The transferware engraver:

Training, practice and scope at the Spode Works

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Abstract

This investigation focuses on the transferware engraver at the Spode Works. Transfer-printing on earthenware arose as an attempt to replicate the look of eastern ceramics. Spode Works began producing transferware in 1784, and made significant improvements to the process, widening the market across the classes. Transferware patterns could be derived from Chinese-export wares, extant printed images known as source prints, in-house designs or other transferware products. The designs were cut into copper-plates with simple hand-tools by skilled, trained engravers. Prints in underglaze colour were taken from the copper-plates, applied to the blank ware, glazed, and fired to form the product.

The research aims were both historical and transformative. (1) To support the preservation of Britain's largest and most complete archive of hand-engraved copper-plates used in the production of transferware: a repository of craft and design knowledge. The Spode archive contains most of the production plates spanning the factory's life, 1784 to 2008, and representing all styles and techniques. Due to the intrinsic material value, such archives face rationalisation; the Minton case being known from publication. (2) To ascertain the scope of work undertaken by the engravers and define their role in image selection and adaptation as mediators at the interface between design and production, subjects hitherto insufficiently defined. (3) To define the engravers' artistic status during key stages of the factory's life, and to examine their degree of specialisation. (4) To investigate the nature and experience of apprenticeship training for transferware engraving through extant engravings and apprentice's accounts.

Connoisseurship study of archival copper-plates alongside source-work, ceramics and literature formed the basis of the multiple-aspect approach. Within the compass of this thesis, two in-depth case studies are presented that demonstrate surprising continuity in the industry with engraving processes remaining substantially the same over the course of two centuries. The role that the engraver played in working source images or designs into transferware patterns had been poorly understood; it has emerged that the transferware engraver is an intermediary translator of imagery rather than a designer, and authorship in a transferware pattern is multiple.

Interviews with those who formerly worked in the industry, documentation of the engraving process from start to finish and a brief personal engraving apprenticeship experience provided detailed primary evidence of engraving from the perspective of the insider. An engravers' apprenticeship is learning by observation and practice where coordination between tool, hand, eye and brain are internalised.

This research expands knowledge of engraving techniques and practices in a specialist area hitherto ignored in the engraving literature. It offers new historical understanding of the role of the engraver as intermediary between design and production. The research points out diagnostic features for understanding the material evidence of copper-plates. Detailed comparisons including micrographic images demonstrate the stratified evidence contained within large object archives (Spode) and small design archives (Mountford tissue pulls), evidence threatened by selective rather than comprehensive retention. It provides thoroughgoing assessment of practical techniques for digitisation and replication of copper-plates so that archive originals can be spared routine handling and security risks. Finally, the research highlights the Spode copper-plate archive as a repository of major importance for the study of craft and design.

Dedication:

This work is dedicated to my mother, Rosemary Halliday who nurtured and encouraged my interest in British history and ceramics from an early age. Without her support, none of this would have been possible. Thank you.

Frontispiece: Williamson, T. (1807) Oriental Field Sports London: Edward Orme; ‘Hunting a hog deer’ source print. Spode, hand-engraved copper-plate, c.1810-15. Spode blue-printed transferware dessert dish; “Indian Sporting” series, “Hunting a hog deer”, c.1810-15.

Contents:

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List of illustrations:

I have used relevant images from the Copeland/Holdway Collection archive[1] (see page 17 for further details). These images are interpolated into the writing of this thesis to support the text. These are identified in the image caption as CHC.

[1] Approximately two years before starting this research, I had become aware of a large slide collection languishing in a former Spode employee's garage. The images covered processes, people, products, maps, and other archival material from the 1890s onwards specific to Spode. A rescue bid enabled these slides, that once formed part of the Gresham and Robert Copeland collection and the Harold Holdway collection, to be digitised.

Chapter One

Introduction

This research examines the role of the copper-plate engraver in the transfer-printed ceramic industry. The investigation is focused on the archival, artefactual and documentary evidence for engraving at the Spode factory, and on working and training practices which have been little understood. It takes as its prime evidence, the hand-engraved copper-plates that were created to produce under-glaze transferwares between 1784 and 2008. These engraved plates constitute the only evidence that allows equivalent comparison across the entirety of the period, and have hitherto not received in-depth study.

The Spode Factory was established in around 1776 by Josiah Spode I in Stoke-on-Trent. It produced various ceramic products including bone china, creamware and transfer-printed earthenware (transferware). Transferware was produced from 1784 until 2008, when the factory went into administration in 2008 and closed. While the ceramic industry is much reduced in Great Britain, transferware ceramics taken from hand-engraved copper-plates are still being produced today (2017) in small numbers by Burgess and Leigh at Middleport,[2] but Spode remains historically the premier British exponent of the technique.

Research Aims:

1. To demonstrate the importance of the Spode copper-plate archive as a repository of craft and design knowledge. The relative integrity and extent of this archive (40,000 hand-engraved copper-plates) makes it an outstanding resource for the history of the transferware industry. Due to the inherent metal value, such an archive may face continual demands for reduction and “rationalisation”. This research provides justification for the preservation of the full remains of the archive.

[2] 1862 onwards. Produced ceramics in Burslem, Stoke-on-Trent at the Middleport factory from 1899 onwards.

2. To ascertain the scope of work undertaken by the Spode engravers and their role in image selection and adaptation as mediators at the interface between design and production.

3. To define the engravers' artistic status during key stages of the factory's life, and to examine their degree of specialisation.

4. To determine how the training and apprenticeship process prepared the engravers for their role in the industry, making use of the apprentice's accounts and unique apprentice practice plates in the archive.

Literature:

The review revealed that transferware literature is largely oriented toward the collector; investigations deal with identification of producers, dating, pattern sources, evaluation of artistic merit and market valuation. The role that the engraver played in image selection and adaptation is little mentioned. The training practices for apprentice engravers remain largely unexplored and undocumented.

Some literature provides useful contextual investigation into tools, source-work, archives and material culture. Below are presented six key sources that were influential within this research.

Transferware History

Questions addressed: introduction of punch engraving, significance of engraving both sides (stratigraphy) of a copper-plate, copyright, authorship of work and tools utilised.

Drakard and Holdway (1983) looked specifically at the technical history of transfer-printing and engraving at the Spode Works; their work gives insight into the importance of engraving in the process, although the role of the engraver is not covered. Source works, tools and some copper-plates are illustrated and discussed, but it stops short of the detail required to understand the copper-plate archive, or the evidence that can be derived from individual plates.

Copeland (1980) examines the link between Chinese export wares and early British transferware designs. Several copper-plates from the Spode archive are illustrated. Copeland conducted one of the earliest investigations into archival material in the Spode copper-plate archive and these investigations influenced my approach, especially regarding plate re-use. Copeland prefers to illustrate prints or pulls rather than copper-plates which he may have found difficult to record. This was an obstacle that I wanted to address.

Coysh and Henrywood (1982) discuss engravers and copper-plates, but only in a broadly descriptive way which includes details of design origins through the use of source-work. While being more concerned with product, context is provided across the transferware industry as a whole. The authors note a change in the amount of copying of patterns at potteries after the Copyright Act of 1842. This has been an influence in my research as I looked at the journey of images through adaptive changes and authorship issues. The designation of "Romantic period transferware" (1845-1860) was applied to generic Italianate and European designs that followed a "formula" (Coysh & Henrywood, 1982: 10). While this term has been adopted in this thesis, its connection with the impact and importance of the Copyright Act of 1842 that Coysh and Henrywood (1982) note, potentially had less impact upon engraving practices in transferware than they imply. The 1842 Act would have prevented potteries copying from each other, but not from source prints that were in an unprotected category. Further research is needed to assess the significance of the restriction of image use.

Priestman (2001) focuses upon a factory contemporary with Spode: Minton and their transferware outputs. The use of source-work and how it is adapted into a transferware design is discussed. Priestman worked in a large copper-plate archive prior to its rationalisation, demonstrating the importance of primary source evidence and archival study. Priestman's method of not looking at the ceramics in isolation, but also studying source prints and copper-plates has been an approach that I adopted. Priestman's analysis of design origin and the movement of workforce in the early period was especially useful as I began to study the designer/engraver debate.

These four transferware-specific sources facilitated an understanding of the journey of images, archival investigation, engravers' tools and methods of approaching an archive.

While the training, role and practice of the engraver was insufficiently defined, the authors agreed about their purpose and output in the transferware industry.

The transmission of craft knowledge

Key questions raised by the literature centred around how the master passes on embodied knowledge to the novice, and how long it takes to actually become proficient at a craft skill. These debates contributed to the form and thrust of my interview questions, and to the analysis of the interview evidence.

> Dant (2005) looks at materiality and the interaction between humans, their surroundings and objects. This was a particular influence on my line of questioning probing how engravers responded to their working environment. Dant is eloquent about the way in which skill transfer takes place where written word or spoken instruction is not possible (tacit knowledge). Again, this was particularly relevant within this research, and led to my choice to undertake a form of apprentice-like training (See Ch. 2: Highlight).
>
> Sennett (2008) addresses the craftsmanship, skill and work of the craftsman, both of which have particular relevance to my line of enquiry. The connection with tools, the environment and the embodied learning were significant in framing my assessment on engravers and engraving. Specifically, Sennett's notion that 10,000 hours of practice is necessary to gain proficiency at a craft skill was addressed in the analysis of both interview data and manuscript evidence (See Ch. Two: Apprentice Interviews).

These two authors are in unison about skill transmission through observational learning, especially in an area such a craft skill acquisition. Although neither author applied their research to engraving, I wanted to assess if these notions were applicable within the transferware industry through my research.

Evaluation of the gaps within the literature

The literature review has revealed gaps in the present knowledge. The scope of work undertaken by transferware engravers had not been defined. The extent to which engravers initiated or modified designs is not covered in the literature. Paul Scott's doctoral thesis

(2010) discusses copper-plates and engraving in the context of image re-mediation (the re-appropriation of imagery in new contexts). While providing valuable comparative information about transferware copper-plates in Europe, the focus is not on the engraver but on the journey of the imagery. To fully understand the outputs of the engravers, in the context of the ceramic industry and other engraver-based industries, it is important to define their particular role in the appearance of the final product (Research Aim 2).

There is a wider context of practice-based research that utilises museum archival material that aims to "reanimate"[3] the ceramic industry's archives. Paul Scott's "Re-animating the archive" and Charlotte Hodes' "Spode Trees and Dressed Silhouettes"[4] being leading proponents. Dr Chris McHugh's PhD; *Community in Clay – Towards a Sunderland Pottery for the 21st Century: Approaching Museum Collections and Communities through Creative Ceramics* (2015) investigated a reinterpretation of a ceramic collection from the viewpoint of a practice-based ceramicist. While these investigations do not focus on the work of the engraver, they serve to illustrate how archives can be re-used and their importance as design and craft repositories.

A group of academic researchers and writers whose practice-based investigations into printing provide useful contextual insights into modern and traditional methods. These include Dr Steve Brown's PhD *The Physicality of Print* (2010) who focussed on hybrid printing-making for ceramists and print makers. Furthermore, Professor Kevin Petrie's PhD *Water-based ceramic transfer printing – The development and creative use of a new on-glaze screen-printing system* (1999) focused on water-based methods of transfer printing on ceramics. While these doctoral theses add significant depth, variety and context to practices and provide value insight into varied techniques and methods, their focus is upon on printing methods and not the work, training and status of the engraver in the ceramics industry.

The literature reveals that more detailed knowledge of tools, and techniques, and more insight into the training, specialisation and historical development of engraving work was needed. Some tools are described and illustrated in the literature (Drakard & Holdway,

[3] http://cumbrianblues.com/portfolio/re-animating-the-archive/
[4] https://charlottehodes.com/portfolio/spode-trees-and-dressed-silhouettes/

1983 [2002]), but the link between these inanimate objects and their specific use in certain processes is not well documented or explained, nor is the process of skill development, speed or accuracy of working. (Research Aim 4).

A goal of this research is to provide justification for preserving the remaining Spode copper-plate archive. Priestman (2001), although dealing with another factory's archive (Minton), presents a case of copper-plate archival rationalisation through documentation. He demonstrates the quantity and quality of information contained within each division of the archive with cross-referencing between the archive and other sources, collections and literature shows how the archive can inform a wider understanding of design and culture.[5] (Research Aim 1)

The transferware literature has relatively little to say about engraving and the engraver. Mackenzie (1951) provides some evidence for the origin of transfer-printing-specific engraving and the work and practice of the engravers. Some specific, technical aspects of the engraved work are mentioned such as an introduction date for punch engraving. There seems to be an agreed date of between 1800 and as late as 1807 for the introduction of Stipple engraving (or the use of punch-work). Lewis (1969 [1999]: 133) writes:

> Stipple engraving did not come in until 1800

The later date of punch-work introduction is noted my Snyder (1995: 12):

> The earliest dated ware with stippled engraving is from 1807

The impact of copper-plate engraving upon the rest of the ceramic industry is discussed: Firstly, the 'mechanised' approach that transferware brought to the industry greatly threatened the existence of the hand-painter. Hand-painting had been the existing method of decorating both porcelain and earthenware until the introduction of transfer printing. Secondly, the economics of mass production on a repeatable level making robust, fresh and

[5] "Unlike books, archival records are not understood on their own as individual items. Their meaning comes from their relationships with other records and the people or organisations that created and used them". http://www.nationalarchives.gov.uk/documents/archives/archive-principles-and-practice-an-introduction-to-archives-for-non-archivists.pdf (page 8).

desirable wares made for great expansion and prosperity across the ceramics industry as a whole. Hayden (1925: 44) references the threat of mechanisation:

> The painters at the various factories had naturally always been uneasy as to printing, but more soon the advent of underglaze printing.

This mechanised approach is part of a newly-developed notion of teamwork that Whiter (1970: 142) alludes to:

> Teamwork is the essence of the process. Indeed, solo performance is the very antithesis of all pottery decoration. In printing, the first vital member is the engraver, even though unknown to those who use his work. Bad printing can spoil the work contained in the finest engraving, but no amount of manipulative skill can make a bad engraving look good.

Authors concur that engraving was a specialist job and that it was expensive to employ full-time engravers. Not all the Potteries could afford their own engraving shops or full-time engravers, so the use of outside shops was common. Lockett and Gooden (1989: 125) establish this notion:

> Large firms such as Davenports, Mintons, Ridgways, etc. no doubt had their own engraving workshop or departments which would be fully employed at all times. The smaller firms relied on the services of specialist engravers to the trade, from whom they would purchase their sets of copper-plates if and when they saw the need to introduce a new pattern. More often than not the smaller firms purchased copies of already proven saleable designs leaving the large firms to experiment with new styles.

The use of these shops may explain how specific patterns were used by more than one potter. The status of engravers (Research Aim 3) and their work (Research Aim 2) are more often mentioned in general works on engraving than in transferware histories; there is a debate as to whether their work is that of an artist or an artisan. Fyfe (1985: 403) suggests that:

> The 'art' of engraving was largely perceived as a reproductive art, particularly as a means for the reproduction of painted originals.
>
> As one guide to print collecting put it in 1844: 'The print is, in truth, not a work of individual art, but a manufacture' (Anon, 1844: 163).

To complete an understanding of the subject, it is necessary to explore how the transferware engraver fits into a wider context of industrial work, culture, and trade.

However, this requires the use of primary sources as the transferware engraver is seldom mentioned outside ceramic histories.

Background

With my professional background in the antiques trade, specialising in British transferware, I have spent the last twenty years handling, researching and writing about British transferware. This has effectively been a training in connoisseurship that has oriented me toward indicators of provenance, identification and dating, paying particular attention to the type of engraving techniques employed. Through handling and close observation of historical ceramics, many aspects of technical assessment and surface discrimination are second nature. Before embarking on this research, I had a close familiarity with the literature from the viewpoint of markers of identity, rarity, and value.

A sense of care and appreciation for cultural material led to my position as a Trustee of the Spode Museum, and to questioning how best to provide for its preservation. Trusteeship has enabled access to archival material that would have been impossible for the ordinary researcher, not to mention that when the Factory was still in production, researchers were routinely denied access to the archive to protect the design content from getting into the hands of competitors.

The Archive

Fig. 1.1. The copper-plate room in course of rearrangement, 2015.

The Spode copper-plate room/store (Fig. 1.1) was used from the early days of the factory's transferware production from 1784 through to the cessation of the company's production in 2008/9. The store was extended during various stages of the factory's life to cope with the ever-growing archive of copper-plates. There are currently approximately 40,000 hand-engraved copper-plates within the archive.[6]

After the Spode company went into receivership in 2008/9, Stoke City Council removed the copper-plates from the site. After some time, the Spode Museum Trust was able to prove ownership of the archive and the plates were returned. Due to the removals procedure, the original order was not preserved. There are approximately one thousand 'pens'[7] ordered alphabetically by title in the store, and the returned plates covered with tissue wrappings, had been randomly inserted (Fig. 1.2).

Fig. 1.2. One of the aisles in the store as the plates were found. The numbers refer to a packing list.

[6] These vary in size from the smallest 'badge coppers' used to do personalised armorials and crests (5cm x 5cm) up to large 'dish coppers' (80cm x 60cm).

[7] 'Pen' is a factory name for a division with the stillaging that contains one particular pattern.


Fig. 1.3. and Fig. 1.4. Unwrapping the copper-plates.

One of my first tasks was to unwrap the plates and put them back into their correct pens (Fig. 1.3 and Fig. 1.4.).[8] As a pen was emptied and its plates identified, these were distributed to their home location. At first, the destination pens were also filled with the randomly allocated plates. So, an iterative process of emptying and redistributing was required until reallocation was complete. Care had to be taken during this unwrapping and sorting stage to avoid injury to the copper-plates, as well as physical injury to the person.

Fig. 1.5. Dressed for research.

[8] I was aided in this task by volunteers from the Spode Museum Trust.

Safety equipment included steel-toed boots, gloves, face mask and warm clothing (Fig. 1.5). Even in the summer, it was very cool in the copper-plate store. The plates were dusty, and often released fine corrosion particles into the air. Face masks were worn to prevent inhalation of these particulates. An LED head torch guarded against electricity outages (a common occurrence), and allowed better identification and study of the plates as they were unwrapped, supplementing the limited lighting in the store. The plates weigh on average 2.5kg each, and could only be carried in twos or threes. There was also a concern that carrying any more together would lead to scratching or rubbing.

Fig. 1.6. Partially sorted pattern pen.

The store is made up of three large rooms that each have four long aisles within them. There is wooden stillaging throughout that is divided into four levels which in turn are divided into ‘pens’. Each pen has its own pattern-specific name above and is capable of storing approximately forty to fifty copper-plates. If a pattern has a large array of plates, then sometimes, as in the “Greek” example above (Fig. 1.6), the pattern will occupy two adjoining pens.

This process took several years and repeated handling of copper-plates allowed an understanding of engraving stratigraphy and an awareness of the anatomy of a copper-plate.

Fig. 1.7. Plate storage pen filled.

When in place and in their correct pen, the plates stand upright like books on a shelf (Fig. 1.7). Any marks such as shape description, title marks and numbers were placed so they were at the top-right hand corner and to the outer-most edge. This is to make finding the correct plate within any given pen as easy as possible and this has been the system used from the inception of the copper-plate archive.

Historical and cultural context

Transferware is the term[9] used in this thesis to describe ceramics decorated by a process that allows a print from an engraved copper-plate to be transferred to the ware.[10]

> Transfer printing was a relatively cheap[11] and easy, yet attractive, means of decorating wares, in which a design was first engraved on a copper-plate that was then inked, allowing the pattern to be transferred onto the surface of a pot using special tissue paper (Cox & Cox 2006: 16).

The following is a condensed visual illustration of the transferware process (Fig. 1.8 - Fig. 1.16). CHC.

[9] Transfer-printed, blue-transfer, printed-pottery (or porcelain) and printed-ware are other descriptive terms employed to describe the process.

[10] In the earliest period that printing onto ceramics was employed, wood-cut engravings were used before copper.

[11] Once an engraving was completed, it could be used many hundreds of times making it a more economical and financial process than hand-painting a design on a ware.

  

Fig. 1.8. A design being engraved onto a copper-plate. Fig 1.9. Cobalt-oxide printing colour is applied to the copper-plate. Fig. 1.10 The printing tissue, wet with printing size, is laid on to the colour-charged copper-plate and run through the printing press.

  

Fig. 1.11. The printed tissue is removed from the plate. 1.12. The pattern is cut out of the tissue and applied to the blank biscuit ceramic while the colour is wet. Fig. 1.13. The tissue pull is rubbed onto the ceramic with a stiff brush.

  

Fig. 1.14. The tissue paper is washed off leaving the colour behind. Fig. 1.15. The printed ceramics are dried-off and hardened-on in the kiln. Fig. 1.16. The ceramic is glazed and fired to produce a piece of transferware.

The transferware industry was a response to the consumer desires fuelled by the imports of Chinese ceramics to Great Britain. The hand-painted Chinese porcelain was available only to wealthy classes because of the high price, but British potters were keen to replicate the look of the Chinese wares and make them available to a wider market. Import substitution began with hand-painted British imitations in the 1750s and was expanded in the 1760s and 1770s by transfer-printing onto porcelain (Fig. 1.17-1.18).[12] Further developed by printing onto an earthenware body in the 1780s, the resultant wares were more robust; transfer-printing kept the product within the range of middle-class consumers.

Fig. 1.17. Chinese export porcelain, hand-painted, c.1760. Fig. 1.18. Spode "Grasshopper" plate, c.1810-15, illustrating imitation of Chinese export wares by transferwares.

The origin of the method using an intermediary tissue print to transfer an engraving to a ceramic ware has been attributed to two sources. One is known from a patent application of 1751 by Birmingham-trained engraver John Brooks:

> In the first of his three unsuccessful petitions for a patent dated 10th September 1751, he […] claims to have found out a method of printing, impressing and reversing upon enamel and china from engraved, etched and mezzotinto plates and from cuttings on wood and metal, impressions of history, portraits, landscapes, foliages, coats of arms, cyphers, letters, decorations and other devices (Drakard & Holdway 1992: 27).

The other was publicly demonstrated in 1756 when Sadler and Green printed 1,200 tiles in six hours by their technique:

> In 1756 John Sadler, a potter of Harrington Street, Liverpool, and son of Adam Sadler, a printer in the New Market, Liverpool, together with Guy Green, who succeeded Adam Sadler in the New Market, invented a method [of] transfer printing to earthenware as opposed to the then current practice of each piece being individually decorated by hand. (May & May 1972: 7).

[12] From engraved copper and wood plates.

Both of these methods to print onto ceramics were on-glaze.[13] This type of decoration could not stand up to the daily use of utilitarian wares.[14] Therefore, applying the print under-the-glaze was a logical advancement. Under-glazed prints were successfully created, marketed and sold at both Worcester[15] and Caughley,[16] but printed upon porcelain. It was not until the 1780s that transfer prints were applied under-the-glaze on earthenware. It is not entirely clear who was the first to achieve this, or at what specific date, but the use of the more durable earthenware ceramic body combined with the under-glaze decoration laid the foundations of the transferware industry.

Transfer printing at Spode began around 1783 to 1784. Josiah Spode First had perfected[17] a technique of printing onto biscuit ware from hand-engraved copper-plates. Thomas Lucas, an engraver and James Richards,[18] a printer were recruited by Spode from Thomas Turner's Caughley works in Shropshire to help with the development of the new method which used line engravings to produce the patterns (Copeland 1994: 5 & 11).

Coysh and Henrywood (1982: 8) confirm these developments:

> This was a period of recruitment and experiment. Skilled staff were required for the new process, particularly engravers, printers, and transferrers. Thomas Lucas, an engraver, and James Richards, a printer, went to the Spode Works at Stoke. Thomas Minton moved from Caughley to London where he engraved for the Spode Works.

In this anterior period,[19] transferware was to develop at numerous other British potteries becoming a flourishing industry by the early nineteenth century. From its beginnings in copies of Chinese wares, transferware patterns were taken from pre-existing imagery known as source prints (Coysh & Henrywood 1982: 341). These sources could take several forms including designs found on other ceramic wares to paintings, but most typically, prints of an illustrative nature, including botany, topography, archaeology, Grand Tour imagery and popular interests. The so-called 'Romantic' age (Coysh & Henrywood 1982: 10) of transferware design began, when designs were typically generic and Italianate and

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[13] 'On-glaze' printing is a method that applies a print to a ceramic that has already been glazed and fired. Once the print is applied, the ceramic is fired again and the print goes partially in-the-glaze, but not fully. It can therefore be subject to wear from daily use and can eventually wear off completely.
[14] Wares such as dinner, tea and toilet wares that were in continual use.
[15] Late 1760s.
[16] Caughley in Shropshire, c.1775-1799.
[17] Wilkinson, V. (2002) Spode-Copeland-Spode: The works and its people 1770 – 1970, page 16.
[18] "Lucock and Rickett have been suggested as being more likely to be correct" - Drakard, D. & Holdway, P. (1983 [2002]) Spode Transfer Printed Ware, 1784 – 1833, page 186.
[19] The beginning of the industry.

were designed in-house. The industry reached its height in the late Victorian period but held its popularity well into the twentieth century, continuing until recent times.[20] While the production of transferware exists in the ceramics industry in 2017, it is much smaller in extent[21] than at any other time bar its inception in the 1780s.

The transferware engraver

The transferware engravers were the mediators at the interface between design and production. Their primary task was to hand engrave new patterns onto copper-plates,[22] but to also refresh worn engravings and to train apprentices. They were employed by pottery manufactories and outside engraving shops (Cox & Cox 2001: 7). There are similarities between other industry-based contemporary engravers, most notably, engraving for cartography, print-making and wood-block illustration. Many of the tools employed by the engravers in all of these industries shared commonalities as did their apprenticeships, training, absorption of skills, workforce-migration, and technical-work.[23]

Description of Approach and Methods

My approach is situated within material culture studies supported by scientific connoisseurship. Jonathan Harris (2006) describes material culture studies as “the physical substances deployed and created in the production of artworks” applied to “the whole range of human, social resources […] involved in artistic production”. These “physical substances” form the basis of the primary source-material (copper-plates, tools, source-work, factory records) and can be studied through connoisseurship. Connoisseurship is “historical research concerned with identifying of authorship, provenance, and stylistic character” (Harris 2006: 63) that involves “careful, formal analysis and evaluation” (Harris 2006: 64). Scientific connoisseurship applies the tools and technical observations of science to the process of connoisseurship.

[20] Some transferware-type manufacturing continues today in 2017 in Great Britain.
[21] In terms of locations, number of manufacturers, supportive networks, people employed and out-puts.
[22] Cylindrical copper rollers were used in addition to flat copper-plates from c.1847.
[23] See Chapter Two for further details.

Connoisseurship is an approach to object-based study that focuses on diagnostic features which can be useful for identification and dating. The connoisseurship approach was combined with the material culture approach to enable the detailed study of archival material to work alongside the interplay between these substances and their purposes within “materiality and society” (Dant 2005).

Methods

This was a multi-method qualitative study. The various methods are listed below:

Copper-plate archive: Close connoisseurship study of copper-plates, concentrating on apprentice plates and selected pattern groups as case studies. (Aim 1)

Interviews and documentation of working process: In contrast to the usual history of end products, this research sought to understand the process, and the human contribution. Interviewing the last generation of industrial engravers was an important part of this search. Five engravers (aged 40-75) who worked at the Spode factory prior to closure were interviewed. A semi-formal questionnaire was used to gather factual information, such as dates of employment. Interview findings are interpolated into the thesis alongside images of archive material associated with the individual engravers. (Aim 2, 3 &4)

There was a certain urgency for gathering this information from an ageing cohort. This generation’s experience reflects a long tradition within the industry and has a bearing upon our understanding of the working culture and social structures of previous generations of transferware engravers. In addition, a detailed record of the engraving process had not yet been done. Capturing the process step-by-step enabled a closer understanding of the mind of the engraver.

Comparative study: The opportunity to compare the work of an accomplished engraver from an earlier period at Spode helped in the assessment of continuities in technique and training. Detailed study of a copperplate from a rival factory allowed further observations on engraving practice.

Use of visual resources: Copeland and Holdway Collection:[24] I have used relevant images from this archive to expand and more effectively communicate contextual information, acknowledging that images form a part of the literature on the subject. These images are interpolated into the writing of this thesis to support the text. These are identified in the image caption as CHC. (Aim 1, 2, 3 & 4)

Historical assessment of pattern books and factory records: Surviving factory records are focused mainly on design output. The pattern books[25] were examined as records of design history to assess the relationship between source, design and product. (Aim 1 & 2)

Personal experience of engraving: In the manner of an apprentice, I was introduced to the tools and methods of the craft. One purpose of this exploration was to understand first-hand the tacit nature of skill acquisition as an apprentice works with their master. In the process, the importance of the haptic nature of the encounter with tools and materials became evident: the subtle play of weight and resistance, the feedback through the hand of visual perceptions. The guidance of an experienced practitioner was a crucial part of this process which involved close attention to demonstrations of technique, and attempts to imitate without supervision, followed by critique.

This interplay between historical researcher and practitioner is unusual for academic study and fits within Facer and Pahl's schema of interdisciplinary collaborative research. Connecting two disparate worlds in "collaborative partnership" (Facer and Pahl 2017: 81) opens up new ways of knowing. This collaboration brought out "material knowing, located in embodied and tacit forms of knowledge" (Facer and Pahl 2017: 16). Entering the transferware engraver's tangible world with the collaboration of a practitioner who utilised these objects in professional life made the tools and techniques fully present as lived experience. This experience in turn heightened awareness when observing historical engraving. I was able to evaluate from a deeper perspective what was difficult to achieve, and what represented high or low calibre work.

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[24] Approximately two years before starting this research, I had become aware of a large slide collection languishing in a former Spode employee's garage. The images covered processes, people, products, maps, and other archival material from the 1890s onwards specific to Spode. A rescue bid enabled these slides, that once formed part of the Gresham and Robert Copeland collection and the Harold Holdway collection, to be digitised.

[25] The records are currently held at the Stoke-on-Trent City Archive: https://www.staffordshire.gov.uk/leisure/archives/contact/stoke/home.aspx

As well as material ways of knowing, this collaborative project brought out stories behind the practice of transferware engraving, giving voice to those not heard before. Facer and Pahl point out that “Stories [are] often the site of exchange, dialogue and reflection and the connections between objects and stories provide rich sites for exploration” (2017: 217). Stories about how engraving tools were acquired, about how an apprentice was left alone to work out a process, about how to render clouds, or about the interaction of engraver and designer: these enrich our understanding of transferware engraving as a workroom practice in an industrial setting.

Production of digital and physical replicas: Finding methods of high-quality recording of copper-plate evidence was important for documenting this and future research.

Format and contents of thesis:

The way in which this thesis is presented and structured was inspired by Ann Smart Martin’s (2008) *Buying into the world of goods* in which expository chapters are highlighted by specific object studies to show how individual cases inter-relate with the broader historical picture. Here, I have employed small-scale studies at the end of chapters that add a more personal perspective and alternative texture. The smaller studies permit juxtaposition of an individual viewpoint against the broader social/cultural landscape of the investigation. The two perspectives complement and comment on each other.

The subject matter is suited to an image-rich treatment, and from time-to-time small “image essays” have been inserted to provide detail about processes or techniques. In these, the story is carried by the sequential captions. They are intended to be read alongside the body of the text.

Chapter Two: Engraving: Learning the skills. In this chapter, apprenticeship is explored with particular regard to tacit knowledge and how it featured in the observational training within the industry. Archival evidence of apprenticeship is used to understand the training mechanisms employed and perceive how the training prepared an apprentice for their work as an engraver. A case study of apprentice plates is featured to determine the rate of progress in training and how this fits in with the theoretical timeframe of skill learning.
Highlight: My own experience as an “apprentice” engraver is described. The trepidation and lack of familiarity with tools and techniques are recalled from a personal perspective to

reflect upon what apprentices encountered in the past. The acquisition of tacit knowledge was directly engaged with.

Chapter Three: Process of Engraving. Both the tools used by the engraver (working forward), and those used by the connoisseurship researcher (working backward) are elucidated. The way in which a copper-plate can be read to understand the significance of engraving techniques, pattern stratification and re-use is exposed. An investigation into reading an engraving through the ceramic end product is compared, and its limitations discussed. An assessment into changing practices over time analyses each major change. **Highlight:** Three tools are examined in detail; the graver, the hammer and the bench. The human connection with the tools, their application and their place within the industry are explored.

Chapter Four: The Artistic Status of the Engraver. The role of an engraver within the design phase of production is assessed and distinction is made between the engraver and the designer. The "artist or artisan" debate is explored through literature and engravers' interviews to explain the distinction. Reasons for adapting source images rather than direct copying, is discussed, especially noting changes to suit the technical requirements of manufacture. Authorship of work, the source of design material and the role of the engraver are analysed, and evidence of creative input by the engraver is presented. **Highlight:** A detailed analysis of an archival group of tissue pulls, engraved by John Mountford provides useful, historical comparisons in engraving techniques, styles of designs and scope of work.

Chapter Five: Case studies. Two case studies of specific designs were chosen from key stages during Spode's history and researched from inception to product, analysing distinct steps during their life-span. This includes origin, design, engraving, product, re-use and remediation. A case study approach is adopted to delve in greater depth into the "biographies" of patterns, their varying manifestations linked with engraving and re-engraving, their fashion moments, their lapses and revivals.
Highlight: An in-depth investigation into a Royal Worcester copper-plate allows for comparison in engraving techniques employed by an engraver working at the same time as Spode and the subject matter(s) chosen. The copper-plate allows for study of archival

practices at another factory and is an indication of what happens to objects when an archive is rationalised.

Chapter Six: The Archive and Preservation. Research in the past (Hyland 2008) has been hampered by the fundamental difficulties posed by metals, and copper-plates in particular, for photography. This chapter explores methods of creating surrogates to allow research and study, both digital and physical. These investigations explore the gamut of methods available in a series of practical tests that establish appropriate and improved methods to record and present the information found on the copper-plates.
Highlight: Microscopy as a method for furthering understanding of engraving techniques, engraver control and order of work undertaken is assessed. A single copper-plate from the Spode archive is investigated with the microscope to evaluate both the work of the engraver and the value of the investigatory technique.

Chapter Seven: Analysis and Conclusions. The key findings are presented and assessed, and claims for contributions to knowledge are given.

Chapter Two

Engraving: Learning the skills

Tacit knowledge and the embodiment of knowledge:

It was through apprenticeship that skills were transmitted from the master engraver to the novice in the transferware industry. Apprenticeship changed from the live-in engagement of the eighteenth century to the factory employment of the nineteenth, and then to the government-regulated position of the twentieth century. Docherty and van der Velden's (2012: 33) view of apprenticeship training as a way of maintaining skills in industries and controlling the supply of labour is broadly applicable across the period.

An engraving apprenticeship for transferware could take place either within the manufactory, or in a freelance engraving shop. Both required new workers to replace those lost through natural wastage or to grow the business. The goal was to pass on the skills needed to successfully engrave a design onto a copper-plate. This was communicated through the master engraver in a unique and personal way. A significant part of this communication involved the transmission of tacit knowledge. Tacit knowledge is 'know-how' rather than 'know-that'. By definition, tacit knowledge cannot be communicated in words. To get around this communication problem, the master guides by demonstration. "The apprentice's presentation focused on imitation: learning as copying" (Sennett 2008: 58), using their own trial and error to achieve the results.

It is through this practiced "copying" that the skills were acquired, but the extent and complexity of the transmission may be further probed. As Sennett (2008: 58) suggests, technique is not a soulless action and its learning has many levels and stages. The knowledge of tools was an initial encounter. Discovering how to use the body in conjunction with the tools may describe this better. Sennett describes the way the hand learns from touch, guided through observation and pre-learned information as the "intelligent hand". Acquiring physical and mental coordination is essential to becoming a skilled practitioner.

The embodiment of repetitive actions is how an apprentice or any practitioner learns new skills and techniques. Practice, repetition and familiarity with tools and process give rise to rhythm: the pace of fully coordinated work. Bill Heath[26] used the word ‘rhythm’ to describe his work; often qualifying this, such as, “I was in good rhythm today”. Rhythm also serves to engage the mind to learning. Rhythmic conformity as Malafouris (2013: 245) suggests, is where the “brain, body and things” become one in a harmonious material interaction.

The way in which the tools, once fully-learned and familiar become part of the body is described by Sennett as “an extension” of the body. This requires embodiment of “minimum force”, the agile adoption of the correct pressure to apply to the graver or the hammer. The “Blind man and the stick” (Bateson 1973, 318)[27] concept could be cited here to describe the way in which a tool can used as a form of “tactile processing” (Malafouris 2013: 5) of the material landscape an engraver ‘performs’ in. Dant (2005: 100) describes the feeling of this engrained, second-nature response as: “‘natural’ and not subject to question in the course of routine life.” He gives the example of reaching for the kettle and turning off the switch, an action that would be difficult to write down and teach without the use of ‘teaching by observation’ or ‘learning by practice’ (Dant 2005: 3).

A further skill that an apprentice must develop is an understanding of the length of time it takes to perform certain actions and work. Understanding how to perform certain tasks in a given time is an often misunderstood and forgotten skill that is crucial in workpeople that are to be of use to an industry.

“Resistance” (Sennett 2008: 215) is a key encounter for the apprentice. One form of resistance: an unseen flaw in the copper that causes a slip or a break in the tip of the graver and damages the work. More complex are human resistances; the self-inflicted obstacles that an apprentice must face and overcome, most prevalent at the beginning. Sennett describes a way in which the mind can be used to envisage success, possibly what underlies the trait commonly called patience. “They must have a lot of patience to do this work” is a typical response when a person views an engraving. Patience under-describes a skill that engravers learn; sticking with something when it isn’t working, not giving up

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[26] Bill Heath; ex-Spode engraver – see appendix; ‘Process Documentation’ for further details, page 194.
[27] It is impossible to define where the stick ends and where the man begins, such is the unity between the two.

easily, looking for alternative solutions. Another way of overcoming resistance is empathy. An analogy often used in sport is: "Be the ball".[28]

While the main focus here is about observational learning, it is through the 'performance' that an apprentice begins to gain confidence and battle the 'resistances' while improvisation through performance demonstrates growth and the embodiment of skill. It is through the performance, the absorption of embodied skill and technique that an apprentice can gain a sense of pleasure in workmanship. The word 'pleasure' is something that Sennett (2008) uses to describe the feeling of the transition between total novice and the commencement of a new skill being absorbed.

An apprentice must learn the pattern arrangement and gain understanding of the design of transferware patterns. It is through this implicit acquisition of visual styling that an apprentice becomes aware of what they are asked to 'copy', especially as they begin their journey into creating engravings for factory use. It is not entirely clear how this transmission took place, but in the interviews with the engravers, both Darren Furbur[29] and Kelli Nancarrow[30] noted that they were given an existing Spode "British Flowers"[31] series copper-plate to learn from and to 'copy'. This intimate exploration of an existing engraving in combination with their developing skills, and observing what their masters were producing in parallel to the teaching, is likely to have been the way in which this acquisition of an understanding of styling took place.

Michael Polanyi (1966: 31) notes that:

> Many of the clues used will remain unspecifiable and may indeed be subliminal. Such is the effort by which we enter into the intimate structure of a skill.

There are so many minute, subtle nuances that even the master does not realise that they are taking place. 'Muscle memory' and 'second nature' through continued practice take them away from the conscious thoughts of the practitioner. It is at this point that the

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[28] Focus on the ball and not the person hitting it; a cognitive method of altering perspective to achieve a given result.
[29] Darren Furbur – ex-Spode engraver.
[30] Kelli Nancarrow, Spode apprentice engraver: interviewed 01/09/2016
[31] The "British Flowers" series was introduced in c.1828.

‘relationship’ between the practitioner and the pupil becomes decisive. The outcome, successful or otherwise, relies heavily on both the master and apprentice; the “effort” as Polanyi describes it is integral to the transmission of the skills.

An example, in the context of this research, of this type of ‘knowledge’ transmission is the correct angle to hold the graver. The master cannot relay to the apprentice a rule that one must hold the graver at a 37° angle or similar. It depends on varying factors: the hardness of the copper, the age of the copper, the quality of the graver, the sharpness of the graver and the effect that the engraver is trying to achieve. Ultimately, it is so much down to feel, experience and the explicit understanding of the materials.

This principle was applied directly to the way in which an apprentice engraver began their training and working relationship with their master. Sennett (2008: 69) alludes to this relationship between the master and the apprentice:

> Authority in the generic sense relies on a basic fact of power: the master sets out the terms of work that the others do at his direction.

In her interview, Kelli Nancarrow notes that: “He’d [Paul Holdway, master engraver] actually do a line and show me and he’d show me other apprenticeship plates saying what I had to do. I’d do a few and then show him. Paul [Holdway] used to check it regularly. He would tell me where I was going wrong, where I could improve, but then if Paul was absent I know I could go to any one of the others”. Nancarrow’s recollections express the way in which she started her training with her master; learning by observation and then trying to replicate what was observed by copying. The copied work was then checked by the master as it progressed.

Joyce (1989: 191) writes:

> Knowledge may be embodied in the individual workmen, but it was necessarily a collective knowledge passed through time by collective experience and learning.

Apprenticeships were a way of protecting, preserving and sustaining communal craft knowledge. While traces of this knowledge are materially embedded in the Spode copper-plate archive and the surviving ceramic objects that are printed with the engraved designs, experience is required to read it. The embodied knowledge and the material culture rests with those who worked in the industry.

Archival evidence:

Evidence of apprenticeship retained within the archive was one of the prime focuses of this research from the beginning. The Spode Museum Trust paper archive had little information regarding apprenticeship as its focus is on the patterns produced rather than the records of workers. However, the copper-plate archive proved to be a rich source of information. I was able to locate and study approximately seventy apprentice copper-plates.

Fig. 2.1. One of eight aisles in the copper plate room, showing divisions into rows and pens.

They were found seemingly randomly placed within various 'pens'[32] in the archive (Fig. 2.1.): 'Engraving Department', 'Museum' and various pattern pens. While the 'engraving department' seemed a logical location, apprentice work was usually engraved on the back of an existing copper-plate and was stored with this pattern. While there are almost certainly more apprentice plates within the archive than those identified so far, they can still be categorised as rare. Hand-engraved copper-plates in general descriptive are uncommon[33] and those plates that relate to the training of apprentices are even more so. If

[32] 'Pen' is the factory name for a section within the copper plate room for one pattern/design. There are many hundreds of pens in the archive and each one has a hand-made and hand-painted name above it.
[33] I was not able to locate other apprentice plates in the transferware industry at other manufactories.

we use the ratio (approximate) of apprentice plates in the Spode archive to production plates, this makes an apprentice plate four-hundred times less common than a production plate. At Spode, this appears to be an indicator of the rate of apprentice training, because the re-use of pattern plates for apprentice work acted as an inhibitor to scrapping, that is melting down to recover the intrinsic value of the metal.[34]

An apprentice plate was a copper-plate that an apprentice engraver would practice and learn their skills upon. This is confirmed within the engravers' interviews. Paul Wood[35] commented:

> Bash, bash, little squares and then squares with dots in 'em with cuts across; different tones and so on. You were just learning to manipulate the tools really before they gave you something active to do with it, err, when they thought you had mastered, I wouldn't say mastered, but were competent enough.

Nancarrow also alluded to the type of form her apprentice plate would take:

> Yes, I think I started on inch squares or was it centimetre squares and you could see lots and lots of spaces between the punched dots. You would have to do it in waves as well. He'd [Paul Holdway] actually do a line and show me and he'd show me other apprenticeship plates saying what I had to do. You'd sit for months just doing that, centimetre squares just doing lines and dots. I'd do a few and then show him [Holdway]. And then you'd do the cross-hatched ones too.

It is interesting to note that Holdway, Nancarrow's master, showed her existing apprentice plates as a way of demonstrating what was expected of her. This demonstrates that visual tools were used as part of the training; it was not just a case of watch me, do this, but additionally, an example of what was expected was provided to guide the apprentice, and to inspire confidence. Not only did this give the apprentice further clues as to what their scope of work would be, but demonstrated a link with the past: previously-trained apprentices and their outputs.

Wood, when asked about starting the training by working in the squares said:

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[34] Copeland (2009) Manufacturing Processes of tableware during the eighteenth and nineteenth centuries.
[35] Paul Wood – ex-Spode engraver – see engravers' appendix for further details, page 10.

> Yes, that was the very first thing you were given when you, you know, sat down as an apprentice, this is what you were shown and given.

John Raftery[36] referred to the work undertaken:

> It's one of those where you start off in your half-inch squares.

Holdway[37] comments upon the length of the training in squares:

> My first year was completely practice and training.

The apprentice plates are all approximately the same size, about 10" (25.5cm) square which is a medium-sized copper-plate when compared with the rest of the copper-plate archive. The more recent apprentice plates used pre-engraved plates that were no longer in use. Copper was expensive and a valuable commodity; an apprentice wouldn't be given either a large piece of copper or an unused piece upon which to practice. The relative small size of copper-plate could also have been to make it more manageable for the apprentice to practice upon. Many of the techniques required the copper-plate to be turned (rotated) to facilitate cutting, so a smaller copper-plate would have made this easier for an apprentice.

Nancarrow case study:

The apprenticeship of Kelli Nancarrow (née Rushton) provides a useful study, demonstrating her work as an apprentice and the improvements she made over a specific timescale. There is far more evidence in the archive specifically relating to Nancarrow than others, as she was the most recent/last apprentice engraver at Spode. While it is not possible to be sure that all of her apprentice work has been discovered, there are enough exemplars within the archive to make significant observations. It is possible to chart the improvement made by Nancarrow as she undertook her apprenticeship.

[36] John Raftery – ex-Spode engraver. See engravers' appendix page 65 for further details.
[37] Paul Holdway – ex-Spode Spode engraver. See engravers' appendix page 37 for further details.

Fig. 2.2. Nancarrow: an early apprentice plate, c.2003.

In one of Nancarrow's early apprentice plates (Fig. 2.2), the central image relating to the 'Spode Blue Room Collection' is a previously-engraved piece that was out of production. Figs. 2.3 and 2.4[38] focus on some of the engraved work produced by Nancarrow on the same plate.

Fig. 2.3 and Fig. 2.4.Close-ups of Nancarrow's apprentice plate, c.2003

Her work illustrates the typical techniques practiced by apprentices: cutting straight lines in boxes, curved lines in boxes, punching in boxes (including softening-off),[39] free-hand curve-cutting and lettering. While the engraving is faltering and clumsy in places, it is evident that she is not without control. A notable feature of Nancarrow's skill level at this stage is that she has stopped her graver-cut lines precisely at the extent of the engraved

[38] Taken of Fig. 2.3.
[39] Softening-off – an engraving term that describes a gradation of technique; shallower, finer lines or punched dots.

boxes; this is difficult to achieve as it requires release of pressure at the right moment, or the graver can slip and get away from the apprentice.

Fig. 2.5. Nancarrow: an early apprentice plate, c.2003.

In Fig. 2.5, we see a slightly later Nancarrow apprentice plate. The floral elements on this copper-plate were pre-existing.[40] She has engraved the details within the leaves and flower heads. She has also begun to cut curved lines more confidently as demonstrated in the formation of her name on the plate (Fig. 2.6).

Fig. 2.6. Detail of Nancarrow's work, including line-work and punching.

[40] This is partially evidenced by the fact that the copper-plate has been cut down and that some of the floral pieces are seen to run off the edge.

Dating evidence is uncommon with the archive in general, but apprentice plates such as Nancarrow's often provide engraved dates.

Fig. 2.7 and Fig. 2.8. Nancarrow: apprentice plate and close-up, c.2004.

One of the final pieces that Nancarrow completed is seen in Figs. 2.7-2.8. After two years of training work, much within the confines of the square boxes, she was given the task of copying an existing engraving. Nancarrow confirmed this in her interview:

> I took it from an existing engraving and obviously, I just copied it; […] it's not my design…

When an apprentice was ready to copy a complete design, all the preparatory and working stages would be gone through: wax-paper transfer,[41] outlining with a needle, cutting with a graver, punching, planishing and final line-work. Generally occurring about mid-way through the apprenticeship, this served as a test of the ability to connect up all the skills of planning, execution and finishing.

[41] A wax paper transfer is a traditional method for taking a copy of an existing engraving and transferring to a new piece of copper. Tissue paper is coated with olive oil. A mixture of bee's wax and tallow are then used to cover the surface of one side of the tissue. This will be the medium that picks up the colour from the engraving.

Fig. 2.9 and Fig. 2.10. Nancarrow: apprentice plate and close-up, c.2004.

Fig. 2.9. and Fig. 2.10. are images of an accompanying copper-plate that Nancarrow created a couple of months after the previous example. When shown this copper-plate during the interview, she recalled how long the work took, commenting:

> A couple of weeks at least. It's weird seeing my plates again and I didn't expect you [the Trust] to still have it all.

Impressions from the floral centre from the plate in Fig. 2.7. and the border section seen in Fig. 2.9 (printed three times) were taken and a ceramic example produced. Only on the ceramic could one fully check to the quality of the work. The apprentice was able to affirm the understanding of how deep to cut lines and punch dots by seeing how these marks translate to the finished ware. Nancarrow remarked that she was allowed to keep the ceramic example (Fig. 2.11) after it had been examined by her master:

> I'd never get rid of that [the blue and white ceramic]. Me mum's got one as well. No, I'm really proud of what I did and I'm really glad I've got something to show for it.

Fig. 2.11. Nancarrow with the ceramic example and related copper-plate.

Fig. 2.12. Nancarrow: apprentice plate close-up, c.2004.

Fig. 2.13. Nancarrow: apprentice plate close-up, c.2004.

Fig. 2.12. and Fig. 2.13. show close-up views of Nancarrow's 2004 engravings. The progress between her 2002/3 pieces and these two engravings is clear to see. The way the curves are cut show greater skill and confidence; the punching is well-spaced and the softening-off is well executed. The quality of both engravings is high and this illustrates the expansion in skill and technique possible by an apprentice engraver in a relatively short time while under expert tutelage. Of her training regime, Nancarrow reflected:

> I suppose when you're doing it day in day out, five days a week, erm, you think you're never going to get it; it's like the writing as well, it just clicks.

The term "just clicks" seems to summarise the coordination of embodied skills described by Dant as "second nature."

The particular pattern that Nancarrow copied was from Spode's "British Flowers" series first introduced around 1828 and is one that many apprentices tried to duplicate. Furbur also engraved this "British Flowers" centre in 1998 (Fig. 2.14-2.15).[42]

Fig. 2.14. and Fig. 2.15. Furbur: apprentice plate and close-up, c.1998.

It is instructive to compare Nancarrow's and Furbur's work to assess how two different apprentice engravers undertook their work (Fig. 2.16-2.17). Furbur and Nancarrow were the last two apprentice engravers at Spode.

[42] Fig. 2.15. is verso of Fig. 2.14.

 

Fig. 2.16 by Furber and Fig. 2.17 by Nancarrow: Apprentice plate close-ups, c.1998 and 2004.

Both of these engravings look remarkably similar, crucially so in the technical ability that they exhibit. This points to the quality of the apprentice selection process at Spode. It is also an indicator of the high standard of training that was available at Spode at this time. For further assessment of the quality of these engravings, I showed them to Heath who remarked on the excellence of both, complementing Furbur's punching as "very fine".

The "British Flowers" series image was used as it requires all the skills and techniques that an engraver must employ: fine line-work, cross-hatching, punching, softening-off; flowers pose particular difficulties of execution as well. Raftery alludes to one of the challenges:

> Because it was hard, erm, harder to engrave to do your shading where you haven't got any even sides to start your line-work or your punch-work; you are actually engraving in the shape of a leaf.

