralysing to craftsmanship, asserting that questioning and re-evaluating should be part of the process without acceptance of a finished product. Here Sennett is advocating a methodological approach to problem solving, as a method to achieve quality craftsmanship. Sennett further emphasises the importance of working at a slow pace, which allows reflection and re-consideration as part of the process, during which enhancements can be made. The insistence on a slow pace to achieve craftsmanship is one which I adhere to, believing that the design journey in any discipline should be long. Thus, my investigation required time and patience for the knowledge to be understood and acquired. A quick fix method would, as Sennett suggests, have produced mediocre and simplistic outcomes (Sennett, 2016).

Sennett summed up his lecture from a sociological perspective with a discussion of art and craft, stating simply that craftsmanship is more important to society than art. The idea of the singular artist who steps out of tradition by breaking conventions is a bourgeois notion and a form of separation from society. He suggested that craftsmanship today should be a collective activity that is of benefit to groups of individuals (Sennett, 2016).

I agree with Sennett within the premise of this investigation that craftsmanship should be an open collective activity, however, when it is applied to industry the knowledge appears to be separate and closed. Industry secrecy was one of the reasons why the tissue transfer process was kept within the collective and not outside; thus, useful information remained concealed. My doctoral investigation entailed finding a means to interpret the tissue transfer process for artists and designers, then sharing the method in this thesis for anyone to read and make use of. These practical outcomes demonstrate the value of my work and holds with Sennett's recommendation to be open and collaborative.

7.1.5. The vulnerability of lost skills and industrial knowledge: Dr Neil Brownsword

I met Neil Brownsword at the beginning of my PhD studies, when he was selected for *The Woman's Hour Craft Prize* and, with a performative piece, *Factory*, featured in this exhibition at the Victoria and Albert Museum (V&A). During an informal conversation I gained an introduction to some of his themes, which provided background context to my research interests and facilitated my preliminary investigations. Subsequently he introduced me to Paul Holdway, master engraver at Spode, who made a major contribution to this study.

This section is a discussion of a lecture I attended at Keele University in November 2019, titled *Obsolescence and Renewal*. The resonant themes provide a contemporary viewpoint on the current demise of the British ceramic industry, on intangible cultural heritage, and how he has responded through practice with public dissemination of ideas. My background as a practitioner is in fine art and printmaking, so this lecture gave me a significant insight into the field of ceramic industrial knowledge from the critical perspective of Brownsword, an ex-pottery professional, academic, collaborator and artist.

Neil Brownsword's research and practice are imbued with the importance of ex-pottery workers from Stoke-on-Trent, whose stories have been overlooked and discarded as part of global competition and the end of the pottery industry. His interest in this does not derive from nostalgia or a *fetish for ruin porn,* he wants to communicate from a personal perspective. His family are from Staffordshire, worked in the potteries, and his first job was as an apprentice model maker at Wedgwood. These formative years informed his understanding of the intricate human dexterity of pottery manufacture, in all its stages of production. He cites this throughout his creative practice.

In the lecture Brownsword discussed trans-generational knowledge and its displacement in modern machine-led production, where uniformity and standardisation are expected, eliminating any recognisable human touch. He is interested in the physical imprints of pottery manufacturing ephemera such as kiln props and sagas, which contain and evoke a connection with repetitive skills. These material metaphors emphasise the need to visually catalogue relics from the past, subverting their original function within the pottery industry. His curated works on display at the Victoria and Albert Museum explore the aesthetic of the incidental and discarded. Brownsword claimed that in 1800 Stoke-on-Trent was on a par with China in its production of ceramics. The industry produced waste broken fragments of ceramic known as shards. He uses these salvaged remains, not just as bleak reminders of the past, but also as a metaphor for lost craft processes which are a result of the closed industry.

Fig.138. *Elegy*, Neil Brownsword, glazed ceramic, 2009, photographed by Lisa Sheppy, The Victoria and Albert Museum, London, 2017

Fig.139. *Elegy*, Neil Brownsword, glazed ceramic, 2009, photographed by Lisa Sheppy, The Victoria and Albert Museum, London, 2017

Fig.140. *Elegy*, Neil Brownsword, glazed ceramic, 2009, photographed by Lisa Sheppy, The Victoria and Albert Museum, London, 2017

Fig.141. *Elegy*, Neil Brownsword, glazed ceramic, 2009, photographed by Lisa Sheppy, The Victoria and Albert Museum, London, 2017

As part of his PhD studies, he returned to Wedgwood in 2003, at a time when automation and new technology were being introduced to replace some of the manual processes. Each process was filmed, and the residues collected and collated, bringing importance to what was being left behind because of the process, rather than the final result. His *Salvage* series chronicles this process using assemblages of documented examples of skilled processes against demolition sites of ceramic manufacture, emphasising both material and immaterial loss (Brownsword, 2019).

More recently Brownsword has collaborated with ex-pottery professionals in the performative piece *Factory*. In this he encapsulates the specialist knowledge of several skilled participants, who play out their haptic and material knowledge to an audience to emphasise the value and relevance of embodied practices which are now marginalised and discarded. Rita Floyd, one of the participants, was a ceramic flower maker for Adderley and Coalport Potteries and a demonstrator at the Gladstone Pottery Museum in Stoke-on-Trent. She sits immersed in the skilful dexterity of making a single flower which is subsequently abandoned into a pile of waste clay, based on Brownsword's simple instruction for Floyd to discard whatever she makes.

Fig.142. *Factory* – Neil Brownsword with Rita Floyd, performative installation. Photographed by Lisa Sheppy, The Victoria and Albert Museum, London, 2017

Fig.143. International Ceramic Biennale 2017, Korea Invitational Exhibition of Neil Brownsword's *Factory.* Copyright © 2017 Korea Ceramic Foundation

Fig.144. International Ceramic Biennale 2017, Korea Invitational Exhibition of Neil Brownsword's *Factory*. Copyright © 2017 Korea Ceramic Foundation

Brownsword's art practice relates to intangible cultural heritage and the importance of protecting and valuing this in the UK. This value system is supported worldwide by UNESCO, the United Nations Educational Scientific and Cultural Organisation, which supports the need to safeguard traditional craftsmanship skills – not just artefacts in museums, but also the practices that created them and the distribution of these skills to others.

He suggests that safeguarding this intangible cultural inheritance does not necessarily mean relegating these practices to the confines of past traditions, but reconsidering how they can be continuously evolved, recreated, and transmitted to new modes of thinking (Brownsword, 2019).

Brownsword's discussion of his ideologies based on the value of lost skills and his assertion of responsibility to re-invigorate and evolve fits with my own thinking, as my study aimed to take a lost process, re-think, and re-work it, so that it may become valued again by twenty-first century artists.

7.1.6. Ezra Shales: recontextualisation of everyday crafts

In his book *The Shape of Craft*, Ezra Shales (2017) expresses a contemporary position on craft, the factory and mechanisation. Shales is Professor of History of Design and Craft at Massachusetts College of Art and Design and a leading writer on craft, craftsmanship and the everyday object. Shales interprets ethnographic perspectives and forms his provocative ideas about craft and mass production through this engagement with factory workers. I am encouraged by Shales' interest in recording the voices of individuals within the collective in his research. My investigation also used the voices of current and past pottery workers to record knowledge and understanding of a process not written down or practised outside the factory.

Shales (2017) advocates respecting anonymous labour in Chapter Two of his book, *Today's Craftspeople in an Expanded Field*, and uses the term '*sublimation of an artistic voice'* to describe craft exercised without ego, within a practice or skill in daily work. He references the floor sander and roofer who take every care in their work to do a good job, without it being an expression of individuality. Shales suggests the anonymity of the work carried out by these individuals is a reason why craftsmanship is underestimated and therefore undervalued by those outside the factory. Shales has great respect for these individuals and considers it unnecessary to know any background information about the craftsperson (as you would with an artist in a gallery), as it is their relationship with tools and their handling which holds the greatest appreciation and pleasure for him. He believes the only way to fully appreciate *'the physicality of craft'* is to experience it through observation of the maker and their bodily relationship with their tools (Shales, 2017: 71-75).

My investigation had its origins in the industrial past, and my intention throughout was to take this lost process and *re-tool* it to become a contemporary form of expression for artists into the future. Shales uses the term *tooling* to mean a necessary human instinct that is essential for the craftsperson to make a product, whether it is fabricating a refined piece of machinery, working with a chisel or hand manipulating a raw material. The tools I devised formed the methods for this investigation. Shales presented a positive trajectory on the necessity for obsolescence to bring about re-invention, which was a good starting point for thinking about my project; how obsolescence is not final, but essential to achieve revitalisation.

7.1.7. Loss of specialist craft skills in the British education system

In the Introduction to this thesis, I claimed that no contemporary artists are fully exploiting the potential of printing on ceramic using tissue transfer methods. The reduction of specialist academic ceramics courses could be an influence on this finding. Dr Matthew Partington discusses this issue in his NCECA Journal article*, 'Can British ceramics education survive?'*, making the point that there were seventeen specialist ceramics courses in 1980 but only four by 2010. Partington is an academic and researcher at the University of the West of England, with a specialist interest in design history, ceramics, and oral history research. He states that student numbers for specialist ceramic courses are in decline and many universities are faced with the closure of departments; thus, they are moving towards general applied arts courses, such as contemporary crafts. These courses allow students to move between disciplines until they decide on a particular area of specialism. Moreover, to gain entry to higher education, a foundation course in art and design is no longer a pre-requisite, so the opportunity for the material exploration of ceramics has been lost (Partington, 2010).

The process I refer to in this thesis is industrial craft worked on by trained and skilled individuals, over many years. These skilled individuals become endangered once they leave a training or educational environment, so it would be impossible for students wishing to learn from these specialists; thus, the knowledge remains locked in the past. The possibility to revive this process becomes a lost opportunity.

To bring this worrying trajectory up to date with current news, in *The Guardian* of 21 July 2021, education correspondent Sally Weale reported that the government is cutting 50% of arts subjects at universities across Britain. Weale claimed that funding for high-cost courses is being directed away from the arts into STEM subjects, medicine, and healthcare. Reduced funding and courses closing will further impact on the availability of specialist art and design courses, causing what Jo Grady, the General Secretary of the University and College Union (UCU) says is an 'act of vandalism' (Weale, 2021).

7.1.8. Conclusion

In this section I have defined traditional craft, industry, and the loss of their skills through the lens of seminal writers on the subject who have shaped my understanding through the wider contexts of industrial craft knowledge and education.

Considering this, it is essential to preserve the lost knowledge of industrial tissue transfer printing and its interpretation for artists. The method of production presented in this thesis has the potential to make the jump from lost industrial craft knowledge to contemporary printmaking practice.

In Part Two of this chapter, I continue my contextual review, directing the discussion onto my art practice. This further informed my study and clarified my thinking about where my doctoral investigation fits into my perspective as a printmaker as well as the wider context of contemporary art.

Chapter Seven, Part Two

Materialising PhD research from tests to artworks from a printmaker's perspective

Fig. 145. This illustration highlights the key themes and influences interlinking my practice as an artist based on my PhD study and previous work, from a printmaker's perspective. These themes will be discussed in this second part of chapter seven to provide the context for my PhD study and an explanation of what has informed me to make a series of creative responses

7.2. Introduction

The second part of Chapter Seven provides context to my art practice; it describes previous works, establishing the motivation for making it, whilst unravelling the progression of ideas. I built on the conceptual framework from previous art practice and demonstrated how this followed through, materialising the research into finished artworks for my PhD study.

My visual literacy was based on distinct influences and background experiences, citing the contemporary artists Stephen Dixon and Elizabeth Turrell as sharing common strategies and methods of making. They work with a palette of materials associated with history and industrial craft, with fine art printmaking at the centre. I have already discussed Dr Neil Brownsword in the previous part of this chapter, and his influence became more evident in the art practice demonstrated through my references to shards and archaeology imbuing the transferware narrative.

In section 7.2.6 I reveal the finished artworks which imbue the transferware narrative whilst creating a new and contemporary version of it. This demonstrates how my material research moved from simply applying techniques in Chapter Six to resolved artworks generated from a printmaker's perspective.

7.2.1. The evocative tangible object: responding to the museum, archives, and history

I investigated the archives at the Museum of Royal Worcester (see Chapter Five) to decipher the production methods of industrially decorated ceramics and provide starting points for creative responses. The relationship between artist and researcher was simultaneous, as I searched for clues in the tangible objects connected to an intensely human activity of making.

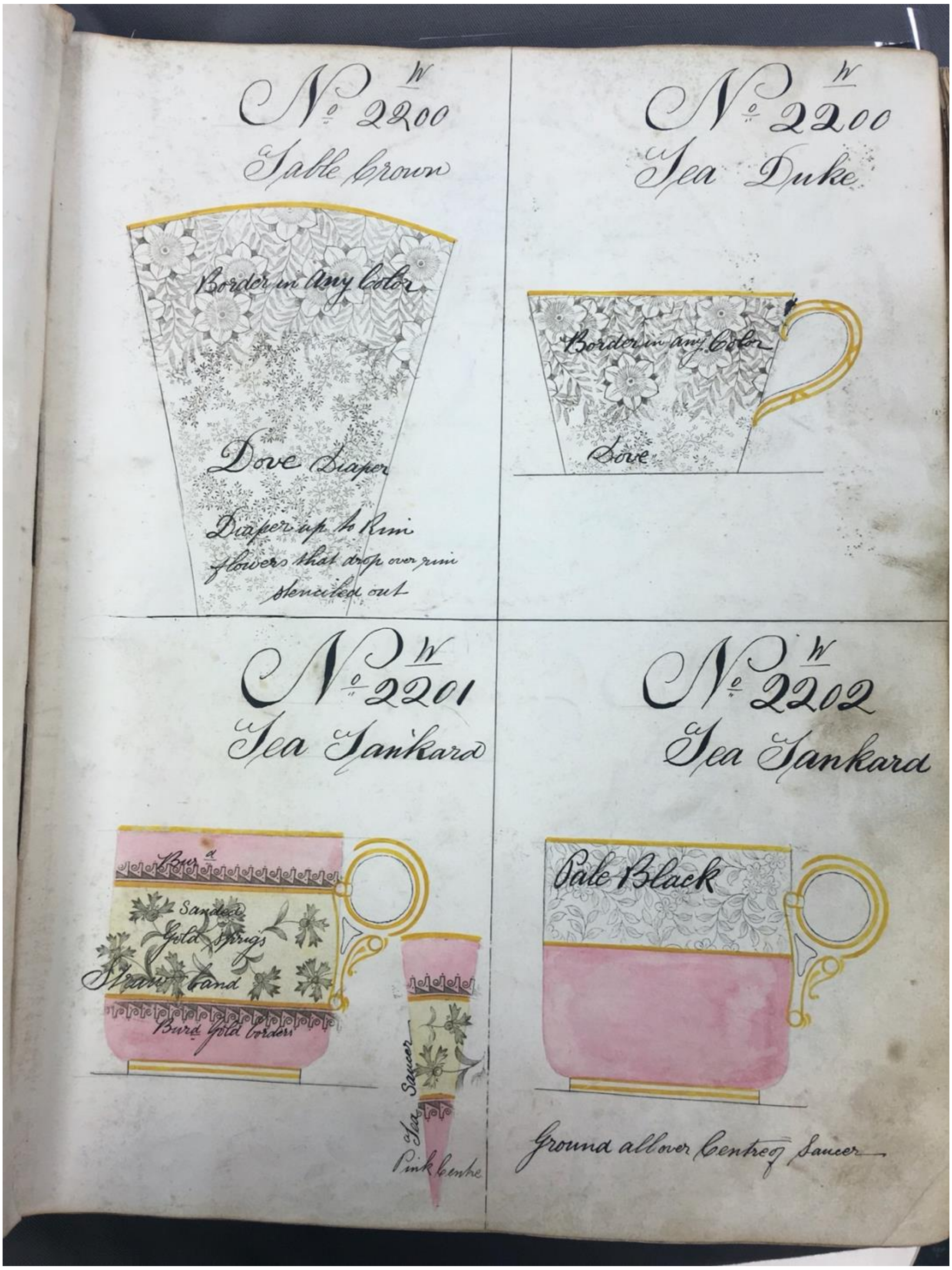


Fig. 146. One page of four designs from Pattern Book 14, 1886-1887.
Photographed by Lisa Sheppy at the Museum of Royal Worcester, 2019

I was scrutinising the process of making embedded in the pages of the pattern books. I observed the laborious acts of recording the patterns to make a taxonomy of imagery as a commodity for the ceramics industry. The books are worn and fragile though years of handling, with the DNA of ex-pottery workers inhabiting the pages.

Fig.147. Dudley Service 1865. Available from:
https://www.museumofroyalworcester.org/discover-learn/collections/dudley-service-2/
(Accessed 20 January 2023)

Outside the archive, in the museum's glass cases, I also observed how the finished decorated bone china pieces, detached from their methods of production, appeared intensely unhuman.

Much of my practice as an artist has its origins in the tangible object, through which I formulate subjective meaning and personal interpretation. I date this process back to 2008 when I was studying for my MA at UWE, when, in the final project, I worked in the archive at The Brontë Parsonage in Haworth in Yorkshire, examining garments that once belonging to Charlotte Brontë. The archive was precious, protected, and alarmed. Under these conditions I spent a week behind the scenes making drawings of objects under the scrutiny of the museum security cameras and curators. No photography was allowed in that instance, so all responses were generated through drawing and note taking with a pencil. Given the limited choice of objects to examine, I selected Charlotte Brontë's shoes and lace gloves, as I imagined her walking on the moors behind the museum (which was previously the Brontë family's residence) wearing her shoes and gloves, then returning to write *Jane Eyre*. The act of drawing from observation objects containing the DNA of previous inhabitants with haptic interaction introduced me personally to the Brontë narrative, and the lives that these women experienced through their clothing, the tangible object. I related this to my own family background, significantly my mother who had a professional career as a couturier in the fashion industry. Garment construction was an ever-present activity in my childhood, and the empty dresses hanging up in mother's work room has had a personal significance with the absence and presence expressed in clothing.

The pattern books in the museum and the clothing belonging to Charlotte Brontë had long lost their function, however their resonance was still powerful as they became evocative, tangible objects. Sherry Turkle writes about the evocative object in her book *Evocative Objects: Things We Think With* (2011). Turkle is Professor of the Social Studies of Science and Technology at Massachusetts Institute of Technology (MIT), and the founding director of the MIT Initiative on Technology and Self. In the introduction of her book, she discusses the power of commonplace objects as being inseparable from emotional connections and autobiography. The quote*: 'We think with the objects we love; we love the objects we think with'* (2011) is the premise of the book, which is a collection of essays using evocative objects as starting points. Each essay is autobiographical and links a writer with an object's power to connect to them in a personal way.

The tangible objects I studied through observation and touch in the context of these archives provided a personal connection through which I was able to respond as an artist. From being anonymous things in a museum they became transformed into my evocative objects, from which I was able to bring personal connections and meaning.

7.2.2. Glass and print: my perspective as a printmaker

As an artist my relationship with printmaking has been a gradual one. Originally trained as a painter, I became frustrated with the singular medium and its limitations. My continuous interest in printmaking and its transformative properties were initiated on my MA in Multidisciplinary Printmaking and beyond, as I was attracted to ceramics and glass as ways of carrying and encasing the printed image to explore the material connections between the substrate and the printed image.

Fig.148. Charlotte’s Dress, detail (2011)

The archival study I describe earlier relating to the Brontë material formed the basis of a series work that continued for several years with the resulting art pieces exhibited throughout the UK. The work was recognised at the British Glass Biennale (student prize for *Charlotte’s Dress*, winner, 2010), The London Glassblowing Gallery (2011), Leeds College of Art (*Wildness between Lines,* 2013), and The Brontë Parsonage Museum (2011) in a one-person exhibition.

Fig.149. Exhibition poster for the *Wildness Between Lines* exhibition at Leeds College of Art, 2013

Fig.150. *Charlotte’s Dress* (2010), The Brontë Parsonage Museum, 2011

I also contributed to the PhD research conducted by Dr Nick Cass, Associate Professor at the University of Leeds, with a conference paper delivered at his *Revisioning the Brontës* (2013) conference. Glass and print materially evoked the Victorian glass vitrines as shrines to fetishise and make immortal.

At that time my printmaking methodology incorporated collaged imagery from disparate sources, scanned and digitally altered to export as positive stencils to screen print with enamels. The enamel transfers were incorporated within the glass substrate, a method of screen-printing and glass fusing I began on my MA at UWE. My interest in material research began at UWE, as glass and print were an undeveloped area of practice there at that time. I was driven to explore new material practices as I connected the kiln firing schedules for enamel transfers to glass firing, enabling me to laminate collaged printed imagery within glass panels.

Fig.151. *The Empty Dress*, details from the MA Multidisciplinary Printmaking show, UWE, Bristol 2009

This echoed the physical museum and the glass vitrine housing enshrined evocative objects, imbuing a jewellike and melancholic presence. The printed image with metal foil inclusions unified the glass vignettes and allowed for fluidity and a freedom of expression, which I continued to cultivate until I began my PhD in 2017.

7.2.3. The influence of other artists

Reflecting on influences from other artists, I name both Stephen Dixon and Elizabeth Turrell as being important. Their impact on my practice has been instrumental, informing me of approaches to materials, form, and content; responding to the past whilst working in the present. Both artists use methods of production associated with craft and industry but employ innovation as a means of interpretation and creative expression.

7.2.3.a. Stephen Dixon

Stephen Dixon is the Professor of Contemporary Crafts at Manchester School of Art, Manchester Metropolitan University (MMU), whose ceramic narrative works I first viewed at his retrospective exhibition, *The Sleep of Reason* in 2005 at Brighton Museum and Art Gallery. In September 2018 I arranged to meet him after being introduced through another academic from MMU. We discussed my research project, and he described his ceramic transfer screen-printing methodology and how it differed from the UWE methods but had the same objective: to produce a user-friendly method for screen printing transfers. (UWE's method is described in more detail in 8.5.2.). During our conversation he encouraged me to approach engravers from the ceramics industry as a means of understanding the historic tissue transfer methods of production. We planned to keep in touch so that I could share my findings relating to ceramics and printmaking, and I hope to do this in the future.

Dixon's ceramic works viewed in the Brighton exhibition in 2005 depicted a new form of expression to me, combining painterly surfaces with printmaking and hand-built ceramic forms to explore political and historical narratives. In 2006 I started my MA course, and, from the outset, I was determined to work in clay and print, inspired partly by Dixon's exhibition but also because I wanted to engage with material exploration to advance my visual literacy and create meaningful artwork.

In a talk I attended online as part of the *Northern Ceramic Society* lecture series, *Maiolica and Migration,* Dixon (2022) spoke of his early influences from contemporary art contexts. He cited ***Robert Rauschenberg (1925-1988)*** as a significant influence, associated with the Pop Art movement in 1960s' America. Rauschenberg used an ***assemblage*** methodology, incorporating printmaking, collage, and painting with three-dimensional relief objects. Dixon also referenced ***Eduardo Paolozzi (1924- 2005)*** – his tutor at the Royal College of Art who made composite images with disparate graphic imagery, combining machine parts with popular culture. In the 1960s both artists were challenging the conventions of the art object by combining hybrid methods of making, with printmaking at its core.

In his conversation with Jane Webb for the exhibition catalogue *The Sleep of Reason* (Mitchell, 2005), Dixon describes his art practice with reference to Paolozzi, utilising a construction kit and alphabet to produce an on-going bank of images which he incorporated as repeated motifs and symbols through his work. Printmaking facilitated this method of multiple production. His pieces from the early 2000s were hand-built vessels and plates which referenced trophies and plaques, using painterly mark making with the ceramic substrate as a canvas. The ceramic surfaces appear both considered and intuitive, multi layered with coloured slips, direct drawing, and ceramic transfers. He cites an influence from his fine art training when he would disrupt a white surface with texture and colour to make it appear less daunting.

In the series of plates, *From 21 Countries* (2003) Dixon works with playful satirical imagery, alluding to historical and political references relating to the war in Iraq. In the published conversation he states that he has reservations about the term 'decoration', as it has connotations to 'pretty flowers', however, he justifies the term by explaining that flower imagery and colour choices (gold and red) are a nod to ceramic history and form part of his visual alphabet (Mitchell, 2005).

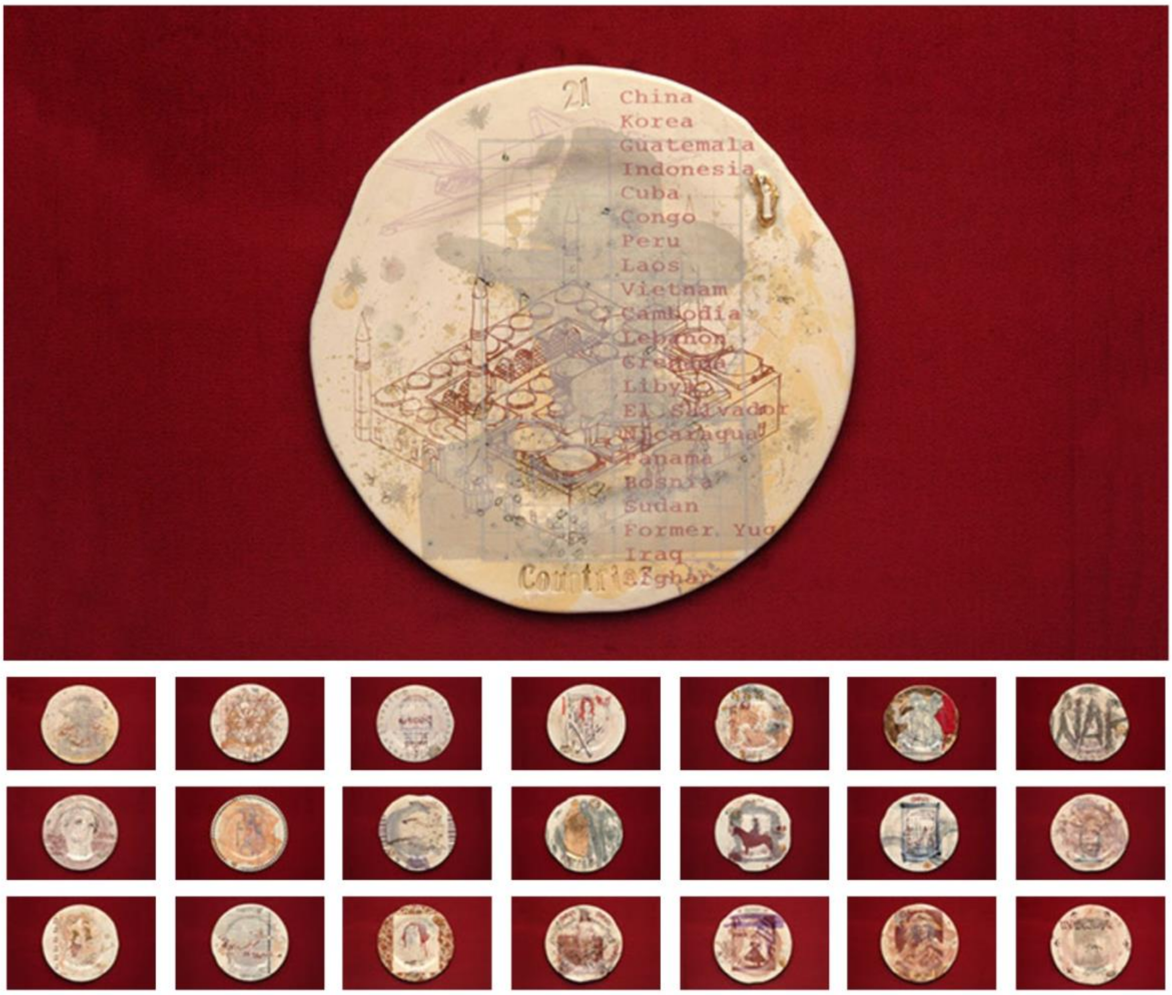


Fig.152. Dixon, S. (2004) 21 countries. Ceramic. Available from:

https://www.stephendixon.studio/21-countries.html

[Accessed 20 January 2023]

7.2.3.b. Elizabeth Turrell

Elizabeth Turrell is an artist, researcher, former senior research fellow at the Centre for Print Research, and a worldwide leading figure in the advancement of ***vitreous enamelling*** for contemporary practice. Her contribution to my development as an artist has been significant, beginning with my early interests exploring how materials and processes can be modified to combine historic and contemporary techniques. In the year after I graduated from my MA, Turrell selected my work for several exhibitions at the Studio Fusion Gallery in London and encouraged my practice with glass and enamel printmaking.

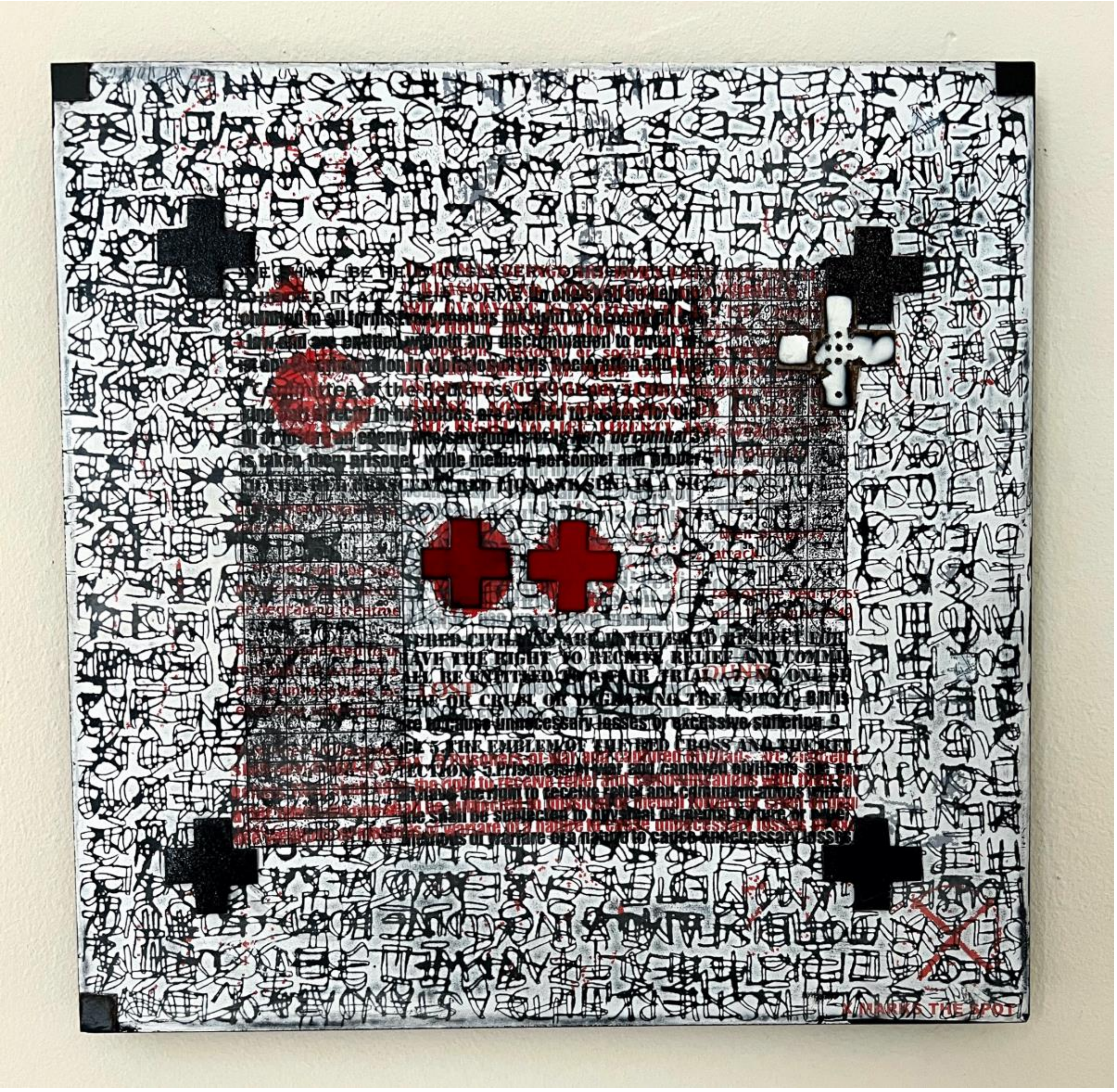


Fig.153. Turrell, E. (2022) Writing on the wall: ECHR 3. Vitreous enamel on steel. Photographed by Lisa Sheppy 2023. Researchers own

In *The Enamel Experience, International Badge Exhibition* catalogue Turrell reveals her interests as an artist, based on her autobiography and her fascination with enamel badges being ever-present in her childhood. Her mother and grandmother wore badges as acts of remembrance and belonging, with connections to World War II (2007: 59). Her mark making combines potent symbols associated with conflict and human suffering, with the use of the red cross, the tally, grids, maps and sewing threads being interwoven with dates and numbers. Her limited colour palette of black, red, white, and gold are a personal and universal choice as representations of conflict and war, memorial, and regalia.

At UWE the waterslide methods of ceramic transfer printing are embedded into the teaching, and this was championed by Turrell at the CFPR. During one of her MA workshops, we were encouraged to draw with enamel, in which we scratched-into (***sgraffito***) sifted enamel powder and scraped back the fired surface with textured stones to build several layers of colour in between the ***enamel firings***. This created subtle textures interwoven with enamel waterslide transfers. Her inclusion in Petrie's (2011) *Ceramic Transfer Printing* describes her methodology and, like Dixon, she uses a bank of images to build layers of marks to create a painterly surface. Turrell's approach allows for an intuitive fluidity which gives way to the transformative elements of surprise in the resulting works revealed from the kiln. This working method not only allows for an instinctive approach but also enables multiples, whereby a series of images may be worked on simultaneously.

It is difficult to pigeonhole direct influences on my study from other artists, however, when reflecting on the practices of both Dixon and Turrell I was able to recognise relatable connections and influences. I was not consciously aware of their impact when directly involved in the making part of my work, but this has become evident after the event and upon reflection.

7.2.4.a. Tissue transferware: my perspective as a printmaker

This investigation sought to present a method of printmaking on ceramics from my perspective, the printmaker. I placed myself at the centre due to the restraints imposed during the pandemic, which meant that I was unable to involve external participants. A masterclass had been scheduled involving printmakers and academics from AKI, Academy of Art & Design in The Netherlands, and the University of Central Lancashire. The cancelled event would have introduced the project participants to test my findings and bring their own interpretations to the research. An exhibition of outcomes was also planned to further disseminate the artistic potential of the process. When I was responding as the artist in this study it was a challenging time, as we were required to work from home during the Covid-19 pandemic and I was confronted with the task of responding creatively with limited resources at home in my studio (see Chapters Six and Eight).

7.2.4.b. From copper plate engraving to drawing with digital tools

My intention was to make tissue transfer printed ceramic works that straddled the manual and digital, using digital mark making to interpret traditional engraving printmaking. I sought to interpret hand rendered copper plate engraving with digital laser engraving technology, presenting a previously closed printmaking method with a contemporary and accessible version (see Chapters Six and Eight). In addition to this I also endeavoured to devise a method to print tissue transfer with an accumulative pattern on an entire compound surface.

It became clear from my historical deductions that the copper plate engraving printmaking process was central to achieving refinement for the tissue transfer printed object (see Chapter Four). The professional engraver I worked with had been trained in a pottery through a five-year apprenticeship, following a master engraver with the repetitive and laborious tasks of making faultless symmetrical lines and punch dots with chisel-like tools into a copper plate. When considered ready the time-served apprentice began making patterns and designs on the copper plates designed for tissue transferware (Chapter Eight's discussion with John Raftery details this process).

The engraving method I established in my research was not designed to emulate the exquisite skills of the engraver, but to provide an alternative for all artists working with printmaking. As discussed, tissue transfer printmaking in an industrial setting was not a one-person operation; a trilogy of craftspeople were involved equally – the original artist or designer, the engraver and, finally, the printing and ceramic team of individuals. This team included the ink-maker, the printer, the transferors, and ceramic industry professionals.

The method I devised was not intended to preserve the past through a sense of nostalgia but to find an alternative for a future way of making. The ceramics industry as a legacy evokes the past and its intangible cultural heritage, but my motivation was to generate new possibilities and protect the process from obsolescence for future printmakers.

7.2.5.a. Visual language: collage – a painterly composite printed image

I was the individual artist in this study, compiling the components of tissue transferware production and customising it from the perspective of the printmaker. Thus, I made the trilogy of craftspeople into a one-person operation. My choice of visual language and its connections to creative decisions demonstrated how the material research moved from a series of tests into resolved artworks.

This operation began with the image making, as I took on the role of the artist responding creatively to the research. My background in fine art was relevant here, as I applied my drawing skills, responding to the source material and themes that emerged from the research. My intention was to make a taxonomy of imagery using twenty-first century digital drawing tools, to reference the nineteenth century human activity of design generation, based on my scrutiny of the pattern books in Worcester's archive.

The most straightforward and immediate way to record an image was by drawing. However, I needed to find a digital equivalent to be able to translate drawings into engravings. Through using digital vector drawing methods, I could make multiples of the same image and export them as laser-engraved printing plates (See Chapter Six and Chapter Eight, Part One). Like Dixon and Turrell, I focused on producing a bank of images, printed for tissue transfer, to use in a series of creative works. As the image production became more advanced and considered, I employed collage to merge composite imagery on 3D compound shapes (see Chapter Eight, Part Two).

Collage as a form of visual language underpinned my practice as a printmaker in the final artworks, where I manipulated and constructed a composite image on a 3D compound shape. Assembling and arranging a selection of images as a collage allowed for a fluid and creative way of making; beginning with no real plan or preconceived design, the imagery emerged and transformed into the final design. The composite part of the process could also be regarded as decoration*,* however like Dixon, I have uncertainties using that term. I regarded the three-dimensional ceramic pieces as the blank canvases on which to build a printed image, just as I would do with a painting.

Fig. 154. As an artist I enjoy the element of surprise when printed imagery is positioned and juxtaposed to create visual dialogues. For the series of artworks, the familiar flower patterns based on Worcester's pattern books were situated alongside the dystopian masked figure, to establish my visual alphabet for this series of work

Fig.155. Complete earthenware tissue transfer printed artwork, illustrating my collage composite method of image generation

Fig.156. The use of text, another formal element within the composition, was positioned with consideration to scale, colour, and tone, whilst visually contributing to the overriding Covid-19 intrusive references. The transferware narrative evoked in the imagery was facilitated by collage methods, creating a printed composite image that is removed from the traditional and instantly identifiable single blue on white pattern

7.2.5.a.i. Decoration, a viewpoint from Bernard Leach

A friend who is a ceramicist and printmaker loaned me the book *A Potter's Book* by Bernard Leach (1940) to read, as she considered it useful to my study. I include this now as I have been re-reading parts of it whilst compiling this chapter and it has provided some further issues to consider relating to attitudes towards transfer printing. Leach (1887-1979) was an important figure in the British craft movement who advocated a strong belief in *the* potter as artist-craftsman. His ideologies connected with rustic craftsmen, initiated from his many trips to Japan where he worked alongside potters, and brought calligraphic slipware decoration back to England where he opened his pottery in St. Ives. He was at odds with the industrialisation and derogatory comments about aspects of ceramic decoration. He believed that materials should be experienced intimately through touch, and that mechanisation and mass production only brings about *bad taste.* He refers to the factories of Wedgwood and Spode as purveyors of this movement, who are only interested in consumer trends and profit (Leach, 1940: 3-12).

In his chapter on *Decoration* Leach writes about brushwork, and completes his rejection of transfer printing, referring to it as an *invasion* of *facsimile engravings* on the surface of the ceramic. He suggests that the division of labour destroyed the unity between freeform painting and decoration as the process was not tackled. He does, however, redeem the process as an act of creation by naming the engraver as the artist who can achieve *dignified effects* with their skills (Leach, 1940: 120-121). Leach's strong opinions on industrial craft reflected a viewpoint at the time of this publication and attitudes towards transfer printing as being artless and dead. Significantly, Leach had attended a traditional art school and specialised in painting and printmaking before becoming a potter. This viewpoint continues today with those who follow the hierarchical beliefs in the Leach tradition, and this might provide further explanation as to why the process was considered artless and not worth pursuing by artists. In this study I am aiming to prove that this process is free from any hierarchical levels of low and high art but is a form of expression for all artists from all disciplines.

Despite Leach's extreme binary viewpoints, his book is reflective and informative and written in a way that demystifies ceramic processes and reports on his direct experiences of them. His writing is engaging but pragmatic and has informed my own way of reporting on a method for artists. The book is filled with recipes, plans, instructions with hand-drawn illustrations, and is an encyclopaedic exploration of traditional ceramic manufacturing with historical contexts for further knowledge. The book is not just a technical manual, Leach's voice echoes throughout it. By citing his study here, I am acknowledging his importance to the history of contemporary ceramics.

The term *to decorate* does not fit with my fine art sensibilities, as it refers to an activity which serves a purpose to embellish something or make it into an ornament. Transferware was an ornamental and decorative industrial craft, and the printed designs were uniform and standardised; each copper plate design pertained to a traditional pattern instantly recognisable as the genre. The designs were not unique and, as I have already discussed, the engraved copper plates were traded between potteries, so therefore were not exclusive to any one manufacturer. In contrast, the printed imagery for my series of work was not pre-ordained, as was the case with transferware, but each piece was unique and constructed anew. My aim was not to decorate the 3D compound shapes and make regimented ornaments, but to bring individuality and meaning from a printmaker's perspective using a new method for artists.

7.2.5.b. Visual language: exchange singular blue on white for colour

I chose to change my colour palette from the single dominant blue colour associated with tissue transferware, to include a range of colours. The decision to use a new colour palette with multi layered printed imagery further transformed the material outcomes, from tests to final artworks. I discovered that the transferred colours could be collaged and layered without lifting the colours underneath during the transferring stage, enabling the printed image to become accumulative and painterly.

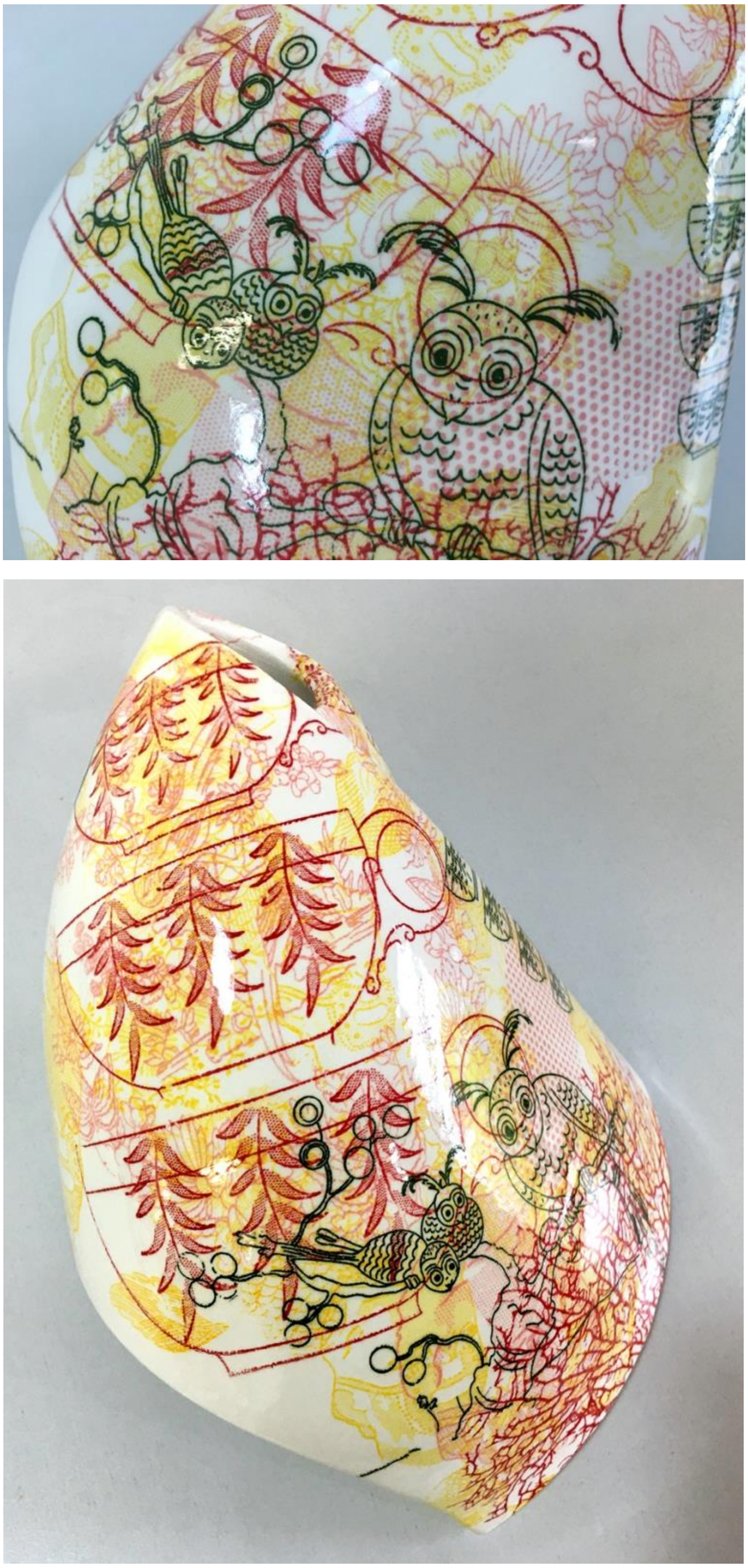


Fig. 157. Two views: the application of layered printed imagery, producing nuances of colour with soft tonal ranges, appealed to my fine art sensibilities, as a printed surface emerged from the white ceramic canvas substrate. This further supported my collage approach to image manipulation and broadened the scope for future transformations.

7.2.5.c. Visual language: compound ceramic shapes as a printing canvas

A challenge in the sequence of creative decisions was how to make three-dimensional shapes with a limited professional knowledge of ceramic construction. The shapes would provide a printing canvas for compound surfaces and demonstrate the distinct character of tissue transferware printmaking. I considered using readymade biscuit ware but, on reflection, decided that this would be neither original nor visually challenging. My aim was to highlight tissue transferware by means of a contemporary and innovative approach, so the use of familiar and traditional domestic ware would not achieve this.

7.2.5.c.i. Worcester's underglaze printed porcelain shards and archaeology

Royal Worcester may not have invented the tissue transfer print process, but early examples on display in their museum indicate that they perfected it as a method for printing fine images under the glaze on porcelain. During my time at Stoke-on-Trent, in conversation with Holdway, he recounted a story about excavated ceramic shards discovered in an archaeological dig led by Henry Sandon on the Warmstry House site in Worcester. He described the excavation in 1968 in which underglaze printed porcelain shards from 1750 were uncovered. Warmstry House was the original site for Worcester Porcelain Works.

Following this conversation, I was keen to discover the truth behind the claim, so wrote to John Sandon, Henry's son, asking if he knew the whereabouts of the shards. Sandon wrote back to me and, as his memory was not clear, directed me to his book (1993) *The Directory of Worcester Porcelain, Volume 1, 1751-1851* and to Henry Sandon's (1969*) Worcester Porcelain, 1751-1793*. In the latter book Sandon details the *hardened-on* shards from 1760-1770 found on the site, which showed the printing and painting of underglaze patterns. He describes them as looking black and unrecognisable from the blue colour achieved in the final gloss firing and suggests that a considerable quantity was found at the site (Sandon, 1969: 27).

The shards, lost and found, hold information as to the origins of the tissue printed ceramics at Worcester and can be linked to the development of the underglaze method and its move to Staffordshire, where the process was fully exploited to mass produce tissue transferware. The fragmented shards are containers for ceramic histories informing us of processes, people, and dates. In both Henry and John Sandon's books they are referred to as *wasters,* which seems a derogatory word to describe these identification fragments which seem pertinent to the transferware narrative. The influence of Brownsword is apparent here, as I wanted to reference the shards as containers of industrial ceramic knowledge that were treated with contempt and used as landfill when Worcester Porcelain Works was moved to another site.

The idea of using ceramic extruded shapes occurred to me when I was listening to a presentation by my supervisor and ceramic design specialist Dr Tavs Jorgensen, from the CFPR at UWE.

I met with Jorgensen and research assistant Sonny Lee Lightfoot to discuss the possibilities of making extruded shapes to use for compound surfaces as a printing canvas. I wanted to reference the millions of shards discovered in archaeological excavations as a response to the Worcester finds, but also the *wasters* that preserve ceramic histories in their material presence.

Fig.158. My initial idea was that the extruded shapes would echo the forms of the ceramic shards and work visually as a taxonomy of outcomes for my inquiry. Photographed by Frank Menger 2021

I discussed my ideas with reference to the manual and mechanical, combining the two fundamental elements of technologies for ceramic extrusion with tissue transfer printing. The dies for extrusion were fabricated using 3D printing technology, and implied connections to the industrial past of toolmaking whilst being innovative and from the twenty-first century. The cross fertilisation of new and historic technologies worked theoretically, thematically, and visually with the project. The technical approach used to fabricate the compound ceramic shapes is documented in Section 8.2.

7.2.6. Conclusion: from tests to artworks

In Chapter Seven I have endeavoured to position my art practice in this PhD study and articulate how I have made the series of artworks, materialising the study from a range of distinct influences and references. I have discussed visual language and described how my personal responses moved the material research from a series of tests (Chapter Six) into completed artworks (Chapters Seven and Eight).

Fig.159. Ceramic construction with machine and manual procedures produced a series of 3D shapes which unified the material research whilst referring to the fragments of history excavated in the archaeological findings from Worcester.