It is possible that this specific design has long been used for apprentices to copy. While it has not been possible to substantiate this within the apprentice-plate archive, there are at least fifteen further examples of "British Flowers" copied by other apprentices. Raftery confirms the use of this series during his and other engravers' apprenticeships:

> Then go on to do a flower spray, which always used to be an eight-inch plate, "British Flowers" [Spode series] centre and that's the one we always used to engrave.

This examination of the development of one engraver provides insight into the stages of apprentice advancement, from initial trial and error, to “just clicking” and on to refinement through practice. But is has also pointed to one of the unique areas of importance of the Spode archive only able to be studied because these plates, while not of production value, were retained.

More evidence from apprentice plates

Some of the apprentice plates have ‘sketches’[43] that do not relate specifically to the work the apprentices were copying. Some of the marks are amusing, but are equally important as dating evidence and as a way of understanding the age, interest and freedom that the apprentices were allowed.

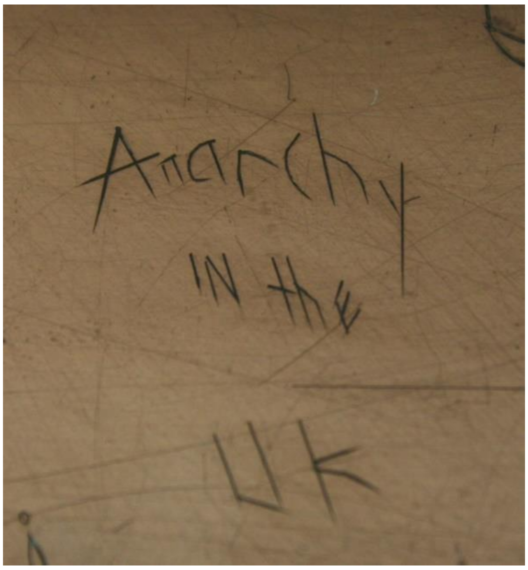

Fig. 2.18. A close-up of engraved-work on an apprentice plate, c.1976-1980.

Fig. 2.18 shows a poorly-engraved apprentice plate, incorporating as engraved ‘sketching’ “Anarchy in the UK”. Assuming this refers to the Sex Pistols song, this dates the apprentice work as no earlier than 1976.[44] This type of date-specific engraving provides crucial dating evidence which ordinarily would be difficult without the name of the apprentice or a date being engraved.

[43] ‘Doodle’ is a term to describe a small, discreet mark made by an engraver upon a copper plate. It might be a working-out or a test piece or just a testing of a style.
[44] This song was also covered by the Frazier Chorus (1987), Megadeth (1988) and Mötley Crue (1991).

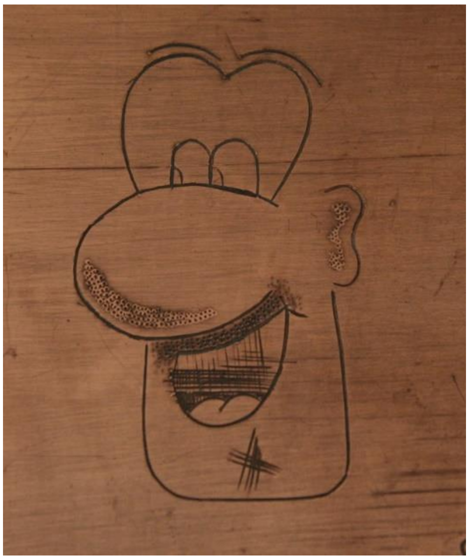

Fig. 2.19. A close-up of engraved-work on an apprentice plate, c.1980-90.

Fig. 2.19 shows a caricature of a man. This seems far-removed from the subject matter that engravers were accustomed to dealing with and appears out-of-place. However, the engraving is well executed as cutting curved lines is one of the hardest skills to learn and this example has some mildly-skilled punch-work to the nose and ear too.

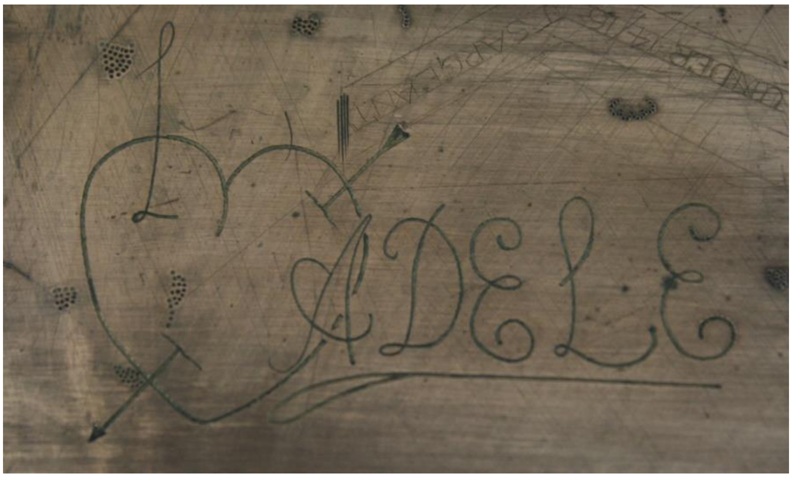

Fig. 2.20. A close-up of engraved-work on an apprentice plate, c.1960-70.

Fig. 2.20 shows another unexpected engraving as part of an apprentice plate. The curved line cutting exhibits considerable skill and confidence in the tight loops, and consistency in the letterforms. Judging by the work on the other side of this copper-plate, this work was probably undertaken between the 1960s and 1980s. These three pieces of whimsical engraving are important pieces of evidence and are exemplars of the richness of the Spode copper-plate archive. This illustrates that the skills of an engraver were not learned in a sterile and humourless environment, and demonstrates that apprentices had some scope for expression as they honed their skills.

While the greater part of the apprentice plates in the archive are from the mid to late twentieth century (and into the twenty-first), there are several plates that are older. These were dated by style, technical factors, evidence of a coppersmith, the pattern engraved on the opposite side, and the work chosen to copy. (See Chapter Three for a full discussion of technical clues to dating.)

Fig. 2.21 verso, and Fig. 2.22 recto of an apprentice plate, c.1890-1916.

Fig. 2.21. and Fig. 2.22. are images of the back and front of an older apprentice plate. The front (Fig. 2.22.), the second phase[45] of use of this example has a simple engraved outline that would be printed onto a ware and then hand-coloured over-the-glaze once fired. A registration number 658633 implies that the apprentice work is no later than 1916. Fig. 2.21 shows the first-phase apprentice use.

[45] It is important to note that there is 'knocking-up' damage through the apprentice work that demonstrates that this was the first phase of use of the copper-plate. The way the engraving runs through the edge in Fig. 2.21. also alludes to the fact that it was cut down in size in preparation for the engraving in Fig. 2.22.

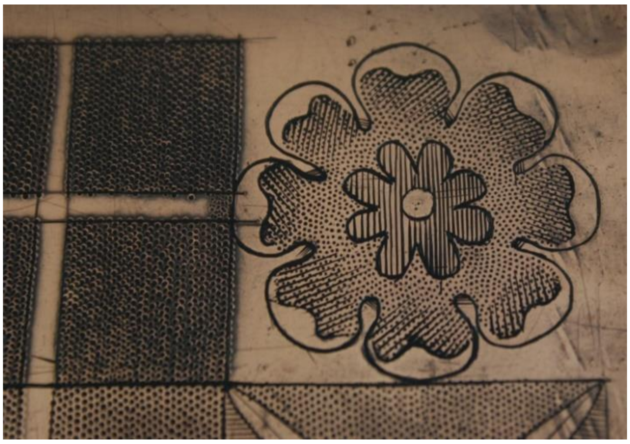
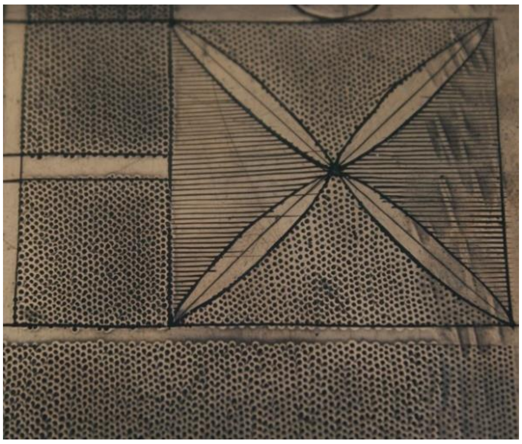

Fig. 2.23. and Fig. 2.24. Close-ups of two engraved details on the apprentice plate in Fig. 2.21, c.1890-1916.


Fig. 2.25. and Fig. 2.26. Close-ups of two engraved details on the apprentice plate in Fig. 2.21, c.1890-1916.

One notable thing that differentiates this plate from modern plates is the layout. The modern plates have divided squares laid out in which an apprentice works. This example uses bands rather than squares. Stylistic cues suggest a date: the floral elements are Arts and Crafts-inspired; the repeating, geometric details are typical of the 1890-1910 period. While using stylistic indications on their own is unreliable, here they mesh with the information of the opposite side. This puts the apprentice work at an earlier date than the side with the registration number.

Fig. 2.27 verso and Fig. 2.28 recto of an apprentice plate, c.1841-1915.

Fig. 2.27 and Fig. 2.28 show the front and back of the oldest apprentice plate locatable in the archive. The apprentice-work was the first use of this copper-plate (like the previously-discussed copper-plate Fig. 2.21-2.22). These are distinctive as a new piece of copper was given to the apprentice. Potentially, the new copper separated those with confidence and assurance from those without, at an early stage.[46] For dating, it is noted that the 'apprentice' side of the copper-plate has been knocked-up[47] to prepare the other side to receive a new engraving. The fresh side is stamped "923" and titled "Ceries"[48], a form of identification typical of wares produced in the late nineteenth and early twentieth century, especially c.1910-15.

Fig. 2.29. Detail of coppersmith mark, c.1841.

[46] I would have been much more confident starting with an old, pre-used piece of copper that was seen to be of no further use.
[47] Knocked-up is s term that describes an action using a hammer, anvil and planishing stone that prepares a copper plate for a new engraving. Low-points, scratches and areas of damage are knocked-up from the reverse and planished flat in preparation for new work to begin. This often takes place upon and through existing engravings as the opposite side is prepared to receive an engraving. See page 81-82.
[48] This was the pattern name and would have been a simple engraved outline that, once printed and fired, would be hand-painted over-the-glaze.

Fig. 2.29 shows the supplying coppersmith's mark: T. Smith, Field place, Stoke-on-Trent.[49] This is dating evidence as the earliest engraving can be no older than the date at which the coppersmith supplied the copper to the factory. Smith and Horton applied for a patent for steam planishing in 1841,[50] so it is likely that this impressed mark was used from that date forward as terms such as this were used to market goods. It is plausible that the copper-plate was delivered to the factory and remained 'blank'[51] for a number of years before the apprentice used it to practice their skills.[52] Remaining cautious, we can only say the apprentice-work took place somewhere between 1841 and 1915.

Fig. 2.30. Close-up engraved details on the apprentice plate in Fig. 2.28, c.1841-1915.

Fig. 2.31. Close-up engraved details on the apprentice plate in Fig. 2.28, c.1841-1915.

[49] Spode were also supplied by the same company, albeit, a later partnership from the T. Smith company; Thomas Smith and Sons were an engineering and coppersmith firm in Hanley, established in 1870 and supplied Spode with roller press machines.
[50] Repertory of patent inventions and other discoveries and improvements in arts, manufactures and agriculture.
[51] Blank – having no engraved-work on either side.
[52] It is plausible that the blank copper was kept as a trade sample until it was no longer valued for this purpose, and thus given to the apprentice.

Fig. 2.30 and Fig. 2.31 are close-ups of the apprentice plate. Stylistically, it is different from any more recently-engraved apprentice work in the archive. Much like the previously-discussed example, the copper-plate has not been divided up into squares for the apprentice to work within, it has been divided up into strips. In the middle of the strips, there is a large section that contains 'S' marks. Cutting compound curves is a difficult skill to master as the graver is held steady, but the apprentice must manoeuvre the copper-plate to cut the curve. The 'S' marks have then been filled in with fine punching as part of the training; learning to stay within the confines of an engraved line.

Summary of archival evidence:

In summary, the importance of archival study and connoisseurship to this research are evidenced here as it has enabled insight into an area (apprenticeship) that would otherwise not have been possible. While the engravers' interviews have provided evidence for continuity of practice, the rich primary information in the archive has provided further valuable insight into the working practices of the apprentices. The additional archival data has demonstrated the following:

The existence of apprentices is confirmed by the interviews, and the fact that so many apprentice copper-plates over a wide span of time have survived demonstrates that there was an active and healthy regenerative apprenticeship programme in place at Spode. While there was a "sharp decline in apprenticeships since World War II" (Crafts & van Ark 1996: 251) in Great Britain and in the "manufacturing sector, it was a period of transition", (Kitson & Michie 2014) it has not been possible to confirm this at Spode due to the lack of employment evidence in the paper archive. The absence of apprentice plates dating from this post-war era possibly suggests this situation also existed at Spode and that there is a correlation between post-war apprenticeship decline and the lack of archival evidence. Wood started his apprenticeship in 1960 and notes that "there was three" other than himself. While this is a slightly later period, it does indicate a healthy training programme when at the same time Wood recalls that "at that time, 15 or so trained engravers" worked alongside him. That is a ratio of 3.75 masters to one apprentice demonstrating a strong replacement rate.

The evidence in the copper-plate archive provides valuable information that confirms the apprenticeship programmes, their requirements and practice and that it existed over a long period of time. Looking at the apprentice plates in the archive, excepting Nancarrow's, it should be asked why so many survived. Nancarrow's are slightly different as her plates were still in use as part of her training at the time the factory closed. The lack of early twentieth century apprentice plates may align with the government directives towards metals during World War One and the price of raw materials after the war. This does not explain the lack of archival evidence from this period though. Possibly the training mechanisms were different here from those seen in a more modern period. Other plates have possibly survived by being inadvertently hidden away and being swallowed up by the size of the archive. Once a plate has been used on both sides, the only way to use it again for a new engraving was to planish one side until the engraving was removed. This takes a great deal of effort as so much material has to be removed to fully planish-out the deepest engraved-work. Once the apprentice was finished with the plate, it was almost certainly returned to the copper-plate store and retrieved only to show other apprentices. This type of archival preservation allows understanding the role of apprentices and the mechanisms of how the factory functioned. The survival of the apprentice plates also suggests that they were to be used as a teaching aid to future, apprentices. Nancarrow in her interview alludes to the fact that her master, Holdway, showed her existing apprentice plates. It is therefore plausible that their survival was not totally accidental and this can be substantiated by the fact that many of the plates I discovered were in the 'Engraving Department' pen.[53]

The earliest apprentice plate within the archive may be from the late nineteenth or early twentieth century. The absence of earlier apprentice plates may suggest that training mechanisms other than the 'engraving within squares' used in the twentieth century were employed. Alternatively, it is plausible that the apprentice plates were recycled in the nineteenth century by planishing the marks out and using the copper for a production engraving or returning the copper-plate to the coppersmith. Further research is required to explain the absence.

All but two examples have the apprentice-work engraved as a secondary action to the plate. That is to say that one side of the copper-plate had a previous use for a pattern or back stamp that was no longer in production or of use when the apprentice was given the plate to work on. This demonstrates several key factors about the factory and the apprentices' place within it. Firstly, it shows a degree of recycling, but with a large emphasis towards economy of the factory. Secondly, there is the practice of giving an

[53] Pen is the factory name for a divided section of the copper-plate room that housed copper-plates from one specific pattern or series.

apprentice something once used; why give them a shiny new piece of copper to work on? This seems to be an indicator of their status within both the factory and engraving department hierarchy. The two older apprentice plates that have the apprentice work as the first phase of work suggest that the status of the apprentice may have been greater then than at a later period.

The progress of apprentices can be studied, as many of Nancarrow's apprentice plates remain in the archive and her work showed signs of rapid advancement to near full-competency within two to three years. This has offered a valuable insight into how quickly an apprentice was able to produce high-quality work from unskilled beginnings.

Changing techniques of teaching over time have been demonstrated to some extent. The evidence in the apprentice plates suggests that the late nineteenth century apprentices did very similar skill-building exercises to those of the late twentieth and early twenty-first centuries. That is, practising line-work in confined areas combined with curve-cutting and confined punching. The size and shape of these exercises seems to have changed, but not to such an extent to have significant effect on the work. The use of a floral-study is also consistent through the extent of the twentieth and early twenty-first centuries. It is not clear if the mechanisms changed or the teaching changed from the earliest to the latest apprentice plates, but the actual finished 'look' of the work is comparable.

Apprentice interviews:

One of my key aims for this research was to interview those who had worked in the industry. The evidence gathered from the engravers' interviews has allowed specific details of their apprenticeships to be studied. While a great deal of information regarding the training mechanisms, routines and development can be obtained from archival studies alone, the questioning and evaluating of those directly involved in the process has allowed for further crucial insight. The interpolation of quotes aims to add depth and understanding of the training and how this prepared an apprentice for their work in the transferware industry. The interviews that resulted contained specific questions pertaining to their apprenticeship as an engraver. The questions concentrated on their background and training prior to beginning their apprenticeship, the length of the apprenticeship, their outputs and obligations and how they were treated by the senior engravers. For consistency, each interviewee was asked the same questions.

Firstly, I wanted to establish the length of their training to establish how long it would take for a complete novice to learn the skills of a master engraver. I wanted to compare this to Sennett (2008: 20) who advanced a theoretical notion of the time taken to learn a craft or skill.

> By one commonly used measure, about ten thousand hours of experience are required to produce a master carpenter or musician.

Frank W. Galton[54] felt that his apprenticeship was too long:

> Looking back, I am certain I could have learned all that could be learned in 18 months or so. The rest was simply a matter of practice to acquire the necessary skills and speed to do the work.

While the length of the apprenticeship period varied at Spode, the average was a period of five years. The evidence gleaned from Holdway's interviews revealed the following information: Holdway's apprenticeship period was over five years and this was confirmed by Wood. The breakdown of this work was a working day of nine hours (8am until 5pm), Monday to Thursday and four hours (8am until 12noon) on Friday. This is a working week of forty hours. This translates to two-thousand and eighty hours per year. Over the allotted five-year apprenticeship, this amounts to ten-thousand, four-hundred hours. Therefore, on this basis, the theory proposed by Sennett (2008) is supported. While this does not take into account at what specific period during the apprenticeship that an apprentice was allowed or required to work on production pieces, it does confirm the theoretical timeframe of apprenticeship and the dedicated learning and practicing to fully attain the skills. Nancarrow, in approximately a third of the theoretical ten thousand hours (Sennett 2008), had gained proficiency, but the foreman felt that she was not yet ready to create production work. Galton's apprenticeship details provide a useful comparative context, even allowing for his Socialist perspective: seven years in total where "the employer got a cheap errand boy and general factotum for the first four years or so and a cheap workman for the last three".

Secondly, I wanted to understand what background and training the apprentices would have had before starting their work at Spode and establish if certain qualifications or

[54] Frank W. Galton – apprentice engraver in the goldsmithing industry. See page 168 in engravers' interview appendix.

previous experience in art or if an artistic background was required. While there seems to have been no specific requirements, an artistic association was preferred. This was noted by both Raftery and Nancarrow. Wood recalled that there was an engraving course at Burslem School of Art, but that Spode would not have recommended this as they believed their teaching was superior. Wood further mentions that Spode "taught you the best as they were the best and nothing else would compare" and notes that engraving was one specific area that required no pre-existing training or qualifications. Initially, I was surprised at this information, but given the confidence in their own abilities to train and create the best engravers, the fact that no previous experience was required is perhaps not remarkable. However, the principal concern was probably more about being able to un-train established habits, rather than about starting from anew.

Thirdly, it was desirable to understand at what specific stages new aspects of work were introduced to the apprentices. I asked the interviewees about different work they were given and how long it was before they were asked to produce production engravings. I was surprised how quickly the skills had been transmitted to such a high standard. The apprentices were firstly allowed to re-engrave worn production plates (after around six months to a year) and then produced their first production work from scratch (around one to two years). At the outset of this research, I would have expected these landmarks to have occurred at a much later time in the apprenticeship. The specific dates at which advancements to their work occurred varied over the time-periods researched and from one individual to another, depending upon skill level and how busy the department was as a whole.

Fourthly, I wanted to get a sense of how much involvement their master had in their development. I tried to ascertain if their practice engravings were looked at by either the engraver directly responsible for their training, the engraving department foreman or even higher up in the factory. The evidence suggests a close working relationship with their master and Wood also suggests that this examination of work may have even gone higher in the factory than that. It was the relationship with the master that I had hoped to discover more about, as it is through this relationship that the apprentice gains the skills, confidence and embodied knowledge that is transmitted through observational training, that creates a master engraver (as suggested by both Dant and Sennett). Holdway alludes to this relationship and comments on how lucky he felt he was to receive such close mentoring.

Finally, I wanted to try to establish the status of the apprentice. This would allow an assessment of the ease with which an apprentice could start in an industry they were unfamiliar with, and would additionally provide information about the working conditions within a small department. Four of the five interviewed suggested that they were treated, from the start, very fairly and kindly by those already in the department. This is further endorsed by the language used by the apprentices where words such as “fair”, “honest”, “family” and “respect” allowed for an understanding of both sides of the training programme. The evidence from the final fifty years or so suggests it is through the healthy, collegial environment that the transmission of a difficult-to-learn skill was made possible. It is plausible that environment in the workshop allowed the industry to enjoy continued regeneration for over two-hundred years, with the addition of newly-trained engravers.

In summary, the interviews proved to be a rich source of information that was not available by any other means. The ability to speak to those who were directly involved within an industry, and relatively recently too, has permitted the collection of valuable and detailed evidence. The results of the interviews were consistent across all the interviews/interviewees which inspires confidence in the data.

From hesitancy to confidence:

At the beginning of the journey, the apprentice has no understanding or skill, and at the conclusion, the apprentice has the requisite proficiency to tackle all required of him or her in the industry.

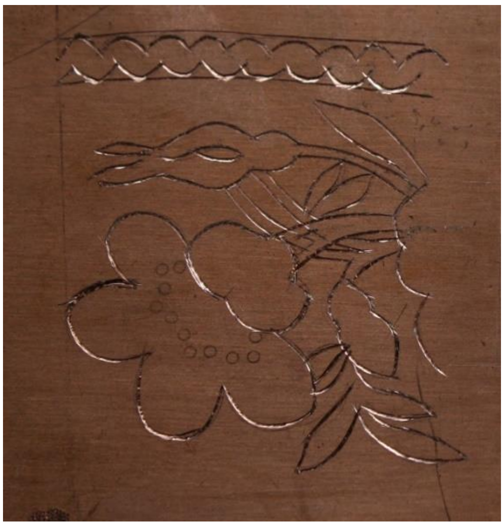


Fig. 2.32: Close-up of an ‘apprentice’ engraving, c.2015. Fig. 2.33: Close-up of a Bill Heath engraving, c.2016.

This can be illustrated by comparing two images. Fig. 2.32 shows a section of the "Wild Rose" border that I engraved during the early stages of the training I received from Heath,[55] while Fig. 2.33 shows a similar section from the "Wild Rose" border that Heath engraved. The comparison between these two engravings is stark with my piece being extremely coarse and laboured, whereas Heath's engraving is flowing and refined. While not produced by the same engraver, these two images serve to illustrate each end of the engraving spectrum.

The way in which the apprentices initially approached their task, as I did,[56] with nerves, trepidation and a fear of the unknown is understandable. These sentiments are echoed by Fred Taylor[57] when he started his apprenticeship at Worcester in 1951:

> Arrived, not dreading starting, but very nervous about meeting men that I didn't know the men who were all the age of my brothers or even my father. Many of them have been in the war and were full of stories. I clocked in and went very gingerly up the two flights of stairs to the engraving department. It was very quiet that morning as they knew they had a new apprentice starting.

Not only were the apprentices unsure of what lay ahead in terms of their work, there were new people, new surroundings and new routines to deal with. Starting something new is difficult and entering into an environment where people know each other and are highly skilled is challenging.[58] These added pressures contrived to create a hesitant beginning for an apprentice. A large part of the uncertainty was the unknown. Some apprentices didn't fully know what engraving was, or how it was connected to the industry; Taylor comments that:

> I interviewed as an engraver but had no idea how engraving could be connected to the ceramic industry.

This initial lack of understanding and awareness is echoed by Nancarrow in her interview:

> I didn't actually know a great deal about it until I had a visit and then it was just so unusual that you kind of get drawn into it and you just want to know more about it and carry on doing it.

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[55] See chapter two highlight for further details.
[56] See chapter two highlight for further details.
[57] Fred Taylor – ex-Worcester engraver. See engravers interviews appendix, page 152 for further details.
[58] Further 'resistances' as Sennett (2009) notes.

It could be argued that the first major hurdle for a newly-starting apprentice was how they were received by their colleagues, the fully-qualified engravers. Wood in his interview recalls some of the details when he first started as an apprentice engraver at Spode in 1960:

> It varied a lot from being totally ignored to actively disliked, depending on your own character I suppose, and just regarded as being a pain in the arse, I suppose. I certainly didn't get any assistance from anyone, only from the foreman in terms of what you were being taught.

Part of how an apprentice was treated depended upon the time-period they started, and also depended on their character and those already working in the engraving department. Raftery in his interview recalls a very different initiation to that of Wood:

> They were like family, you know, even now…. Erm, they looked after you, they were fair, honest, they were very decent and like I said, there was a lot of, how can I put it, there was a lot of, erm, I do miss working with them.

This too is echoed by Furbur:

> At both factories[59] I was always fantastically-well treated, I would have to say.

Nancarrow (started in 2002/3) reiterates the words of Furbur and Raftery:

> I was just like one of those. I did the same job they did.

Raftery, Furbur and Nancarrow were working at Spode at roughly the same time (2002-2005) and were all colleagues. The environment and engravers that they started their apprenticeships with were largely the same, therefore, a similar welcome greeted all of them. This certainly suggests a different starting environment to that of Wood. This type of start would certainly have eased those first nerves as the apprentice began their journey.

As an apprentice started to learn the skills of an engraver and began to distance themselves from that nervy and hesitant start, the progress made was assessed by their master engraver. Wood suggests that the development of skills and techniques were scrutinised by the person training him:

[59] Darren Furbur, ex-Spode engraver worked for Masons Ironstone and Spode.

> No, no, it was just in the eye of the supervisor that you were, err, see how you were doing and seeing if you were capable of doing it. I'm sure someone at a higher level might have looked at it, but I never saw that.

Holdway confirms Wood's recollections about the learning and supervising process being conducted by one individual:

> It was one to one, so I got it all the time; I was so lucky.

The apprentice would practice their skills on the 'practice plates', but would then typically progress to repairing existing engravings. As a copper-plate was used, the repeated printing would result in gradually paler prints as the engraving got shallower. Repair work was something that an apprentice would be trusted with as it did not involve any fresh engraving. The copper-plate would be lightly planished with a hone stone and then the engraved marks would be progressively re-entered. This would be the apprentice's first real work and would go into production. This progression from apprentice practice plates to re-engraving is noted by Furbur:

> Erm, yeah, so everything was based purely on practice plates and the re-working of the coppers to get you used to a pattern.

This advancement is confirmed by Raftery:

> You would then go on to start to re-enter old engravings. Do repair work. In between, they would give you a break and give you, well I say to give you a break, but it might have been because they didn't want to do it, they'd give you a copper plate that was worn down, erm, it needed repairing. Before it could be repaired, it had to be planished, so basically, they'd go, erm; "apprentice", here you go, this is practice for you.

This was the first stage at which the apprenticeship began to bear fruit. The repairing of damaged or worn plates was an important act that kept copper-plates in production and economically viable. The use of the apprentice is twofold here; not only was this repair-work essential,[60] it spared the time of a master engraver. The apprentice could thereby start to feel useful (Fig.2.34).

[60] It got copper-plates re-engraved and back into production.

Fig 2.34. Apprentice Gerald Maudsley strengthening[61] an area of punching in a worn copper-plate, mid-1960s. CHC.

When an apprentice was considered to have sufficient mastery of technique having progressed from the apprentice practice plates through to repair work, the next phase was to undertake a piece of production work to engrave from scratch. It was at this stage that their well-practiced skills could be utilised by the department and factory alike. When this occurred must have depended upon several factors: how proficient the apprentice was and the pressures put upon the department by the factory. Furbur notes the point at which he was ready to start engraving:

> I would guess, erm, and then, you would need a solid twelve months of practicing and then maybe, then be easing into the smaller items, so maybe twelve months if you were good, eighteenth months or more, you know.
>
> You know, but I would start sensibly on something that, you know, you could handle, but in theory, very small items, you know, borders, you know, or additions to things.

This point is confirmed by Wood who explains the work he undertook after practice and repair:

> But, the way it worked, even though I had only been there three years, or three years and a bit, I had actually engraved some small production work. I did the handles for the butter dish in "Tower", err "Blue Tower", that was one of mine. Of

[61] 'Strengthening' is an engraving term for re-entering a worn area of engraving, either line-work or punching.

> course, one of the things that is much easier is to do repairs of engravings that have already been engraved and I actually did the 24” turkey dish, it took me about 6 months to, err, in between going to get the toast, you know. But I remember, I had to repair that. That was quite early on. So, you are given repair work and you are given support work for the engravers such as cutting copper plates to the right size and so on, planishing them so that the surface was ready for them to start engraving. Which, if you put a broad interpretation on it was engravers’ work, ‘cause if the apprentices hadn’t done it, they would have to do it. And then you had the small engraving jobs and I think it was as much a test of your capabilities as you went along as they were, you know, they were nothing important, in sense of on the factory, but they were needed, but weren’t desperately important.

Wood confirms the role of the apprentice in relieving pressure on the engraving team. It should also be noted that Wood comments upon how this first production work acted as a test to see how the apprentice was progressing. Holdway verifies that he started off small, but that it gave him confidence and was something that he was very proud of:

> I would say the second year and it was just the beads, to the patterns, you know, the borders, you know, like the “Tower” pattern putting the beads, and I did the “Camilla” beads, I did all those. And I did, the “Americana”, it’s got another name too, I did a lot of the borders, you know. That was my biggest achievement, but the pattern didn’t sell [“Americana”], it was good though.

The evolution of an apprentice from a historical perspective is discussed by Tanner and Tanner (2005: 214) where they note that Rothwell’s[62] apprentices would likewise be asked to create new engravings:

> His apprentices, after reaching a high enough standard, would be experienced enough to execute engravings on their own.

Nancarrow never had anything that she engraved put into production, but her honest, confident remarks demonstrate the state of mind, *from hesitancy to confidence*:

> I don’t think it would have been long before my work would be used properly (Richard Halliday’s follow-up question: You were clearly good enough) KN:

[62] Thomas Rothwell – engraver, 1740-1807.

> [Laughs] I hope so. I think I had still got a lot to learn, but I think also that I had learnt a lot in short space of time.

Findings:

Apprenticeship is a method of skill transmission for keeping 'craft' skills alive for generations. Although art school training sought to prepare young people in many of the same skills as apprenticeship, it was not industry-specific; while this training could have produced a transferware engraver, it could not have produced a Spode engraver. Without apprentices, the embodied skills of a Spode engraver would die within a generation.[63] Through apprenticeship, successive generations of engravers were created and this is how the skills were passed on and an industry continued.

Training through observation, as a way of learning skills that are not able to be transmitted any other way has been a crucial focus of this research. Many skills can be taught through the written-word of instruction, but some skills cannot be transmitted in this way. These are skills that are embodied in the industry through its skilled and skill-enabled craftsmen, and its communication is through the vehicle of observational-learning. The concept of tacit knowledge has been illustrated through the embodied, habitual, repeated actions that are part of "know-how". These second-nature behavioural processes are a key part of engraving and are ingrained in the culture of the industry through knowledge that is passed through observation, trial and error and repetition from person to person. How the training prepared the apprentice for their work was about more than skill acquisition (Drakard & Holdway 1983 [2002]); it gave a sense of belonging, sensitivity to the work and a sense of propriety. These skills and techniques are evidenced through the production work, production plates and interviews, and are also encapsulated in the apprentice plates. Analysis of the apprentices' plates allows a unique view of 'reverse-engineering' how an apprentice learnt their skills, and highlights the importance of the apprentice plates.

There are approximately forty thousand engraved copper-plates in the archive that are testimony to the excellence of an industry in terms of technical ability and understanding of design language to achieve a specific result. At the other end of the scale, there are many apprentice copper-plates that demonstrate the evolution of skills where an apprentice begins to come to grips with a new environment, new tools, new people and new

[63] Some information is retained within the copper-plates and resultant ceramics.

techniques. These copper-plates are far removed from those that exhibit a fine understanding of engraving, but it is through examining both ends of this scale that it is possible to gain an understanding and appreciation of the passage from lack of competence to mastery.

By way of context, it is important to acknowledge that female apprentice engravers were trained in wood engraving during the late nineteenth century. Their numbers were reported to be high, but Paul Martin[64] who during the 1890s had worked as a wood engraver had only actually heard of one female engraver in this specific field. The training of female apprentices is difficult to substantiate at Spode until the latter part of the twentieth century. Spode had at least two female apprentices[65] of which the last was Nancarrow.

The lineage of workshop practice spread through apprenticeship can be observed in the work of Thomas Bewick.[66] Bewick trained many apprentices at his workshop in Newcastle-upon-Tyne in the first quarter of the nineteenth century. By the 1830s, many of Bewick's qualified apprentices had migrated south in the search for work going on to forge careers in London (Beegan 2008: 50). There were definite 'centres' for knowledge exchange and the movement of skilled workforce was essential for continued transmission of skills and ideas as well as prosperity in the industry. Worms and Baynton-Williams (2011) have studied the apprenticeship systems in map engraving and list lineages of apprentices to each master and subsequent areas of employment. There was a clear cross-over from cartographic engraving to print engraving. It is not clear if this was the case at Spode: were engravers always transferware engravers that stayed at Spode once trained? While there is evidence to suggest that engravers did move from area to area and pottery to pottery,[67] the archive at Spode has not enabled an evaluation. In the anterior transferware period, engravers and their apprentices are known to have moved around and this allowed Spode to gain engravers in the first instance. Further research is needed to determine the effect on the engraving department at Spode through workforce (engravers and apprentices) migration. Of the engravers interviewed, Holdway and Furbur began their engraving journey at other factories. Heath also trained and worked at other factories prior

[64] Wood-engraver; see engravers' interview appendix for further details, page 10.
[65] Gemma Willett in the 1990s and Kelli Nancarrow 2002/3.
[66] Thomas Bewick; English engraver, 1753 – 1828.
[67] Thomas Minton and Thomas Rothwell are two documented cases of an engraver moving from specific geographical locations and potteries.

to working at Spode. On this evidence, movement in the workforce at early career stage may have been unexceptional. This allowed for the distribution of technique, skills, stylistic nuances and craft knowledge within the transferware industry.

The evidence in the copper-plate archive and the engravers' interviews both hold the key to understanding apprenticeship as there are no surviving written records at Spode. The "richness of what emerges" (Gillham 2000) from an interview can be used to add insight into theory-based research. The observations gained from the people who were actually at Spode, with their embodied knowledge and shared experiences over potentially decades, was not possible to examine by any other means. The consistency of their testimony makes it convincing.

Chapter Two Highlight:

Personal ‘apprenticeship’

The notion of tacit knowledge is often invoked to explain the acquisition of craft skills. This research offered me the chance to experience personally what is taking place in acquiring engraving skills.

Fig. 2.35. Me beginning my ‘apprenticeship’, 2015.

Approximately three months into the ‘Process Documentation’ work with Heath, I began an ‘apprenticeship’ in the manner of apprentice engravers in the past. I approached this with a mix of nervousness and excitement. On this particular occasion, the first part of the day was spent with me recording Heath engraving and I stood in awe of his skills and achievements. It was then I was told; “It’s your turn now boy!” I sat in his chair and surveyed all the tools that adorned his bench; the gravers, the punches, the burnisher, the boss, the scraper and the oil stone (Crosby 1805: 139). While this was not the first time I had seen them, they suddenly seemed less familiar and slightly more alien. Sitting at the workstation is very different from being an observer. Everything that the engraver needs is carefully laid out in close proximity (Fig. 2.35). Dant (2005: 87) calls this ‘readiness-to-hand'. I looked at the tools wondering what each does, how to use them and which to use for a specific task. Heath's 'readiness-to-hand' is something that is starkly and obviously missing from me as I sit at the workstation for the first time. I was very conscious of not making a fool of myself, especially being looked over by an excellent and skilled engraver and one who had become a friend. Suddenly, the relationship that had developed over the previous year took on a different aspect.

Heath tried to make me feel at ease with the unusual situation. It felt very odd starting this process; one that I have been interested in for over twenty years. The first thing I noticed was the height of the bench. I had been told by engravers that the bench was high relative to the sitting position to prevent back problems, and I had seen this at the two engraving shops at Spode.[68] Lane (2005: 49) mentions that engravers often suffered with bad backs and kidneys from their working positions. It is not until you actually sit there that this becomes apparent. It felt extremely awkward. The high bench was also to position oneself closer to the 'bed' of the work and with a better light.

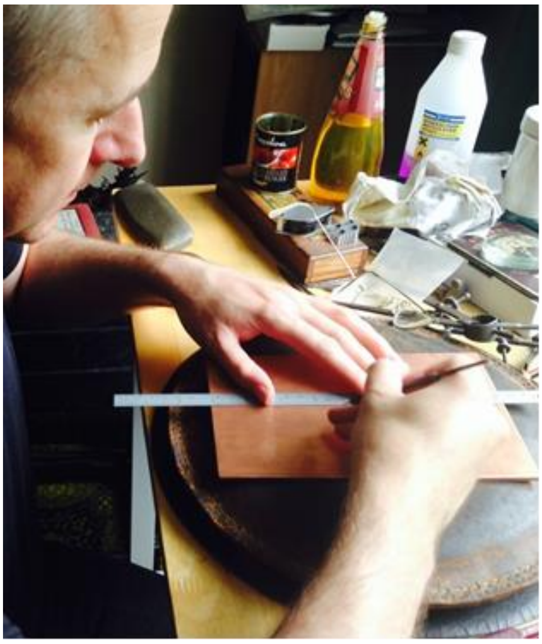


Fig. 2.36. Me laying out my apprentice plate in 2015.

As with apprentices in the past, my first job was to draw up a series of squares in which to engrave (Fig. 2.36.). Heath told me to mark ¾" squares with ¼" gaps between them. This

[68] See Chapter Four Highlight for further details.

was done with the aid of a steel rule and a needle-graver. I was apprehensive about getting started.[69] I was concerned about Heath's tools, and ruining a perfectly good and previously-unused piece of copper. Luckily, Heath did not stand over me, but instead, retired to the comfort of an arm chair at the back of the room. I began. The needle must be pulled and not pushed otherwise it digs in. This is something that I did naturally and Heath was impressed as he said often apprentices do it the wrong way, and this immediately made me feel better.

The next step was to engrave straight lines, cutting V-shaped cut grooves (Friends of Blue 1998: 13) within the boundaries of the square. Heath sat at the bench and showed me his favourite graver and told me how to hold it. He handed me the graver and I followed his instructions. It fitted my hand smoothly, a natural fit. Heath had already told me that this was his favourite graver and that it was "as old as the hills". While I knew I would not break it, I still felt a huge sense of privilege to be holding this graver and being entrusted to use it. Perhaps apprentices of the past were spared the inhibitions that come from such reverence.

Heath engraved the first line, which looked effortless and was as straight as a die. He jumped up and thrust the graver into my hand and said; "it's as easy as that". I sat back down and paused for a few seconds trying to process the information. I didn't want to damage the graver or ruin either the plate or the squares I had laid out. I asked if I could have a practice on the edge and Heath agreed (Fig. 2.37-2.38.).

[69] Further evidence of Sennett's 'resistances'.

Fig. 2.37 and Fig. 2.38. Me cutting lines during my ‘apprenticeship’. 2015.

Having read (Drakard & Holdway 1983 [2002]) about the use of the graver and having heard about it from numerous engravers I knew that, the angle of attack is essential. I placed the graver on the plate and pushed it into the surface and began to make a line. The graver dug in and it was extremely hard. Heath let me find my own way for a moment or so before telling me that the graver angle was too steep. He said to lower it and that I should feel through my hand and ears what the copper wanted me to do. I lowered the graver by pivoting my wrist downwards very slightly and all of a sudden, it began to glide through the surface of the copper. This may not have been my greatest achievement in life, but it suddenly felt so satisfying. The next issue in my mind was that if the angle was too shallow, the graver would skid across the surface of the copper-plate, damaging it and then sticking into the hand that was ‘controlling’ the plate. As a result, I initially went too far the other way.

The graver’s angle needed lots of subtle adjustment to keep this smooth feel going as it cuts a line through the surface. Something else that had not been wholly obvious was the creation of the fine, copper curl that was at the head of the graver which had been removed in the cutting process. I got to the end of my first line and my instinct was to brush this out of the way with the flick of my hand. It was still attached to the end of the freshly-cut line. Heath shouted; “No!” He said that every apprentice when they first start goes home covered in cuts from doing exactly what I had tried to do. This should be removed with a firm upwards flick of the graver when the end of the line is finished. Heath made it look so easy, but I really struggled with this process as I was afraid of damaging Heath's graver.

I was now ready to start my first line within the ¾" box. Heath handed me the magnifying glass and said it would be far easier to use that than to rely solely on my eyes. I wanted to resist this, as I now felt like I needed an extra pair of hands. My right hand was using the graver and my left hand now had to hold both the plate and the magnifying glass. This was tricky at first. Dant (2005: 89) writes:

> 'Material interaction' depends on the socially acquired human skills for recognising in the form of things what can be done next with them. These skills are acquired through the culture but they are also embedded in the objects with which we deal.

Lacking the culture, I had resort to the objects. Instinctively, I held the magnifying glass close to the plate rather than to my eye. Heath said to change this around and when it was placed near to my eye, it made a huge difference. I looked through my right eye and closed the left. After a few lines, my closed eye became blurry. Heath said to not close it and to look only through the right eye, but with the left still open. This seemed impossible, but Heath was right and this soon became easy to do.

The angle of engraving in relation to the engraver and plate are one that I had not considered until this time. Should one engrave horizontally to your position or perpendicular? Somewhere in between seemed about right. I checked with Heath and he said that one should engrave at an angle away from you, maybe 45º, from right to left.[70]

After what seemed like minutes, but was probably more like an hour, I finished my first square (Fig. 2.39.). The lines ran out slightly and there was a little curve, I was proud of what I had achieved. I very nervously reported that I had finished and Heath came over to inspect. He said it was pretty good and asked if I had done this before. Perhaps this was motivated by kindness.

[70] For a right-handed engraver.

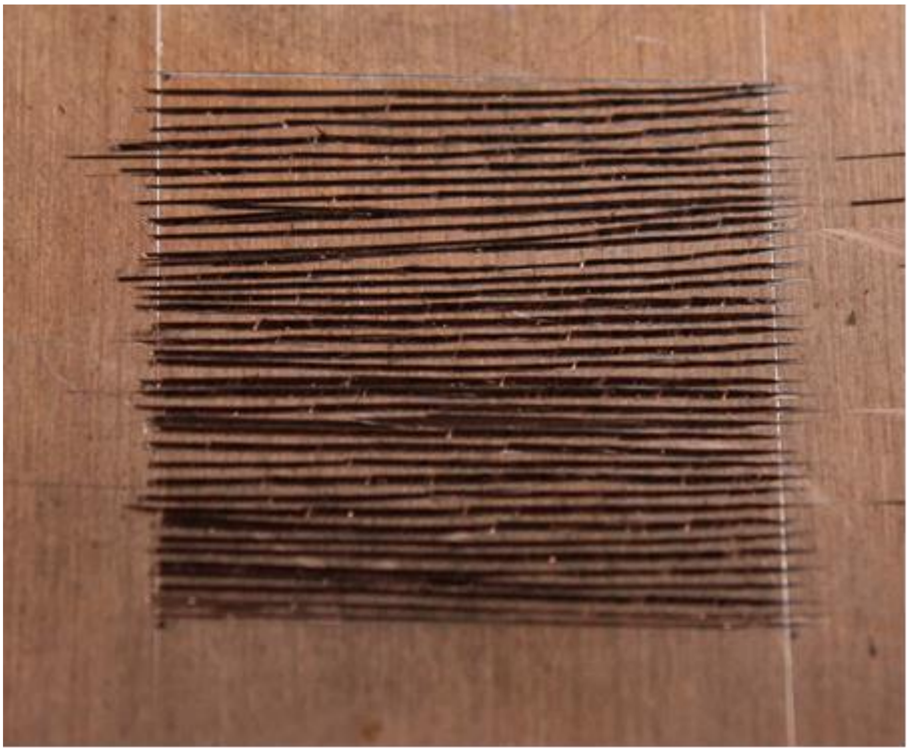


Fig. 2.39. A close-up of graver-cut lines during my apprenticeship. 2015.

In cutting these lines, the feel of the copper and the angle of the graver in relation to the plate were crucial. I cannot put into words what it actually felt like when it was ‘right’. The graver moved so beautifully, cutting a line in the copper. I suddenly felt so connected to Heath and his skills and all the other engravers that had so expertly undertaken this task in the two hundred and fifty years before me. It is not like a ‘hot knife through butter’, but it is similar. Another aspect I was not aware of was the sound. Although quiet and sometimes indiscernible, when the graver was cutting effectively, it produced a distinctive sound. This was almost like the purring a cat would make. It added to the overall ‘feel’ of the experience and was as if these inanimate objects were talking in agreement about the work that was being done.

My next task was to try ‘cross-hatching’ (Drakard & Holdway 1983 [2002]: 46). This was a technique of crossing graver lines at ninety degrees that ultimately gave a stronger weight of colour to the finished ware (Smith 2005: 7). The plate was turned by ninety degrees and the graver lines were repeated. This step was difficult to do, especially for a total novice like me. The graver would stop and start because it was passing from copper into the hole created by the previously-engraved line. When the graver ‘fell’ into one of the ‘holes’ it would cause it to pitch forward in my inexperienced hands, altering the angle of attack.

The altered height of the graver was now too steep, and caused it to dig in and not glide. It was extremely difficult to get the ‘feel’ when cross-hatching. Once achieved, the accompanying sound was rather like a train travelling along a track – duh, duh…duh, duh (Fig. 2.40.).

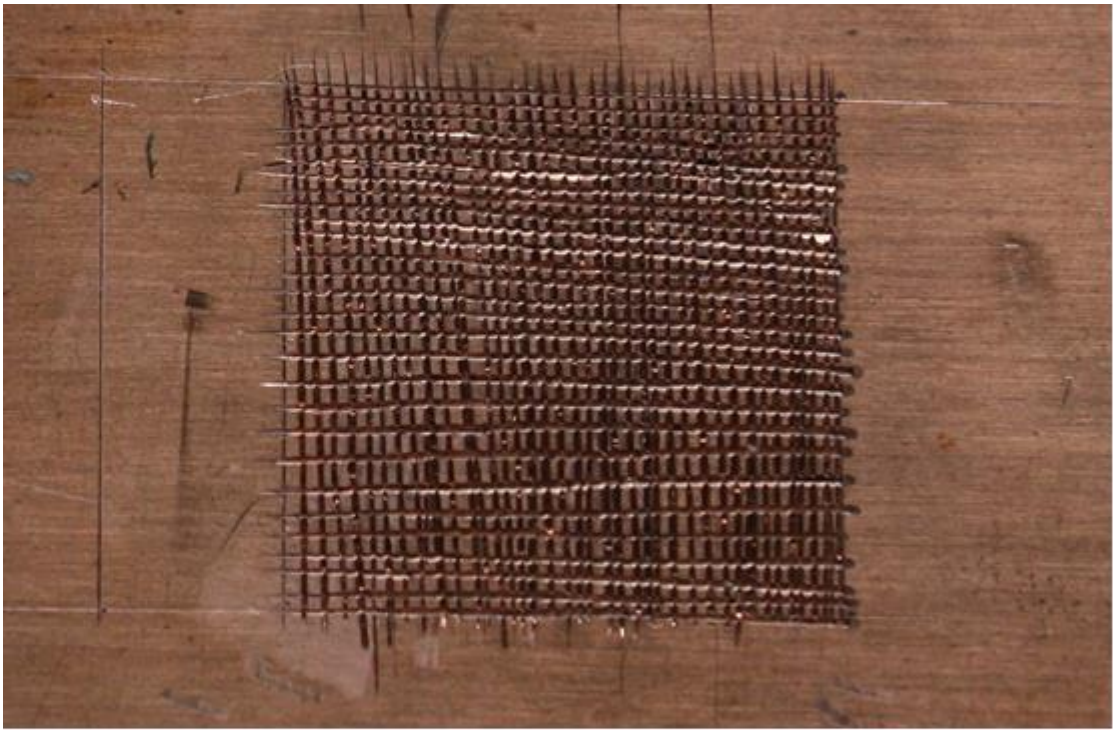


Fig. 2.40. A close-up of cross-hatching during my apprenticeship. 2015.

The next lesson was to try a piece of actual engraving. An apprentice would not do this for at least six to eighteen months according to Heath. The first thing to learn before attempting this was cutting curves. Heath sat back down at the engraving bench and showed me. Contrary to the previous instruction, the left hand (or non-graver hand) went in front of the graver at the end of the plate. The graver was pushed in a straight line, but the plate was turned to create the curve. Heath said; “let the plate do the work”. The graver and direction of ‘push’ should remain straight and in one direction and the plate should turn. As usual, Heath made this look effortless and this daunted me more than anything else I had tried. It was very difficult to do as it seemed much more instinctive to turn the graver instead. When one is drawing or writing, the work remains largely stationary and the instrument is manipulated, but not in this case. It was tough. I cannot say that I got the hang of this at all.

Heath transferred a colour pull that had been used previously in his work to my 'apprentice' copper-plate. This was done by painting size on to the plate and allowing it to dry. The pull was then placed on the tacky size and burnished on using the handle of the punching hammer over a piece of tracing paper. Heath said to work out from the centre so not to rub off the outline of the work and to turn the plate at all times to create the curves rather than to turn the graver. I began to follow the design on the plate. After what seemed like an eternity, I had finished. It was clear afterwards and during that I was not turning the plate well and was turning the graver instead. This created uneven lines that were very crude and varied in depth and width. I was also very conscious of the graver angle becoming too shallow and skipping out across the plate. This would have a visible consequence on a real piece as this 'mistake' would be translated to the final ware. The only way to correct this would be to 'knock-up' from the back (or underside of the plate) and planish flat again. Heath inspected the work and was not as complementary as he had been before, simply saying; "it doesn't really flow" (Fig. 2.41.).

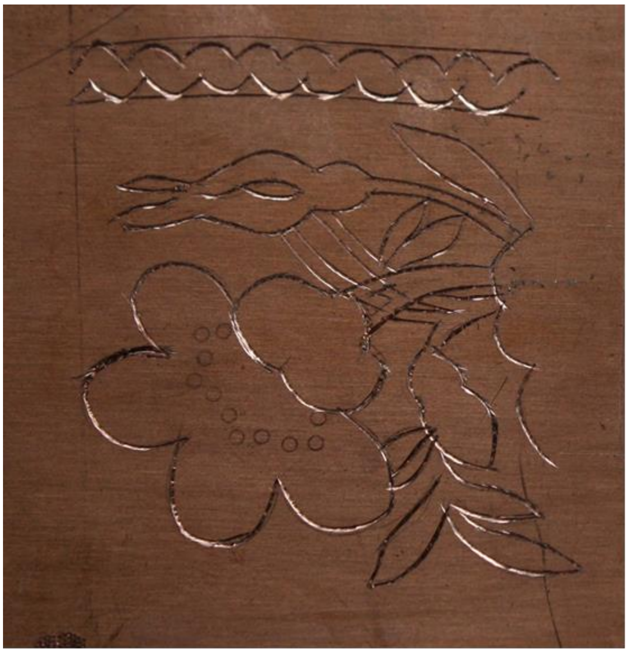


Fig. 2.41. A close-up of engraved detail during my apprenticeship. 2015.