Fig.160. These fragmented forms not only related to historical findings and my archival study, but they also provided a complete 3D printing surface on which to tissue transfer print my taxonomy of designs, imbuing the transferware narrative from my perspective, the printmaker.

Fig.161. The 3D forms unified the collaged composite imagery based on the intensely human activity of producing a taxonomy of designs for ceramic decoration.

Fig.162. The Juxtaposition of patterns interpreted from anonymous labour represent collective works in pattern books which are now relegated to restricted items in the archive at Royal Worcester. The reference to mask wearing was based on the Covid-19 pandemic but also links to a personal archive of my family's evocative objects. At the time of this art practice, I was clearing out my parents' house for sale and the ***Martindale masks*** in boxes, dating from the 1960s, were retrieved from my father's workshop. I was attracted to their historic graphic illustration style whilst picturing an instruction to wear the mask and protect your health. The imagery was dystopian and related to a universal feeling of uncertainty. The image's dialogue with the juxtaposition of decorative imagery and authoritative text relate to the ***zeitgeist*** of the years 2020-21 when we were living through the global health threat of the Covid-19 pandemic

Chapter Eight follows on from this by focussing on the technical methods of production applied to make these artworks, with a walk-through visual demonstration of how the method works. This is documented visually with a commentary on my rationale and decision making relating to the production methods of tissue transfer production for contemporary printmaking practice.

Chapter Eight, Part One

From tests to artworks: tissue transferware methods derived from historic principles taken into contemporary printmaking practice

8.1. Introduction

A method of printing with tissue transfers on ceramics is presented in this chapter with reference to visual language (discussed in Chapter Seven), using a walk-through demonstration of technical judgements. This chapter's main aim is to show how I technically took tissue transferware production beyond a series of tests and into contemporary printmaking practice. The method of production employed aimed to be accessible, open, and inclusive. As well as providing an ongoing discussion of thoughts and actions, the palette of materials and methods used communicate a contemporary approach. This builds on the technical knowledge of the process gained from Chapter Six, introducing modifications and improvements.

This chapter is divided into the five parts listed below which link to the specific sections discussed in Chapter Seven, Part Two, relating to the applied visual language, making the shift from testing a process to making artworks. The parts of this chapter are:

- 8.1. An image bank for collage: my tissue transfer pattern book
- 8.2. Compound ceramic shapes as a printing canvas: connecting the machine and hand
- 8.3. Exchange singular blue on white for colour
- 8.4. Linking the printmaker and ceramicist: a one person operation
- 8.5. Why bother with tissue transfer? An on-glaze transfer method comparison

8.1.1. An image bank for collage: my tissue transfer pattern book

Making images by drawing with digital tools enabled this investigation to progress creatively (refer to 7.2.5.a.). Drawing initiated the creative process using a new palette of tools which facilitated the progression of ideas. At the outset my aim was to equip myself with digital drawing tools so that I could respond creatively and technically to the transferware narrative observed in archival material. Technically, the resulting drawings were an interpretation of the mark making for engraving to export to a laser engraving bureau (Laser Lab in Bristol), which fabricated the engraving plates for printing intaglio. The production of a bank of images created my tissue transfer pattern book, allowing for a fluid intuitive method of collage with printed images. Working traditionally, it would have taken a tissue transfer engraver many years of working with tools and honed skills, whereas this new method accelerated an inclusive approach, thus championing a method of printmaking that was previously closed to non-specialists.

8.1.2.a. My tissue transfer pattern book

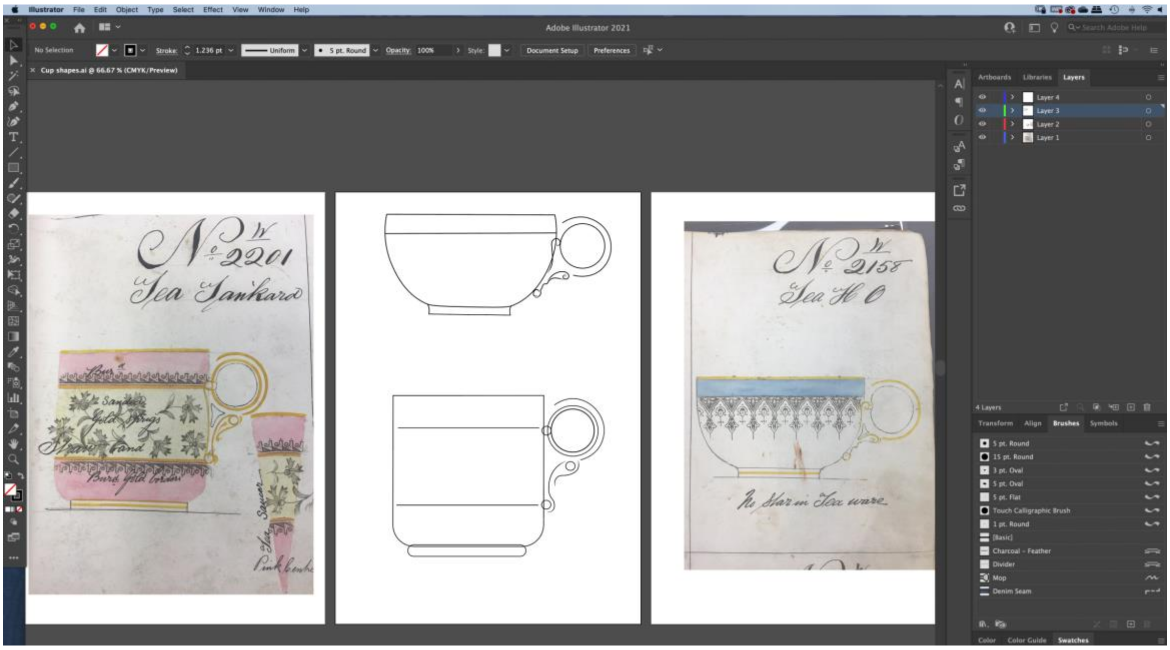
Fig. 163. Pages from Pattern Book 14, 1886-1887

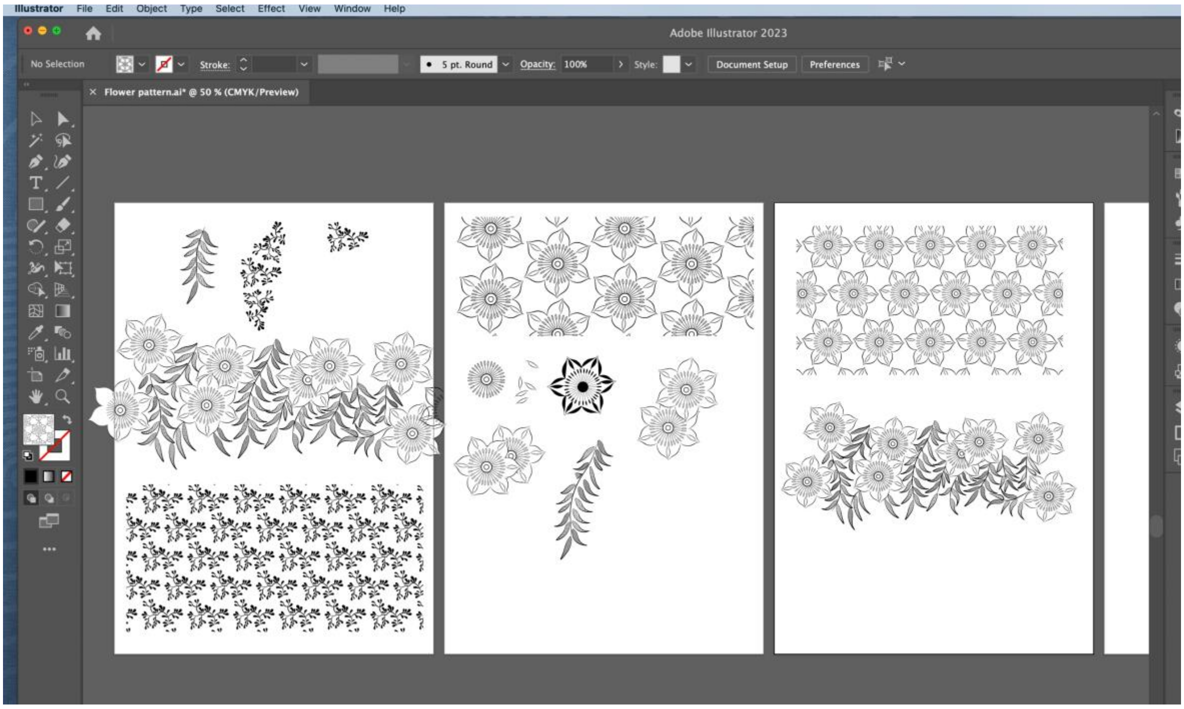
Images in this section from the archive at the Museum of Royal Worcester were photographed by me in 2019 and 2020 and are reproduced by kind permission of the Museum of Royal Worcester, © Dyson Perrins Museum Trust.

I observed the pattern books at Worcester which have engraving patterns printed onto the design sheets directly for illustration purposes. I also discovered from my archival research that transfer printing formed part of the process for ***on-glaze*** decoration, to create fine outlines for painting in the final stages of production.

Working digitally with each of my photographic images taken in the archive, opened in Adobe Illustrator, I increased the scale of the individual hand rendered marks to create a microscopic image. This began a series of responses, looking in forensic detail at the form of the works; the line, shape, and pattern, reconstructing a digital drawing interpretation of the original. In doing this I interacted and connected with the technical and artistic expertise of the original engraving and make my own interpretation. Through drawing with the tools in Illustrator I was able to familiarise myself and become closer to the subject and each separate formal element.

Fig.164. Page from Pattern Book 14, 1886-1887


Adobe Illustrator 2021
Cup shapes.ai @ 66.67 % (CMYK/Preview)
No 2201
Tea Tankard
No 2158
Tea H O


Illustrator File Edit Object Type Select Effect View Window Help
Adobe Illustrator 2023
No Selection
Stroke:
5 pt. Round
Opacity: 100%
Style:
Document Setup
Preferences
Flower pattern.ai* @ 50 % (CMYK/Preview)

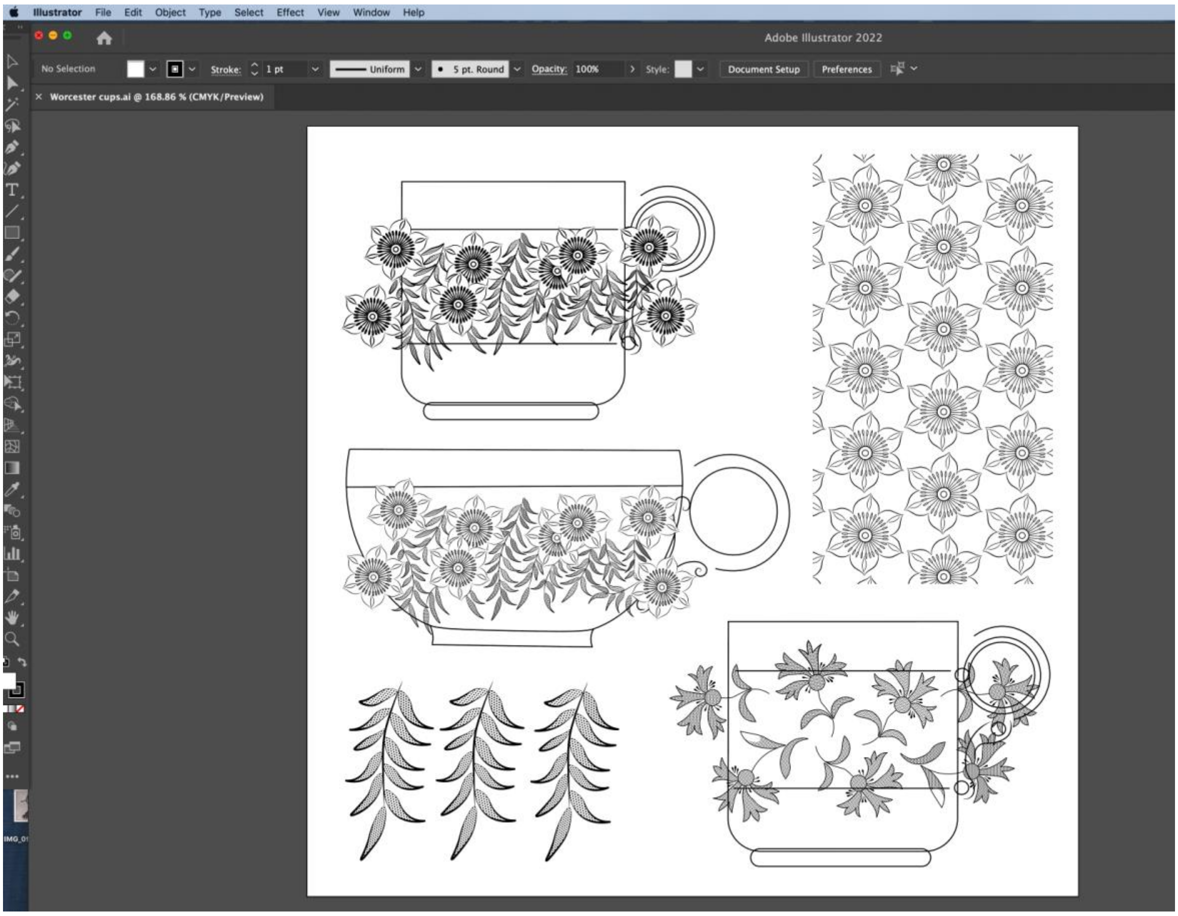


Fig.165. Three views of Illustrator drawings: the development of digital design ideas based on the pattern book from Worcester

Fig.166. A tissue print

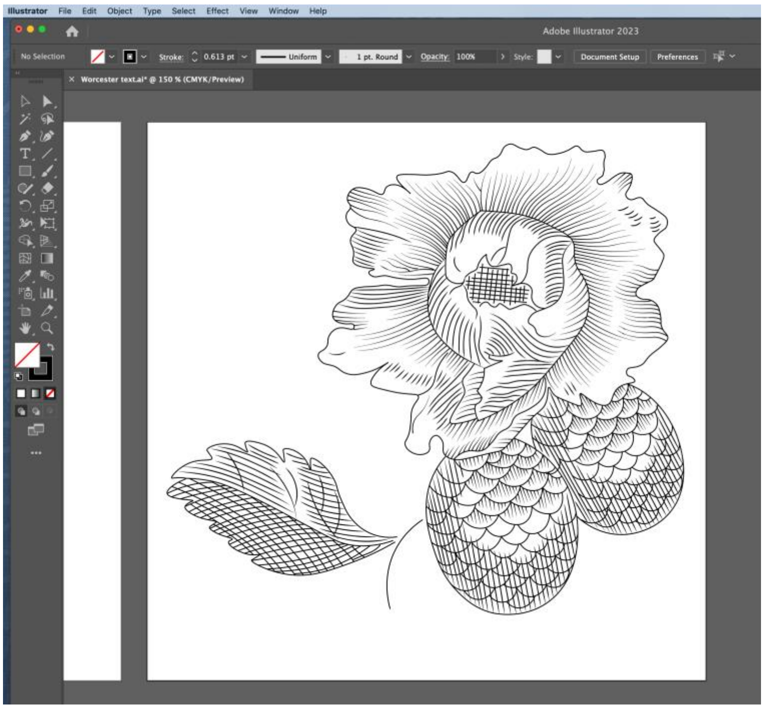


Fig.167. Illustrator drawing: a linear illustration response to a Worcester pattern

Fig.168. *The Ladies Amusement* (Sayer, 1760)

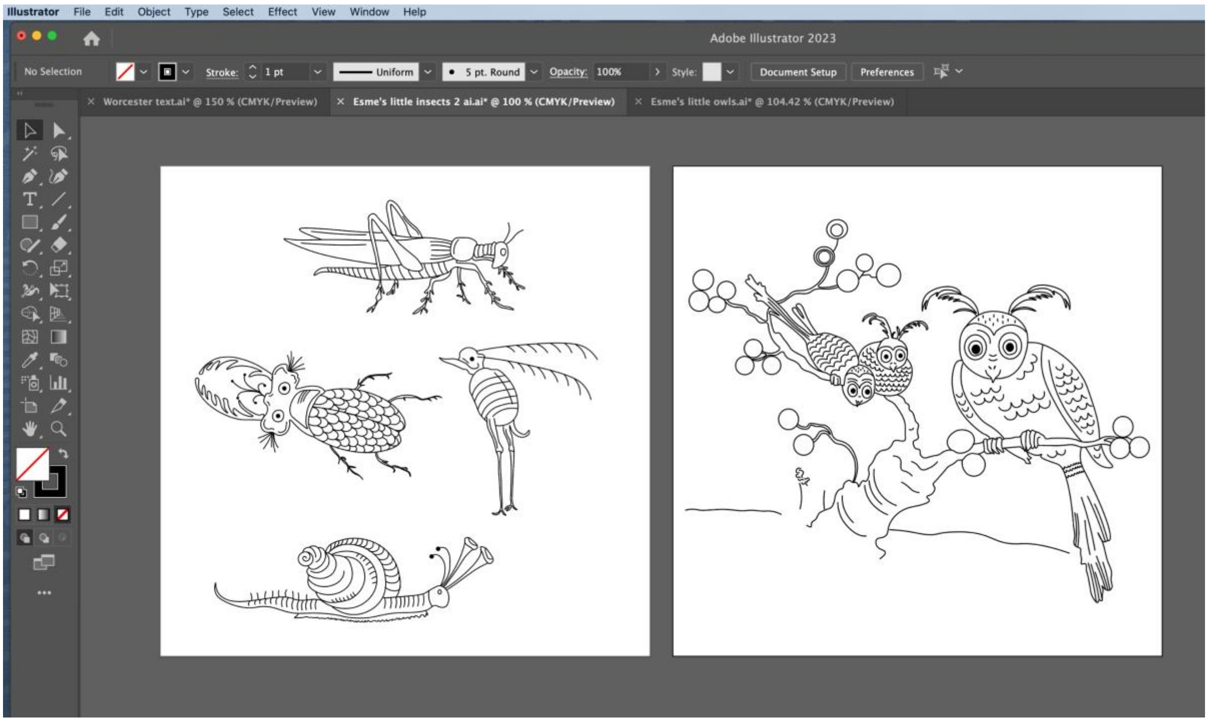


Fig.169. Illustrator drawing: a linear illustration response interpretation of a selection of illustrations from *The Ladies Amusement*, (Sayer, 1760)

8.1.2.b. A digital version of punch dots and stipple engraving

Punch dots marks used for engraving tissue transfer were made with a stipple tool and delineated the characteristics of engraving to represent tone. It was the original method of achieving half tones for engraving. In October 2019 I arranged to meet John Raftery for a semi-structured interview at the Portmeirion factory in Stoke-on-Trent. He was the last engraver to be apprenticed at Spode and he kindly shared his training experiences with me with reference to the punch dot mark making. This conversation was not sound recorded as I wanted our meeting to be a natural conversation. I made notes and photographs throughout, checking the information with John Raftery.

8.1.2.c. Background to punch dots by John Raftery

John Raftery is the product design manager for the Portmeirion Group and his role includes improving the design process, manipulating artwork, and managing a design team.

Portmeirion owns the brand names Spode and Royal Worcester, and some of their patterns are still manufactured using a digital transfer on-glaze process referred to as lithography. Previously to this Raftery was a copperplate engraving apprentice at Spode and followed a three-year apprenticeship from Paul Holdway and other engravers in the team. He moved to the design department in 2005, three years before Spode ceased trading.

Raftery recounted his training at Spode, beginning with a first task lasting five months which was to make a practice plate using a shading technique. The apprentices worked a thirty-nine-hour week and practiced on previously used copperplates which were prepared using *planishing* (refer to Section 4.2.1.) to remove any marks or indents. This process was explained and illustrated in the history chapter at the beginning of this thesis.

Raftery provided details about his training, revealing technical information otherwise undisclosed to the general public, which was of interest to this investigation. I was unaware that the grain on the copper works one way and that apprentices were taught how to identify this when making a test sheet. This was because the lines should be incised in the direction of the grain and not across the grain, like paper. The apprentices worked in natural light with no magnifying glass, making squares measured into half inches to contain lines and dots of consistent gauge, spacing and length. At the end of the line the graver tool was tipped down to cut a neat edge to the mark. The punch dots would be hit only once with the hammer and the apprentices were reprimanded if they were made by more than one hit.

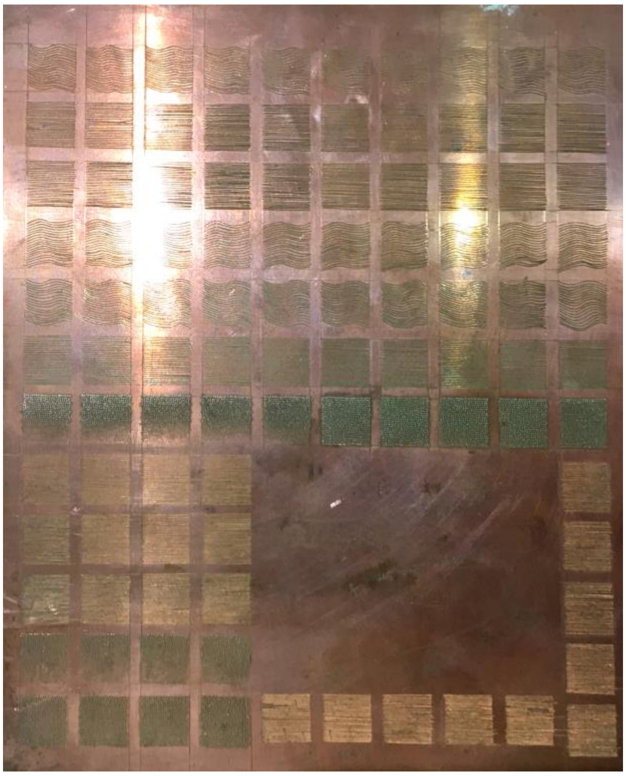


Fig.170. An apprentice test plate for copperplate engraving by John Raftery
(Image reproduced by kind permission of John Raftery),
photographed by Lisa Sheppy, Stoke-on-Trent, 2019

Fig. 171. Detail of the punch dots for copperplate engraving by John Raftery
(Image reproduced by kind permission of John Raftery),
photographed by Lisa Sheppy, Stoke-on-Trent, 2019

The punch dots shown here comprise 1100 dots per half inch square, engraved in a straight line. Raftery explained that early willow patterns contained only linear mark making until after the 1800s, when punch work was used to improve soft tones for flower, grass, and sky patterns. He illustrated this information with the iconic *Blue Italian* design used by Spode.

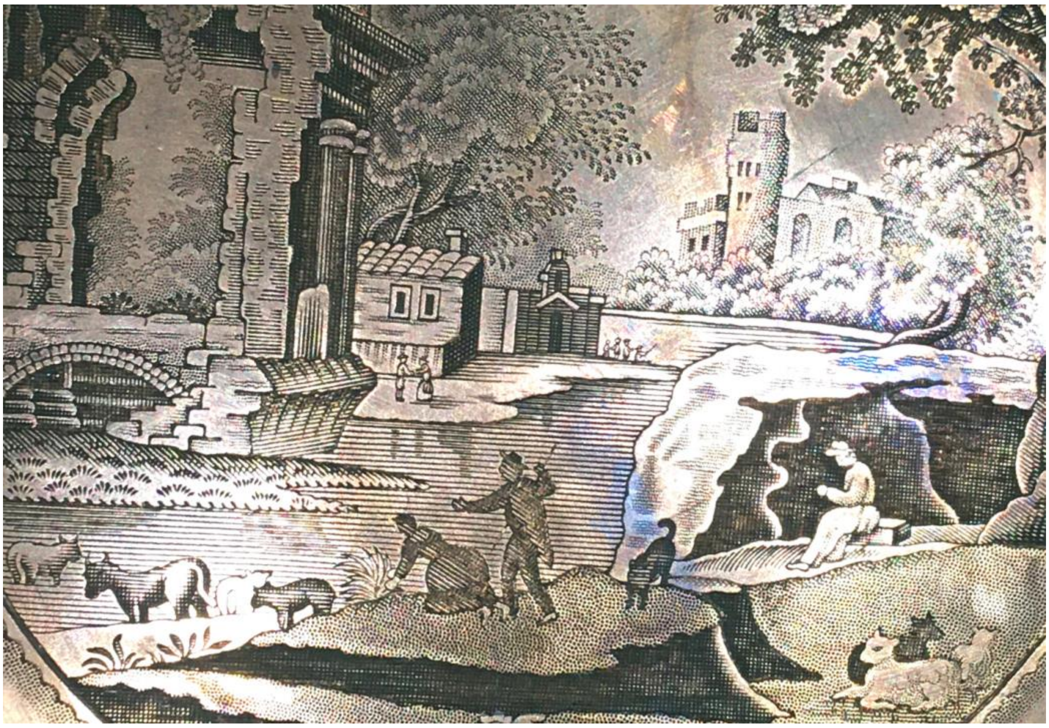


Fig.172. The *Blue Italian* engraving plate produced at Spode. Image reproduced by kind permission of John Raftery, photographed by Lisa Sheppy, Stoke-on-Trent, 2019

Fig.173. The *Blue Italian* design printed onto the finished glazed ceramic. Researcher's own, photographed by Lisa Sheppy, 2021

The engraving plate and corresponding transfer printed ceramic visualises the range of marks employed with the engraver's hand tools for tissue transfer. The stipple engraving punch dots used to achieve a range of tones are evident in the printed ceramic.

8.1.2.d. Creating half tones in Illustrator to represent tone and interpret punch dots

I planned to imitate the subtle tones created with stipple engraving with the use of a vector method in Illustrator. Half tones are used as a reprographic method to replicate continuous tone using varying sizes of dots. The next section describes how I applied a vector graphic to achieve a half tone dot structure in a design for tissue transfer.

8.1.2.e. A definition of half tone dots in pixels and vectors

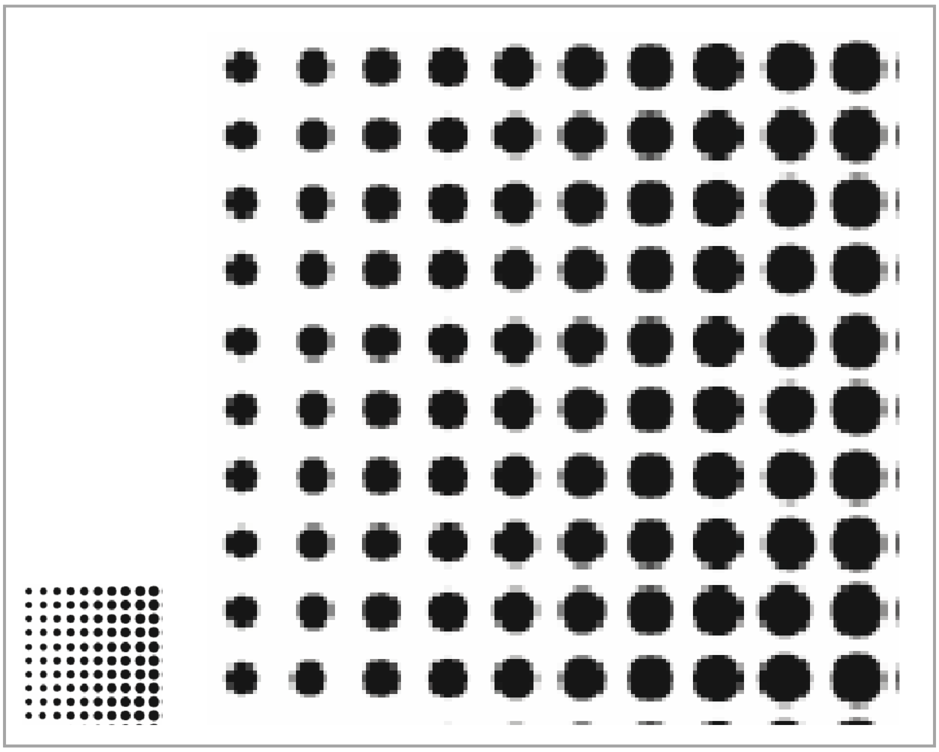


Fig.174. Illustrator drawing of half tone dots made of pixels. The resolution of a photographic image is defined by the number of pixels, and when the image is reduced the resolution is crisp and in focus, however once the image is enlarged the pixels become out of focus. If this image was subsequently laser engraved for tissue transfer the marks would also be broken and undefined and not effective for printing

Fig.175. A focused photographic image as an example

Fig.176. The image becomes pixelated when the scale is increased

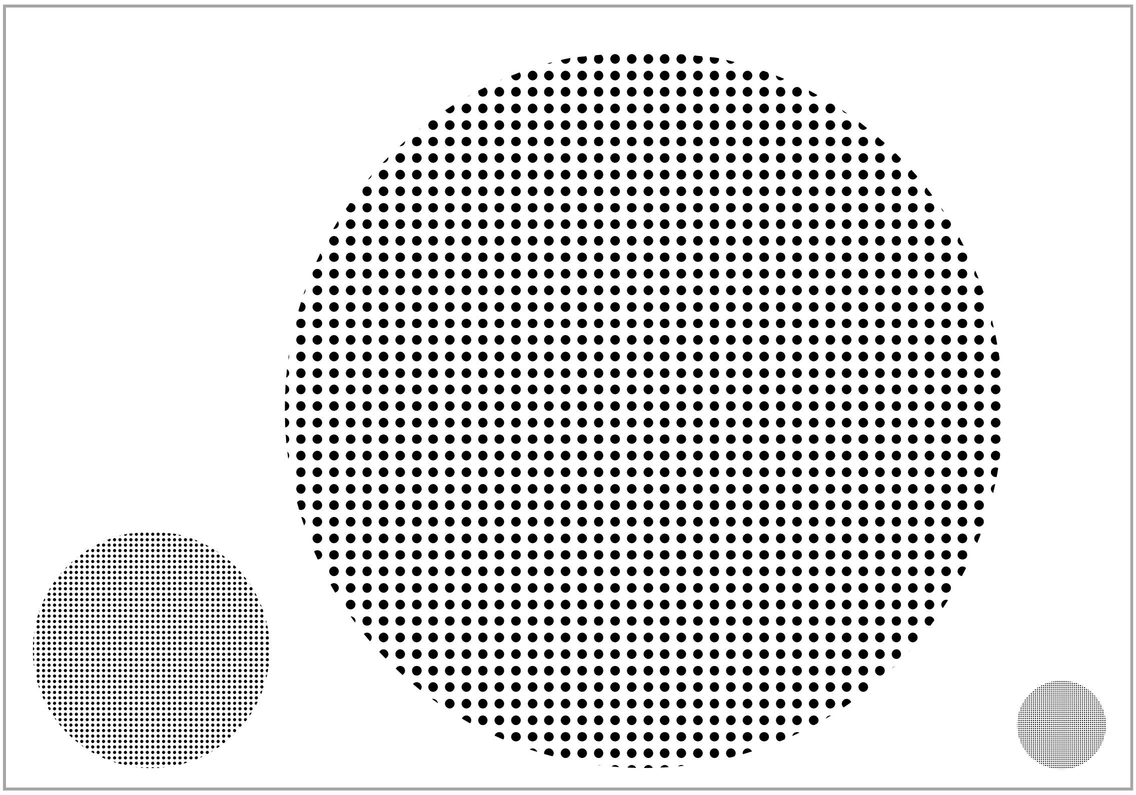


Fig.177. Illustrator drawing: dots as a vector illustration

This image illustrates a dot half tone created using Illustrator with vectors, where the dots remain sharp with a definite edge. Even when the image is scaled up there is no deterioration in the clarity of the mark, and therefore it is a preferred way of working for tissue transfer. When the dots are scaled down the tone is softer and subtler and adversely, when they are scaled up, the tones are cruder and more pronounced, however, they remain crisp and in focus.

Fig.178. Paul Holdway referred to the copperplate engraving marks as being clean and crisp. The vector method of drawing is the digital equivalent of this

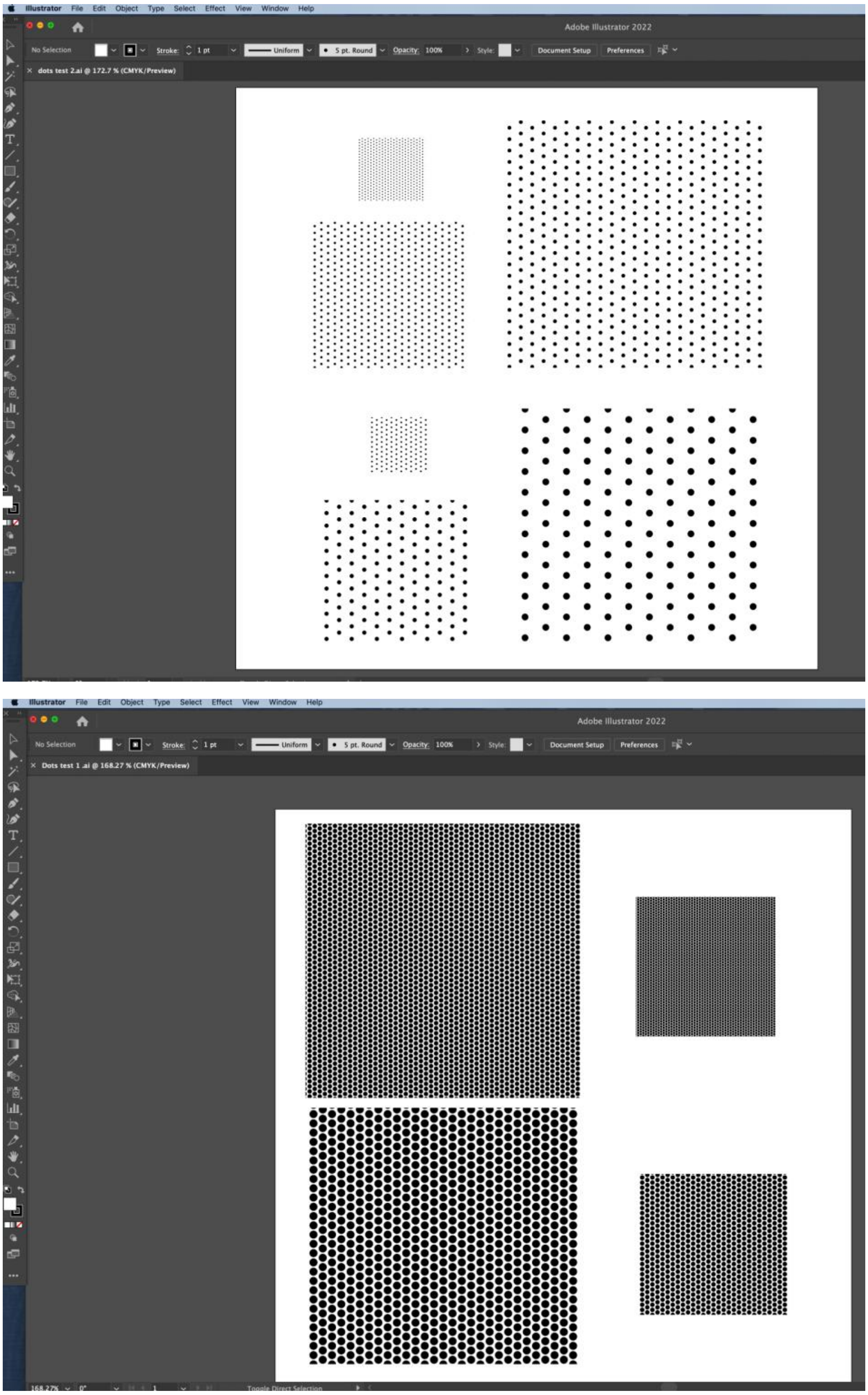


Fig. 179. Two views of dot marks created as vectors with scale and spacing and to represent tonal values

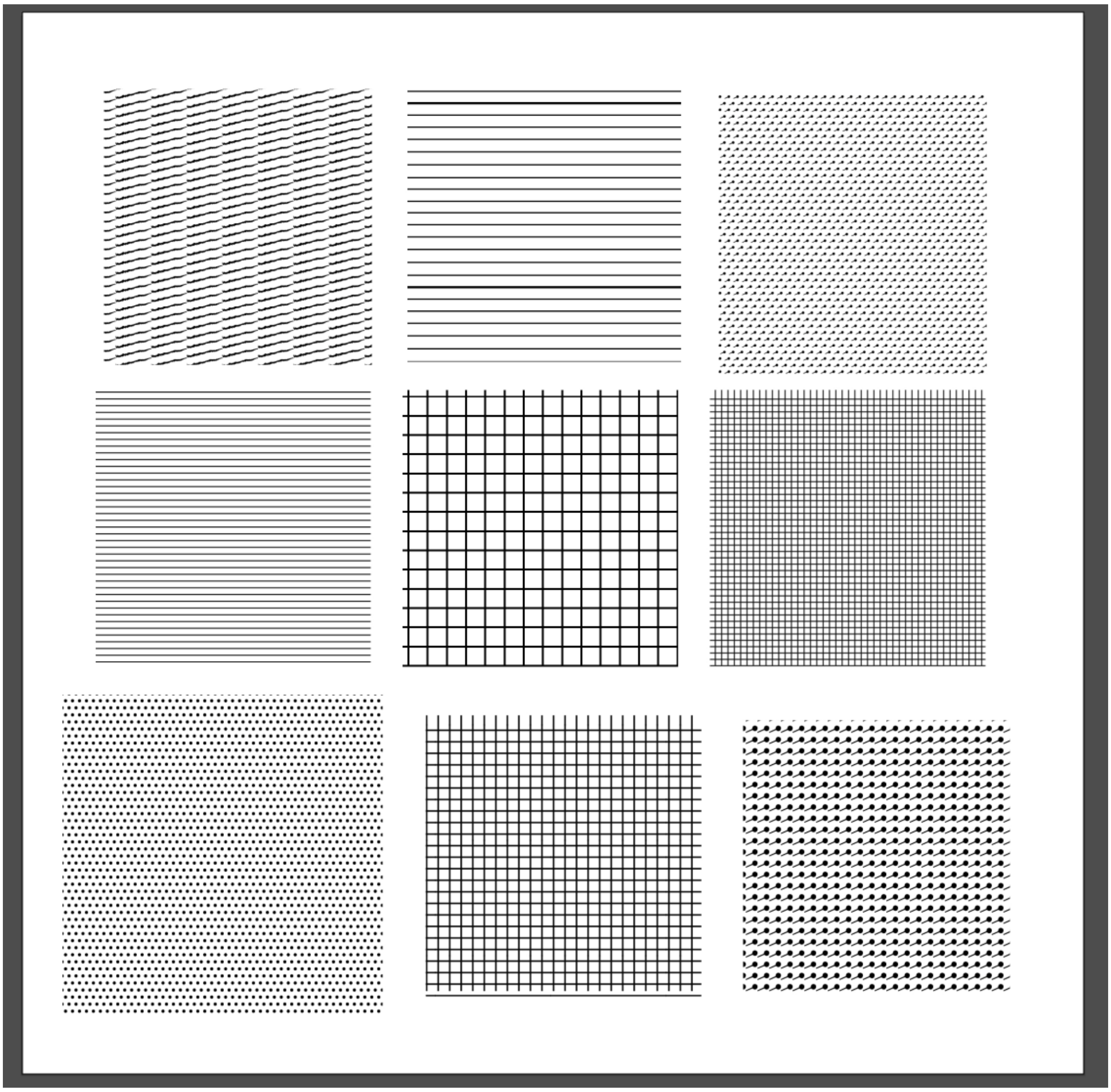


Fig. 180. Illustrator drawing: lines and dots created as vectors also represent tonal values

8.1.2.f. The object-pattern-make tool in Illustrator

As I became more confident in using the application, I began to add more detail to the decorative elements in the design, using pattern fills as well as half tone dots to create more complex designs.

Fig. 181. A visual source, selected as an example of a historic infographic design with a half tone application

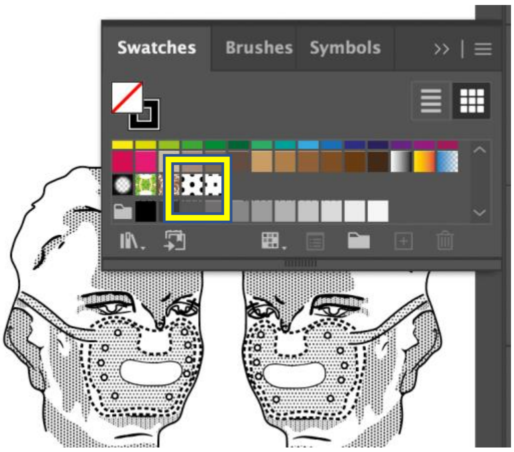


Fig. 182. The swatches folder. The object-pattern-make tool enables individual marks and patterns to be duplicated and filled into any shape, instead of a block colour. The pattern is created and stored in the swatches folder for each pattern created, thus producing a digital folder of patterns for any filled-in shape. In the yellow square the dot pattern is stored as a pattern tool for fills

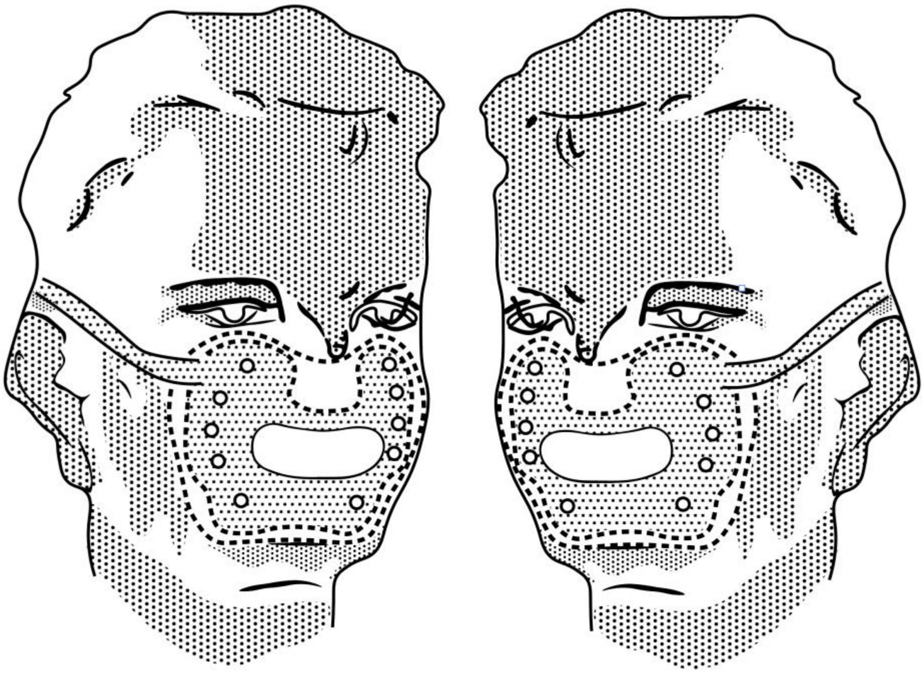


Fig. 183. Illustrator drawing: detail of design created using dot fills to represent half tones

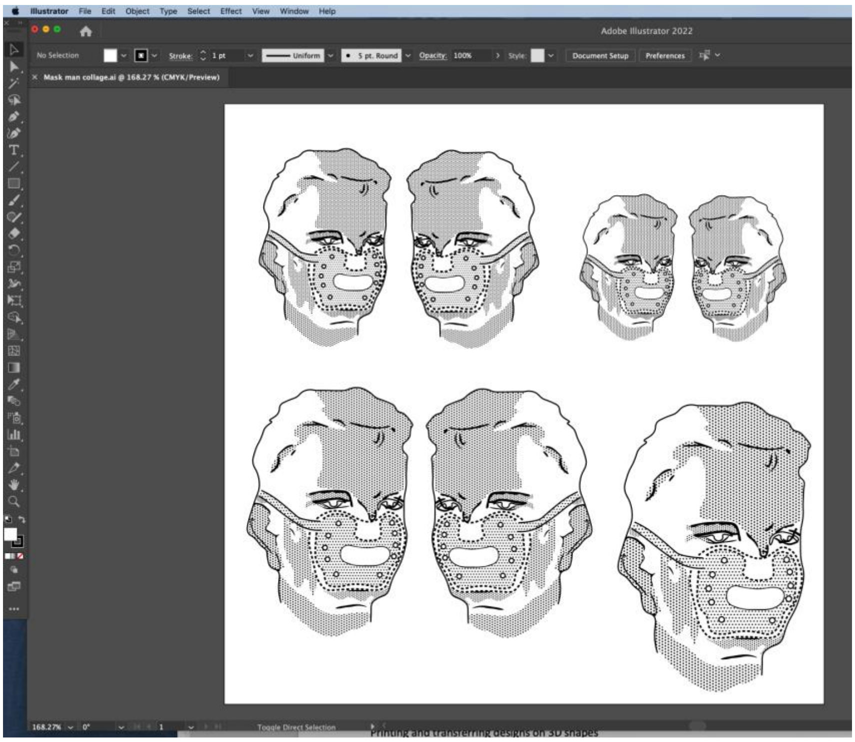


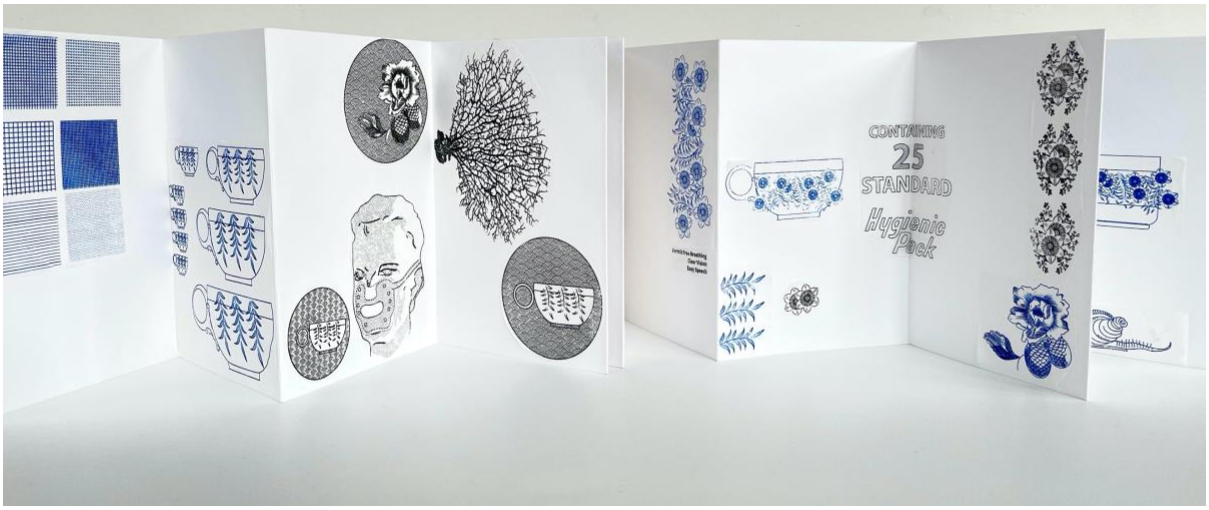
Fig. 184. Illustrator drawing: in response to the infographic design, I applied a method of drawing using vector dots as a pattern fill to represent half tones in Illustrator

8.1.3. Plate making with laser engraving

When the digital drawing files were completed, they were uploaded to Laser Lab's website. I had previously used this company to test the process (refer to Section 6.1.3.). I found the upload function on their website an invaluable resource as the fabrication department at UWE and the CFPR were not in operation during the Covid-19 pandemic. The digital drawing designs were laser engraved onto high grade acrylic at a low cost of £8.50 per 150 mm x 150 mm square format. Historically copperplate engravings had been treated as currency and traded between potteries, and now this essential source could be replicated at a fraction of the cost and effort.

8.1.4. Conclusion

This first part of Chapter Eight has outlined the methods used to produce an image bank of responses to the archival material that resonated with the transferware narrative. In this discussion I have described the drawing process using Adobe Illustrator to replicate a tissue transfer engraving mark making, replacing lines and dots with a vector graphic interpretation. In doing this I was able to produce my own pattern book whilst formulating a visual alphabet and image bank for an intuitive collage method of creative expression (refer to Section 7.2.5.a.). Below I present my responses to the tissue transferware narrative as a pattern book of source images. This provided the visual threads to resonate through and into the final artworks.


CONTAINING
25
STANDARD
Hygienic
Pack


25
MARTINDALE
REFILS


Permit Free Breathing
Clear Vision
Easy Speech

Fig. 185. Six views: a tissue transfer pattern book as a bank of images

The second part of Chapter Eight continues with a technical discussion of how I constructed compound ceramic shapes as a printing canvas, connecting mechanical and manual practices. This links to visual language, discussed in Section 7.2.5.c.i. relating to tissue transfer identification shards and ceramic industrial history.

Chapter Eight, Part Two

Compound ceramic shapes as a printing canvas: connecting the machine and hand

8.2. Introduction

In Part Two of Chapter Eight I describe the technical methods used to construct compound ceramic shapes working in the CFPR's ceramic labs at UWE during lockdown due to the Covid-19 pandemic. My decision to build 3D shapes formed by a mechanical hydraulic extruder is explained in this part, through a sequence of actions that produced a series of blank canvases on which to print collaged tissue transferred imagery. This came about after discussions with my supervisor, Dr Tavs Jorgensen, and research assistant Sonny Lee Lightfoot, who assisted me in making a large quantity of extruded ceramic pieces for my research project (referenced in Section 7.2.5.c.). This was of great benefit to the project, solving the dilemma of ceramic construction and my lack of experience, but it also benefitted Jorgensen's research in testing his extrusion tooling methods for creative practice.

Fig. 186. The two dies were 3D printed into steep and shallow curves based on my discussions with Jorgensen and Lightfoot

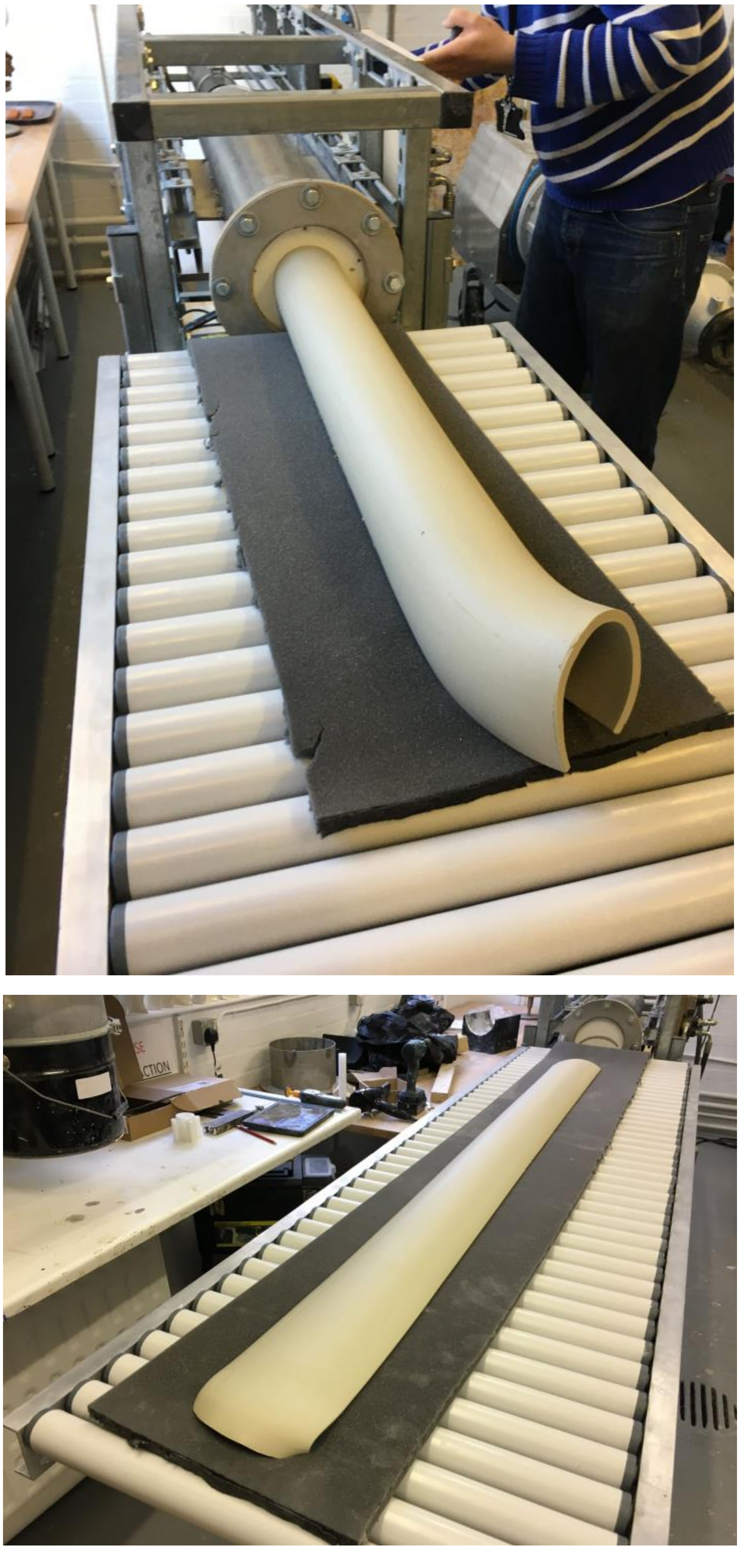


Fig.187. Two views of the of the extruded continuous clay form produced through the steep and shallow die profiles

8.2.1. Building shapes manipulating machine formed extrusions

My aim was to echo the shard fragments excavated from the archaeological finds that identified Worcester as an instigator of the original transferware process. The abstract forms created through the extrusion at first alluded to industrial functional ceramic objects such as soil piping and guttering; far removed from decorative domestic ceramics traditionally associated with transferware.

Fig.188. The clay moved slowly through the extruder with the hydraulic pump powering it through the die to form a shape

The certainty of the shape formed through the die was transformed by intervention by my manual and intuitive manipulation of the clay. Playful and performative, the clay was extruded quickly, and I intervened with my hands as it started to form into a shape, twisting and moving the clay very gently into abstract forms. The forms emerged naturally with no predetermined idea of how the clay would react to handling and forming. this process is visualised below, depicting the sequence of actions performed in the creation of 3D ceramic shapes to use as tissue transfer printing canvases.

Fig.189. Two views of manipulating the clay and gently forming shapes whilst twisting the form into a natural curve. The shapes appeared crude and suggested function, with a visual connection to excavation and archaeology

Fig.190. Two views displaying supporting the clay shapes with sponge formers until the clay was ***leather-hard*** and could be modelled further

Fig.191. Two views demonstrating further modelling with ceramic tools, and the resulting pieces

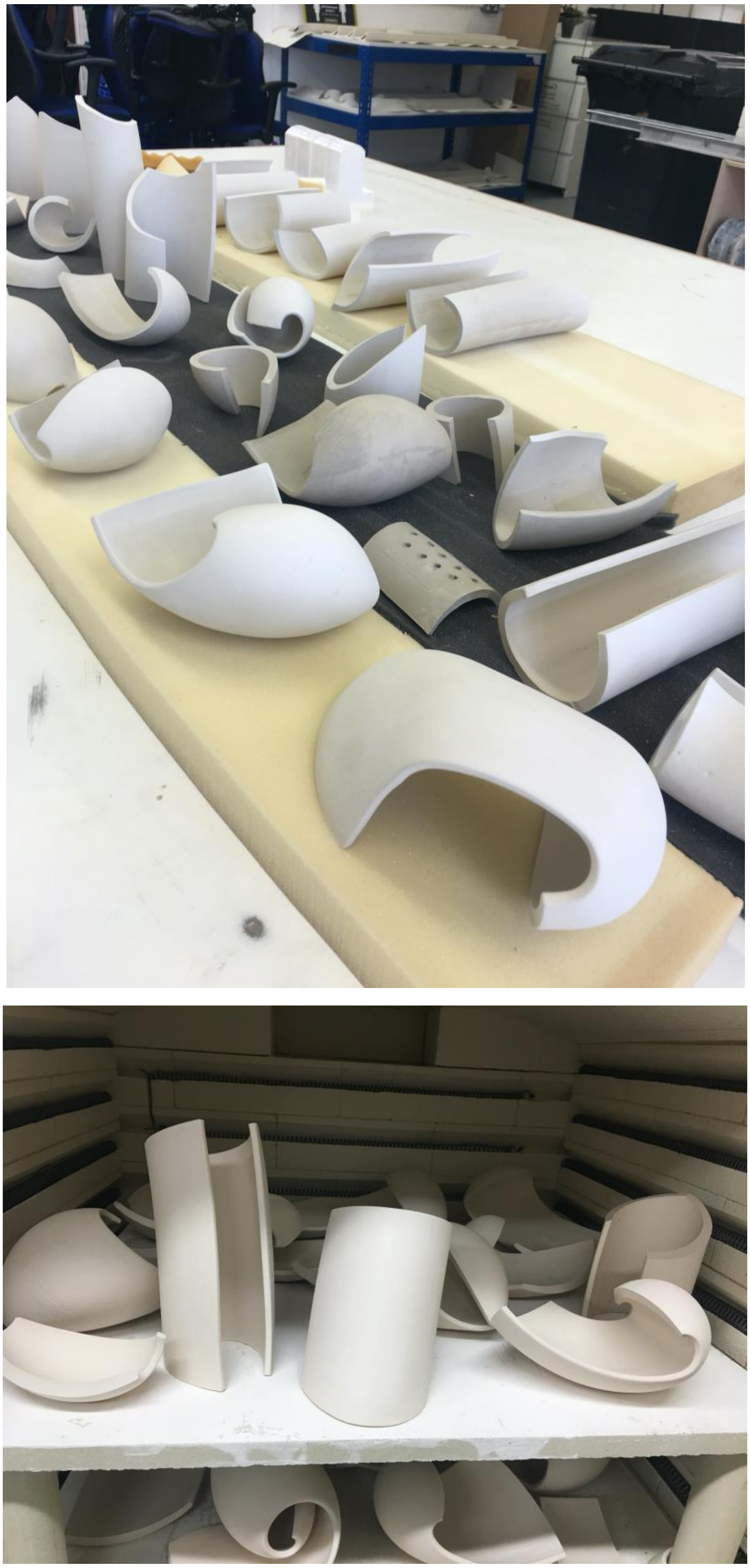


Fig.192. Two views of the ceramic shapes air dried and packed into the kiln

Fig. 193. The ceramic shapes after the biscuit firing at 1000°C.
(Further discussions of firing temperatures are detailed in Section 8.4)

8.2.2. Conclusion

Creating 3D shapes formed by a mechanical hydraulic extruder facilitated the progression of my ideas in creating blank printing canvases on which to work with collaged tissue transfer methods. The serendipity of manual intervention with extrusion tooling, combined with ceramic modelling, enabled me to take an intuitive and spontaneous approach. The forms, disassociated from the traditional domestic ware for tissue transfer printing, provided a new canvas on which to view the printed designs, with refence to archaeology and excavation, whilst demonstrating the cross fertilisation of new and historic technologies (referenced in Section 7.2.5.c.).

In the next part of Chapter Eight technical printmaking methods are separated out into three distinct areas – ink making, printing, and transferring – which transforms the transferware aesthetic from the singular blue on white to a new colour palette range.

Chapter Eight, Part Three

Exchange singular blue on white for colour

8.3. Introduction

In Part Three of Chapter Eight I describe the technical decisions I made relating to printmaking methods, to achieve a harmonious printed image on a 3D form. The methods described here introduced a range of colours to the tissue transfer aesthetic, exchanging the singular blue on white for colour (refer to Section 7.2.5.b.)

The perspective of the printmaker was at the forefront of all my technical decisions detailed in this part, with a focus on the:

8.3.1. Ink formulation
8.3.2. Intaglio printing methods
8.3.3. Tissue transfer methods

In this part of the chapter this sequence of methods is demonstrated as tests in the first instance, which are then carried into the final artworks depicted in Chapter Eight, Part Four.

8.3.1. Ink formulation

I formulated a more effective ink based on the tests trialled in Chapter Six, using a different and more effective oil carrier in this chapter.

To recap from Chapter Seven, the ink used for tissue transfer must:

- be pliable, thick, and viscous but workable so that it could be used effectively for an intaglio process,
- remain viscous on the tissue when it was printed so that it could be transferred onto the ceramic surface without smearing,

- contain component parts which worked effectively with the firing cycles for biscuit and gloss firings. This relates to the printed pattern fusing with the ceramic surface when the glaze is applied,
- remain vibrant in terms of colour throughout all the firings.

8.3.1.a. Background to ink formulation

As a printmaker working with intaglio processes, I could buy the ink from excellent suppliers. Printmakers know tacitly how ink should feel on the plate for inking up. Knowing how the ink moves across the printing matrix and when plate oil is required to loosen the ink is second nature. The ink used for tissue transfer needed to perform as an etching ink, but also contain ceramic colour and firing components. There was no ceramic ink to buy off the shelf and, when I asked pottery professional Paul Holdway about it, he stated that it was not his job to know about the ink used for his engravings. Each pottery would have had their own ink and supplier with the component parts kept secret.

Based on Section 6.1.4 I knew that the ink consisted of colour, flux, and a linseed oil-based carrier. The first two components were not a problem, as there are many coloured stains on the market, and flux is also a general ceramic material used for its vitrification properties. The linseed oil component appears straightforward, but there are many different types and consistencies. I sourced carrier oils from many different suppliers for the series of tests detailed in Section 6.1.4.

Fig. 194. Oil carriers for the ink. Many different oil carriers were available, each one was required to be a thick and viscous consistency and was sourced from readily accessible online and physical printmaking suppliers

Fig.195. Tint base extender made in the USA by *Graphic Chemical & Ink Co*, supplied by *TN Lawrence* at £20 performed the best, with a 7:3 ratio of stain to flux. The extender is used for traditional etching and, when mixed with the two components, produced a thick viscous ink suitable for intaglio printmaking

8.3.1.b. A new oil carrier and coloured stain

The tint-based extender worked well in the printing detailed in Chapter Six but was very difficult to work with in terms of its thick, dry, and heavy consistency. The inking up process was not pleasurable, but physically demanding, requiring strength in the hands and wrists. Therefore, I wanted to improve the printmaking experience for myself and others by making the process more user friendly and using a different oil to make a loose, easier to ink up but effective ink.

Fig.196. Litho. varnish/plate oil #7: a newly sourced oil from *Hanco Ink* in the USA, is vegetable based and has applications for lithography. It is readily available from *Polymetaal, Printmaking equipment and supplies* in the Netherlands and comes in a 0.5 litre tin at £35 including postage from Europe

For mixing the ink, I decided to extend the colour palette from cobalt blue to a range of new coloured stains found at *CTM Potters Supplies* in Doncaster.

Fig.197. GS26 Intense red from *CTM Potters Supplies*

The ink was mixed from the ratio of 7g coloured stain to 3g flux with the new carrier oil made by *Hanco Inks.* The stain has a firing range up to stoneware temperatures. I carried out a series of tests using Intense Red from CTM as a coloured stain.

Fig.198. Four views of ink mixing. The dry components, colour and flux were mixed with the oil slowly

The oil was weighed at 5 grams and added in small increments until the ink had a workable consistency. The oil blended the two main component parts but would also weaken the colour in the firings if too much was used, so I used caution when adding it to the ink. The oil amalgamated the coloured stain and flux well and gave a workable consistency.

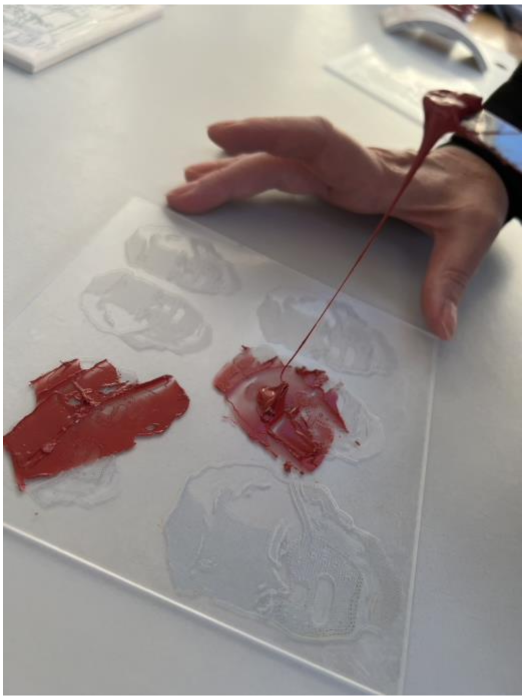


Fig.199. Two views: the ink at the final consistency, ready to use, as the colour and flux had blended well with the oil to give the consistency of etching ink

8.3.1.c. A new ink

A new coloured stain and oil carrier were used to make a new version of underglaze printing ink. Instead of mixing the ink based on a rigid repetition from previous tests, I decided to improve it. Enhancements to the methods kept the project lively and creative, even though the fundamental guidelines of colour and flux ratios remained constant.

8.3.2. Intaglio printing methods

The method for inking up for tissue transfer was an intaglio process but was more physically demanding than traditional etching as the ink had a different consistency. The method I used did not require heat to warm the plate and ink, as I found that the ink dried before transferring when warmed, causing ***ghosting*** of the printed image. Traditionally for etching, warming the ink on the plate loosens it and eases the process, however this ink was cold, stiff, and difficult to wipe clean without leaving smears behind. The benefit of a cold method for the printmaker working alone is that there is no need for a hot plate, cutting down on essential equipment.

Fig.200. The ink was applied to the surface of the plate with a palette knife

Fig.201. The ink was applied to the surface of the plate with a palette knife. This pushed the ink into the recess of the marks using angular positions with the knife to ensure all areas were covered

Fig.202. The ink was removed from the top surface of the plate with the palette knife

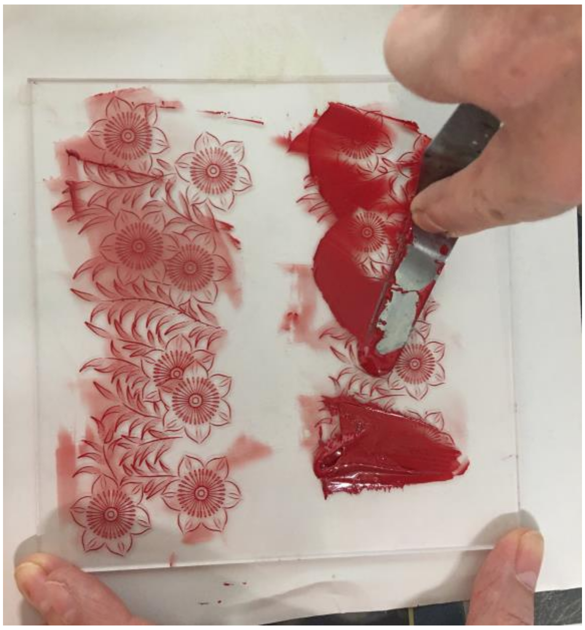


Fig.203. The ink was removed from the top surface of the plate with the palette knife. The knife's metal blade efficiently scraped the ink from the top surface without removing it from the engraved marks. Traditionally, with etching for paper, stiff cardboard would be used to remove excess ink so as not to damage the upper surface of the plate with scratches. The method I used did not scratch the plate as the substrate was a tough acrylic

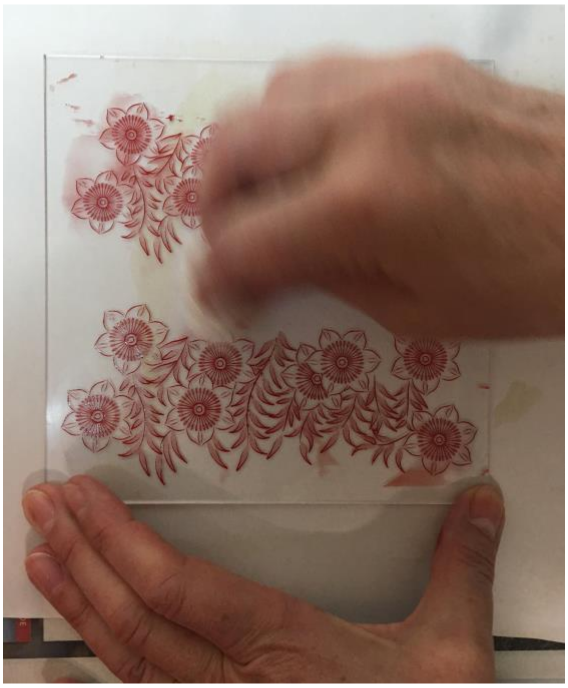


Fig.204. The plate was wiped firmly with course tarlatan scrim to remove any excess ink

Fig.205. The plate was wiped, echoing the method used in the traditional intaglio process

Fig.206. The final wipe from the scrim polished the plate’s upper substrate to remove all traces of ink

Fig.207. The ink was left in the engraved marks, ready for the next stage of the printing process

8.3.2.a. Printing intaglio onto pottery tissue

The tissue paper substrate for the project was found at *Potclays* in Stoke-on-Trent, it was called *pottery tissue* and cost £2.50 per metre. Evidence of a current supply demonstrates a need for the pottery tissue as a carrier of printed patterns.

Fig.208. The tissue was available in metre lengths which arrived in a roll. The tissue was cut to size to cover the entire acrylic plate matrix

Fig.209. Soft soap was reduced in water to produce a thin soap mixture

Fig.210. The tissue was painted with a thin layer of soft soap on its upper side

Fig.211. The soap layer needed to be tacky but not wet

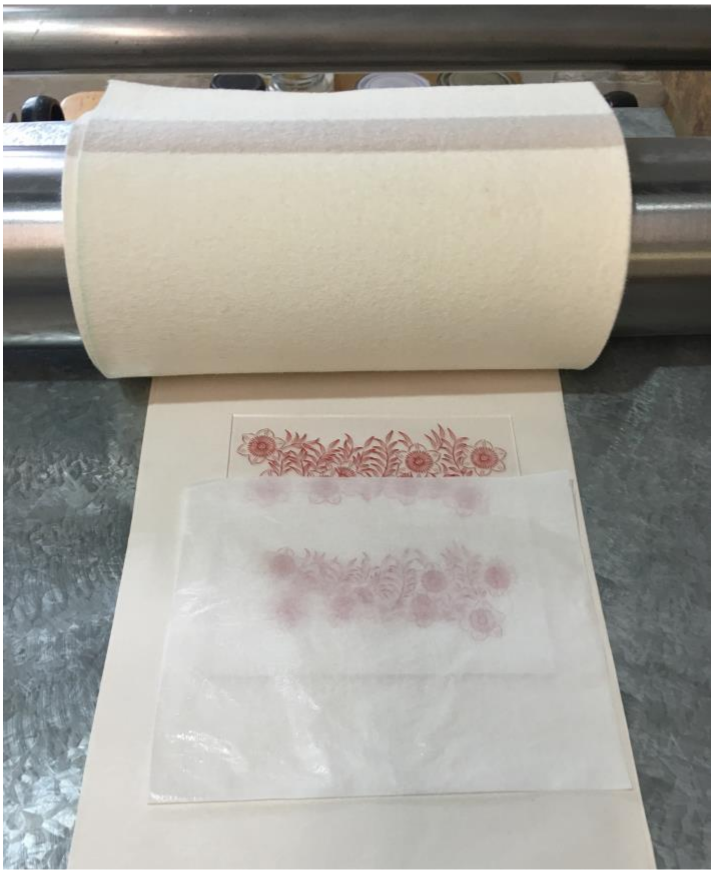


Fig.212. The tissue was placed on top of the inked-up plate with the soap layer up

Fig.213. The soft soap on the upper side had two roles:
firstly, to soften the paper and assist with the printing process. Secondly, to act as a lubricant for the tools used for transferring when the tissue print was transferred, to stop the tissue from tearing

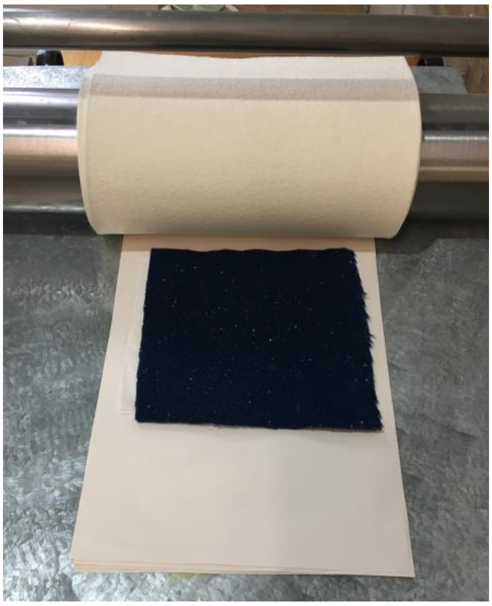


Fig.214. The plate was covered with a soft blanket cut to size to cover the plate, and tissue to absorb the soft soap residues and assist printing. At the end of each printing session the soft blankets were washed to retain their softness and absorbency but also to remove the impregnated dried soft soap

Fig.215. A stack of four etching blankets: placed on top and secured in the roller

The plate was passed backwards and forwards through the press, which ensured that the ink was printed efficiently onto the tissue. This was based on observations of the printing process at the Spode Museum.

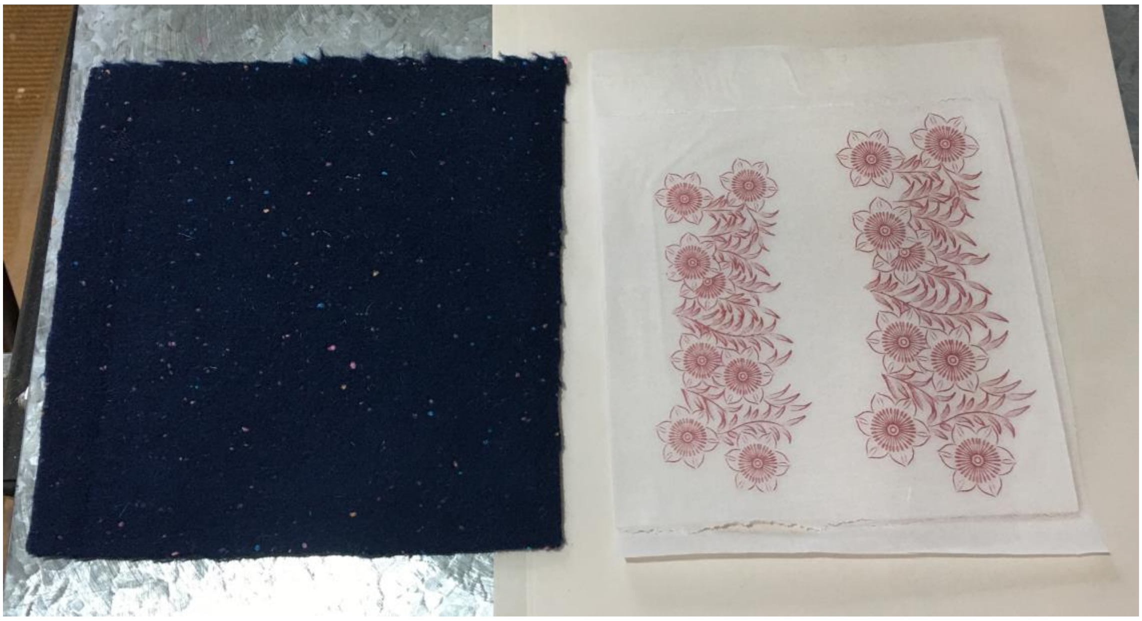


Fig.216. The soft blanket was removed from the printed tissue and plate

Fig.217. The printed tissue was gently peeled back from the plate to reveal the printed pattern ready for transferring

Fig.218. The tissue printed image was scrutinised and checked for uneven printing and patches of ink

The print did not pick up enough ink and therefore achieved a weak transfer onto the ceramic. So, the inking and printing process had to be repeated until a flawless print was achieved on the tissue, before transferring. This occurrence happens at the beginning of a printing session, often when taking the first print from the engraving plate. The inking up and printing onto tissue yields approximately a 90% success rate.

8.3.3. Tissue transfer methods

The next series of images illustrates how the tissue print was transferred onto a biscuit fired test tile in the first instance. This was tested further using a new range of colours onto the 3D shapes before the final artworks were completed.

Fig.219. When the tissue was released from the plate it was flimsy and likely to stick onto itself, so it needed to be handled quickly and efficiently and placed into the final printing position

Fig.220. The tissue print placed was face up, ready to transfer onto the tile

Fig.221. The tools selected to assist transferring were a pad of woollen felt, a small squeegee and a toothbrush

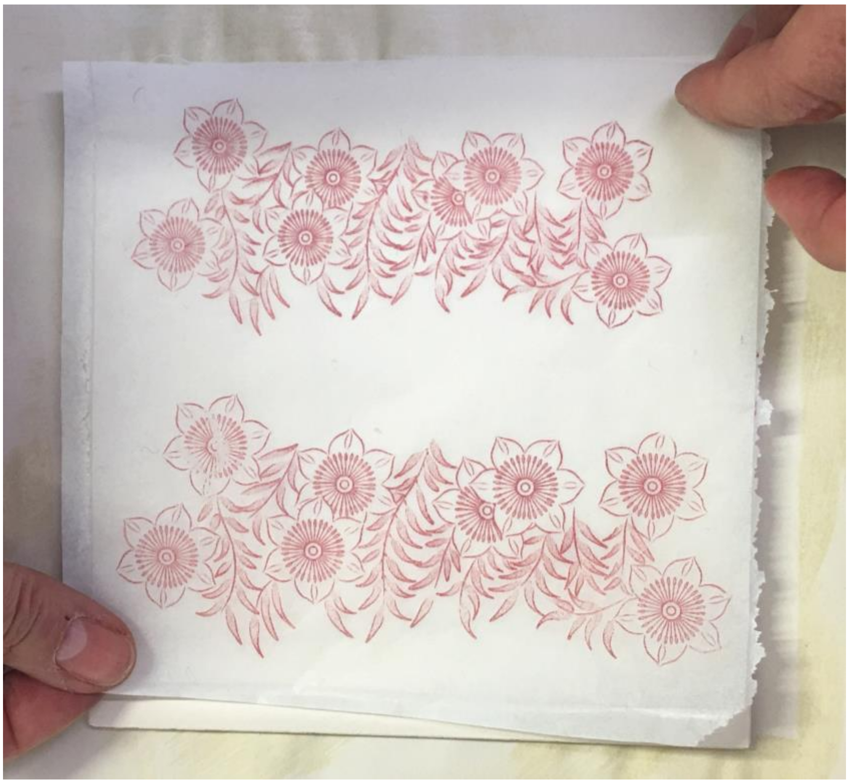


Fig.222. The tissue print was placed print side down on the ceramic tile

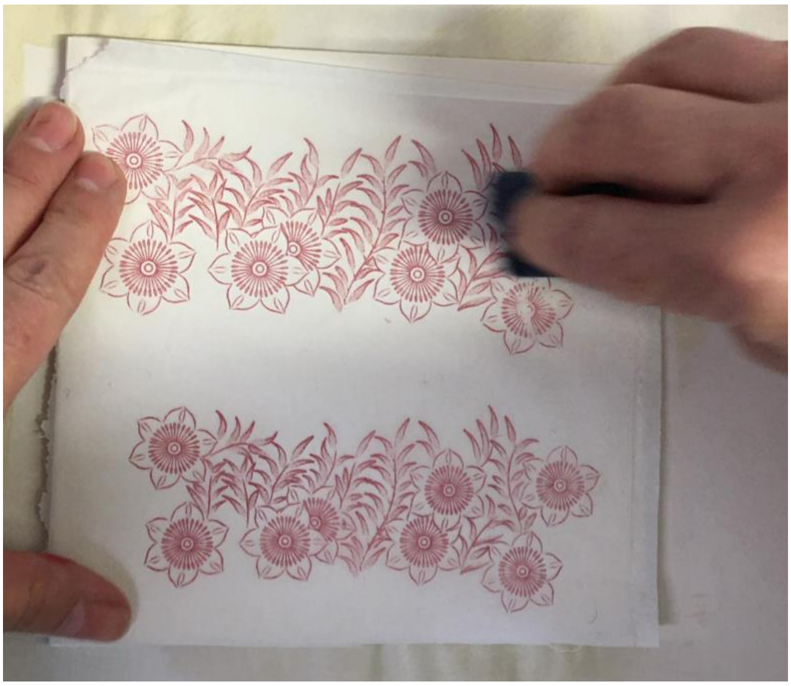


Fig.223. Damp woollen felt secured the print by pressing it into the surface of the tile. The print was burnished from the back with pressure, leaving the printed pattern from the tissue on the ceramic surface. The ceramic surface was biscuit fired, so still porous to contact materials such as ink and glaze

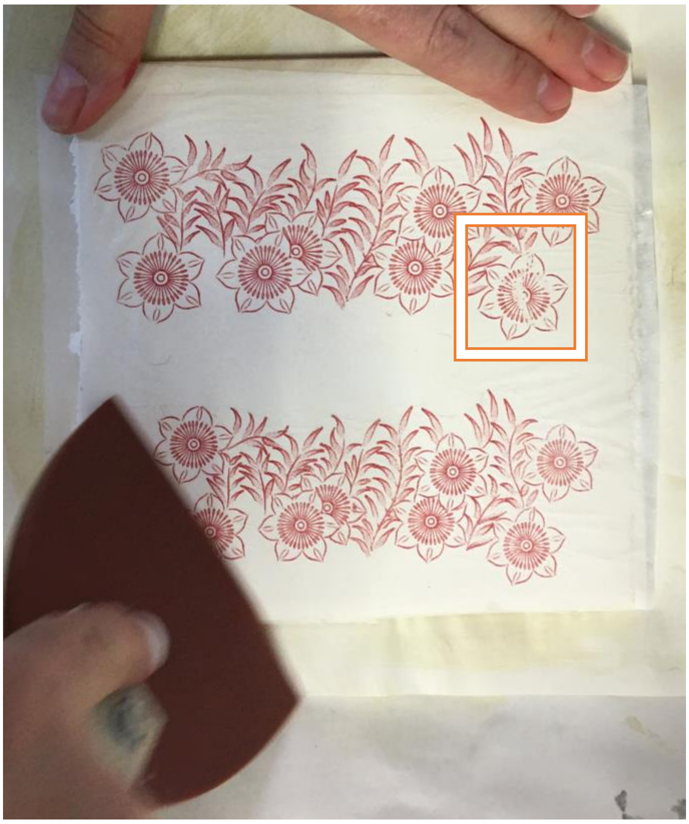


Fig.224. The highlighted area did not print effectively onto the tissue: this would be seen as a fault in the final printed ceramic

Fig.225. I pressed the squeegee over the entire surface, angling the blade to release any excess water to fix the print to the tile. The soft soap applied before printing assisted the squeegee to move freely without ripping the tissue

Fig.226. Transferring with a toothbrush made sure the entire surface is treated with pressure

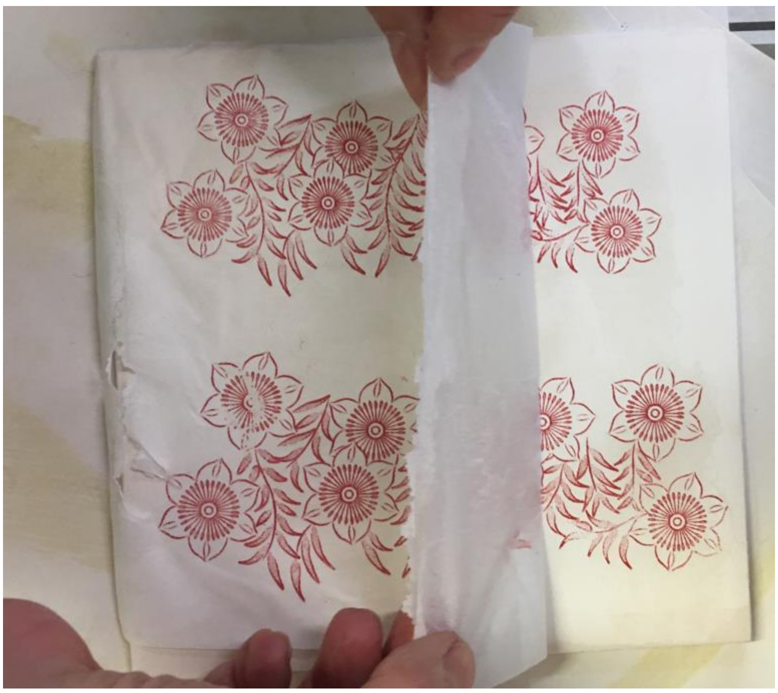


Fig.227. The tissue was released from the ceramic tile, revealing the print on the ceramic tile

Fig.228. The print transferred effectively onto the tile with no distorting or blurring of the printed image. The fault highlighted on the printed tissue was now permanently in the printed pattern

8.3.4. Exchange singular blue on white for colour

A new colour palette was introduced to replace the traditional cobalt blue, using a range of new colours (see Section 7.2.5.b.). The ceramic-coloured stains were found at *CTM Potters Supplies* in Doncaster, and the black stain was from *Pottery Crafts* in Stoke-on-Trent.

Fig.229. The ink was mixed using CTM *GS 26 Intense Red*

Fig. 230. The ink was mixed using CTM *GS 7 Cobalt Blue*

Fig.231. The ink was mixed using CTM *GS 31 Sunflower*

Fig.232. The ink was mixed using CTM *GS 56 Aubergine*

Fig.233. The ink was mixed using CTM *GS 45 Peacock Blue*

Fig.234. The ink was mixed using *Pottery Crafts P4130.5 Black*

Fig.235. The ink was mixed using CTM *GS 65 Battleship Grey*

Fig.236. The ink was mixed using CTM *GS 49 Salmon Pink*

Fig.237. The ink was mixed using CTM *GS 3 Green*

Fig.238. The ink was mixed using CTM *GS 63 Sea Blue*

8.3.5. Conclusion: a new colour palette for tissue transferware

Introducing a new colour palette and moving away from the recognisable blue on white pattern brought a contemporary colour aesthetic to my transferware and advocated its creative potential (see Section 7.2.5.b.).

Section 8.4 presents the final artworks as a culmination of the technical actions described in this chapter. Ceramic knowledge overtakes the perspective of the printmaker in this part and demonstrates three separate kiln firing schedules, culminating in a series of completed artworks.

Chapter Eight, Part Four

Linking the printmaker and ceramicist: a one person operation

8.4. Introduction

In this part of Chapter Eight I describe the technical considerations relating to the three kiln firings required to produce a unified tissue transfer printed ceramic object. These are: biscuit firing, hardening on firing, and glaze firing. The kiln firing schedules for all three firings are given in Fig. 279.

In this part, a description of the process demonstrated through the perspective of the printmaker is supplemented by ceramic technical knowledge, taking the artworks through the three transformative kiln firings to produce a cohesive object. Consequently, this is now openly accessible and within reach of artists who wish to make underglaze printed ceramic artworks decorated with accumulative imagery. The final artworks, presented as a visual conclusion to this chapter, depict the culmination of a homogenous method of production for artists (reference Section 7.2.6.).

8.4.1. Clay bodies

Historically, earthenware was the clay body used for tissue transferware for mass production, as its whiteness mimicked bone china and porcelain but was a cheaper alternative. Bone china and porcelain, more expensive raw materials, were the preferred clay bodies for *Spode* and *Worcester*. The kiln firing temperatures for earthenware, bone china and porcelain define their material properties: earthenware fires at a lower temperature and is therefore more porous, while bone china and porcelain are fired to higher temperatures and therefore impervious to water. Stoneware clay bodies are also fired up to high temperatures and, being less refined than porcelain and bone china, are impervious to water.

The clay bodies I used in this study were white earthenware pre-biscuit fired tiles, white earthenware, and cream stoneware clay bodies. The pre-biscuit fired, industry standard earthenware tiles were purchased in a large quantity from *H & E Tiles* in Stoke-on-Trent and were used to test the printing and firing processes at every stage. The industry standard biscuit firing temperature of 1120°C was used, with a further glaze firing at a lower temperature of 1050°C.

The white earthenware clay body from *Bath Potter's Supplies* was '*standard white earthenware smooth VBP3'* with a firing range of 1080°C – 1180°C. The cream stoneware was a clay body used for my extrusion research in the CFPR, which had a firing range temperature of 1000°C – 1250°C.

8.4.2. The biscuit firings

For demonstration purposes I chose earthenware pre-fired tiles and several 3D shapes for my colour glaze tests. The tiles were an effective way to test the firings at all stages and were fired to the finishing temperature of 1120°C. The earthenware was still porous enough to transfer print onto at 1120°C and subsequently fire at 1000°C to harden on, followed by a glaze firing at 1080°C. The finished ceramic was not as resilient as fully mature fired porcelain or bone china and, when used as a clay body for mass production, this cheaper alternative would easily chip and craze with continuous domestic use.

The earthenware 3D shapes were biscuit fired at 900°C and 1150°C, a low and high biscuit temperature, to make a comparison of each and technically inform methods for the final artworks. The stoneware compound shapes were biscuit fired to 1000°C. When all the ceramic 3D shapes had been biscuit fired, they were ready to use as a 3D printing canvas (see Section 7.2.5.).

8.4.3. The hardening on firings

The hardening on firing temperature for tissue transfer was traditionally 850°C (see Section 4.8.). For the tests detailed in Section 6.1.7. I used a temperature of 1000°C, which burned off the oil and print residues and established the print on the ceramic surface.

The examples below show the findings of my printed patterns when the ceramic was hardened on fired at 1000°C. Each example illustrates how effective the colours appeared on the 3D stoneware shapes and the earthenware test tiles before their application to my final artworks.

Fig.239. In the spectrum of ceramic glazes red can lose its hue in the firing process. This example shows that the red colour remains consistent and bright after the hardening on firing. This detail also illustrates how the print can be layered with different prints of the same colour, with no detriment to the mark making in the print

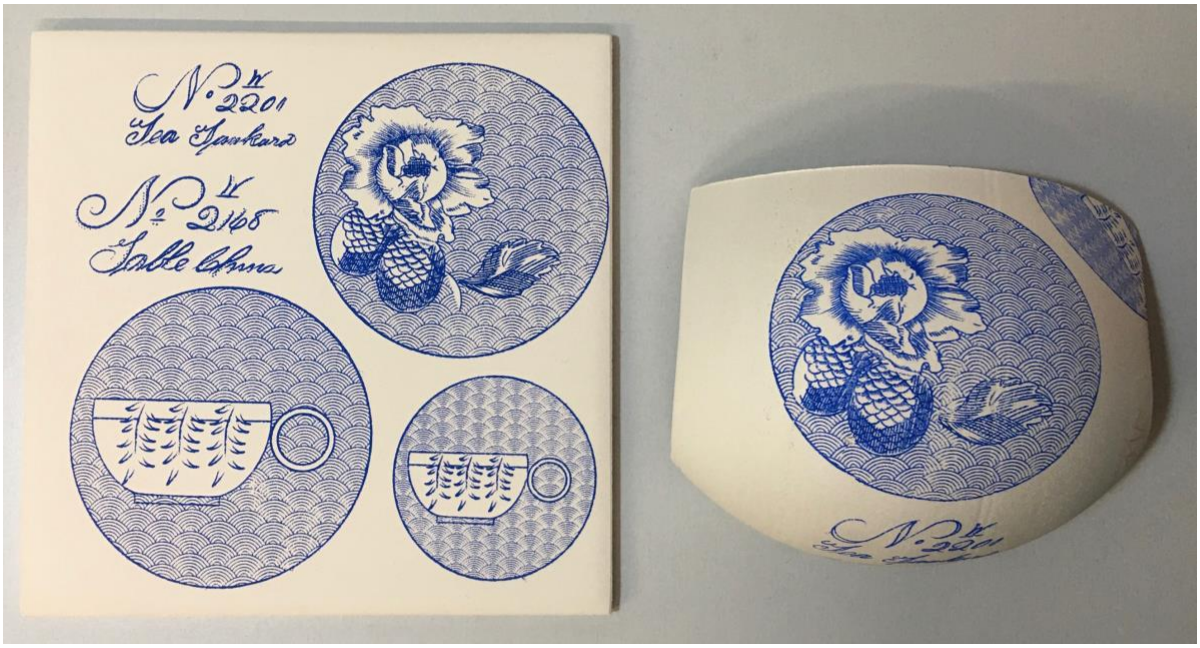


Fig.240. Cobalt blue: this cobalt colour from CTM performed well and will be a consistent blue colourant in future work

Fig.241. CTM *GS 31 Sunflower*

Fig.242. CTM *GS 56 Aubergine*

Fig.243. CTM *GS 45 Peacock Blue*

Fig.244. *Pottery Crafts P4130.5 Black*

Fig.245. CTM *GS 63 Sea Blue*

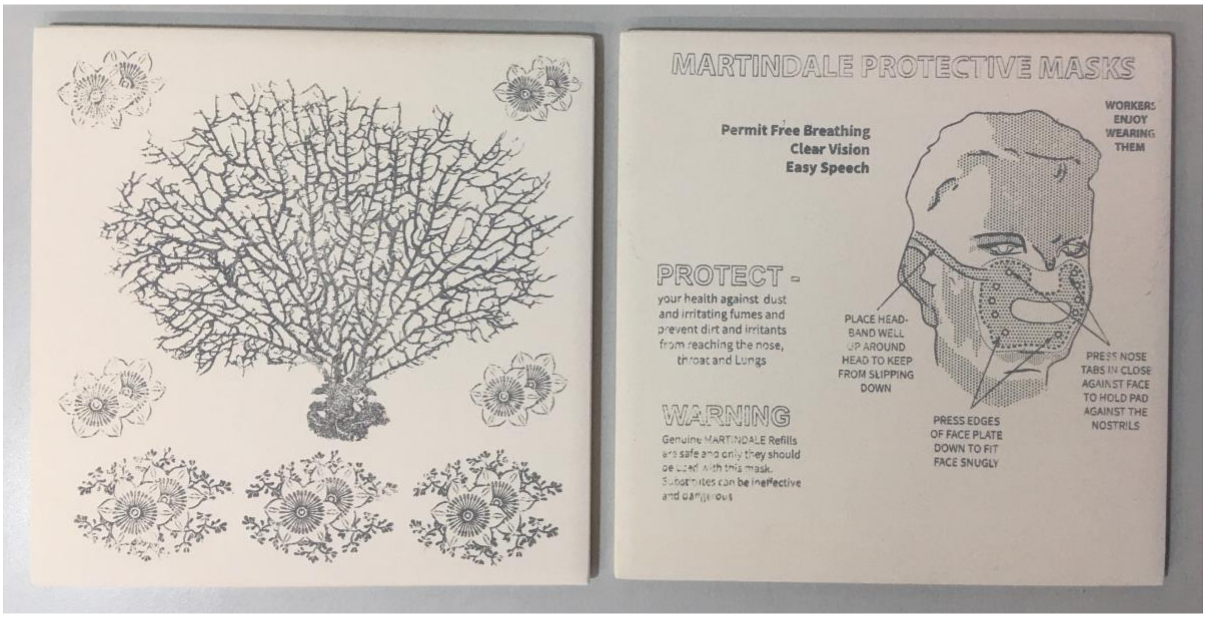


Fig.246. CTM *GS 65 Battleship Grey*

Fig.247. CTM *GS 49 Salmon Pink*

Fig.248. CTM *GS 3 Green* ink: shows how the print can differ slightly during the process of printing and transferring

Fig.249. Three views: the results of the 3D earthenware shapes biscuit fired to 1150°C indicate that this temperature was too high for the transfer printing to be effective. The biscuit fired form was unreceptive to the transfer print and repelled the print from the ceramic surface. The further hardening on firing of 1000°C resulted in an inconsistent and discoloured print on the ceramic

8.4.4. The results of hardening on firings for the tissue transfer printed final artworks

The series of works presented below depict the transition from tests to artworks. Here I comment on how the accumulative printed imagery was applied (see Section 7.2.5.a.) to the 3D shapes to produce a unified artwork.

Fig.250. Three views: the printed imagery emphasises the undulating curves of the inside and outside, the corners, the edges, and the changes of direction. The collage method of application allows this to happen. The 3D canvas is not only a form of expression but also a means to visualise printed imagery on a complex surface

Fig.251. Three views: stoneware 3D pieces fired to 1000°C to harden on the underglaze print, burning off the oils in the ink in preparation for the next stage in the process, a final glaze firing. At this stage the coloured images are matt and muted

Fig.252. The earthenware (left) and stoneware (right) clay bodies appear similar in colour when the print is hardened on

Fig.253. Tissue transfer method enables the print to adhere to intricate interior spaces, as once the printed tissue hits the ceramic surface it is permanent and remains firmly in place. This would be difficult to achieve with other forms of transfer printing

Fig.254. Two views: I combined a restricted palette of coloured printed imagery representing tonal values from light to mid and dark hues. Here I was aiming to imbue soft tonal ranges within the printed image, combined with colour combinations to create space in the printed image

8.4.5. The glaze firings

The clear glaze firings were the final stage of the tissue transferware process. Clear glaze laminates the print and defines the process as underglaze tissue transfer printmaking. This completes the method of production.

8.4.5.a. Earthenware tiles glaze firing

Fig.255. *G4 Low soluble* transparent glaze from *CTM Potters Supplies*

The clear glaze used for the earthenware tiles and the 3D shapes was mixed from a CTM product: *G4 Low soluble, lead based, low expansion, glossy transparent* dry glaze powder.

Fig.256. The glaze powder was mixed with water and a universal medium which acted as a *flocculant*, resulting in a smooth glaze which could be applied with a brush. The ratios for this were: 50gm powdered glaze, 40gm water and 40gm medium, and the glaze mix was passed through a fine sieve to become ready for application

A *low sol glaze* was suggested as a suitable glaze for earthenware because of its effectiveness and wide firing range. The glaze contains lead, which is not absorbed into the liquid, so is safe to handle and non-toxic when fired, so can be used for domestic ware. The *flocculant* in the glaze medium enables the particles in the glaze to flow together, resulting in a smooth application of the brush on glaze.

The firing schedule for earthenware was programmed at a ramp of 100^{o}C per hour until reaching the final temperature of 1080^{o}C with a *15 minute soak*.

The following examples portray the findings for the earthenware tiles glaze firings. Each example illustrates how effective the final colours appeared on the earthenware test tiles as glaze tests to take forward into the final artworks. The clear glaze firings indicate how the colours were likely to perform on the 3D earthenware shapes using a new palette of colours.