Although I didn't really need this reaffirming, it was at this point that I was reminded of how skilled engraving is. People's perception of engraving as only 'a reproductive art' (Fyfe 1985: 403), while partly true, simply do not appreciate this.

The next skill that I would try was punching. This is done with the aid of a punch (which come in various sizes and shapes of head), a punching hammer and a magnifying glass on a fixed stand (Fig. 2.42).

Fig. 2.42. Bill Heath punching, 2015.

Heath again took up his place at the engraving bench. He first set up his magnifying glass on a stand. This could not be held in one's hand, as one hand holds the punch and the other holds the hammer. Heath said to hold the hammer near the end of the handle between finger and thumb and to use only your wrist to move it up and down. (This goes against all previous hammer-use experience where the pivot comes from the elbow). The punch is held between the first two fingers and the thumb and the other two fingers are used for balance, but either curled up or held straight to allow for a good amount of light to get to the punch's head. Heath's next instruction was to not look at the where the hammer hits the top of the punch, but instead to look at where the punch meets the surface of the copper. He said this is a common mistake of apprentices.

Heath quickly punched along one of the lines that I had marked out on one of my ¾" boxes. He stopped and said; "crap!" I looked at it and it seemed perfect (Fig. 2.43). This filled me with dread, knowing that my efforts could come nowhere near to Heath's 'crap' effort. While there were subtle instructions taking place, much of my 'learning' was through observation; I was watching very carefully what Heath did and unpacking it in my own mind, deciding how I would try and replicate what was taking place. At the time, I was very aware that very little oral instruction was taking place and was very conscious of the knowledge transmission being visual and observational. It is such an alien way of learning, to me anyway: watch this in near silence and try and take in all the subtlety of the skill and then replicate it best as you can.

Fig. 2.43. A close-up of Bill Heath punching, 2015.

I sat down at the bench and familiarised myself with the tools. The hammer was beautifully balanced and so tactilely engaging. The handle was thin and there was a very discernible indent where the finger and thumb of an engraver had held it over many generations. This gave me an immediate sense of connection to previous engravers and made me wonder who had owned and used it previously and what engravings had been created with this very hammer.

It was difficult to co-ordinate the moving of the punch, the pivoting of the hammer and not looking at the top of the punch while trying to punch in a straight line. Heath seemed more concerned about only looking at the point of the punch than the actual resultant punching. My punching was not too bad, but as expected, fell a long way short of Heath's 'crap' punching (Fig. 2.44.).[71] It was also very difficult to master pivoting the hammer with the

[71] Heath's line of punching is the left hand-line in Fig. 2.44, mine are the next four lines to the right.

wrist, and getting everything working in harmony was like rubbing your tummy and patting your head at the same time. The strength of the hit from the hammer determines the depth of the hole the punch makes, and consequently, the strength of colour on the final ceramic ware. Getting the punched holes even is not an easy task. The task of learning new skills is not easy, especially ones that seem counter-intuitive, but through repetition and reflection, repetition and time, they become ingrained. Herbert (2009: 9) makes reference to "habitual motor skills" being a key way in which actions are absorbed by a training practitioner.

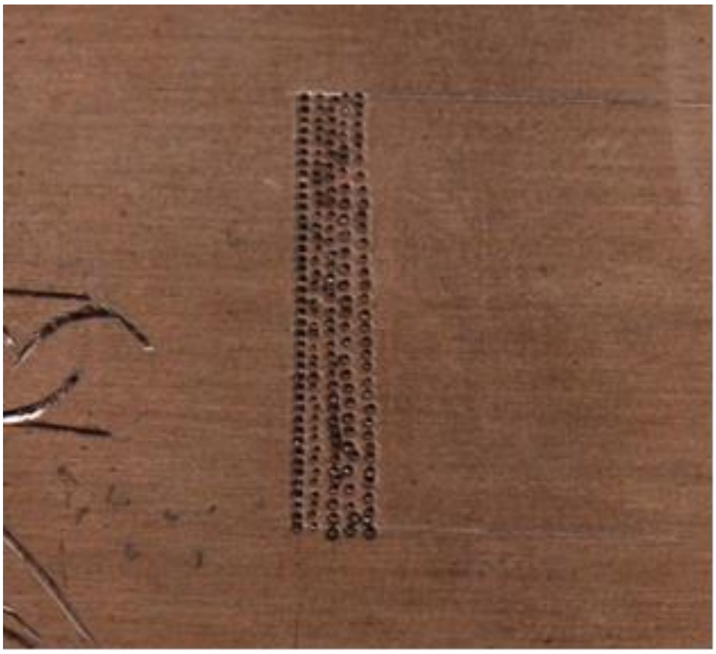


Fig. 2.44. A close-up of punching, 2015.

The physicality of engraving was something that I had not considered before starting this process; my hands were sore, especially the tip of my right index finger which rests on the shank of the graver and guides it through the cut. I had no cuts to my fingers or hands from trying to brush copper cuttings from the graver-cut lines, but it was difficult to stop oneself from doing this. My back ached from the unusual position of the bench and I noticed considerable eye strain.

While this practical research was not carried out in a factory with a team of engravers around me, or under the conditions that an apprentice would have been faced with over a long period of time, it gave significant insight into the methods and techniques experienced.

Fig. 2.45. A graver and scraper on my apprentice plate, 2015.

Even though this was in Heath's house and not the factory, another observation that occurred to me the very first time I stepped into this environment was the sensory overload. This was on many levels; the sights, the sounds, the smells, the closeness with the people involved; the sense of being part of something creative and on the brink of learning new skills. The sights included all the 'new' (to me) tools, techniques, processes and the sense of exploration.

The sounds include the noise of the copper being cut by the graver. As subtle as this is, it is a very particular sound that has been heard for hundreds of years and signifies engraving taking place. The noise of the punching is rhythmical and has a mechanical repetition. Although I had not had the opportunity to hear a whole workshop of engravers punching, this must have been quite something and almost haunting.[72] The smells are also distinctive; the bee's wax and tallow, the oils, the colours, the powders, the size and even the smell of the workshop.

In summary, the practical experience enabled me to bridge the divide between theory and practice. Sitting at the engraving bench, seeing the world, literally and metaphorically from

[72] I have recorded Heath's punching as part of the 'Process Documentation' (see appendix for further details, page 194) and have three videos recorded at Spode in c.2004 of the engraving shop while work was taking place.

a different perspective makes things more tangible. Reading Dant and Sennett, thinking about how skills are transmitted, the interaction with the tools, the environment, the muscle-memories of skills at work, the embodied knowledge from repetition suddenly became starkly real and evident. Furthermore, working with an established practitioner generates a collaborative knowledge that is often lacking in academic study and contributes to a reimagining of knowledge. This “sense-making draws on specific contextual knowledge that might not be accessible to academic teams” (Facer & Pahl, 2017: 16) and allows a broader and more thorough investigation.

I no longer felt like an outsider looking in as a voyeur with suspicious intent. I felt part of the research, part of what the people I had interviewed did and connected directly with their history.

Chapter Three:

Process of Engraving

How to 'read' a copper-plate:

To read a copper-plate, some familiarity with the tools[73] and techniques of the engravers is necessary. Within the pottery industry, the tools the engraver used for hand-engraved copper-plates were basic and simple. Made in the workshop or acquired, tools could be handed down through successive generations of engravers. Wood commented how he got his engraving tools:

> Mostly made them yourself. Although, there were a lot of them that were handed down, you know, as engravers retired.

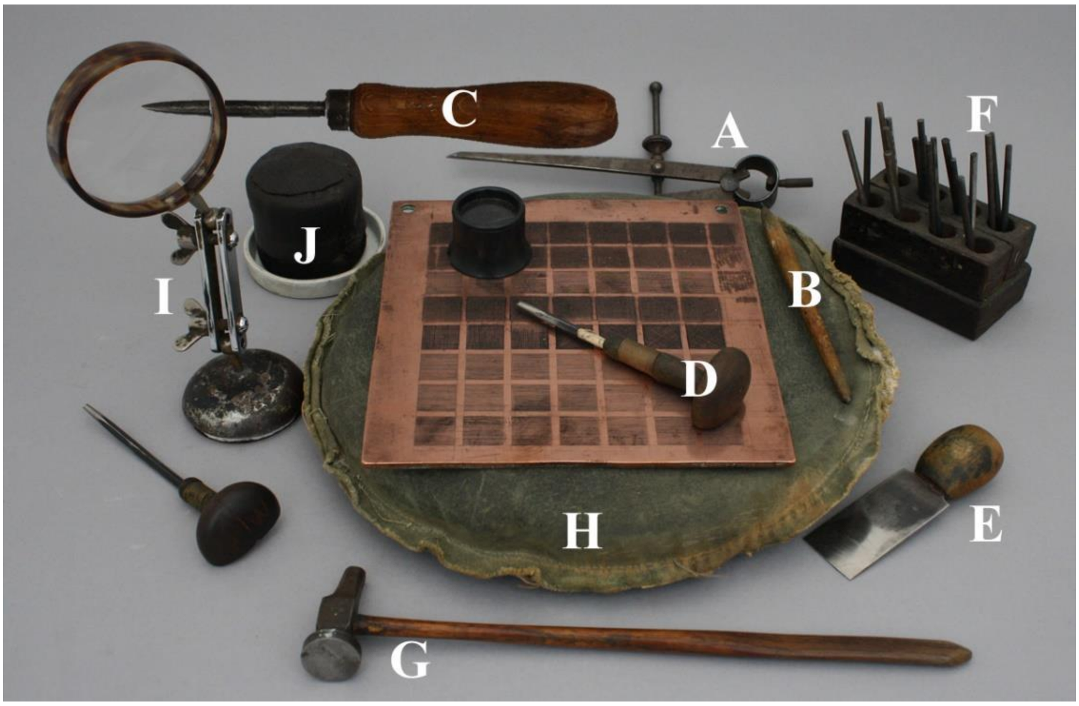


Fig. 3.1. Tools that an engraver in the pottery industry would regularly use.

[73] See 'tools of the engraver' in the appendix for further details, page 175.

The tools of the engraver for transfer printing (Fig. 3.1) can be divided into several categories:

(a) tools for setting out the design (compass/dividers (A), graving needle (B), burnisher (C)),
(b) tools for line engraving (gravers; one or two-line (D) and scraper (E)),
(c) tools for punch engraving (punches (F) and hammer (G)),
(d) tools of the working environment (bench, boss (H), rubber (J), magnifiers (I), supports for roller engraving), and
(e) tools for preparation and repairs (planishing kit, sharpening kit, see Fig 3.28).

A full discussion of these tools can be found in Appendix, page 175.

The main factor that distinguishes the tools of the engraver for transfer printing from other industrial engravers is the limited range of gravers and punches used. The simplicity of the range allowed the engraver to make or modify most of his own tools; a dedicated supplier was not needed. It appears that most transferware engravers used suppliers for the calico printing industry for graver steel and other materials that wore down. This simplicity also supported in-house engraving over the independent engraving shop. Hence the transferware engraver sits somewhere between the industrial arrangement of the specialist engraver for calico printing, and the craftsman arrangement of the silversmith or jeweller.

In terms of ‘reading the copper-plate’, understanding of the tools and procedures of the engraver are applied to visible features. Reading such diagnostic features is a tool of connoisseurship. The tools for the engraver are material objects, but those of the historian apply organising concepts to features of the material evidence. These provide the means by which the copper-plates can be used to reveal evidence for dating and identification, but also for the meaning behind choice of techniques, and the role taken by the engraver. The primary evidence to be found in the Spode archive lies in the copper-plates. To ‘read’ a copper-plate, we will begin with an understanding of its anatomy, remembering that the plate is a three-dimensional object that has a front, a back and edges; all of its surfaces are significant and can inform the ‘reader’ of its history. The next section presents some of the most useful diagnostic features.


Fig. 3.2. and Fig. 3.3. Front and back of a copper-plate, first used, c.1810-15.

Sorting the copper-plate store allowed me to estimate that over three-quarters of the copper-plates in the Spode archive have engravings on both sides. Double-sidedness is even more common among plates engraved before the 1950s, because after that date, plates engraved for the Murray Curvex printing method[74] tend to be one-sided. Fig. 3.2 shows an "Indian Sporting" series plate called "Hunting a Hog Deer", engraved around 1810-15, while the other side of the same copper-plate (Fig. 3.3) is engraved with a stylised border design from about 1850-70. Unusually, in this case, the "Indian Sporting" engraving is still in good condition, but often the earlier engraving is damaged when the opposite side of the plate is prepared to receive the new engraving. Knocking-up with a hammer renders the earlier engraving un-useable, so a decision must be taken that this pattern will not be required again. The tell-tale signs of knocking-up[75] help the reader to understand the 'engraving stratigraphy', that is the chronological ordering of the engraved layers.

Holes:

The majority of copper-plates have a pair of holes drilled in two corners or one if the plate has been cut down (Fig. 3.4.). These were for hanging the plate during 'boiling out'. When a plate has been used for printing, the colour gradually builds up in the engraved-work as not all of the colour is transferred to the tissue paper during the printing process. Over time, the dried colour becomes hard and the plate begins to print less well and this is seen by the prints becoming less well defined and pale. The plates were periodically cleaned by

[74] The Murray Curvex printing method was a mechanised form of pad-printing.
[75] See pages 81-82 in this chapter for further details.

boiling them in a bath of caustic solution for approximately ten minutes and they were then scrubbed out in another bath of water and scouring paste (Vim was a brand used in living memory).

Fig. 3.4. Close-up of a drilled hole in the corner of a c.1820 copper-plate.

The second type of drilled holes in copper-plates within the archive are seen on ‘Murray Curvex’ coppers (Fig. 3.5. and Fig. 3.6.). These are drilled in each of the four corners and are counter-sunk to receive screws that hold the plate firmly in place when it is in use in the Murray Curvex printing machine (Fig. 3.7). They are counter-sunk to prevent the scraper blade of the machine that removes the excess colour from the plate from coming into contact with the fixing screws.

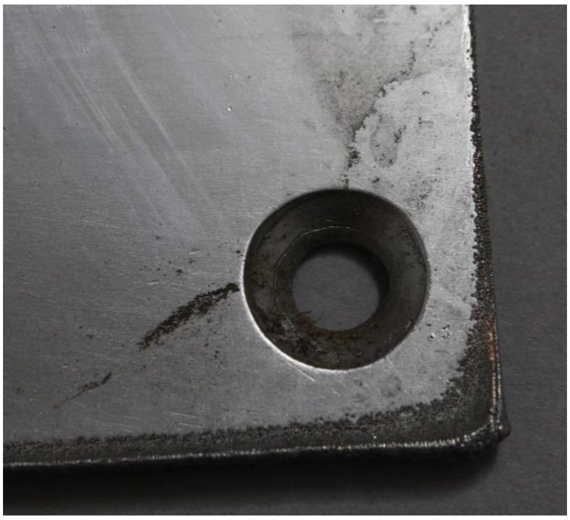


Fig. 3.5. and Fig. 3.6. Murray Cuvex copper-plate, c.1970-90 and close-up of drilled holes.

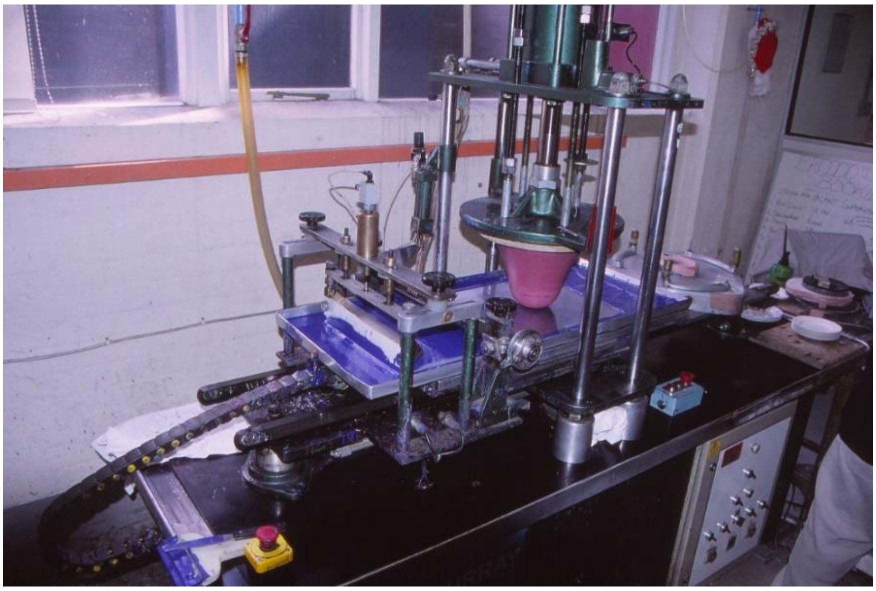


Fig. 3.7. Murray Curvex machine with a copper-plate screwed in place below the pink silicone printing ‘bomb’. CHC.

Coppersmith Impressed Marks:

While only rarely seen, some plates within the archive have the impressed mark of the coppersmith that made the blank copper-plate (Fig. 3.8-3.9). There are three main makers represented within the archive: Whittow, Shoe Lane, London; John Shafe, Whitechapel, London; and John Harlow, Stoke of The Potteries.

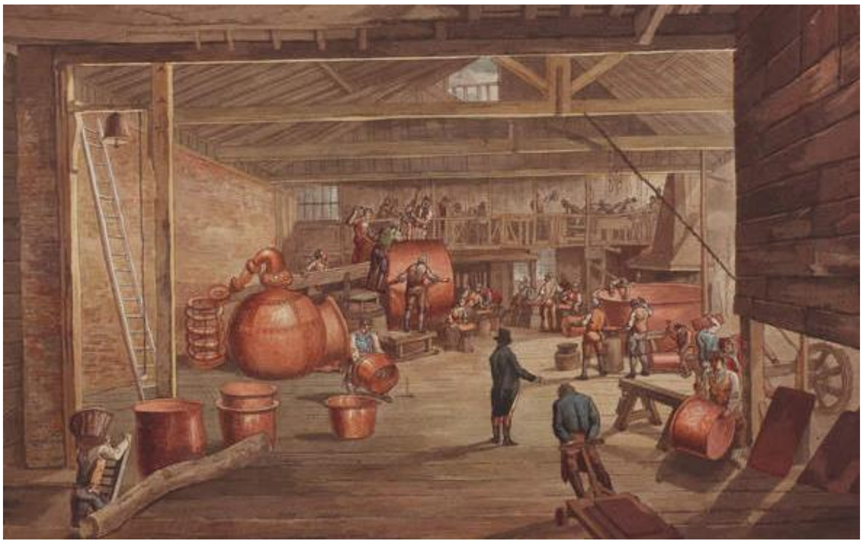


Fig. 3.8. Aquatint of a Shoe Lane coppersmith, c.1806

The various Whittow partnerships operated from 1790 until 1827.[76] John Shafe operated from 1805 until 1844/45. John Harlow worked from 1818, and in 1823 moved to Stoke. These three distinct makers with their three different timescales correlate with the patterns engraved upon the plates in terms of primary introduction dates. On rare occasions, these impressed marks can be used to assess a specific pattern's introduction date.

Fig. 3.9. Close-up of coppersmith impressed mark, c.1805-08.

The rarity of coppersmiths' marks stems from the manner of supply in a large sheet. Wood in his interview confirms that:

> In the old days, first of all, all copper came as a large sheet. You are talking about, err, I could just about carry one as a lad, so you are looking at your arm down, so about three feet by four feet.

The copper sheet would only have one impressed mark and was then cut up into as many as ten or more pieces to be used for a variety of engravings. This means that only one in ten copper-plates might initially have a coppersmith's mark. Many of these presumably succumbed to planishing out, whether on arrival at the factory, or for specific engraving requirements. Based on the archive, the coppersmiths' marks are far less common than one in ten.

Doodles:

So-called doodles on the reverse of copper-plates or occasionally to the side of an engraved work, can be seen in some of the examples within the archive. It is entirely plausible that

[76] See: https://theprintshopwindow.com/2016/01/06/for-sale-rare-eighteenth-century-engravers-copperplate/

these were ‘workings-out’ or practice marks by an engraver before starting work on the main engraving. They could have also been made by apprentices who were practicing, but this seems less likely as the doodles tend to be related to the work on the main side and are small and limited in their extent.

Fig. 3.10. and Fig. 3.11. Front and back of an “Aesop’s Fables” copper-plate, c.1830.

Fig. 3.10. and Fig. 3.11. show the front and back of a Spode “Aesop’s Fables” copper-plate: “The Fox and the Lion”, c.1830. The back does not have another engraving, but instead, it has a series of practice marks made by the engraver that clearly relate to elements seen on the main production engraving (Fig. 3.12-3.13).

Fig. 3.12 Doodles on back, and Fig. 3.13 engraving on front.

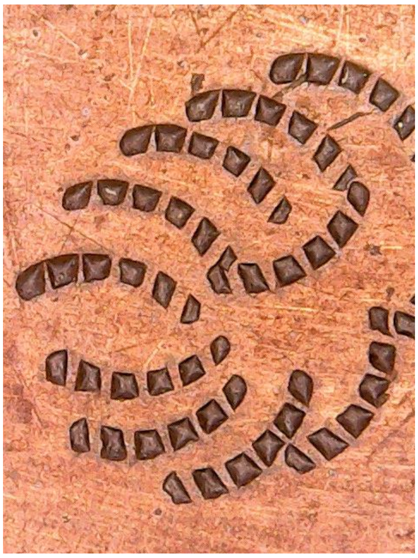
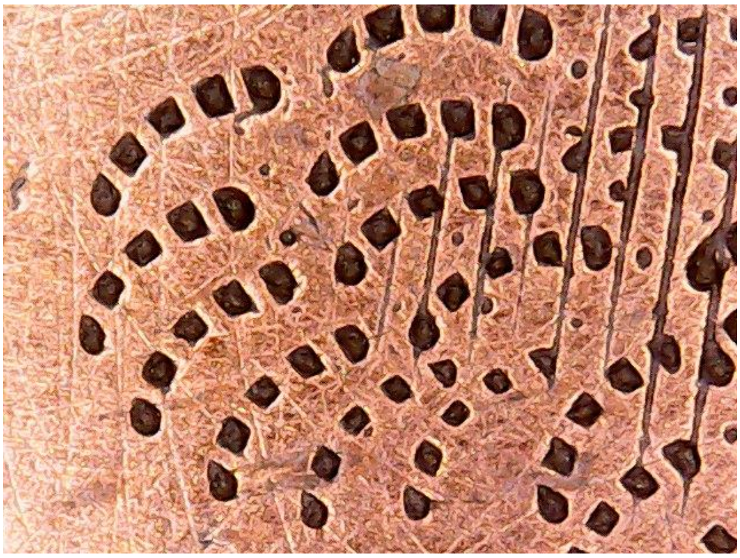



Fig. 3.14. and Fig. 3.15. Magnification of 'doodles' in Fig. 3.12 and Fig. 3.13.

Looking at these punched marks at 800x magnification allows a clearer appreciation of their similarity, both showing atypical squared rather than circular punching. The magnified doodle is seen to the left (Fig. 3.14) and the production punching is to the right (Fig. 3.15).

Engraved Surface: Techniques

Fig. 3.16. Close-up of an engraving, c.1815-20.

The finely engraved work to the face of the copper-plate is made up of a wide variety of techniques in the form of cuts or impressions on the surface (Fig. 3.16.). These are typically created with the use of a graver or a punch or sometimes, a combination of the two.

Line-engraving:


Fig. 3.17. and Fig. 3.18. Close-ups of line-engraving, c.1790-1800.

Fig. 3.17. and Fig. 3.18. show two examples of line-work; this style of work is created with a graver.

Fig. 3.19. Trevor Durose cutting an area of line-work: note the position of hands, graver, loupe and eye. CHC.

Cross-hatching:

The purpose of this technique was to create an area of rich, bold colour when translated to the finished ware. The removal of a lot of copper meant that much more colour would be held in the engraving and thus the print too. When transferred, glazed and fired, it created an area of even tonal value that could extend over a large area. The remaining copper in between the cross-hatched lines acted to support the scraper blade when the excess colour was removed from the engraving by the printer. If these 'high-points' of copper were not left, the scraper blade would fall into the engraving and remove too much colour.

Fig. 3.20. and Fig. 3.21. Close-ups of cross-hatching, c.1795-1806.

Fig. 3.20 and 3.21 show close-ups of cross-hatched areas in two engravings, respectively: "Temple Landscape II", c.1800-10, and "The Horse Race", c.1806. A double-bladed graver could engrave two lines at once, speeding up the cross-hatch process (Fig. 3.22).

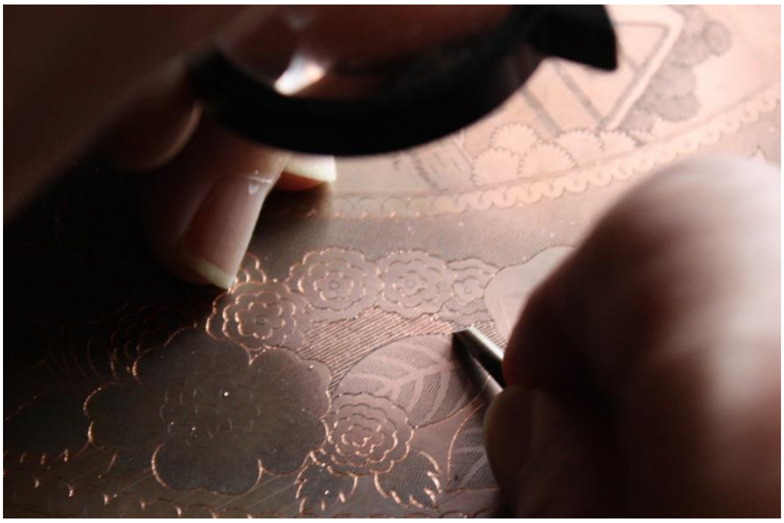


Fig. 3.22. A two-line graver being used to cut an area of cross-hatching. 2016.

Punching:

Punching is one of the two key methods of transferware engraving, used to create tonality, soft masses or texture. Fig. 3.23 and 3.24 show typical punched work.

Fig. 3.23 Punching in "Blue Rose", c.1825, and Fig. 3.24 Punching in "Willow", c.1810.

In punching, the engraver holds the hammer between his thumb and forefinger with a slight degree of support from the next two fingers. The pivoting action comes solely from the wrist rather than the more instinctive and natural pivoting at the elbow. It is a delicate, but positive action that comes partly from the body of the engraver, but also from the weight of the hammer. This aids the evenness of punching. See Fig. 3.25.

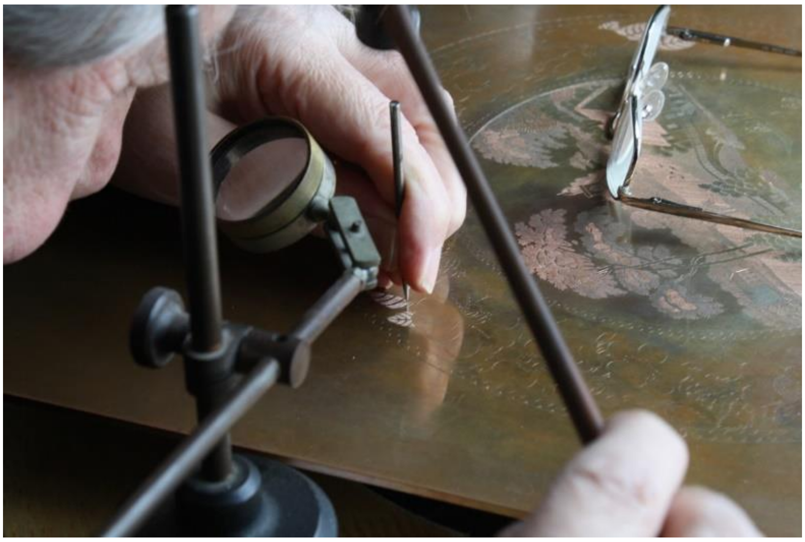


Fig. 3.25. Heath using the hammer and punch to create an area of punching. 2016.

Fig. 3.26. Punching from "Country Scene" copper-plate, c.1815.

In punched work, each of the dots is created individually with a single tap from the hammer onto the head of the punch. This allows the creation of softly-modulated tonality in the finished ware, avoiding any mechanical evenness. While all marks on the copper create tone, punching affords the engraver the ability to create an area of similar tone with a paler effect, as opposed to cross-hatching which creates a darker effect. Punching also permits the capacity to further change the tone by altering the gauge[77] of the dots, and the diameter of the punch.

These are the three main techniques employed by the Spode engraver; they can also be used in combination, as seen in Fig. 3.27.

[77] Gauge is the distance between engraved features.

Fig. 3.27 Combined techniques in "Forest Landscape", c.1800-10.

Line-work is sometimes added to sections of punched-work to add tonal shapes, suggest shadows or to create interest (Fig. 3.27).

'Knocking-up':

Drakard and Holdway (1983 [2002]: 44) note that:

> Copper-plates, before engraving work can commence must have a perfectly flat, smooth and polished surface. New copper-plates are normally supplied ready faced by the coppersmiths, but the engraver uses all three processes of burnishing, knocking up and planishing in his repair work to remove unwanted engraving or scars and cuts put in to existing plates by rough handling in the printing shop.

The term 'knocking up' refers to a step in preparing one surface of the plate for engraving. This is commonly associated with preparing a plate that has already been used and has been engraved on one side previously. Copeland (1980 [1993]: 8) reports:

> [...] sets of engravings were bought by successful potters from others selling up their businesses, and sometimes such engraved patterns were continued. More often the copper-plates were knocked up – the backs were levelled by hammering the engraved face of the plate – and then planished smooth to take a new design. The Spode collection of engravings includes hundreds of such copper-plates […]

Imperfections and low areas on the 'new' side of the plate are hammered level from the reverse and planished (rubbed down) to make the surface flat to receive a new engraving. The area that needs attention is first marked with a caliper (compass with inward-facing points). This is lightly struck with a hammer to mark where the knocking up is to occur Fig. 3.28).

Fig. 3.28. Tools used for knocking-up and planishing, c.1980. CHC.

The plate is then placed on an anvil or flat steel plate and struck with a hammer until the desired amount of material has been lifted in order to create a smooth, flat surface. The newly-raised area is planished flat using water and a polishing[78] stone. The knocked-up side is left with characteristic marks (Fig. 3.29).

[78] Polishing stones are known as 'planishing stones' in the industry.

Fig. 3.29. Knocked-up area, showing hammer marks as tightly-grouped indentations.

Pattern Title Marks

Pattern title marks (Fig. 3.30) are sometimes seen on the face of the copper-plate engraved next to the main design. These were designed to describe the series or scene.

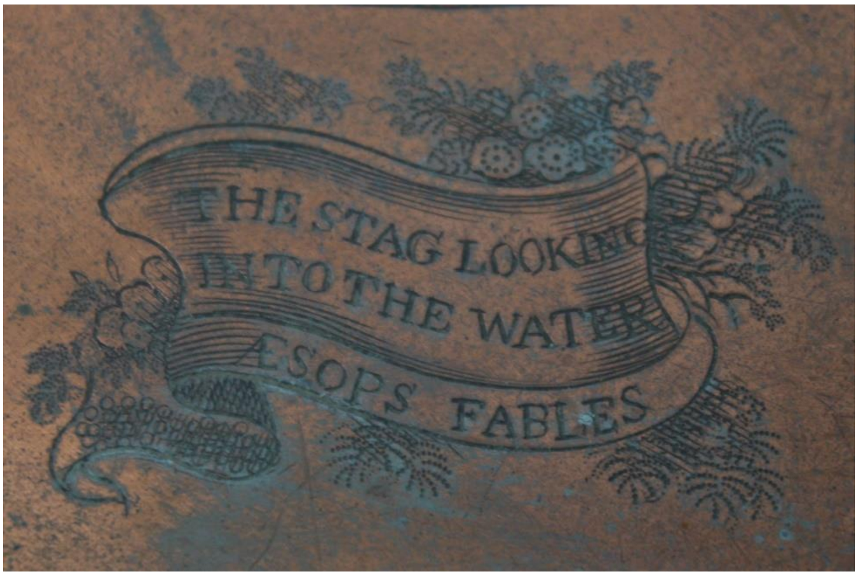


Fig. 3.30. Title mark with pattern and series title.

Engraved alongside the pattern, they would be printed on the same tissue pull as the main pattern, cut off and transferred to the underside of the ware. Hence, they are also referred to as 'back stamps'. In their early productions,[79] Spode seldom used title marks.

[79] The earliest title marks were used in the "Indian Sporting" series, c.1810-15.

Manufacturer's Marks:

As with title marks, some copper-plates have a manufacturer's mark as part of the engraved work. This is printed along with the main pattern, and applied onto the reverse of the ware. The archive evidences a large variety of marks that cover the different partnerships and names the factory traded under, and variations on these. An example of one is shown below (Fig. 3.31).

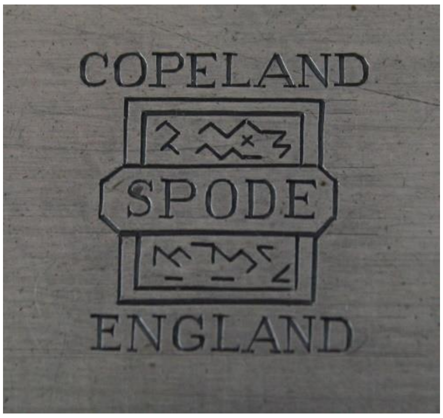


Fig. 3.31. Close-up of an engraved manufacturer's mark, c.1920-57.

Plate Surface:

There is a great variety in overall appearance of the plates in the archive. Some are dull and corroded and others are bright and highly-reflective. The biggest difference is in surface colour. Some are clearly made of copper and have the typical warm brown copper colour and slightly matte appearance (Fig. 3.32). Others are silver-grey and often reflective (Fig. 3.33). These have been coated in chrome, nickel, steel or even iron by electroplating.

Fig. 3.32. Partly oxidised copper, c.1830, and Fig. 3.33 Metal-plated copper, c.1890.

Copper is a relatively soft metal and repeated printing, over time, wears the engraving. The harder metal coating protects the surface. It is only one or two microns thick so as not to affect the way the engraving prints. The plating considerably prolongs the life of the engraving, by a factor of ten or more.

Corners:

A copper-plate starts life with square corners when it is delivered to the factory from the coppersmith or when cut down from the original large sheet. The plates that are found in the archive, especially those pre-Murray Curvex almost all have either fully rounded corners or a degree of corner-rounding. On first inspection, it could be speculated that this was to make the plates easier and more ergonomic for use by the printing team and indeed by the engraver when the plate was first worked. However, this corner-rounding is caused by use. Every time the plate is taken from the copper-plate store to the printing area and each time it is cleaned, it is subject to rough handling. The copper-plate, especially the edges and corners are not handled with any great reverence and the softness of copper leads to the corners taking a rounded profile over years of use.

The degree of rounding can be an indicator for the pattern's (or specific plate's) popularity. As a rough guide, an early plate with little rounding was probably not used much and conversely, an early plate[80] with heavily rounded corners produced many more prints.

[80] 'Early plate' has been used here as they are thinner and tend to show corner-rounding more readily.

Corner evidence can also suggest plate re-use or re-engraving. Looking at the next example, a “Greek” series “Dancing Buffoon” dessert dish engraving, the plate has two square corners and two more obviously rounded corners. This suggests that the plate had another existence prior to the “Greek” engraving (in c.1806), and the plate has been cut down in size. To illustrate this, I have printed both sides of the plate onto paper to show the corners (Fig. 3.34), plate re-sizing and the previous engraving (Fig. 3.35). Printing gave the clearest impression of the feint engraving on the other side of the “Greek” engraving.

Fig. 3.34. “Greek” side of the copper-plate, c.1806

Here we see how corners can signal a plate’s use and re-use. Sometimes, the engraving on the ‘old side’ of the plate is feint and indistinct. This was true in the case of the example shown here, where I was first alerted to the presence of the previous engraving by the differing corners on the plate.

Fig. 3.35. - “Queen Charlotte” washbowl engraving, c.1795-1800

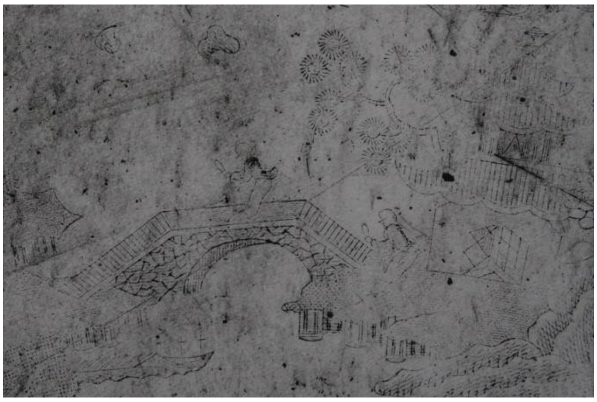


Fig. 3.36-3.37. Details of the “Queen Charlotte” pattern.

Plate thickness and weight:

There is evident variance in the thickness of the copper-plates in the archive when viewed edge-on (Fig. 3.38). Generally, the thinner the plate, the earlier it was first used and conversely, the thicker the plate, the later it was first used.

Fig. 3.38. Copper-plates organised within a pen.

Some of the later (late 20th/early 21st century), Murray Curvex plates can be slightly thicker than a pound coin, while many of the earliest plates are about the thickness of a one-pence piece. Copper-plates that were made to produce the average ten-inch dinner plate[81] were measured in situ (in the copper-plate room) with a micrometer. Analysing chronological periods of Spode's engraving for plate thickness reveals:

- Average (taken from ten, 10" plate coppers) late 18th/early 19th century copper-plate thickness: 1.4mm
- Average (taken from ten, 10" plate coppers) late 19th/early 20th century copper-plate thickness: 2.1mm
- Average (taken from ten, 10" plate coppers) late 20th, early 21st century Murray Curvex copper-plate thickness: 3.9mm

Fig. 3.39-3.40. Micrometer in use.

[81] This is by far the most common type within the archive.

The micrometer can be seen above, in use on a late eighteenth-century plate (Fig. 3.39), and a late twentieth Murray Curvex plate (Fig. 3.40).

In summary, the way in which a copper-plate is 'read' is informed by understanding the interplay between the tools, techniques and the copper-plate leaving diagnostic features. Determining in reverse the tools and procedures used from the extant plate allows an understanding of the engraving and the meaning of this evidence in terms of the engraver's choices. Such features also allow the reading of 'pattern stratigraphy' in seemingly obscure clues such as corners, knocking-up and evidence of re-working. The plate is evidence that allows the viewer to assess who did what, where and why. It is important to recognise that these objects are over two-hundred years old in some cases and have had many generations of workers[82] applying their inputs. It is useful to apply a check-list to the examination of an engraving based diagnostic on features, such as styles, subsidiary marks, re-workings, cutting down, coppersmith marks, size and weight of the plate, colour and quality of the copper. A secure procedure is to look for the most recent phase of use and try to unpack the stages of development working backwards from a definitive state. Engravings studied in conjunction with source-work and ceramic products, when available, allow stronger, more robust analysis.

How to 'read' engraving in a transferware ceramic:

Reading engraving techniques in the ceramic ware is more problematic than in the copper-plates alone. One issue is the type of glaze used on a ware. If lead glazes were used in the production of transferware, the colour[83] would 'soften'[84] or bleed slightly when fired, diminishing the clarity of the engraving. In the earlier periods[85] when lead glazes were current, the interpretation of the engraved-work is more difficult.

[82] Engravers, printers, historians and many others.
[83] 'Colour' is a printing term that describes the cobalt-oxide used to print from the copper-plates.
[84] Softening referrers to an action caused by the lead-glaze which removed the crisp, harsh line around printed elements giving them a softer tonal feel. Some have commented on it making the edges look slightly blurry.
[85] Lead glasses were used from c.1784 and were not replaced with lead-less glasses until 1949.

Fig. 3.41. A Spode "Boy on a Buffalo" ceramic, c.1790-5.

Fig. 3.41 shows a Spode "Boy on a Buffalo" dinner plate, c.1790-5. Some of the technical aspects of the engraving are identifiable, but others are obscure. The glaze is the determining factor in allowing a clear reading. The introduction of reduced-lead glazes and eventually, leadless glazes had the effect upon the printed colour of retaining printed edges during manufacture. This makes understanding the engraving far easier. The period at which the change of glaze occurred has not been established precisely. Changes to glaze composition began in the 1880s with the Prevention of Lead Poisoning Act of 1883, intended to protect factory workers, but it is unclear how widely this was implemented. In 1889, it was declared that no more than 5% standard solubility of lead in a glaze could be used. Copeland (1993: 73) illustrates a printed back stamp mark (no.279) that was introduced and printed on wares around 1910, reading: "COPELAND LEADLESS GLAZE…".[86] But it was not until 1949 that true lead-free glazes were used in the industry. Transfer-printed examples manufactured after 1949 will allow us a comparison between the effects of lead glazes and lead-less glazes upon the finished wares.

Ex-Spode engraver Bill Heath commented disparagingly on how his engraved-work looked when printed with modern glazes. He noted that techniques designed to offer certain tonal

[86] This mark may have been used as a propaganda-type slogan.

and visual effects could not be fully realised with the lead-free glaze. Cross-hatching was intended to offer rich, evenly-toned colour, but with the lead-free glaze the hatching texture remains visible. Cross-hatching and punching appear distinctly different under the two types of glazes (Fig. 3.42-3.45), with lead glazes softening the engraved edges. Ideally, both the copper-plates and ceramic wares should be studied together to understand the intention of the engraver in planning for the effects of glazes and firing.

Fig. 3.42. Solid area of colour in Spode "Italian" pattern border, c.1820. The engraving yields solid tone under the lead glaze disguising the cross-hatching.

Fig. 3.43. The same border section as Fig. 3.42, but from a c.1970 example, where cross-hatching is clearly visible.

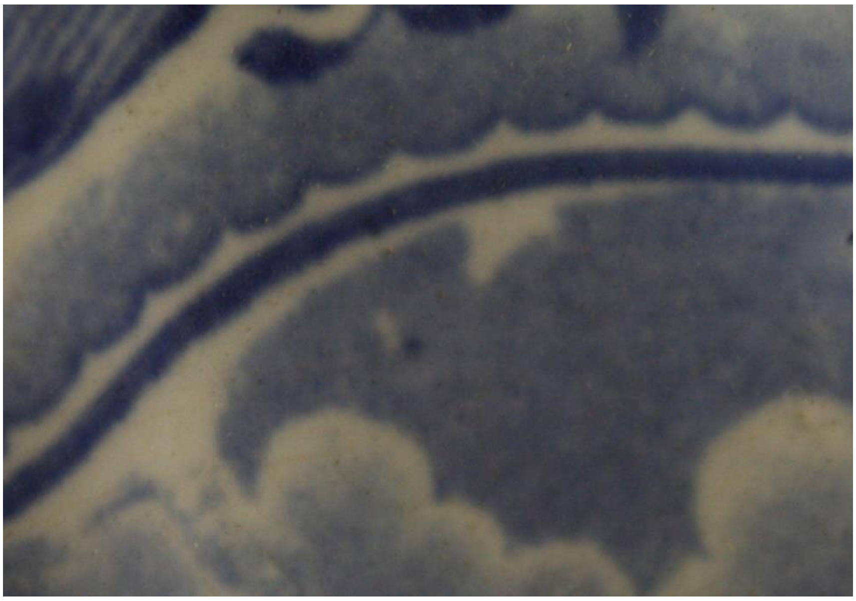


Fig. 3.44. Section of clouds and ‘inner nankin’[87] of a c.1820 Spode “Italian” piece.

[87] Inner Nankin is the inner border section of a transferware design. It usually sits around the central image.

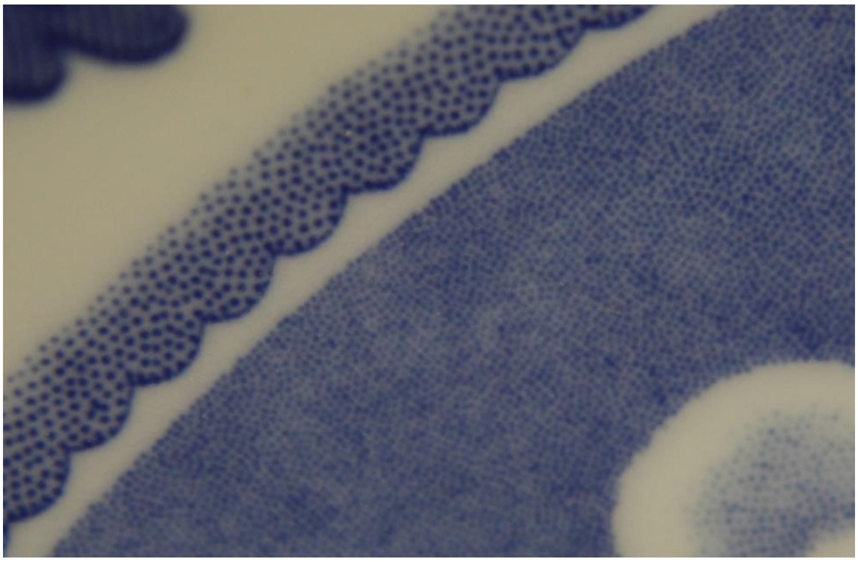


Fig. 3.45. The same area as Fig 3.44 in c.1970 example where the punch engraving is evident.

Studying a Spode "Italian" pattern copper-plate allows the reader to be precise about how the technical details were engraved. Fig. 3.46-3.47 reveals the section of border that is engraved by cross-hatching with a graver. Likewise, Fig 3.48-3.49 Fig. 3.48. illustrates that clouds, sky and inner nankin were punch engraved.

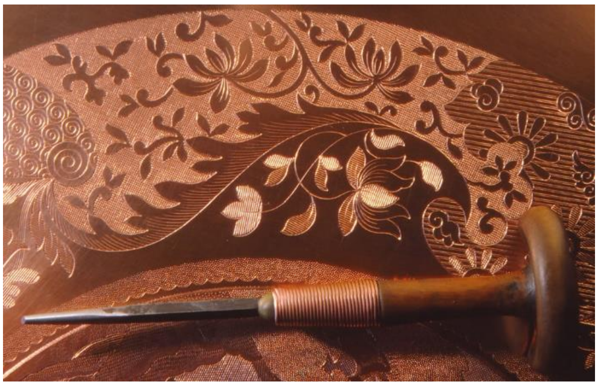


Fig. 3.46. and Fig. 3.47. Close-ups of cross-hatched areas, c.1970-85.

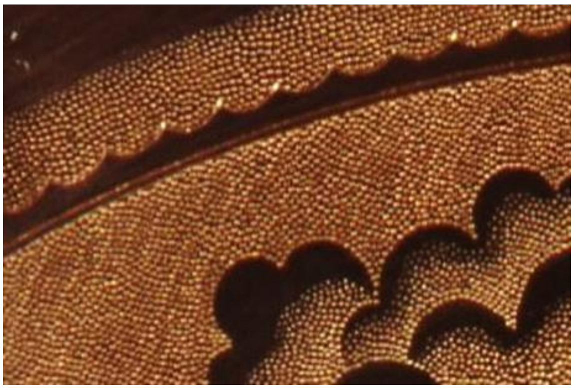



Fig. 3.48. and Fig. 3.49. Close-ups of punched details, c.1970-85.

Another way in which to assess an engraving in the ceramic is in conjunction with the source image, in order to identify what technique was employed to achieve a specific result on the ware. The source holds the key for the translation through the engraving to the ware. In the first period, the intention was to make cheaper, faithful copies of Chinese export wares. The engravers had to work out how to turn lines, and later a combination of lines and dots, into a convincing replica of hand-painted wares.


Fig. 3.50. Chinese export hand-painted saucer, c.1750, and Fig. 3.51. Spode "Two Figures" pattern plate, c.1790.

Looking at the "Two Figures" example (Fig. 3.50-3.51) demonstrates that the engraver has chosen techniques that effectively copy the Chinese ceramic. The use of line-work in the ground beneath the main pagoda in "Two Figures" has produced an area of the same tonal value that achieves an almost identical result to the wash produced by the brush in blue in the Chinese piece. Copeland (1980 [1993]: 21) points out that:

> The quality of any printed reproduction depends on the original from which it is taken. In ceramic printing, it is the standard of the engraving quality which in the first place decides the appearance of the transfer print.

Assessing the success in translation of a printed source is more problematic because of the colour differences.

Fig. 3.52. and Fig. 3.53. “Lucano” source print, c.1755-1805. Spode ceramic. C.1820.

Fig. 3.52 shows a print engraved by George Hackert of *The Bridge of Lucano near Tivoli, and* Fig. 3.53 the Spode “Lucano” pattern centre adapted from this print around 1820. It is shown here in black and white to better compare the Spode engraver’s translation of the source-work. As with the Chinese examples, the source image is competently recreated; the pattern elements are retained, the tonal values are imitated and finer details such as the clouds and mountains are produced using similar techniques to the original. The intention of the engraver as to the degree of replication and how this was undertaken can be further analysed.

Artistic intentions:

Although the early engraving methods for replicating the Chinese wares were successful, Chinese scenes did not require illusory depth, three-dimensionality and subtle tonal-work. Wood remarked in his interview about the Chinese wares:

> If you look at the fashion for Chinese, a lot of the Chinese production was fairly un-subtle; it was lines painted with a brush; strong lines; broad and quite a positive shape. So, if you were reproducing that, you wouldn't necessarily need the subtlety of punching.

As the market changed in the early nineteenth century, European, Mediterranean and Indian scenes came into vogue. The most effective way to replicate the sources for these images (which included depth, dimension and tone) was by using punched stippling. The use of stippling has been debated amongst researchers of transferware: when was it introduced, why and by whom. Probably market-led in its introduction[88], the technique became more effective because of advancements in transfer tissue and cobalt colour production.[89]

Fig. 3.54, Fig. 3.55, Fig. 3.56, and Fig. 3.57. Spode transfer-printed ceramics.

Many wares made after these industrial refinements[90], both Chinese-inspired and Chinese-copied, such as "Flying Pennant" (Fig. 3.54), "Tall Door" (Fig. 3.55), "Queen Charlotte" (Fig. 3.56) and "Rock" (Fig. 3.57) have substantial areas of punching/stippling. But not all the Chinese-inspired or copied designs after this point include punch-work.[91] Some are made up of line-work almost exclusively and beyond the date where punching was in use. So why did they not utilise this new technique? It appears that once punching was added to

[88] Additionally, subsidiary technology-led – see further details in this chapter; "Changing practices over time".
[89] See further details in this chapter; "Changing practices over time".
[90] After the paper development and cobalt refinement - see further details in this chapter; "Changing practices over time".
[91] For example; "Parasol Figure" (c.1825), "Star Flower", "Leaf", "Marble" (c.1821), "Lattice Scroll" (c.1810), "Lyre", "Trophies Etruscan" (c.1825) and "Grasshopper" (c.1813).

the engravers' repertoire, it was a stylistic choice as to whether it was used or not. Therefore, line-engraving, when found used exclusively, is the result of an aesthetic decision driven by fashion rather than an indicator of technical chronology.

Contrast in appearance between artistic intentions:

Fig. 3.58. and Fig. 3.59. Close-ups of "Buddleia", c.1795 and "Indian Sporting", c.1810-15.