Fig.257. The red print remained vibrant under the glaze. The fault highlighted on the printed transfer in Section 8.3.3.c was now permanently in the printed design and under the glaze. This illustrates how the initial transfer print application is fundamental to the effectiveness of the final printed image

Fig.258. Layered patterns remained defined through the firings. The patterns were layered separately, allowing the print to dry for each layer. The marks are slightly imperfect, with a broken softness highlighting the stylistic effect of tissue transfer printmaking

Fig.259. *Green* and *Peacock Blue* underglaze print

Fig.260. *Sunshine Yellow* and *Salmon Pink* underglaze print

Fig.261. *Sea Blue* and *Aubergine* underglaze print

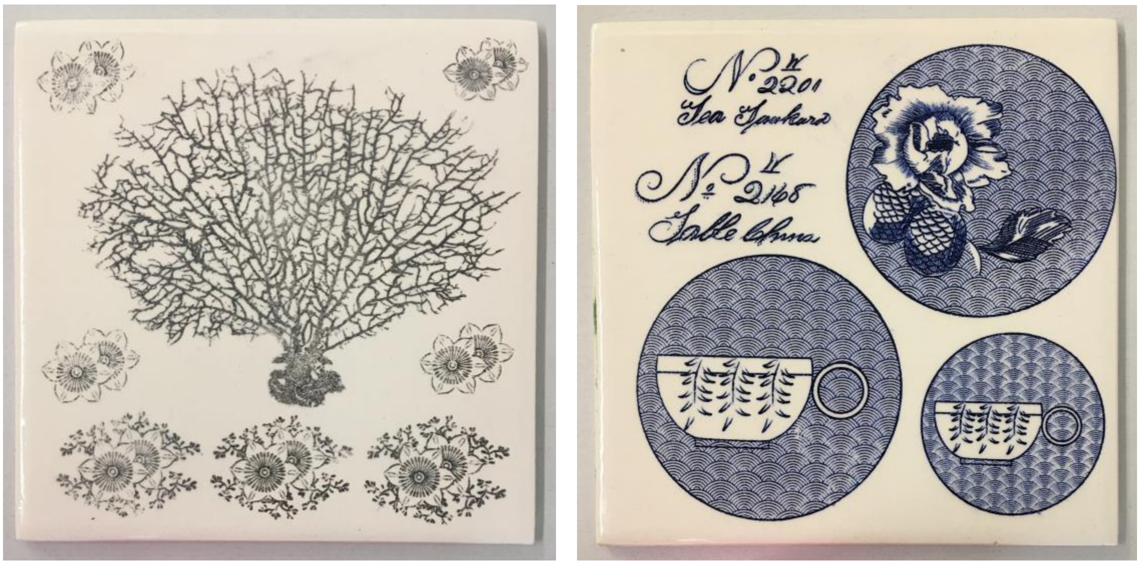


Fig.262. *Battleship Grey* and *Cobalt Blue* underglaze print

8.4.5.b. Earthenware glaze firings for the 3D shapes

Fig.263. Earthenware 3D shapes. Hardening on the print at 1000°C and glaze firing higher at 1080°C

Fig.264. The transparent glaze mix was applied with a brush. The use of the medium for this mix enabled the glaze to be applied with a smooth finish. In the past when testing the process this had been difficult to achieve with a mix of dry powdered glaze and water

Fig.265. Firing schedule: biscuit 1000°C, hardening on 1000°C, glaze 1080°C.
Fine crazing appeared over the surface of the ceramic

During discussions with my supervisor, it was suggested that I should fire the earthenware to 1120°C as a hardening on firing to match the pre-biscuit fired test tiles. In industry earthenware was fired to a maturing temperature initially as it protected the ware from being damaged by handling in the factory. Industrially this meant the ware was still porous enough to transfer print and glaze and could be fired to lower temperatures for hardening on and glaze firings.

Fig.266. Trialling this industrial method: the crazing on the glaze ceased by hardening on the print at 1120^{o}C and glazing at 1080^{o}C

8.4.5.c. The final artworks with an earthenware clay body

The sequence of final artworks below depicts the results of my culmination of testing the glazing process for earthenware. The colour and design combinations technically performed well through the printing, transferring and three firing schedules: biscuit, hardening on and glaze. The transfer printed designs remained detailed, the colours were vibrant, and the transparent glaze laminated the print with a glassy finish.

Fig.267. Two views: colours hardened on at 1120°C and glaze fired at 1080°C


WARNING
MARTIND


WARNING
MARTIND

Fig.268. Three views: final artwork hardened on at 1120°C and glaze fired at 1080°C


MARTINDALE

Fig.269. Three views: final artwork hardened on at 1120°C and glaze fired at 1080°C

Fig.270. Three views: final artwork hardened on at 1120°C and glaze fired at 1080°C showing the effects of an accumulative pattern

8.4.5.d. Stoneware glaze firings for the 3D shapes

The stoneware pieces were biscuit fired to 1000°C and as already described, the surfaces were absorbent to the print, which transferred effectively. The fired clay body had a buff texture, adding another visual element to the printed surface.

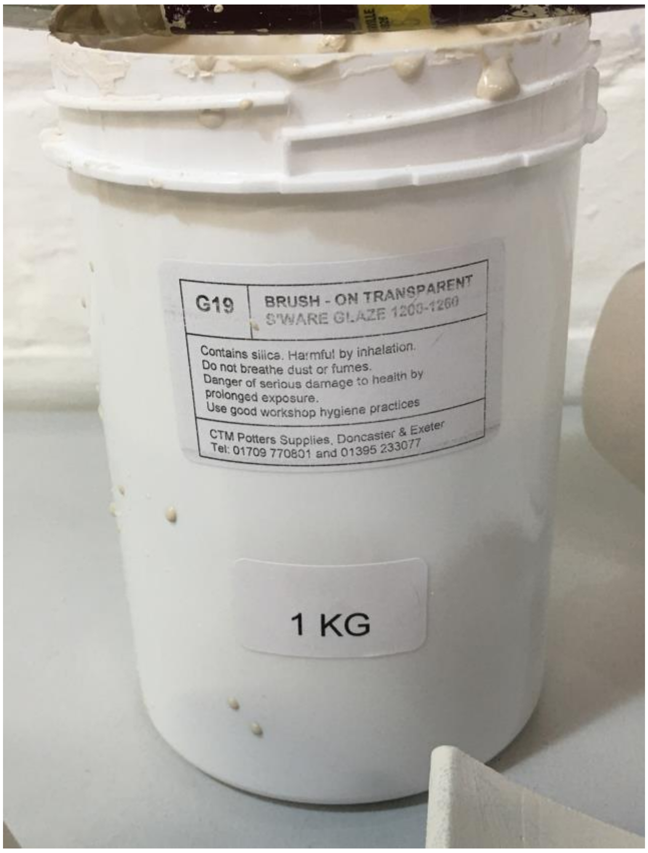


Fig.271. Ready mixed brush-on glaze for stoneware.
G19 from *CTM Potters Supplies*

Before firing the final stoneware 3D printed shapes, I tested the glaze on several of the 3D shapes with a selection of printed colours. In doing this I managed to avoid technical issues before committing the final printed 3D shapes to the stoneware firing schedule.

Fig.272. The stoneware clay body shrank and changed to a darker tone cream colour when fired to the full maturing temperature of 1240°C

Fig.273. The selected colours performed well, remained vibrant and the glaze had no issues with crazing

Fig.274. The buff texture of the stoneware clay body was highlighted after the glaze firing and is a potential stylistic choice for future work

Fig.275. The glaze performed well, and the blue printed piece had all the visual and stylistic characteristics of tissue transferware. The wave pattern was slightly misaligned, as it had been designed flat and not for a curved surface

8.4.5.e. The final artworks with a stoneware clay body

The sequence of final artworks below depicts the results of my culmination of testing the glazing process for stoneware. The colour and design combinations technically performed well through the printing, transferring and three firing schedules: biscuit, hardening on and glaze. The transfer printed designs remained detailed, the colours were vibrant, and the transparent glaze laminated the print with an eggshell finish.


CONTAINING
25
STANDARD
Hygienic Pack
PROTECT -
your health against dust
and irritating fumes and
prevent dirt and irritants
from reaching the nose,
throat and Lungs

Fig.276. Four views: final artwork hardened on at 1000°C and glaze fired at 1240°C


Hygiën
Pac


CONTAI
25

Fig.277. Three views: final artwork hardened on at 1000°C and glaze fired at 1240°C

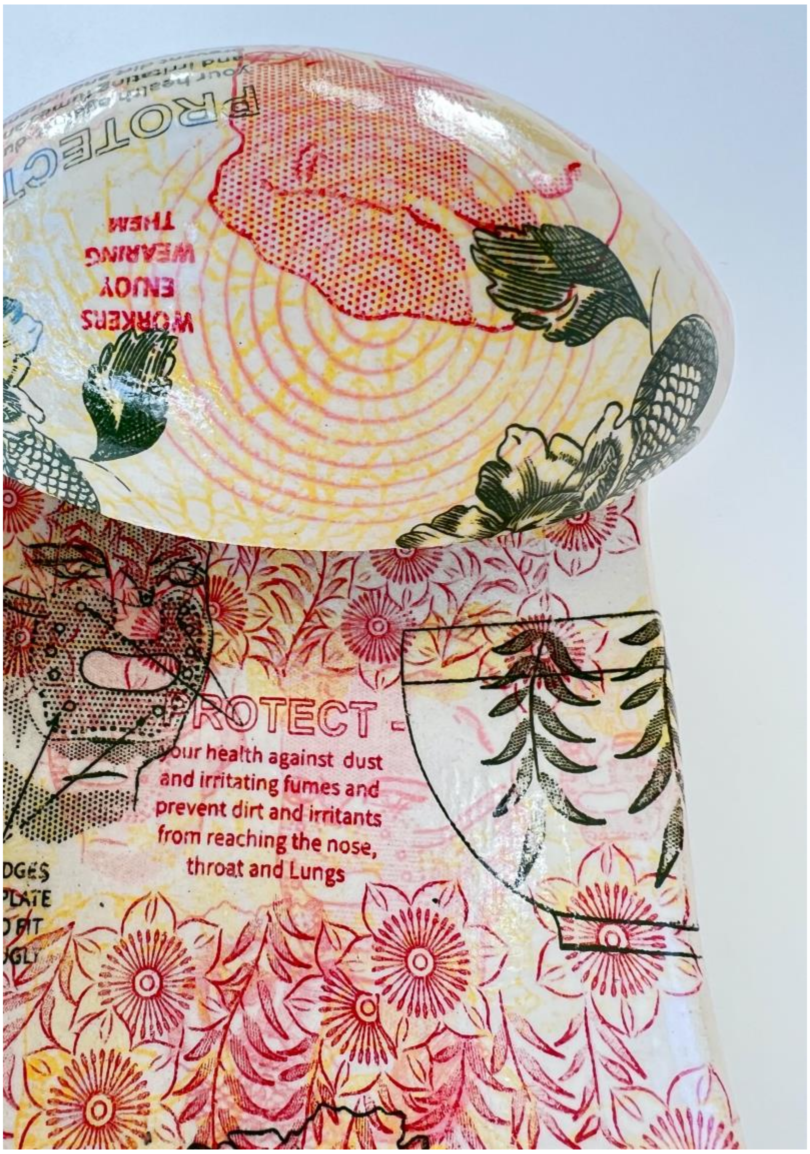


Fig.278. Three views: final artwork hardened on at 1000^{o}C and glaze fired at 1240^{o}C showing the effects of an accumulative pattern

8.4.6. Conclusion

Historically, tissue transfer printed ceramics would have passed through the hands of many skilled individuals in a sequence of unique production methods. In this part of Chapter Eight I have described how I completed the sequence of final production by applying three kiln firings to complete my artworks.

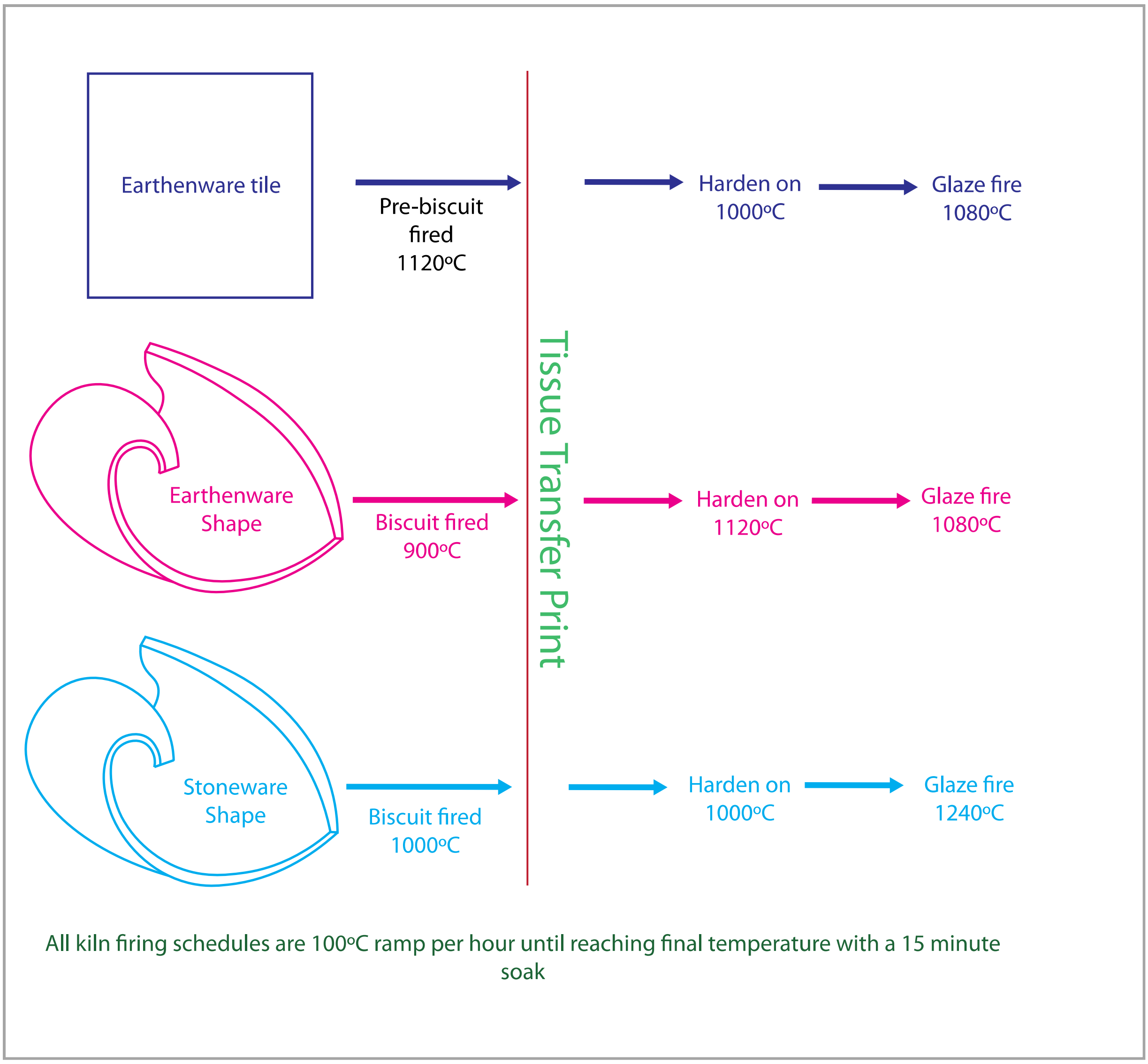


Fig.279. Diagram giving an overview of the firing schedules for the clay bodies used in this investigation. By Lisa Sheppy

The series of artworks presented as the conclusion to this chapter demonstrate how a closed industrial ceramic print process has made the transition into a method of contemporary printmaking practice.

Fig.280. The differences in the clay bodies: industrially, tissue transferware utilised earthenware as a clay body as it emulated the whiteness of more expensive wares such as porcelain and bone china. The coloured prints are accentuated more on the earthenware's white background and the glaze surface is glassy and bright

Fig.281. The differences in the clay bodies: the stoneware has fired to a dark cream toned clay body, which is a cruder and textured printing surface. The glaze surface is an eggshell finish rather than gloss one, which suggests another artistic and creative choice for tissue transferware

Fig.282. The resulting ceramic pieces equally allude to transferware's industrial past whilst suggesting new possibilities for its future use

In the next and final part of Chapter Eight, the case for the future of transferware is defended further through a comparative study of on-glaze and tissue transfer methods of production. This reveals the technical and visual language differences in both methods of production.

Chapter Eight, Part Five

Why bother with tissue transfer? An on-glaze ceramic transfer method comparison

8.5. Introduction

Tissue transferware has never previously made the transition from industry to art practice. However, on-glaze ceramic transfer methods have made this transition and is an open and easily accessible resource. I have already discussed the research of Dr Kevin Petrie, who worked on these on-glaze transfer methods for his PhD (1999), in Section 1.4.2.a., and of Stephen Dixon, who worked on equivalent research at MMU (see Section 7.2.3.a.).

My study is the first PhD investigation wholly dedicated to establishing tissue transfer methods for art practice, thus making this transition from closed industry knowledge to an open and easily accessible method of ceramic decoration. In this last part of Chapter Eight I present a series of printed ceramic artworks which replaced tissue transfer with on-glaze methods. The aim of this was to highlight the differences and limitations of on-glaze transfer methods, to further advocate tissue transferware as a method of printmaking that is worth saving, and thus establishing it in contemporary printmaking practice.

8.5.1. Background to on-glaze transfer methods for art practice

On-glaze methods of ceramic decoration are taught in printmaking departments as part of BA and MA studies, and Dave Fortune leads the practice at UWE. In the 1990s Dave Fortune, Steven Hoskins, and Richard Anderton, who all own the joint patent of the U-WET process, worked on this method as a way of introducing ceramic printmaking onto the courses at UWE. Fortune is the senior manager of the screen printing department at UWE and runs workshops, seminars, and summer schools in the UK and abroad. Professor Hoskins is co-founder of the CFPR with Anderton, an academic and author of several printmaking handbooks including *Inks* (2004), *Water-Based Screen Printing* (2001) and *3D Printing for Artists, Designers and Makers: Technology Crossing Art and Industry* (2013). Anderton is the retired head of school at UWE, and founder and director of the MA in Multi-Disciplinary Printmaking.

The result of their research saw the end of oil-based inks being used for printing decal transfers, to be replaced by a water-based system. A screen printing medium mixed with enamel colour provided the ink, and a water slide paper was developed using research with John Purcell Paper to produce U-WET paper. This process produces an on-glaze enamel transfer, which is applied to a gloss fired object and fired at a low enamel temperature of approximately 800°C. In a conversation I had recently with Dave Fortune he explained that a visit to Berlin Academy of Arts led to his investigation into the use of safer leadless ink with no solvent use. He saw this as an important way forward for education, as it would enable students to make work under much safer conditions. He has introduced this method into schools subsequently, opening the possibilities for children to use screen printing in a school environment.

8.5.2.a. On-glaze transfer printing to replace tissue transfer

In this section I show how an on-glaze method of printing replaced tissue transfer methods in this study. On-glaze ceramic decoration has become a straightforward method of printing an image onto a ceramic form for contemporary artists. Many bureaus now exist where a digital file may be sent via an online system and the ready-to-use transfer sheet is sent back through the post. For this I used *Ceramic Print Works* in Stoke-on-Trent, as they were very helpful and efficient. The technology used for ceramic transfers is equivalent to photocopying, with the ink being replaced by a ceramic version. Another term for a ceramic transfer is a ***decal***, which works akin to a ceramic sticker. The ceramic transfer or decal has a backing paper which is removed by soaking in water, and a thin coating on the front which burns off during the firing process. The printed copy is made from ceramic material fused with the top layer of glaze and becomes permanent when fired in the kiln.

For this I revisited the original image files created in Adobe Illustrator and assembled a collated sheet of images in four colours. The images and equivalent colours were used to replace those in the previous tissue transfer printed artworks, to highlight the unique characteristics of both methods.

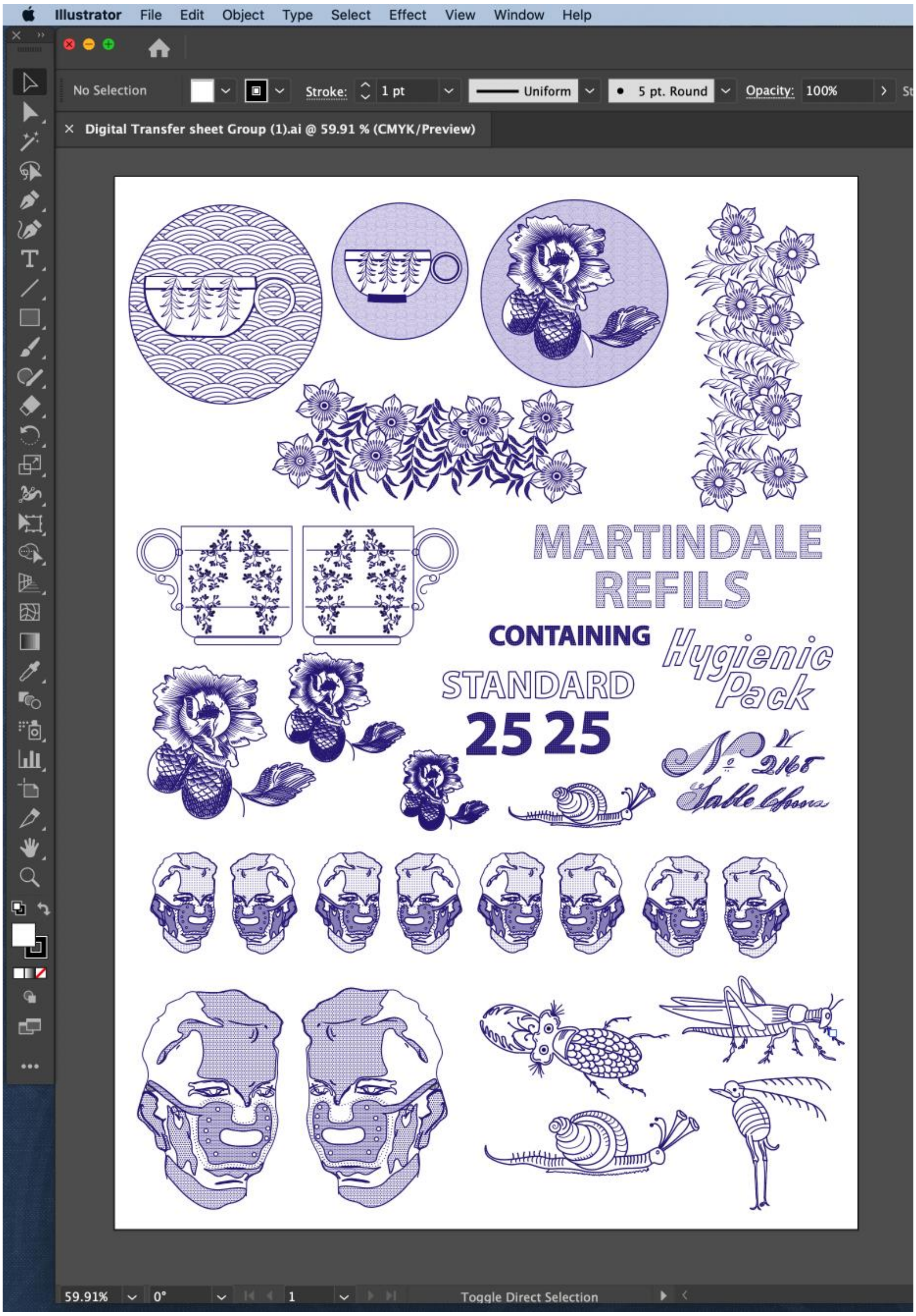


Fig.283. Vector Illustrator images collated from studies in blue to fit an A3 frame

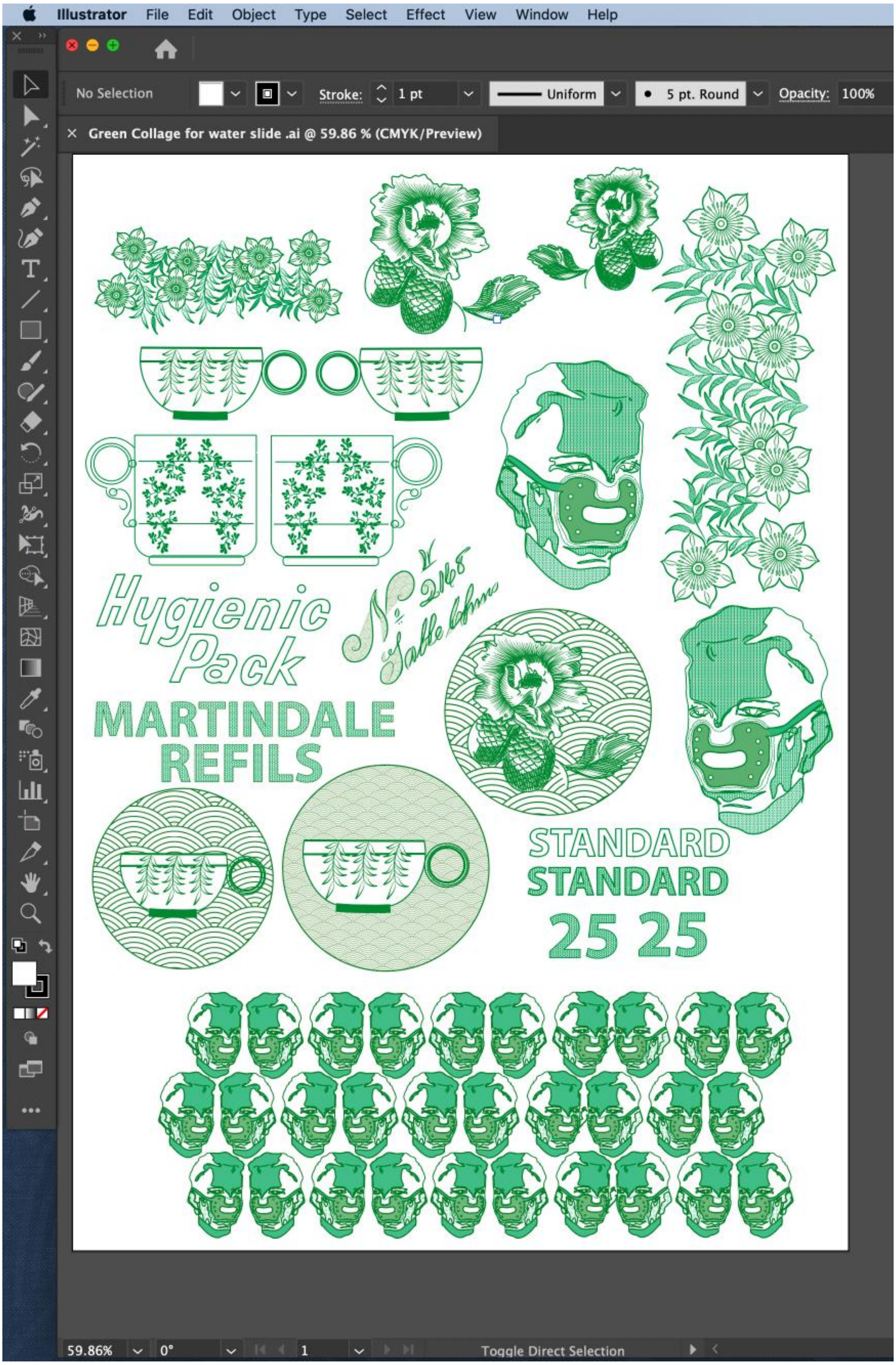


Fig.284. Vector Illustrator images collated from studies in green

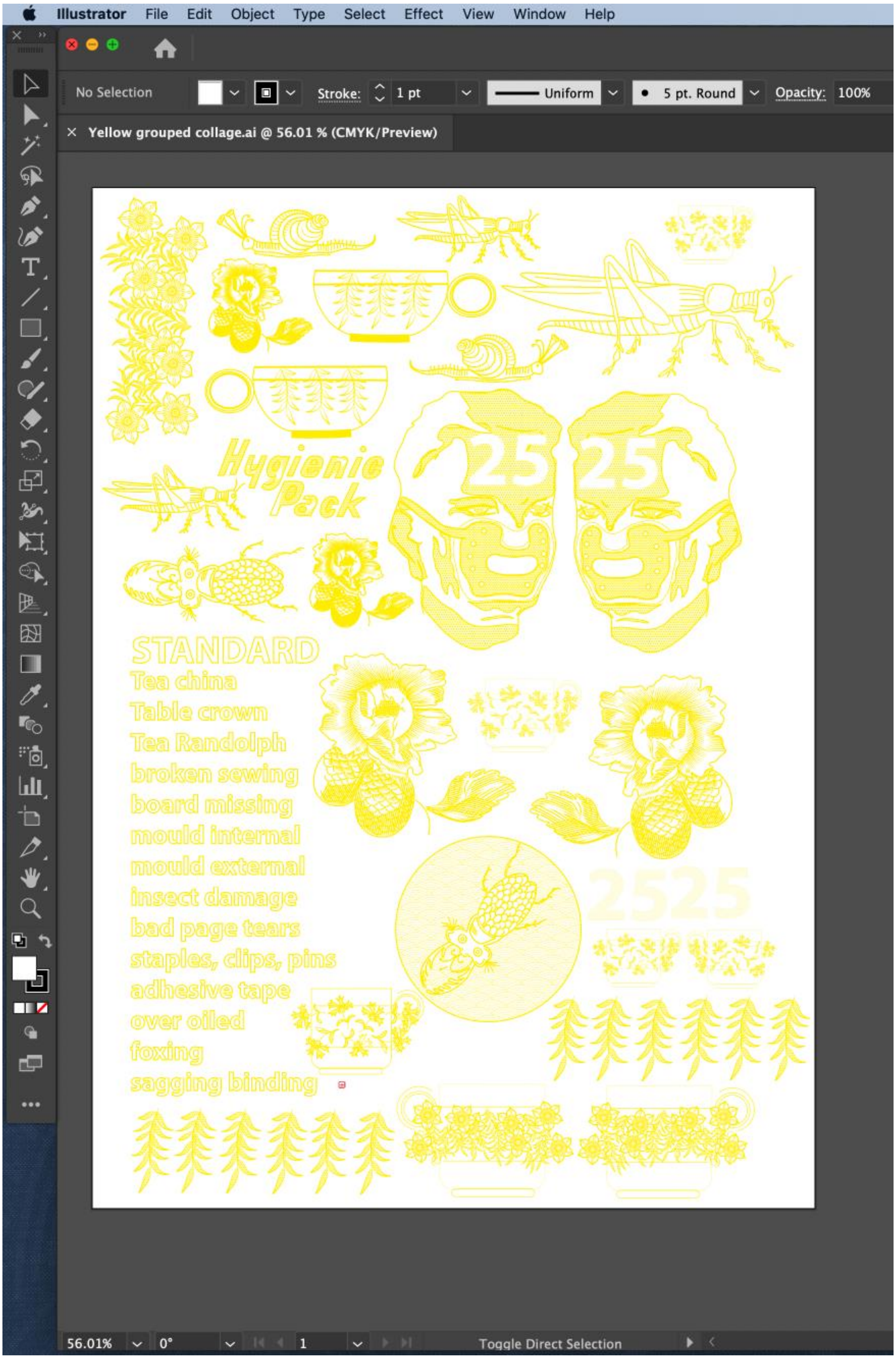


Fig.285. Vector Illustrator images collated from studies in yellow

Fig.286. Vector Illustrator images collated from studies in magenta

8.5.2.b. Replicating the visual language of tissue transfer with on-glaze methods

Below I present a series of images documenting a demonstration of on-glaze digital transfer methods, with observations and discussion in the captions.

Fig.287. For this demonstration the 3D shapes for the main study were used as a canvas for printing. The visual language was maintained, to emphasise the differences in the two methods – on-glaze and tissue transfer

Fig.288. The transfer is released from the backing paper when immersed in water

Fig.289. The transfer slides from its backing paper with a thin layer of glue remaining on the back surface to assist the image positioning. The transfers are fragile at this point and can easily tear, so care is taken when handling. The transfers are blotted with absorbent material and left to dry for 24 hours

Fig.290. The printed ceramic on the left has been fired, resulting in a fused magenta printed pattern. The ceramic on the right has not been fired and shows the difference in colour from the pre-fired transfer

Fig.291. The images are selected as an artistic choice to create visual dialogues. The separate colours are layered, allowing for each layer to dry before the next one is applied

Fig.292. The image is accumulative, with the transfers sitting on the uppermost gloss glazed ceramic surface

8.5.3. Firing schedule for on-glaze

The transfer sits on top of an already glazed ceramic object and is a low temperature firing. The small amount of glaze in the transfer fuses gently onto the ceramic substrate to become permanent.

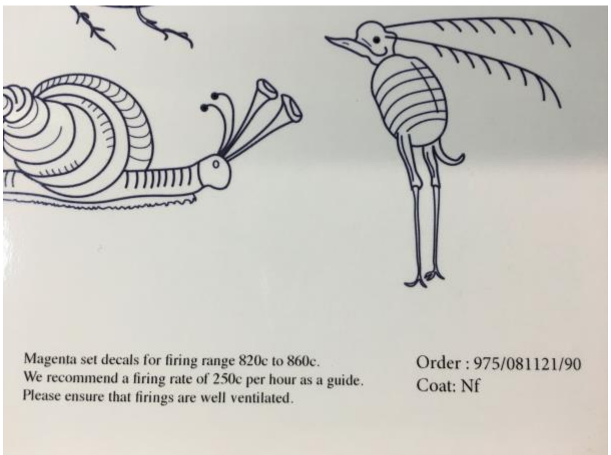


Fig.293. The pieces were fired at a ramp of 250°C per hour until reaching the maturing temperature of 840°C

Fig.294. The group of ceramic 3D shapes were fired according to the 840^{o}C firing schedule

Fig.295. This low firing temperature fused the colour onto the surface of the ceramic and completed the method of production

8.5.4. Completed on-glaze 3D decorated shapes

The examples below represent the results of the resolved artworks printed with digital on-glaze transfers, with observations and comparisons to the tissue transfer equivalent.

Fig.296. The completed 3D artworks have a clean and clear mark making aesthetic and the firing does not alter the pre-fired works to any great extent

Fig.297. Apart from magenta the colours did not change significantly in the firings. The transfer application onto a complex 3D surface was challenging, as it naturally repels a curved surface

Fig.298. Two views: the print was technically unblemished, with a uniform one-tone mark in the final image

Fig.299. The on-glaze decoration appears as a one-tone image with a crisp defined, unbroken line

Fig.300. The tissue transferware equivalent has a more nuanced range of mark making. The printed marks are tonal and have the formal characteristics of an engraved mark. The colours are more intense and saturated and pertain to the transferware aesthetic

Fig.301. The differences between both types of transfer printing, with the on-glazed piece to the left

Fig.302. On the left the printed patterns for on-glaze appear flat, featureless, and uniform, transforming little from the original transfer sheet before firing. The tissue transfer pattern on the right has an autographic aesthetic, with a nuanced printed mark alluding to traditional engraving and transferware

Fig.303. The imperfections of the tissue transfer on the left enhance its stylistic character and accentuates a unique print aesthetic

8.5.5. Conclusion: why bother with tissue transfer?

In this final part of Chapter Eight I have examples of an on-glaze method of transfer printing to evidence its physical and formal characteristics using the identical imagery from this study. This resulting artworks provided useful material to make explicit the differences between the two methods.

In summary, the method of transfer printing with on-glaze digital transfers was uncomplicated and straightforward, when following the procedures detailed in this chapter. There was no visceral printmaking occurring in this operation: with no ink, no physical printing, and a process akin to applying stickers to a surface. The method in this demonstration achieved a clear and one-tone mark-making aesthetic, with limited transformative properties taking place in the ceramic firing process. The visual indicator of transferware is not overly evident in these artworks, despite the application of the identical colours, imagery, shape, and form.

The adverse to this observation applies to tissue transfer: from inking to printing, transferring to firing; the transformation of production exists at every stage. There is much more that can go wrong using tissue transfer to achieve the visual language seen through all its methods of production. My printmaking perspective was at the centre of all the creative and technical decisions, and the visual language is clearly evidenced in the finished artworks.

In Chapter Eight I have explored the tissue transfer methods of production in forensic detail, bringing my printmaker's perspective to it. In this I have proved its value to artists, so that it can make the transition from a historic industrial method of production to a contemporary printmaking practice.

Chapter Nine

Conclusion

9.1. Introduction

The aim of this doctoral research project, as stated in the Introduction, was to design and document a practice-based study on tissue transferware through the lens of contemporary printmaking. The overall purpose and future impact of this study is to reinstate a historic and near-obsolete industrial craft and preserve the knowledge for future creatives.

The research design incorporated an adaption of the theories of Frayling's (1993) arts research model with three divisions of practice: research *into*, *through* and *for art*, using my background as an artist and former lecturer in art and design. These divisions represent three phases in the research that correlated to finding a solution to the aim of this study.

This conclusion is structured under the following headings, to identify and evaluate the key findings and outcomes of the study:

- 9.2. A new method of producing tissue transferware
- 9.3. Dissemination
- 9.4. A contribution to new knowledge and a future for tissue transferware

9.2. A new method of producing tissue transferware

9.2.1. Research into tissue transferware

To find a new method of producing transferware it was essential to fully understand and define tissue transferware. Soon into my research I realised that in-depth knowledge did not exist in obvious places such as the university's library shelves or word searches on the internet. My background as a printmaker directed me to familiar sources based on printmaking and ceramics for artists, such as Scott's (2002) *Ceramics and Print* and Petrie's

(2011) *Ceramic Transfer Printing*. However, whilst the visual language of tissue transferware appears in many contemporary examples in their books, such as with Hodes and Raftery, the method of production was not evident in their practices. In both these texts there is an illustrative demonstration of how the process works generally, but this goes no further technically or creatively. Available literature containing sections on historical tissue transferware, such as Copeland's (1980) *Spode's Willow Pattern* and Neale's (2005) *British Transfer-printed Pottery Patterns* describe the process with a simplified historical explanation in general terms but offer no detail of how the method worked technically.

To gain more in-depth and historical knowledge of the technical methods of production I was directed to a subscription-only ceramic history repository which provided specificity to the historical lineage of this distinctive method of production. This informed my research significantly and gave me a better understanding of the context and development of transferware. The specialist literature revealed several individuals from approximately 1750 who traded as engravers and instigated a method of industrial production which became mass produced and exported all over the world, peaking in around 1880. The method began with an on-glaze technique referred to as *bat printing*, and moved to *tissue transfer printing,* an underglaze technique, when the innovation in papermaking enabled Staffordshire to become the centre of mass production of this ware. This was all explored in detail in Chapter Four.

To enhance the narrative and personal perspectives on the method of production I was introduced to Paul Holdway, who contributed significantly to this investigation. Holdway was the master engraver at Spode, with over forty years' experience of working in the industry. He offered the missing knowledge that was not documented in the historic literature. Much of Holdway's knowledge of the copperplate engraving process had been gained through many years of tacit practice and skill. However, on many occasions he reflected on his practice as an engraver, as he engaged with the study, commented on the undocumented nuances of the process, and provided spoken and practical demonstrations. Holdway spoke about his craft technically and shared stories of people and projects, seeing himself not as the leader of the whole operation, but part of a collective who worked together for the same creative end: to produce a refined and exquisitely manufactured ceramic object. This was documented and discussed in Chapter Four.

In Chapter Seven I described how my research looked to leading writers about industrial craft, which provided some indication of why tissue transferware had become a discarded industrial craft, making the engravers redundant. Sennett (2016) speaks of *tacit skill and mastery* as the death of creativity and the antithesis of innovation. The mastery of the engraver performing a skill akin to a machine was undervalued and subsequently lost. Patterns and decoration remained stagnant for tissue transferware, without any research and development or business development strategies, causing it to become dated and unremarkable. Burleigh Pottery have managed to remain buoyant as the last remaining manufacturer of tissue transferware sold as a luxury product, not because of their mastery of manufacturing, but due to an effective marketing strategy. The product is now shrouded in nostalgia, with the label *handmade* being touted as its unique selling point (Burleigh, 2022).

In Chapter Seven I included Leach (1940) in my discussion on visual language, discussing his derogatory views on industrial forms of ceramic decoration. At the time he was writing the main method of decorating mass produced ceramics was tissue transfer, which Leach (1940) regarded as *the death of free pattern painting* (Leach, 1940: 121). He was the leader of the studio ceramics movement, and his ideologies had a lasting effect on the community of artists who make ceramics. Leach's derogation of *the division of labour* was also discussed in Chapter Seven, along with Babbage's (1832) belief that machines were the future for innovation. The practice of tissue transferware functioned as a machine under the division of labour, with no one individual being responsible for the entire operation.

This discussion continued in Chapter Seven with and outline of Shales' (2017) ethnographic approach to research and his positive belief in *collated craftsmanship* inside the factory. Brownsword, who introduced me to Holdway as a participant, corroborated this notion of *collated craftsmanship* in his art practice and research. In Chapter Seven I included excerpts of a lecture by Brownsword that I attended in 2019 at Keele University. His motivation as an artist, ethnographer and researcher provided a foundation from which I have generated my own ideas. He challenges perceptions of ceramic histories by centrally placing individuals who worked in the closed potteries, usually seen as incidental and discarded, as the leading subjects of his practice. Brownsword builds on the history and the cultural value of Stoke-on-Trent by capturing previous artisans' contributions to its cultural heritage, which I have taken into my research project, placing Holdway as an essential participant in this study.

Access to the archive at the Museum of Royal Worcester enhanced and completed my narrative of the early history of the process, with a physical examination of primary sourced materials, as described in Chapter Five. I was given open access to primary sources including a taxonomy of pattern books, design sheets, image library, engraving plates and tissue prints held on the archive shelves. At that stage in my research, I was given extra time to work at a place of my choosing to contribute towards the doctoral study. I selected to work in the archive at Royal Worcester to have time to observe, record, reflect and respond engaging by means of touch with historic materials in the under-examined archive. I was attracted to the DNA of pottery workers within the materials such as the pattern books, which represented the meticulous, slow work of the designers and artists in the nineteenth and twentieth centuries. This experience gave me additional motivation and inspiration for the project, along with research materials I could respond to further into the project. Evidence of this much-needed creative interaction is given in Chapters Seven and Eight, detailing how I have responded as an artist to the archive material.

9.2.2 Research through tissue transferware

I have positioned engraving at the head of the production methods for tissue transferware, however in Chapter Six I placed each individual component of the entire operation under scrutiny. My aim, to design and document a process under threat of disappearing, required the whole operation to work sequentially and technically. To achieve this, I derived a method of production based on the principles of the historic process, through a series of iterative tests.

This stage in my research took place away from the CFPR, in my home studio, as at the beginning of the Covid-19 pandemic the university instructed all students to work from home. This was a worrying time universally, however the impact was felt significantly for this doctoral study as many of the planned activities were cancelled. Chapter Six documented a series of tests that were generated directly from my handling of the printmaker's materials, tools, and equipment, as an interpretation of tissue transferware methods of production. From the printmaker's perspective I recorded this emerging knowledge, through the critique set out in this thesis based on material thinking and reflection in action, to form a method of production that would work technically. Through this physical interaction with the tools, materials and equipment, a framework for future practice was established.

9.2.3 Research for tissue transferware

In the final stages of the doctoral study, I also worked from my home studio, as access to the CFPR was limited. This was due to both the centre moving locations and the effects of the ongoing pandemic. At that stage I took on the roles of both artist and researcher to share my knowledge of the process with other creatives on a small scale. The method of production I designed and have documented in Chapters Six and Eight is intended to be used by an individual artist or a small collective, so the imposed limitations worked as a positive trajectory for the study.

A technical and creative interpretation of tissue transferware was presented with material evidence of my creative outcomes in Chapters Seven and Eight. In Chapter Seven, Part Two, I directed the discussion to my art practice, to clarify where my perspective as a printmaker was situated in the research project. I defined my use of visual language to evoke my subjective tissue transferware narrative with a personal interpretation of research materials and making. My intention was to visualise a creative body of work, materialising the research to demonstrate how a process under threat can be reinstated using art practice. Chapter Eight focused on the applied method of production that is within reach for all creatives: open, accessible, and speaking the language of contemporary printmaking. To do this I split each stage of the production method into a walk-through documentation of the process, with visual examples at each stage relating to my personal interpretations.

My studio became the research context as I worked through each defining activity, documenting them with photographic evidence of live actions. The visual and textual language of material thinking and reflection in and on action defined the method of production for artists detailed in Chapter Eight, in the production of visually intriguing outcomes.

9.3. Dissemination

Due to the restraints imposed during the pandemic, public dissemination was limited in this study, as I was unable to involve external participants in practical workshops. A masterclass had been scheduled, involving printmakers and academics from AKI, Academy of Art & Design in The Netherlands, and the University of Lancashire. I had planned a workshop for this group to work with tissue transferware and create interpretations which would lead to further group discussions and activities. Despite the cancellation this has become a plan: to share the outcomes of my research with other creatives for future projects.

9.3.1. Presentation at the Centre for Printing History and Culture (CPHC), Birmingham.

John Grayson is an artist and researcher who has recently completed his PhD on the lost craftsmanship employed in the eighteenth century enamel trade. In May 2021 Grayson asked me to contribute to a presentation evening for The Centre for Printing History and Culture (CPHC), where I discussed my progressing research in a ***Pecha Kucha*** style presentation titled, *A Future for Transferware?* This was a positive opportunity to share my research with other researchers from historical fields of practice that were different to my own, and to use my pared-down presentation to clarify my findings.

Fig. 304. The poster for the *Pecha Kucha* event.

I shared this with others who were able to attend via Zoom

9.3.2. Collaboration with photographer Frank Menger for future projects

In the summer of 2021 I worked with Frank Menger, who is a senior lecturer in photography at UWE, specialising in analogue photographic methods. We worked on a photoshoot to produce a record of the physical materials from my research that included materials, tools, and outcomes from the study. This was collaborative, allowing another creative individual to interpret the primary materials from my research as a contemporary perspective of tissue transferware. I include several of the images below and provide more examples in Appendix Nine (Section A. 9.3.2.).

Fig.305. Printed objects handled to emphasise the 3D shapes and scale of the printed surfaces.

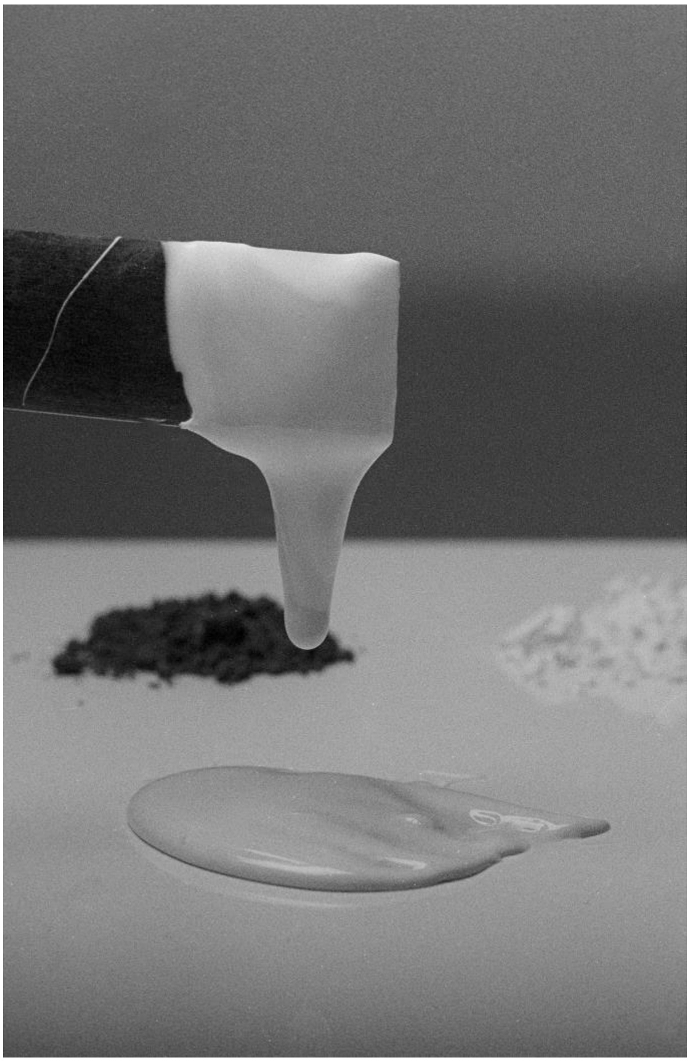


Fig.306. The consistency of the ink used for tissue transfer was viscous and thick.

Fig.307. This photograph highlights a cold ink process used for tissue transfer, unaided by the hot plate used for traditional intaglio processes

9.3.3. Open day at the CFPR

I took part in a series of industry open days to celebrate the opening of the new CFPR building on UWE's Frenchay campus in September 2021. This was one of the first opportunities I had to present my research and talk to the public, showing them my physical research materials.

Fig.308. Opening event for the new CFPR UWE campus building at Frenchay. I presented my research materials based on all the stages of the process

Fig.309. Physical objects on display assisted my verbal explanations

Fig.310. Visitors were able to explore the research material through a sense of touch, examining the tools and works in progress

Fig.311. Printed ceramic objects in progress, together with fully glazed pieces

Fig.312. The visitors to the centre expressed great interest in the study and gave me positive feedback and requests for workshops

Fig.313. Sharing my practice with others helped me to clarify the study and communicate with confidence

9.3.4. Translation: An exhibition of printmaking by staff at the University of the West of England, Bristol

Dissemination of the doctoral study was planned for 2022. I exhibited several the artworks in an exhibition by UWE printmaking staff members at Bower Ashton campus.

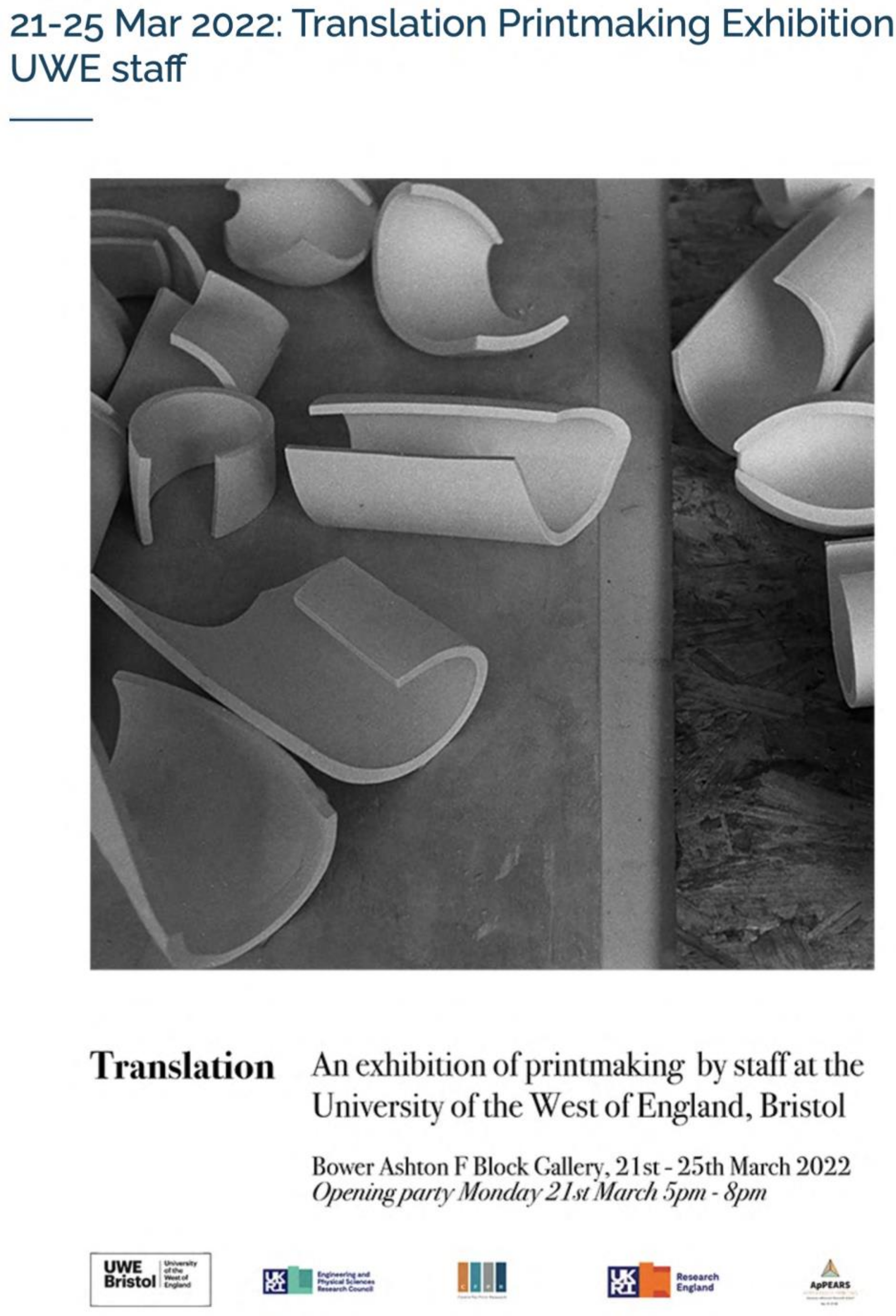


Fig.314. Poster for Translation. An exhibition of printmaking by staff at UWE

9.3.5. Dissemination in 2022 and 2023

Dissemination of the project continued in 2022, with the presentation of a reflective paper and an exhibition at *Impact 12* at UWE in September 2022. The project was also featured in Pressing Matters 21 magazine with an article titled *Overlooked and Obsolete* in January 2023 and in *A future for transferware* in the California Printmakers Journal in 2023. I have also created a WordPress website which allows my artworks to be viewed along with updated information about my practice (Sheppy, 2023).

OVERLOOKED AND OBSOLETE

A little bit of history brought bang up to date, Lisa Sheppy's ceramics shine a light on the long held relationship between pottery and an industrial print process. Still used by just one small manufacturer nowadays, tissue transfer is an almost obsolete way of putting patterns onto ceramic wares before they go into the kiln. Oil based ink is printed onto sheets of tissue paper and pressed onto the clay surface. When water is added, the tissue melts away, leaving just the ink behind.

"This knowledge was hidden inside the closed factory," says Lisa, who delved into the process for her PhD at Bristol's Centre For Print Research. "I soon realised much of the historical know-how was difficult to uncover as it doesn't exist in a written form – it lives in the people who hold the tacit knowledge in their bodies." Inhabiting the process, Lisa made a range of contemporary ceramics decorated with tissue transfers, but tweaked the traditional copper plate engraving with an innovative digital method. "It is reinterpreting a historical process, not replacing it, maintaining engraving printmaking at the centre," she says.

Engraving for tissue transfer started out as an industrial process and, unlike many other print techniques from similarly commercial origins, hasn't made the leap into creative printmaking. Recognisable by its distinctive aesthetic, intricate images are constructed from monochrome lines and dots. "The beautiful printed marks appear painterly with soft tonal ranges," says Lisa, who hopes her work in this area will inspire fellow artists to give tissue transfer a try. "It was a whole new area for me, testing and altering the process to achieve a working method," she says, and her strangely shaped pieces of pottery are the result of walking herself through the procedure over and over again. "This is an open and accessible form of printmaking on ceramics that speaks the language of tools and materials that are within reach of all artists," she enthuses.

To find out more about Lisa's tissue transfer research watch 'An industrial craft reinstated: A printmaker's perspective on tissue transferware' on YouTube.

lisa.sheppy • www.lisasheppy.co.uk

8

Fig.315. Two views. A screenshot of the article and an image of myself with Pressing Matters 21 magazine which featured my article, *Overlooked and Obsolete* (2023)

9.4. A contribution to new knowledge and a future for tissue transferware

I return to the beginning of this Conclusion and the overall aim of my doctoral research: to document and design a practice-based study on tissue transferware through the lens of contemporary printmaking, to reinstate a near-obsolete industrial craft for future artists.

I have endeavoured to contribute to new knowledge through this PhD study, to examine and interpret a historical method of ceramic decoration and give it new life. The method of production I have discussed is accessible and speaks the language of tools and materials that are within reach of an individual artist or a small collective.

My innovation is in re-interpreting a historical process, not replacing it, keeping engraving printmaking at the centre. Industrial engraving for tissue transfer was a manually automated process, and the repetition of mark making produced the same motifs consistently for commercial markets. This knowledge was hidden inside the closed factory and never made the transition to contemporary art practice. My doctoral study has exposed this knowledge through providing a walk-through demonstration of how the method works technically, which I created by responding to it as both a researcher and artist. My art practice is the means through which I have materialised the research into a series of art works which contain the personal narrative of my responses to the themes resonating through this study. From this I have established the potential for future artists to work with this distinctive form of printmaking on ceramics, in the hope that it will become part of creative practice in the future.

Glossary

A

Assemblage is a term used in art for a three-dimensional collage.

B

Biscuit firing – traditionally in the English potteries, ***earthenware bodies*** are fired to full maturity, around 1120^{0}C. When the print is transferred, hardening on firing temperature is 1000^{0}C and then glaze is applied and fired at a temperature which is lower than the biscuit temperature. For ***porcelain and stoneware bodies*** this process is reversed, the biscuit firing is typically around 1000^{O}C and the glaze firing can be up to 1400^{O}C.

Bone china is a form of porcelain developed by Spode in the early nineteenth century to replace hard-paste porcelain. It is fired at a high temperature, rendering it durable and strong. Bone china contains three main ingredients: kaolin (china clay), calcified animal bones (flux) and flint (silica).

Black print refers to an on-glaze transfer printed decoration with black colour. The transfer is made with the means of bat printing with a gelatin pad, as discussed in Holdway's description of the process in Chapter Four. See also ***On-glaze bat printing*** in this glossary.

C

Camera lucida is a Latin term meaning *light chamber* and is an optical device for artists to reflect a scene onto a drawing or painting surface. The projected image assists the artist to trace and make outlines, rather than having to draw directly from observation.

Chinoiserie is a style of decoration imitating Chinese and other Southeast Asian motifs. It is associated with rococo styles of decoration and made popular with transfer printing in the eighteenth and nineteenth centuries. Jean Pillement was a French artist living in England during the 1750s whose style was described as chinoiserie – referred to in Chapter Five based on my archival study at the Museum of Royal Worcester.

Chromium electro plating is a technique using acid and an electrical current to coat one metal with another. In this thesis the process refers to coating a copperplate in chrome to extend its useable life. Originally plates were coated with other metals such as steel and nickel, and this was replaced solely with chrome at Spode from 1976.

Cobalt oxide is the most volatile colourant for ceramic decoration. It produces a vibrant blue colour and remains stable at high firing temperatures. It was the most common colourant for transfer printing.

Cold process is referred to in this study as part of the bat transfer printing process. The glue bat made from animal gelatin is used to transfer the cold oil print onto the ceramic gloss glazed object. The oil print is then dusted with a ceramic colour made from an oxide to reveal the pattern.

Copperplate engravers worked professionally with engraving in the print and ceramic trades.

Creamware is a cream-coloured, refined earthenware with a lead glaze over a pale body. Josiah Wedgwood perfected the use of creamware and supplied it to Queen Charlotte and Catherine the Great, using the trade name *Queen's Ware*. It was one of the first clay bodies to be used for transfer printing by Sadler and Green under their partnership with Wedgwood and Co.

D

Decal is a ceramic sticker used for ceramic decoration. Decals are applied with a water slide technique in which removing the backing paper leaves a gummed print which can be applied to the glazed ceramic. This is an on-glaze transfer process that is described in Chapter Eight of the thesis.

Delftware is a tin-glazed earthenware from the Netherlands dating from 1600 that was used to replicate the properties of Chinese porcelain. Delftware is recognisable as a painted blue and white pattern illustrating religious motifs, native Dutch scenes with windmills and fishing boats, hunting scenes, landscapes, and seascapes. Other colours were used for decoration, such as Manganese Blue and Naples Yellow. Delftware pottery and tiles were in great demand during the seventeenth and eighteenth centuries and were imported to the UK from the Netherlands to meet this demand. Transfer printing aimed to fill this demand and replicate Delftware, as discussed in Chapter Three with reference to Sadler and Green.

E

Earthenware is a low fired porous clay body closely associated with the tissue transferware process. Earthenware contains three main ingredients: kaolin (china clay) plus ball clay (containing impurities), feldspar (flux) and flint. It is more plastic than porcelain so therefore more effective for casting, remaining stable during the firing process. The main properties of earthenware are its high plasticity and high porosity, and it is coloured in white, buff or red.

Eduardo Paolozzi *(1924- 2005*) was a Scottish artist who made works in painting, printmaking, collage, assemblage, and sculpture. He is regarded as one of the leaders and originators of the Pop Art movement in the UK from the 1950s onwards.

Enamelling *or* ***Vitreous enamel*** is a material made by fusing powdered glass to a substrate by firing, usually between 750 and 850°C. The powder melts, flows, and then hardens to a smooth, durable vitreous coating. The word vitreous comes from the Latin vitreum, meaning glass. In this study enamelling refers to the trades in Bilston, Birmingham, and Battersea, where enamel colour was applied to a copper substrate and fired to produce a coloured impervious opaque glass layer. Bat printed transfer designs were applied to this layer as decoration.

Enamel kiln is a particular kiln designed for the ***enamel firings*** detailed above. Traditionally the entry point of the kiln was a door at the front, allowing for quick access to the material inside.

F

Flexography is a process that uses a photopolymer plate printing process. The plate consists of three layers: a metal backing sheet of aluminium or steel, and a photosensitive layer that hardens when it is exposed to UV light. An adhesive layer bonds the polymer to the plate and prevents light reflection. The surface of the polymer is protected by a plastic film which is removed at the outset of the process. This process is still used for printing patterns at *Portmeirion Pottery.*

Flocculant is a catalyst binder addition to glaze or slip (liquid clay), resulting in gelling. The glaze or clay becomes thicker and performs like a thick paint rather than a runny liquid.

French Rococo style is a term used to describe a genre of French painters from the early eighteenth century which includes Watteau and Boucher. Their paintings distinctively contained portraits of groups of the higher classes, often patrons, in romantic landscape settings, involved in leisure activities. The style was opulent, with references to fictitious places containing Chinese and other exotic motifs. The style is linked to ***chinoiserie*** in this glossary.

G

Ghosting is a faint printed image with the loss of intended detail.

Gloss firing is the final glaze firing of a previously biscuit fired ceramic object. Referred to in this study on tissue transferware, the glaze vitrifies and renders the ceramic impervious to liquid, able to sustain continuous domestic use by laminating the printed design underneath the glaze.

H

Hard-paste Meissen is a high fired porcelain clay body which is referred to as *true porcelain*, first made in China around the seventh and eighth centuries. From 1710 Meissen was the first European porcelain manufacturer to use hard-paste porcelain in its products as a copy of Chinese imports.

Hardened on firing refers to the interim firing after the transfer printing and before the glaze firing. This firing burns off the oils and printing residues and fixes the underglaze print to the biscuit ware.

Hot process was used for industrial tissue transfer printing. A hot plate warms the ink so it becomes more workable on the engraving plate and therefore assists printing. This is referred to in Chapter Four and illustrated with images taken at Spode Museum Trust Heritage Centre. For roller printing a heated element runs inside the core of the roller, heating the ink on contact with the engraved pattern.

L

Leather-hard clay is when it is partially dried out but still in a workable state.

M

Martindale masks were industrial dust masks in production in the 1950s and ’60s in the UK. They were constructed of a malleable aluminium frame and a cotton wool pad, fitting tightly onto the nose and mouth with an elastic head band. They were re-purposed in the 1950s to be worn as protection during the Great Smog in 1952 for key workers.

Matrix is the substrate from which a print is made, such as a copper plate, wood, sheets of linoleum, sheets of acrylic and slabs of limestone.

O

On-glaze bat printing is a transfer printing method described in Chapter Four, where the printed decoration is fired on top of the glaze of a ceramic object. This was also the method for enamelling. On-glaze is fired at a lower temperature and is the last stage in the firing process on ceramics. As the firing is made at low temperatures the printed design is more vulnerable with continuous use.

On-glaze transfer is an example of a Decal in this glossary and referred to in Section 8.6 in this thesis.

P

Patch boxes were produced in the enamelling trade at Bilston, Birmingham and Battersea and were small decorative boxes containing the black patches originally used to cover smallpox marks on people's faces. The small gummed taffeta dots became a fashion accessory in the seventeenth and eighteenth centuries to emphasise beauty, white skin and features on the face. They were often given as gifts, and the printed decorations contained messages of love and friendship.

Pecha Kucha is a method of presenting with 20 slides and 20 seconds of speech, designed for speakers using PowerPoint to be concise and organised with their ideas.

Photopolymer plates are used in *flexography* – see in F.

Planishing is the act of repair applied to a damaged or worn engraving plate for tissue transferware. This is illustrated in Chapter Four in this thesis.

Pop Art was an art movement that took place in the UK and America concurrently in the 1950s and '60s and included many celebrated artists. In the UK artists included Eduardo Paolozzi, Richard Hamilton, David Hockney, Peter Blake, Pauline Boty, Joe Tilson and Allen Jones. In the US artists included Andy Warhol, Roy Lichtenstein, Robert Rauschenberg, Jasper Johns, Tom Wesselmann, James Rosenquist, Claes Oldenburg and Jim Dine.

Porcelain is a high fired white translucent clay body which can be divided into three categories: hard-paste, soft-paste, and bone china. The main properties of porcelain are low permeability and elasticity, strength, hardness, toughness, whiteness, translucency, and resonance. Porcelains contain three main ingredients: kaolin (china clay), feldspar (flux) and silica (sand), and are referred to as a triaxial blend in glaze chemistry.

Potters' tissue is the fine tissue paper used for tissue transfer printing. It is very similar to cigarette paper, strong and does not break down when wet.

R

Relief printing is the adverse of intaglio printing. The printing substrate – be it a wood block, linoleum or acrylic – is the uppermost printing surface. The surface is inked, and a print taken directly from it.

Robert Rauschenberg (1925-1988) was an artist associated with the Pop Art movement in America in the 1960s. His artworks incorporated mixed media elements referred to as 'combines'. Painting, printmaking, sculpture, and readymade objects were combined to construct a unified expressive image. His artworks contained cultural symbols and political references.

Rococo see ***French Rococo style*** in F.

S

Screen printing is a method of printing using a mesh screen to create a stencil. The stencilled areas resist the ink when it is passed through the screen. Light sensitive emulsion can be applied to the screen which combines a photographic process with printmaking.

Sgraffito comes from the Italian word 'to scratch' and in pottery terms refers to making incised lines and marks through layers of coloured slips.

Soft-paste Medici is a low fired porcelain clay body referred to as *artificial porcelain*. Medici porcelain from 1570 in Florence was the first successful attempt in Europe to make imitations of Chinese porcelain using a soft paste clay body.

Soft soap is used for tissue transfer print, to help with the tissue manipulation when transferring it to bisque ceramics. It stops the oil in the ink from sinking into the tissue and remaining on the surface, so more ink is capable of being transferred. Soft soap would also have been used in mould making in the ceramic industry. The application of three layers of soft soap (size) is applied to the plaster mould and helps release the ceramic cast object.

T

Tam O'Shanter polishing stones are quarried from the Dalmore Mill in Ayrshire, Scotland. They were used by engravers at Spode to polish their copperplates for preparation and to repair the plates.

Three-dimensional relief is a term in art relating to flat and sculptural elements on a wall-mounted artwork.

U

Underglaze tissue transfer printing is the subject of this thesis and an industrial genre of industrial printmaking on ceramics. In simple terms, the pattern is printed with ink containing ceramic material and oil, onto thin tissue paper, derived from an intaglio printmaking process and the use of copper plate engraving. The printed pattern on tissue is transferred onto the ceramic ware and remains in place, assisted through skilful manual manipulation and the viscous consistency of the ink. The pattern is underglaze and kiln fired on the ware before a final glaze firing renders the ceramic object resilient to constant use. Underglaze firing can withstand higher temperatures in the firing process as the colour remains stable and vibrant. This results in an impervious surface which can withstand continued domestic use.

V

Vignettes are illustrations referred to in this study which are used in transfer printing, containing a scene with figure/s within an imaginary idyllic landscape setting.

Vitrifies refers to vitrification, which is the formation of glass in a ceramic body during the biscuit firing process that cements the body components together. Also see with reference to ***enamelling.***

Z

Zeitgeist is a German word meaning the spirit of our time. The word is used to define the universal climate of a particular era in time, relating to culture, fashion, politics, ideas, and beliefs.

Bibliography

A

Adamson, G. (2007) *Thinking Through Craft*. London: Bloomsbury Academic.

Adamson, G., ed. (2010) *The Craft Reader*. Oxford: Berg.

Adamson, G. (2018) *Fewer, Better Things*. New York: Bloomsbury.

Anon (1853) Engraving and Printing on Copper. *The Illustrated Magazine of Art* [online]. Vol. 1 (5), pp. 292-297. [Accessed 04 June 2018].

B

Babbage, C., 1832. On the economy of machinery and manufactures. Charles Knight.

Ballantyne, A.R. (1885) *Robert Hancock and His Works*. London: Chiswick Press.

Barrett, E., & Bolt, B., eds. (2010) *Practice as Research: Approaches to Creative Arts Enquiry*. London: I B Tauris & Co Ltd.

Berg, M. (2002) From Imitation to Invention: Creating Commodities in Eighteenth-century Britain. *The Economic History Review* [online]. 55 (1), pp. 1-30. [Accessed 08 April 2020].

Binns, C.F. (1898) *The Story of The Potter.* London: George Newnes.

Binns, R.W. (1877) *A Century of Potting in the City of Worcester: Being the History of the Royal Porcelain Works, from 1751 to 1851.* London: Leopold Classic Library.

Blake, P. (2000) *About Collage*. London: Tate Gallery Publishing.

Breen, L. (2019) *Ceramics and the Museum.* London: Bloomsbury Arts.

Broadhead, C. (2021) Caroline Broadhead Jeweller, in: *Crafts Council Gallery. Maker's Eye: Stories of Craft.* London: Crafts Council Gallery.

Brown, S.R. (2011) The *Physicality of Print.* Doctoral thesis (PhD): The Royal College of Art and Victoria and Albert Museum.

Brownsword, N. (2017) Factory, 22 April – 28 May 2017, Icheon World Ceramic Center: South Korea.

Brownsword, N. (2017) *Factory*. Korea: Korea Ceramic Foundation.

Brownsword, N. (2019) *Obsolescence and Renewal: Transitions, sustainability, and intangible heritage in North Staffordshire's Ceramic Industry*. Keele University. 9 November 2019.

Brownsword, N. (2021) Neil Brownsword Ceramicist, in: *Crafts Council Gallery. Maker's Eye: Stories of Craft*. London: Crafts Council Gallery.

Brownsword, N. (2021) *Profs in the Pav - Preservation through Innovation.* https://www.youtube.com/watch?v=TelM4utOSdU [Accessed 1 September 2021].

Brownsword, N., ed. (2020) *Topographies of the Obsolete*. London: The Printing House.

Burleigh Pottery (2022) Available from: https://www.burleigh.co.uk/ [Accessed 4 October 2022].

C

Candy, L. (2006) Practice based research: A guide. *CCS report*, *1*(2), pp.1-19.

Candy, L. and Edmonds, E.A. (2018) Practice-Based Research in Practice: Regulations and Recommendations. *Leonardo*, *51*(1), pp.4-8.

Cass, N., ed. (2012) *Wildness Between Lines*. Brighouse: Leeds College of Art.

Catanese, P. and Geary, A. (2012) *Post-digital Printmaking CNC, Traditional and Hybrid Techniques*. London: A & C Black.

Coldwell, P. (2005) Ceramic as canvas. *Ceramic Review.* May/June 2013, pp. 38-41.

Collins, H. (2010) *Creative Research. The Theory and Practice of Research for the Creative Industries*. United Kingdom: Bloomsbury Publishing Plc, 2010.

Cook, C. (1948) *The Life and Work of Robert Hancock*. London: Chapman and Hall.

Copeland, R. (1980 [1999]) *Spode's Willow Pattern and other designs after the Chinese.* London: Cassell.

Copeland, R. (2004) Transfer Printing Paper. *Journal of the Northern Ceramic Society.* [online] Vol. 21. pp: 15-20. [Accessed 28 July 2019].

Costley, C. and Fulton, J. (2019) *Methodologies for Practice Research*. London: Sage.

Coysh, A.W. and Henrywood, R.K. (1989) *The Dictionary of Blue and White Printed Pottery 1780- 1880 Volume 2*. United Kingdom: Antique Collectors' Club.

D

De Wall, E. (2016) *The White Road.* London: Vintage.

Des Fontaines, J.K. (1968) Underglaze blue-printed earthenware with particular reference to Spode. *The English Ceramic Circle Digital Archive* [online] Vol. 7, No. 2. pp.123-126. [Accessed 28 July 2019].

Dixon, S (2022) *Maiolica and Migration*. *Northern Ceramic Society* lecture. 15 February 2022.

Dormer, P. (1989) *The New Ceramics Trends and Traditions*. 1st ed. London: Thames and Hudson.

Dormer, P., ed. (2015) *The Culture of Craft*. 9th ed. Manchester: Manchester University Press.

Drakard, D. (1993) Early On-glaze Transfer Printing. *English Ceramic Circle Digital Archive* [online] Vol.15, No.3. pp. 331-340. [Accessed 28 July 2019].

Drakard, D. & Holdway, P. (1983) *Spode Printed Ware.* London: Longman.

E

Eden, M. (2017) Michael Eden. Available from: https://vimeo.com/user6046763 [Accessed 4 October 2021].

Elinor, G., Richardson, S., Scott, S., Thomas, A. and Walker, K. (1987) *Women and Craft*. London: Virago Press Ltd.

Evans, W. (1846) *Art and history of the potting business: compiled from the most practical sources for the especial use of working potters.* pp. 45-46. Shelton: Printed at the Examiner Office, Miles Bank.

Ewins, N. (1998) “Supplying the Present Wants of Our Yankee Cousins”: Staffordshire Ceramics and the American Market 1775-1880. *Journal of Ceramic History*. 15 (2), pp. 7-17.

F

Fortune, D. (2016) *Water-based Screen Printing and Safe Ceramic Decals*. United Kingdom: David Fortune.

Frayling, C (1993) *Research into Art & Design Royal College of Art.* London. Research Paper Vol 1, No 1 (1993/4)

Frayling, C. (2011) We must all turn to the crafts, in: Charny, D. ed., *Power of Making: The Case for Making and Skills,* 1st edition. London. V & A Publishing.

Frayling, C. (2011) *On Craftsmanship Towards a New Bauhaus*. London: Oberon Books.

G

Gale, C. (2000) *Etching and Photopolymer Intaglio Techniques*. London: A & C Black.

Gordon-Smith, M. (2000) The Influence of Jean Pillement on French and English Decorative Arts Part One. *Artibus Et Historiae* [online]. 21 (41), pp. 171-196. [Accessed 08 April 2020].

Gordon-Smith, M. (2000) The Influence of Jean Pillement on French and English Decorative Arts Part Two: Representative Fields of Influence. *Artibus Et Historiae* [online]. 21 (42), pp. 119-163. [Accessed 08 April 2020].

Gray, C. & Malins, J. (2016) *Visualizing Research: A Guide to the Research Process in Art and Design.* London: Routledge.

Grayson, J. (2018) *South Staffordshire Enamels: The Lost Craftsmanship of Eighteenth-Century Copper Substrate*. Doctoral thesis (PhD): Faculty of Arts, Design and Media, Birmingham City University.

Grayson, J. (2021) John Grayson Automata Maker, in: *Crafts Council Gallery. Maker's Eye: Stories of Craft.* London: Crafts Council Gallery.

Greenhalgh, I. (2018) Matt Smith Remaking the Museum. *Crafts.* April/May 2018, 271, pp.48-55.

Goulis, R. (2017) *The Autobiography of a Garden: Andrew Raftery.* https://vimeo.com/226204176 [Accessed 20 April 2018].

H

Halfpenny, P.A. (1994) *Penny Plain, Twopence Coloured: Transfer Printing on English Ceramics-1750-1850.* City Museum & Art Gallery, Stoke on Trent City Museum and Art Gallery.

Halliday, R. (2018) *The transferware engraver: training, practice and scope at the Spode Works.* Doctoral Thesis (PhD): Manchester Metropolitan University.

Hancock, R. (1763) *Queen Charlotte* mug. Available from: https://www.museumofroyalworcester.org/collection/queen-charlotte-mug/ [Accessed 05 March 2022].

Hancock, R. (1765) La Cascade from a plate. Available from: https://collections.vam.ac.uk/item/O71276/the-tea-party-cup-and-saucer-hancock-robert/ [Accessed 16 February 2022].

Hancock, R. (1765) *The Tea Party*. Available from: https://collections.vam.ac.uk/item/O71276/the-tea-party-cup-and-saucer-hancock-robert/ [Accessed 16 February 2022].

Hardy, M. (2000) *Hand building.* London: A & C Black.

Harrison, A., Sullivan Kruger, K. and Young, J. (2008) *The Fabric of Myth*. Warwickshire: Compton Verney.

Harrod, T., ed. (2018) *Craft*. 1st ed. London: Thames and Hudson.

Hart, C. (1998) *Doing a Literature Review Releasing the Social Science Research Imagination*. London: Sage.

Heidegger, M. Translated by John Macquarrie & Edward Robinson, (1962) *Being and Time*. London: Scm Press.

Herkenhoff, P. (2007) Needles, in: Morris, F. ed., *Louise Bourgeois*. London: Tate Publishing.

Hockney, D. (2001) *Secret knowledge: Rediscovering the lost techniques of the old masters.* London: Thames and Hudson.

Hodes, C. (2007) Cut, Torn, and Pasted: A Female Perspective. *Interpreting Ceramics*. Vol.8. *http://www.interpretingceramics.com/issue008/articles/12.htm* [Accessed 19 July 2018].

Hodes, C. (2001) A Dinner Service. http://ualresearchonline.arts.ac.uk/965/ [Accessed 28 July 2018].

Hodgkin, J. (1805) Transfer Printing on Pottery. Part Ii-a Catalogue of Liverpool Tiles. *The Burlington Magazine for Connoisseurs* [online]. 6 (22), pp. 15-321324-326. [Accessed 08 April 2020].

Holdway, P. (1986) Techniques of Transfer-printing on Cream Coloured Earthenware. *The Fifth Exhibition from the Northern Ceramic Society*. Stoke-on-Trent City Museum & Art Gallery, pp. 20-23.

Holdway, H. and Holdway, R. (2006) *Harold Holdway 20th Century Ceramic Designer*. United Kingdom: Landmark Publishing Ltd.

Hoskins, S. (2001) *Water-Based Screen Printing*. United Kingdom: A & C Black Publishers Ltd.

Hoskins, S. (2004) *Inks*. London: A & C Black Publishers Ltd.

Hoskins, S. (2013) *3D Printing for Artists, Designers and Makers: Technology Crossing Art and Industry*. London: Bloomsbury Visual Arts.

Hulton, P. (1980) *Watteau Drawings from the British Museum.* London: British Museum Publications Ltd.

I

Ingold, T. (2013) *Anthropology, Archaeology, Art and Architecture*. Oxon: Routledge.

Inside the Factory (2022) BBC Two, 8 February. Available from: http://www.bbc.co.uk/iplayer/ [Accessed 20 February 2022].

Ivins, Jr, W.M. (1930) *Notes on Prints*. New York: Da Capo Press.

J

Jameel Prize (2021): *Poetry to Politics.* Available from: https://www.vam.ac.uk/articles/jameel-prize-poetry-to-politics [Accessed 30 September 2021].

Jones, M. (2016) The Autobiography of a Garden: Andrew Raftery in conversation with Mary Jones. *http://www.artcritical.com/2016/09/10/mary-jones-with-andrew-raftery/* [Accessed 20 April 2018].

K

Kingery, W.D, and Vandiver, P.B. (1986) *Ceramic Masterpieces. Art, Structure and Technology.* London: Collier Macmillan Publishers.

Kneebone, R. (2020) *Expert*. Great Britain: Penguin.

Korn, P. (2013) *Why We Make Things and Why It Matters: The Education of a Craftsman*. London: Penguin.

Krill, J. (1987) *English Artists Paper*. London: Trefoil Publications Ltd.

L

Leach, B. (1940) *A Potter's Book*. 1st ed. London: Faber and Faber.

Leavy, P., ed. (2018) *Handbook of Arts-based Research*. New York: The Guilford Press.

M

Mallett, J. (2011) Transfer printing in Italy and England. *The English Ceramic Circle Digital Archive* [https://www.englishceramiccircle.org.uk/archives/] Vol. 22, No.4. p.95. [Accessed 28 July 2019].

Mann, K. (1952) *China Decoration*. London: Adam and Charles Black.

McDonald, F. (2013) What's in a Name? The Marginalisation of Craft in Contemporary Society. *Engage 33: Critical Craft* [online], pp. 8-17. [Accessed 01 October 2021].

McKeown, J. (2003) *Burleigh: The Story of a Pottery*. Somerset: Richard Dennis.

McNiff, S., ed. (2013) *Art as Research*. Bristol: Intellect.

Mitchell, L., ed. (2005) *Stephen Dixon: The Sleep of Reason*. Manchester: Manchester Art Gallery.

Morris, F. ed. (2007). *Louise Bourgeois.* London. Tate Publishing

Morris, T. (2018) *New Wave Clay Ceramic Design, Art and Architecture*. Amsterdam: Frame Publishers.

Morris, W. ([1888] 2010) The Revival of Handicraft. Originally published in the Fortnightly Review, in: Adamson, G. ed., *The Craft Reader.* Oxford. Berg. pp. 146-155.

Muratovski, G. (2016) *Research for Designers: A Guide to Methods and Practice*. London: Sage Publications Ltd.

N

Neale, G. (2005) *Miller's Encyclopedia of British Transfer-printed Pottery Patterns, 1790-1930.* London: Octopus Publishing Group.

Nelson, C.H. (1980) Transfer-printed Creamware and Pearlware for the American Market. *Winterthur Portfolio* [online]. 15 (2), pp. 93-115. [Accessed 08 April 2020].

Nelson, R. (2013) *Practice as research in the arts: principles, protocols, pedagogies, resistances.* New York: Palgrave Macmillan.

Newbury, D., 1996. Knowledge and research in art and design. *Design Studies*, *17*, pp.215-220.

P

Partington, M. (2010) Can British Ceramics Education Survive? *Nceca Journal* [online]., pp. 104-105. [Accessed 08 April 2021].

Pearson (2017) *BTEC Level 4 Foundation Diploma in Art and Design*. Specification. Pearson Education Limited. https://qualifications.pearson.com/en/qualifications/btec-fad/art-and-design.html [Accessed 03-02-2022].

Perry, G. (2011) *The Tomb of the Unknown Craftsman*. London: The British Museum Press.

Petrie, K. (1999) *Water-Based Ceramic Transfer Printing - The development and creative use of a new on-glaze screen-printing system.* Doctoral thesis (PhD): University of the West of England.

Petrie, K. (2011) *Ceramic Transfer Printing.* London: A & C Black.

Pussyhat (2018). *Crafts Council Collection online*. Available from: https://collections.craftscouncil.org.uk/object-2018-8 [Accessed 1 October 2021].

Pye, D. (1968) *The Nature of Art and Workmanship.* London. Bloomsbury Academic.

R

Raftery, A. (2018) *The Autobiography of the Garden.* Available from: *https://www.artsy.net/artist/andrew-raftery* [Accessed 19 July 2018].

Randall Ballantyne, A. (1885) *Robert Hancock and his Works.* London: Chiswick Press.

Read, H. (1932) *The Meaning of Art*. London: Faber and Faber Ltd.

Read, H. (1934) *Art and Industry*. London: Faber and Faber Ltd.

Read, H. (1945) *Art and Society*. 2nd ed. London: Faber and Faber Ltd.

Read, H. (1958) *Education Through Art*. London: Faber and Faber.

Revisioning the Brontës: conference and exhibitions at The University of Leeds (2013). Available from: http://revisioningthebrontes.blogspot.com/ (Accessed 21 March 2023).

Revisioning the Brontës: conference and exhibitions at The University of Leeds (2013). Available from: https://bronteparsonage.blogspot.com/2013/02/re-visioning-brontes-conference.html (Accessed 21 March 2023).

Roberts, G.B. (1997) Printing in Liverpool: The Association Between Wedgwood and Sadler and Green. *Journal of the Northern Ceramic Society* [online]. Vol. 14, pp. 45-70. [Accessed 28 July 2019].

Ruskin Glass Centre (2010) *British Glass Biennale 2010*. Stourbridge: Ruskin Glass Centre.

Ruskin Glass Centre (2015) *British Glass Biennale 2015*. Stourbridge: Ruskin Glass Centre.

S

Samford, P.M. (1997) Response to a Market: Dating English Underglaze Transfer-printed Wares. *Historical Archaeology* [online]. 31 (2), pp. 1-30. [Accessed 08 April 2020].

Sandeman, E.A. (1917) *Notes on the Manufacture of Earthenware.* London: Crosby Lockwood.

Sandon, H. (1969) *The Illustrated Guide to Worcester Porcelain 1771-1793*. 1st ed. London: Butler and Tanner Ltd.

Sandon, H. (1974) *The Dictionary of Worcester Porcelain Volume 1 1751-1793*. 2nd ed. United Kingdom: Butler and Tanner.

Sandon, J. (1993) *The Dictionary of Worcester Porcelain Volume 1 1751-1851*. United Kingdom: Antique Collectors' Club.

Schön, D.A. (1983) *The Reflective Practitioner*. London and New York: Routledge.

Scott, P. (2001) *Painted clay: graphic arts and the ceramic surface*. London: A & C Black.

Scott, P. (2002) *Ceramics and Print*. London: A & C Black.

Scott, P. (2010) *Ceramics and Landscape, Remediation and Confection – A Theory of Surface.* Doctoral Thesis (PhD): Manchester Metropolitan University.

Scott, P. (2014) From the Spode Archives. *Ceramic Review* [online]. 270, p. 15. [Accessed 03 March 2021].

Scott, P., & Bennett, T., eds. (1996) *Hot off the Press*. London: Bellew Publishing Company Ltd.

Sennett, R. (2008) *The craftsman.* London: Yale University Press.

Sennett, R. (2016) *The Craftsmanship*. *The Museum of Applied Arts, Vienna* https://www.mak.at/en/lecture_by_richard_sennett [Accessed 03 September 2021].

Shales, E. (2017) *The Shape of Craft. Padstow*. Cornwall: TJ International.

Shales, E. (2018) In Praise of the Commonplace. *Crafts*. Jan./Feb. 2018, 270, p.15.

Shaw, S. (1900) *History of the Staffordshire potteries; and the rise and progress of the manufacture of pottery and porcelain; with references to genuine specimens, and notices of eminent potters*. Hanley: Scott, Greenwood, and Co.

Sheppy, L. (2023). Lisa Sheppy. Available at: https://www.lisasheppy.co.uk/ [Accessed 2 Mar. 2023].

Smith, A. (2004) *Etching A Guide to Traditional Techniques*. Baydon: D & N Publishing.

Sturt, G. (1923) *The Wheelwright's Shop*. Wiltshire: Press Syndicate of the University of Cambridge.

Swale, A. (1905) Screen Printed Transfers: Their Impact on the Decoration of Ceramic Wares 1946-2002. *The Journal of the Decorative Arts Society 1850 - the Present* [online], pp. 54-71. [Accessed 08 April 2020].

T

Yasuda, T. (2021) http://www.takeshiyasuda.com/about.asp [Accessed 04 October 2021].

Tate Gallery (2021) Art terms, Craft. Available from: https://www.tate.org.uk/art/art-terms/c/craft [Accessed 4 October 2021].

The Brontë Society: The Brontë parsonage Museum. (2013) Available from: https://www.bronte.org.uk/whats-on/25/revisioning-the-brontes-conference-and-exhibitions-at-the-university-of-leeds (Accessed 21 March 2023).

The Crafts Council (2021) *Makers Eye Exhibition.* Available from: https://media.craftscouncil.org.uk/documents/Makers_Eye_exhibition_guide_FINAL.pdf [Accessed 4 October 2021].

The Pussyhat (2017) Victoria and Albert Museum. Available from: https://www.vam.ac.uk/articles/the-pussyhat [Accessed 4 October 2021].

Thomas, G. (2017) *How to Do Your Research Project: A Guide for Students*. 3rd ed. London: Sage.

Tichane, R. (1990) *Clay Bodies.* New York: The New York Glaze Institute.

Turkle, S., ed. (2011) *Evocative Objects: Things We Think With*. Massachusetts: The MIT Press.

Turner, W. (1907) *Transfer printing on Enamels, Porcelain, and Pottery*. London: Chapman and Hall.

Turrell, E. (2007) *The Enamel Experience, International Badge Exhibition*. Bristol: Impact Press.

V

Valle, P. (2015) True Blue: Exploring the Myths of Blue and White Tradition, in: Scott, P. & Bull, K.N., eds. *Horizon: Transferware and Contemporary Ceramics*. 1st ed. Oslo: Arnoldsche Art Publishers.

Van Lemmen, H. (2017) From over-glaze to under-glaze: British transfer-printed tiles 1756-1854. *Journal of the Tiles and Architectural Ceramic Society*. Vol 23, pp: 1- 10.

Verajankorva, T., & Ahonen, A., eds. (1998) *Networks in Ceramics: International Conference 12-14 June 1996 University of Art and Design Helsinki, Uiah*. pp. 43- 51. Helsinki: Art Books Intl. Ltd.

Vincentelli, M. (2000) *Women and ceramics: gendered vessels.* Manchester: Manchester University Press.

W

Watney, B. (1966) Engravings as the Origin of Designs and Decorations For English Eighteenth-century Ceramics. *The Burlington Magazine* [online]. 108 (761), pp. 404406-412. [Accessed 08 April 2020].

Watney, B. (1977) Notes on Bow Transfer Printing. *The English Ceramic Circle Digital Archive* [online] Vol. 8, No.2. pp. 213-216. [Accessed 28 July 2019].

Watney, B.M. (1972) Origins of Designs for English Ceramics of the Eighteenth Century. *The Burlington Magazine* [online]. 114 (837), pp. 93-115. [Accessed 08 April 2020].

Waqas Khan, B. *Jameel Prize: Poetry to Politics.* Available from: https://youtu.be/OJkOVK9Oq2U [Accessed 1 October 2021].

Weale, S. (2021) Funding cuts to go ahead for university arts courses in England despite opposition. *The Guardian.* Available from: https://www.theguardian.com/education/2021/jul/20/funding-cuts-to-go-ahead-for-university-arts-courses-in-england-despite-opposition [Accessed 3 September 2021].

Whiter, L. (1970) *Spode.* London: Barrie & Jenkins Limited.

Woolliscroft, P. (2002) Flora Ceramica: Botanical and Floral Designs on Spode Ceramics Up to 1833 Which Take Inspiration from Illustrations in Curtis's Botanical Magazine. *Curtis's Botanical Magazine* [online]. 19 (3), pp. 183-213. [Accessed 08 April 2020].

Wyman, C. (1977) The Early Techniques of Transfer Printing. *The English Ceramic Circle Digital Archive* [online] Vol. 10, No.4. pp.187-192. [Accessed 28 July 2019].

Y

Yasuda, T. (2021) Breaking the Boundaries of Craft: Loewe Foundation. Available from: https://www.youtube.com/watch?v=SrTY8NwULTs&t=1011s [Accessed 04 October 2021].

Young, H. (1999) Manufacturing Outside the Capital: The British Porcelain Factories, Their Sales Networks and Their Artists, 1745-1795. *Journal of Design History* [online]. Vol. 12 (.3), pp. 257-269. [Accessed 08 April 2020].

Appendices

Chapter Three

A.3.2 Ethical clearance and participation documents

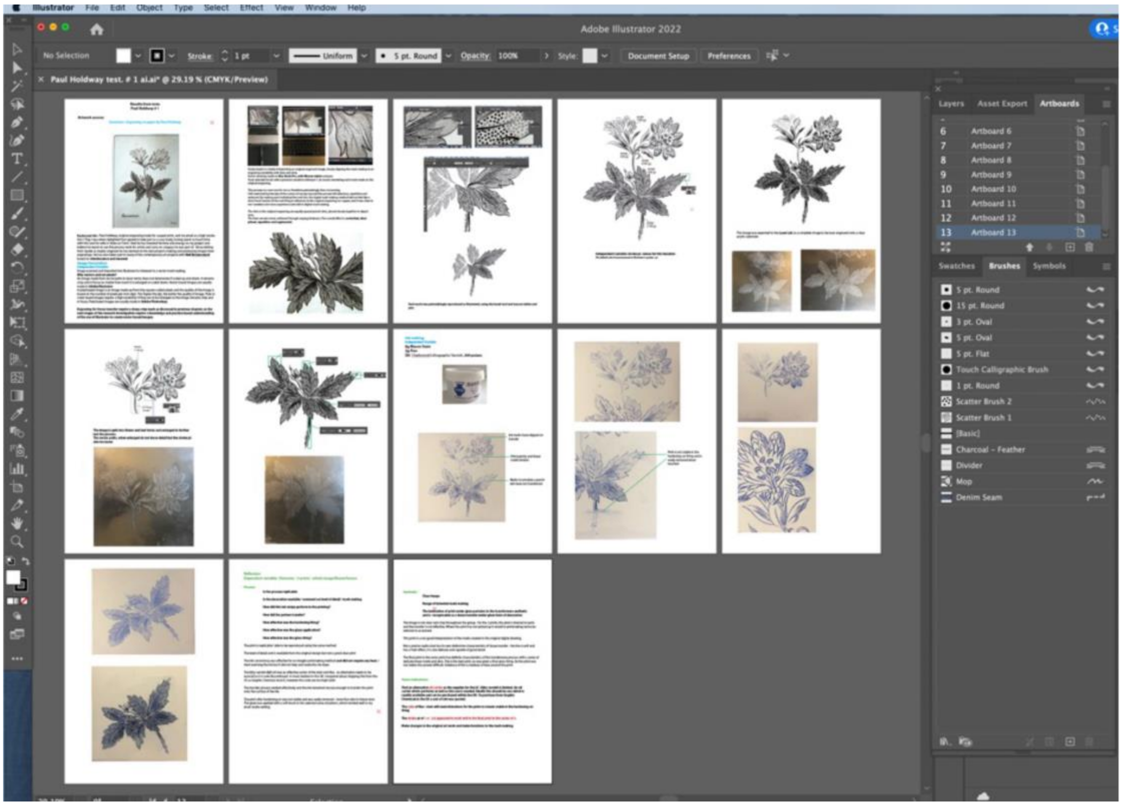
The appendix has been removed from the thesis as it contains personal identifying information

Chapter Six, Part Two

A.6.2. Principles into practice: Tests as a benchmark for future work

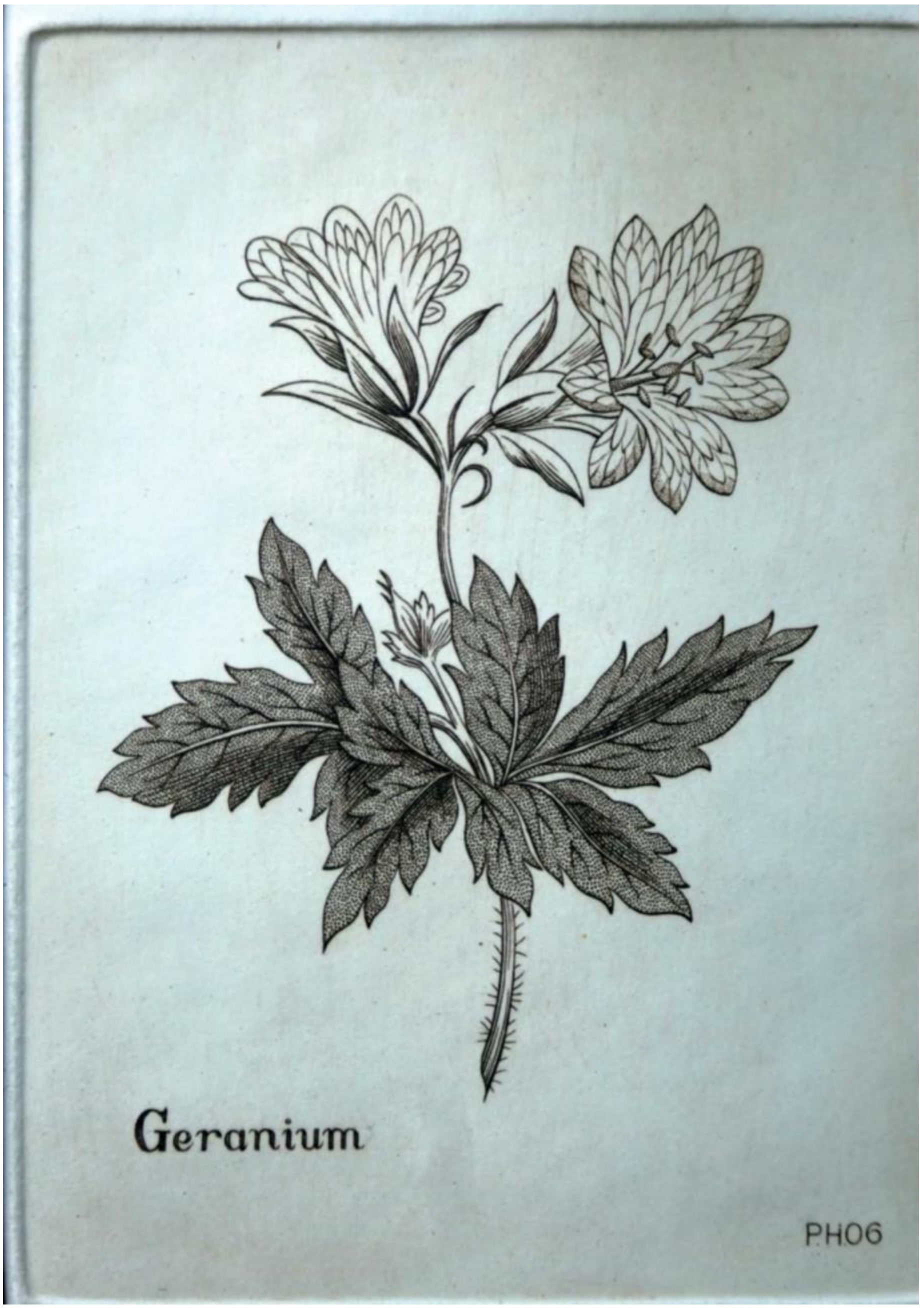
This series represents a further test of all the stages of the tissue transferware process, based on a source image offered by Paul Holdway.