An example of two contrasting uses of engraving illustrates the factors behind stylistic choices. A Spode "Buddleia" pattern dish centre, c.1795, has only a small amount of punching around the foliage-elements, while the rest is created with line-work (Fig. 3.58). A Spode "Hunting a Hog Deer" centre, c.1810-15, is engraved with a combination of line and punching techniques where the punchwork is dominant (Fig. 3.59). "Buddleia" appears flat and static whereas "Hunting" has depth and movement. This is in keeping with the subject matter, one aiming at Oriental perspective, and the other at a Western sense of spatial recession. This aspect of dimensionality is not a choice of the engraver, but is determined by the design. To achieve the desired look, "Buddleia" has large areas left un-engraved that will show as white in the ceramic, but "Indian Sporting" has light punching in the ground that will print in a pale shade of blue, rather than the stark contrast of white.

Fig. 3.60. and Fig. 3.61. Close-ups of “Buddleia”, c.1795 and “Indian Sporting”, c.1810-15.

This contrast is easily seen when the engraving is translated to the ware. There is a sharp contrast between the deep blue and white in the “Buddleia” piece (Fig. 3.60), but soft gradation of blues in the “Hunting” piece (Fig. 3.61). The ability to achieve this softness of tonality and smooth gradation is the mark of an accomplished engraver.

Fig. 3.62. Close-up of Henshall’s “Dam and Water Works, Philadelphia”, c.1825.

The earliest wares might be considered ‘blue *or* white’ as the tonal range of blues is so small, whereas pure white is used sparingly in later works where stippled grounds dominate. Fig. 3.62. shows a transferware product, c.1825, by Henshall[92] from the “Fruit and Flower border” series, known as “Dam and Water Works, Philadelphia”. There is comparatively little[93] white here where the copper-plate was left un-engraved. Even the areas that appear white have subtle and fine punching visible on close examination. Heath

[92] Henshall, Longport, Staffordshire; 1790-1828. Pottery manufactory.
[93] When compared with the 18th century, line-engraved wares.

commented during one of the 'Process Documentation'[94] sessions that what is left un-engraved is as important as what is engraved. This signals a change in emphasis engravers' work, from the stencil-like blue/white character of the early works, to the photographic tonal character that became fashionable later.

Changing practices over time:

The literature implies that transferware printing has seen little change, especially the engraving process (Neale 2005: 10; Little 1969: 18). The initial developments and advancements in engraving in the transferware industry were led by parallel advances in other branches of the industry and supporting industries. The refining of the cobalt that was used in the printing colour and the improvements in the tissue paper produced a synergistic advance within the whole transferware industry. Cobalt refinement made finer engraving possible as did paper development. Both of these advances made transferring the colour from the copper-plate to the transfer tissue easier. Little (1969) identifies further advance in technique under the heading of experience. Drakard and Holdway (1983 [2002]: 44) explain, "Engravers had no previous experience upon which to rely." The industry was in its infancy and engravers were learning the process as they went along. They had to learn what techniques produced certain results on the ceramic product and what ways of interpretation best translated Chinese porcelain imagery source-work.

We have already mentioned technical improvements that promoted the use of stippling. Copeland (1994: 13) remarks:

> Within a few years, the quality of engraving had improved, enabling tonal shades to be used and greater purity of the cobalt was obtained.

Another important advance was the development of a finer paper for transfer-printing that allowed wetting. Shaw (1829 [1970]: 213, 214) observes that when:

> The paper… was applied in a dry state… The plates were so extremely strong that no delicate shades were preserved. The elder Mr. Turner first employed a blue printer, who used wet paper. His name was Wm. Underwood, from Worcester.

The enhancement of using wet paper was undertaken early on in the industry and allowed for good transfer of engraving-filled colour to the paper and thus the ware. However, the paper, even though it was wet and working relatively well, was still too coarse and stiff to

[94] Process Documentation – see Appendix, page 194.

offer ideal transfer of colour and limited the use of fine engraving. Coysh and Stefano (1981: 12) summarise the situation:

> One of the difficulties arose from the fact that the transfer papers were apt to tear. However, early in the 19th century, a thin, strong paper was produced by Messrs Fourdrinier who set up a paper mill in Staffordshire to supply the potteries with transfer paper. This made the use of finer engraving possible.

Tanner and Tanner (2005: 2) note that Fourdrinier "erected the first machine to produce this paper at Frogmore[95] in 1803, but in 1827 he moved it to Hanley to be nearer the burgeoning market for his product".

Technique expansion:

The expansion and advance in engraving techniques with specific regard to finer punching and finer graver-work was rapid. The market was expanding for different sources of imagery, typically published prints with European, Mediterranean and Indian scenes. Punching does not necessarily signify fine work, nor does the lack of punching imply poor work; fineness and mastery was possible without, as in the "Greek" pattern (See Ch. 5). Clouds were not necessary to satisfy the market for Chinese export copies; the depiction of clouds is an expansion in repertoire. Punching that has a degree of finesse is required for successfully engraving sky-effects and was important to replicate the new type of source imagery.

Fig. 3.63., Fig. 3.64., Fig. 3.65., and Fig. 3.66. 18th century Chinese ceramics.

Figures 3.63-3.66 show Chinese hand-painted wares, respectively: "Two Figures" pattern saucer, "Rock" plate, "Temple" plate and "Queen Charlotte" plate (giving the patterns their Spode names).[96]These were made in the mid-eighteenth century for the export market. Each pattern follows the same formulaic composition, but notably these, along with all of the other examples that Spode copied, have no clouds or skies indicated. The scenes often

[95] Frogmore paper mill, near Hemel Hempstead, Hertfordshire.
[96] The pattern names stated here are the corresponding Spode pattern names.

have small island groups in the background to give a degree of perspective and to fill gaps in the design.

The "Caramanian" series, introduced around 1809, was the first Spode pattern to have clouds and skies depicted (Fig. 3.67-3.68). Much of the "Caramanian" could not have adequately copied the source-work without the use of punched stippling. Heath commented that clouds and skies were altogether impossible to engrave without the use of the punch.

Fig. 3.67 - Fig. 3.68. An example from the "Caramanian" series showing the source work[97] alongside the ceramic product[98], c.1809.

The following four examples of clouds/skies in Spode's transferware and are arranged chronologically in terms of the first introduction.

[97] Luigi Mayer, (1803) Views in the Ottoman Empire chiefly in Caramania, a part of Asia Minor hitherto unexplored, with some curious selections from the Islands of Rhodes and Cyprus and the celebrated cities of Corinth, Carthage, and Tripoli, from original drawings in possession of Sir R. Ainsle, taken during his embassy to Constantinople.
[98] "Sarcophagi and Sepulchres at the head of the harbour of Cacamo".


Fig. 3.69. and Fig. 3.70. “Indian Sporting source print and ceramic, c.1810-15.

Fig. 3.70 is an “Indian Sporting” ceramic[99] alongside its source print (Fig. 3.69).[100] The date of introduction of the “Indian Sporting” series is slightly more contentious; some sources have its introduction at 1810, while others state 1815, but it sits between the “Caramanian” introduction and the following three examples.



Fig. 3.71., Fig. 3.72., and Fig. 3.73. Spode ceramics with clouds in the design.

Fig. 3.71 shows a Spode “Italian” plate, introduced in 1816; Fig. 3.72 shows a Spode “Woodman” washbowl introduced the same year; and Fig. 3.73 shows a Spode “Waterloo” or “Italian Church” saucer introduced in 1818. These dates are accepted by Drakard and Holdway (1983 [2002]), Williams (1943) and Jewitt (1883). All three patterns have skies and clouds within their design.

[99] “Common Wolf Trap”.
[100] Captain T. Williamson (1805) Oriental Field Sports, Wild Sports of the East.

Fig. 3.74. Close-up of punched clouds in the “Italian” pattern.

Fig. 3.74 shows a close-up of the stippled clouds of the “Italian” copper-plate. It exhibits expert tonal range employing several sizes of punch. There are areas of ‘softening-off’ and also the work known as ‘wave-punching’.[101] There are also areas left un-punched which will print ‘white’ on the ceramic setting off the tonal areas. Here we see complete mastery of a technique still in development in the “Caramanian” example of seven years earlier.

Fig. 3.75. and Fig. 3.76. “Durham Ox” ceramic and source print, c.1810-15.

An example of cloud depiction from a maker other than Spode is “Durham Ox” (Fig. 3.75) seen here on a 22½-inch dish, c.1810-15, alongside its source-print Fig. 3.76). If Spode was a leading proponent of the technique, others were quick to follow.

[101] Wave-punching – an engraving term that describes the formation of the punched holes. They are not in straight lines, but are instead in curves. This gives texture and movement to the area as well as adding tonality.

It is important to note that while clouds were an expansion of technique, it is further evidence of a stylistic choice being the driving force rather than technical determinants. An example of this is found in the 'transitional' (Coysh & Henrywood 1982: 9)[102] pattern "Gothic Castle". While being Chinese-inspired, it is less definitively Chinese, not copied from either ceramic[103]or print sources.[104]

Fig. 3.77. "Gothic Castle" ceramic, and Fig. 3.78 Copper-plate from which it was printed.

Fig. 3.79. Close-up view of punching in the clouds of "Gothic Castle".

Roller printing:

The next change in practice to note is the introduction of roller-printing. Roller printing was designed to speed up the hot press printing method. It produced a continuous printed paper tissue from a hand-engraved cylindrical copper roller. The main aim of this method,

[102] 1800-1815 Transitional Period: Although potters were still using Chinese designs there were clear indications that a breakaway was imminent and European features stared to intrude.
[103] Chinese export porcelain.
[104] Published source work.

as with most financially-driven mechanisation schemes, was to speed up production and to reduce costs, thus increasing profitability (Fig 3.80). Roller press printing was introduced to Spode in 1847.[105]

Fig. 3.80. Roller printing in action creating a continuous sheet of "Italian" pattern plates. CHC.

A correctly set-up machine could process at least eight good-quality prints per minute. Conversations with ex-Spode employees indicate that small diameter rollers were used, especially in the final years of the industry because of the high cost of the blank copper rollers. The smaller diameter rollers were much harder to engrave (Fig. 3.81), and caused problems with machines set up for larger diameters. This caused the roller to revolve too quickly leading to poor-quality prints.

At first, flat copper-plates were bent into cylinders, but cast rollers were successfully introduced in 1811. However, some factories were slow to make the switch. Whether through the cost of purchasing cast rollers or a resistance from engravers to use them, in the early days of roller printing, engraved flat copper-plates were often bent into a cylindrical form at many factories. This was far from ideal. One of the worst problems with this method was that it created a seam where the two ends met up. These were filled, but inevitably wore through use. The cylinders revolve above a colour tray and a scraper blade removes the excess colour (Fig. 3.84). The blade would drop into the seam causing

[105] See Chapter Five, "Willow" case study for further details of the introduction of this method.

excessive wear to the blade and plate. Heath notes that it made a "rather annoying" clicking sound.

To remove this issue, engravings were made on cylindrical copper rollers. The size of the design dictated the diameter of the rollers. Copper was sourced from a specialist coppersmith such as James Price of King Street, Hanley. This company, established in 1869, supplied many of the factories in and around Stoke-on-Trent, including Spode. Spode used rollers for sheet patterns that covered the ware (Fig. 3.82-3.83).

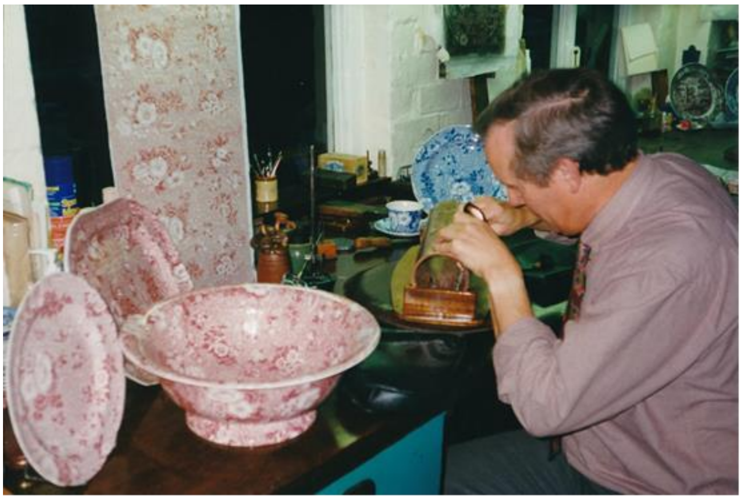


Fig. 3.81. Ken Collins engraving a 'Primula' pattern roller to create a 'sheet' pattern: a design with no distinct border. CHC.

Fig. 3.82. – The finished "Primula" roller held in a wooden cradle at the workstation. CHC.

The engraver used a cradle allow the roller to be rotated as needed during the engraving process. The engraver would have to muffle the copper roller with cloth when using a punch. If this was not done, the noise from the punching on the hollow cylinder created a loud and metallic drone. Wood said "they had to stuff the roller inside with fabric or cotton to stop, err, deaden the noise, 'cause it could get on everybody's bloody nerves!"

Fig. 3.83. The "Primula" roller in use on the factory floor. CHC.

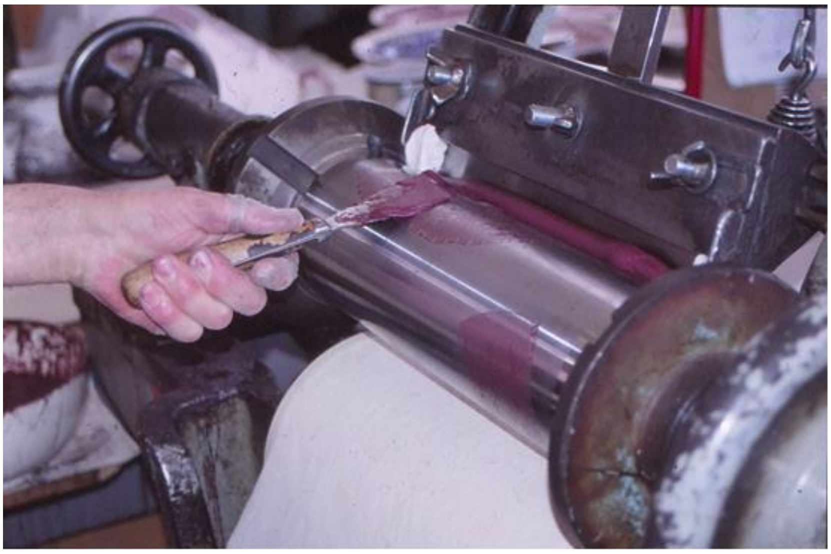


Fig. 3.84. The roller printing machine in use, c.1990.

(CHC). Colour being applied with a palette knife by the printer. The excess colour is retained in the top of the machine and the scraper blade below removes the excess before the printing surface comes into contact with the sized tissue paper.

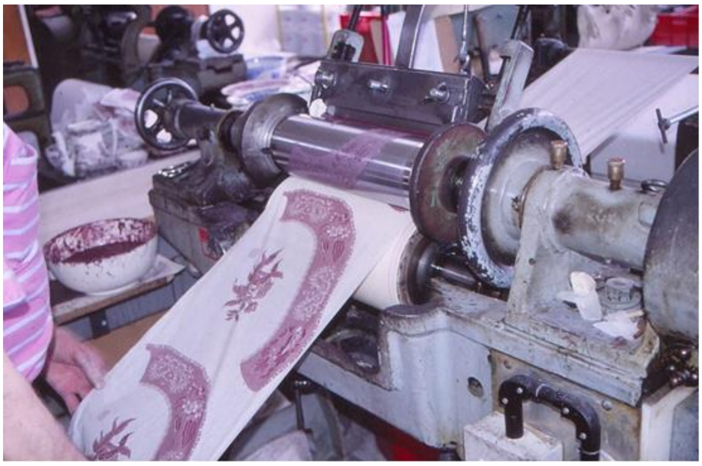


Fig. 3.85. The continuous tissue coming from roller printing machine to produce “Camilla” dishes. CHC.

While efficient in some ways, roller printing also involved waste. In Fig. 3.85, an example is seen where every other floral centre would be discarded, as to make a complete dish, the transferrer would need only one centre but two border sections. As with the flat plate printing method, the tissue would be applied with a stiff brush, washed off, left to dry, hardened on, glazed and fired (Fig.3.86).

Fig. 3.86. Spode roller-printed “Camilla” pattern dish. Border section joins can be detected at the 8 o’clock and 2 o’clock positions.

The style of the engraving used on the rollers was no different from that used on flat printing plates. But they required an additional layout stage. It was impossible to layout the design and do fitting work straight onto a roller. A flat piece of copper was used for the layout in the first instance.

Fig. 3.87. Lay-out copper-plate used to create a "Tower" pattern coffeepot roller.

Within the archive, the only roller-specific layout copper-plate found was for a "Tower" coffeepot engraved in 1967 (Fig. 3.87). Once used to transfer the pattern to the roller, such plates were of no use, so were probably planished out and re-used. The survival of this example allows understanding of this crucial step in the engraving process. The fitting of the design to ware and the overall shapes of the pattern elements were worked out and outline-engraved on this plate (Fig. 3.88-3.90). A wax print[106] was then taken from this plate which could then be wrapped around the blank roller in order to transfer the design to the cylindrical surface.[107]

[106] A wax print is created by taking a piece of printing tissue and coating it with olive oil. The tissue paper is then turned over and covered with a mixture of bee's wax and tallow. This will be the medium that picks up the colour from the engraving.
[107] Further details of this transferral method can be seen in the Process Documentation in the appendix, page 194.

Fig. 3.88. Close-up of one of the “Tower” coffeepot panels.

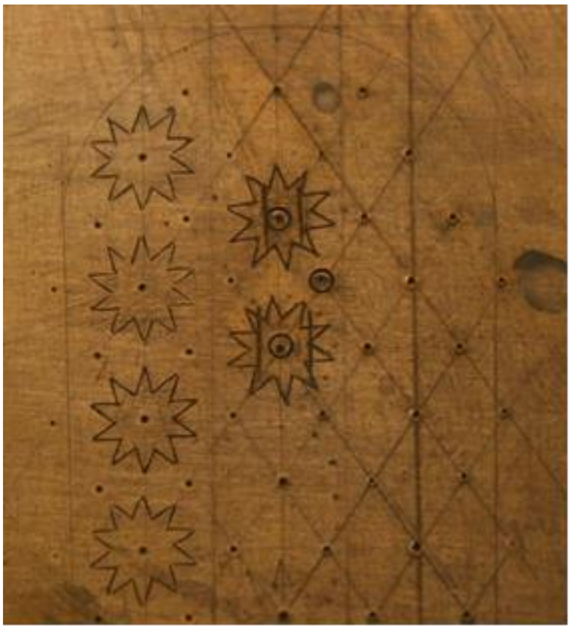


Fig. 3.89. The pattern for the front of the coffeepot spout, and Fig. 3.90 Lay-out and sample of the handle print.

Fig. 3.91. Lay-out of the border print for the lid.

On the lay-out plate, only small sections of the design were engraved, mainly outlines of the key elements (Fig. 3.91). Once transferred to the roller, the whole design was engraved in full. The lay-out plate also worked out the shape required taking account of the future wrapping of the print around the two-plane curving lid when transferred to the blank ware (Fig. 3.92).

Fig. 3.92. Example of the ware decorated from a roller printed tissue.

The engraving techniques for copper rollers were largely the same as for flat copper-plates. But both Heath and Holdway expressed how much more difficult it is to engrave on a curved surface. Heath found that the larger the diameter of the roller, the easier it was to engrave as the surface was less steeply curved. He also understood that the larger rollers he preferred were more expensive as they contained more copper. The factory tended to use the economical small diameter rollers that gave Heath the hardest work he had undertaken in his career. He reported that the engraving had to be wrapped around “like a telephone flex” in order to fit them. This not only made the roller difficult to engrave, but made full assessment of the quality of the work impossible until printed.

Murray Curvex printing:

The final change in practice at Spode was led by the invention by Guy Murray of the pad-printing machine in the 1950s. In the early 1950s, Murray worked alongside the Spode factory in developing and perfecting a machine that would revolutionise the printing process in the industry. This machine would greatly speed up production and reduce the number of people engaged in the process. The new technique was loosely inspired by and based upon the bat printing method.[108] This used a gelatine pad as the medium for transferring the engraving to the ware. It removed the tissue paper from the process and thus also negated the use of and need for the transferring team (the cutters and transferrers). The early trials using a gelatine printing bomb or pad found incompatibility with the colour used in hot press printing. Gelatine pads were used during the research and development and for years after. However, the bombs were eventually made from silicon. The machine was electrically operated, but used compressed air to run the process of moving the copper-plate through the action and the printing bomb up and down onto the plate and then the ware. The Murray Curvex machine could produce well over one hundred complete actions (decorated wares) per hour, representing a large increase in productivity.[109] Only a single person was required to operate it rather than a team of four or five.

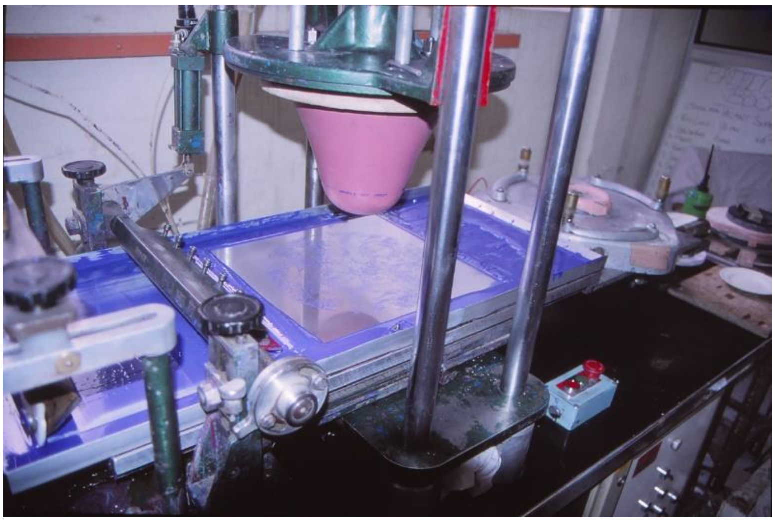
The main limitation to the Murray Curvex machine was the fact that it could not decorate hollowware pieces, that is, wares such as tureen lids, tureen bodies, jugs, mugs and other

[108] This is a term that describes an ‘on-glaze’ method of printing [as opposed to ‘under-glazed’ printing used in Murray Curvex, Roller Printing and Hot, Press-Printing]. In the earliest incarnation of the method, it was known as ‘black printing’, but this description stemmed from the fact that almost all of the prints were black in colour. The term ‘bat printing’ is a slightly later descriptive term from the first part of the nineteenth century. It far better describes the technique employed in this method. Boiled animal glue is poured into a dish so that it cools in a sheet that is approximately 3mm thick. When cooled, it remains slightly flexible, but is firm enough to be used as the medium for transferring. This is cut to the required size and is called a ‘bat’, hence the term; ‘bat printing’. The bat is applied to a hand-engraved oiled copper-plate and is pressed firmly by the printer ensuring that the bat picks up as much as possible of the oiled engraved detail. The bat is peeled away from the copper-plate leaving an impression, in oil, of the engraving. The bat is then applied to the ware leaving the oil impression upon the glaze. Finely-ground colour is dusted across the oiled impression from the bat using a soft cloth. The plate is then fired in the enamel kiln and the ware is now finished.

[109] An efficient printer using the hot, press printing method might create twenty to fifty tissue pulls per hour.

similarly-shaped wares. These required a degree of ‘wrapping’ the pattern and the machine could not do this. It was, however, capable of decorating relatively dished wares by carefully choosing the size and shape of the bomb. To get around the problem of hollowware pieces, lithographic transfers were taken from engraved plates and applied, by hand.[110] The engravers would ‘fit’ and engrave plates in the usual manner and the prints were out-sourced to a local firm of lithographers for reproduction and printing on tissue, with transfer done on site at Spode. Therefore, a dinner service, for example, could be made up of both Murray printed pieces and lithographic printed pieces. Fig. 3.93-3.99 form a small visual essay showing stages of the Murray Curvex machine at work.

Fig. 3.93 (CHC). Close-up of the machine. From left to right: the colour tray, the chrome-plated hand-engraved copper-plate, the scraper blade, the pressing area with the silicon bomb suspended above.



[110] It is not clear why transfers from hot press prints were not used to decorate the hollowware pieces.

Fig. 3.94 (CHC). The machine applies the colour from the colour tray to the chrome-plated copper-plate.[111] The blade scrapes excess colour off the plate and moves the 'coloured' plate to beneath the bomb or pad.

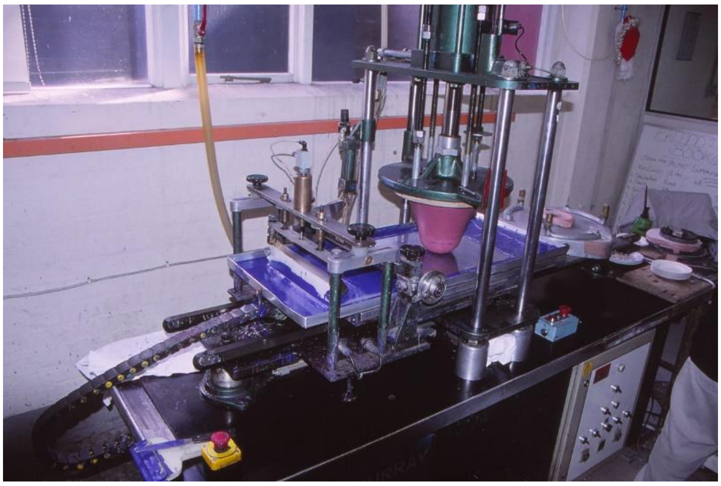


Fig. 3.95 (CHC). The printing bomb moves down to make contact with the plate. This is where the colour is transferred to the bomb. This replaces the tissue paper of the hot press printing method.

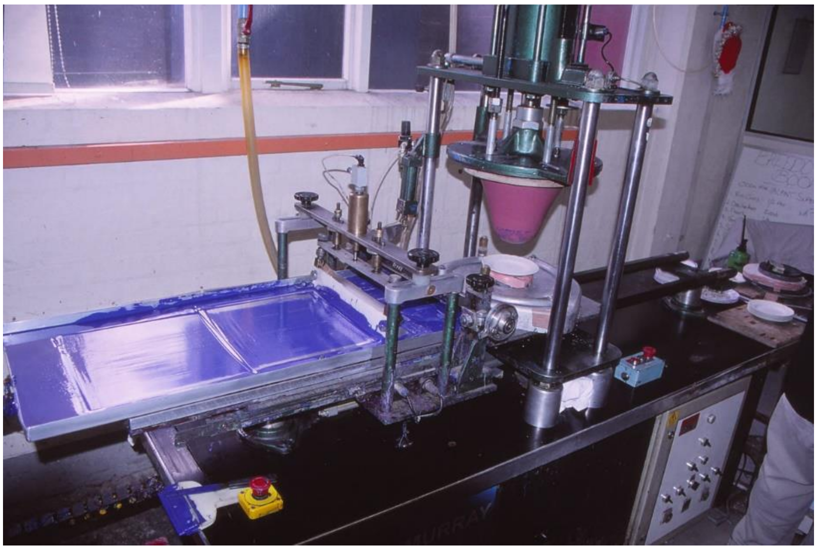


Fig. 3.96 (CHC). A biscuit-fired blank ware is placed into the machine ready to receive the transfer of colour from the printing bomb. At the same time, the copper-plate is returned to the colour tray ready for the next print.

[111] Chrome, nickel, steel and cast iron were also used.

Fig. 3.97 (CHC). The printing bomb, charged with colour, moves down to the surface of the blank transferring the colour to the ware. The shape and size of the printing bomb are specific to each shape of ware.

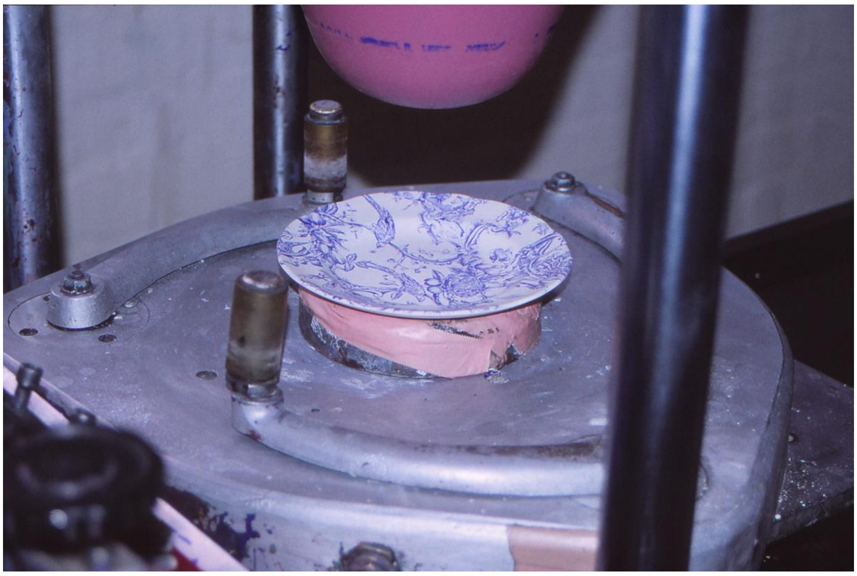


Fig. 3.98. Close-up of the transferred colour on the ware. CHC.

Fig. 3.99 (CHC). Printer, Rod Latham, using a gelatine pad (bomb) in the Murray Curvex machine to print 7” (18cm), Spode “Italian” pattern plates. He removes the plates when printed and carefully stacks them with the other newly-printed wares. At the same time, he puts a blank plate into the machine. The printed plates are left to dry, then hardened-on, glazed and fired much the same as with hot press printing products.

In terms of engraving processes, the differences between the hot press and Murray Curvex methods are manifested visually and technically. Most evident is the way the borders are engraved.

Fig. 3.100. “Indian Sporting” series: “Groom Leading Out” copper-plate, c. 1810-15.

The majority of engravings for hot press printing show a gap in the engraved border; this can be seen in Fig. 3.100 at the 3 o'clock position. The border and centre would be cut out[112] separately and applied to the ware[113] in two actions. The gap in the border allowed for the two-plane curvature of the ware so that the ends of the printed border meet up when applied.

Fig. 3.101. "Groom Leading Out" copper-plate engraved for Murray Curvex, 1990s

The example shown in Fig. 3.101 was engraved for the Murray Curvex machine. The border, as with all Murray Curvex coppers is continuous. This is because the transfer via the printing bomb is done in one action: bomb down on copper, lift off, bomb down on ceramic, transfer.

[112] By the cutter.
[113] By the transferrer.

Fig. 3.102 - Fig. 3.103. Comparison of the same pattern for hot press and Murray Curvex.

The second visual difference is the orientation of engraving. The orientation of the engraved-work makes no difference when used in hot press printing, but it was more logical and instinctive to engrave the design at right angles to the edge of the plate. The skill of the printer who applied the colour to the plate was of far more importance. The colour was applied (and excess removed) with a sharp scraper and it was his[114] skill that determined how much colour was removed and how little damage was done to the engraving during this action. The passage of the scraper and its angle could be managed by his skilful hand.

Fig. 3.104. An illustration of engraving orientation, c.1920.

[114] All the printers were male; operating the press was a physically demanding job considered suitable for males. The printing teams were traditionally families where the father was the printer and the mother and children were the cutters and transferrers.

Fig. 3.104 illustrates the right-angle (to the plate) orientation (as observed at point ‘A’) intended for hot press printing in this c.1920 “Willow” copper-plate.

Fig. 3.105: An illustration of engraving orientation, c.1992. (CHC).

Fig. 3.105 presents a “Willow” pattern plate engraved in 1992 by Holdway which was made specifically for the Murray Curvex machine. Note that the orientation (observed at angle ‘A’); it is canted over from ninety degrees. This looks odd and may be considered as careless on first inspection to the un-trained eye. However, this was done to try and combat the issues of the Murray Curvex machine’s scraping blade. The scraping blade moved along the plate to remove all of the excess colour from the plate. It moved along the plate parallel to the line marked ‘B’ in Fig. 3.106.

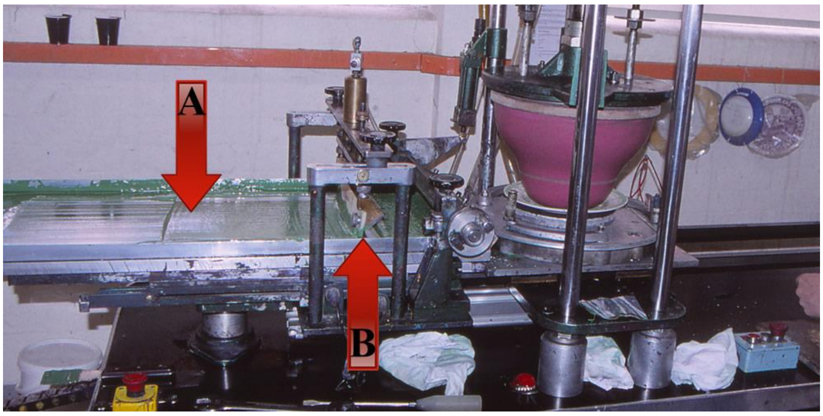


Fig. 3.106: The Murray Curvex machine in use, c.1980. (CHC).

Fig. 3.106 is an image of the Murray Curvex machine in use. The arrow at point 'A' indicates the copper-plate and the arrow at point 'B' indicates the location of the scraper blade. The copper-plate moves from the left to the right side of the machine. As it does so, the colour is first applied from the reservoir to the left, the scraper removes the excess and the colour-charged plate then moves under the silicon bomb. The bomb comes down and takes the colour from the engraving. The process then repeats.

Fig. 3.107. An indication of line-work, c.1992.

Fig. 3.107 shows an area of graver-made line-work in straight, parallel lines. This type of engraved work can be seen in the water and the buildings. Furthermore, there are areas within the border design too with parallel engraved lines. If these lines were parallel to the Murray machine's scraper blade, especially on large extents, the blade would drop into the lines, removing too much colour and causing excess wear to the engraving and the scraper blade. Similarly, if the lines were engraved at a right angle to the blade, again the scraping action would remove too much colour. The act of removing too much colour affects the strength or weight of colour[115] in the final, fired ware. To combat these issues, the engraving was set at an angle of approximately forty-five degrees from the line of the scraper blade. In order to calculate the angle of engraving, consideration must be given about the parallel lines within the work. Looking at the "Willow" example in Fig 3.105, the engraving has been created based on the extent of the horizontal[116] line-work, in this case an abundance of parallel lines that denote the ground-work in the pattern (Fig. 3.107.).

[115] Weight of colour is a printing term that describes how strong or pale a print is transferred to the finished ware.
[116] Horizontal – in relation to the pattern, not the copper-plate.

There are two other slightly more-subtle visual differences to the two types of engravings discussed here. The thickness of plates between these two types of printing is different. The Murray Curvex plates were much thicker than their hot, press printing counterparts. They are up to four times thicker than hot, press printing plates. The evidence within the archive suggests an average press-printing copper-plate thickness[117] of 1.4mm whereas an average Murray Curvex thickness[118] of 3.9mm. This made engraving slightly more difficult, as the plates were heavier and more difficult to manage on the boss,[119] especially when turning to cut curves.

The key reason for this was to withstand the sizable downward pressure put on the plate by the printing bomb. The final visual difference between the two types of engraved-plates are the drilled, counter-sunk holes seen in the Murray Curvex copper-plates. Fig. 3.108 shows a close-up of one of two holes often found in hot, press printing copper-plates. Fig. 3.109 shows one of four holes drilled and countersunk in the corners of a Murray Curvex copper-plate.[120]

Fig. 3.108 and Fig. 3.109. Comparison of holes in copper-plates between 1820 and c.1950.

In terms of technique, the engraving depth of a Murray plate is greater than a hot press printing plate. This is to compensate for two main issues. Firstly, this type of plate was

[117] Average – taken from measurements of ten randomly-selected hot, press copper-plates random plates and an average taken.
[118] Average – taken from measurements of ten randomly-selected Murray Curvex copper-plates and an average taken.
[119] Boss is a sand-filled, leather made pad that the copper-plates sits upon whilst being engraved.
[120] See page 71-72 for further details on holes and their use.

intended to be electro-plated from the start[121] and this additional reduction in engraved depth is compensated for in advance. The second key engraving nuance is the printing bomb does not remove all of the colour from the plate and this has to be compensated for to ensure the correct 'strength' of colour on the final, finished ware. When an engraving was 'finished', it would be plated and tried on the Murray Curvex machine. The resultant piece of ware would be glazed and fired to check if it was the required weight of colour and that all the engraving was printing as it should be. This was then known as a 'Printing Standard'. Fig. 3.110 is an example of a Spode "Tiber" 'Printing Standard' plate (marked as such in the uppermost part of the ceramic).

Fig. 3.110. Printing Standard "Tiber" pattern ceramic, c.2000.

Mechanical Engraving

While not directly involving Spode, there was a potential innovation to practice within the industry in the form of mechanisation of engraving. Heath told me that he and others were told about the invention of an engraving machine, and he recalled a machine invented by Harry Price[122] in the late nineteenth century that could create many different effects and styles of repeating patterns on copper-plates. When Price realised the potential effect it

[121] Historically, electro-plating was applied to existing engraved-plates that had already had service without any plating. As such, no compensation in loss of engraving depth from the thickness of the plating.
[122] Coppersmith in Burslem, Stoke-on-Trent.

would have upon the whole industry by making engravers redundant, Heath said Price “went off his tucker” and smashed the machine.

Fig. 3.111. Pattern dish related to Price’s engraving machine.

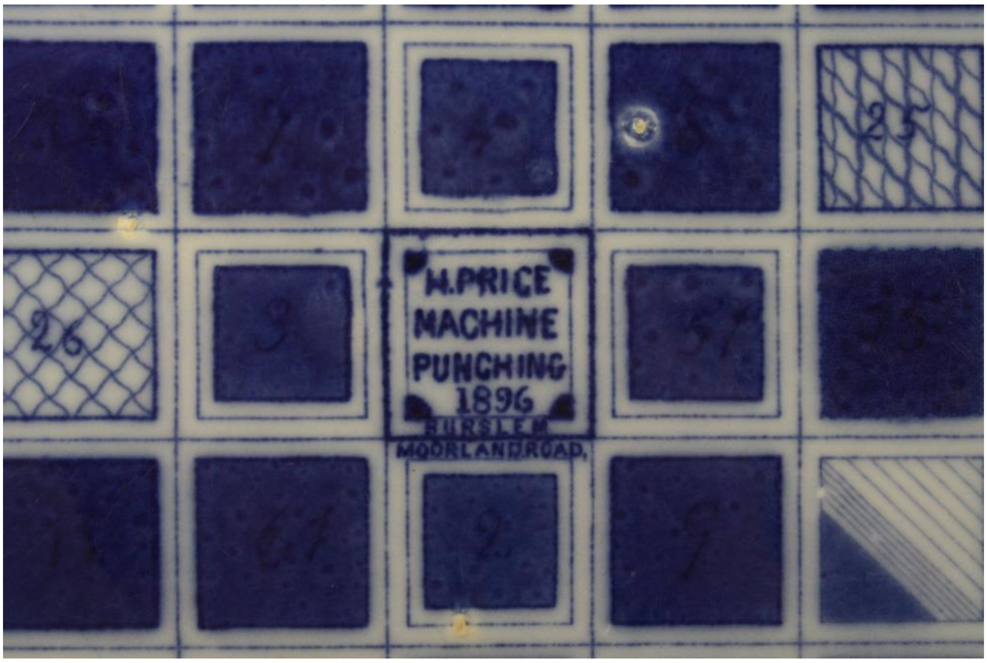


Fig. 3.112. Close-up of punching machine dish demarcated with sheet-style patterns.

Heath was surprised when I showed him the dish illustrated above (Fig. 3.111-3.112) as he had thought the punching machine was an old wives' tale and could not have imagined how it could have worked.

Assessment:

Learning how to read a copper-plate by understanding the physical marks, shapes and effects upon its form allows for greater understanding of the role and work of the engraver. While I have been afforded the opportunity to study the copper-plates and interview those who engraved them, there will possibly come a time in the future where the only method of research will be from the archival material alone. It is therefore essential to develop an understanding of features in the copper-plates such as knocking-up, rounded corners and re-engraving and to assess what these mean in terms of pattern stratigraphy[123] and to more fully comprehend the work of the engravers.

The evidence of both tools and copper-plates conveys the use of lines and dots to create an engraving. Looking at the wash drawing presented by the designer, the engraver read a sky as punching, translated a building into parallel lines, or a figure into outline. It is possible that the two specific design languages of lines and dots facilitated the shift from one style of work to another to alleviate tedium as well as repetitive strain. But more importantly, this duality established a way of seeing and thinking about the translation of tonalities. This is a new way of understanding how the process of engraving was an adaptive or translating role that the engravers undertook.[124]

The two types of glazes[125] used on the ceramic during Spode's transferware production influence the way in which an engraving is interpreted through the ceramic. The optimum way to understand an engraving is to study it alongside its ceramic product. This is especially appropriate when studying ceramics produced with a lead glaze. Such is the softening action of the glaze upon the colour, that the definition of the engraved work is partially obscured. It is far easier to 'read' an engraving in a ceramic that was produced with a leadless glaze as the printed edges are left un-softened. The transferware literature that focuses on wares produced in the late eighteenth and early nineteenth century often comments upon engraving techniques using only the ceramic as the point of reference.

[123] Pattern stratigraphy – the order in which engraved work is undertaken.
[124] See Chapter Four for further details.
[125] Lead and non-lead glazes.

This leads to errors in technical assessment of the engravers' work and is a prime indicator of the need to study copper-plates is addition to the ceramic wares when this is possible.

While developments in paper and cobalt allowed for finer engraving to be transferred to the ware, these ran in parallel to technical advances in engraving techniques. A marked improvement can be observed in the subtlety and technical know-how between the earliest plates and those that still pre-date the paper introduction, but the paper and refined cobalt allowed engraving advances to continue. After the first quarter of the nineteenth century, the industry maintained this standard with little or no change in the technical aspects of engraving. Focusing on one specific treatment of the designs, engraving of clouds, it is possible to have a greater understanding of the role subsidiary advances had upon the stylistic choices for the industry. It has become clear that choice of punching or line engraving served the needs of the market rather than being the result of a technical progression. Evidence in the archive of source-work, ceramics and copper-plates supports this argument.

While roller printing and the Murray Curvex machine required certain re-orienting of the engraver in setting up the work, these adaptations did not entail basic changes in technique, tools and quality of work. Therefore, this an industry where the techniques, once evolved to the refinement of around 1825, remained the best way to achieve the high-quality results desired at Spode. Was this an industry that was resistant to change and advancement? This would make engraving for transferware a rare case of industrial stagnation, but with continued success. After the initial period of learning how best to produce engravings, technical know-how was simply impossible to exceed without a compromise in quality. Other industries such as calico printing went over to etching, but this did not happen at Spode. While etching was occasionally used in the twentieth century as a time-saving method, the resultant copper-plates were still re-worked by the engravers to produce a specific 'house style' and one that achieved the desired standard of work. This evidence suggests that Spode's slow response to change was driven by the desire to maintain the quality of their wares. Darren Furbur[126] highlights in his interview that "all the engravers at Mason's […] always admired [the] standard what was turned out at Spode […] Spode was the pinnacle."

[126] Ex-Spode engraver; see engravers' interview appendix, page 98 for further details.

After the subsidiary industrial advances observed in the raw material and tissue printing, and once the technical ability had been highly-refined and processed, a ‘look’ was achieved that commanded a large world-wide market. Whether through tradition or instinct, the market required the transferware mode and this continued into the twenty-first century. It is noteworthy that Spode, when launching the 1990s ‘Blue Room Collection’, used the phrase; “Underglaze print from a hand-engraved copper-plate” on every piece of ware produced and sold. This demonstrates their tradition-awareness and how the engraving heritage was a selling point. The public found favour in this approach that highlighted products that were hand-made using traditional tools and skills passed down through generations of craftsmen. Spode was able to make the time-consuming hand processes work economically may argue that the company’s main innovation was in marketing.

Chapter Three Highlight

The graver, the punching hammer[127] and the bench

Ex-Spode engraver Paul Holdway when asked in interview about the tools most used remarked:

> Hammer and punch and graver. They are the main ones.

The graver and the punching hammer, viewed in isolation, while useful to the historian, speak only part of the drama. They must be viewed intrinsic to the engraver, such is the connectivity between practitioner and instrument. It is useful to view this act as a performance with protagonists that amalgamate and collaborate in one seamless union.


Fig. 3.113. A punching hammer, and Fig. 3.114. A graver.


Fig. 3.115 and Fig. 3.116. The punch and graver in use. 2015.

Fig. 3.115. The punching hammer held delicately but deliberately between the thumb and forefinger as it is used to strike the top of the steel punch. Fig. 3.116. The tip of the graver protruding from the engraver's hand as it cuts a line into the copper surface.

[127] See appendix, page 175 for further technical details on both of these tools and the others employed by the engravers.

Martin notes that:

> The finger tips and the inner palm of the hand propel the tool forward.

The way in which this union between practitioner and tool takes place is of particular interest (Fig. 3.115- 3.116). Knowing how to hold the specific tools is part of the implicit embodied knowledge of the engraver. Their hand seamlessly picks up the tool from the array of variations on the bench and it slips into its natural position for best use, much in the way the Dant (2005) discusses how repetitive actions are learnt and become second nature as “habitual motor skills” (Herbert 2009); the union takes place. Thus, instrument and practitioner become one. From an historical perspective, observing the tools as objects, the way in which the union took place and more specifically, the location, is evidenced by the patination on the tools’ handles. These take two distinct forms. Firstly, there is the wear to the area that has the repeated touch of the engraver’s hand. This area is noticeably worn and is indented from the surrounding area. [128] Secondly, there is a build-up of grease,[129] oils[130] and colour[131] that demarcates the area that surrounds the contact-point of the union between the engraver and tool. It is these tell-tale indicators that imply the human contact. Not only do they act as a visual reminder to the less-skilled or apprentice(s) where to hold the tool correctly, they serve as an historical reference to where and how the tools were held and used.

Fig. 3.117. And fig. 3.118. Wear marks on the tools’ handles.

[128] Both the graver’s shaft and the hammer’s handle.
[129] Grease from the engraver’s hands.
[130] Oils used in sharpening tools, creating wax-paper and for cleaning the copper-plate.
[131] Printing colour is used by the engravers to rub into a fresh engraving to allow them to view their work more easily. An oil rubber (see appendix for further details) is used to rub oil and colour into the engraved-work.

Fig. 3.117 shows a punching hammer's handle; about halfway along the shaft, there is a noticeably worn area where the thumb of the engraver would make contact (indicated by an arrow). From these wear characteristics, it is possible to determine if the user was left or right-handed. In this case, the wear is exclusively associated with a right-handed puncher (hammer held in the right hand, punch in the left). Fig. 3.118 shows a close-up of the graver's handle. The mushroom-shaped handle sits in the engraver's palm with the rounded-section against the heel of the palm. The thumb and forefinger sit on the shaft of the graver on the area that is wound with copper wire. As such, the engraver's fingers rarely touch the two thirds of the shaft between the copper wire and the mushroom-shaped handle-end (illustrated as the area between the two arrows in Fig. 3.118.). This lack of contact is evidenced by an absence of build-up of grease and oils. The only build-up is where the end of the copper winding meets the wooden handle. The grease and oil from the engraver's hands is concentrated in this area. This can be seen as a distinctly darker area on the shaft of the graver where the two activities that contribute to the patination are from engraving, and sharpening.

The delicate and light form of both the graver and the hammer belie their use. The graver feels light when picked up and has a definite balance and sense of functionality. While the steel blades vary in the number of cutting surfaces, lengths, widths, manufacturers and styles, their overall shape varies little within this industry. Gravers used in other forms of engraving such as goldsmithing and silversmithing are similar, but the transferware gravers tend to have longer wooden handles and have part of the handle cut flat[132] (Fig. 3.119). Heath suggested that the removal of a section of wood in the handle was to facilitate greater control and allow the engraver to get the graver lower and thus more parallel to the bed of the copper-plate.

[132] The fine art engraver's burin is also shaped with a flat section taken from the mushroom shape.

Fig. 3.119. Personalisation on the cut-down graver handle.

The shape of the hammer's handle is long and has a flattened ovoid shape when viewed in cross section (Fig. 3.117). Much like the graver, it feels light when held and also balances when held correctly. The handle is typically made from lancewood, although some engravers fashioned their own hickory handles from disused golf club shafts.[133] This gives the handle considerable strength, lightness and flexibility. Such is the balance and weight created by the union of tool and practitioner at the fulcrum point, that little force is utilised to strike the punch. The steel head of the hammer is relatively small[134] which bespeaks the forces involved as it strikes the punch to make a mark upon the copper. However, the striking surface is comparably wide which again gives clues as to its purpose. The engraver's eye looks at the point where the punch makes contact with the copper-plate, not where the hammer contacts the head of the punch. The wider surface of the hammer accommodates for variations with striking point, but with no loss of force. It is through these visual clues that the design and usage of these tools have been appreciated. It is on the expert application of these tools upon the copper surface that the transferware industry relied upon.

The individual connection that develops with the tools is deeply personal and unique. Wood describes this union and attachment as "inevitable". Touch is something that happens through the tool-hand union. Malafouris (2013) suggests that this extension enables "touch to be turned into sight". But feel is also closely related to the noise or 'voice' of the tools. The way in which a tool makes a mark upon the copper-plate is a sensory communicative act to the engraver in three distinct ways. These are 'feel', 'sight'

[133] Several engravers including Bill Heath has reported this use of golf club shafts.
[134] In comparison with other hammers used in industry.

and ‘sound’.[135] The ‘feel’ is the connective way in which a tool becomes an extension of the engravers’ body much like the theoretical notion of the blind man and his stick (Bateson 1973: 318); it is difficult to assess where the stick (graver/hammer) and the man (engraver) begin and end. The ‘visual’ feedback or input is possibly a little easier to assess and analyse; the engraver carefully watches the work taking place through the loupe which is held in their other hand.[136] Constantly, references are intuitively compared and assessed; the position of the graver’s tip to the line that is cut, how close it is to the endpoint of the cut, its distance from other engraved work, its angle in the hand and so on. These visual reference points enable the engraver to understand how the engraving is taking place and through this, subtle corrective nuances take place to ensure successful transmission upon the copper. Once the graver cuts a line (or the hammer punches an area of punching), the tool is removed from the work to allow the engraver to visually determine the success of the act of the cutting (or punching). The most subtle sensory input, is that of the ‘sound’ made by the tool against the work.

The focus of researchers and writers on engraving has traditionally been upon the outputs of the engravers in relation to product, revenue generation, their place in a factory and pattern (design) production. The sounds that are produced as a by-product of this is work are hardly acknowledged. It is the noise or ‘voice’ that I want to pay particular attention to. The work of an engraver in the transferware industry is of a quiet, self-contained character; the ‘voice’ of the tools is often the only one to be heard.