A.6.2.1. Test one

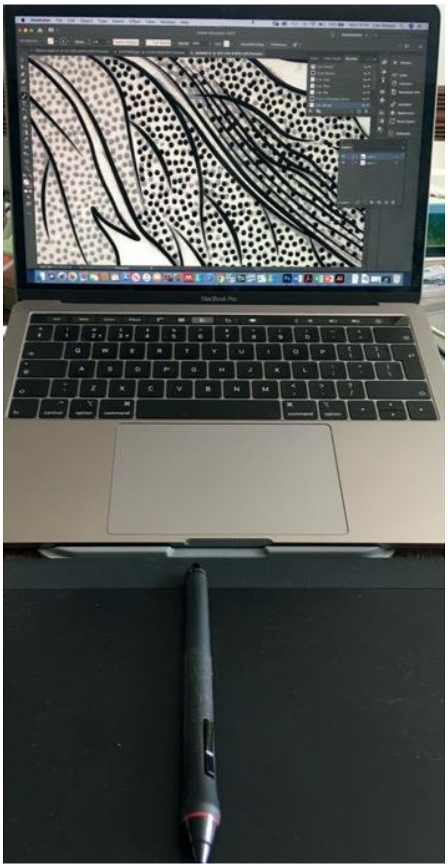


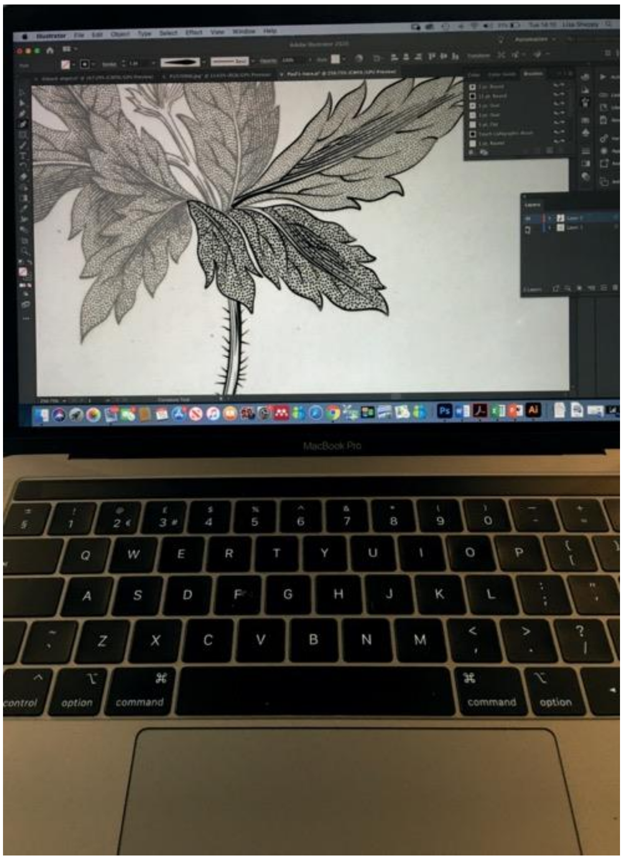
An interpretation of the *Geranium* engraving on paper by Paul Holdway

A screen shot of my working processes using the Illustrator application

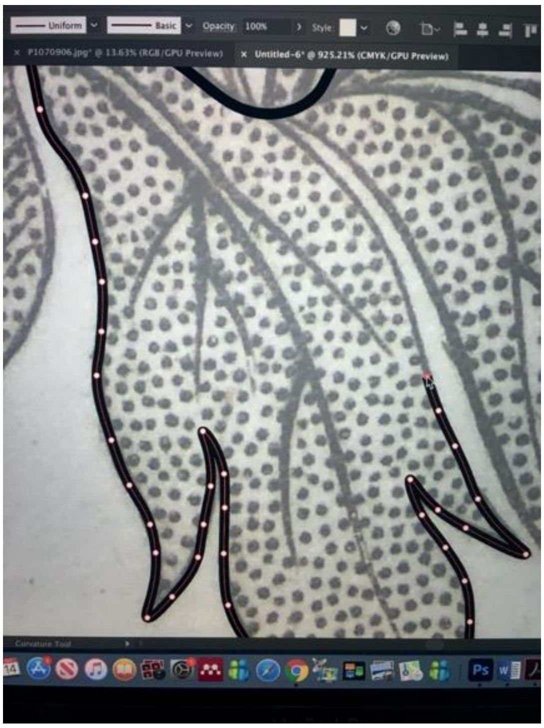


Geranium engraving by Paul Holdway was contributed as a source image on paper for additional testing



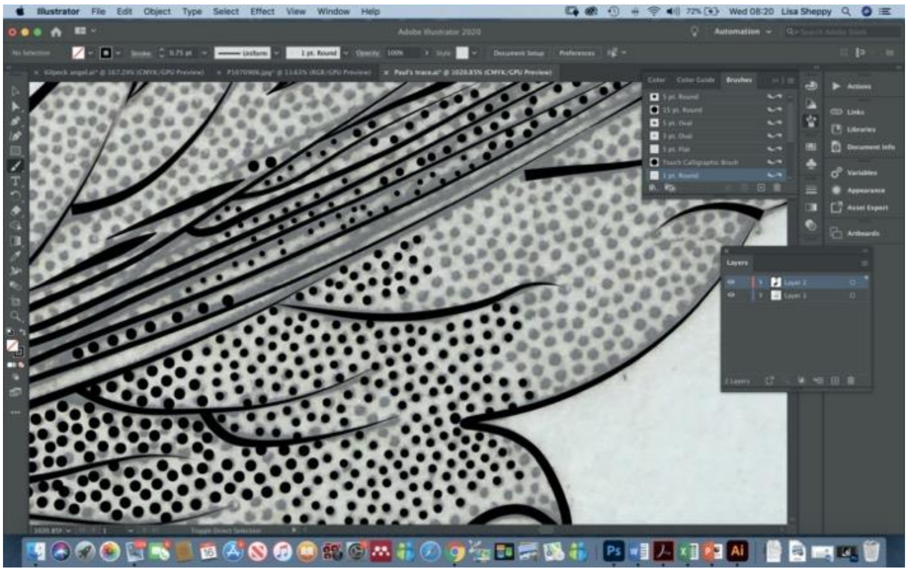


A Wacom tablet was used for this test and connected to my Mac Book Pro laptop using the Adobe Illustrator drawing application

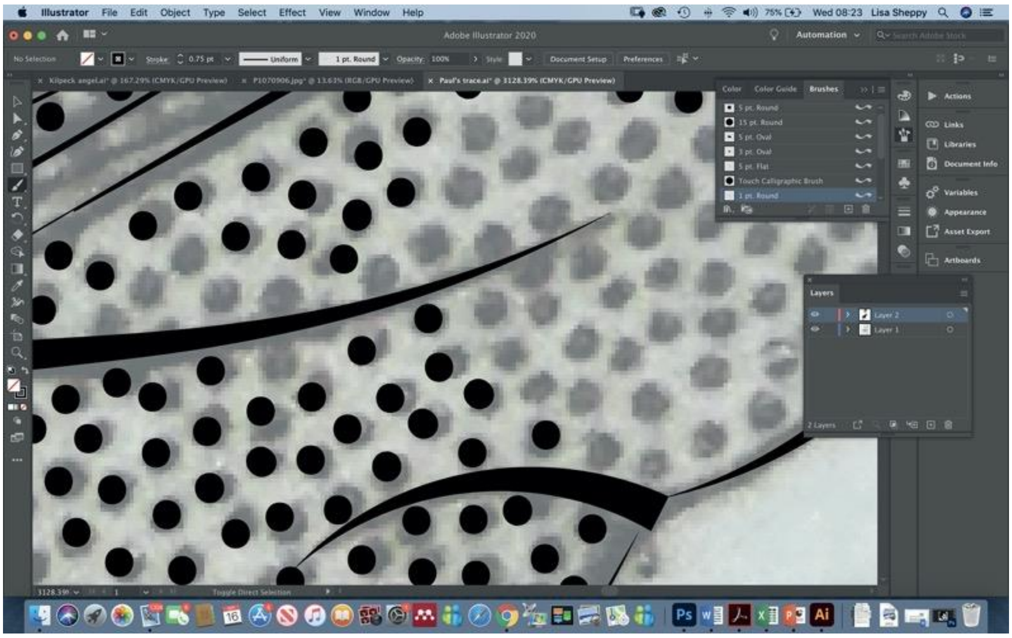


A digital drawing was made as an interpretation of the marks in the original engraving

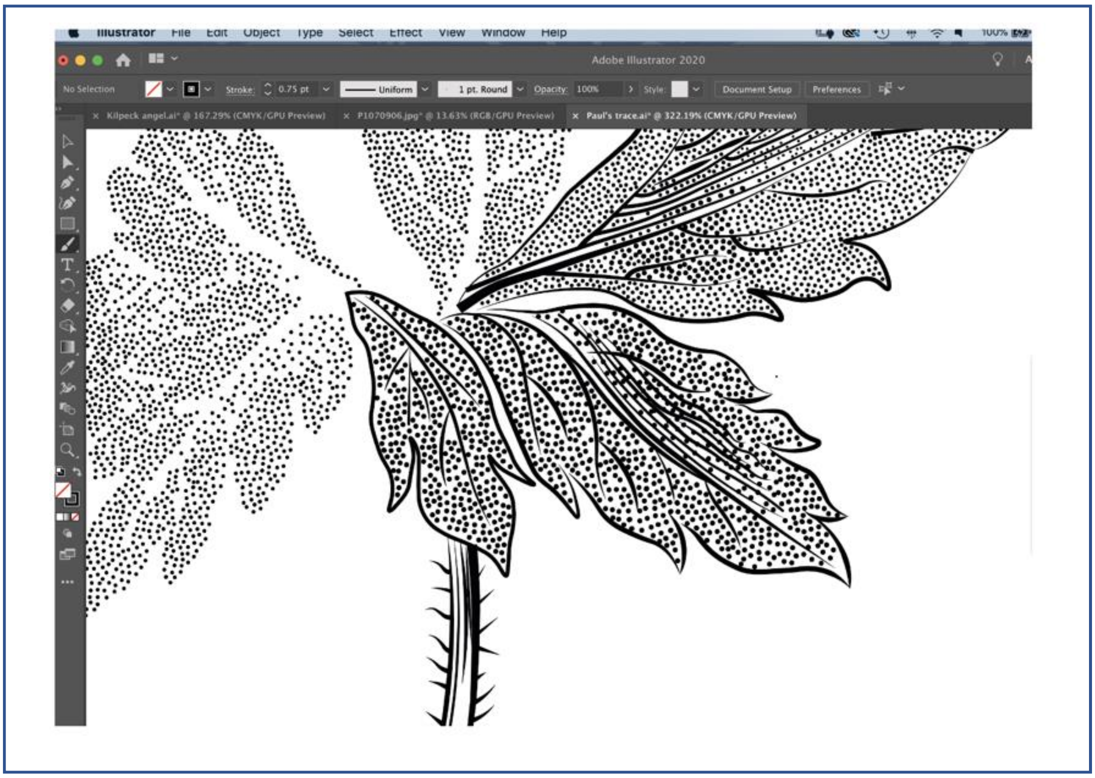
The dots in the original engraving were equally spaced punch dots placed closely together to represent tone. The lines were also tonal, achieved through varying thickness. The overall effect was controlled, disciplined, repetitive and regimented



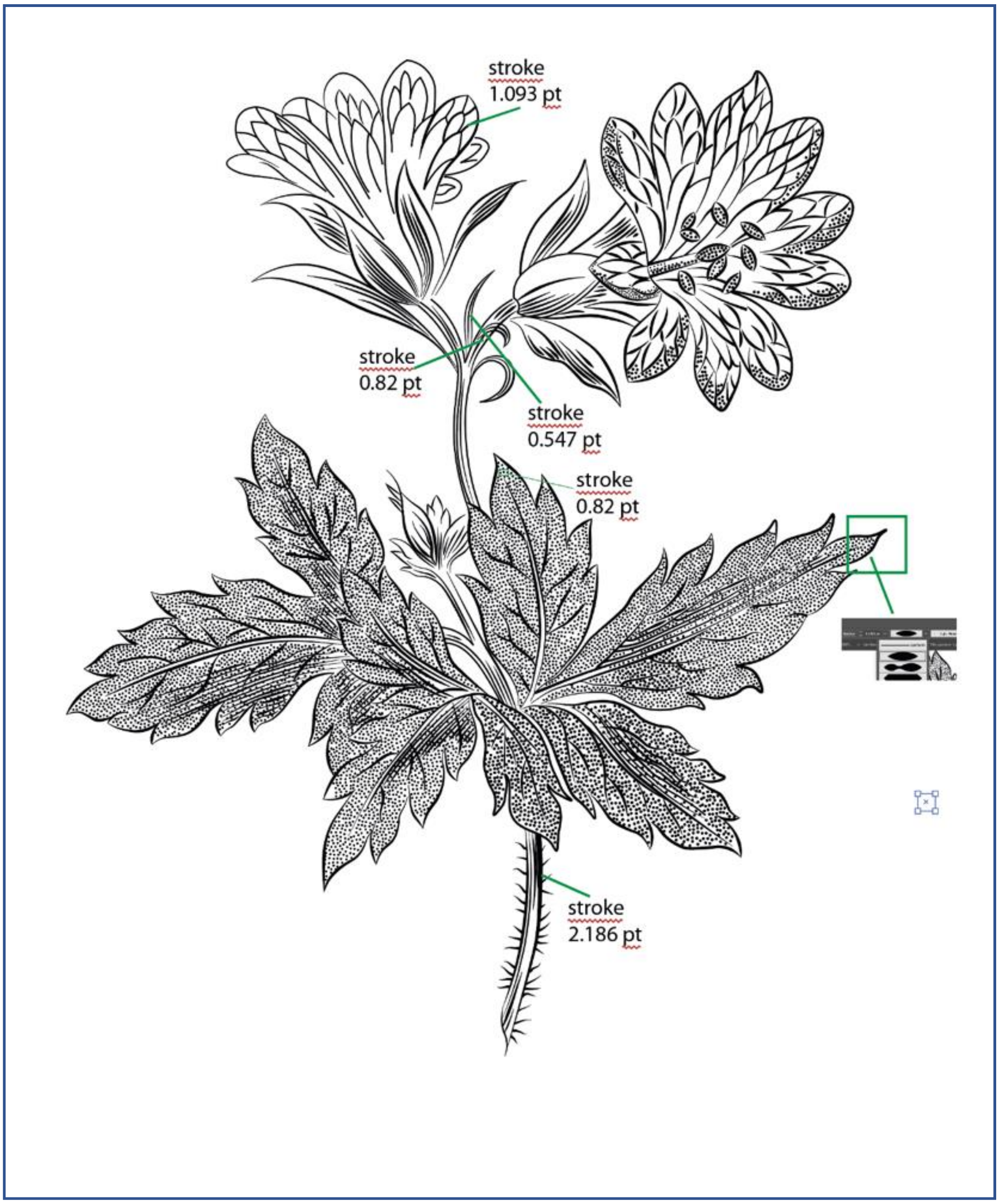
My interpretation of tonal lines and punch dots



Mark making with dots to represent tone



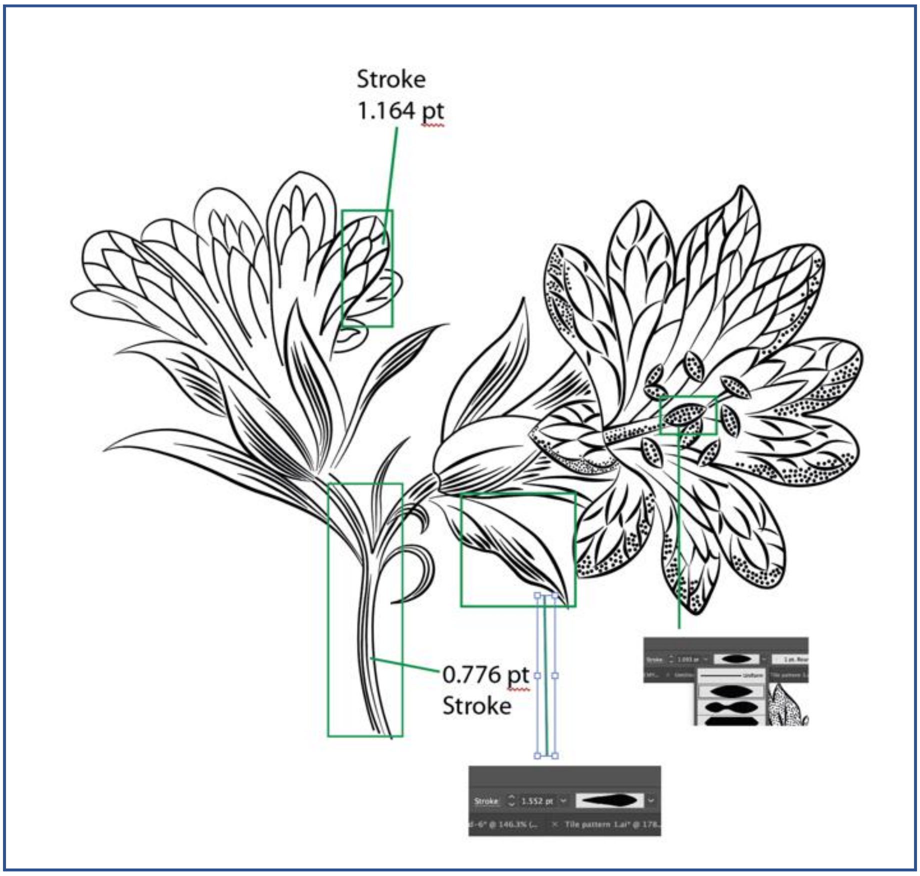
Each mark was translated using the brush tool and Wacom tablet and pen



The default unit of measurement of the stroke in Illustrator is shown here as point: pt

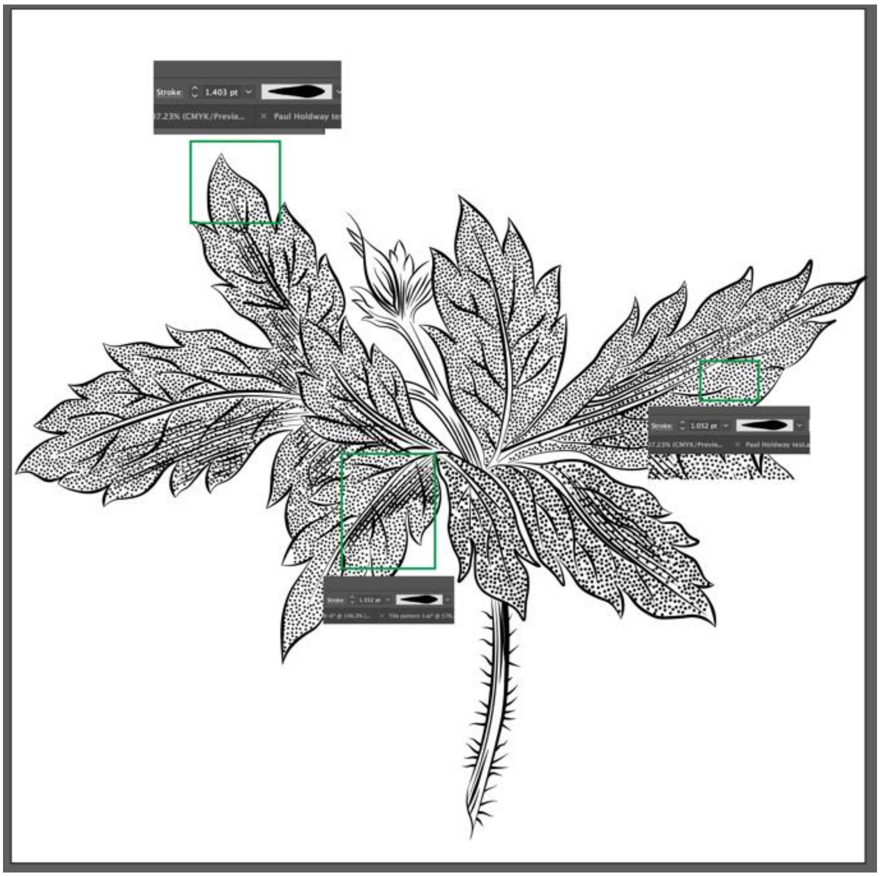
The completed image was exported to *Laser Lab* who laser engraved it onto a clear acrylic substrate

Detail of the laser engraved plate



The original image was divided into separate parts: the flower and leaves. The scale of the flower part of the image was enlarged to create more examples of stroke values


The resulting laser engraving



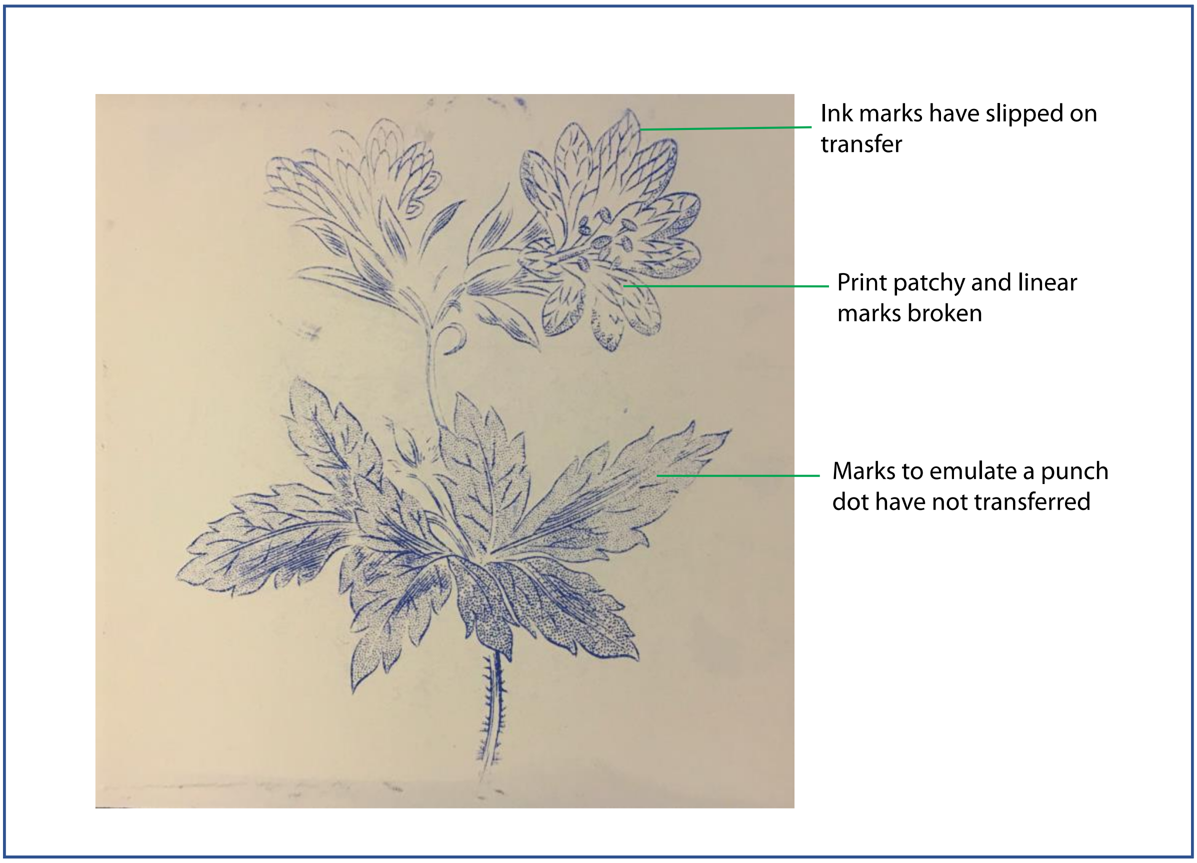
The scale of the leaves part of the image was enlarged to create more examples of stroke values

The resulting laser engraving

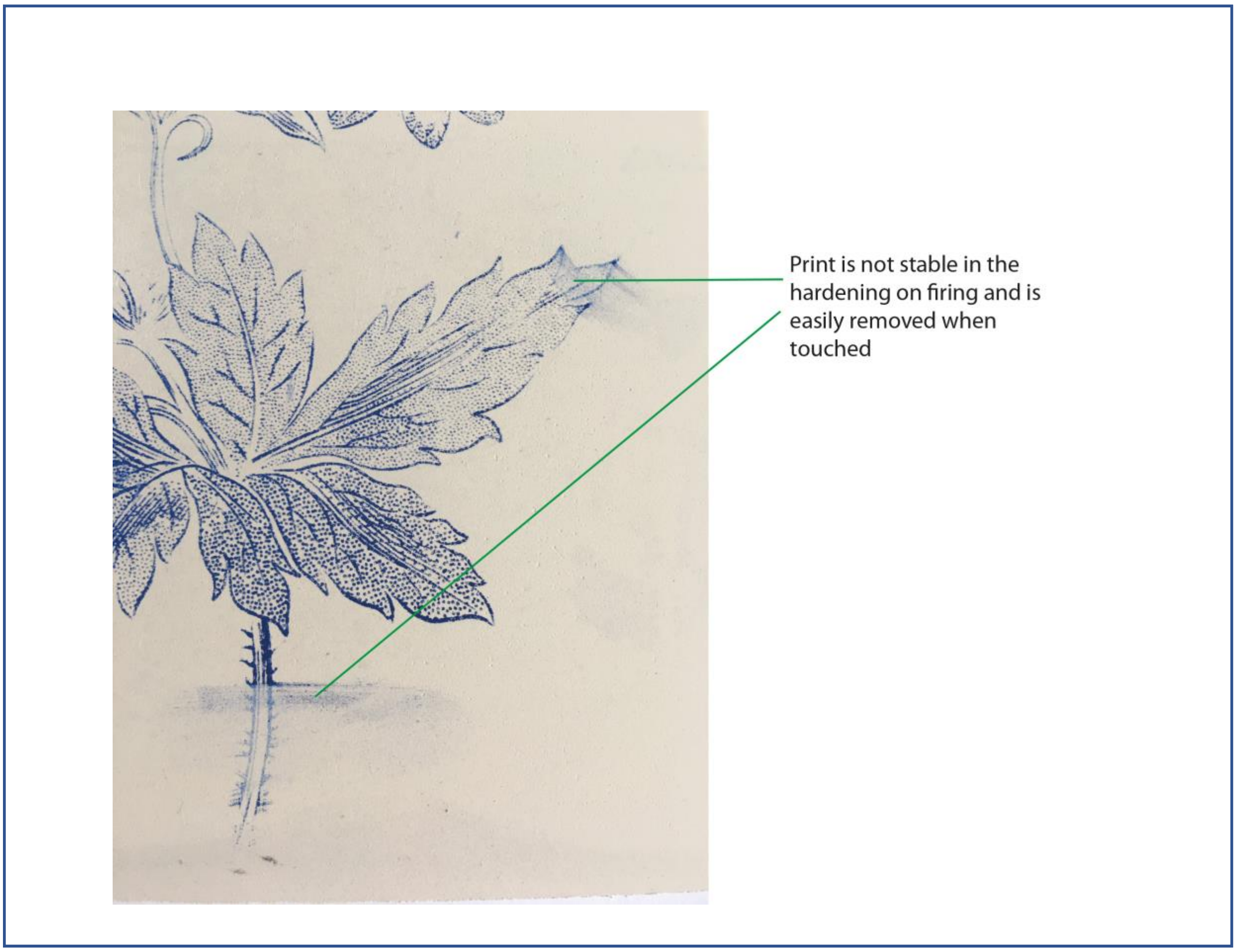
Detail of the laser engraving

Mason ceramic stain was the colourant, with 8g Mason Stain: 2g flux plus

Oil Charbonnel Lithographic Varnish, 200 poises



The resulting tissue transfer print made using the principles outlined in Section 6.1



The resulting tissue transfer print

The resulting tissue transfer print. These were not effective in terms of the printed image and the stability of the print on the ceramic biscuit surface

A.6.1.3. Reflection based on the process

- The print was replicable/could be reproduced using the same method.

- The level of detail was readable from the original design but was not a good clear print.

- The ink consistency was effective for an intaglio printmaking method and did not require any heat. I tried warming the ink, but it did not help, only making the ink drier.

- The lithographic varnish was an effective carrier of the stain and flux; however, an alternative was required as it was discontinued in retailers in the UK.

- I enquired about shipping from the US direct from *Graphic Chemical*, however the costs were too high, at £80 for a five-litre bottle.

- The transfer process worked effectively, and the ink remained viscous enough to transfer the print onto the surface of the tile.

- After hardening on the print was not stable and was easily removed – need to increase the flux ratio in future tests. The glaze was applied with a soft brush in the selected areas of pattern, which worked well in my small studio setting.

The stylistic characteristics of the resulting tissue transferred image

- The image was not clear and crisp enough and one of the two prints was blurred in parts and the transfer was not effective. Where the print had not picked up it would in printmaking terms be referred to as 'starved'.

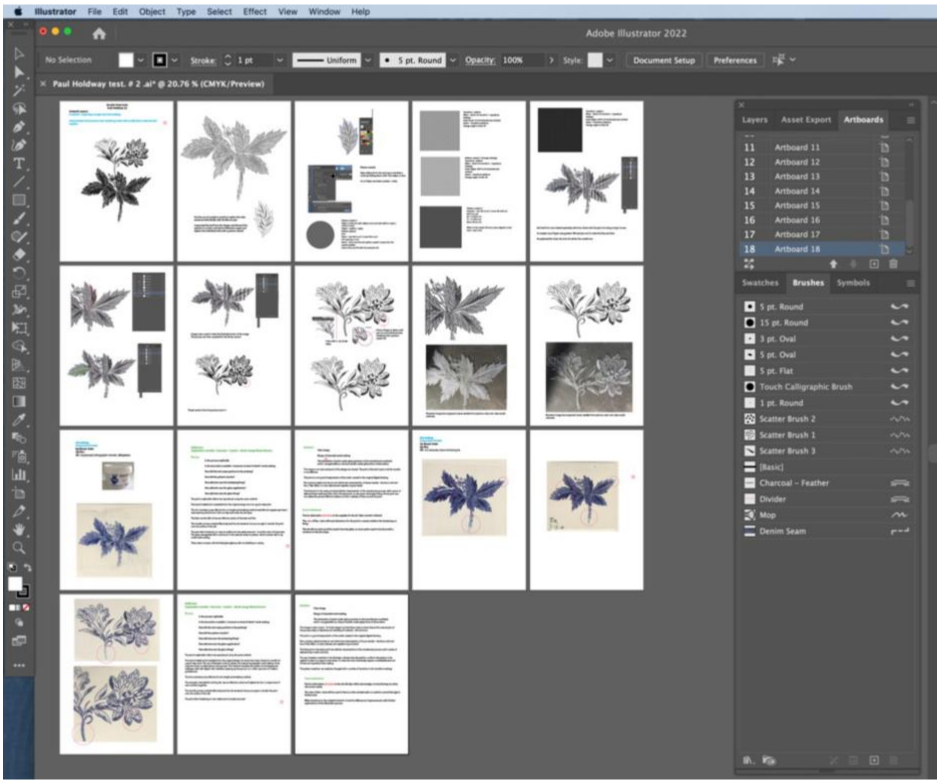
- This print was a not good interpretation of the marks created in the original digital drawing.
- It was not a precise replica but had its own distinctive characteristics of tissue transfer – the line was soft and had a 'halo' effect, it was also delicate and capable of good detail.
- The final print in the series print had definite characteristics of the transferware process with a series of delicate linear marks and dots. This was the best print, so was given a final gloss firing. As the print was not stable this proved difficult. Evidence of this was residues of blue around the print.

Future recommendations

- Find an alternative oil carrier which is effective, as the supplies for litho. varnish were limited.

- Ideally this should be readily available to purchase in the UK.
- The ratio of flux: stain required more testing as the print was powdery after hardening on.
- The stroke pt. of 1.4 - 2.8 appeared to work well in the image design.
- Make changes to the original artwork and make iterations to the mark making

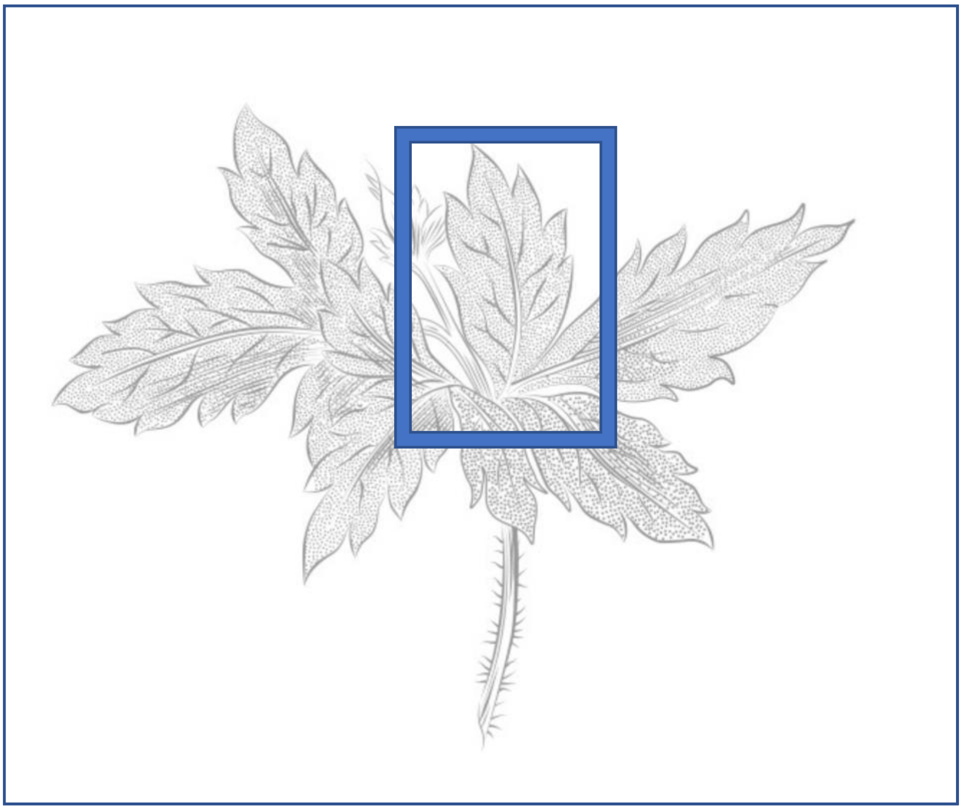
A.6.2.2. Test Two



An interpretation of the *Geranium* engraving on paper by Paul Holdway

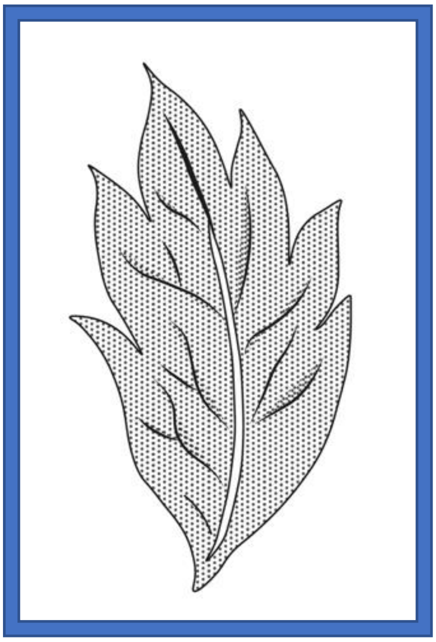
A screen shot of my working processes using the Illustrator application

An interpretation of Holdway's *Geranium* translated using the Illustrator drawing application

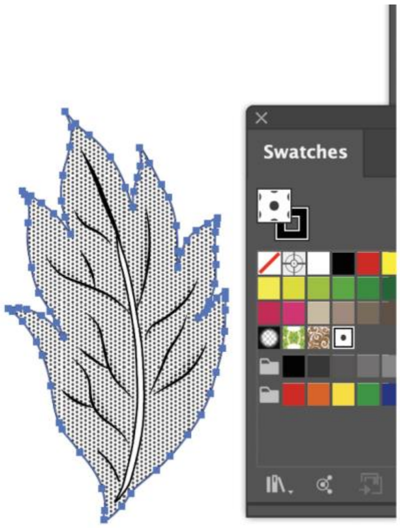


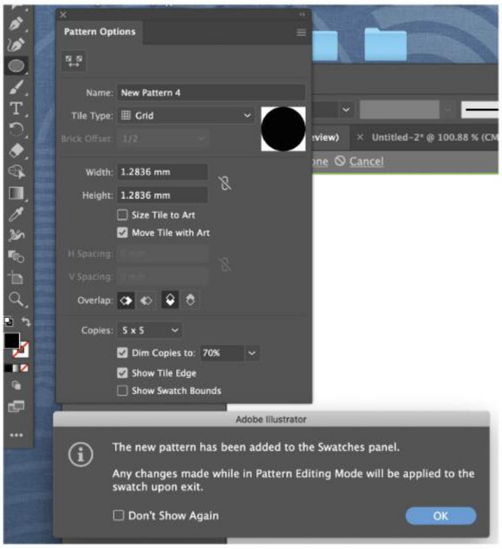
The leaf image was selected to test the pattern swatch tool on Illustrator.

The opacity of the image was dimmed to provide a background on which to work as a guide



The leaf was treated as a separate image

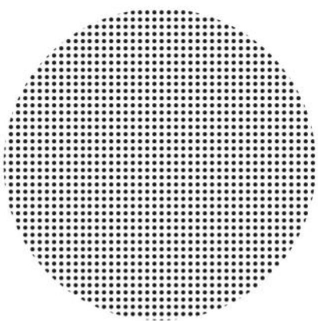




Pattern swatch

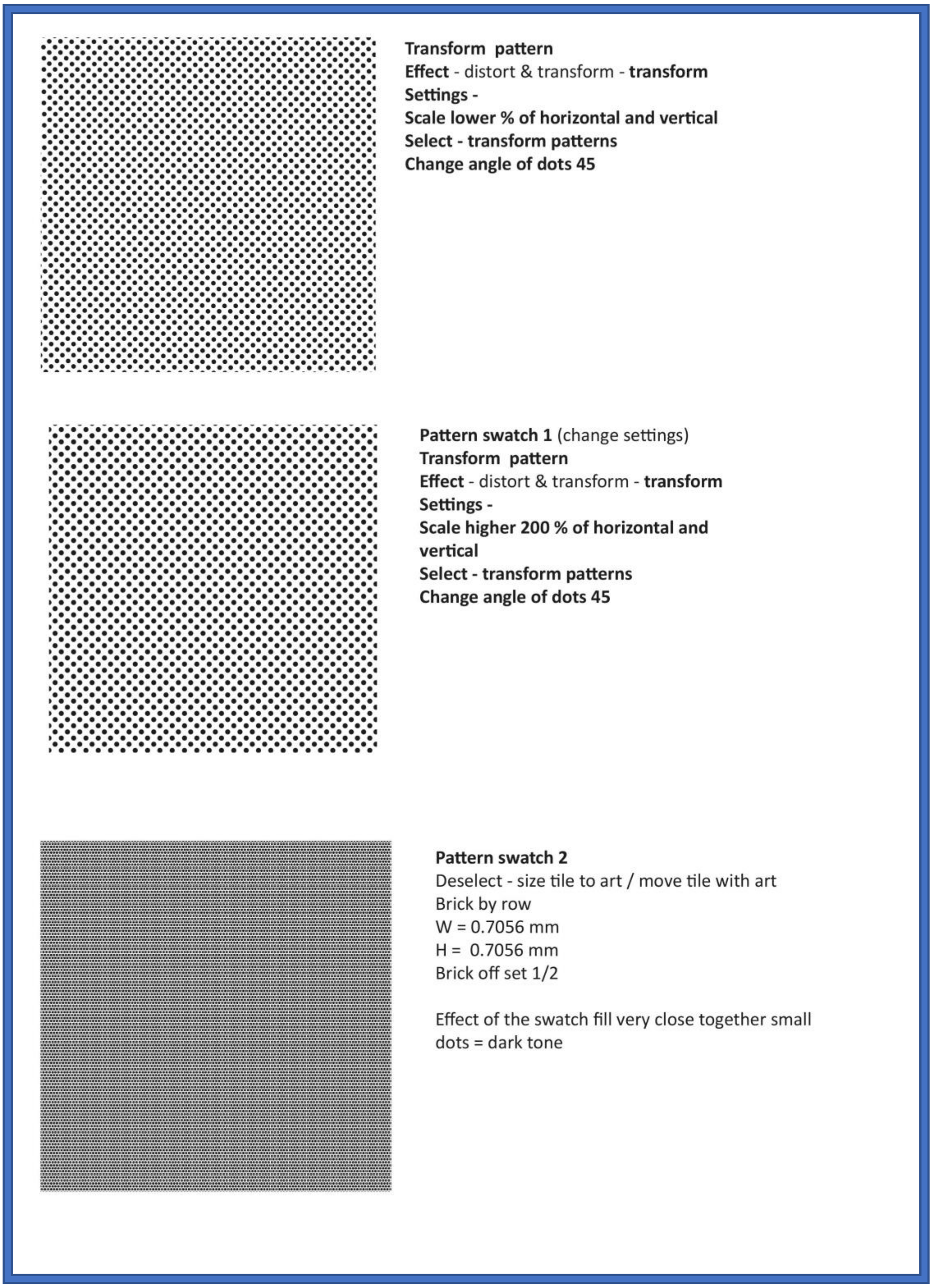
Select ellipse from the tool menu and draw a circle by holding down shift. This makes a circle.

Go to Object and select pattern - make

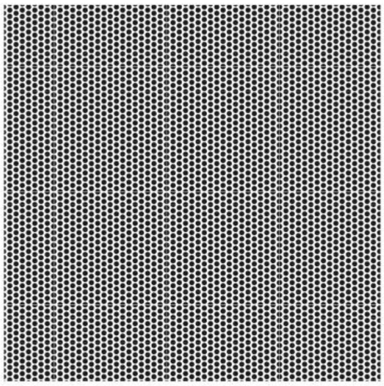


Pattern swatch 1
Make a small dot with **ellipse** tool and **hold shift** to make a uniform circle.
Object - pattern- make
Pattern options
Grid
Select - size tile to art / move tile to art
H/V spacing .5 mm
Select - done and the dot pattern swatch moves into the **swatch palette**
Draw circle and fill with the selected dot

A screen shot of my working progress and note taking using the Illustrator application to both modify the artwork and write up technically



A screen shot of my working progress and note taking using the Illustrator application to both modify artwork and write up technically



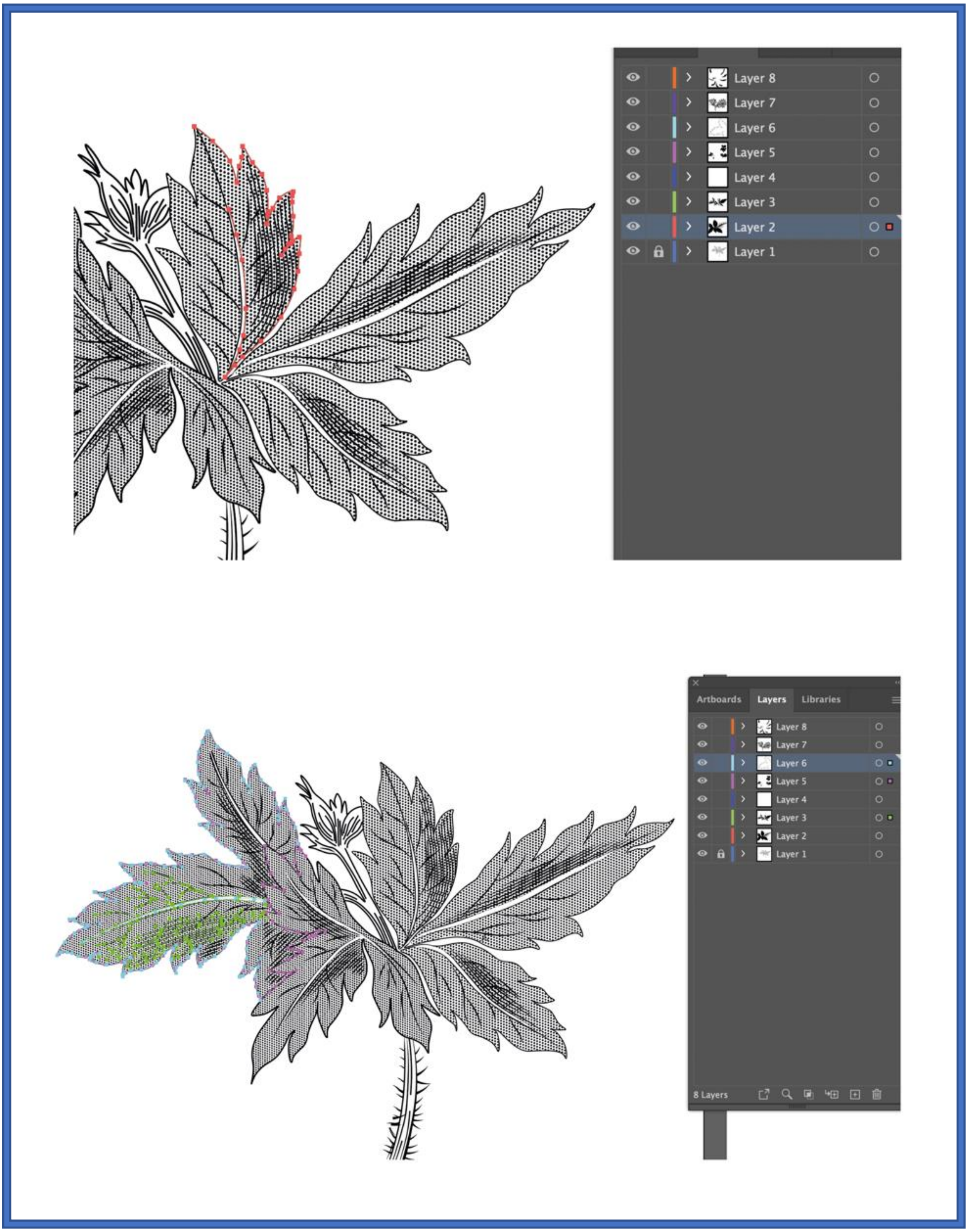
Transform pattern
Effect - distort & transform - **transform**
Settings -
Scale higher 200 % of horizontal and vertical
Select - transform patterns
Change angle of dots 90

Each leaf form was treated separately with lines drawn with the pen tool using a magic mouse.

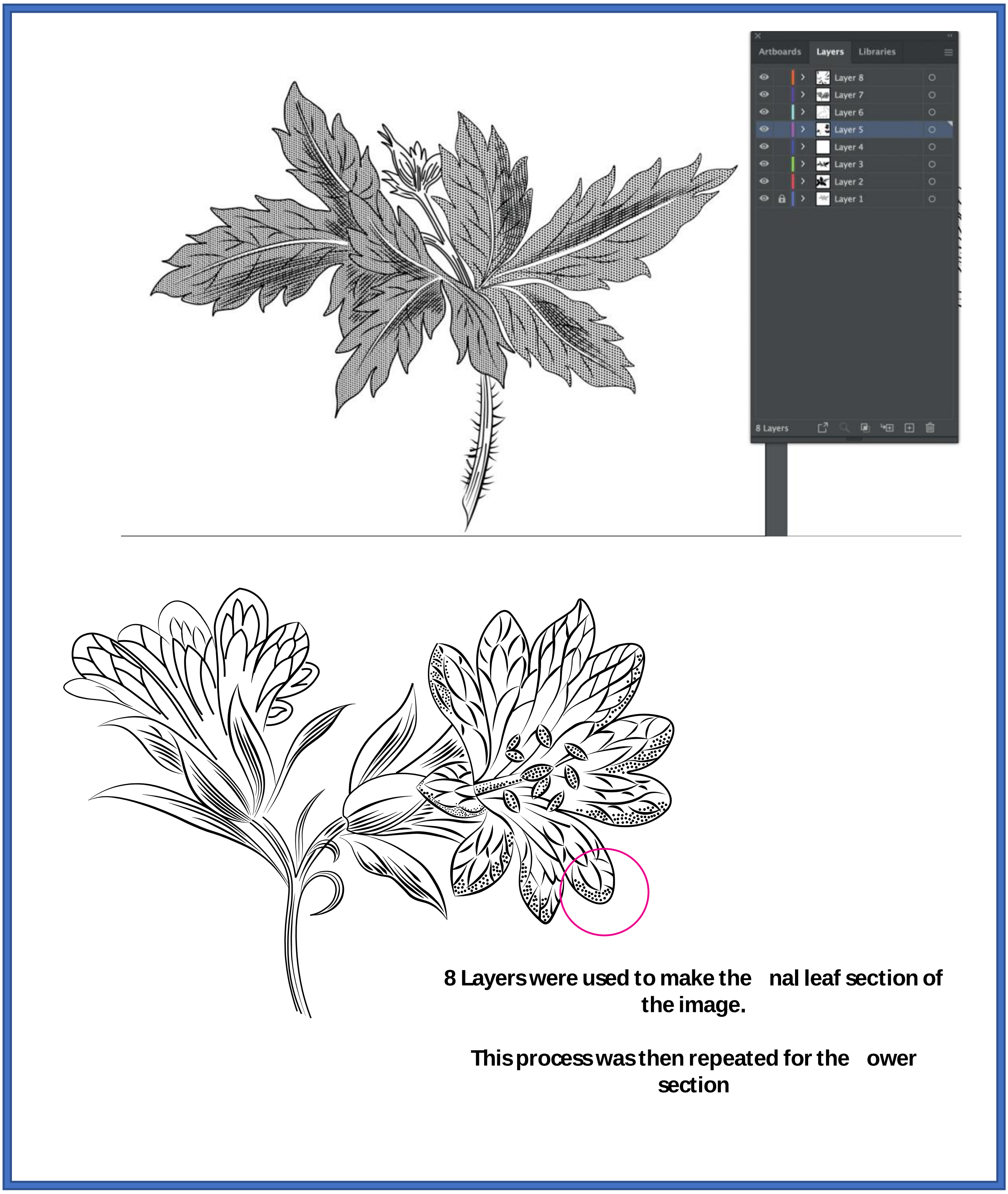
A complex use of layers using pattern fills and pen tool to make the lines and dots.

As explained the closer the dots the darker the overall tone

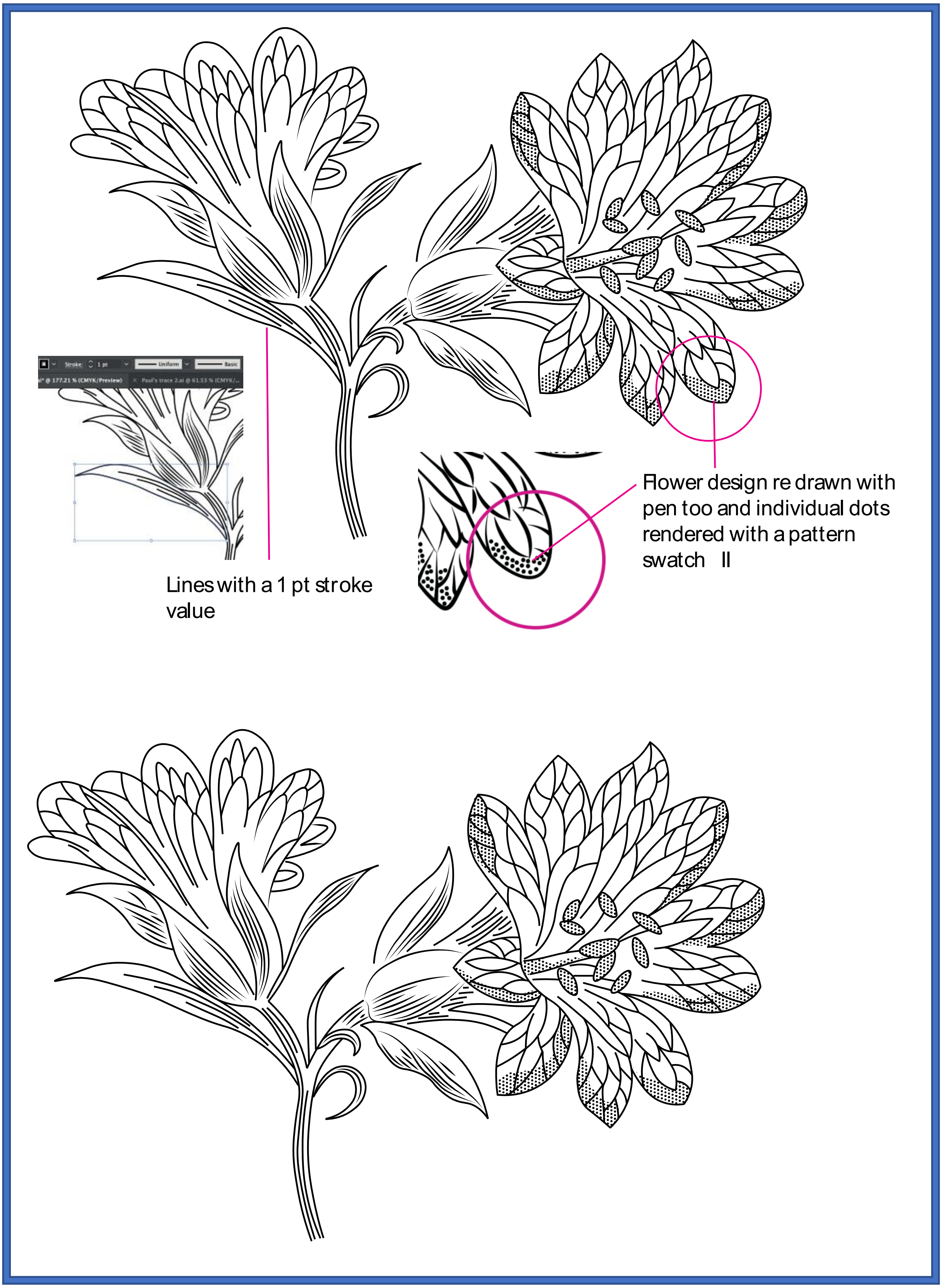
A screen shot of my working progress and note taking using the Illustrator application to both modify artwork and write up technically



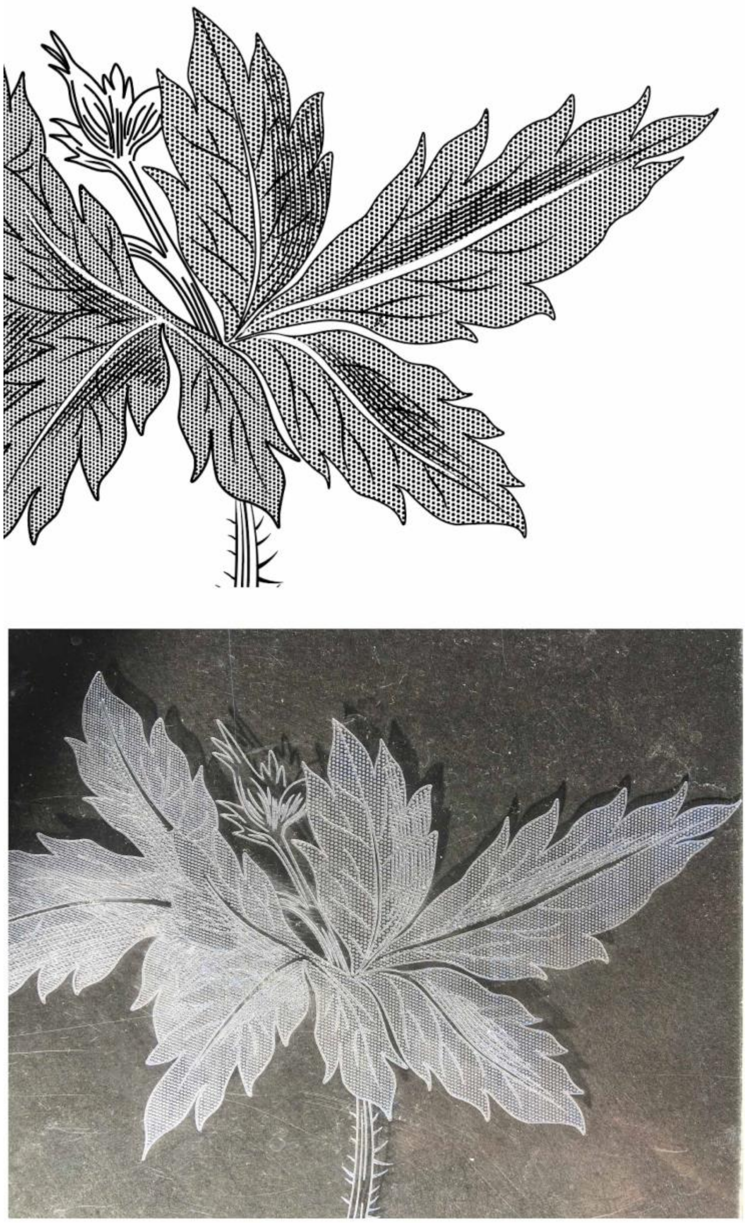
A screen shot of my working progress and note taking using the Illustrator application to both modify artwork and write up technically



A screen shot of the working progress of drawing the design making iterations in Illustrator



A screen shot of the working progress of drawing the design making iterations in Illustrator

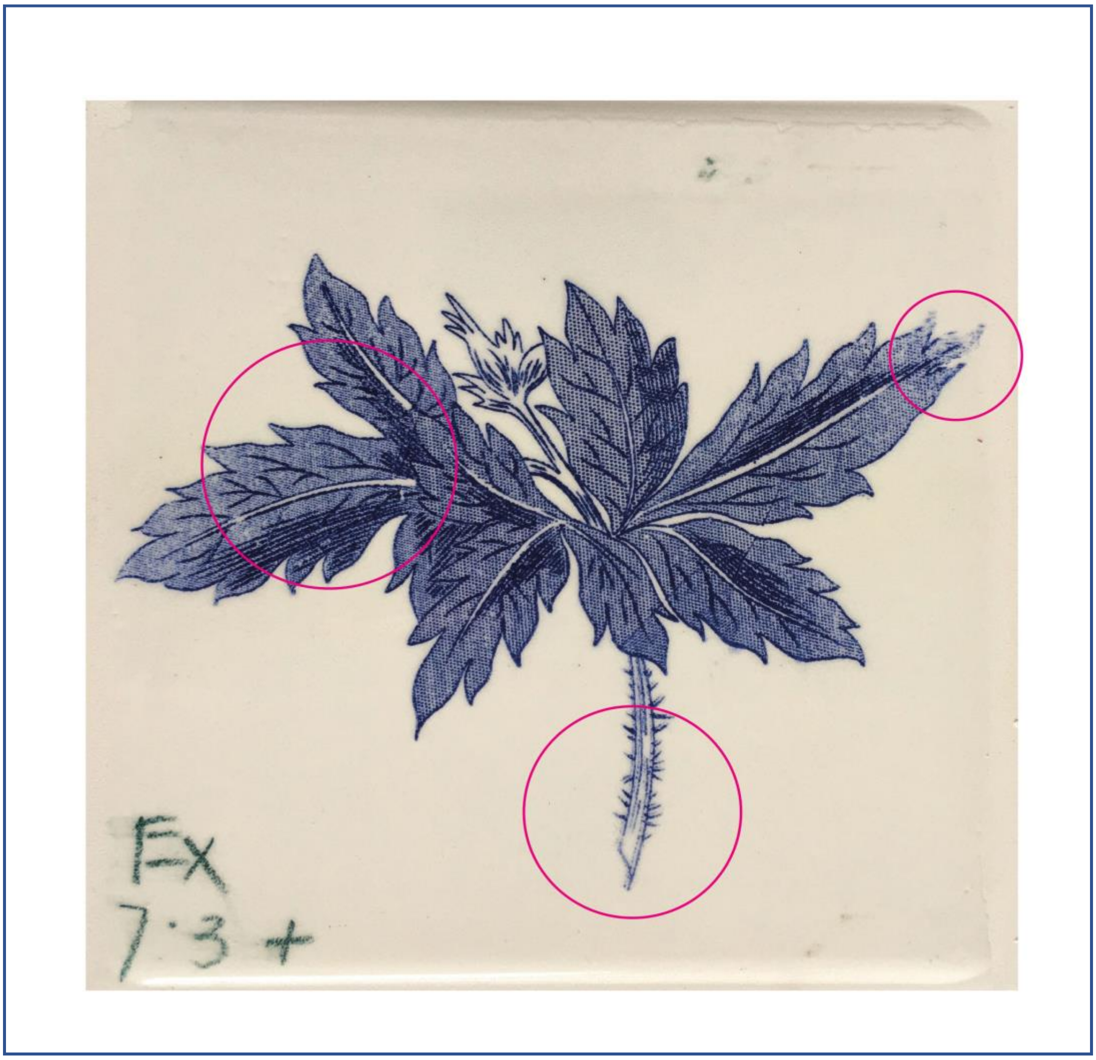


Illustrator image laser engraved (same variable form previous test) onto clear acrylic substrate

Illustrator image laser engraved (same variable form previous test) onto clear acrylic substrate

Mason ceramic stain was the colourant: with 7g Mason Stain: 3g flux plus French 88 etching ink extender

The outcome of Test Two: inked, printed, transferred, hardened on fired and glaze fired, highlighting issues with the printed image



The outcome of Test Two: inked, printed, transferred, hardened on fired and glaze fired, highlighting issues with the printed image

The outcome of Test Two: inked, printed, transferred, hardened on fired and glaze fired, highlighting issues with the printed image

Reflection on the process

- The print was replicable and could be reproduced using the same method.
- The level of detail was readable from the original design.
- The ink consistency was effective for an intaglio printmaking method.
- The extender was an effective carrier of the stain and accessible in the UK.
- The transfer process worked effectively, and the ink remained viscous enough to transfer the print onto the surface of the tile.
- The printed design was stable after hardening and not easily removed.

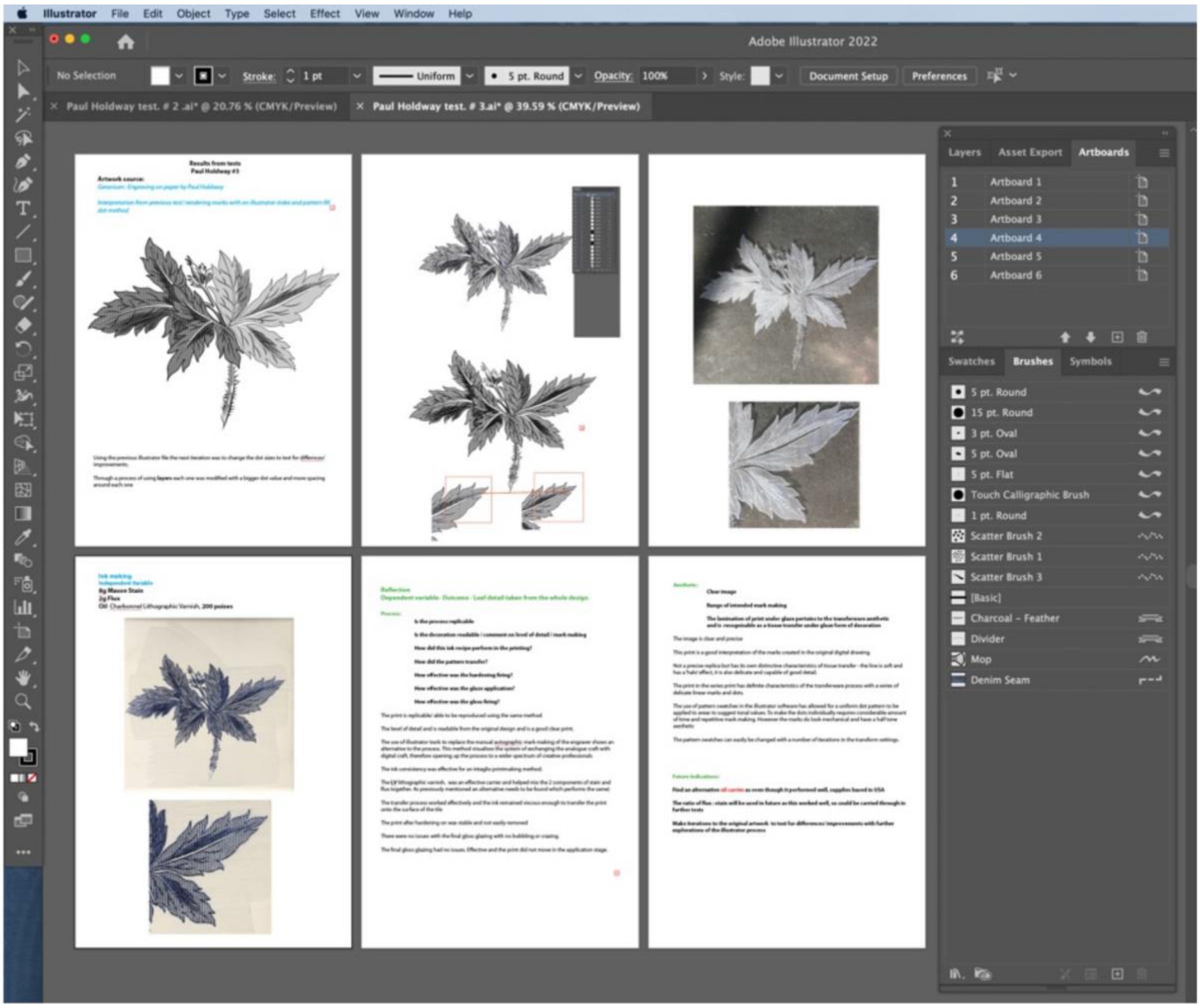
The stylistic characteristics of the resulting tissue transferred image

- The print was blurred in parts and in both cases I made two prints to demonstrate that I needed to practice the handling of materials and processes to become well performed each time.
- This print was a satisfactory interpretation of the marks created in the original digital drawing.
- It was not a precise replica but had its own distinctive characteristics of tissue transfer – the line was soft and had a 'halo' effect, it was also delicate and capable of good detail.
- The use of the *pattern swatch tool* in Illustrator created uniform dot patterns to indicate tonal areas in the design. The pattern swatches could be changed to show different sizes representing tonal values.

Future recommendations

- Find an alternative oil carrier as the Extender 88 caused the ink to slip on contact with the ceramic.
- The ratio of flux and colourant worked effectively as the print remained in place after firing.
- Keep making changes to the original artwork and make iterations to the mark making to test for further improvements.

A.6.2.3. Test Three



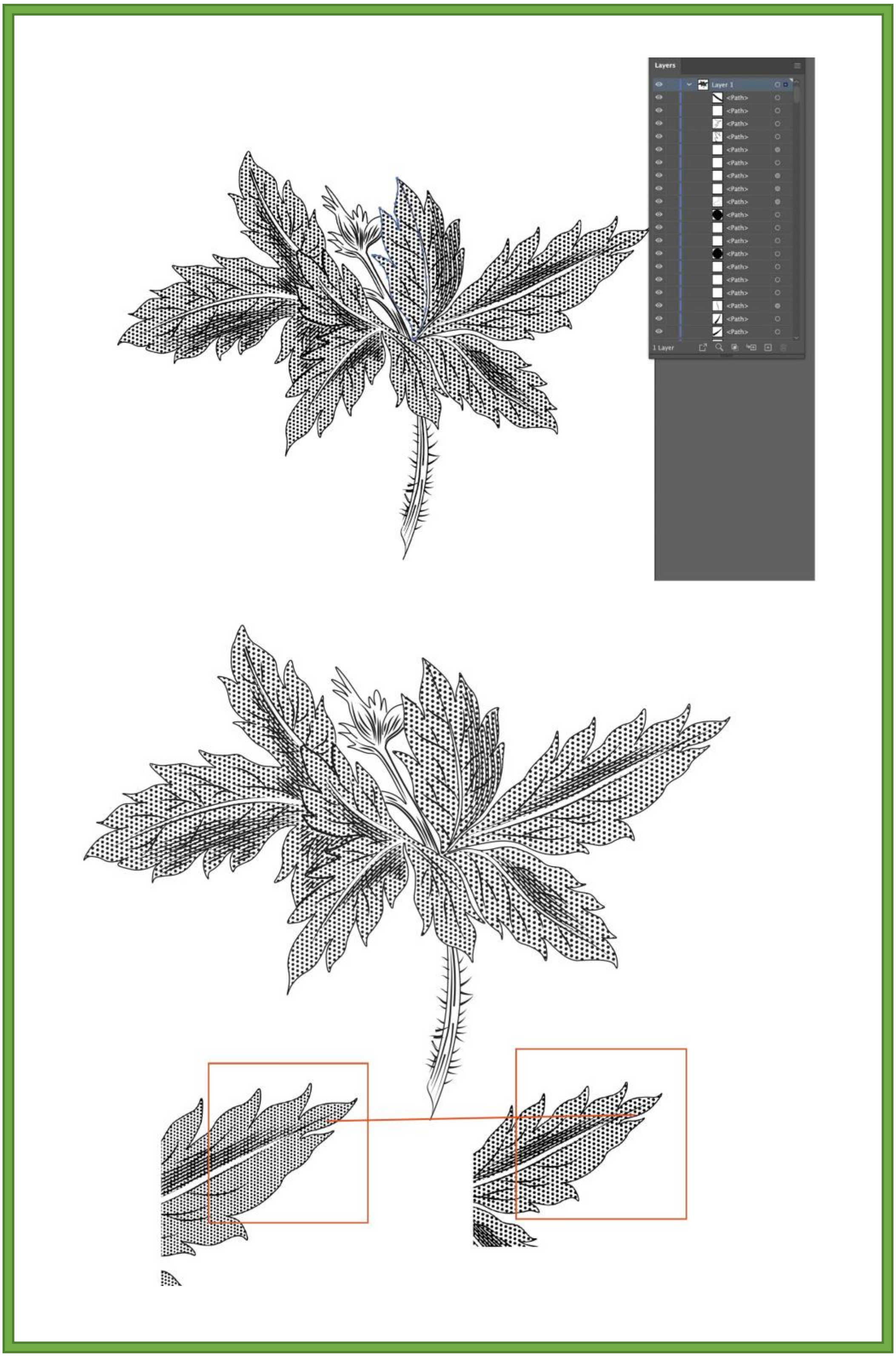
An interpretation of the *Geranium* engraving on paper by Paul Holdway

A screen shot of my working processes using the Illustrator application

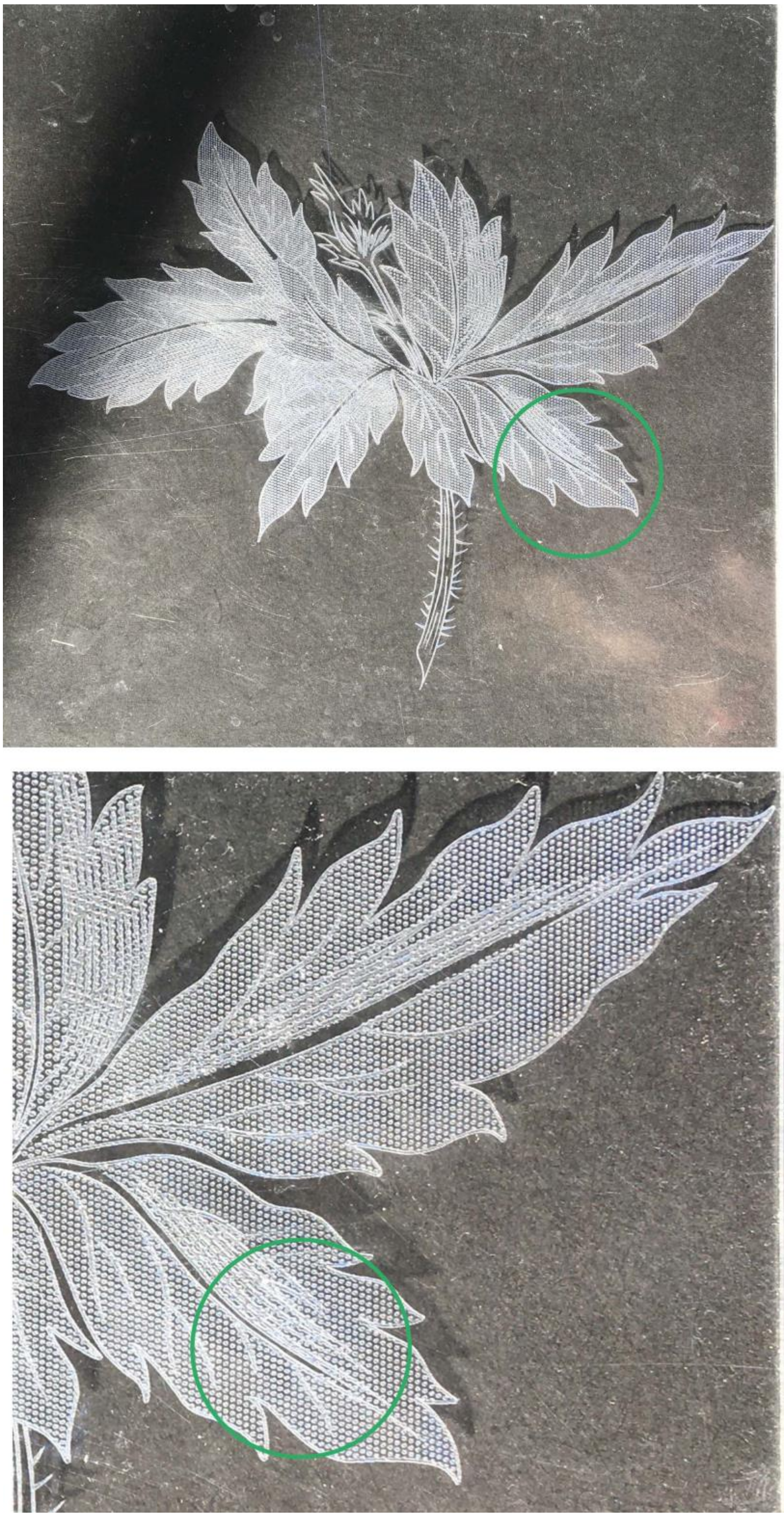
Using the previous illustrator file the next iteration was to change the dot sizes to test for differences/ improvements.

Through a process of using **layers** each one was modified with a bigger dot value and more spacing around each one

A screen shot of my working progress and note taking using the Illustrator application to modify artwork with dots to represent different tones



A screen shot of my working progress and note taking using the Illustrator application to modify artwork with dots to represent different tones



The laser engraved plate highlighted a more open dot mark, created with a pattern swatch tool

The resulting print highlighted a more open dot mark, created with a pattern swatch tool.
The ink was the same formulation as Test One, changing the flux to colour ratio 3:7

Reflection on the process

- The print was replicable and could be reproduced using the same method.
- The level of detail was readable from the original design.
- The ink consistency was effective for an intaglio printmaking method.
- Using Illustrator to translate manual engraving methods offered an alternative for artists. The digital would not replace the original but serve as an interpretation of it, which increases its accessibility.
- The extender was an effective carrier of the stain but not readily available.
- The transfer process worked effectively, and the ink remained viscous enough to transfer the print onto the surface of the tile.
- The printed design was stable after hardening and not easily removed.
- The glaze worked effectively

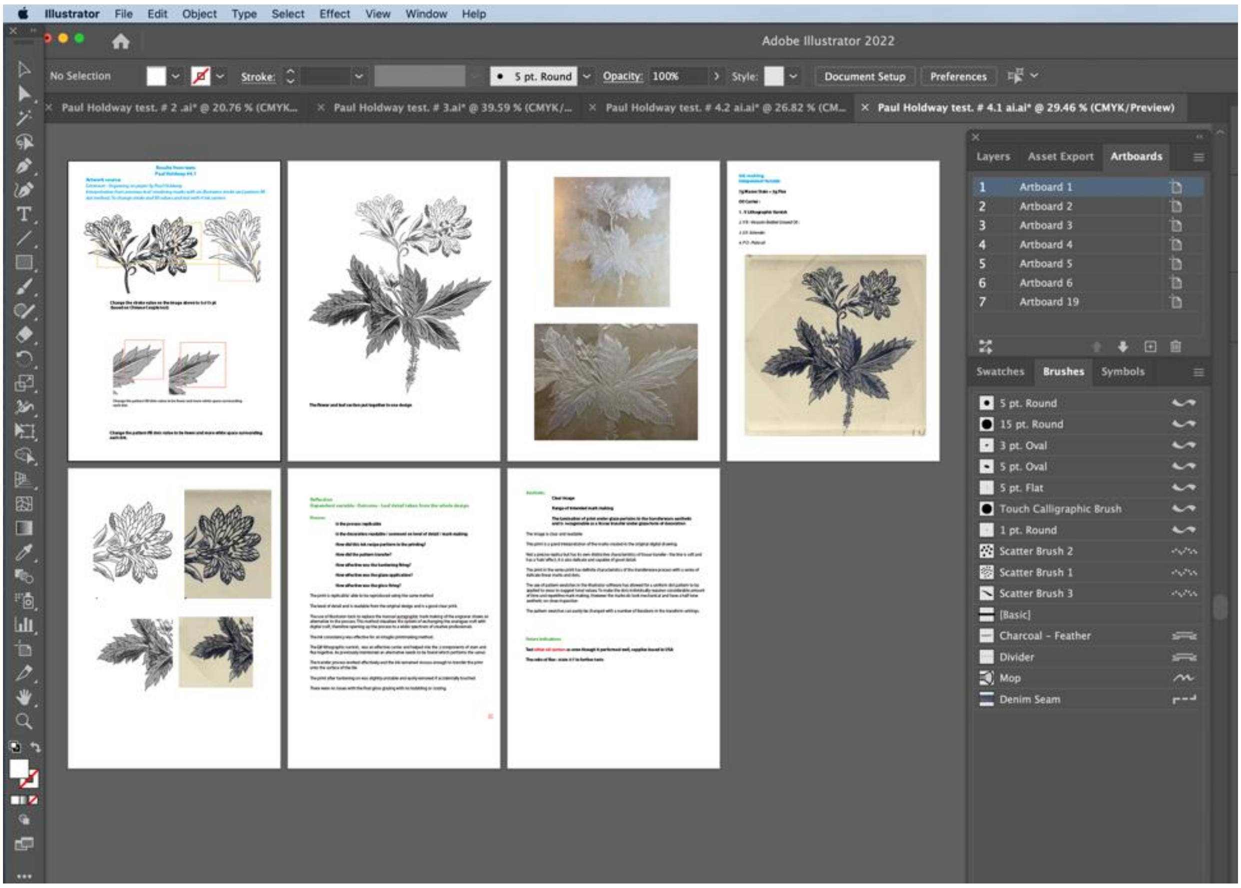
The stylistic characteristics of the resulting tissue transferred image

- The print was clear and precise.
- This print was a good interpretation of the marks created in the original digital drawing.
- It was not a precise replica but had its own distinctive characteristics of tissue transfer – the line was soft and had a 'halo' effect with delicate detail.
- The use of the *pattern swatch tool* in Illustrator created uniform dot patterns to indicate tonal areas in the design. The pattern swatches could be changed to show different sizes representing tonal values. The dots appeared mechanical and pertained to a half tone aesthetic.

Future recommendations

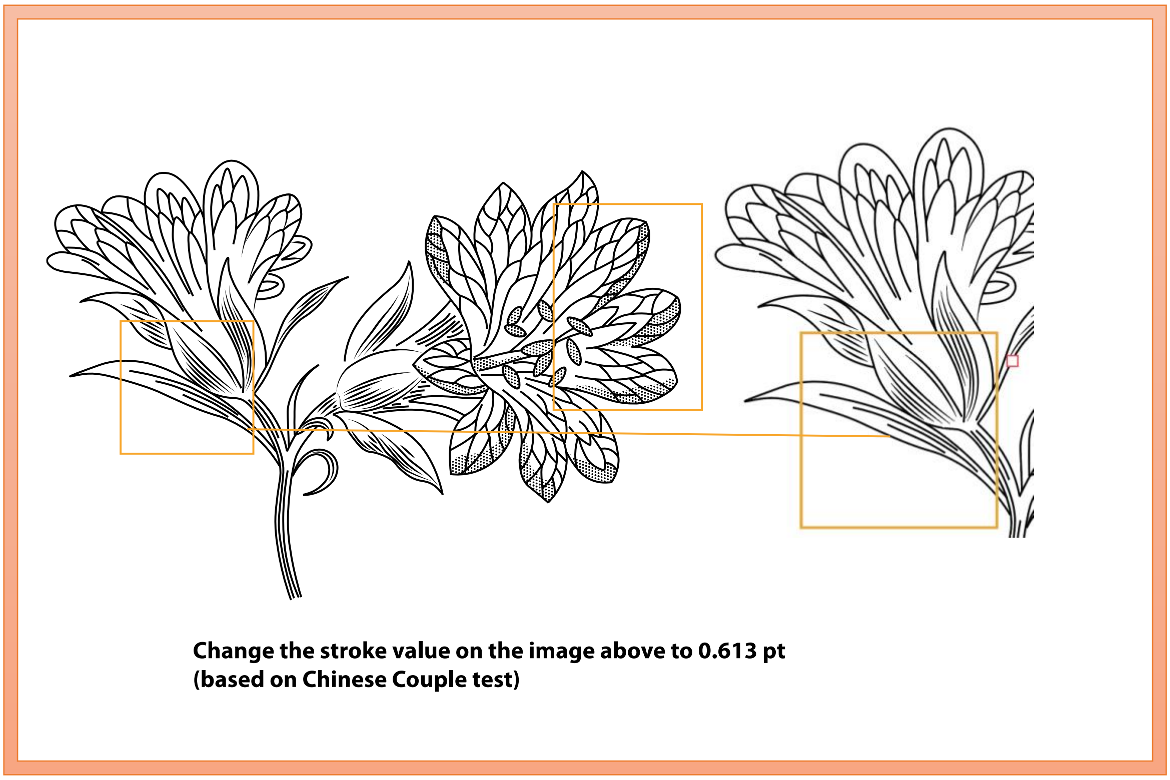
- Find an alternative oil carrier, as the lithographic varnish is not available in the UK.
- The ratio of flux and colourant worked effectively as the print remained in place after firing.
- Keep making changes to the original artwork and make iterations to the mark making to test for further improvements

A.6.2.4. Test Four

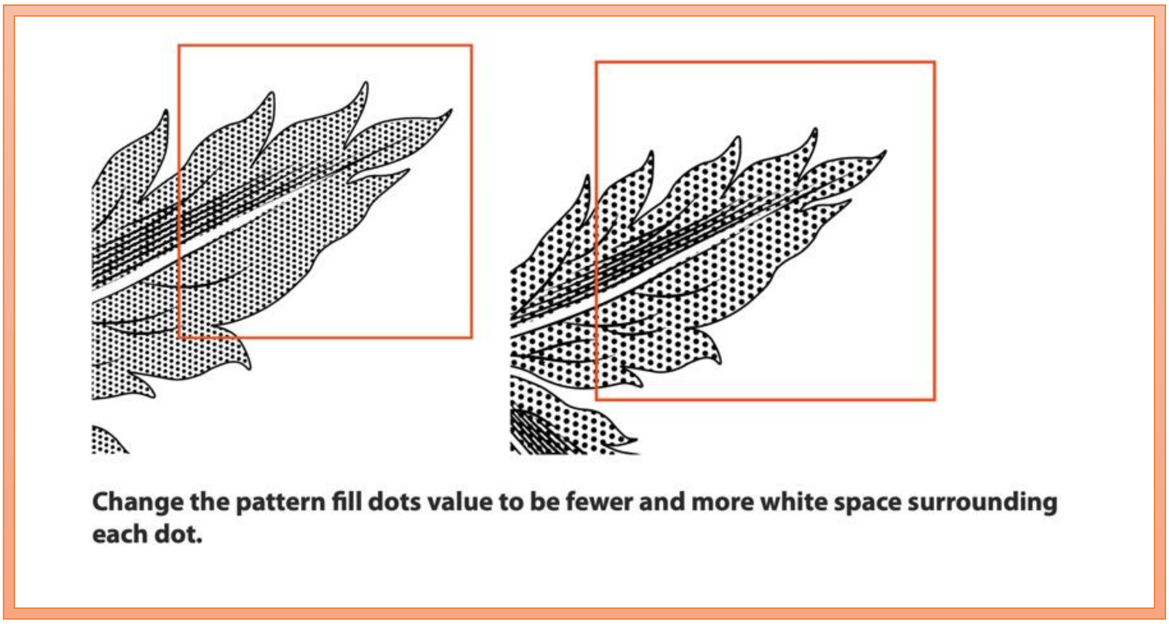


An interpretation of the *Geranium* engraving on paper by Paul Holdway.

A screen shot of my working processes using the Illustrator application



Screen shot of iterations: changing the stroke value to 0.613pt



Screen shot of iterations: changing the pattern fill dot value

The flower and leaf section put together in one design

The resulting design

The laser engraved plate

Detail of the laser engraved plate

Printed design with ink: 7g Mason Stain, 3g flux, lithographic varnish

Printed design with ink: 7g Mason Stain, 3g .flux, vacuum-bodied linseed oil

Printed design with ink: 7g Mason Stain, 3g flux, thick plate oil

Printed design with ink: 7g Mason Stain, 3g flux, extender

Reflection on the process

- The print was replicable and could be reproduced using the same method.
- The level of detail was readable from the original design.
- The ink consistency was effective for an intaglio printmaking method.
- Using Illustrator to translate manual engraving methods offered an alternative for artists. The digital would not replace the original but serve as an interpretation of it, which increases its accessibility.

- The extender was an effective carrier of the stain but not readily available.
- The transfer process worked effectively, and the ink remained viscous enough to transfer the print onto the surface of the tile.
- The printed design was stable after hardening and not easily removed.
- The glaze worked effectively.

The stylistic characteristics of the resulting tissue transferred image

- The print was clear and precise in some but not all parts.
- This print was a good interpretation of the marks created in the original digital drawing.
- It was not a precise replica but had its own distinctive characteristics of tissue transfer – the line was soft and had a 'halo' effect with delicate detail.
- The use of the *pattern swatch tool* in Illustrator created uniform dot patterns to indicate tonal areas in the design. The pattern swatches could be changed to show different sizes representing tonal values. The dots appeared mechanical and pertained to a half tone aesthetic.

Future recommendations

- The carrier oils worked to blend the colourant and flux but there were still issues with total transferring of the pattern.
- The ratio of flux and colourant worked effectively as the print remained in place after firing.
- Keep making changes to the original artwork and make iterations to the mark making to test for further improvements.

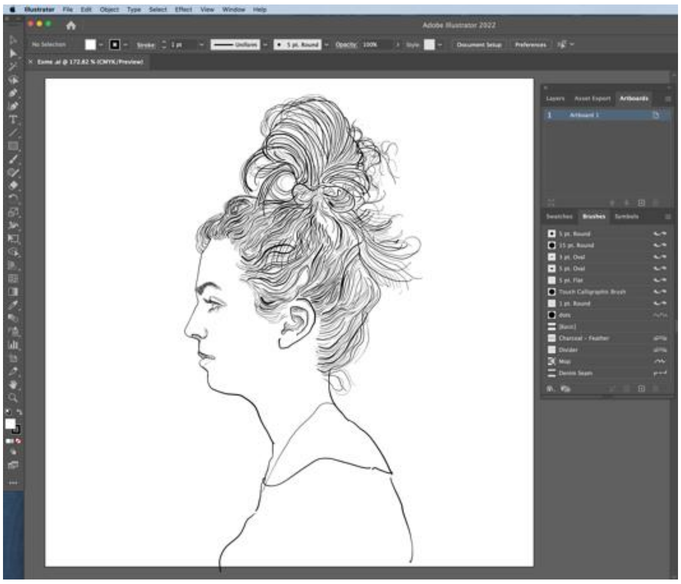
Based on the future recommendations a series of effective tissue transfer prints were produced, providing examples of an effective method of tissue transferware. The tests highlighted the use of a dot structure as an interpretation of punch dots in traditional engraving, and this finding was further developed in future works. This is documented in Chapter Eight of this thesis.

An ink formulation highlighted ratio of 3gms flux: 7gms of colour plus tint based extender as an oil carrier. This was effective for transferring the print, firing the printed design on the ceramic substrate and final glaze firing for temperatures designed for earthenware. These were 1000^{o}C for hardening on and 1250^{o}C for the glaze firing.

The most effective example

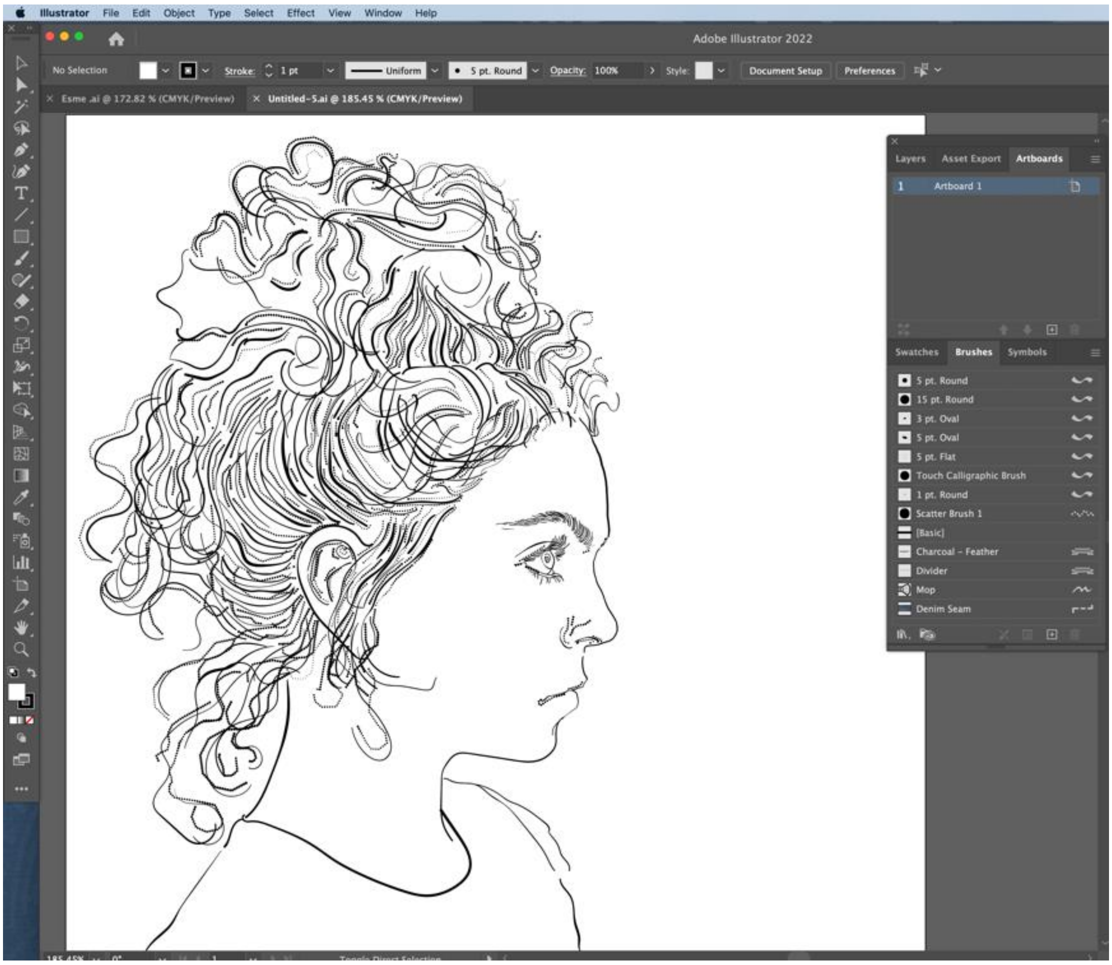
A.6.2.5. Additional examples of empirical testing of the process

This section documents other designs produced applying methods of digital drawing highlighted in previous tests of the process. It presents the design and the finished ceramic examples to demonstrate further developments and knowledge of the process.

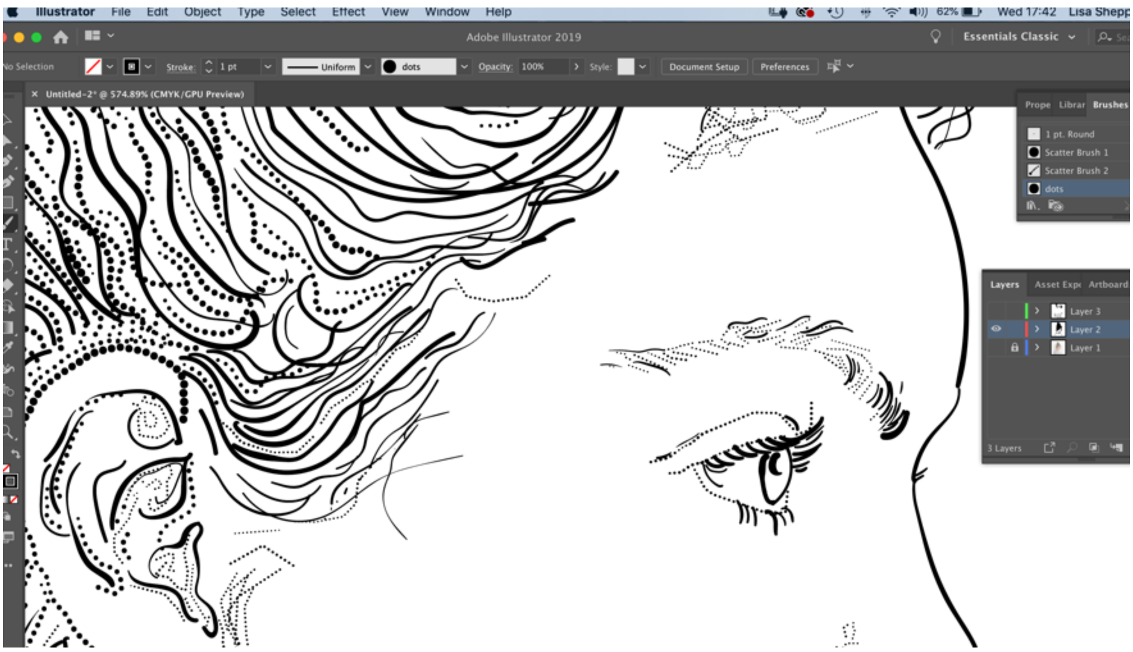


Digital drawing with linear dots and tonal lines

Resulting ceramic test.



Digital drawing with linear dots and tonal lines.



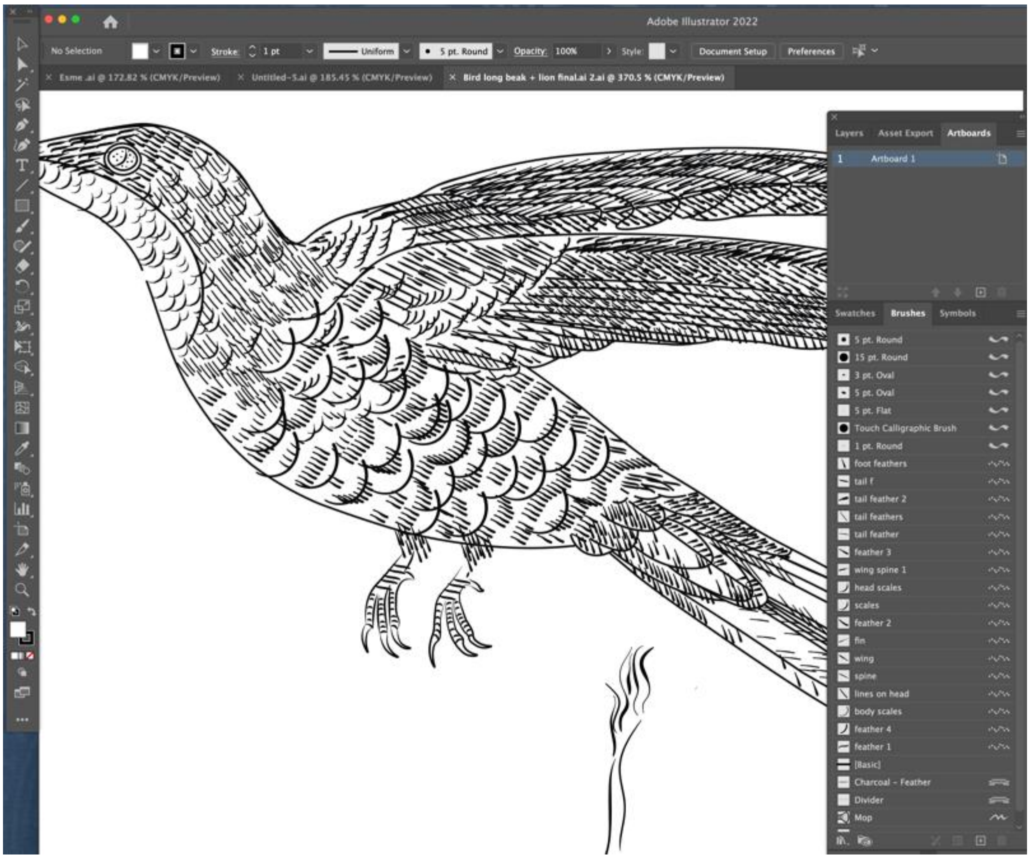
The use of scatter brushes with the drawing application.

Resulting ceramic test highlighting issues with the transfer, as the print has blurred.

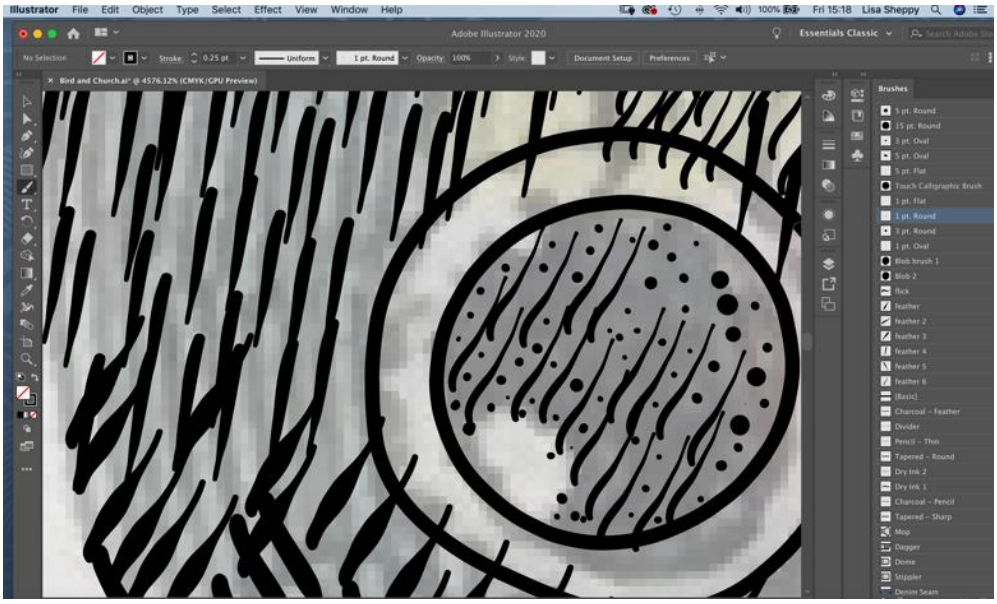
The colour staining indicates issues with the ink. The flux has not fused the print effectively on the ceramic.

The resulting ceramic highlighting a more effective print, combining two designs.

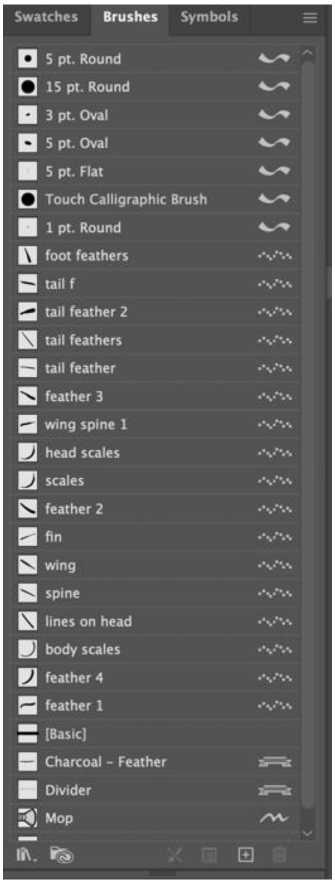
Source image from a historic reference book from the Museum of Royal Worcester's archive.