The ‘voice’ of the graver – this is a subtle, partly inaudible sound, but one that is crisp, and mezzo soprano; it portrays the way in which the lines are created. When areas are cross-hatched, the voice of the graver is much different. There are three distinct voices heard; the high-pitch cutting voice, a moment of silence where the graver drops into an existing line cut at right-angles and finally, a lower-registering thud where the graver’s point makes contact with the copper again. This three-phased voice then continues and repeats. This could be compared with the way in which a train’s wheels make contact with the rails and loses contact momentarily when they reach a gap between two adjoining rails. This specific voice of the graver communicates to the engraver exactly where the tip is within the line; it is the moment of silence that is so important here as this communicates to the

[135] I have digitally recorded the sound of the hammer upon the punch.
[136] The hand that does not hold the graver, but in the case of punching, the loupe is on a stand as both hands are required to do punching.

engraver that the tip has reached the end of the cut and is falling into a pre-cut line. The resistance is then reduced, so the force imparted by the engraver to the graver must be equally lessened to prevent the graver from slipping. These subtle, but highly-important inputs come together to create a sensory understanding that enables good-quality work to take place. This is the difference between having the implicit embodied knowledge and it being lacking; it is through the three sensory inputs (feel, visuals and sound) that a practitioner can excel and take pleasure from their work.

The ‘voice’ of the hammer - a slightly less cultured voice and more violent than that of the graver. The skilled use of the hammer creates a rhythmic, metallic tenor. Wood in interview elaborated:

> The only thing you got was the “tap, tap, tapping” when they were punching on, err, rollers in particular, err, because that was very noisy. Often, they had to stuff the roller inside with fabric or cotton to stop, err, deaden the noise, ‘cause it could get on everybody’s bloody nerves! So, yes, in between the punching noise, it was usually pretty silent.

The word ‘tap’ aptly describes what is taking place. This word suggests an expertly-applied blow to the top of the punch. This implies the bodily knowledge needed to punch a hole of a specific depth (and diameter); too little and it will need punching again, too hard, and the whole area will need remediation.[137] The word ‘tap’ also implies the volume of the voice and its tone.

To try and convey the voices of the engraving tools, it is useful to try and categorise them in terms of human singing voices and to ascribe a sex to these voices. The more delicate, higher voicing of the graver’s cut could be described as a female voice. Equally, the lounder, more bass-like resonation of the hammer could be a male voice.

In the workroom, the multiple voices move in and out of synchronisation creating an indefinable din, but the individual practitioners are so in-tune with their own ‘extended voices’ that nothing distracts them from their performance. Surprisingly, engravers describe the workroom as quiet.

Wood suggests:

[137] In the form of knocking-up from the back, planishing flat and starting again.

> Almost a monk-like, you know, atmosphere.

This point is confirmed by Furbur:

> Very quiet I'd say, a very quiet place.

The voices of the tools act as mere punctuations in an otherwise reticent environment.

This reciprocal act or performance between the tools and the practitioner is symmetrically fulfilling. The tools contribute to the engraver's 'voice,' as creator of work and as an author of imagery. Correspondingly, the practitioner through their embodied skills and implicit knowledge of how to utilise their tools gives them their voice. Such is the unity between the tools and the engraver, that neither can function in the performance without each other; the engraver cannot engrave without his tools and the tools cannot be used without the engraver. Malafouris (2013: 244) calls this "ontological unity": the symbiosis between humans and tools.

The Bench

The bench where an engraver conducts their work is an essential piece of equipment, but can often be overlooked. Much emphasis can be placed on the tools, the engravers, the copper-plates, but it is at the workstation that all of these disparate things come together and function as a whole. Firstly, the bench permits engraving to take place. Secondly, it denotes a defined area for a specific engraver; it was their place in the industry. Apprentices had no specific workstation and were often moved around while they learned their skills, but once qualified, an engraver was given a place in the engraving department where they would work for potentially the rest of their careers. The presenting of a work area by the foreman gave the engraver recognition, an implied confidence to achieve a given standard of work and a sense of belonging.

Fig. 3.120. and Fig. 3.121. the terrace engraving shop in 1931 and 2015.

There were several engraving departments used at Spode, and the latter two are seen in Fig 3.120-3.121.). Fig. 3.120 (CHC) shows the engraving department in the top floor of 'the terrace' taken around 1931. Frank Boothby[138] is third from the right. Engraving department foreman, Joe Hassel, stands to the left. Fig. 3.121 shows the same room in May 2015.

Fig. 3.122. and Fig. 3.123. The last-used engraving shop in 2000 and 2015.

[138] Frank Boothby – Spode engraver; see Chapter Four 'Authorship' for further details of Boothby.

Fig. 3.122 (CHC) shows the last engraving room used at Spode[139] around 2000,[140] and Fig. 3.123 an image of the same space taken in May 2015.

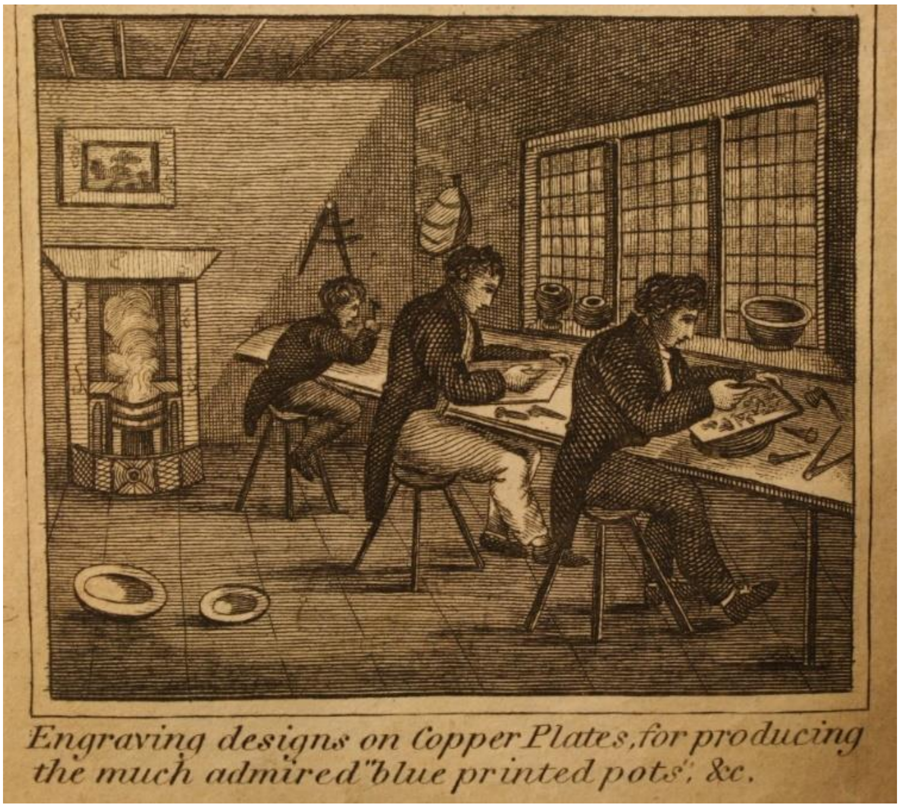


Fig. 3.124. A print illustrating engraving for transfer-printing, c.1827.

Fig. 3.124 shows an engraved print from a book[141] thought to represent the Enoch Wood and Sons' manufactory,[142] around 1827. Three engravers are working at their benches "engraving designs on copper-plates". There are multiple tools on the bench along with copper-plates sitting on bosses. The engravers sit in front of a broad window and there is a large set of compasses on the wall. The bench appears to be of simple construction and is supported on reinforcing legs. The bench appears to be sloping towards the engravers. This is likely to be an artistic exaggeration that affords the viewer the ability to observe the desk and its contents.

[139] The engraving department was moved from the terrace building to this location at the top of the 'meadows' in the mid-twentieth century to comply with fire regulations.

[140] Right-hand row; from left to right, Paul Holdway, Gemma Willett and John Raftery. The image was taken by Ken Collins who sat between Willett and Raftery. Bill Heath (not in the image) sat to the right of Raftery.

[141] Wood, E. (1827) A representation of the manufacturing of earthenware / with twenty-one highly finished copper-plate engravings, and a short explanation of each, shewing the whole process of the pottery London: Ambrose Cuddon.

[142] Enoch Wood and Sons, Burslem, Stoke-on-Trent, 1818-1846.

Fig. 3.125 and Fig. 3.126. Tool marks on the Terrace building's benches.

Fig. 3.125 and Fig. 3.126 are close-up images of the benches in the Terrace building's engraving department; not only did the practitioners make marks upon the copper, but they also made marks on their working environment. The small multiple indents in the wooden surface of the bench in Fig. 3.125 are areas of damage caused by a repetitive process used by engravers when they push the tip of the graver firmly into the wooden handle. The workbench also receives doodles, as seen in Fig. 3.126. These could plausibly be in reference to belonging; did Mr. 'N' sit at this workstation and this act of inscribing was an identifier and ascribing of belonging/ownership? Taylor recalls at the start of his apprenticeship that:

> I was given a seat at a bench which had lots of wear on it from tools.

The benches in both the engraving departments at Spode were made from wood and are flat. Wood also pointed out the addition of another material:

> Some of the work benches had got lino on them, just to make them a bit smoother, to work on as you're rubbing (shows elbows motion) all the time.

The most distinctive aspect of the bench is its height. The height relative to both the floor of the engraving department and that of the engraver when he sits at the bench is high. Typically, the engravers' elbows will rest on the edge of the bench so that the angle of the upper arm is not far from parallel to the angle of the bench. Wood in his interview commented:

> They had high benches, this was because you were working, err, you had to work with the work under your armpit, you weren't working down on it, in that sense, the work was raised up so that, err, you had to have a high wooden bench.

Fig. 3.127: Joe Hassall engraving a design, c.1930. (CHC).

Fig. 3.127 shows Joe Hassall, engraving shop foreman in the 1930s to 40s. The angle of Hassall's arms in relation to the bench is illustrated and this gives the bench a mid-chest height. The specific height of the bench was for two prime reasons. Firstly, it placed the engravers' eyes in close-proximity to that of the copper-plate on the bench. This prevented the need for the engravers to stoop towards their work and was an ergonomic feature that acted to limit potential neck and back ache. Secondly, it reduced the angle between the eyes of the engravers and that of the light entering from the window. This reduction of light angle made it far easier to be able to differentiate between the engraved-work and the copper-plate. Newly-cut engraving on a 'new' piece of copper can be difficult to see, but viewing it from a low angle makes this easier as light comes, primarily from the window.[143]

Holdway notes the position of the bench in relation to the light source:

> Oh, and working face to the window, that's the other thing.

Galton also notes that "the men worked at benches placed at the windows". This too is confirmed by the images (Fig. 3.120. and Fig. 3.122) where the engravers are sitting at their benches facing a window. Heath suggested to me during the 'Process

[143] The engraving shops also used diffused electric light when the light conditions from the window alone were not sufficient. An example of these lights can be seen in the 1931 image; Fig. 3.113.

Documentation'[144] work that the preferred light source was a North light. Heath believed that this was the least changeable light throughout the day. When this light was not satisfactory, Wood noted that:

> Each bench at that time had a swing lamp, you know, an electric light for working in the winter and they usually 'ad a piece of tissue paper stuck to the lamp to diffuse the light as they didn't like a direct light. And all the tools scattered around and that was about it really.

In the engraving department in the Terrace (used until the mid-twentieth century), there were wooden dividers between many of the benches (Fig. 3.120), but these were not a feature when the engraving department was relocated to the top of the Meadows (Fig. 3.122). Wood notes that:

> There were wooden partitions, so that each engraver had his own section to put his tools in, work in and I think that was as much to, you know, stop the disturbances as best you could and anything else, it allowed you to focus.

It is not clear why the wooden partitions were not retained in the relocated engraving shop in the Meadows building. It is possible that the engravers didn't like being hemmed in or that the dividers cut down on the borrowed light and this gave the department a more open, friendly feel much as Nancarrow alludes to:

> It didn't feel like a workshop even though there was desks there and everyone sat at the same one, there was work going on, it didn't have that feel about it, it didn't feel like there was production going on.

These simplified workstations may have conveyed a different feel, especially to a starting apprentice: a more open, airy feel where from the door, everyone and their work could be viewed.

[144] See Engraving appendix for further details.

Fig. 3.128: Paul Holdway engraving a design, c.1992-8 (CHC).

The bench served another function and that was housing "the array of wonderful old tools which have remained unchanged in over two hundred years". While Holdway (Fig. 3.128) has described himself as being an "untidy engraver" in terms of the workstation, this was unusual within the imagery I have studied. The work bench served as a flat, open-plan tool box that contained all that was needed and could easily be seen. Dant (2005) refers to this as "readiness to hand"; the way the engraver interacts with their personal work environment in a seamless and smooth manner that is afforded to them by having their tools close by and in a known location.

The bench was also used as a defining term in the way that a factory viewed their engravers as Taylor recalls in his interview:

> I was deemed too useful at the bench than in a managerial position.

The notion of associating a workman with his bench is handy. It suggests that this is where the work takes place and just how important it is in the whole performance of creating. It is plausible that this is a way in which the factory viewed the workforce; not in terms of single people, but in terms of workstations (benches in this case) that facilitated production.

Fig. 3.129. Bill Heath at his bench, 2017.

Fig. 3.129 shows Heath reunited with his bench in early 2017, moments before the building was stripped for refurbishment. Heath had not sat at his desk for nearly nine years since the closure of the factory. After this image was taken, he recalled the affection that he felt for the bench. Heath then recalled a string of stories, anecdotes and technical observations, which had one common factor: his bench.

Chapter Four:

The Artistic Status of the Engraver

Designer versus engraver:

Design considerations are crucial to success in the transferware industry. These range from the initial selection of themes and imagery to the careful layout and planning of the engraved plate. Who directed these operations; was it the designer or the engraver? Was there a distinction made between the succession of design operations, and were they undertaken by different individuals? Were they part of the same process and how much separation of roles was possible?

At first, the roles were combined. There are several instances of engravers described as designers, for example, Thomas Minton[145] is cited for "his skills as a designer and engraver" (Priestman 2001: 3). Davis (1991: 36, 186) employs the term 'designer/engraver':

> Whilst it is known that the larger factories employed their own designer/engravers…
>
> …the demand for engraved plates, which was satisfied by various designer-engravers in the Potteries.

However, once the industry was established, there appears to have been a distinction between the two roles. It is not entirely clear why this might have occurred, but one can surmise that as the industry grew and the demand for new patterns and greater production increased, it was impossible for one person to undertake both roles; the separation fell between design management and design production. Tanner and Tanner (2008: 166) acknowledge the two separate roles by the conjunction "and":

> After all, smaller firms often could not afford to employ full-time, their own designers and engravers so they would purchase a set of engraved copper-plates for a particular popular design.

As the industry began to grow, the designer of transferware patterns was a separate role from the engraver. Copeland (1980 [1993]: 21) indicates that: "The designer prepares a drawing on paper. From this design, an engraving is made." Irvins (1969: 88) also notes

[145] Thomas Minton (1765-1836); engraver at Caughley, Spode and then set-up the pottery manufactory, Minton.

the definite separation of roles and that designers created the designs and the engravers worked from these:

> In many instances, such as the reproductions of paintings and statues, the objects reproduced were copied by some draughtsman, and his drawing was then copied by the engraver, who did not work directly from the original work of art.

While Irvins uses the term “copied” loosely in the context of a discussion of the lineage of source material; “interpretation” is a better term for how the engravers worked from the designs, the important fact here is to acknowledge the separation of roles.

Lockett and Godden (1989:125-26) imply a structured approach to design and one that possibly removed the engravers from the function:

> At one time, the engraver had to trace every line of the designer’s work.
>
> Once the basic design had been agreed, the laborious and time-consuming task of transferring such a drawing onto a copper-plate could begin.
>
> Upon a pattern for printing being designed, the drawing is passed to the engraver, who prepares for it a suitable piece of copper [citing George Newness, 1898].

With specific regard to Spode, Hayden (1925: 69) again splits the two roles. Hayden was writing in the early twentieth century giving context during the middle of the Spode manufacturing period:

> Spode’s designers and engravers turned out a great mass of work over a long period.

Using information from the engravers’ interviews, it is clear that there was a dedicated design department at Spode in the mid-twentieth century. Wood suggested how small a role the engravers played:

> But the engravers’ input would have been to have found the right copper that looked right on that piece. But, no more than that.

Wood is probably referring to the introduction of the ‘Spode Blue Room Collection’ in the 1990s, when early nineteenth century patterns were re-engraved[146] and sold as ‘collectables’. His implication is that the engravers had little input into the decision-making process beyond pre-selection, and were ultimately instructed what to do.

[146] Re-engraved for the use in the Murray Curvex process; see chapter five for more details.

Holdway acknowledges the existence of a design department and how the engravers would receive the work that they would then engrave:

> What was pretty unique about it was that you wouldn't get this at Woods [pottery manufacturer in Stoke-on-Trent] and others. Under my father [Harold Holdway], everything had to be drawn in pencil, so they [the engravers] would get a pencil sketch or occasionally a coloured sketch, but for engraving, you wanted a pencil sketch or ink.

Raftery reiterates Holdway's comments regarding the type of design engravers would receive:

> Yes, we did have a design department and obviously, every now and then, they would provide you with a picture which could be a blue and white colour, water colour in which case then, one of the engravers would have to sit there, trace the outline. You'd get water colours, you'd get paintings, you'd get various media, but it was always something that the engraver could work with where, like I say, they were traced.

Taylor confirms the existence of a design department at Worcester in his interview. The shared link between Worcester and Spode[147] is noteworthy:

> We have merged with Spode who are now our sister company. It was a little frosty in the early years, especially when we had to share a designer, but now each company has its own designer and design brief, as it should be, Spode are no threat to us and everything is now amicable.

It has not been possible to locate design-related material from the Spode paper archive[148] to establish exactly what the engravers would have obtained to work from.[149] Other ceramic archives may hold this type of ephemera and further research is needed.[150]

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[147] Worcester and Spode were part of the same company at the time of Taylor's interview in 1999.
[148] The Spode paper archive records pattern out-puts, not design development. Such ephemera may have been deemed to be of little consequence once they had served their purpose.
[149] It is likely that the design department's outputs for the creation of printed (engraved) and hand-painted wares were similar; a simple wash or colour sketch for the painters to follow/interpret.
[150] The Prints & Drawings Study Room at the V & A, holds "Designs for decoration of pottery"; 8600 items as an example.

 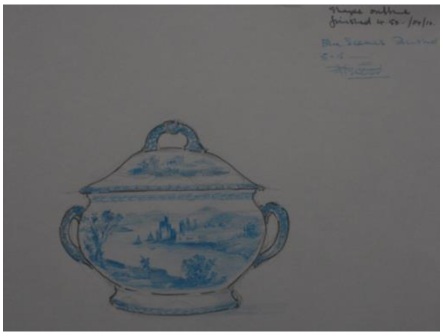

Fig. 4.1 and Fig. 4.2. Paul Wood renders, 2015.

Wood presented me with two drawings or renders (Fig. 4.1 and Fig. 4.2). They are what he would have given to the design department for "brushing up" when he was managing director and they are similar to what the engraving department would receive for interpretation. These original renders took Wood less than half an hour to complete. The use of a single colour, blue in this case, allowed the designers, and consequently the engravers, to work on tone and depth. Wood commented that he was about "inspiration, not perspiration".

In summary, the role of the engraver in the anterior period seems to have been combined with the job of designer, but as the industry gathered momentum, the roles were separated. Dodd (1862: 244-245), writing about industrial processes, wrote that "a designer in the first place prepares a pattern, an engraver next engraves this upon copper". The date at which this occurred probably varied with each factory, but is likely to have been in the late eighteenth or early nineteenth century as the industry-expansion transpired. So, is designing separate from design interpretation through engraving? The evidence gathered for this thesis suggests these are separate processes undertaken by different people with different skills by the nineteenth century. However, this is not to say that artistic inclinations did not serve the engraver, especially in design adaptation where the engraver is the intermediary[151] between design and production.

Artist or Artisan:

Trying to establish exactly how to describe the work of an engraver has been difficult. To aid our discussion, it is first necessary to establish the difference between artist and artisan. The most telling descriptors of the artist are 'creator', 'designer' and 'originator'. An artisan is described as skilled worker, often making things by hand with hand-tools and

[151] Bruno Latour.

using traditional methods. While artisan was once used to mean artist, this usage became rare by the end of the eighteenth century; the term “artificer” occupies a somewhat intermediate meaning. Examining the context of the ceramic industry, the descriptor of a skilled worker using traditional tools and methods fits the engraver more closely. However, can these two seemingly different terms truly be separated? Is it possible to be one without the other, especially in engraving? Fyfe (1985: 407) observes that:

> Engraving was the site of an aesthetic tension between artists and craftsmen.

In other words, engravers are artists, but carrying out the work of an artisan. Furbur, in his interview, made the observation:

> …only an artist can be an artisan.

Skill acquisition (Polanyi 1958) through observation and learning that become embodied through continued repetition create an artisan, but the question of teaching artistic feeling is far more complicated and illustrates the limitations of labels. Irvins (1969: 168) discusses copying and the ‘translations’ that are by-products of an engraving. The useful term here is ‘translation’:

> …the engravers, who copied and translated them onto their copper-plates, generally without having seen the objects their work was supposed to represent. The consequence was that the print which came out of these efficient shops were at best second or third hand accounts of their distant originals, and not only that, translations of translations…

A ‘translation’ of an existing piece of work is a far better description of what an engraver did, as ‘copyist’ implies something undertaken with skill alone but no understanding. The label of copying and a copyist appears to have dogged engravers throughout their existence and there seems to have been a stigma associated with this practice as an act of copying and nothing more. Hayden (1925: 56) in reference to transferware engravers, starts his description of an engraver with the word ‘copyist’. This is a strong word and may convey how Hayden regarded engravers.

The stain upon an engraver as a copyist is something that has burdened all engravers and their contemporary practitioners viewed them dimly. Fyfe (1985: 401) draws attention to this:

> Engravers, although eligible for membership of the French Academy, could find their privileges questioned: ‘If Engravers have to be admitted to the Institute, then locksmiths will have to be admitted as well’.

> As one guide to print collecting put it in 1844: ‘The print is, in truth, not a work of individual art, but a manufacture’ (Anon: 163).

One specific point of view that is seldom examined is that of the engraver; how did they view their manufacture? Examining the engravers’ interviews, Furbur, in a self-admonishing way, comments on the status of the engraver as a copyist:

> I suppose, as engravers, what you really are is a master copier. You recreate a drawing, but in theory, the drawing’s there, and in theory, you are just coping the drawing. Erm, you’d like to think you make things better, more three-dimensional. Erm, but in theory, all you are is a master copier, in my opinion.

This self-critical analysis is refreshingly honest, and demonstrates a practitioner’s understanding. This reproductive characterisation is something that Lambert (1987: 31) also observes. Citing a pamphlet issued in 1883 by Seymour Haden, president of the British Society of Painter-Etchers and Engravers on ‘The Relative Claims of Etching and Engraving to Rank as Fine Arts’:

> …in it he put forward the biased but prevailing opinion that etching, ‘depending on brain impulse is personal’ and thus ranks as Fine Art whereas engraving, tainted by its earlier use as primarily reproductive medium, is ‘without personality and all the attributes which attend the exercise of creative faculty’ and is, therefore, merely a craft.

Not only does this draw attention to the reproductive nature of engraving, but again categorises it as a ‘craft’ and therefore, not as the work of an artist. Fyfe (1985: 403) considers the status of the engraver and also uses the term ‘reproductive’:

> The ‘art’ of engraving was largely perceived as a reproductive art.
>
> Were they artists? Were they merely copyists? The Royal Academy of Arts recruited only a handful of engravers, excluded them from the institution’s government, denied engraving a place in the curriculum of its Schools and was pre-eminently an academy run by and for painters.

Again, the question of status is raised and the labelling of an engraver: artist or artisan. Perhaps the most crucial opinion is that of those that were directly involved; the engravers themselves. They are generally modest and have perspective and understanding of what they did. While it would be unsound to apply modern evidence to all periods of the industry, the information gathered from the engravers’ interviews provides useful indicators. When asked; “Would you describe what you did at Spode as the work of an artist or an artisan?”, this was the response:

Wood:

> An artisan in my view. One is capable of looking carefully at things, but by definition, you are reproducing or interpreting somebody else's creative work. Err, when it comes to shading and things like that, err, you are inevitably using a skill to get the best effect, but you are not creating the image that is required; you are interpreting the image that is required.

Holdway:

> I thought it was amazing, you know, you know, because we were in between the design and the printing and I like to back the printers up because I like to see the production going up. You know, because the designers couldn't move without us, you know, so we were the middlemen that was pushing it. Yes, I just thought we were very important, you know, especially with what we were doing and what we were trying to make. (RH: Do you feel you are artistic?) PH: Yes, but not, I'm not that creative, no. I wouldn't want to just sketch something from imagination and things, I wouldn't want to do that. I think, erm, erm, erm, (RH: reinterpreting?) PH: Yes, yes, definitely, erm, you know, I would love to do, to engrave that or that [points at images in his office], erm, any image really, whether it's a photograph or, erm, yes, I like interpreting, yes, interpretation is the word. Yes, you could either do it in lines or dots or, well a lot of the work was just an outline wasn't it?

Raftery:

> I'd probably say artisan for what we used to do. Because obviously you'd got your designers who were artists and we were just there to change the media of it so that it became product-achievable.

Furbur:

> This comes back to copying again doesn't it and being a creator or, yeah, I'd have to be honest and say we are not creators, it would be nice to have the freedom to do that, and it's often crossed my mind now to do that myself anyway. I could buy a copper, create a scene, cut the scene, chrome the copper-plate and probably make a lot of money, you know selling it. So, I suppose artisan is the true answer to that, but really only an artist can be an artisan, if that makes any sense?

The engravers interviewed gave remarkably similar responses, but all agreed that what they did was the work of an artisan. However, the role of an engraver, was all about interpretation as Raftery confirms in his interview:

> …what they needed to produce as an engravers' technique to interpret those tones.

Furbur notes the type of information the engravers got from the design department and also uses the word; "interpretation":

> they came to us on paper as a blue and white drawing, so yeah, erm, pencil shading, erm, so then we just reinterpret that into an engraving, you know, into dots and lines.

Holdway:

> …interpretation, because it's all dots and lines, really.

It is through the interpretation of an image that the engravers can create their work. Their embodied (Dant 2005: 87) and explicit understanding of their skills allow the transmission of imagery in a new medium, but in a way that involves insight and a degree of artistic ability. The lines are often blurred between the artist and artisan, but the capacity for aesthetic judgement crosses both. Aesthetic judgement can be defined as understanding the balance and composition of a design as Lockett and Godden (1989: 129) allude to:

> Engraving on copper is work which requires a considerable amount of technical training, but no amount of training will make a really satisfactory engraver unless he has an artistic feeling for arrangement and design.

In my interviews, I asked if Spode required an engraver to be 'artistic'; was it a prerequisite of being accepted into the trade? Raftery commented:

> ...they wanted you to have a background in being able to draw.

Nancarrow confirms this point:

> I think it was just an art background. They said that all training would be given and that no experience was required, but I think it did say that an art background would be preferred.

This demonstrates that a certain degree of aesthetic understanding was desirable and from a technical perspective, drawing would be an asset for an engraver as much of their work requires an ability to use the mechanics of drawing.

Martin, a wood-block engraver, comments upon how the eventual reader of the work viewed the work of the engraver in terms of the artist originator or the engraver realiser:

> When you look at an engraving on wood, which do you admire. The artist or the engraver? In nearly every case, it will be the creation of the artist that will appeal to you. The subject, and its appeal. Unless you are an engraver yourself you will not be able to appreciate his work to the full, he will remain in the background along with the man who did the printing, for without the latter, all the efforts of the former are nullified.

This is a crucial observation as Martin offers a different perspective; the point-of-view of the 'audience'. The audience sees the artist's work through the medium of the engraver; the work of the engraver becomes as if invisible, except to the specialist.

In summary, the work of an engraver is that of an artisan. The terms 'copyist' and 'reproductive', while being used as a descriptive of the engraving role, do not adequately define the nature of the work. While the engravers did create versions of the designs given to them or of existing ceramic pieces, the adaptation and interpretation involved take this beyond copy. Translation is achieved through their embodied skill and understanding of their design language; the lines and dots that they worked in. This is about rephrasing and re-writing in another language. While the term artisan is appropriate, it is an artisanship that implicates artistic skill sets to re-present designs in their own medium.

Authorship:

An author is commonly understood to be the creator of an original work. But authorship is not as clear cut as who made something when it comes to transferware engraving. Assigning authorship can be a complex and difficult process. In order to understand the potential authors within the transferware context, the creators can be analysed in terms of four main design routes: (**Route 1**) design from an existing pattern on Chinese (or British) ware, (**Route 2**) adaptation from an artwork, (**Route 3**) 'in-house' design and (**Route 4**) copying of existing transferware designs. A profuse amount of the transferware patterns were based on existing artworks or designs in print form. Coysh & Henrywood (1983: 341) explain:

> The majority of the landscape patterns on blue-printed wares were based on prints in late 18th century and early 19th century illustrated books. These are generally referred to as source prints.

Coysh and Stefano (1981: 13-14) posit that:

> At first potters looked for foreign subjects for their patterns, basing their engraving on illustrations from books. Most of the landscapes were based on the engraving in books published between about 1790 and 1820.
>
> A comparison with the actual engraving reveals how very closely the print on the dish corresponds with the original. Those slight changes were necessary to adapt the rectangular original to provide a picture for an oval dish.

So, as generally understood, a 'source print' is an image that is used as a starting point when a new design is created. These are typically taken from engraved prints that have already been published in one format or another, but are occasionally taken from paintings. There appear to be few examples of the source being a painting and this might suggest an issue of accessibility. Prints were probably used in preference to paintings as they were already in the public realm and in popular demand and were portable. The consumer of prints was not necessarily a consumer of transferware, and vice versa, so there remained a freshness to the designs.

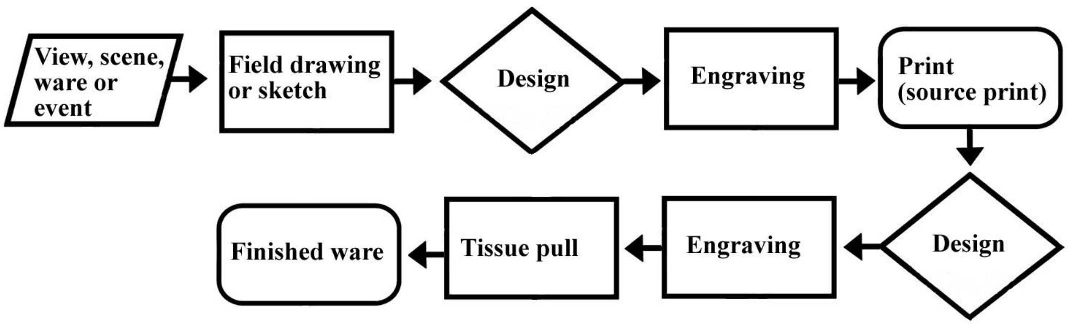

Fig. 4.3.[152] Flowchart of the evolution of a transferware design.

[152] The word 'design' has been used here to link with the idea term 'design phase' and 'designers', but this step is often referred to as 'drawing'.

The flowchart above (Fig. 4.3.) outlines the steps to translate a "view, scene, ware[153] or event" eventually into a transferware product. The first step is the subject matter which can be widely varied and can consist of an event in history, a sporting event, a scene, a building, floral specimens, people, animals, and objects. There is often an original sketch that can be crude and is sometimes referred to as a field sketch. The sketch is then refined and made to work in the intended medium thorough a design phase and then this is translated onto a hand-engraved or etched printing plate. The boundaries between the design phase and engraving are often blurred and merge. A print/impression is then taken from the engraving and is marketed as a published print. This is, of course, a possible end-point for some prints in terms of re-purposing of imagery. Lambert (1987: 14):

> Even reproductions which acknowledge the source of the image through inscription often show unexpected changes when compared with the so-called original.

Route 1: from an existing pattern on Chinese (or British) ware

In the first design-route, Chinese Export pieces were copied. The 18th century Chinese export porcelain (Fig. 4.4) is in the Spode archive. It is not entirely clear if Spode was in possession of such Chinese pieces to use them to copy from or if they were added to the collection at a later date. Priestman (2001: 2) points out that Minton, while working for Spode in London, had access to Chinese export pieces and could evaluate which were popular and which to use as sources for his new engravings:

> An additional advantage of being based in London would have been that Minton had easy access to the latest and most popular Chinese porcelain designs on which to base his engravings.

Excavations[154] undertaken on the Spode site, show that Chinese export pieces are not uncommon within the shard-count.[155] This demonstrates that some Chinese-origin pieces were at the factory and were possibly being copied directly on site.

---

[153] If an existing ware is used as the origin, this short-circuits the diagram and thus begins with the source print.
[154] The Spode Museum Trust archive has many boxes of Chinese wares that have been excavated from the site, typically when trenches were dug for new building works.
[155] A 'shard' is a small piece of ceramic, often broken, frequently found in the ground. It can be used as an indicator in many areas such as stratification, attributions, manufacturing processes and more.

Fig. 4.4 and Fig. 4.5. Chinese and Spode ceramic.

Fig. 4.4. Chinese-export porcelain dish, mid-18th century, and Fig. 4.5 Spode's "Parasol Figure" pattern cheese dish, c.1815; the Chinese arrangement of motifs remains, but scale, spacing and emphasis are altered.

Route 2: adaptation from an artwork.

In terms of a transferware design, the source can begin as a print. It too is subject to a design phase where the image is translated into a design language that works on transferware. This can involve fitting on a specific ware; making a rectangular image fit a different shape, but also adaptive techniques of engraving. Fig. 4.6 is a flowchart that outlines the process within a pottery factory for this route of transferware creation.

Fig. 4.6. Simplified flowchart of the evolution of a transferware design.

To put Spode's outputs into context of the wider field of transferware production, the following example demonstrate how source-work was used and adapted in rival, contemporary potteries.

Fig. 4.7. and Fig. 4.8. Source print and transferware dish, c.1819-1825.

Fig. 4.7 shows one of John Preston Neale's prints from *Views of the Seats of Noblemen and Gentlemen in England and Wales, Scotland and Ireland*, 1819. Adjoining this (Fig. 4.8) is a "Grapevine Border series" dish, "Brancepeth Castle" produced by Enoch Wood and Sons,[156] around 1825. The transformation of Neale's image is made clear by comparing it to the selected motifs, their scaling and alteration to fit the dish shape. Priestman (2001: 129) illustrates a source print discovered in the Minton archive. It is a view of Monk's Rock, Tenby used by Minton[157] as the subject of a large dish in the "Monk's Rock" series around 1815. The 1813 source print has a "pencil grid superimposed by the engraver and clearly defines the part of the scene used for the copper-plate" (Priestman 2001: 129). This is a rare glimpse of the adaptation process.

The Spode "Caramanian" series, introduced around 1809, provides another example of source-work adaptation.

[156] Enoch Wood and Sons – Burslem, Stoke-on-Trent; 1818-46.
[157] Minton – ceramic manufacturer, Stoke-on-Trent.

Fig. 4.9. and Fig. 4.10. Source print and transferware dish, c.1803-09.

Fig. 4.9 shows a coloured print from Luigi Mayer's *Views in the Ottoman Empire,* 1803, compared here with a Spode "Triumphal Arch of Tripoli in Barbary" dish, c.1809 (Fig. 4.10).

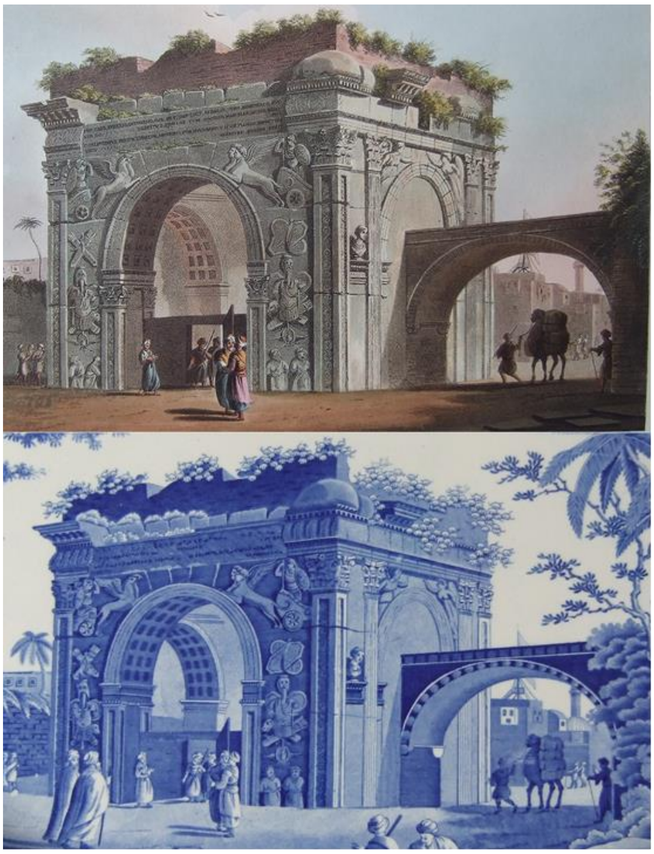

Fig. 4.11. Source print and transfer-print comparison, c1803-09.

A comparison between the 'Triumphal Arch' in the source work and the ceramic (Fig. 4.11) reveals close retention of proportions, but addition of secondary motifs in the ceramic. Heath alluded to the use tracing paper to copy key elements of design drawings during his period of employment,[158] which suggested experimenting with this technique in regard to the "Triumphal Arch" pattern. This is demonstrated in the brief image essay below:

[158] 1973-2008.

Fig. 4.12. - I printed an image of the ceramic below the image of the known source image.

Fig. 4.13. The tracing paper held in place with a small amount of adhesive putty. Fig. 4.14. The major lines in the design were traced.

Fig. 4.15. The tracing placed over the image of the ceramic illustrates near identical fit.[159]

This experiment demonstrated the plausibility of the tracing technique as a means to ensure accuracy of source work remediation in the "Triumphal Arch" case.

Further complications arise when the source-print used by the transferware designer was not the original but a print version of a painted work. The "Game Keeper" pattern, c.1820-25, by an unknown maker is an example of this problematic route (Fig. 4.16-4.17).

Fig. 4.16. and Fig. 4.17. Source print and transferware dish, c.1815-1825.

[159] There are slight discrepancies, but these could be because of the inaccuracy of my tracing or that used in 1809 in the original case.

Fig. 4.16 shows the source print for the “Game Keeper” pattern, and Fig. 4.17 an example of the ceramic ware. The source print was ‘taken’[160] from a Landseer painting. There are significant changes from the painting; Goodwood House has been added in the middle-background. From the source-print to the ceramic, further changes are introduced although more subtle, but the addition of a border constitutes a substantial change. This type of multi-step image making that leads to a transferware pattern is less common than the straightforward source-print route.

While most source works were not intended to be copied or adapted by transferware designers, an example of designs created specifically as use for decoration is found in Pillement’s *Ladies Amusement: Or, The Whole Art of Japanning Made Easy*, published in 1760.[161] This source is known to have been used for the decoration of transferware by The Cambrian Pottery[162], Davenport[163] and the Indeo Pottery[164]. The designs required little adaptation to make them work as a transferware arrangement. In the modern context, the tattoo industry makes use of similar published imagery specifically designed for copying with minimal adaptation, known as ‘flash’. A further parallel with tattooing can be noted; source work is traced, laid down onto another medium (human flesh), then punched with a needle.

[160] Taken; copied from, inspired by.
[161] This publication of over one thousand designs came with instruction of composition and colours to be used.
[162] 1783–1810, Swansea, Wales
[163] 1794–1887, Longport, Staffordshire
[164] 1772–1841, Bovey Tracey, Devon

Fig. 4.18. Spode ceramic with armorial centre, c.1815-25.

Fig. 4.19. and Fig. 4.20. Close-ups of Spode ceramic and Arms Book entry, c.1815-25.

Similarly, armorial patterns, which need to be faithfully copied to serve their purpose, were taken from supplied artwork. Fig. 4.18 and 4.19 show a Spode "Arms of the City of Newcastle" ceramic.[165] Fig. 4.20 is an image from the Arms Book[166] illustrating the design copied at top right.

Route 3: 'in-house' design.

The third route is 'designed in-house' and this is the least common of the three. This was a route that was used during the anterior phase of the industry with patterns such as the well-

[165] This service was commissioned by the city of Newcastle and used "Greek" series engravings. The centres of the "Greek" tissue pulls were cut out once printed and were replaced with a tissue pull of the Newcastle Arms engraving to complete the finished ware.

[166] The Arms Book is from the Spode archive currently held in the Stoke City archive.

known “Willow” being created in-house.[167] Successive changes to copyright law in the nineteenth century narrowed the range of source prints freely available. Irish prints and lithographs were brought within the 28-year protection offered to engravers. The introduction of the copyright act of 1842 stopped potteries from copying each other’s work, and seems to have promoted new efforts toward originality, putting source print work out of fashion. This led to a phase of transferware known as “Romantic Period” (Coysh & Henrywood 1982: 10). New patterns followed a “definite formula” (Coysh & Henrywood 1982: 10) of generic European scenery with mountains, figural groups, urns and vases and elaborate buildings.

Fig. 4.21. “Romantic” transferware ceramic, c.1845.

Fig. 4.21 shows an example of the in-house designed ‘Romantic’ type: “Rhine” by John Meir and Sons,[168] c.1845. There were hundreds of transferware patterns produced between 1842 and 1860 that followed this formulaic treatment, but each was original in detail.

Route 4: copying of existing transferware designs.

This route even further blurs the boundaries of authorship; it is the copying of designs from one pottery manufacturer to another. Design espionage (Coysh & Henrywood 1982: 291)

[167] The “Willow” pattern is thought to have been invented by Thomas Minton who was working as a freelance engraver is Stoke in the early 1790s.
[168] Pottery manufacturer; 1837–1897, Tunstall, Staffordshire.

was rife in a period before the copyright act[169] and an accepted part of transferware trade. The True Blue (1998: 93) catalogue records:

> Until legalisation to protect designs was enacted, a pattern was free-for-all and in many fields of production including ceramics, plagiarism and blatant copying took place, in the sources of design as well as in designs already marketed. Consequently, as many as ten or more versions of a pattern can be found over the period of the 1820s and 1830s.

Many of Spode's successful designs were copied by rival potters which was a case of legalised exploiting of a pre-created market (Fig. 4.22-4.24).

Fig. 4.22., Fig. 4.23. and Fig. 4.24. Three "Indian Sporting" ceramics by Spode, Clews and Challinor, c.1810-20.

Fig. 4.22 shows a Spode, "Indian Sporting" series, "Death of the Bear" ceramic, c.1810-15. Fig. 4.23 shows the Clews[170] 'copy', c.1815, and Fig. 4.24 an Edward Challinor[171] version, c.1820. It is not clear if the Challinor example copied the Clews ceramics or the Spode example, whether it is a copy or a copy of a copy. What is clear is that the three different pieces are almost facsimiles of each other. Under closer inspection, variances in engraving are visible. It is significant to note that the Spode copper-plate for the original version is still in the Spode Museum Trust archive; therefore, it was not sold to enable it to be printed at either the Clews or Challinor works.

[169] The Copyright Act of 1842 made the copying of pre-existing source images, designs and patterns illegal. 'New' transferware patterns had to designed in-house.
[170] 1814-1834, Cobridge, Staffordshire.
[171] 1819–1824, Burslem, Staffordshire.

Fig. 4.25, Fig. 4.26, Fig. 4.27 and Fig. 4.28: Four “Wild Rose” ceramics, c.1815-1970.

Copying of existing patterns was not limited to Spode’s designs. The “Wild Rose” pattern, shown in four examples (Fig. 4.25-4.28), was copied by over fifty different potteries from 1815 to the late twentieth century.

Authorship

Before assessing the possible authors of a transferware design, there must be a distinction made between authorship and ownership. Although the factory paid the engravers and it is the factory that mark[172] the wares, they are not by default, the authors of the work. Ownership of the copper-plates, or source prints does not create authorship in a work.

Harvard Medical School guidelines[173] state that “authorship is an explicit way of assigning responsibility and giving credit for intellectual work”. While these guidelines were directed toward authorship of texts, they are applicable with modification to “reflect actual contributions to the final product”.[174] An author is defined by “a substantial, direct, intellectual contribution to the work.” The key words here that are applicable in the transferware example are “substantial” and “direct”. With this in mind, a flow chart can be constructed to assist with assessment (Fig. 4.29).

Fig. 4.29. Simplified flowchart of the evolution of a transferware design.

[172] Mark – back stamps, impressed marks that all pertain to the origin of the ware.

[173] https://hms.harvard.edu/sites/default/files/assets/Sites/Ombuds/files/AUTHORSHIP%20GUIDELINES.pdf

[174] https://hms.harvard.edu/sites/default/files/assets/Sites/Ombuds/files/AUTHORSHIP%20GUIDELINES.pdf

Looking at the candidates in the chronological order in which they took part in the manufacturing process reveals that each manufacturing process has authorial input: designer, engraver, printer, cutter, transferrer, and other ceramic-workers including the fireman.[175] But not all of these contributors can be said to have made a substantial or direct input. The designer and engraver have the most substantial roles, and the creator of the source print must have consideration as well. But the engraver has the most direct role.

It appears that there are several authors, but their precise significance is difficult to determine. Evidence from the engravers' interviews revealed that they felt they were not creators of work, just interpreters. But assertion of a claim to authorship is not a prerequisite for authorship.

Based on the evidence in the copper-plate archive and the ceramic archive, transferware, engravers rarely signed their work. This was probably a directive of the factory. The skills of an industry are largely in complete anonymity. It is possible that the factory for whom they worked did not allow the engravers to sign their work because of potential ownership issues.[176] Tanner and Tanner (2008: 4) in reference to Thomas Rothwell[177] leaving the Cambrian Pottery noted:

> We must remember that copper-plates were expensive and the labour of the engraving itself was lengthy and costly so the pottery certainly would have used the plates until their ultimate demise. Further, the Pottery would have guarded its property; these plates were not the property of the engravers themselves so Rothwell would not have been able to take them with him. The copper-plates would have been used after his departure!

Hayden (1925: 56) makes two significant observations:

> Spode, with his procurement of Lucas the engraver, founded a school and Thomas Minton who possibly brought his plates, or those that Thomas Turner of Caughley had not marked with "T.T." as a master and owner, came along too.

Hayden suggests that Minton, when he moved from Caughley[178], took with him the copper-plates he had engraved. This implies ownership and authorship of work. Secondly, Hayden observes that Thomas Turner[179] marked some copper-plates to stop them being

[175] The Fireman had arguably the most important job on the entire pottery. The rest of the workers were on a rate of pay that was 'good from the oven'. That is; they only got paid on the pieces that were saleable after having been fired. If the fireman got the temperature of the kiln wrong and had a bad firing, no one got paid.
[176] The law would deny such a right because the engraver was paid or commissioned to do the work so ownership resides with the employing or commissioning firm.
[177] Thomas Rothwell transferware engraver; 1740-1807.
[178] Caughley – ceramic manufacturer, 1775-1799.
[179] Thomas Turner, potter and engraver; 1749-1809.

claimed by others as his workforce moved around. Again, this implies signing to denote authorship and ownership.

I have found one example within the Spode copper-plate archive of a signed engraving. This was a centre with an image of Josiah Spode I, combined with an existing "Italian" pattern border. It was to be sold as a limited edition celebratory piece, and was undertaken by Frank Boothby (Fig 4.30). At the lower right-hand side of Josiah Spode's coat sleeve at the bottom of the engraving, Boothby was allowed by his manager, and must have requested to engrave his name (Fig 4.31-4.36).

Fig. 4.30. Master engraver, Frank Boothby with the portrait plate. CHC.

Fig. 4.31. Boothby’s plate in the Spode Museum Trust archive.

Fig. 4.32. Boothby’s signature.

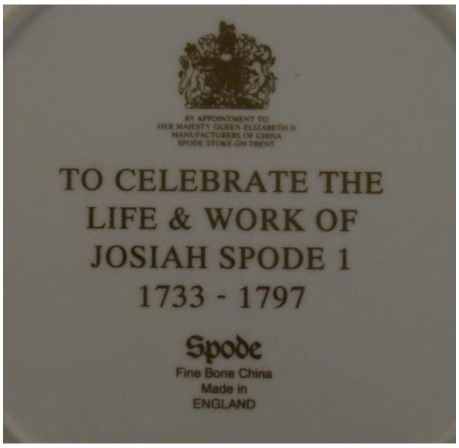

Fig. 4.33 - Fig 4.34. Front and back of the commemorative ceramic.

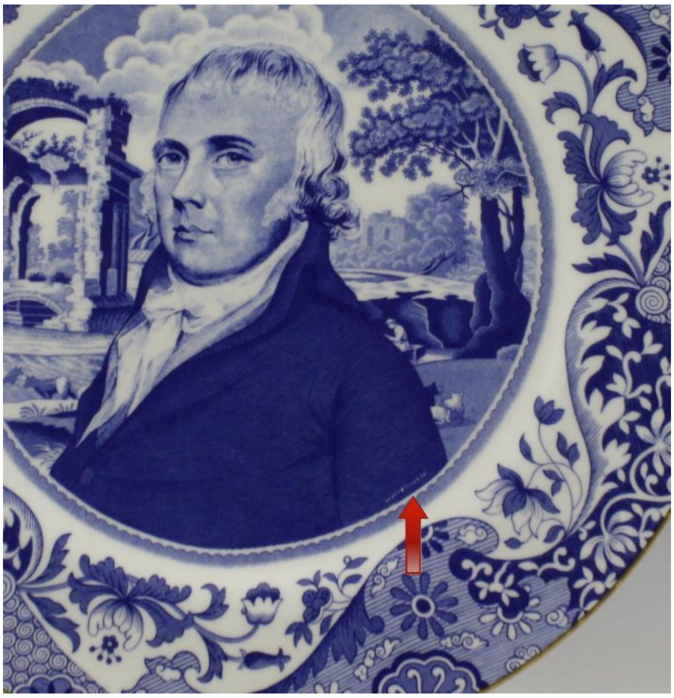

Fig. 4.35. The location of the Boothby signature (see arrow).

Fig. 4.36. Close-up of the Boothby signature on the production piece.

It is significant that Boothby was allowed to sign an engraving. Not only does this indicate Boothby's significance as a master engraver, but it plausibly changes the authorship of the work. While the addition of a signature possibly defines authorship, there is a large Spode back stamp[180] to the reverse, which makes a counter-claim for authorship. Fyfe (1985: 401) maintains:

> The dominant aesthetic orthodoxies of fine art did not permit the engraver who worked the plate or block personally a publicly acknowledged creative role.

This reiterates the anonymity under which engravers normally worked and that from a customer's perspective, there was no way of knowing who the engraver was, just the factory for whom they worked.

[180] Back stamp – a printed mark to the underside of the ware that gives details of a pattern or manufacturer.

In the context of industrial manufacture for the decorative arts, the concept of authorship could be seen to diminish the role of the artisanal labourer, placing the work of an engraver in a subcategory of artistic production rather than at the forefront of industrial production. The role of an engraver in artistic production is that of a mediator: the creator, through interpretation, of a mechanical template to be utilised in technical reproduction. Benjamin describes this multifaceted chain of production where to "an ever-increasing degree, the work of art reproduced becomes the reproduction of a work designed for reproducibility" (Benjamin, 1936: 24). While "objects made by humans could always be copied by humans", "technical reproduction is more independent of the original than is manual reproduction" (Benjamin 1936: 20-21). This places the work of the transferware engraver less in the category of artisanal, and more as an initiator in a chain of work in industrial manufacture.

Multiple Authorship:

There are many components that make up the journey of the imagery within a transferware design. It is therefore more realistic to define patterns and designs as the work of multiple authorship. Each end product has a number of contributors. As Stillinger (1991: 96), author of a key work on multiple authorship, argues:

> Every work is necessarily the product of multiple authorship.

Furthermore, Stillinger (1991:182) asks if it is possible that this could take place in any other way:

> A relevant question at the outset is whether "pure" authorship is possible under any circumstances – single authorship without any influence, intervention, alteration or distortion whatsoever by someone other than the nominal author.