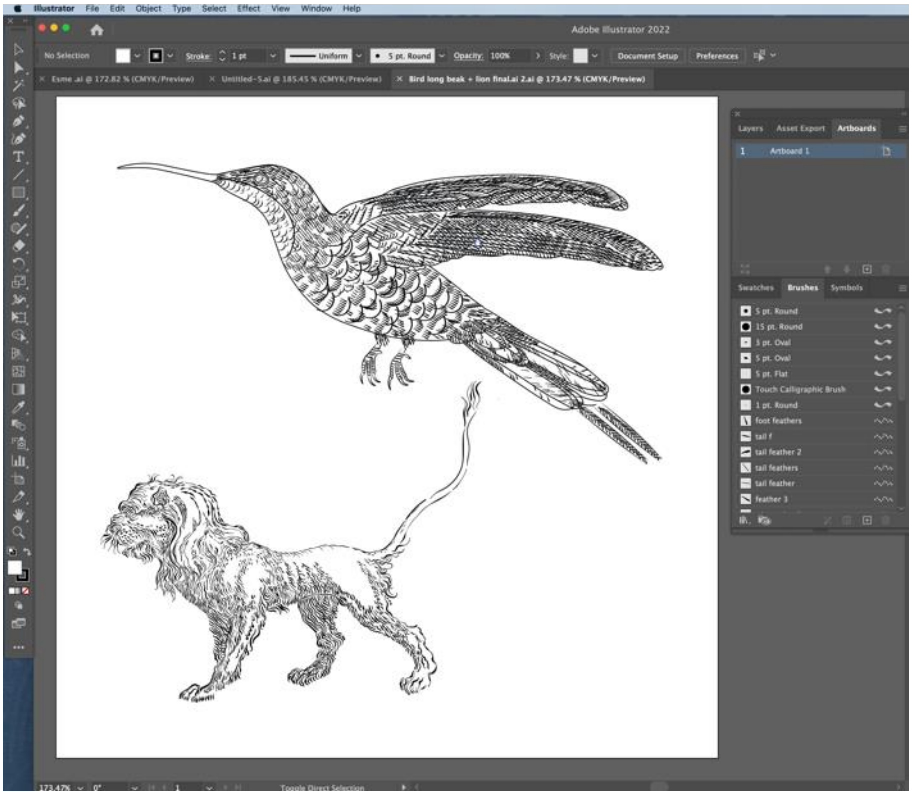
Digital drawing using scatter brushes to make marks. This suggests traditional drawing with the use of a pressure sensitised Wacom tablet and pen.



Detail of marks made with the scatter brush tool. This suggests traditional drawing with the use of a pressure sensitised Wacom tablet and pen.

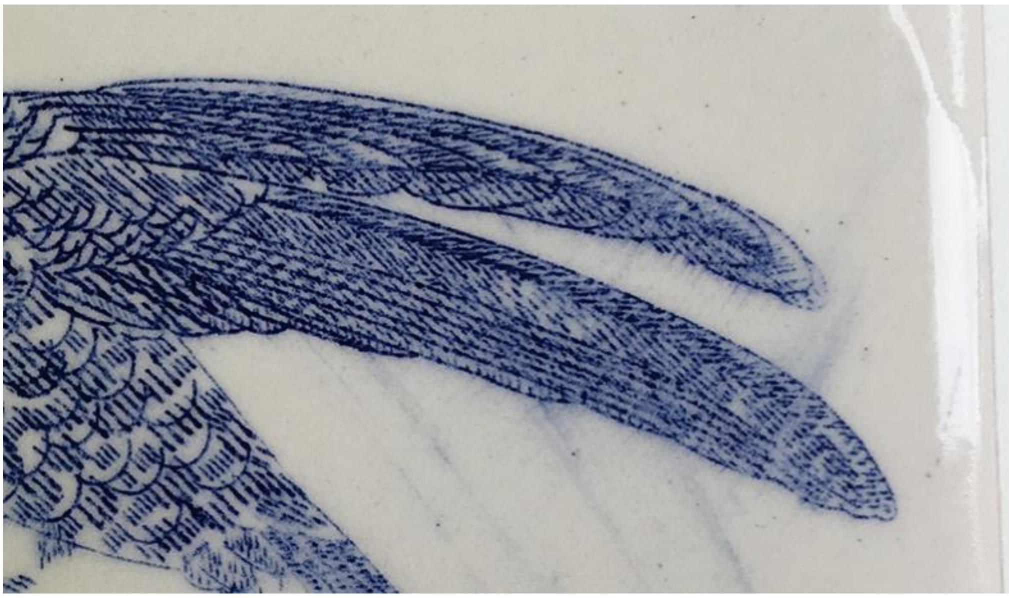


Range of scatter brush tools created digitally in Illustrator to suggest physical drawing.



Digital drawing of a hummingbird and lion from an illustration by Hancock.

Resulting ceramic test highlighting issues with the transfer and ink.

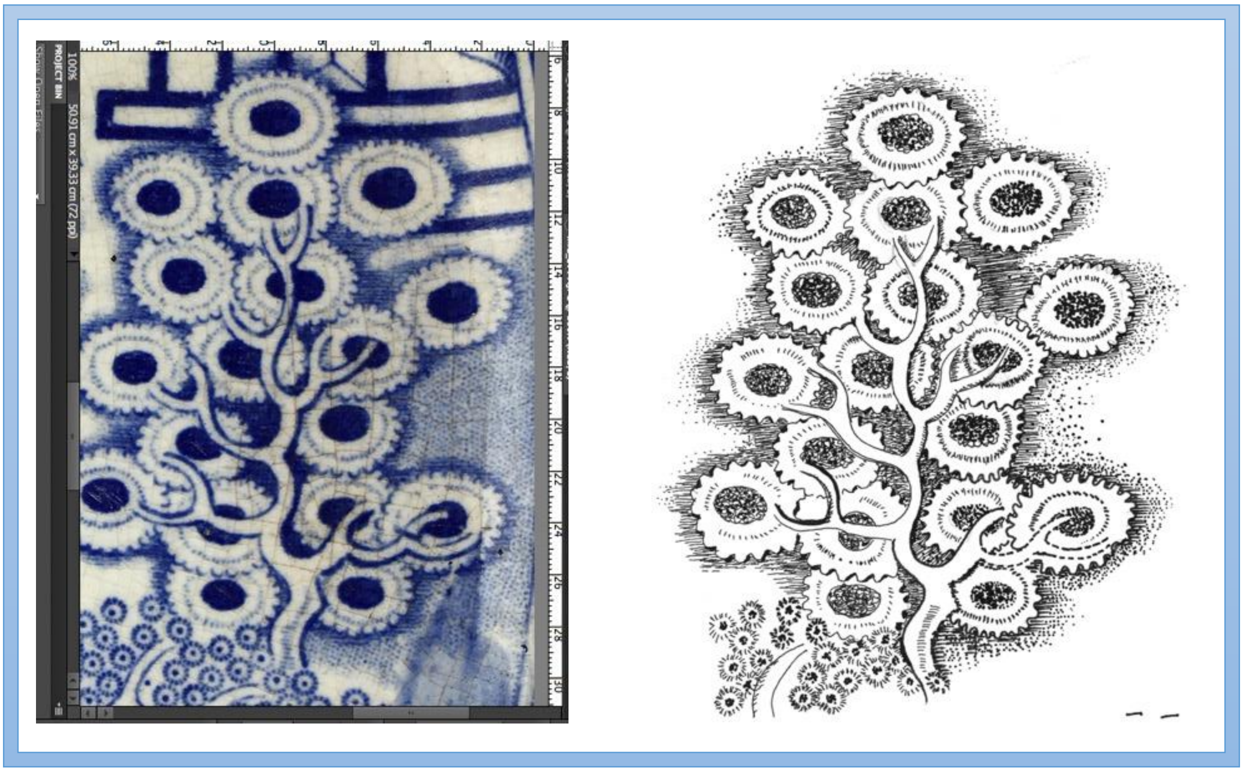


The print is not stable and has become powdery, causing colour staining

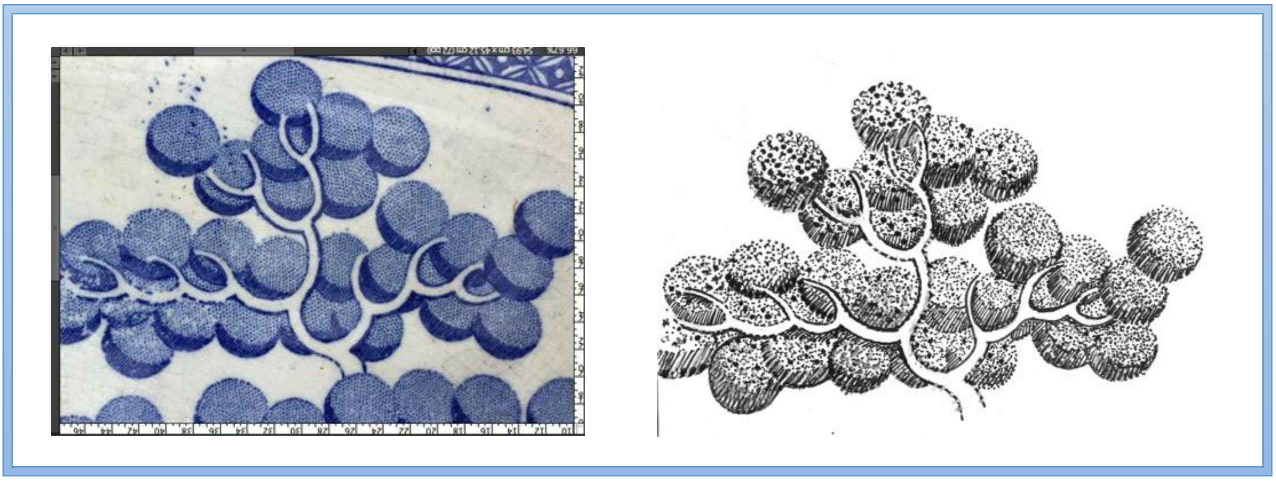
A.6.2.6. Flexography to replicate an engraving matrix

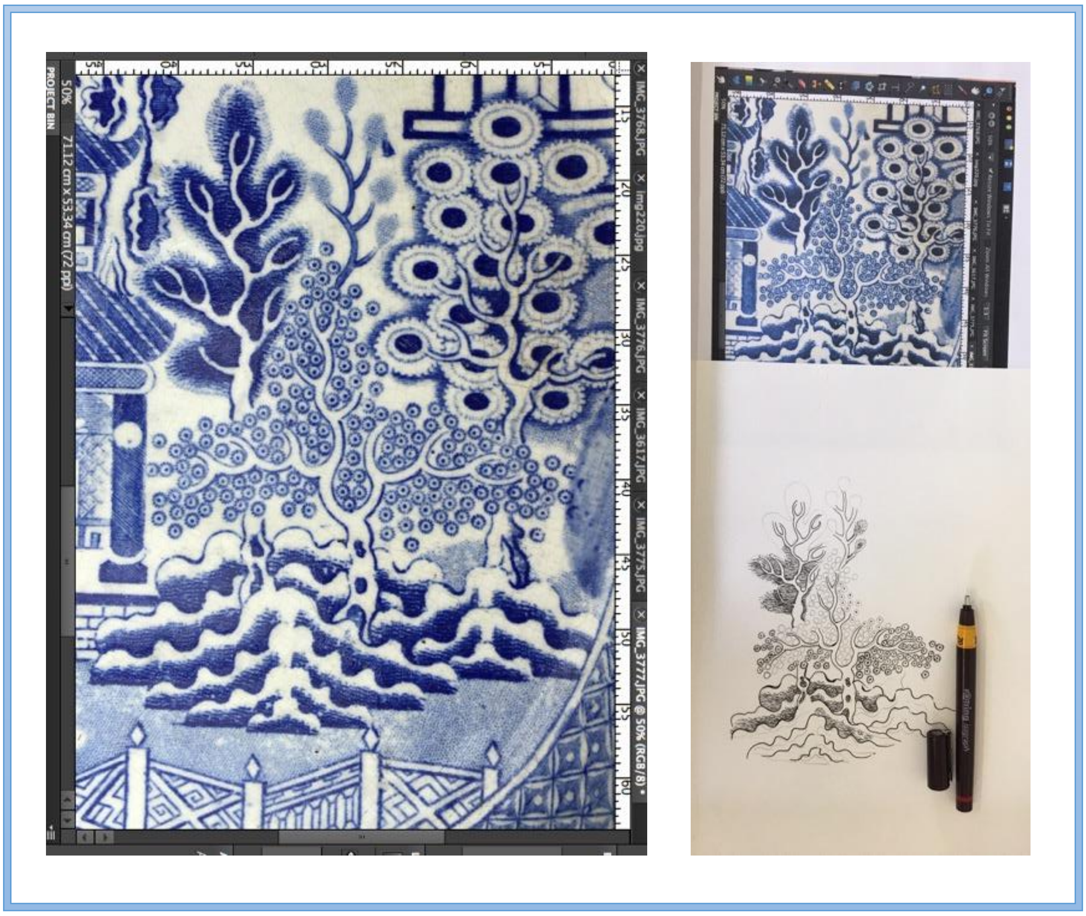
I have worked previously with etching throughout my professional career as an artist and teacher but not fully exploited its potential in my practice. I consider engraving to be one of the most challenging processes, which needs specialist training to achieve any success with its capabilities, and the time I spent with Paul Holdway confirmed this belief.

The investigation commenced using methods of drawing with autographic mark making to investigate whether the digital manipulation of a manual drawing in Photoshop could produce a flexographic engraved plate that was able to accept underglaze printing ink for tissue transfer. The initial series of drawings with made with detailed marks using *Rotring* ink pens, attempting to interpret the engraving marks from the original, giving attention to the incised autographic marks originally made by the engraver, with a series of stipple dots, lines and cross hatching.

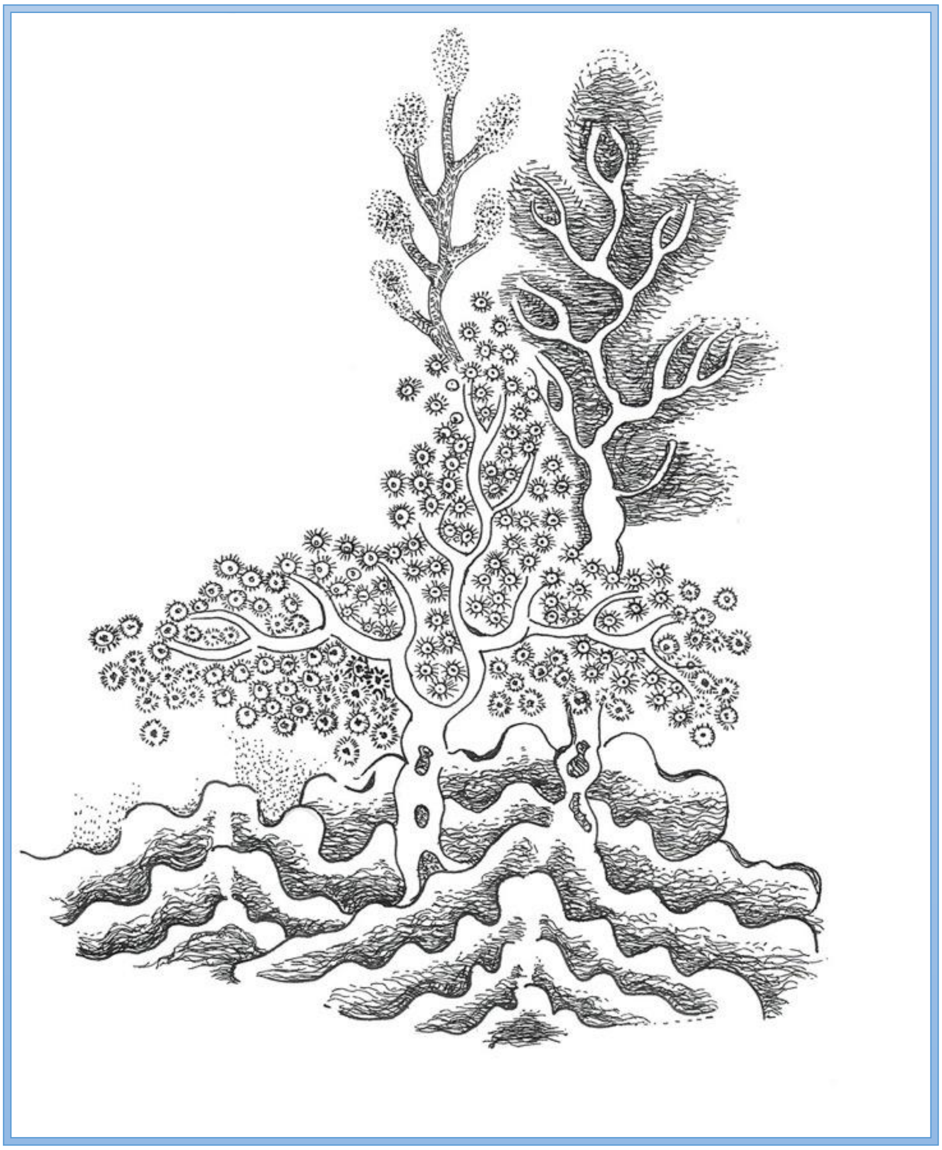


When my interpretation of the tree patterns contained within the willow pattern were abstracted from the whole design a series of nonrepresentational abstract marks began emerging



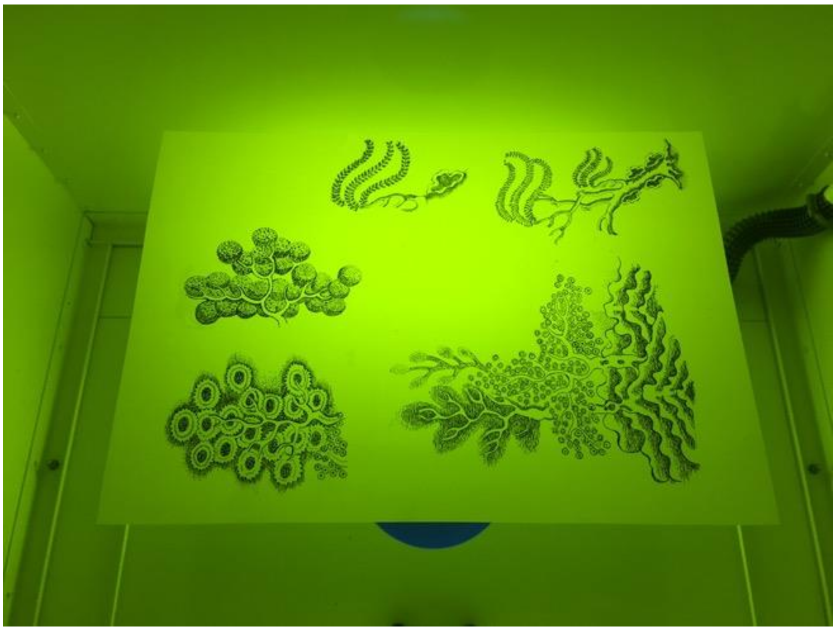


Drawing directly from the willow pattern



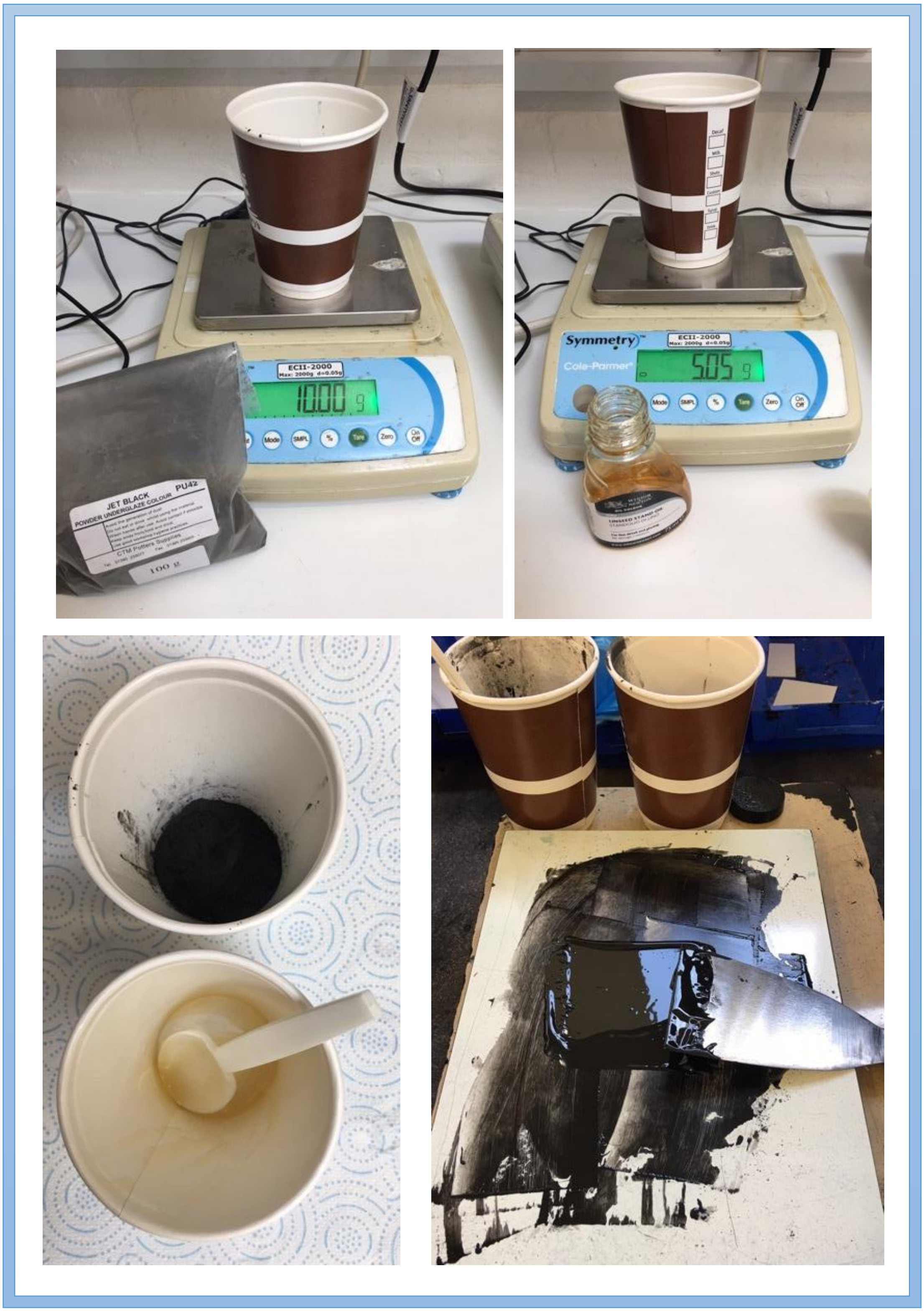
Drawing directly from the willow pattern

The drawings were scanned and re-sized in Photoshop and placed into one digital jpeg file, converting the physical drawings to a digital file. Exporting and printing the file onto folex, a sequence of practice-based research tests were carried out based on my technical understanding of the process.

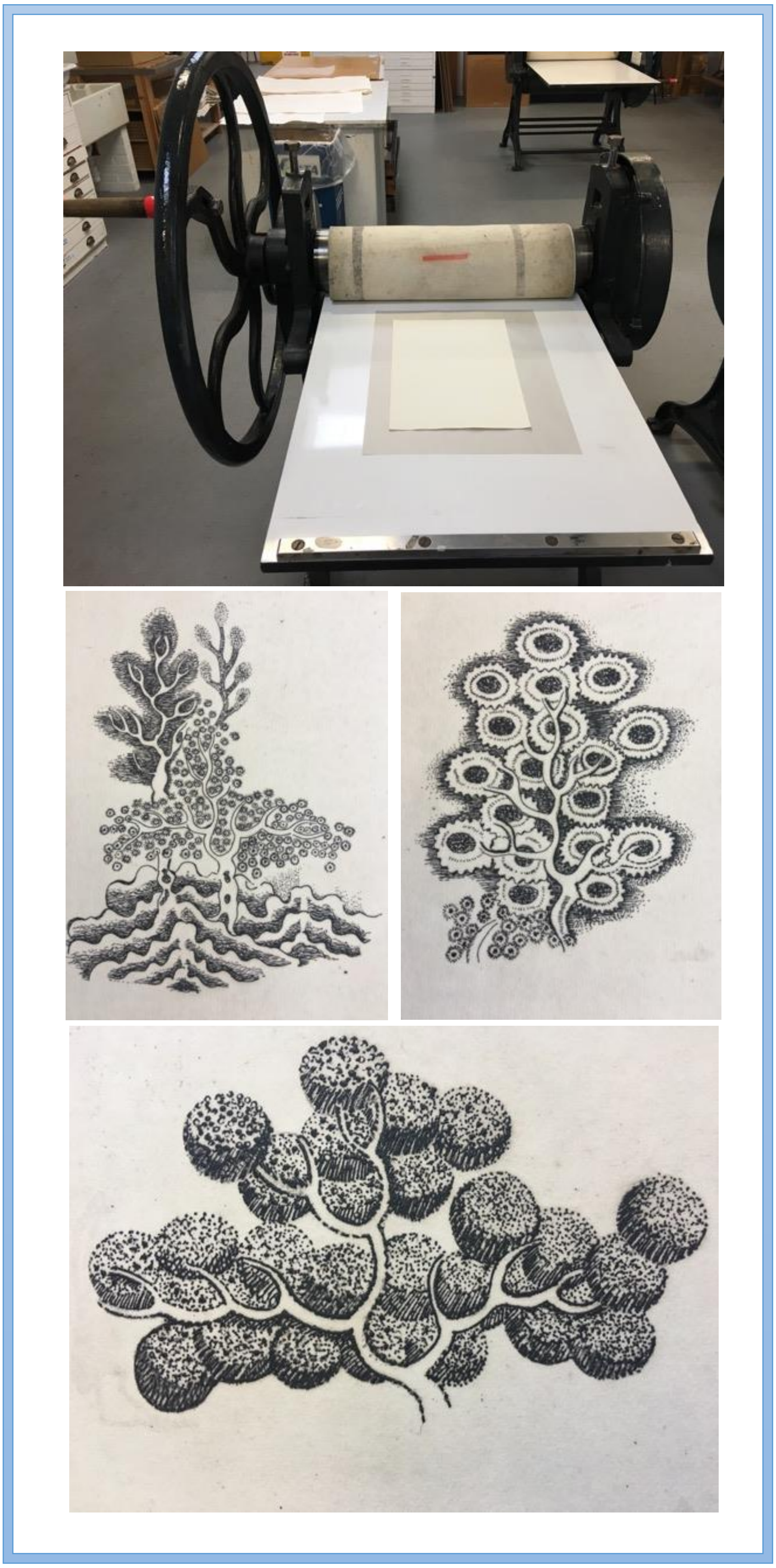


The flexography process: the jpeg file was output printed onto folex then exposed photographically using flexography and a photopolymer plate at 180 light units

After exposure to light units the photopolymer plate was washed in cold running water to remove the photosensitive coating. The marks from the original drawing were reproduced effectively on the flexographic plate, creating an intaglio engraving plate.



Mixing ink based on a recipe suggested by Petrie (2011: 110), 5g oil to 10g stain plus lineeed stand oil



Printed tissue from the flexographic plate, using the etching press in UWE’s print room

Tissue prints were transferred using hand soap as a lubricant onto the test tile

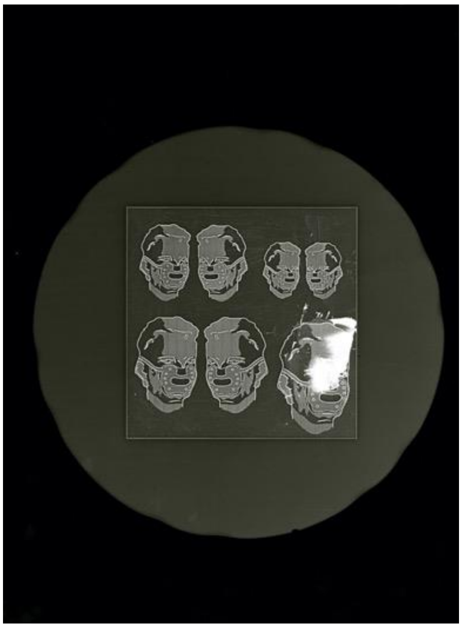
The test tiles were fired to 1000°C to harden the underglaze ink and burn off oil. A clear glaze was then applied and fired to 1050 °C. The test tile produced from this initial investigation highlighted areas for future testing to gain more competence and technical understanding of the process

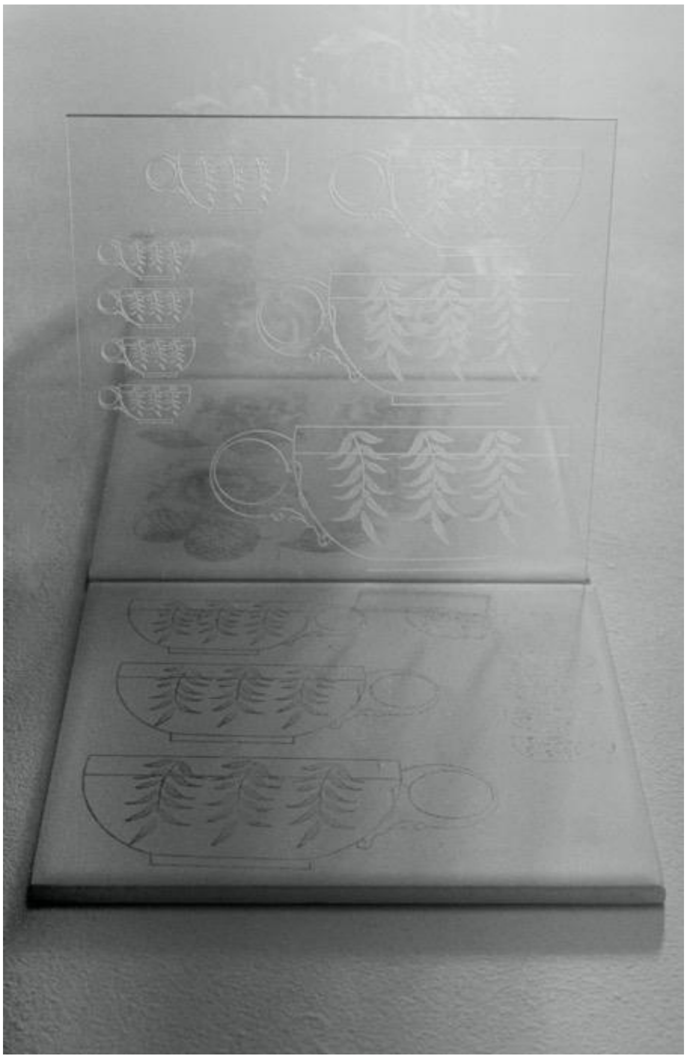
Chapter Nine

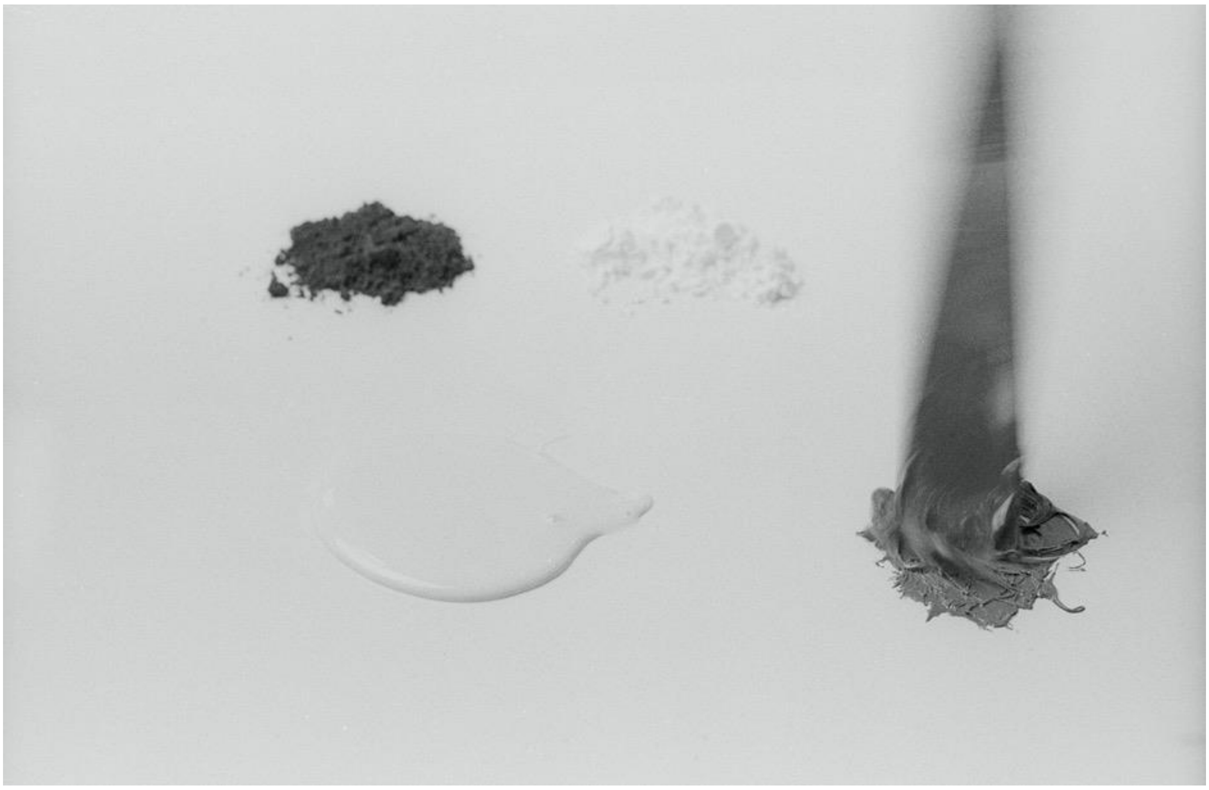
Dissemination

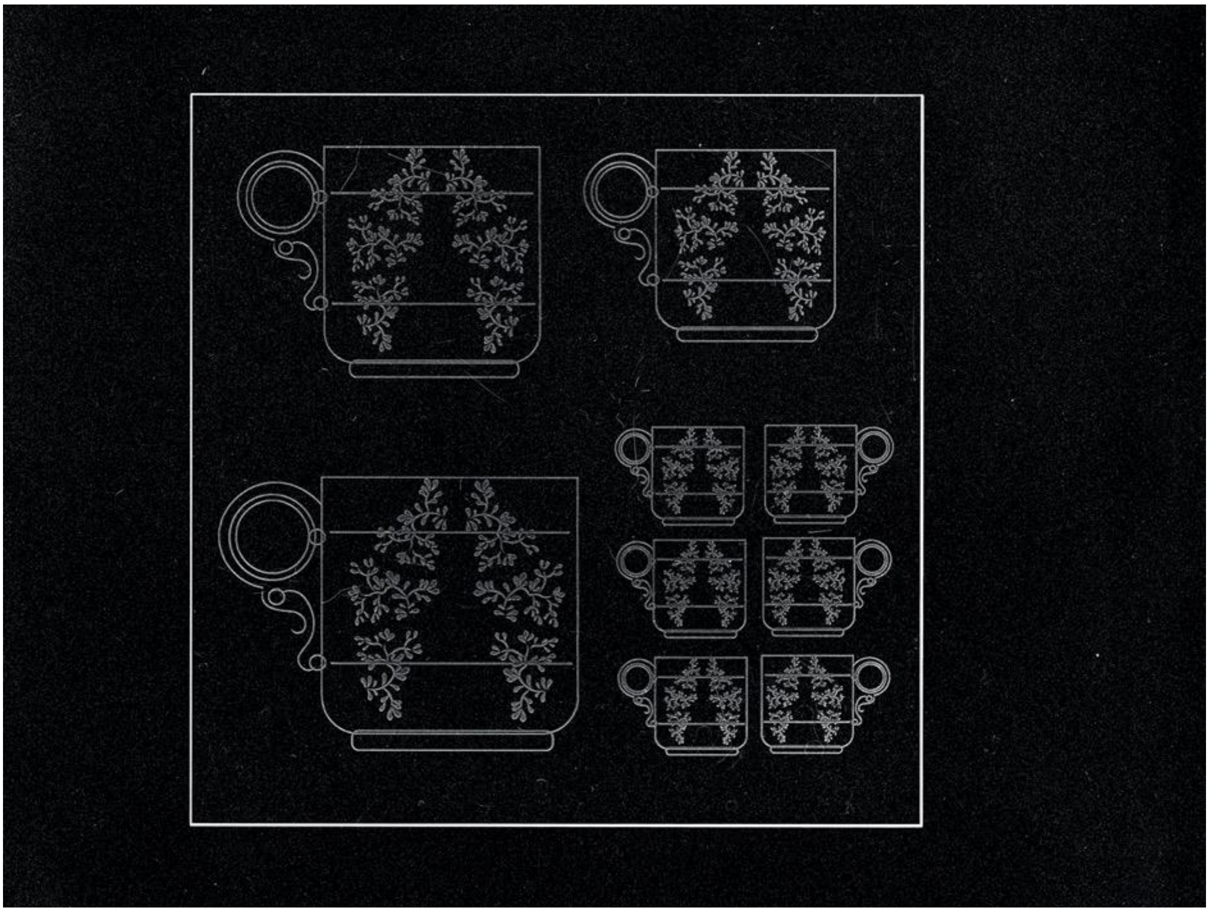
A. 9.3.2. Collaboration with Frank Menger, photographer

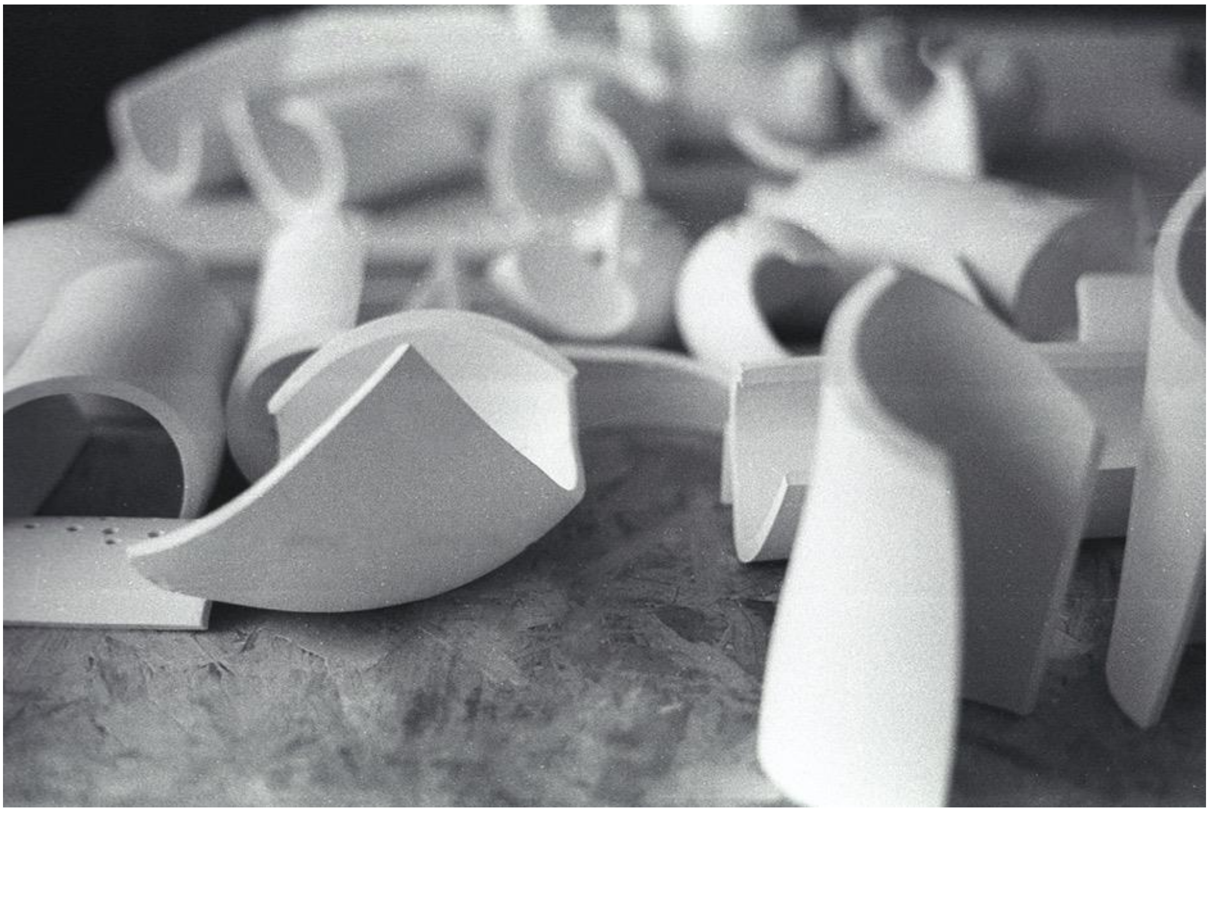
This following sequence of photographs by Frank Menger, artist, and researcher CFPR, represent a photoshoot documenting my study. We have discussed curating a future exhibition and the production of an accompanying catalogue.

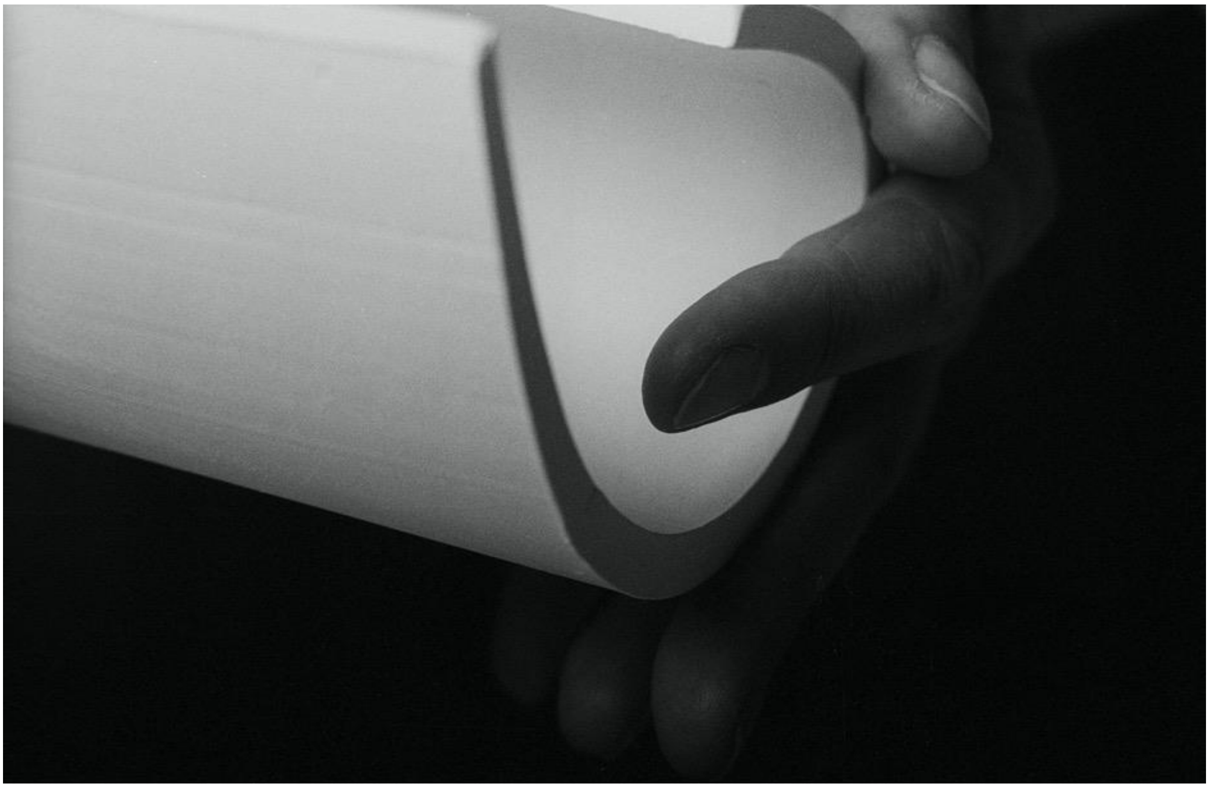


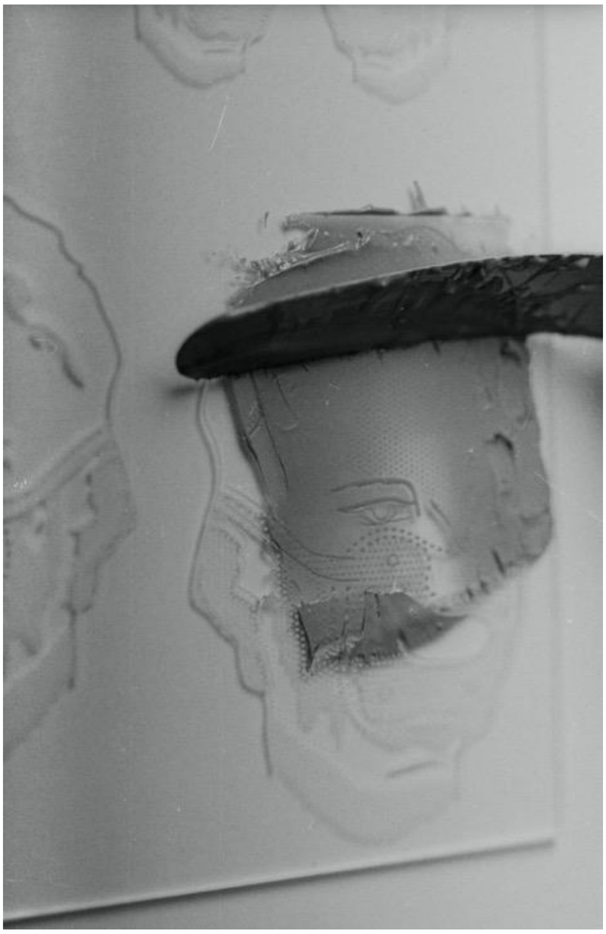


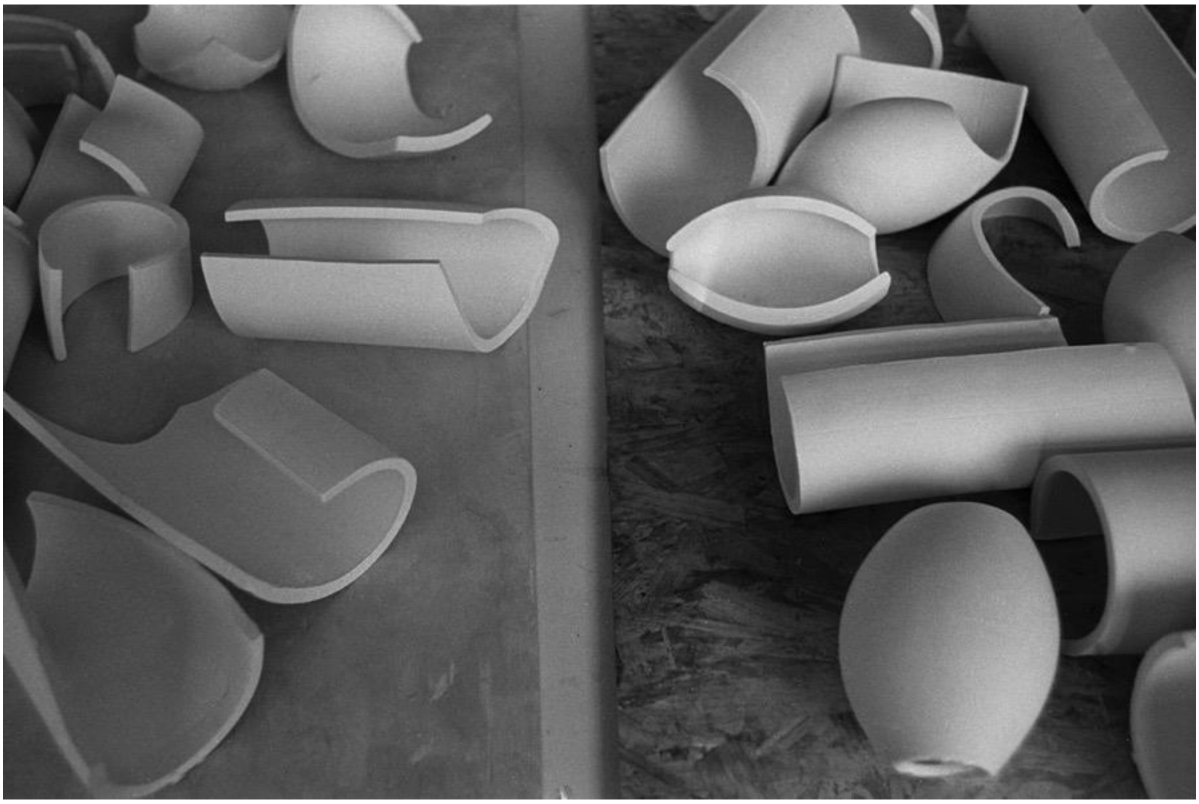













25
PROTECT