Looking exclusively at transferware patterns, the typical route would involve at least two or possibly three potential authors before the engraving commenced. Even then, others could still have input, suggestions or opinions to offer as the engraving was taking place. Looking at the "Willow" pattern as an example of an engraver/designer product,[181] there were influences and inspirations that led to its creation, so on the face of it, a single author product, but in reality, not.

[181] Thomas Minton-designed.

Stillinger (1991: 182) looks at the way which so many contributing influences affect the way in which authorship is both determined and observed:

> The romantic notion of single authorship is so widespread as to be nearly universal. In contrast, the accumulation of evidence for the prevalence of multiple authorship can support a more realistic account of the ways in literature [or art] is created and, especially when ordinary human motives of authors, editors, publishers, booksellers, readers and the rest are brought into the picture all together, can contribute to the ongoing efforts of new and old historicists alike to connect literary [read artistic] works with the social, cultural and material conditions in which they were produced.

I could find few examples of an engraving in blue and white transferware being ‘signed’ to make claims to authorship, multiple or singular, from an early period at other potteries.

Fig. 4.37. and Fig. 4.38. Source print and transferware dish, c.1804-1826.

Fig. 4.37 shows Luigi Mayer’s[182] “Sepulchre of Rachel” print, the source for a C. J. Mason[183] ten-inch soup dish of around 1826 known as the “Classical Scene” pattern (Fig. 4.38). This was engraved by an outside engraving shop: Bentley and Wear.[184] It is probable that Mason used an outside shop because this pattern was produced at the start of their trading when they may not have had their own engravers. The engraving is of high-quality and would have demonstrated the potential of the new pottery to customers. In terms of authorship, is it is significant that this engraving has the engraving shop’s name ‘hidden’ within it. There is a confusion of marks on the ruined columns that make up the border

[182] Views in Palestine, from the original drawings of Luigi Mayer, with an historical and descriptive account of the country and its remarkable places, 1804.
[183] C J Mason, pottery manufacturer, 1826–1845, Lane Delph, Staffordshire.
[184] Engraving and printing shop in Vine Street, Shelton, Staffordshire, 1815-23 and Bentley and Wear 1823-33.

design, but on the one directly at the bottom of the border, can be read: “Bentley Wear &/ Bourne Scpt” (Fig. 4.39.).

Fig. 4.39. Close-up of ‘Bentley and Wear’ within transferware design, c.1826.

The assessment of authorship within this engraving falls between the candidates of Mayer (source print), Bentley Wear & Bourne (engraving shop) and C J Mason (manufacturer). While it seems that there are such significant additions and changes to Mayer’s print from 1804 that the engraving shop has greatest claim to authorship, there is a significant detail to note; the term “sculpsit” abbreviated within the engraver’s signature (Fig. 4.39). This refers to the tradition of multiple authorship of prints distinguishing between fecit (made) and sculpsit (engraved). The terminology confirms the acknowledgement of multiple authorship in the paradigm of this traditional nomenclature.

Within the Spode archive, there is an engraving that was created by an outside engraver. Having been marked by the original engraver, this mark was removed by Spode at a later date. This is the Spode “Tiber” or “Rome” pattern, taken from two prints by Merigot:[185] *The Castle and Bridge of St. Angelo* and *Trajan’s Column*. The pattern has a triangular-shaped rock within the design, and a few ceramic examples exhibit an ‘S’ engraved within the triangle (Fig. 4.40- 4.41).[186] A collector has suggested:[187]

> …that it is almost certainly the mark of Thomas Sparks who supplied copper-plates to Spode and also Hamilton, Stevenson, Ridgway and several others.

[185] Merigot, J., Edwards, R. (1798) Views and Ruins in Rome and its Vicinity.
[186] This was first noted in the Friends of Blue Bulletin 3, November 1973: Does your collection include Spode’s Tiber (Rome) pattern? If so, have a close look at the group of rocks on the lower right-hand corner. One version has recently turned up with the letter ‘S’ clearly engraved on a triangular shaped rock.
[187] The Friends of Blue Bulletin 4, February 1974.

Coysh and Henrywood (1982: 362) concur with the possibility of Sparks[188] as the engraver. While it is not possible to definitively conclude that the “Tiber” pattern was engraved by Sparks, it is certainly plausible as it fits with Sparks’ known chronology of working, the pattern having been introduced in 1811[189] before he started working for Wedgwood in 1812.[190]

Fig. 4.40. Spode “Tiber” pattern ten-inch plate with the ‘S’ initial.

(Courtesy of P. Holdway Collection)

188 Mankowitz, W. Hagger, R. (1960) A concise encyclopaedia of English Pottery and Porcelain, page 276 in the Appendix II; Engravers for Pottery and Porcelain: Sparks, Thomas, born 1773, died 1848 at Hope Street, Shelton. Address in 1802; Old Hall Street, Hanley. Worked for Wedgwood, 1812-1832.

189 As reported by Jewitt and the ‘Blue Room Collection’ pieces from the 1990s, therefore Sparks could have engraved this pattern.

190 As noted by Mankowitz.

Fig. 4.41. Close-up of the ‘S’ on the triangular-shaped rocks at the lower right-hand side.

There are also ceramic examples without the initial ‘S’ (Fig 4.42- 4.43), and Spode’s copper-plate shows this same conformation (Fig 4.44- 4.47).

Fig. 4.42. A Spode “Tiber” ceramic with the ‘S’ initial removed, and Fig. 4.43, a close-up of its original position.


Fig. 4.44. “Tiber” pattern copper-plate from the Spode archive, and Fig. 4.45. Reverse with a pattern from 1858 including a robin.


Fig. 4.46. and Fig. 4.47. Close-ups of the former ‘S’ location in ceramic and engraving.

Fig. 4.46. and Fig. 4.47. Side-by-side presentation of a ceramic example and the Spode copper-plate, both missing the ‘S’.

Assuming Sparks was the engraver, it is entirely plausible that the engraving had an ‘S’ in it when it arrived at the Spode factory. It was then used in production and some ceramic examples were printed from it and sold. The ‘S’ could then possibly have been noted by someone in the printing team and this could have been reported to either a manger or the engraving department. The decision was then taken to remove the ‘S’ from the engraving. This would normally have been undertaken by knocking-up from the back, planishing flat and re-engraving. However, this copper-plate has a newer engraving on the reverse, so any evidence of knocking-up and alteration has been erased. The re-use of copper-plates, while being part of their history, also has the action of removing crucial pieces of evidence of pattern remediation. However, I have shown this example to Holdway who suggested that the ‘S’ was so lightly engraved that it was almost certainly removed with a burnisher[191] rather than using knocking-up. If this is the case, the addition of the 1858 pattern to the reverse probably has not altered the way in which the modifications to the “Tiber” pattern are viewed.

So, what does this mean for authorship? As the copper-plate in the archive does not have the ‘S’ in the engraving, it can be assumed that the ‘S’ was the first state of the engraving. If the ‘S’ was noted and removed, this type of forcible erasure of authorship is significant. While Spode did own the copper-plate that was bought from Sparks, the authorship of the work was ostensibly ambiguous before the ‘S’ was removed, and the “Tiber” portrayed as solely a Spode pattern. Both ‘S’ and non ‘S’ ceramic pieces are marked SPODE to the underside. Like the Boothby example, a signature is a claim to authorship. Removal of a signature is a counter-claim. But neither establish authorship unquestionably. Finally, it should be noted that access to the copper-plate was key to understanding the order of what had occurred, which we will return to in a discussion of archives and research in Chapter Seven.

Authorship of bought-in engravings

There is significant evidence that when potteries went out of business, their equipment, moulds, copper-plates and other saleable assets were put up for sale.[192] Hyland (2005: 218-221) lists inventories of goods, wares, tools and copper-plates following the closure of the Herculaneum factory in 1840. Within the Spode archive, numerous sets of copper-plates were brought in, such as Davenport’s “Rhine” series and Wood and Brownfield’s “Zoological” series. These, albeit from a later period (c.1850-70) show that this inter-trade and buying-in was taking place. Again, this poses the question of authorship, and what constitutes a Spode example. Is it enough that it is printed, transferred, glazed, fired and retailed from Spode with a Spode mark, even if the engraving was not of Spode origin? The origin and route of these copper-plates should make us question the strict identification of pieces as individually authored.

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[191] A burnisher is a flat, slightly rounded steel tool with a wooden handle used to remove errors from engravings.
[192] Newspapers advertisements.

Summary

There are four routes to transferware patterns (ceramic models, source works, in-house designs and transferware copies), each has several contributors that may have a claim to authorship.

While the factory is the owner of the work, this may be considered a form of honorary authorship[193] that is a derivative of such ownership. The Harvard guidelines look for actual contributions to the final product, and only substantial contributions qualify for authorship. It would be difficult to argue that *only* the engraver makes a substantial contribution to transferware patterns. Hence, it is concluded that transferware patterns are the product of multiple authorship. While the engravers had the embodied skills that allowed the interpretation and adaption of imagery into the transferware language, and might claim to be highest in the level of contribution, they remain one of multiple authors: they are less authors than interpreters that produced handmade translations of iconography.

Evidence of engravers' creative input

While evidence of engravers' creative input has been difficult to discover, interviewees revealed how engravers used a degree of their own licence in interpreting a design. Holdway recollected:

> Erm, the biggest one was the start of the, erm, the Blue Room Collection, in recent years. Because there was the craze for thimbles, and toy plates, little miniatures, and we were jumping, well it wasn't just me, but we were jumping saying why can't we do some of the old patterns. And that was the birth of the Blue Room Collection.

While the origins of this collection may not be so straightforward, Holdway felt that the engraving team were partly responsible for its inception. As selection of collection themes and patterns is normally the designer's role, the engravers in this instance were allowed to participate in that work. This was particularly acknowledged in one release called "The Engravers' Archive Collection".

193 https://hms.harvard.edu/sites/default/files/assets/Sites/Ombuds/files/AUTHORSHIP%20GUIDELINES.pdf - "Honorary or guest authorship is not acceptable"

Fig. 4.48. and Fig. 4.49. Blue Room ceramic, c.2000 and introductory ceramic. C.1810-15.

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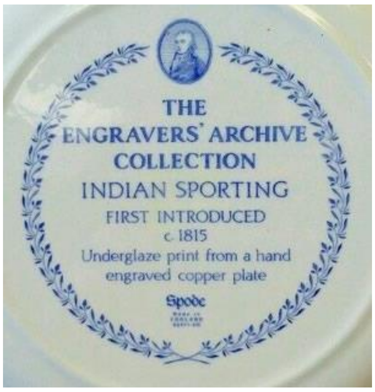

Fig. 4.50. and Fig. 4.51. Close-up comparison of title marks, 2000 and 1810-15.

Fig. 4.50. - an image of the back stamp from the c.2000 “Indian Sporting” plate. Fig. 4.51. - an image of the c.1810-15 Spode “Indian Sporting” series plate’s printed title mark.

Fig. 4.52. and Fig. 4.53. Close-up comparison of central scenes between c. 2000 and 1810-15.

Heath was asked to engrave one of the patterns from the “Indian Sporting” series for the ‘Engravers’ Archive Collection’.[194] Fig. 4.48 shows the Spode ‘Engravers’ Archive’[195] plate, c.2000, while Fig. 4.49 shows the historical plate with the same scene, c.1810-15 that formed the inspiration for Heath’s work. The early plate was titled to the reverse; “DEATH OF THE BEAR” (Fig, 4.51). Heath wondered how politically correct this would be. He knew that the title mark was not going to be used on the reverse of the ceramic, but only the series title (Fig. 4.50).[196] Nevertheless, could the modern public appreciate a product that portrayed a bear with a spear sticking out of it, as can clearly be seen in Fig. 4.53. He approached the management[197] and suggested that he engraved it without the spear (as seen in Fig. 4.52). The rest of the scene would remain as the earlier example so that it would look familiar to those who were aware of the original’s look and detail. The scene still contains much pending violence including a mounted huntsman who is aiming a spear at the bear, but in the new version the obvious inhumanity is supressed to allow the viewer to appreciate the exoticism and excitement. Here, the engraver’s interpretation goes beyond a formal change in position, rendering or scale of a motif, and affects the viewer’s understanding of the scene. This goes beyond the usual role of the engraver.

Holdway discussed at length with Trevor Durose[198] whether the newly-engraved “Tiber” pieces for the ‘Blue Room Collection’ in the 1990s should have the ‘S’ engraved as part of the pattern (as discussed above under ‘Authorship’). Holdway who is a collector of British transferware and a member of the Friends of Blue was aware of the ‘S’ pieces and its potential connection to Sparks. Holdway admired the engraving and wondered if adding an ‘S’ to the ‘Blue Room Collection’ pieces would be a fitting tribute to Sparks. However, the decision was taken not to add the ‘S’ to the new engraving (Fig. 4.54).

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[194] After Blue Room.
[195] After the success of the Blue Room collection, further patterns were re-engraved and put into production under various ‘collection’ titles such as ‘Engravers’ Archive’, ‘Garden Collection’ ‘Georgian Series’ and more.
[196] Indian Sporting series.
[197] Both the engraving shop foreman and Paul Wood, the factory manager.
[198] Trevor Durose was engraving department foreman at the time of the ‘Blue Room Collection’ introduction.

Fig. 4.54. Close-up of the triangular-shaped rock from the 1990s 'Blue Room Collection'.

A further example will be seen in Chapter Five (page 271) in the "Willow" case study. This relates to Holdway being assigned to re-engrave the famous "Willow" pattern for the introductory plate of the Blue Room series.

Fig. 4.55. and Fig. 4.56. Spode Blue Room dog bowl ceramic, c. 2000.

When the Spode dog bowl (Fig. 4.55 and Fig. 4.56.)[199] was re-introduced in c.2000 as part of the 'Blue Room, Signature Series', Heath was asked to engrave the pattern. There was an existing engraving for the centre, "Hunting a Civet Cat", from c.1810, but the issues with the border to the outside of the dog bowl was more complicated. As the work was a large undertaking, Ken Collins[200] was asked to engrave the centre using the existing engraving as an exact copy, while Heath was charged with engraving the border to the inside and outside.

[199] A dog bowl was used to feed dogs or cats from c.1820 onwards. They were produced in a variety of sizes to suit the animal.
[200] Ken Collins, ex-Spode engraver.

Fig. 4.57. Close-up of dog bowl side, c.2000.

While the inside border was taken from an existing early nineteenth engraving, there was nothing in the archive that was big enough for the shape of the outside of the dog bowl (Fig. 4.57.).

Fig. 4.58. Close-up of c.1801-15 border print.

Heath chose the widest border he could find from the early nineteenth century series[201] (Fig. 4.58.) as inspiration for the new engraving. None of the elements were directly copied or traced, Heath drew everything within the dog bowl's design by hand, arranging these elements to fit the complex shape required. He selected the tiger as the 'main' design element in the border and moved it to a prominent place that needed something rectangular in shape.

[201] 20.25" Spode Indian Sporting series "Shooting a Leopard in a Tree" pattern platter, c.1810 (border close-up).

Fig. 4.59. An illustration of the join in the transfer on the dog bowl, c.2000.

Heath only had to engrave half of the border; one whole side and one short side[202] as this print is repeated twice to fill the whole area. Heath felt that the wild boar in the original border did not fit in his new scheme, so chose to omit it completely. The arrow in Fig. 4.59. indicates where the join is within the design.

Holdway, when asked if there was any room for his own creative interpretation, replied:

> Erm, yes [tentatively], erm, but within, erm [laughs] you couldn't revolutionise a pattern otherwise it wouldn't match. Erm yes, sometimes, you would have to extend a pattern and you would have to, especially if it was a misfit and you would have to extend. Yes, extensions,[203] you were given a free hand with that.

This guarded response confirms that the engraving team were accustomed to following designs given to them by the design department. The engravers would work on a series of patterns for different shapes of wares as a team[204] and the most important aspect here was consistency, not creative input. As Holdway indicates, if an engraver made creative changes to a pattern, then this pattern still had to match the rest of the pieces that others

[202] The dog bowl is eight-sided (faces); the long side consist of three faces and the short side has one face. Therefore, Heath's engraving was of four faces that when repeated twice, fully covered all eight sides.
[203] Extensions to a pattern are where the design is not long enough or wide enough to fit a specific ware. The 'missing' area would then have to be filled in by the engraver and this is called an extension.
[204] Teamwork – one engraver might do a certain size of plate while another may engraver the next size down and so forth. A whole series such as a multi-scene pattern like the "Greek" may have been engraved collectively by ten or more engravers.

were working on. There was also the house style to consider, both which constrained the creative flexibility an engraver could exercise. When asked about the plausible creative input of the engravers and just how much 'licence' they had with interpretation and translation, Wood confirms what Holdway notes and is forthright with his terminology:

> You would have to provide the direction and for the engravers to be told, very clearly what to do. I believe that isn't necessarily the case very early on, but because, you get someone like Minton who was an engraver, a freelance engraver and as far as I can gather, he created or whatever it took to do the 'Blue Willow' pattern and that would have been, if you like, the very first of the process.

It seems that the engravers, certainly in the later period were heavily restricted in their creative role, but Wood does raise the point about the "Willow" pattern. This pattern[205] is potentially one of the first Spode transferware patterns that was 'created' by an engraver/designer, and not directly copied from either a source or an existing Chinese export ceramic. The origins of this work and its possible connections with Thomas Minton's time at Caughley are a little vague, but the fact it was creatively designed, not imitated, implies that the engraver in the early period had more freedom, even a dual role as designers. Their creative input can be read as part of their role as a designer, rather than an aspect of engraving practice.

In the late Victorian context, Martin felt the creative potential of the wood-block engraver was under-employed:

> Victorian wood Engraving is a "reproductive" art that is called a "creative art". This is quite correct, but the Victorian Wood Engraver, would be quite capable of becoming a "creative" artist.

It is likely that by "creative", Martin meant interpretive as a translator of design language much as the evidence from the engravers' interviews revealed.

The Spode paper archive has little evidence regarding the design-phase of the process and thus offers scant information about the creative input of engravers. The archive is oriented towards pattern production and the final output of the factory rather than the journey from idea to pattern creation. Such design records were periodically and routinely destroyed as they were viewed as having little importance once they had served their purpose. The

[205] See "Willow" case study in chapter Five for further details.

engravers' interviews speak of this gap in the record, albeit not directly applicable to other periods of time.

In summary, the engraver, certainly in the latter phase of the industry had little room to exercise creativity. The few examples of creative input illustrated were rare exceptions. Evidence from the archive[206] and the interviews suggests that the engravers were supplied with a design from the design department and they translated that into their specific language of lines and dots on the hand-engraved copper-plates found in the archive. In the first period of the industry in the 1780s, there is evidence to suggest a greater level of creative input, but this is clouded by the dual-roles of the designer-engravers of that time. The engraver was a translator of imagery that operated with a degree of autonomy, but within the strict guidelines of interpretation with little capacity for creativity and individual authorship. The later limitations on creative input can be summarised by the terminology of engraver rather than designer, and artisan rather than artist.

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[206] Copper-plate and paper archives.

Chapter Four Highlight:

A single engraver's archival group of tissue pulls[207]

This investigation into an archival group of tissue pulls from outside Spode shows parallels that assist in assessing what is common amongst accomplished transferware engravers, and also allows a closer look at one engraver from a century ago to help correct historical coverage. This collection, engraved at Dunn Bennett, exhibits engraving styles, techniques and design themes comparable to Spode.

Background:

During the course of this research, I was gifted an array of pottery, books, tools, ephemera and other engraving-related objects. One such gift is a collection of tissue pulls engraved by the late John Mountford (Fig. 4.60) presented to me by Heath. Heath undertook his apprenticeship at Dunn Bennet's[208] before he moved to Spode, and the person who trained him was John Mountford's son. So, the link to Spode is through a lineage of engraving practice. The collection of pulls was found tightly crammed into a cigar box (Fig, 4.60).

Heath claims that Mountford was regarded in the industry as one of the most skilled engravers. Looking through the contents, Heath was able to remark on the quality of engraving in almost every example. It is the fineness of detail and perfection of stippling that strike even the non-specialist viewer.

[207] Tissue Pull – Drakard and Holdway (1983 [2002]) – a piece of printing paper that transfers the colour from the engraving to the ceramic.
[208] Dunn Bennett; c.1875 – 1983, Hanley, Stoke-on-Trent, Staffordshire. They manufactured earthenware and became part of the Royal Doulton Group in 1968.

Fig. 4.60. Cigar box containing the Mountford tissue pull collection, c.1900-1910.

Heath thinks that Mountford was working during the late nineteenth and early twentieth century and this is supported here by a number of commemoratives of the 1902 coronation. It is impossible to be sure to what extent this collection represents Mountford's full output during the period represented. What it does show is the range of the work that he was required to do by his employer. When an engraving was finished by an engraver, a trial ceramic was made to see if the weight of colour[209] was correct and to check that the overall design worked as intended. Before this was undertaken, the engraver would often take a tissue pull using the printing press in their workshop. This was a form of quality control, but some engravers kept the resultant tissue pulls as a record of their work. It is uncertain how many engravers did this or if they chose to keep pulls only of works that pleased them, but such groups generally offer a significant cross-section of their out-puts. Martin in memory of the wood block engravings he retained recalls that:

> From the very first, he made me take a proof of efforts, so that they would act as a record of my progress, if any! I appreciate it very much now, to be able to look back on my first year's effort.

Contents

These tissue prints are housed in a cigar box made for the La Palina company, a firm founded in Chicago in 1896, so it is likely that the box is roughly contemporary with its contents. A classic cigar, a box of Palinas would have been a handsome gift for a smoker, and could have marked a special occasion for Mountford. The paper-covered wooden box measures 193mm x 132mm x 34mm, in worn but sound condition. Much of the colour lithographic artwork still remains and the print to the interior is strong and vibrant.

[209] Weight of colour is a term that describes the strength and shade that an engraving prints. If it is too dark, then it will be considered to have a higher than required weight of colour and if it prints too pale, it will be known as holding too smaller a weight of colour.

Fig. 4.61: Cigar box containing the Mountford tissue pull collection, c.1900-1910.

Within the box (Fig. 4.61), there are some one-hundred and twenty-nine tissue paper pulls taken from John Mountford's hand-engraved copper-plates. These include landscapes, Royal commemoratives, badges,[210] tile patterns, aesthetic-transferware[211] plate designs and borders. This archival group can be classified as follows:

Badges:	78 examples
Landscapes:	19 examples
Royal commemoratives:	10 examples
Tiles:	10 examples
Aesthetic transferware:	05 examples
Borders:	07 examples

While I have chosen to analyse here only one example under each heading, a full range of the work, styles, complexities and sizes are represented.

[210] Badges – a transferware-industry term to describe a coat of arms, company insignia or an armorial.
[211] Aesthetic-transferware is a term that describes transferware patterns from the art-nouveau period that combined elements of traditional transferware with art of this period.

It is important to note that the images in the tissue prints illustrated below are reversed and appear backwards. This is because of the unique way in which engraving for the transferware industry works (Drakard & Holdway 1983 [2002]). The engravings are created in the same format in which they will appear on the finished ware. The tissue paper lifts the imagery from the engraving and then puts it down upon the ware in a lift-off, put-down manner. This printing process is a two-step[212] practice whereas most printing methods are one-step.

Badges

The predominance of badges reflects Dunn Bennett's reputation for producing special-order wares for hotels, taverns, inns, hostelries, companies and families across the globe.

Fig. 4.62. An example of a badge engraving, c.1900-18.

The badge illustrated as Fig. 4.62 was engraved for wares that were ordered by and used in the Greyhound Hotel, 23 & 24, George Street, Richmond, Surrey. This hotel was in existence by 1826 and operated up to at least 1918.[213]

Landscapes

The landscapes vary in size from small images of named buildings to complete patterns that have their own border pattern as part of the whole design. They are all British subjects.

[212] Two steps: printing transfer tissue, and applying tissue to the ceramic.
[213] Kelly's Directory.

Fig. 4.63. An example of a landscape engraving, c.1900-10.

The example in Fig. 4.63 is engraved with a titled view of "Blarney Castle".[214] It is possible that this engraving also had an additional border associated with it that was engraved on a separate piece of copper. This example is printed in a blue colour;[215] while the majority of the pulls in this group are printed in black, other colours such as blue, green and red are in evidence which have always been traditional transfer-printing colours (Coysh & Henrywood 1982: 10).

Commemoratives

The Royal commemoratives help with the dating of the archival group. Most of the ten examples are for the coronation of King Edward and Queen Alexandra in 1902. The image below (Fig. 4.64) shows one example that has an important hand-written note in black ink. It reads; "Coronation, June 26th, 1902. Designed and engraved for H.R.H. PRINCE of WALES by John Hy. Mountford, May 13th 1902". This tells us firstly that Mountford not only engraved the copper-plate, but he designed it too. It is important to note that the two terms 'designed' and 'engraved' being used in conjunction; this seems to be at odds with the evidence at Spode. This could be indicative of how design was part of an engraver's role in a small factory,[216] but that design and interpretation were kept more separate at a

[214] Blarney Castle was built in 1446 and replaced two earlier incarnations of the structure dating back to the eleventh century. It is located in Cork, Ireland.
[215] 'Colour' is the term that is used in the transferware industry that might be known as 'ink' in the printing industry.
[216] Heath reports that Dunn Bennett's had few engravers at any one time.

larger factory. Secondly, the engraving was completed on or by 13th of May, 1902. This gives an indication of the lead-time required for a pottery factory to get wares available and on sale before an event, assuming these commemorative wares were sold on or soon after the event.

Fig. 4.64. An example of a commemorative engraving, c.1902.

This example (Fig. 4.64) is printed in black on the tissue and it is likely that the tissue pulls within this archival group were printed in the same colour that they were intended to appear on the final ceramic ware. Black-printing was popular during the early twentieth century and this can be substantiated by the wide-range of black-printed wares from this date in the Potteries Museum and the Victoria and Albert Museum. It is also important to note that this copper-plate includes two different engravings; one is titled; “Crowned…”, while the other is titled; “Marlborough House”. It is possible that each of the two engravings were engraved at a different time. The ‘Marlborough House’ engraving was produced first before the coronation to commemorate an event or association with Marlborough House. The second engraving for the coronation was engraved alongside the ‘Marlborough House’ design on the same piece of copper, using closely the composition and arrangement details of the former work. The evidence for this can be seen in the use of the same garlands and ribbons at the top of the engraving and the ‘typeface’ of lettering used.

Tiles

The tiles in this collection were mostly simple floral designs with sparse engraving that runs to the edge of the 'tile'. This is typical of tiles of this period (Van Lemmen 1990). The unusual aspect to the example illustrated (Fig. 4.65) is that it accurately depicts natural wood grain. Whether this was intended to decorate a tile is not certain, but the size would indicate this. The engraving is square and does appear to have a frame around it indicating the extent of the work. It is hard to imagine what a wall of ceramic 'wood' tiles would look like and I have not been able to locate any examples to demonstrate that they were put into production. Does this then suggest that this tissue pull was 'speculative work'? While the lack of any physical evidence in the form of a ceramic example does not mean that they do not exist, the notion of creating work or designs as 'trials' is important as it demonstrates the role of the engraver.

Fig. 4.65. An example of a tile engraving, c.1900-10.

From a technical point of view, it should be noted how this engraving was produced; the whole design is punched with a single steel punch with no graver-use at all as demonstrated in Fig. 4.66. It is likely that this technique was chosen as it was thought that it best represented the grain and texture of wood. It is possible that this was done as a technical-prowess or aptitude exercise much in the way that Martin discusses to demonstrate an engraver's skill and ability. The tissue pull records could then be shown to subsequent prospective employees or as a record of work as an engraver moved up in an engraving shop.

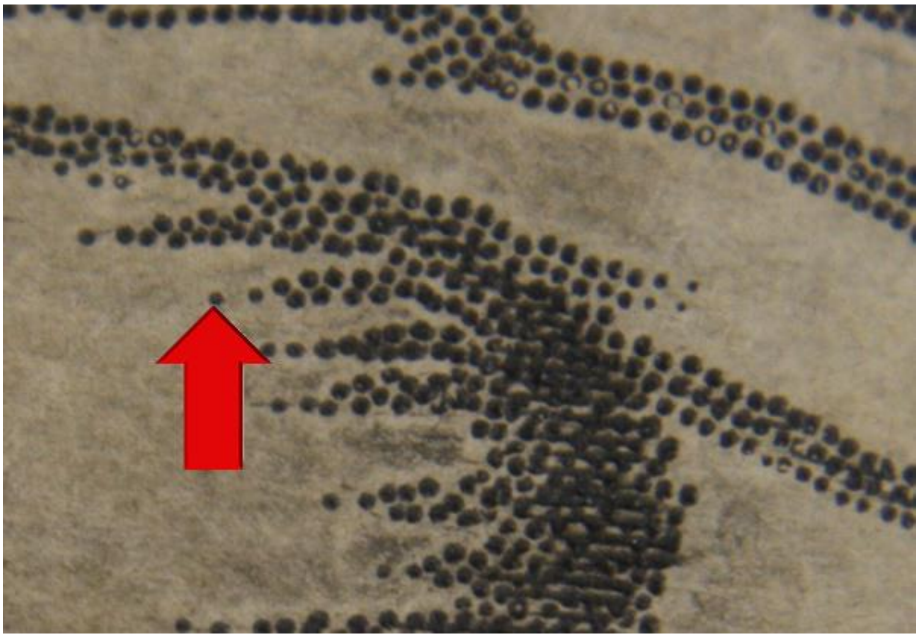

Fig. 4.66. Close-up of punching within a tile engraving, c.1900-10.

Borders

The border designs are slightly more complex to interpret as it is not clear whether they were intended to accompany another engraving. Often the ‘badges’ were teamed up with generic border designs that either the factory used or the company who wanted the ware specifically ordered.

Fig. 4.67. An example of a border, c.1900-10.

The border shown in Fig. 4.767, like the others in the collection is simple in its design, engraving and extent. It has an outer 'bead'[217] and repeating floral and swag elements. The copper-plate would be printed three times to create three tissue pulls which would then be 'laid down' on the ceramic to complete the whole border.

Aesthetic transferware[218]

Aesthetic transferware tissue pulls are relatively scarce in this archival group, but again reflected the popular tastes and factory out-puts of the time.

Fig. 4.68. An example of an Aesthetic transferware design, c.1900-10.

This example (Fig. 4.68) combines a traditional and well-established transferware design of the "Willow" pattern along with typically geometric, angular elements. The influences are equally eclectic with Chinese and Japanese sitting alongside one another. This mixing

[217] 'Bead' is a term that describes the edge detail around the inside or outside of a border. They tend to be simplistic and repeating such as inter-linked circles.
[218] http://nancysdailydish.blogspot.co.uk/2010/03/aesthetic-movement-and-transferware.html "The Aesthetic Movement influenced transferware designs of Asian styled scenes with asymmetric, bold and geometric patterns".

of styles and influences is typical of the aesthetic period of transferware design and is an example of stylistic collaging.

Within the collection, there is also one important piece of artwork that can be assumed was a design that was to be followed by Mountford (Fig. 4.69 and Fig. 4.70). It is of a stag with an arrow in its shoulder above the motto “ANIMO ET FIDE” which translates as ‘With Soul and Faith’. Below that is the name “Edward Norris”. This is printed upon thick paper. On the reverse, there is a difficult-to-read hand-written note that reads; “Pearce 12523 in [marone animal &c] in brown, no motto”. The salient point here is that an existing design was supplied to the factory and was adapted by the engraver with some instruction and direction from either the designer or the client. While it is impossible to be conclusive about who wrote this hand-written instruction, it doesn’t appear to be in the same hand as Fig. 4.64, the commemorative piece with Mountford’s name associated with it. This piece of evidence suggests that the engraver was an important intermediary between design and product.

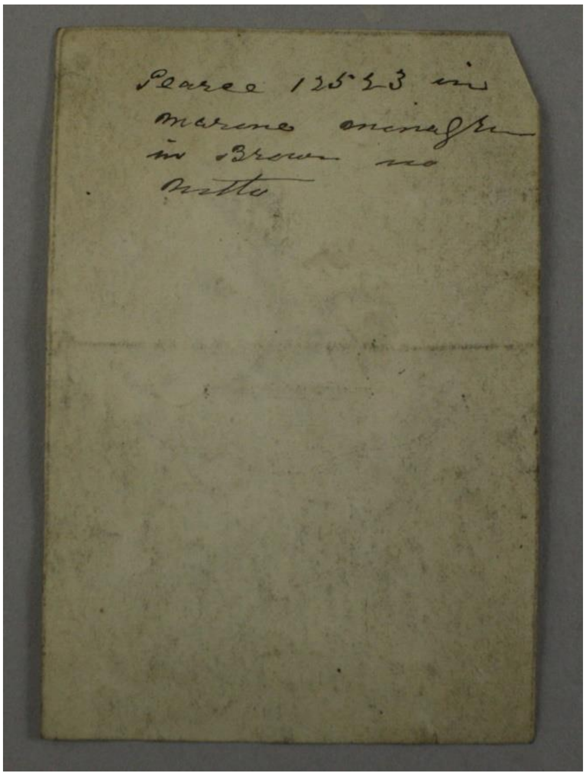

Fig. 4.69 and Fig. 4.70. Client-supplied artwork and instructional note, c.1900-10.

Engraving techniques

The six exemplar tissue prints illustrated show that Mountford employed various engraving techniques either in exclusion or in combination to create the work in this archival group. The techniques used are; line-work (with a graver), single-punching, wave-punching, cross-hatching and a combination of these.

Fig. 4.71. Close-up of line-work, c.1900-10.

The arrow in Fig. 4.71. shows an example of single line, line-work with the graver. It is entirely possible that this work was created with a two-line graver as the gauge[219] is so precise, but given the quality of Mountford's work, he could easily have created this effect with a single-line graver. This type of effect gives a medium strength in terms of weight of colour[220] and gives an indication of shadow and texture of the object that is represented.

[219] Gauge is the distance between engraved work, either lines or dots.
[220] Weight of colour is a printing term that describes how much colour is held in an engraved detail. High weight prints dark, low weight prints pale.

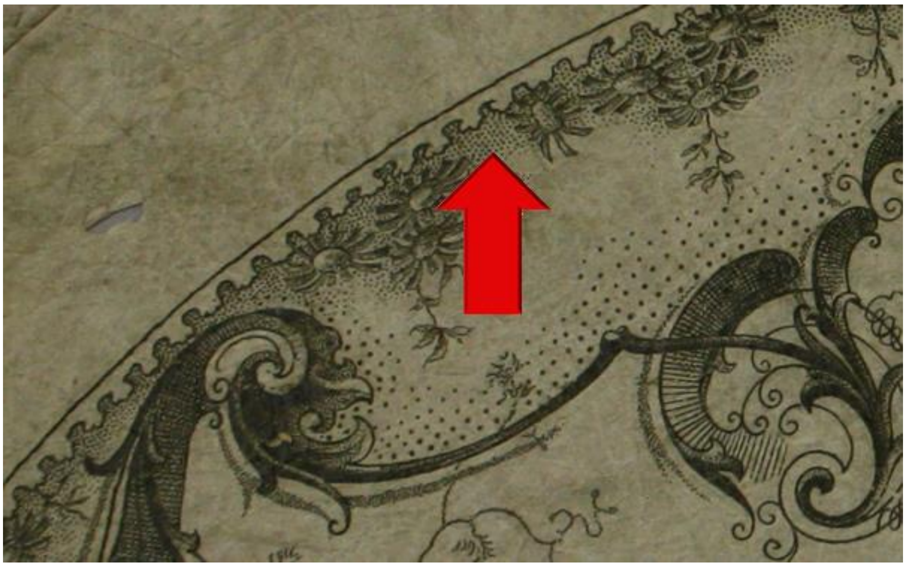

Fig. 4.72. Close-up of punching, c.1900-10.

The arrow in Fig. 4.72 illustrates single, punched dots punched with a steel punch. Each punched dot in this engraving is punched singularly. Some lesser firms and lesser engravers used multi-headed punches, but these often look clumsy and ‘heavy’. Mountford was clearly too experienced an engraver to use this approach.

Fig. 4.73. Close-up of wave-punching, c.1900-10.

The clouds in Fig. 4.73, illustrated by the arrow are an example of ‘wave-punching’. This technique is also undertaken with a single punch, one dot at a time. The effect is extremely hard to achieve and to execute well. The lines of punched dots seem to radiate and give the effect of clouds that offer the image the subtle tonality that the engraver wanted to accomplish. Heath commented on Mountford's wave-punching suggesting that is was of high-quality.

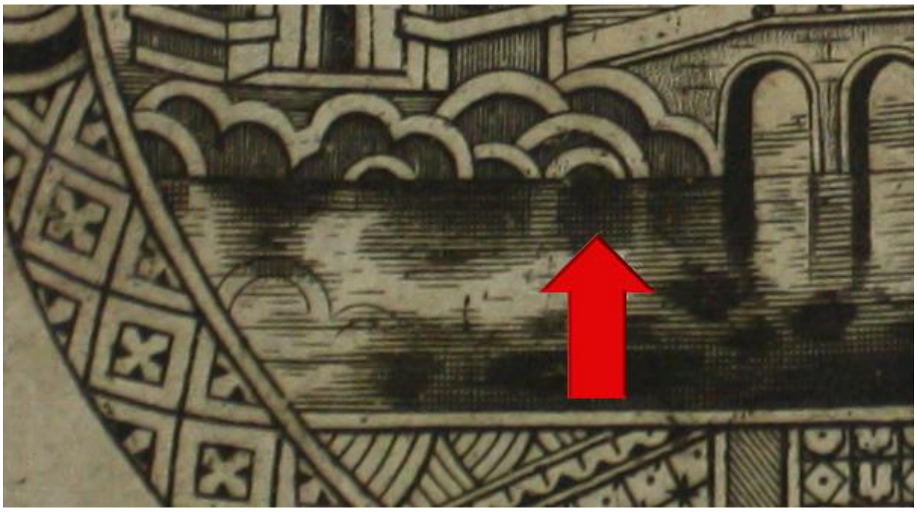

Fig. 4.74. Close-up of cross-hatching, c.1900-10.

Cross-hatching as illustrated above in Fig. 4.74 is a technique that allows for a heavy weight of colour to be transferred to the ceramic through the printing process. The parallel lines are first engraved in one direction and then at ninety degrees. The graver lines are relatively wide and deep and often are close together. This will print in a dark, strong shade. The process leaves small copper squares in between the hatching. These high points support the scraper blade when the colour is applied to the engraving and the excess is removed during the printing stage. These high points prevent the colour from being dragged out of the engraving by the scraper blade.

Fig. 4.75. Close-up of combined engraving techniques, c.1900-10.

The arrow in Fig. 4.75 indicates the skilled-use of three separate techniques; line-work and cross-hatching and punching all used in combination. The object of this is to achieve various weights of colour in close proximity and to add tonality and interest to the foreground. This technique is also used to suggest foliage, trees or undergrowth. It is likely in the areas that contain the punching, the punched-work was laid down first, followed by the graver-work. This area, while looking crude and a little naïve in isolation, is an apt illustration of an engraver understanding how the engraved-work will translate to the ceramic ware. This area is not too important, but will trick the eye of the viewer into believing a suggestion of vegetation in the foreground of the main focal point of the engraving: “Blarney Castle” (Fig. 4.63).

The use of these techniques in such a proficient manner indicate an engraver who is highly-skilled and experienced. It is the use of these varied techniques, especially in conjunction that exemplify how an engraver marshals their techniques and their acquired ‘design language’ (Lambert 1987) to adapt existing imagery into their own vocabulary. These embodied techniques (Sennett 2008) and intimate knowledge of tools, skills and methods demonstrate the mature practice of the proficient copper-plate engraver.

The date of this collection, late nineteenth to early twentieth century, is approximately in the middle of the Spode period,[221] and acts as an excellent example of what production techniques were being used in other factories at the time. The types of wares that both Spode and Dunn Bennett were producing are consistent with that of the whole industry. This can be seen in the ceramic wares in museums, collections and on the open market that date from the late nineteenth and early twentieth centuries.

It is interesting to note that Spode, during the time that John Mountford was engraving, produced similar wares and engravings. The engravings are held in the Spode Museum Trust copper-plate archive and examples of badges and commemoratives are illustrated in the Spode pattern and badge books.[222] Evidence can also be seen in the finished ceramics that such patterns went into production.

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[221] Spode transfer-printing period defined as – 1784 – 2008 by Drakard and Holdway.
[222] The Spode Museum Trust hold the badge and pattern books that contain many of the orders, patterns, colours used to decorate wares and other information relating to out-puts.

Dating evidence is important to place this collection of engravings in historical context. Other than the dated engravings, such as the Royal commemoratives, some of the tissues have hand-written dates from 1902 to 1903. An example of this is illustrated below.

Fig. 4.76. An example of Mountford's engraving that was signed and dated, c.1903.

The example in Fig. 4.76 has a hand-written inscription that reads; "Engraved by J H Mountford, Nov. 4, 1903". This demonstrates firstly, Mountford took the time to record the date that he finished the work. Secondly, it enables a date to be placed on Mountford's working career, Dunn Bennett's production and the specific engraving in the image, in this case for James Green and Nephew, London.[223] While only two tissue pulls are dated in such a manner, they are a useful indicator within this archival group; the other is dated May the 13th, 1902. While every effort has been made to keep the tissue pulls in the order they were first found in the cigar box, no convincing evidence can be drawn that this collection dates only from 1902 to 1904. The two dated examples were found within the middle of the collection in the cigar box when I first looked through its contents, but assumptions made about a potential chronology of work produced have proved inconclusive.

[223] James Green & Nephew, established 1737 in London; ceramic and glass retailers/manufacturers.

While this has no direct bearing upon engraving techniques, the different colours used in this archival group does show that Dunn Bennett were aware of market trends and requirements and this indicates a company who were competitive in the marketplace. This proficiency is reflected in the engraving quality represented in this archival group.

In terms of time taken to complete these works, it is possible to do some rudimentary calculations and have a speculative, but educated estimation of the time taken. My interviews[224] with Spode engravers confirm that a fairly complex, ten-inch engraving, would take around five to six weeks to complete. Working on this basis, a badge may only take a week to ten days to complete. Heath who also worked at Dunn Bennett's undertaking this type of work as well as at Spode confirmed this estimation. While this is a rough assumption, there are seventy-eight badges in the collection, equating to seventy-eight weeks of work. Looking at the other categories within the group, the ten tiles could have taken thirty weeks, the five aesthetic pieces about thirty weeks, the borders around twenty-one weeks, the landscapes approximately fifty-seven weeks and finally, the commemoratives about fifty weeks. This gives a total of two-hundred and sixty-six weeks of engraving within this collection. While this is a crude estimation, it serves as a useful assessment of the time involved for one engraver to complete the work. This works out at five years and six weeks. What this does not take into account was the working hours (days and months in a year) of an engraver, other projects he may have been involved in that took him away from creating this group, or any absences due to illness. Even if the estimation of the time-scale is too low and it had taken ten years to engrave the designs in this group, it is plausible that Mountford created further engravings. Assuming Mountford was a fit man who enjoyed a long employment, reasonable assumptions can be made that this collection does not represent his entire out-put as an engraver. There is no way of telling if this collection has suffered depletions over the years, and was more extensive at an earlier date.

While not directly linked to Spode, this archival group of tissue prints demonstrates the extent and range of skills required by an engraver working in the middle of the Spode period. This is not just limited to techniques, but also includes the stylistic nuances required to produce portraits, landscapes and the written (engraved) words. Text, from my own experience of engraving[225] and from the testimony of engravers, is difficult to execute

[224] Interviews conduct between 2015 and 2016 with ex-Spode engravers.
[225] My personal 'apprenticeship'; see chapter two highlight.

well. It also demanded an understanding of what was required of an engraver in terms of design. Lane (2005: 66) notes the ability or requirement of an engraver to read and write English. This makes inferences about education and indeed the social class of engravers. To be able to successfully achieve accurate lettering within an engraving, it was important to understand the written word. This may have been a specifically defining prerequisite that meant only a small minority of potential applicants would be considered suitable to be engravers.

This archival group demonstrates a wide range of subject matter, sizes and complexities of engraving and indicates deadlines[226] an engraver had to adhere to. It is therefore a valuable indicator of what skills and attributes were required to be an engraver in the transferware industry in the early twentieth century.

[226] Client-orders and pending events such as a Coronation where goods were needed for sale.

Chapter Five:

Case Studies

Introduction

The extent of this archive (40,000 hand-engraved copper-plates) and its relative completeness makes it an outstanding resource for the history of the transferware industry. Owing to the size of the archive, it was not possible, within the scope of this study, to undertake a comprehensive survey. Here, case studies of selected patterns allow examination in sufficient depth to draw conclusions about the type and quality of evidence represented in the archive. Although the archive has sustained a few notable losses, it offers a representative exemplar of styles, techniques and production types spanning the factory's life and, by extension, the work undertaken by its engravers.

I have chosen to use two case studies ("Greek" and "Willow") to allow some useful comparisons. These have been selected because they offer insight into changes over long periods of time.

The "Greek" series

Fig. 5.1. The "Greek" pattern pen title in the copper-plate store.

Fig. 5.2. A "Greek" copper-plate with the Spode ceramic.

The “Greek” series allows us to look at plate re-use and to observe the relative continuity in techniques of engraving over nearly two-hundred years. Spode introduced the “Greek” pattern range in 1806 (Drakard & Holdway 1982 [2002]: 248), a ‘multi-scene’ type (230) where each different shape has its own specific ‘centre’ pattern, but shares a common border. The border depicts four Grecian vases alternating with panels, containing two figures in Grecian dress. An ‘inner nankin’[227] runs throughout the series as does a grapevine ‘sheet’ print[228] that fills the gaps between the panels and vases in the border. There are approximately forty-five ‘centres’[229] each allied with a unique set of four panels in the border. This series was a huge under-taking for the Factory and its engravers: there were approximately two hundred and twenty-five different Grecian scenes engraved for the series.

Three different publications were used for the source images:

d’Hancarville (1767-76) *The complete collection of Antiquities from the cabinet of Sir William Hamilton*

Tischbein (1791) *Collection of Engravings from Ancient Vases of Greek Workmanship discovered in Sepulchres in the Kingdom of the Two Sicilies now in the possession of Sir William Hamilton*

Kirk (1804) *Outlines from the figures and compositions upon the Greek, Roman and Etruscan vases of the late Sir William Hamilton*

While some of Kirk’s images were copied from the other two publications[230] most of the Spode patterns were taken from sources that were specific to one of the three books. It can be assumed that Spode either owned or had access to all three references.[231] These books

[227] Inner Nankin is the inner border that sits between the main border and the ‘centre’.
[228] ‘Sheet print’ is a term to describe a large area of print that is repeating and fills gaps in the design.
[229] A ‘centre’ is a descriptive term for the central area of a pattern and in a ‘multi-scene’ series, the centre is titled in a specific way to differentiate each from the others in the series.
[230] D’Hancarville and Tischbein.
[231] Bill Heath (ex-Spode engraver) told me that Spode had a “fantastic source library”, but some references were sold off towards the end of the factory’s life. I had hoped to find some or all of the Greek sources in the

are not in Spode's reference library nor are the plates represented in the 'paper archive' which contains design material. They may have never been the property of the factory, possibly belonging to a client, or to Josiah Spode II. It remains unclear how access was obtained for the engravers.[232]

Of the four border vases, three were close interpretations from d'Hancarville; the fourth was a free combination from several figures taken from Kirk.[233] Illustrated below is a breakdown (Fig. 5.3) of the different pattern elements and their sources for a ten-inch dinner plate:

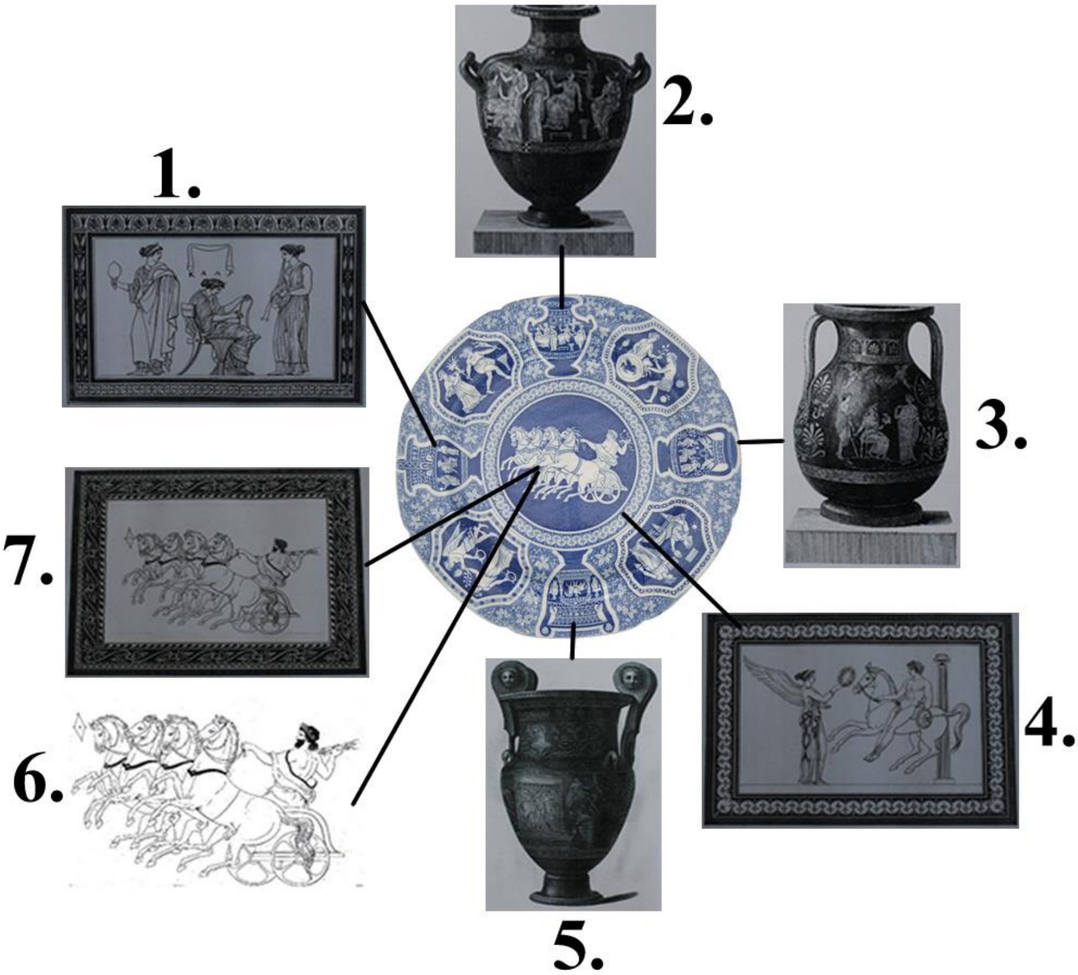


Fig. 5.3. The origin of pattern elements.

Spode paper archive (held in the Stoke City Archive, Hanley, Stoke-on-Trent), but these sources are not there.

232 It is possible that the factory negotiated to obtain page proofs rather than bound volumes. This would have saved expense, and allowed safer carrying out of tracings.

233 Nicholas Moore conducted research into the origins of the vases and sources used to create the "Greek" series.

Analysis and source imagery origin in Fig. 5.3:

1. Vase and band detail derived from Kirk, plate 13.
2. Vase from d'Hancarville, Vol. I, Plate 30.
3. Vase from d'Hancarville, Vol. I, Plate 72.
4. Inner nankin from Kirk, Plate 41's border.
5. Vase from d'Hancarville, Vol. I, Plate 55.
6. Centre from Kirk, Plate 20.
7. Tischbein, Vol. I, Plate 31.

List of "Greek" series centre patterns:[234]

P906-1	Zeus in his chariot
P906-2	A wreath for a victor
P906-3	Heracles fighting Hippolyta
P906-4	Artemis drawn by a griffin
P906-5	Artemis drawn by a griffin & lynx
P906-6	Iphigenia told of the death of Agamemnon
P906-7	Sacrifice to Bacchus (Dionysus)
P906-7a	Sacrifice to Bacchus (variation)
P906-8	Cynisca winning the chariot race
P906-9	Four figures in battle
P906-9a	Four figures in battle (variation)
P906-10	Refreshments for Philiasian horseman
P906-11	Centaurs battling Theseus
P906-12	Artemis with two lynxes
P906-13	Bellerephon's victory over Chimera
P906-14	Attack of the griffin
P906-15	Ceres with a priestess

[234] The table is made up of 'P' numbers. P906 is the series number assigned by Drakard and Holdway (1982 [2002]). The numbers after the 'P906' are the derivations within the series. The numbers followed by an 'H' are specifically handle patterns that were engraved to decorate tureen lids or vessels that required a lid.

P906-16	The row boat fishermen
P906-17	A domestic ceremony
P906-18	The offering of a drink
P906-19	Offerings to Demeter
P906-19a	Addition of ladies from Ceres with a priestess
P906-20	One rider from the "The horse race"
P906-21	Nuptial preparations
P906-22	The feast
P906-23	Latona and the serpent
P906-24	Apollo seated on a winged chair
P906-25	Offerings to Bacchus
P906-26	Bacchus mounted on a panther
P906-27	The horseman
P906-28	Horse and dismounted rider
P906-29	Heracles in a comedy
P906-30	A griffin
P906-31	Ladies
P906-32	Dancing buffoon
P906-33	Seated Apollo
P906-34	Polydeuces and the King's daughter
P906-35	Lady preparing a bath
P906-36	The lady and the box
P906-37H	Wild animals
P906-38H	Wings
P906-39H	Pigmies
P906-40H	Various (Fig 5.4)
P906-41H	Swan
P906-42	Wild animals variation
P906-43H	Miscellaneous

Fig. 5.4. A “handle” or ‘H’ print, P906-40H “Various”.

The work represented by such a varied and extensive series in terms of men used and man-hours can only be estimated. Holdway, Wood and Raftery each confirmed that a ten-inch plate of comparable complexity [235] would take six to eight weeks to engrave based upon the modern working week of five 8-hour days.[236] Taking the 10-inch plate as equivalent to thirty days of work, the time to produce the whole “Greek” series is extrapolated below:[237]

Number	Ware shape	Ware size in inches	Days to engrave
P906-1	Dinner plate	9.75	30
P906-2	Side plate, handled dessert dish	8.25	30
P906-3	Side plate	7.25	30
P906-4	Square salad bowl	8.75	45
P906-5	Platter	18.25	50
P906-6	Platter	10.5	35
P906-7	Platter, deep pie dish	11	35
P906-7a	Supper set base (oval set)	13	40
P906-8	Well & tree platter	20.5	60

[235] Comparable to the “Greek” series.
[236] Five-day week was their employment terms, c.1960-2008.
[237] While it has not been possible to establish if all the specific shapes were available from the introduction date, these estimations assume that all the parts of the services were available from introduction or soon after. These assumptions can be confirmed by impressed and printed marks and the shapes of wares used that can be date-assessed using other patterns and shape books.

P906-9	Platter	9.25	35
P906-9a	Supper set base (round set)	12.75	35
P906-10	Soup dish	9.75	30
P906-11	Platter	16.5	45
P906-12	Platter	14.75	40
P906-13	Drainer	15	40
P906-14	Tea plate	6	30
P906-15	Arcaded plate	7.5	30
P906-16	Sauce tureen stand	7.25	30
P906-17	Dessert dish, shallow footed comport	9.75	30
P906-18	Basket stand	9	30
P906-19	Supper set dish	13.75	40
P906-20	Dessert dish	8	30
P906-21	Cheese stand	11.5	35
P906-22	Basket interior, root dish	9.5	30
P906-23	Square salad bowl	9.5	45
P906-24	Footed dessert comport	12.25	45
P906-25	Veg dish interior	8.75	30
P906-26	Platter	14.5	40
P906-27	Sauce ladle	3	25
P906-28	Diamond-shaped pickle dish	5	25
P906-29	Diamond-shaped pickle dish tray	10.75	35
P906-30	Soup ladle	3.5	25
P906-31	Pickle dish	6.25	25
P906-32	Diamond dish	11	35
P906-33	Circular lidded veg	14	45
P906-34	Huge dish	24	75
P906-35	Bowl thought to be washbowl	13	50
P906-36	Diamond dish	9	30

P906-37H	Soup tureen Lid	14	45
P906-38H	Sauce tureen lid	7	30
P906-39H	Supper set centre tureen lid	7	30
P906-40H	Veg dish lid	9	30
P906-41H	Custard cup lid	3	25
P906-42	Supper set centre	6.5	25
P906-43H	Square veg lid	7.5	30
	Other wares with non-specific centres that had unique engravings		
P906	Tankard	5	40
P906	Sparrow beak jug	6	40
P906	Sparrow beak jug	7.25	45
P906	Sparrow beak jug	8	45
P906	Ewer	8	45
P906	Ewer	7.5	40
P906	Giant custard cup	8.75	45
P906	Cream tureen with fixed base	8.5	45
P906	Asparagus server	3	25
P906	Custard cup	3.5	25
P906	Milsey	3.5	25
P906	Butter boat	3.5	25
P906	Pair of knife rests	3.75	25
P906	Muffineer	6.75	30
P906	Soup tureen	14.75	40
P906	Sauce tureen	7.25	30

Hence, the total engraving time can be taken as 2,180 days, or 364 six-day weeks. We can see that for a single engraver, this would entail some seven years labour. Even allowing for a working day of ten hours or more, over five years would have been required.

As Kirk published in 1804 we can take this as *terminus post quem* for the start of the engraving. Drakard and Holdway (1982 [2002]) cite an introduction date of 1806 for the completed wares. Given the extent of this "heavy" pattern[238] an engraving team of three dedicated to this pattern alone would have been required to produce the full range of wares within two years.

Fig. 5.5. A close-up of a Spode back stamp, c.1995.

When the pattern was re-introduced in the 1990s as part of the 'Blue Room Collection', it was produced with a back-stamp (Coysh & Henrywood 1983: 31) (Fig. 5.5.) that also gives an original introduction date of 1806. Unknown variables in working conditions, seasonal daylight, illness, holidays and other work demands, as well as differences in skill levels, and speed are more likely to have increased the demands for the estimated labour than otherwise.[239] Holdway, Wood and Heath all agreed that it would have taken between four and six months to engrave the largest copper (Fig. 5.6)[240] "Polydeuces and the King's Daughter".[241]

[238] 'Heavy' is a term that describes the coverage of an engraved pattern. A pattern described as 'heavy' would be densely engraved with little of the copper-plate left un-engraved.
[239] Two years – time between publication of Kirk and introduction of the "Greek" series ceramic.
[240] P906-34.
[241] The engraved work is nearly 24" (61cm) wide which is almost 3" (7.6cm) wider than the factory standard largest dish.

Fig. 5.6. Copper-plate from the archive.

Adding to the complexity of trying to understand the work demands of this project for Spode's engravers, Spode also launched the "Castle" pattern in 1806. While this was a single-scene[242] pattern, each specific shape of the dinner service (and toilet wares) still required a dedicated copper-plate.[243] Some savings might be affected by cutting up printed transfers and fitting these to wares of different dimensions if the correct size was not available. However, recourse to this economy is not evidenced at Spode.

Fig. 5.7. A blue-printed footbath by an unknown maker, c.1820.

[242] Single-scene pattern - Drakard & Holdway, (1983 [2002]). Each different piece of a dinner or tea service is printed with the same centre and border throughout.
[243] A 10" plate would be decorated from a dedicated 10" hand-engraved copper-plate and an 8.5" plate would be decorated from a dedicated hand-engraved copper-plate and so on.

Fig. 5.7 shows "Dogs on the Scent" footbath jug[244] by an unknown maker, c. 1820. While the quality of potting and engraving is high, it can be observed that the main pattern has had to be applied twice (and pieces cut-in around the front carrying handle) to decorate the whole of the jug. This has created a poor-quality look to the piece. The maker of the footbath jug evidently didn't have a specific engraving for large pieces of ware. This evidence indicates economies required for shapes that might not sell in large quantities (Lockett & Godden 1989: 125), notably large engravings that might be printed infrequently. Spode avoided recourse to such economies; the copper-plate archive demonstrates that each specific shape had its own dedicated engraving.

Fig. 5.8. A "Castle" pattern copper-plate from the archive, c.1806.

Fig. 5.8 shows a Spode "Castle" pattern copper-plate, c.1806. It was engraved to decorate an ewer jug; the constituent parts can be seen in the engraving; from the top to bottom: side print, two foot rim prints, a handle print (with fleur-de-lis), a lip print and two rim prints. The copper-plate is incomplete as it was cut down and re-used on the other side during the mid-nineteenth century.

[244] A foot bath jug was a large, handled-jug that carried water that filled a large vessel known as a footbath. This was used to bathe one's feet in.

Fig. 5.9. Spode “Castle” pattern lidded vegetable tureen, c.1806-20.

1806 is the accepted date of introduction for the “Castle” pattern (Jewitt 1883; Williams 1943; Drakard and Holdway 1983) (Fig. 5.9).[245]

Fig. 5.10. and Fig. 5.11. Front and back of a Blue Room ceramic, c.1995.

Fig. 5.10 and Fig. 5.11 are illustrations of the Spode ‘Blue Room Collection’ “Castle” pattern production wares that show a ‘first introduced date’ of 1806. The source print[246] for the “Castle” pattern is J. Merigot’s *Views of Rome and its Vicinity*, 1796-98 (Fig. 5.12). Assuming the factory could have acquired a copy as early as 1798, this would give only eight years between source publication and the launch of the Spode example.

[245] A better form of evidence would be a contemporary advertisement, price list or invoice, but it has not been possible to locate such pieces of ephemera.

[246] Coysh, A. W., Henrywood, R. K. (1982) The Dictionary of Blue & White Printed Pottery, 1780-1880, Vol. 1., page 341 – an existing image that was used as inspiration for a transferware design.

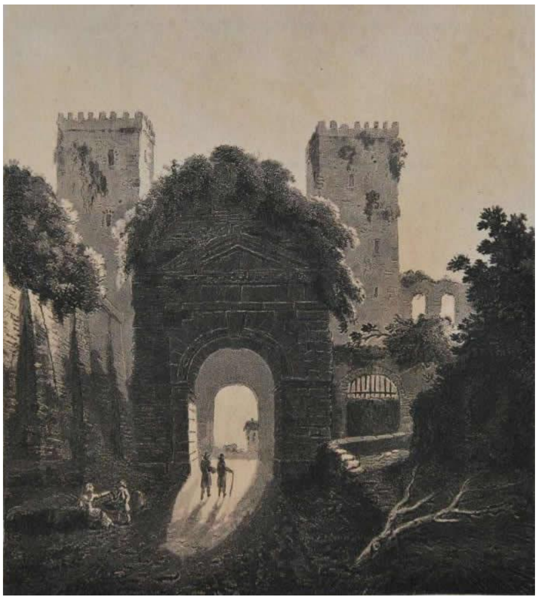


Fig. 5.12. Merigot source print used for the “Castle” pattern, c. 1796-8.

As with the “Greek” wares, just how many copper-plates were engraved for the introduction of the “Castle” pattern is helpful to our understanding of the labour of engraving. Wares personally handled during twenty years of dealing and those in the Spode Museum Trust collection indicate the composition of the set as: four or five sizes of plates, five or six graduated platters, tureen stands, lids, tureen bodies, sauce boat, jugs, mugs and peripheral items. Calculating on the basis previously used, this equates to eight-hundred and twelve days or roughly two-and-a-half years for a single engraver.

Based on these rough estimations, it is possible to posit that Spode had at least five engravers working on these two projects between 1804 and 1806. These figures do not take into account other work taken on during this period and the re-engraving and refreshing of existing copper-plates, the training of apprentices and other needs. It is therefore plausible that Spode employed as many as ten or twelve engravers at this time. Thus, combining experiential evidence from recent engravers with evidence from the copper-plate archive and historical knowledge of patterns, it has been possible to imagine Spode’s engraving workforce. It can also be conjectured that working on large pattern series contributed to the desirability of employing in-house staff rather than outsourcing engraving. Team working would have avoided duplication of tasks, and aided pattern matching through common routines for layout and planning.

There are few “Castle” pattern copper-plates left in the archive and those that remain are chiefly on the back of newer, Victorian engravings and are badly damaged through wear and knocking-up. The pattern was not produced for long and examples even as late as the Copeland and Garrett period (1833-47) are uncommon. The pattern was not used again until its re-introduction around 1995.

“Greek” pattern: creation and revival

The “Greek” pattern was revived in the early and late twentieth century, allowing comparisons of engraving technique and usage over an extended period of time.

“Greek” pattern; “Zeus in his Chariot”:

Fig. 5.13 and Fig. 5.14. “Greek” pattern, c.1806

Fig. 5.15 and Fig. 5.16. “Greek” pattern, 1914

Fig. 5.17 and Fig. 5.18. “Greek” pattern, 1990s

Fig. 5.13- 5.18 present the three distinct phases of “Greek” pattern introduction at the Spode factory, exhibiting the same central scene, “Zeus in his Chariot,” for continuity. There are subtle differences between each different stage. The 1914[247] example simplifies a border from the 1806 original. The panels and vases now number three each instead of four and there is the addition of a ‘Greek Key’ border. The grapevine sheet pattern has been expanded to cover the gaps left by the fewer vases and panels. The 1990s, Spode ‘Blue Room Collection, Traditions Series’ example adds to the central panel two stars above Zeus, and a floral detail below.

There are significant changes to the design within each phase, but each are clearly the “Greek” pattern and it has not lost its identity. The technical engraving style shows continuity through the three phases of production; all are predominately created with line-work. The strong contrast that was achieved in the 1806 original between the rich areas in the centre, panels and vases and the softer grapevine background has been maintained throughout the subsequent reintroductions. These strong, rich areas in the centres, panels and vases are created with cross-hatching and this technique is consistent through all three phases over the approximate one-hundred and ninety years that separate them (Fig 5.19-5.21).

[247] The printed Copeland, Late Spode mark to the reverse has the registration number; 63927. Copeland (1993 [1997]), page 111 – pattern registered 2nd, November, 1914.

Fig. 5.19. Close-up of the cross-hatching in the 1806 engraving.

Fig. 5.20. Close-up of the cross-hatching in the 1914 engraving. This example is not of "Zeus in his Chariot" as it was not possible to locate this copper-plate in the archive.

Fig. 5.21. Close-up of the cross-hatched area in a ceramic example from the 1990s as I could not locate the specific copper-plate in the archive.

Many of the earlier patterns that were contemporaries of the "Greek" series were engraved so that the border and centre when printed could be cut out from the tissue pull and applied separately. This can be seen in Fig. 5.22[248] where the centre and border sections were engraved on the same copper-plate, printed as one, and cut into four pieces for application. The "Greek" series however was always engraved as one piece that was intended to be

[248] "Country Scene" pattern.

printed as one. This unitary approach to engraving was continued through the three phases of production.[249]

The study of three distinct phases of pattern use demonstrates that the engraving technique remains the same as does the source of the imagery, but each specific version attempted to have its own identity. Each new identity differentiated itself from the previous example.

Fig. 5.22. A "Country Scene" copper-plate from the archive, c.1815-20.

[249] The only anomaly to note is that the 1990s "Greek" piece was engraved for and printed by the Murray Curvex machine and thus bomb-printed instead of tissue printed.

The figures below illustrate an example from the "Greek" series, "Cynisca winning the Chariot Race", from source print to copper-plate from the Spode archive to the finished transferware piece (Fig. 5.23- 5.25).

Fig. 5.23. Tischbein, Vol. II, plate 28.

Fig. 5.24. Copper-plate from Spode archive.

Fig. 5.25. Example of finished ware, c.1806.

Copper-plate re-use and phased up-dating

Fig. 5.26. A "Greek" copper-plate from the archive, c.1806.

Many of the copper-plates in the archive have several phases of use, adaption and re-working for re-use. Plates from the "Greek" series are no different. Fig. 5.26 is an early nineteenth century "Greek" series copper-plate engraved with the P906-1 pattern; "Zeus in his Chariot". This example has at least four distinct phases of re-use.

Phase one: creation

Initial creation in or around the pattern's introduction year of 1806. This was engraved onto a new piece of copper from the coppersmith as the series was being engraved and introduced for the first time.

Phase two: addition of back stamp

The 'Copeland and Garrett, Late Spode' (1833-47) back-stamp was added to the engraving in around 1833 (Copeland 1993: 60) (Fig. 5.27). Note that this engraved mark was placed close to the edge of one of the panels which, at that time, demarcated the extent of the design. The purpose of this placement was to save time when the plate was printed from and a 'tissue pull'[250] was produced. When the 'pull' was handed to the transferring team,[251] the cutter only had to make one cut in separating the back-stamp mark from the pattern rather than several cuts.

Fig. 5.27. Close-up of the placement of a back stamp.

Phase three: extension of sheet patterned border

The red arrow in Fig. 5.28 points to evidence that sometime after the start of the Copeland and Garrett period, and after the Copeland and Garrett back-stamp was engraved, an extension to the edge of the pattern was added. This was in effect a thin border extension to the grapevine sheet pattern. The reason that this was carried out was to accommodate the growing size of wares that were being produced. The original 1806 "Greek" pattern plates were 9¾-inch in diameter, but those in the mid-nineteenth century were a little bigger at around $10^{1}/_{8}$-inch. The problem was that in extending the engraved area, the new engraving partially covered the Copeland and Garrett back-stamp as seen in Fig. 5.29. On first inspection, it seems as this mark was engraved rather clumsily through the edge of the border.

[250] A tissue pull was the medium that transferred the pattern from the copper-plate to the blank ware in the transferware process.
[251] The transferring team consisted of a printer, one or more cutters and several transferrers that applied the pattern from the copper-plates to the wares.

Fig. 5.28. Close-up of the border extension.

Fig. 5.29. Close-up of the placement of the back stamp in relation to the border extension.

Fig. 5.30. Evidence of the border extension cutting through the back stamp.

However, looking carefully at Fig. 5.30. it is apparent that the border extension cuts through the back-stamp and not the other way around. This is most evident around the 'D' of Copeland where some of the later diagonal lines are seen to stop upon making contact with the 'D' and carrying on afterwards on a slightly different, but parallel orientation.

Phase four: face becomes verso

Fig. 5.31. Evidence of knocking-up to the copper-plate.

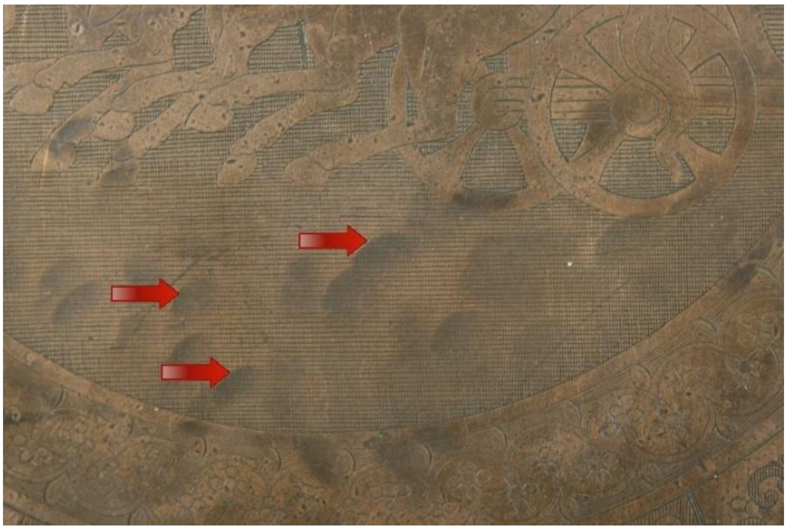


Fig. 5.32. Close-up of knocking-up to the copper-plate.

Fig. 5.31 and Fig 5.32 illustrate what happened when the pattern was deemed obsolete and the other side of the copper was engraved with another pattern. The first steps to preparing the other side for a new engraving was to make it flat and free from any imperfections, scratches and low-points, achieved by ‘knocking-up’ (Drakard & Holdway 1982 [2002]: 44) from the “Greek” side (illustrated by the arrows in Fig. 5.32.). Once flat and planished, a new pattern is engraved on this, the ‘new’ side. This act rendered the “Greek” side totally un-useable.

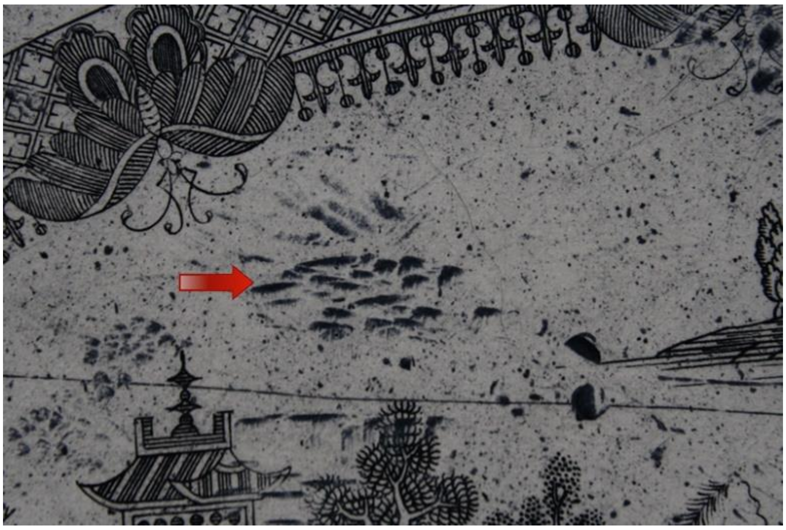


Fig. 5.33. Knocking-up transferred to a paper print.

Fig. 5.33 illustrates a close-up from a knocked-up “Buddleia” pattern copper-plate. I took a paper print to evaluate how much ‘knocking up’ would be transferred to a print. This image demonstrates that knocking-up does render an engraving unusable.

Fig. 5.34. The most recently engraved side of the copper-plate, c.1889.

Fig. 5.35. Close-up of engraved fish detail, c. 1889.

Fig. 5.34 and Fig. 5.35 are illustrations of the ‘new’ side engraved with the “Fish” pattern, c.1889.

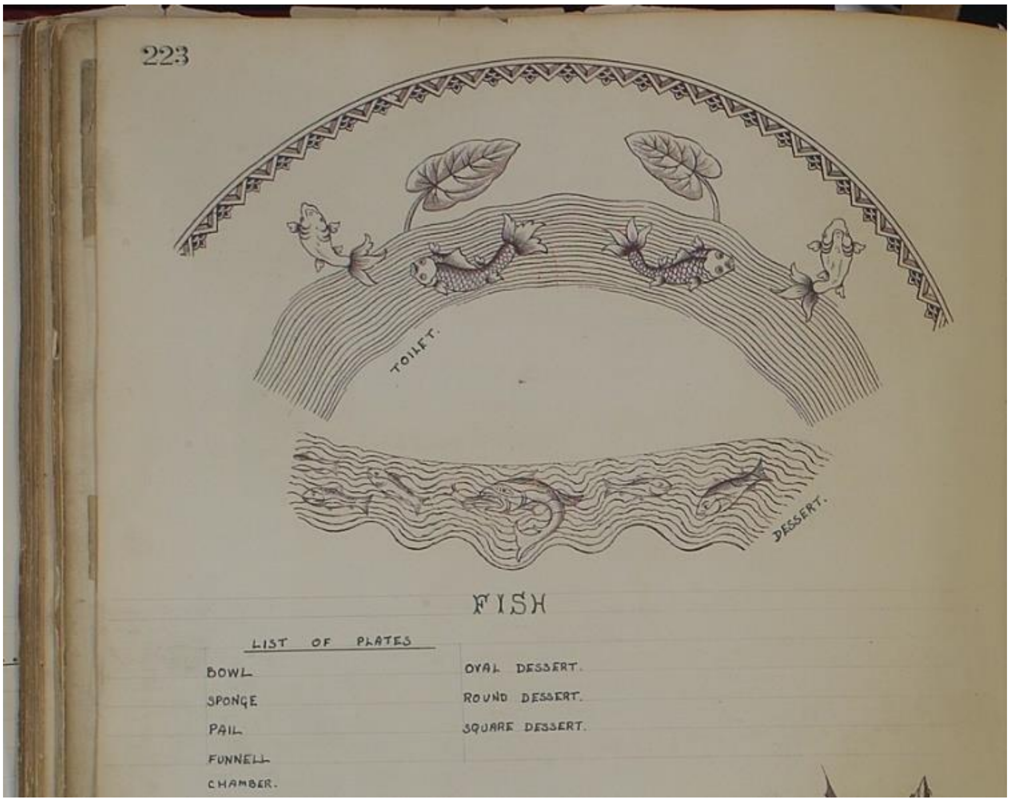


Fig. 5.36. A page from the Spode Engravers' Book.

Fig. 5.36. The Spode engravers' book[252] details the "Fish" pattern and the shapes of ware it was intended to decorate.

Fig. 5.37. A close-up of the impressed mark on the copper-plate.

The engravers' book mentions the word 'Funnel' which is stamped at the top of the copper-plate (Fig. 5.37). This was used to decorate the lid of a sponge bowl from a toilet set.

[252] Spode engravers' book – part of the Spode paper archive currently held in Stoke City Archive.

This type of plate re-use with specific regard to the “Greek” pattern can chronologically develop in two ways; either the “Greek” is the first pattern to be engraved on a plate or it can be the second. Examples within the archive suggest that the “Greek” being the first pattern on a copper-plate is far more prevalent with only two examples that I was able to find where a “Greek” pattern was engraved on the other side of an existing engraving. This evidence possibly indicates that the “Greek” was of such high-importance and quality that in all of the approximately 40-50 surviving copper-plates, bar two, they were brand-new pieces of copper at the time of engraving the “Greek” series in c.1806. One of the “Greek” pattern plates that had previously been used for another engraving is illustrated below (Fig. 5.38). This is a “Greek” series copper-plate engraved with the P906-32, “Dancing

Fig. 5.38. A Dancing Buffoon” pattern copper-plate, c.1806.

Buffoon” pattern, c.1806. The other side of the copper-plate, although difficult to distinguish, is engraved with a previously-used pattern; the “Queen Charlotte” pattern (Fig. 5.39-5.40).

Fig. 5.39. One of the most distinguishable features on this side of the copper-plate, and recognisable as “Queen Charlotte”.

Fig. 5.40. Close-up of a “Queen Charlotte” pattern ten-inch dinner plate showing a similar area to Fig. 5.39.

The ‘knocking-up’ is a key indicator to illustrate which side was engraved first. The quality of the engraving is also a fundamental sign; the engraving while well executed is worn, scratched and in poor condition.

Fig. 5.41. A paper print taken from the “Queen Charlotte” side of the copper-plate.

Fig. 5.42. An illustration of knocking-up on the “Queen Charlotte” side.

As this side of the copper-plate was badly worn and difficult to see, it was necessary to take a paper print to better study the evidence that remained (Fig. 5.41 - 5.42). Here, the remnants of the engraved work are more readily visible as the intaglio ink, printed onto paper picks up every indentation. The two arrows in Fig 5.42 point to two large areas of knocking-up that were necessary to prepare the other side for the “Dancing Buffoon” pattern.

While it seems that the majority of the 1806-type of “Greek” pattern was made during the first quarter of the nineteenth century, it was continued through two further periods of Spode factory; during the Copeland and Garrett (1833-47) period as discussed in the ‘plate re-use’ section above and during the Copeland (1847-91) period too. The plate-re-use section above has demonstrated a certain degree of plate-re-engraving to keep the design production-ready in terms of quality. However, I have seen two examples of the 1806-type produced much later in the Copeland period.

Fig. 5.43. and Fig. 5.44. A Copeland “Greek” ceramic and impressed mark, c.1860-69.

The example illustrated in Fig. 5.43 was produced around 1860-69 (Copeland 1993: 66) and is printed on a ten-inch dinner plate. It is impressed COPELAND above a crown (Fig. 5.44). The size and quality are of particular interest. It was printed using the 1806 Spode copper-plate rather than the c.1833 altered Copeland and Garrett example discussed above. The quality of this ceramic ware is a key indicator about wear in the archive. The print is noticeably pale and the cross-hatching, in particular, is uneven and patchy. The overall quality of the Copeland wares of this period was high, so this poor-quality example is not a reflection of any poor standards in the factory. This example suggests that it was printed from a worn plate that possibly had some signs of dried colour within the engraving and it really needed some work to get the quality back up to the original standard. It is plausible that this ceramic example was made as a replacement for a customer who had an earlier service[253] and ordered one or more pieces as substitute for those broken or lost. This has not been possible to substantiate as the factory records that may have been able to answer this no longer exist. Assuming this was the case and a small quantity of replacement "Greek" pieces were ordered, the cost in terms of re-engraving the 1806 plate to bring it up to the ideal standards of the factory would have been relatively high. It would have taken an engraver approximately seven to ten days[254] of work to planish the existing copper and re-engrave, where needed. Copeland-period, 1806-type "Greek" pieces are rare but can be identified from their print quality (Fig. 5.45-5.46).

Fig. 5.45. Close-up of the Copeland example's centre print.

Fig. 5.46. Close-up of an 1806 example's centre print.

[253] Earlier service from the 1806 period.
[254] Estimation based on Bill Heath's and Paul Holdway's comments.

The Copeland (Fig. 5.45) example is noticeably paler and the engraving does not appear as sharp as in the earlier example (Fig. 5.46). These two prints were taken from the same copper-plate (still in the archive), but approximately fifty-four to sixty-three years apart.[255]

Fig. 5.47. The “Greek” pattern pens in the copper-plate archive.

Fig. 5.47 shows the “Greek” copper-plate storage area at Spode. The extent of copper-plates from its three phases unusually required two pens. Within the allocated pens and elsewhere in the archive, twenty-two of the forty-six[256] plates from the 1806 period have been located.

“Greek” Summary:

The “Greek” pattern case study has demonstrated the types of engraving techniques and that they have remained the same over the three phases. The use and adaptation of existing source work (Coysh & Henrywood 1983: 341) within a transferware series has been also illustrated and the implications discussed.

[255] The range of dates covers the extent of time that the Copeland mark in Fig. 5.40 was used.
[256] 46 = 43 different patterns and three variations.

An estimation of time to undertake work and by how many engravers has been suggested. Further evidence in the archive ("Castle" pattern) and supporting literature has allowed an insight into lead-times required to introduce a new pattern. The large sample size of archival material has shown that a single copper-plate was engraved to fit each different size of ware, which in the context of the industry, was not always the case. This is backed up by the ceramic archive and illustrates how much importance was placed on quality at Spode. The "Greek" introduction was a huge undertaking in terms of man-hours and the purchase of copper. The evidence in the archive suggests that the majority of "Greek" copper-plates were purchased new from the coppersmith. The copper purchase and the employment of such a large staff of engravers demonstrates a company confident of its market and its demand.

Copper-plate re-use and more specifically, phased re-use has been acknowledged. The notion of phasing is important as it demonstrates that designs were periodically updated to keep them current and useable.

Continuity of design has been recognised and that existing designs were used for the basis of a new incarnation. This included consistency in engraving techniques employed. The series had the addition of the Greek Key border in the second phase of use and the rationalisation of the border elements. The third phase of use brought more subtle additions to the central design, but given the length of time over which the pattern was produced, this demonstrates a continuity in design and a sense of strength of historical substance and tradition. While the Greek production was not continuous, the factory provided replacements in two subsequent periods.

The "Willow" pattern

Fig. 5.48. The “Willow” pattern pen title in the copper-plate store.

Fig. 5.49. A “Willow” copper-plate with the Spode ceramic.

Fig. 5.50. The "Willow" pattern pens in the copper-plate archive.

Like the prolific "Greek" series, the "Willow" pattern shares the uncommon distinction of having two pens in the Spode archive (Fig. 5.50). Only patterns that had in excess of approximately thirty to fifty copper-plates expanded past one single pen. There are approximately sixty-two copper-plates still[257] within these two pens that span nearly two-hundred years of production from the late eighteenth century to the 'Blue Room'[258] series of the 1990s. The copper-plates are engraved to print a multitude of shapes from large dishes to the smallest of plates and for tea wares, dinner wares and toilet wares.[259] Some of the copper-plates are plated and some left in their native state. Many of the plates show signs of wear and continued use and some have patterns engraved onto both sides. The extent of this pattern at Spode can be compared with another large pottery manufacturer: Minton. Priestman (2005: 59) noted at Minton that:

> Over forty standard Willow copper-plates were found at the factory, mainly in three separate pens. As expected, these indicated use over a long period of time with both thin early coppers and later thicker ones, sometimes steel plated.

[257] This does not account for depletions and plates that have yet to be discovered and returned to their correct pen.
[258] The 'Blue Room' patterns were re-engraved in the traditional manner using existing 'antique' plates as inspiration. They were sold as 'collectors' pieces' from c.1992 onwards.
[259] Tea wares, dinner wares and toilet wares are the three main class of 'useful' production wares. Tea wares and dinner wares are self-explanatory, but toilet wares consist of chamber pots, ewers and jugs, spittoons, foot baths and other related similar pieces.

The "Willow" pattern has the accolade of being the design that has the longest continuous production in the history of British ceramics. From its inception in the middle 1780s, it was produced by Spode and hundreds of other potters across the globe. Ceramics (and other wares) in the pattern are still being produced today.[260]

It is uncommon that a design transcends its own genre and has wider acclaim and recognition irrespective of its type, derivation and origin. The design is clearly of Chinese inspiration, but is not a direct copy of a Chinese original. Of the thirty-six chinoiserie[261] Spode transferware designs, thirty-one are direct copies of Chinese export wares. Halsey (1974: 11) confirms that "Willow" was taken from multiple Chinese sources: "a nondescript design which Thomas Turner had evolved in 1780 from several Chinese plates."

Despite this attribution to Turner, establishing the origins and 'author' of the "Willow" is problematic. One of the issues is the use of the term 'Willow' within the industry in the late eighteenth century. Priestman (2001: 3) reports:

> The early engraved patterns tended to be referred to under the generic term 'Willow', which can lead to confusion with the specific and famous 'Standard Willow' pattern.

Thomas Minton is a strong candidate for the creator of the "Willow" pattern and this is confirmed by several authors. Little (1969: 23) notes that:

> Thomas Minton, shortly after completing his apprenticeship at Caughley, moved to London and worked as an engraver for Josiah Spode at his warehouse in Portugal Street. Evidently anticipating the great demand for his new decorations, he moved about 1788 to the centre of the industry, and set up as a master engraver at Stoke on Trent. He was probably the first to specialise in the engraving of copper-plates for the Staffordshire blue printing trade. He produced many design, including different versions of the Willow and Broseley patterns for Spode, and other potters.

Little (1969: 15) also reports:[262]

> Traditionally, the Willow pattern, designed in 1780 by Thomas Minton, an apprentice engraver working at Caughley, is regarded as the first pattern to be transfer printed on earthenware.

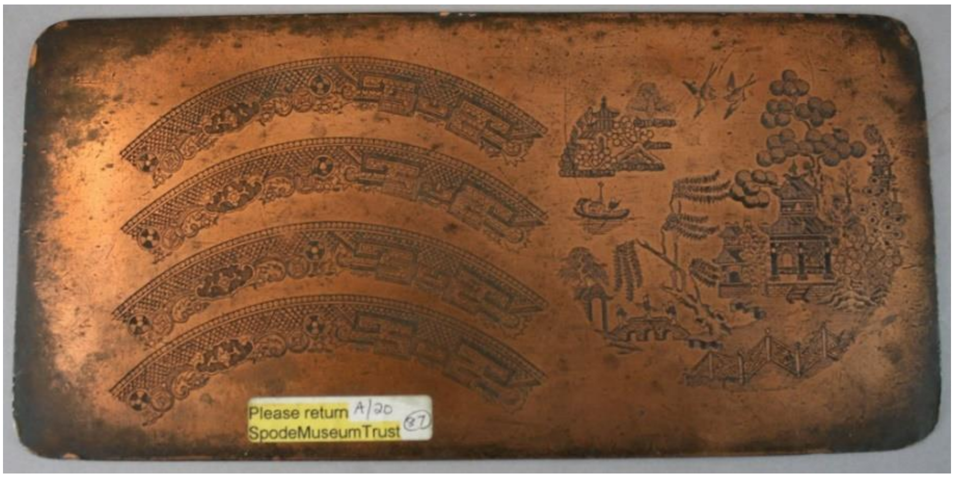
[260] Today – 2017.
[261] Chinoiserie is a term that describes an arrangement taken from or inspired by a Chinese design.
[262] Copeland (1980) notes that; "Spode's first version of the Willow pattern may have been produced in around 1790". Copeland (1994) reports that; "The Willow pattern – the only one with three persons on the bridge – was developed and marketed first by Spode in 1790".

Fig. 5.51: A “Willow” ceramic and the copper-plate from which it was printed, c.1790. (CHC).

Fig. 5.51 shows what is believed[263] to be the earliest “Willow” pattern copper-plate in the archive, alongside a fluted-rim saucer dish, c.1790, that was printed from the copper-plate.

The “Willow” pattern’s evolution at Spode traces key changes in engraving practice departing from exclusive line-work: the introduction of punching (alongside line-work), adaptations for roller-printing, and further changes for the Murray Curvex machine.

Line-work



[263] According to Robert Copeland and Paul Holdway.

Fig. 5.52. “Willow” copper-plate, 1790.

Fig. 5.53. Close-up of engraved-work, c.1790.

In Fig. 5.52 and Fig. 5.53, we can see the engraving of an early “Willow” plate with coarse line-work in exclusion. The area that is of most importance is the ground before the main pagoda (Fig. 5.50). This area of ground-work[264] is executed with the graver alone with a series of long, parallel lines. Copeland (1980: 33) had likewise noted that in the 1790s, “The engraving was all by line except for the oranges on the tree.”

Introduction of punching, c.1800-1810[265]

[264] Ground-work is a term that describes engraving that suggests ground. Sometimes this is fields and lawns and other times is more rocky or man-made, but is a solid surface.
[265] The date refers to the date of introduction to the “Willow” pattern, not other designs.

Fig. 5.54. Copper-plate from the archive, c.1810-20.

Fig. 5.54 shows a “Willow” copper-plate engraved around 1810-20 for a vegetable dish. The ground-work in the foreground (Fig. 5.55), was executed with a single-pointed punch.

Fig. 5.55. Close-up of engraved-work, c.1810-20.

Fig. 5.56 and Fig. 5.57. Comparison of engraved work: 1790 and 1810-20.

This can be compared with the earlier line-engraved treatment (Fig. 5.56 - 5.57).

Copeland (1980: 35) states that:

> Willow III[266] was produced from newly engraved copper-plates possibly after 1810; there are substantial areas of stipple punch work especially in the garden.

Another significant detail within this engraving is that the border sections are engraved as four separate pieces (Fig. 5.58) Fitting was an important part of the engravers’ work, for which the correct lay-out on the copper prior to engraving was crucial. The four-part border was adopted to make it easier to transfer to the square shape of the dish.

[266] Copeland (1980) names the “Willow” pieces that contain punching ‘Willow III’. The earliest, most coarsely-engraved examples he names ‘Willow I’ that are exclusively line-engraved and ‘Willow II’ is given to line-engraved examples, c.1795-1800 that show a degree of technical improvement.

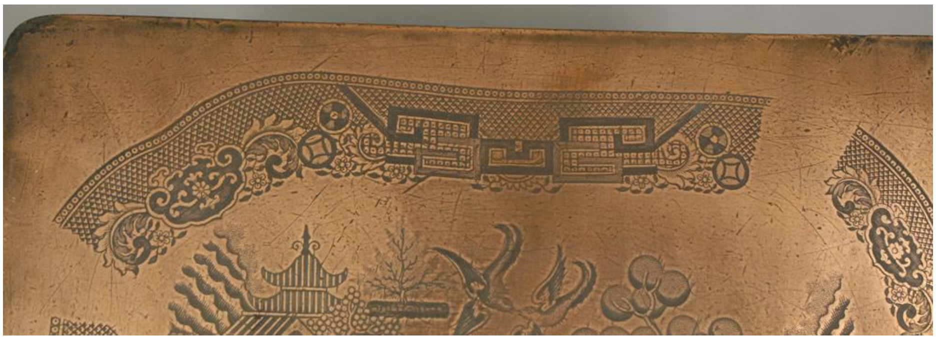


Fig. 5.58. Close-up of segmented engraving, c.1810-20.

Charles Dickens in his ‘Household Words’[267] published on the 24th of April, 1852 commented upon a visit he made to the Copeland[268] factory, wherein he mentions the “Willow” pattern and how it was manufactured:

> And didn't you see (says the plate) planted upon my own brother that astounding blue willow, with knobbed and gnarled trunk, and foliage of blue ostrich feathers, which gives our family the title of "willow pattern?" And didn't you observe, transferred upon him at the same time, that blue bridge which spans nothing, growing out from the roots of the willow; and the three blue Chinese going over it into a blue temple, which has a fine crop of blue bushes sprouting out of the roof; and a blue boat sailing above them, the mast of which is burglariously sticking itself into the foundations of a blue villa, suspended sky-high, surmounted by a lump of blue rock, sky-higher, and a couple of billing blue birds, sky-highest — together with the rest of that amusing blue landscape, which has, in deference to our revered ancestors of the Cerulean Empire, and in defiance of every known law of perspective, adorned millions of our family ever since the days of platters? Didn't you inspect the copper-plate on which my pattern was deeply engraved? Didn't you perceive an impression of it taken in cobalt colour at a cylindrical press, upon a leaf of thin paper, streaming from a plunge-bath of soap and water? Wasn't the paper impression daintily spread, by a light-fingered damsel (you *know* you admired her!), over the surface of the plate, and the back of the paper rubbed prodigiously hard—with a long tight roll of flannel, tied up like a round of hung beef—without so much as ruffling the paper, wet as it was? Then (says the plate), was not the paper washed away with a sponge, and didn't there appear, set off upon the plate, *this* identical piece of Pre-Raphaelite blue distemper which you now behold? Not to be denied! I had seen all this—and more. I had been shown, at Copeland's, patterns of beautiful design, in faultless perspective, which are causing the ugly old willow to wither out of public favour; and which, being quite as cheap, insinuate good wholesome natural art into the humblest households. When Mr. and Mrs. Sprat have satisfied their material tastes by that equal division of fat and lean which has made their *ménage* immortal; and have, after the elegant tradition, "licked the platter clean," they can—thanks to modern artists in clay—feast their intellectual tastes upon excellent delineations of natural objects.

[267] ‘Households Words’ was published every Saturday between 1850 and 1859. It cost tuppence.
[268] Spode were called Copeland at the time of Charles Dickens’ visit.

It is significant to note that not only did Dickens study the pattern elements and reflect on their meaning and origin, he also notes the copper-plate. Dickens says; “deeply engraved”. Was ‘deeply’ a poor choice of words to describe to the readership something that they would possibly not be familiar with and try and impress on them the force and skill employed or did the engraving appear deep to him? Depth is a relative and subjective consideration, but is possibly a comparative descriptive to differentiate the engravings seen on that day from fine art print engravings Dickins may have examined previously.

Roller-press printing, c.1847

While there are no rollers left in the archive, there is other evidence to demonstrate their use and existence. The rollers were melted down for scrap towards the end of the factory around 2007/8. While it has not been possible to establish exactly why this decision was taken, all of the rollers and all of the “Tower”, “Italian” and “Camilla” flat copper-plates were also removed for scrap.

Fig. 5.59. The copper roller storage pegs in the archive.

Within the copper-plate room, in addition to pens, there are several areas dedicated to the storage of copper rollers. There are approximately five-hundred 'pegs' which are now all vacant (Fig. 5.59).

Fig. 5.60: Ken Collins engraving, c.1980-90. (CHC) and Fig. 5.61: A "Primula" pattern roller engraved by Ken Collins, c.1980-90. (CHC).

Fig. 5.60 shows a "Primula" pattern roller being engraved along with a stream of tissue paper, while Fig. 5.61 shows the roller alongside wares decorated with the pattern and engraving tools.

Fig. 5.62. "Italian" pattern plated copper roller.

Fig. 5.62 shows the only[269] Spode roller-copper known to have survived. It was loaned to the Victoria and Albert Museum[270] while the factory was still in existence and it therefore did not suffer the same fate as the others that were in the copper-plate store. In front of the roller, there is a section of tissue paper with all the required pieces of transfer needed to create the dish that is also shown in the image. The oval centre to the right-hand side of the tissue is to fit another shape, so this roller would be used to create transfers for two different shapes. When in production, the roller in the roller-printing machine would create a continuous stream of tissue that would be cut off by the transferrers in one-item sections to decorate one piece at a time. This is illustrated in Fig. 5.63.

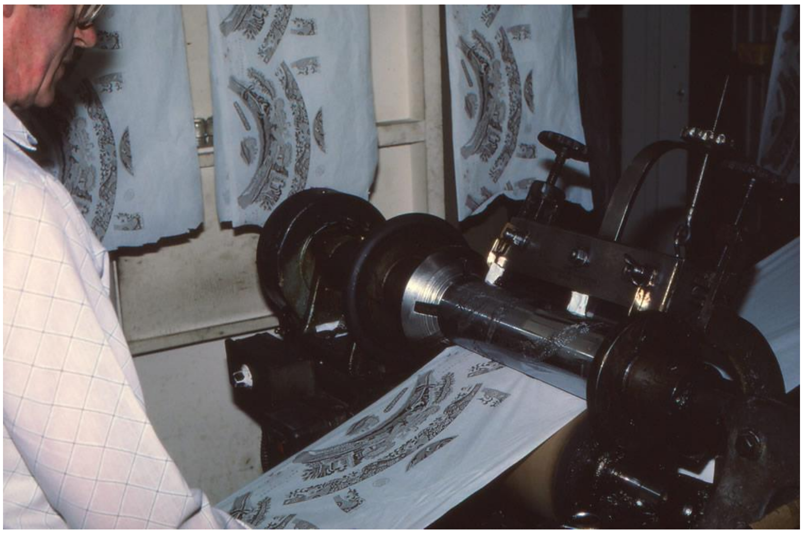


Fig. 5.63: The roller press in use at the factory. CHC.

[269] 'Only' known surviving Spode roller copper.

[270] The image was taken at the V & A and demonstrates the existence of rollers and how they were engraved and used.

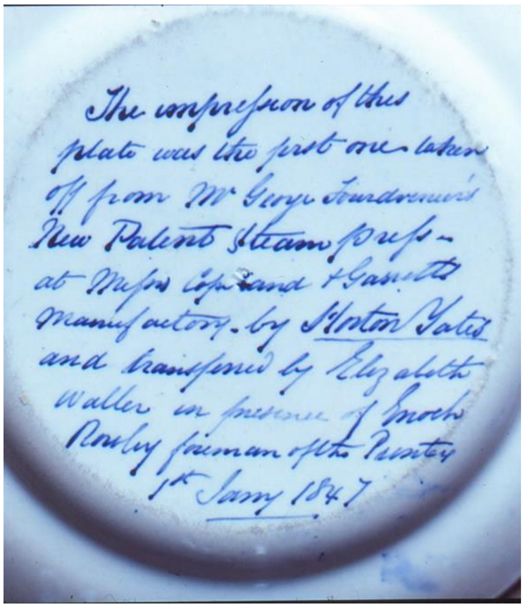


Fig. 5.64: Front of ceramic and pattern book, c.1847. Fig. 5.65: Inscription on back of ceramic, c.1847. CHC.

Considering wholly the "Willow" pattern and the use of rollers, Fig. 5.64. and Fig. 5.65. show evidence of the first use of the roller press at the Spode factory in 1847. The pull was added to the pattern book as shown (Fig. 5.64) and the first plate was inscribed to the reverse: "The impression of this plate was the first one taken off Mr. George Fourdrinier's new patent steam press at Messrs Copeland and Garrett manufactory by Horton Yates and transferred by Elizabeth Waller in the presence of Enoch Rowley Fireman of the Potteries, 1st January, 1847".[271] This first usage of the steam press printed a "Willow" pattern plate.

Continuation of hot press printing, c.1920:

[271] Some explanatory notes may be useful. By 1843, George Henry Fourdrinier at Ivy House Mill, became renowned for his fine "pottery tissue" (Milner 2000). The 'steam press' allowed for continuous stream of tissue paper to be printed from a single copper roller engraved with a design. Spode operated under the name 'Copeland and Garret' from 1833-1847. The Fireman was the person who was in charge of firing the bottle kilns.

Fig. 5.66 and Fig. 5.67. Front and mark of a copper-plate in the archive, c.1920.

Fig. 5.66- 5.67 show a “Willow” tissue print with an engraved ‘back stamp’ mark of c.1920 (Copeland 1993: 70). While the specific date is not significant for this discussion, it was chosen to illustrate the continuation of the technique established in c.1800-1810. It demonstrates that the engraving at this period is still being made with a noticable gap in the border for the hand transfer process (Fig. 5.68).

Fig. 5.68. Close-up of gap in the engraving, c.1920.

Fig. 5.69. Close-up of engraving on the reverse of Fig. 5.68.

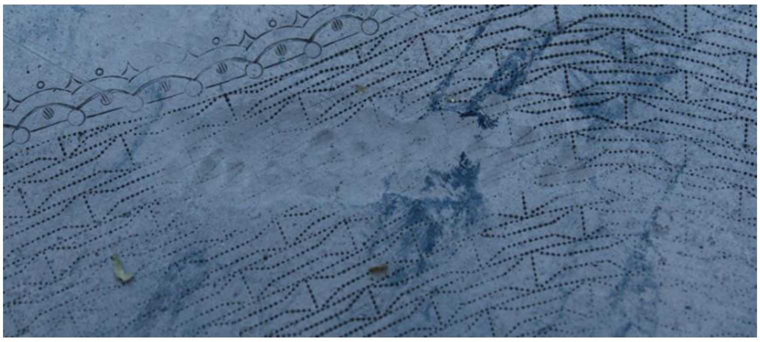


Fig. 5.70. Close-up of engraving on the reverse of Fig. 5.68.

Plate re-use is a prevalent phenomenon within the archive with an estimated seventy-five percent of copper-plates having engravings on both sides. The “Willow” copper-plate illustrated in Fig. 5.63 has an engraving on the other side which pre-dates the “Willow” engraving. Stylistically, the pattern on the other side that consists of four geometrically-engraved border sections of mid-nineteenth century origination, would be typical of other engravings from the Copeland and Garrett period (1833-47). It might be difficult to date which side was engraved first by looking at the two designs; one is “Willow” which could date from 1810 to 1990, but the detail in Fig. 5.69 and Fig. 5.70 exhibits damage to the plate that confirms which side was engraved first.

Fig. 5.71. Close-up of 'doodles' on the back of Fig. 5.68.

Also found on the 'knocked-up' side are a series of 'doodles' (Fig. 5.71) made by the engraver as he prepares to work on specific sections of the soon-to-be engraved "Willow" side.

Fig. 5.72. Close-up of 'doodles' on the back of Fig. 5.68.

To the right-hand side of this area of practice marks is a circular pattern (Fig. 5.72). This is a practice or working-out for the trees to the right of the main pagoda illustrated in Fig. 5.73. Each of these lines are undertaken separately; a punch that would create this shape of tree was not employed. Evidence of this can be seen where the circle details meet one of the tree branches and the circle structures are clearly opened-up to fit the space available and they are not uniform.

Fig. 5.73. Close up of the engraved-work, c.1920.

Murray Curvex:

Fig. 5.74. “Willow” engraving by Paul Holdway, c.1992. (CHC).

The 1992 Murray Curvex copper-plate in Fig. 5.74 was the start of the ‘Blue Room Collection’. This was the brain-child of the then manager, Paul Wood. He saw an opportunity in the market based on the popularity of ‘antique’ transferware and wanted to create a “instant collectable”. Many of the early Spode patterns from 1784 onwards were re-engraved and were sold as collectors’ pieces. The “Willow” pattern copper-plate was the first to be engraved. Wood notes that this relaunch saved the engraving department who, at that time, were doing little other than repair-work.

Holdway was charged with engraving the first copper-plate. He wanted to use a late eighteenth-century source for the work, but this was engraved using only line-work. After c.1800-1810, the factory ‘style’ used a combination of line-work and punching, especially in areas of ground-work. The combination of techniques afforded the design a degree of tonality and softer quality. Holdway asked Wood[272] if he could engrave the ‘new’ engraving in the style of the earliest engravers whom he much admired. Wood said that if he was passionate about it and that it would still work as a design, then this change to the factory ‘style’ would be accepted. Fig. 5.75 shows the eighteenth-century line-engraved dish chosen as model, and Fig 5.76, Holdway’s 1992 line-engraved plate.

[272] Paul Wood was the factory manager at this time.


Fig. 5.75 and Fig. 5.76. Side-by-side of 1790 ceramic and 1992 ceramic.

Fig. 5.77. Close-up of the back stamp, c.1992.

Fig. 5.77 shows the back of a Blue Room plate that was produced from the 1992 engraving. The “Willow” engraving was copied from an antique Spode piece in the Spode Museum Trust collection that was on display to the public in the Spode Museum. It had once belonged to Robert Copeland’s father, Gresham Copeland, as denoted by the AGC notation to the reverse (Fig. 5.78).

Fig. 5.78. Close-up of the Gresham Copeland collection number.

The origin of the design for the 1992 engraving is of importance for several reasons. Firstly, it demonstrates a continued use of existing sources in the preparation of a new engraving. Secondly, it demonstrates an understanding and appreciation from Wood of the past and successful patterns from the history of Spode. However, the most crucial design-related knowledge in the 1992 engraving was the role the engraver played in the design process. The chosen engraver, Holdway, was given the task of selecting the "Willow" piece that was to be used for the source of the new engraving. Wood asked him to choose the most appropriate example he could find within the archive. Holdway chose the shaped dish in Fig. 5.72.

Holdway has a slightly different perspective upon engraving than some other engravers as he is an avid collector of early Spode transferware and a co-author of transferware-related literature (Drakard & Holdway 1982 [2002]). He chose the dish (Fig. 5.75.) that appealed to him as a representation of the quality of the early (c.1790) Spode wares. As Holdway wanted to use this dish and the engraving in its entirety, the areas of ground-work in the pattern were line-work created with a graver. Holdway checked with Wood to see if the use of a non-punched ground would be acceptable and Wood repeated; "I will leave this to you". This is a crucial piece of evidence that demonstrates the engraver played a part in the design process albeit, in a relatively minor way. After about 1800-10, all "Willow" pattern ground-work was punched until Holdway decided to revert to this earlier interpretation and technique. This was a form of homage to the skills of the early engravers. Subtle though it was, especially to the untrained eye, the whole ethos of the Blue Room was a marketable celebration of the history of Spode's transferware.

The method of manufacture in the form of engraving was taken out of the hands of the engravers as it was intended for Murray Curvex, but the technical aspects were not.


Fig. 5.79 and Fig. 5.80. Comparison of 1790 ceramic and 1992 engraving.

Fig. 5.79 and Fig. 5.80 show the area of the c.1790 blue-printed ceramic alongside the 1992 Holdway engraving in the approximate same area of the design.

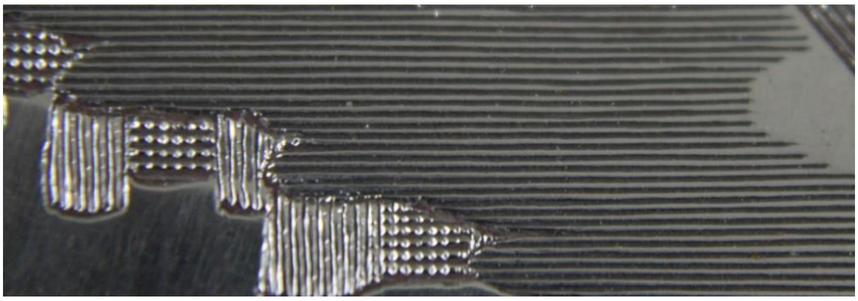


Fig. 5.81. Close-up of 1992 engraving.

Fig. 5.81 shows a close-up view of the area of ground-work that was created by graver-cut line-work and not punched as it would normally have been at this time. Since this was a departure from the ‘house style’ (Tanner & Tanner 2005) as developed since the early nineteenth century, it constituted a significant creative departure.

Fig. 5.82. Paul Holdway’s bench upon completion of the 1992 engraving. (CHC).

Fig. 5.82 shows an image taken of Holdway’s work area in the engraving department at Spode in 1992. Around his work area are engraving tools, but also there are two “Willow” pattern copper-plates, the dish mentioned above (Fig. 5.75) and three further ceramic “Willow” plates. When Holdway was asked about this, he commented that he felt he had to surround himself with inspirational material that allowed him to understand how others had approached this task. He suggested that this approach was unusual with those that he had worked alongside, but allowed for a certain degree of creativity and interpretation. This snap-shot in time taken by Holdway moments after finishing the engraving seems to capture his sense of pride about being the first person to engrave for the ‘Blue Room Collection’. The sense of activity and endeavour is clear to see. Holdway was by his own assessment unusual in his approach to this undertaking, but it demonstrates that individual engravers could, for special projects, gain considerable freedoms from routine practice, freedoms ordinarily associated with the designer role.

“Willow” summary:

In following the reiterations of the “Willow” pattern at Spode, we have been able to track the main changes in engraving technique over the course of nearly two centuries. The line-engraved original gave way to newly fashionable punch engraving in the early nineteenth century. Then the pattern was engraved onto roller in the middle of the century, and finally a plate made for Murray Curvex printing in the twentieth century. It is probable that the great popularity of the pattern was the stimulus for using semi-automated techniques (roller printing and Murray Curvex). The "Willow" sequence shows that Spode may not have been as conservative as often supposed, but technical change was linked to economic factors, whereas aesthetic change followed fashion or house style.

Chapter Summary:

A case history is simply an individual case in point. The reason for examining a case is that it permits analysis of a smaller area, but in more depth. Ultimately, the value of the case is the ability to extrapolate from it: what implications and/or applications do the two cases have for the study of the copper-plate archive as a whole. For example, that re-use of plates has obscured parts of the engraving history: these often provide useful dating information and that the features identified as useful for reading the copper-plate work in practice to help tell the story of individual patterns. The understandings provided by the modern engravers appear to hold true when applied to older work, and that a long historical perspective is needed because pattern histories extend over lengthy periods.

The relative completeness of the archive has enabled the detailed analysis of multiple plates, over a wide time span. Viewed in isolation, a single copper-plate would be possible to draw some conclusions from,[273] but these conclusions would be less encompassing then archival studies without supportive, subsidiary archival material. One or two copper-plates can make a difference in interpretation: for example, only two "Greek" copper-plates from nearly fifty were engraved as the final phase. This shows how important preservation is to our understanding of the nuances and mechanisms of the engraving department. While only a single roller copper remains,[274] this represents a missed opportunity of not being able to analyse those that were sold and scrapped at an earlier date through 'rationalisation'.

While I have only showed examples of one or two copper-plates to demonstrate the points being made, multiple examples could have been used in each case, such is the richness of the design and craft knowledge repository. Therefore, this type of comparative analysis and

[273] Such as engraving techniques, styles, plate re-use, design source and so on.
[274] On display at the V & A. See Fig. 5.62.

putting designs into context within a factory's archive and ceramic output would not be possible without having a copper-plate archive of high integrity.[275] The durability of design and continuity of technique have been indicated and confirmed.

[275] Despite some depletions.

Chapter Five Highlight:

Detailed Analysis of a Royal Worcester copper-plate

Background:

Conducting research into copper-plates, engraving and engravers, I felt I really should own a copper-plate that had been hand-engraved with a transferware pattern. With my position as a Trustee of the Spode Museum Trust, I was lucky enough to have access to more than 40,000 copper-plates. While I have a huge sense of ownership and protective instinct for this collection, these plates are of course, not mine. So, I made an effort to locate and buy an example that I could call my own. This would allow me to study a copper-plate without the pressures of handling precious archival material.

My experience as an antiques dealer aided my search, which nevertheless lasted over three years. Examples are uncommon and rarely come onto the market. Hand-engraved copper-plates can be seen from time to time, but these are more often than not for making prints or bank notes. I wanted an example that was engraved specifically for the transferware industry. Transferware-specific plates are easy to spot as they are engraved the correct way around and this is especially evident when looking at lettering and words; plates engraved for bank notes, handkerchiefs and prints are engraved in reverse. I didn't mind which factory or which time period it came from. After all, it is useful and important to put the engraving at Spode into the wider context of other manufacturers.

The Copper-Plate

I finally found a Royal Worcester[276] copper-plate that was engraved to commemorate the coronation of King George V and Queen Mary in 1911. Beneath the central oval that pertains to the coronation, is the Worcestershire coat-of-arms. Below this is a banderole lettered: "Mayor of Worcester/ Emanuel Thomas". The surround is filled by Union emblems: roses, thistles, leeks and shamrock, and is finished with acorns, oak leaves and laurel. I acquired the copper-plate from an auction in Shrewsbury for a small price; it had been catalogued as: "An etched plate", with no size or further details given. Many of Royal Worcester's copper-plates were sold at auction in the early 2000s at a saleroom near Malvern. From memory, these had been cancelled (purposefully damaged with a single,

[276] Royal Worcester was a ceramic factory based in Worcester; 1751 – 2008.

deeply-scored diagonal line through the engraving) to prevent them from being used in production again. Thankfully, this copper-plate did not suffer the same fate. Unfortunately, it has not been possible to find out how it came to be sold in Shrewsbury. I wrote to the vendor care of the auctioneer in an attempt to find the provenance. I received a reply, that it had been inherited due to a bereavement, so few further details could be gleaned apart from the vendor's name.

The plate (Fig. 5.83 and Fig. 5.84) measures 309 x 305 x 3mm, and weighs 3075g. It is engraved on one side only. It exhibits many of the characteristics seen on the Spode copper-plates. The engraving is well-executed and in good condition.

Fig. 5.83 and Fig. 5.84. Front and back of Royal Worcester copper-plate, c.1911.

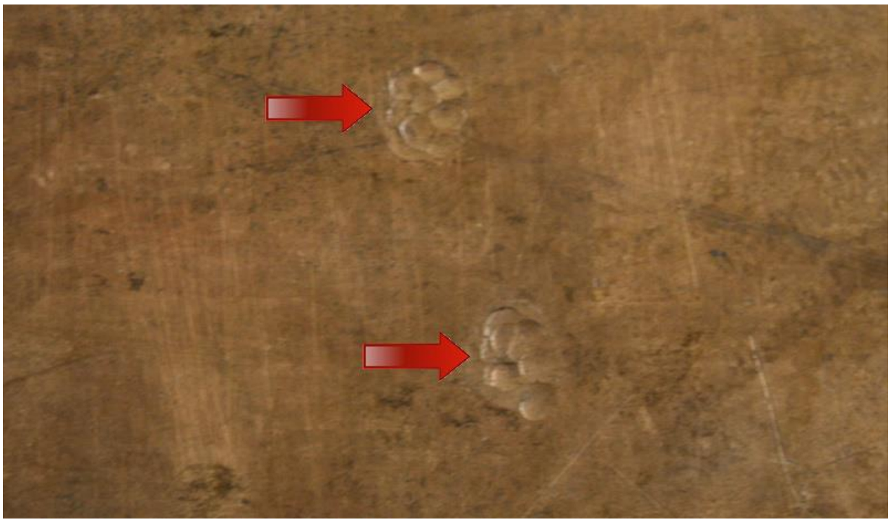


Fig. 5.85. Knocking-up on copper-plate, c.1911.

The reverse of the plate shows two distinct areas of 'knocking-up'[277] (Fig. 5.85).

Marks:

Fig. 5.86. and Fig. 5.87. Factory marks on Royal Worcester copper-plate.

The plate has two marks; one stamped and one engraved. The top, right-hand corner is engraved "No 2" (Fig.5.86) and the bottom right-hand corner is stamped "1429" (Fig. 5.87). The stamped number refers to the Royal Worcester internal archiving system that allowed the factory to record, find and locate engravings within their copper-plate archive.

Cutting-down:

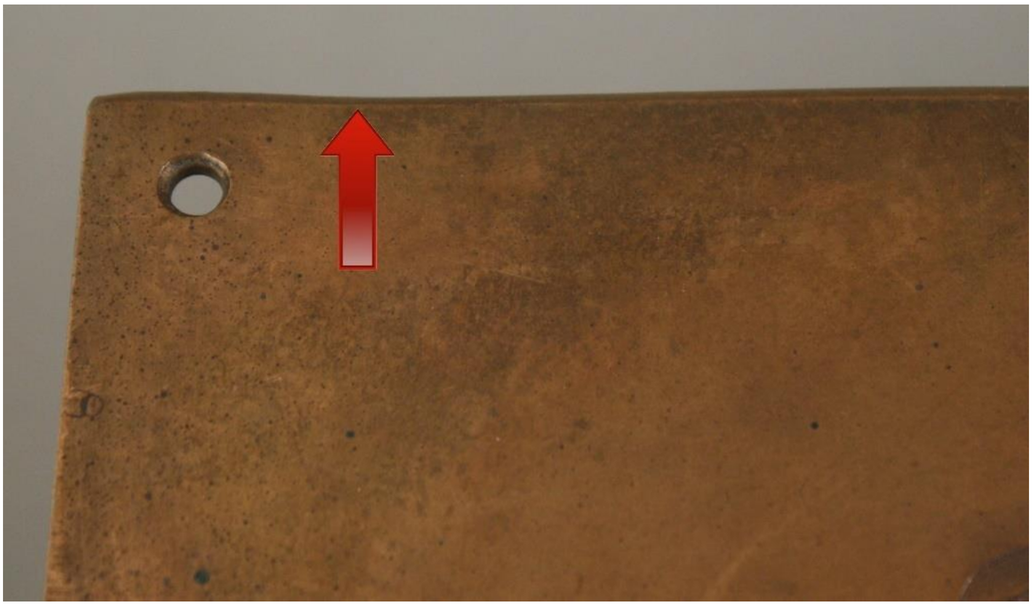


Fig. 5.88. Indicator of copper-plate that has been reduced in size.

The plate was cut down in size prior to being engraved; this is evidenced by three straight sides when delivered from the coppersmith, but the fourth with a 'wavy' edge probably cut with a lump-hammer and chisel in the engraving department (Fig. 5.88). This edge is

[277] See page 82-83 for full discussion of knocking-up.

slightly bevelled too where is has been sanded or ground smooth. Cutting in this manner was also used at Spode and was a job that apprentices were often given.

Holes:

Fig. 5.89. Close-up of a drilled hole in copper-plate.

This copper-plate has two drilled-holes, one in the top left-hand corner and one in the bottom left-hand corner (Fig. 5.89). These holes allowed the plates to be cleaned in a bath of chemicals[278] that removed the printing colour[279] from the engraving after use.

Engraving analysis:

Below are some close-ups of the engraving techniques used, as captured with an 800x magnification USB microscope. Fig. 5.90 locates the site of the micrographs.

[278] The copper-plates were boiled out in the steeling shop with a caustic solution and then scrubbed with alumina and water. They were then placed in another container where they were scrubbed out with vim and water.

[279] Printing colour was applied to the engraving and through the use of the tissue paper and the printing press, transferred the imagery from the copper-plate to the blank ware. Colour was applied to the copper-plate hot, but when cooled, the colour that remained in the engraving dried and set hard. After time, it would fill the engraving up causing it to print too light. The copper-plates were periodically soaked in the chemical bath to remove this printing build-up.

Fig. 5.90. Close-up and key from Royal Worcester copper-plate, c.1911.

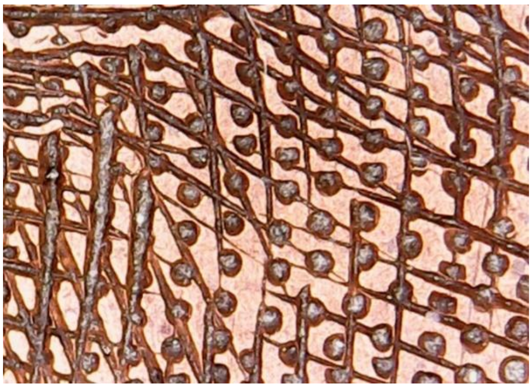
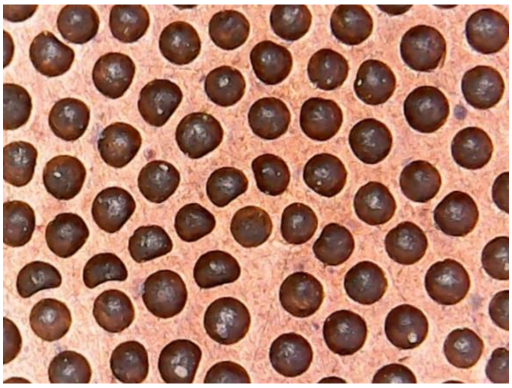



Fig. 5.91. and Fig. 5.92. Microscopy investigations.

Fig. 5.91 and Fig.5.92 are taken at points 1 and 2. Fig. 5.93 and Fig. 5.94 are taken from points 3. and 4. Likewise, Fig. 5.95 is taken from a 4mm wide section at point 5.

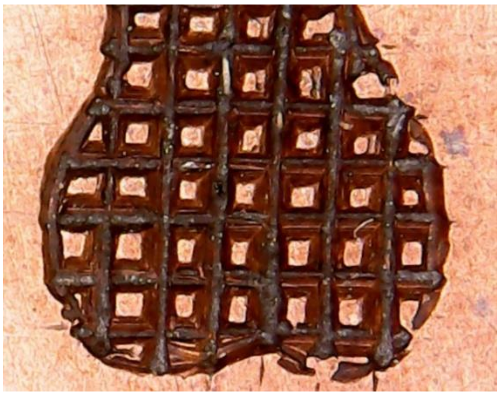
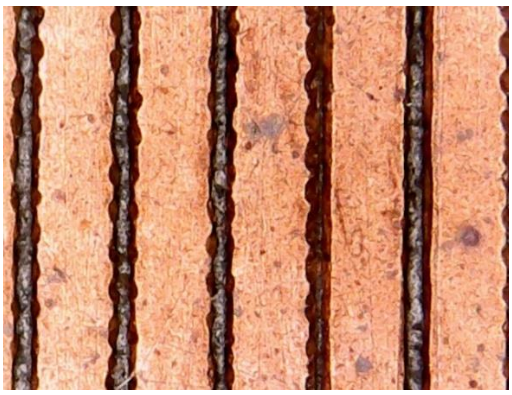



Fig. 5.93 and Fig. 5.94. Microscopy investigations.

Fig. 5.95. Microscopy investigation.

The magnified images reveal the engraving styles in use:

(1) A combination of line-work, cross-hatching and punch-work to depict the King's hair (Fig. 5.91).

(2) 'Wave-punching' is seen used in a similar way that clouds are engraved on other copper-plates. It is used here to fill the oval behind the portraits of the King and Queen. This adds tonality and shading. This technique used for grounding a cartouche is unusual; engravings in the Spode archive commonly employ cross-hatching to fill this type of area. (Fig. 5.92).

(3) Cross-hatching is used to suggest the pears in the Worcester shield. The lines are deep and close together and would print in a strong, deep shade (Fig. 5.93).

(4) Vertical line-work is used in the other side of the Worcester shield. The lines are uniform in terms of both distance apart and depth. They are created with one single line cut with a graver in the first instance and then a two-line graver cuts subsequent lines. One blade rides in an existing line while the other blade cuts a parallel line. (Fig. 5.94) There are conventions of hatching in engraving to symbolise the different armorial colours: the Zangrius[280] hatching system of 1600 indicates that a series of vertical engraved lines should be 'read' as being red in colour. This is verified in Worcester's coat-of-arms which has this section coloured as red.

(5) The "22" from the date of the coronation is engraved with line-work. These types of tight curves are difficult to execute. The graver stays largely straight and the copper-plate is turned to cut the curve. It is possible to see within the swan-necks of the

[280] Jan Baptist Zangrius (active as an engraver: 1595-1606).

‘22s’ the pauses as the plate is turned and the graver cuts. It is possible that a three-line scorper[281] was used to cut these 22s which would have added to the difficulty in cutting the curved sections. (Fig. 5.95).

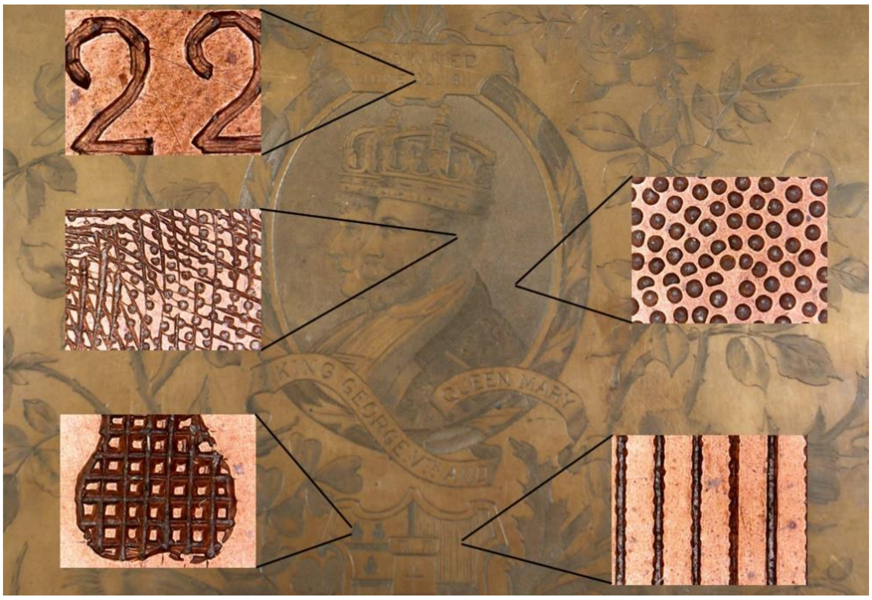


Fig. 5.96. Microscopy investigations transposed on copper-plate.

Fig. 5.96 shows these areas of magnification transposed upon the copper-plate and their location. The areas of magnification discussed and illustrated above are just 4mm wide on the copper-plate. Microscopic investigation at this level affords an opportunity to inspect the accuracy and consistency of the engraving used to achieve certain styles and weights of colour. It also reveals the similarities of techniques used at Royal Worcester and Spode during this and other periods.

Ceramic example:

I wondered if this copper-plate had been put into production, especially given the unusual inclusion of the Mayor of Worcester’s name, so I began to search for ceramic examples. Given the number I found for sale, it seems to have been a large production and a good seller. Having examined several against the copper-plate, it seems that there are two variations visible to the trained eye; the differences are in the lettering and dates at the top of the engraving. When I was sure that I had found a match, I bought a plate. It is noteworthy that the copper-plate has an engraved “No. 2” at the top right and this may

[281] A scorper is a broad engraving tool used to remove large areas of material.

confirm the fact that indeed two (or more) copper-plates were employed in the production of this ‘pattern’.

Fig. 5.97 shows the face of the ceramic and the blue-printed Worcester mark to the reverse (Fig. 5.98) with the date code[282] for 1911 (Godden 1964 [1986]: 698), which matches the subject matter: the 1911 Coronation of King George V.

Fig. 5.97. The 10½-inch diameter plate, and Fig. 5.98. The factory mark.

Because this copper-plate is not a Spode example, it serves for a comparative study of another factory’s engraving style, techniques and subject matter. This plate was engraved in 1911, therefore in the middle of the Spode transfer-printing time period. The treatment of the design in rendering the portraits and national emblems is similar to that found in other factories at this date. The Spode copper-plate archive holds similar examples, as do the tissue paper pulls from the John Mountford[283] collection. The Royal Worcester plate provides further evidence for industry-wide conventions of engraving and design language (Lambert 1987).

The engraving techniques demonstrated in the engraving of this copper-plate are the same as used by Spode. The execution of the engraving is particularly highly-accomplished, especially in the portraits. The use of punching to subtly denote shading and the shape of facial features is that of a highly-skilled engraver. Bill Heath confirmed my thoughts about

[282] Date codes were used by many factories to denote when a piece was made.
[283] John Mountford was an engraver at Dunn Bennetts - late nineteenth to early twentieth century. Some of his tissue pulls from his engraving were given to me by Bill Heath during my research. Within the collection there were badge, border, Royal commemoratives, landscapes and whole pattern engravings. See Chapter Four highlight.

its skill requirements, remarking: “One line too many or one dot punch too many totally changes the whole look and character of the face. He did a great job!” The highest-level of engraved detail is in the central panel. This suggests the possibility of the remainder completed by a less-skilled engraver, working as a team. More likely is that the aesthetic requirements determined the calibre of work. The central area received the most detail to draw the eye to this section of the design. The more sketchy outer area held less weight of colour[284] so not to detract from the impact of the central panel.

Experience of several ceramic examples and this copper-plate suggest that at least two engravings were created to print wares to commemorate the coronation in 1911. There are at least two different ceramic versions. It was likely that Royal Worcester wanted to manufacture a large quantity of wares for this event, so it’s plausible that two copper-plates (or more) were being printed from simultaneously. Another possibility is that one (No. 2) was a stand-by plate that (No. 2) could go into production straight away as soon as the first plate exhibited signs of wear, thus causing no interruption to production. Having examined the ceramic examples, it is certain that both copper-plates were used in production.

Taylor worked at Royal Worcester as an engraver and during his apprenticeship, could have been trained by the engraver who engraved this copper-plate. Given Taylor’s age when he started,[285] and the age of the master[286] that trained him, this is not beyond possibility.

The numbering “1429” is similar to the system used at Spode. Spode used to stamp numbers on their copper-plates to identify where they were located in the large copper-plate store. These numbers were also logged against the artwork in the pattern and badge books in the Spode archive; it is likely that Royal Worcester did the same. Inevitably, there are minor variations in practice; the Royal Worcester number is in the bottom right-hand corner whereas Spode always marked their copper-plates in the top right-hand corner. At Spode, the plates were stood up against the right-hand side of their respective pen[287] with the engraved-work facing towards the left-side of the pen so that the stamped numbers

[284] Darker, stronger shade of printing on the finished ceramic ware.
[285] 1951 when he started as an apprentice engraver aged 16 years.
[286] “I became friends with an elderly engraver who I was put with. I fetched and carried for him.”
[287] Pen is the name for a section of the copper-plate store where copper-plates from the same pattern, series or design were housed.

could easily be read. It is therefore possible that Royal Worcester employed a similar system with the copper-plates stood against the right-hand side of a pen.

The rarity of copper-plates on the art and antiques market again highlights the importance of the Spode archive. During the last four years, I have only seen three other hand-engraved copper-plates at auction that were engraved specifically for the transferware industry[288]. These were Mellors & Kirk,[289] 12/06/2013, Beighton's[290], 04/09/2016 and Toovey's,[291] 02/11/2016. The fact that I was able to buy this copper-plate at auction represents a rare example where the plate has not been sold as scrap metal, probably because of the added value as Royal commemorative. Copper-plates have been historically sold off for scrap when a factory closes down and this again highlights the importance and rarity of the Spode copper-plate archive. When the Spode Museum Trust was established in 1987, the Spode copper-plate archive, much of which was still in use by the factory, was placed under the control of the Trust. This saved much of it from being sold when the company went into liquidation/administration with their sister company, Royal Worcester in 2008/9. While the Spode copper-plate archive has suffered some depletions, its integrity remains firm.

It is highly likely that this copper-plate has not been printed from in approximately 105 years as it was made for a specific date and has a 'shelf-life' as a design. Being dated and made to commemorate a specific event limits the usage of a copper-plate, but there might have been thought of re-issue in 2011 for the centenary. Sadly, Royal Worcester closed[292] before such potential could be realised. I was curious to see if I could take a good print from it without even cleaning it. Under magnification, the engraving was clean and had little evidence of dried colour, so I was pretty confident about how it would print and didn't feel the need to have to clean the plate.

Fig. 5.99 is an image of the tissue pull I took from this copper-plate. I used the traditional methods and materials used in hot press printing; cobalt oxide under-glaze colour applied

[288] Plates engraved for the transferware industry are definitively identifiable when lettering is engraved. Lettering in transferware is engraved the way round it will appear on the finished ware whereas lettering in printmaking is engraved in reverse.
[289] Auction house in Nottingham.
[290] Auction house in Rotherham.
[291] Auction house in Washington, West Sussex.
[292] Went into administration in 2008/9.

on a hotplate and printed onto tissue paper on a Spode printing press. The print was crisp and demonstrated a good amount of detail transferred.

In this highlight, we have examined a single artefact and tried to tease out the meaning of its material and technical aspects. The anatomy of the copper-plate, in terms of engraving techniques, ‘knocking-up’, factory marks, copper-plate weight and dimensions, allowed it to be placed within the transferware engraving tradition alongside its contemporaries. This was not done in isolation, but with reference to closely related artefacts: here, the copper-plate viewed against ceramics in the printed pattern, and with a view to its context within the market for commemorative work. In contrast to the study of an archive, it was not possible to proceed to a deeper comparison of styles and techniques across a broader range of pieces. We do not know from this study if Worcester produced this design on any other shape or size of ware or if they produced other commemorative pieces. Study in the singular did not afford the opportunity to assess the engraving style in terms of the house style of the factory, or the pattern within the company’s design ethos. What this singular artefact analysis did allow is a snapshot of Royal Worcester’s activity that could then be placed in contextual comparison with what other factories were producing and how their results were achieved. Here, we found much more in common between factories than might have been expected; it may have been more a matter of design than of engraving that distinguished the best work in the early twentieth century.

Fig. 5.99. Tissue pull taken from the Royal Worcester copper-plate.

Chapter Six

The Archive and Preservation

It is in the interest of the survival of an archive composed of semi-precious and corrodible metals that these are handled as little as possible. Digital images and cast replicas were investigated for their potential uses as surrogates for study and display. However, the creation of surrogates itself can expose copper-plates to additional dangers, especially the perils of chemical materials and intrusive handling. Photography of reflective metal surfaces also poses numerous difficulties. This chapter will describe my practical researches on surrogates, and the findings arising from them.

The techniques of surrogate creation investigated may be classed as ‘digital’ and ‘material’. Digital methods were:

(1) photography under varying lighting conditions, with or without preparatory or post-image processing (talcum powder procedure, colour inversions, and displacement mapping),

(2) microscopy,

(3) scanning (flat bed and 3-D),

(4) photogrammetry,

Material methods were:

(5) printing on papers (transfer tissue and fine art papers),

(6) rubbing on papers,

(7) mould-making,

(8) combination methods.

Each method is described and its potential evaluated. In printing (tissue and paper) and mould-making, I worked under the direction of established practitioners.[293] The practicalities of working with archival copper-plates were taken into consideration. Methods were evaluated by four criteria: functionality, practicality, riskiness, and researchable content.

[293] Mould-making: Peter Jones. Printing: Cynny Saddington.

Digital Surrogates

(1) Digital Photography

The reflectance, colour and condition of historical copper-plates makes them a challenge to record by photographic methods as the surface is reflective (Hunter and Fuqua, 1990). The plates vary widely in condition, from bright and shiny to corroded and dull. Not only do surface qualities vary, but the depth and extent of engraving affects the way in which the plate can be recorded. To counter the issue of reflectivity, I initially built a lighting rig (Fig. 6.1.) that had daylight adjusted bulbs that could be angled or turned off as needed. By experimenting, I found that side-lighting cut down on the majority of reflected light. Hence, the lighting rig had bulbs set close and low to the sides where the plate would stand.

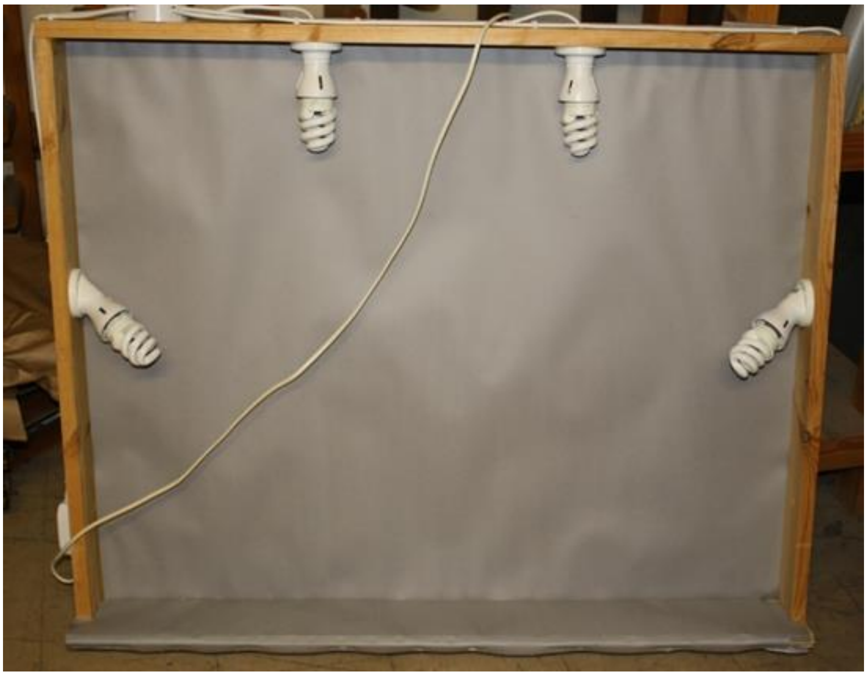


Fig. 6.1. Home-made lighting rig.

The copper-plates were gently dusted with a soft cloth to remove a large-proportion of the surface debris, taking care to avoid any abrasion. The plates were then placed upright in the lighting rig for photography.

Fig. 6.2. and Fig. 6.3. Examples of reflective issues encountered.

Fig. 6.2 and 6.3 illustrate how the reflective nature of the material leads to poor results with ordinary lighting. Although some of the engraved detail is well recorded, the image is uneven, and masked by reflective flare. This was a product of the lighting conditions within the archive; the rig worked relatively well in isolation, but in the copper-plate store, conditions worked against optimal performance of the rig.

Fig. 6.4. “Tower Picnic” copper-plate[294]

[294] This plate is called “Tower Picnic” which is a variation of the “Tower” (introduced in c.1815) pattern, but with a picnicking group in the foreground. It was made for an American Shipping line in the late nineteenth century.

The steel-faced (or chrome-plated) plates presented greater difficulties as they are more reflective than their copper counterparts.

Fig. 6.5. “Groom Leading Out” copper-plate[295]

Some plates are worn, corroded and dull and this also poses difficulties for recording (Fig. 6.5). The corrosion varies from plate to plate; it can be rust to the steel-plating, or, in some rare cases, verdigris, adding to the general accumulation of dust and debris over two-hundred years. The plates that are dull are, to some extent, easier to photograph as reflections and glare are the worst “enemy” of the photographer.

[295] A Spode Indian Sporting series “Groom Leading Out” small plate copper.

Fig. 6.6. Photographic cube in use in the archive, 2016.

To further control the lighting in the copper-plate store, I placed the copper-plates flat inside a photographic cube (Fig. 6.6.), with the lighting source outside shining inwards. The lights (daylight bulbs) were set low as this produced the best results, but for plates that were particularly worn or dull, an additional light was used and placed above the cube, shinning downwards.

Fig. 6.7. Reflection-free image of a copper-plate.

As illustrated by Fig. 6.7, the results were better using this method. There are almost no reflections, the colour is true and the whole plate can clearly be seen. The only downside is that this doesn't fully eliminate reflections except by photographing at an angle, with consequent keystoning of the image, although this can be corrected by digital skewing.[296]

Fig. 6.8. Close-up of engraved-detail.

Fig. 6.8 illustrates the detail obtained by using this method. This image is clear, free from reflections and all the engraved work is well-defined.

Polarising light filters were also tried, although as theoretically predictable, they did not make much difference to the overall results. Metallic reflections are the one exception to the ability of polarising filters to reduce reflection to imperceptible levels. This is because metals reflect light in all directions (Hunter & Fuqua, 1990).

(1a). Talcum powder digital photography

Peter Hyland, in *Glazed Expressions,* (2008: 3-16) discusses the difficulties of photographing hand-engraved copper-plates. Hyland was working with plates from the Minton[297] archive and describes using baby powder on the surface to decrease the reflections. I spoke to Hyland about the methods he used. He suggested using Johnson's

[296] Using software, such as Photoshop.
[297] Minton Pottery, 1793-1990s. Produced transferware from hand-engraved copper-plates and had a large archive at the time of Hyland's investigation.

baby powder on the face of the copper-plate to both highlight the engraving and to take away the reflections.

Fig. 6.9. Highly-reflective polished copper-plate, c.1780.

This coarsely-engraved copper-plate (Fig. 6.9) was difficult to photograph, having been polished by its previous owner. It is not a plate from the Spode archive, but from my own collection, making it more suited to an “invasive” treatment, and providing the practicality of working on it at home. Even in the light cube it was far too reflective to enable an acceptable photo.

After trying a number of talcum powders[298] I discovered that Johnson’s (Fig. 6.10) use a finer grade that goes into the engraving far better. Possible damage to the surface and engraving by using this method should be acknowledged. I was personally not too comfortable using it, but felt that if extra care was taken and the powder was washed out afterwards rather than brushed or scrubbed out, then it would be acceptable, especially in small-volume experiments. I also felt that if there was any damage caused by using this method, then finer powder would cause the least amount possible.[299]

[298] Including supermarket own-brands and leading manufactures.
[299] There is a possibility that other ingredients in the powder may cause damage to the copper-plates. Further chemical research is needed to assess the safety of the use of this method.

Fig. 6.10 and Fig. 6.11. Talcum powder and application to copper-plate.

The powder was firstly sprinkled over the surface of the copper-plate (Fig. 6.10 - 6.11)

Fig. 6.12. and Fig. 6.13. Talcum powder method in use.

The powder was then carefully pushed into the surface with a fine brush to ensure that all the engraving was covered (Fig. 6.12 – 6.13).

Fig. 6.14. Copper-plate recorded using the talcum powder method.

Fig. 6.14 illustrates the result of the addition of the powder. It takes away the troublesome reflections from the surface of the plate and also highlights the engraved-work. Two things must be considered before using this method. Firstly, the practicality of covering copper-plates in baby powder in an archive; the powder gets everywhere including on the camera, the back-drop in the cube, your clothes and is surprisingly difficult to remove, especially in the short-term during image recording. Secondly, we must consider if any damage is caused to both the surface of the plate and the engraved work by using this method. While the talc (Mohs hardness scale 1) is softer than copper (Mohs hardness scale 2.5 to 3), there is some risk of scratching in the brushed application, and the effect of the additional materials used in the powder (perfumes and anti-caking agents) is not fully known, nor the long-term effects from residues.

Fig. 6.15. and Fig 6.16. Close-up of talcum powder method and ceramic, c.1780-1800.

The clarity of the engraved image in Fig. 6.15 shows that this method does have advantages in highlighting the graver work. Fig. 6.16 shows an example of this print on an eighteenth century, black-printed and over-glaze enamelled creamware tankard.

(1b) Colour inversions

Colour inversion has been a useful method of creating contrast in images. An image is recorded digitally using a camera and inverted with editing software.[300]

[300] 'Macromedia Fireworks' was used here.

Fig. 6.17 and 6.18. Detail from “Driving a bear out of sugar canes” copper-plate, c.1810-15, original image and colour-inversion.

In Fig. 6.18, the spectrum of Fig, 6.17 is inverted and the engraved detail is now the lightest aspect in the image. The creation of contrast aims to highlight technical aspects of engraving such as line-work and punching.

Fig. 6.19 and 6.20. Detail from Spode “Tower Picnic” copper-plate c.1880, original image and colour inversion.

This copper-plate seen in Fig. 6.19 and 6.20 has been plated with either steel or chromium and the contrast between the original image and the colour inversion is not significant. In certain areas, the inversion is less clear and more difficult to ‘read’ than in the original image.

(1c) Displacement mapping:

Digital images of engravings can be re-interpreted using new technologies. One such is displacement mapping, a technique used in computer graphics to create texture maps by displacing the position of points according to a map of the intensity of colour across a surface. A digital image is imported into the mapping software and a contour map is created by analysing the strength of colour modulation. This renders a sense of three-dimensional depth with an appearance like embossing.

My experiment began with a print from a copper-plate using paper and intaglio ink that would result in a black and white image once photographed (Fig. 6.21).

Fig. 6.21. A paper print from a “Greek” copper-plate.

In an engraving, a deeper colour equals deeper engraving or more intensive engraving. If this the depth of colour is translated by interpretive analysis into a displacement map, it could mimic the physical depth of the engraved marks.

Fig. 6.22. Displacement map taken from black and white paper print.

Fig. 6.22 shows the resultant displacement map of the photographed print from Fig. 6.21.

Fig. 6.23. Close-up of detail in a displacement map.

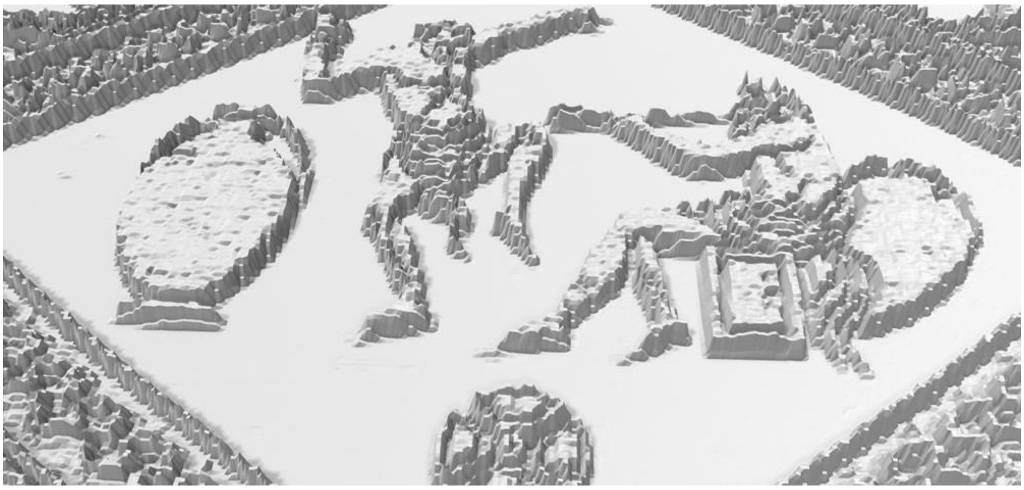


Fig. 6.24. Close-up of detail in a displacement map.

In Fig. 6.23 and Fig. 6.24, we see that the digital image can be tilted, rotated and zoomed in or out. This allows for better examination of the displacement map rendering. It appears from this file that the interpretation made by the computer based upon the strength of colours in the original digital image is less about the engraved-work and more about trying to decipher imagery.[301]

[301] Based purely upon the strengths of colour in the original digital image imported into the software.

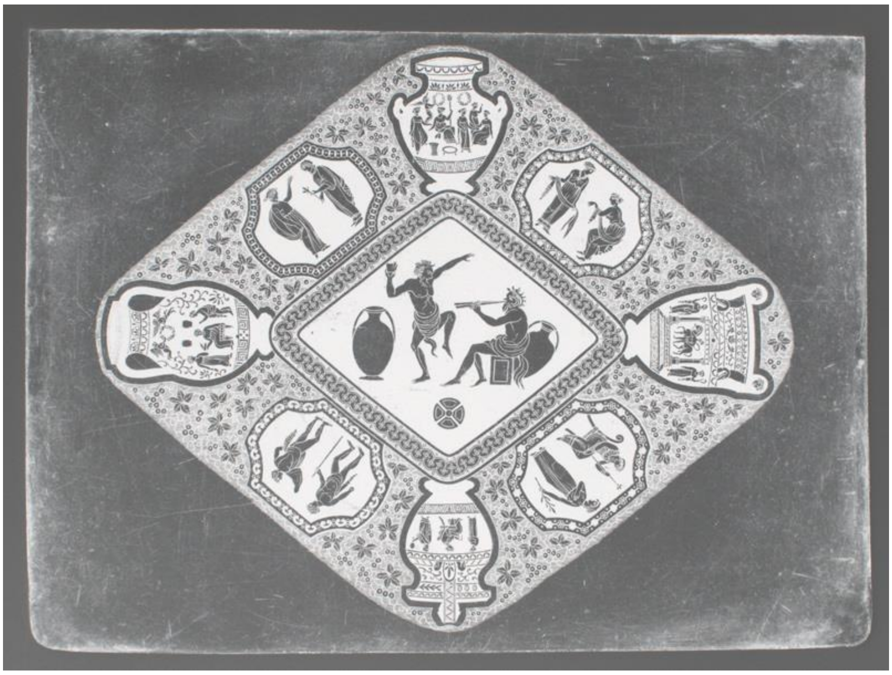


Fig. 6.25. Colour inversion of a paper print.

Fig. 6.25 is a colour inversion of the same image (Fig. 6.21) used in an attempt to get the software to read the engraving, rather than the copper left behind.

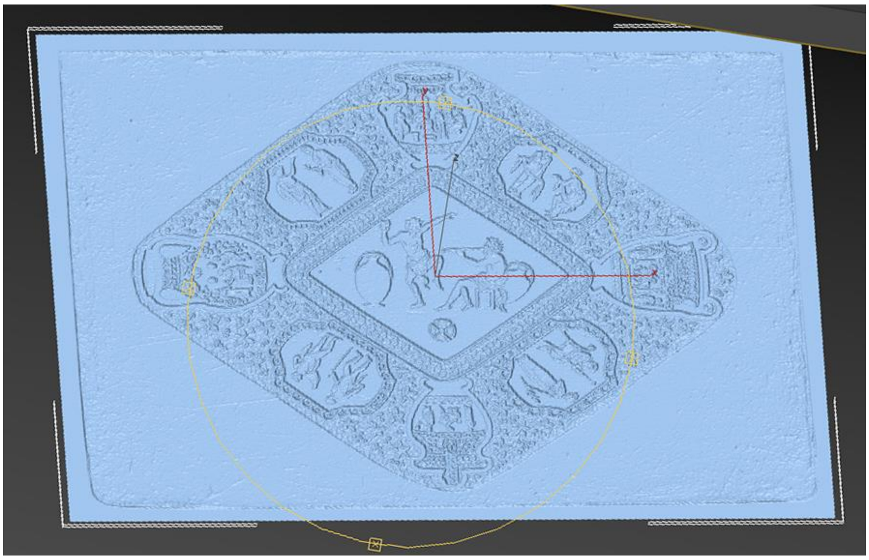


Fig. 6.26. Displacement map taken from colour-inverted black and white paper print.

Fig. 6.26 shows the resultant displacement map image of the inversion. Again, the way in which the software interprets the strength of colour does not correlate with the engraving, but only the colours it produces when transferred to another medium (paper in this case). Therefore, its value for understanding the engraving and use as a digital surrogate is limited. While this technology can produce an attractive rendering, it does not allow an accurate assessment of engraved depth or contour

(2) Microscopy:

A digital microscope with camera was the subject of a set of tests to see if it could reveal details that enhanced the understanding of observations with the naked eye. The digital microscope came equipped with a stand (Fig. 6.27), but this was not found useful. For

Fig. 6.27. USB microscope and stand.

my purposes, the microscope needed to be at right angles to the copper-plate. I dispensed with the stand and placed the microscope directly onto the face of the plate. The microscope lights the surface with eight tiny LEDs whose intensity can be adjusted using a wheel-switch on the lead. I found that the light needed to be at its brightest setting. The microscope was calibrated using a plastic rule, and when resting on a surface the field of view was found to be approximately 4mm wide.[302]

[302] With the microscope suspended 15mm above the plastic ruler, the field of view was extended to approximately 12mm wide. With the microscope at 40mm above the plastic ruler, the field of view extends to approximately 18mm wide, but the clarity of the images begins to decrease.

Fig. 6.28. "Buddleia" pattern copper-plate from the archive, c.1795.

Fig. 6.29. A microscopic investigation of engraved-work.

The rectangular detail shown in Fig. 6.29 is the tip of the tree indicated by the arrow superimposed on the pattern (Fig. 6.28).[303] This section, as indicated by the calibration, is approximately 4mm wide on the copper-plate. The resultant image is largely free from reflections, shows good contrast and sharpness.

[303] Spode "Buddleia" pattern, c.1795.

Fig. 6.30. A copper-plate from the archive, c.1810.

The microscope allowed observation of the precision of the engraved work. A copper-plate I examined (Fig. 6.30)[304] to study the accuracy of engraving has an area of cross-hatching in the ground work below the main pagoda (Fig. 6.31).

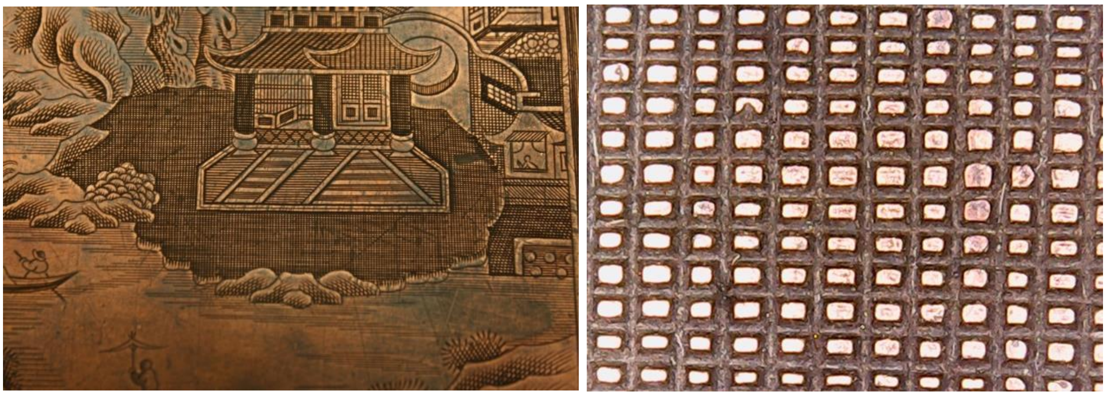


Fig. 6.31. and Fig. 6.32. Close-up and microscopy investigation of engraved-work.

[304] "Temple Landscape Second" copper-plate engraved in about 1810 for a vegetable dish interior.

In Fig. 6.32, we can see a 4mm wide section of this grounding that holds twelve parallel, vertical lines; although they are not perfectly spaced, it must be remembered that this area was cut with either a single or two-line graver by hand using a loupe as the only visual aid.

This type of investigation allowing a greater degree of insight into technique, notably control of depth and placement. The main limitation to the method is the relatively small area that can be investigated. In order to build up a larger understanding of an area of engraving, multiple images can be taken and 'sewn' together.

Fig. 6.33. Apprentice plate from the archive, c.1998.

Using an apprentice copper-plate (Fig. 6.33)[305] as an example, the section denoted as 'A' (24mm wide on the copper-plate) was recorded in steps with the microscope.

[305] Engraved in April, 1998 by apprentice engraver, Darren Furbur

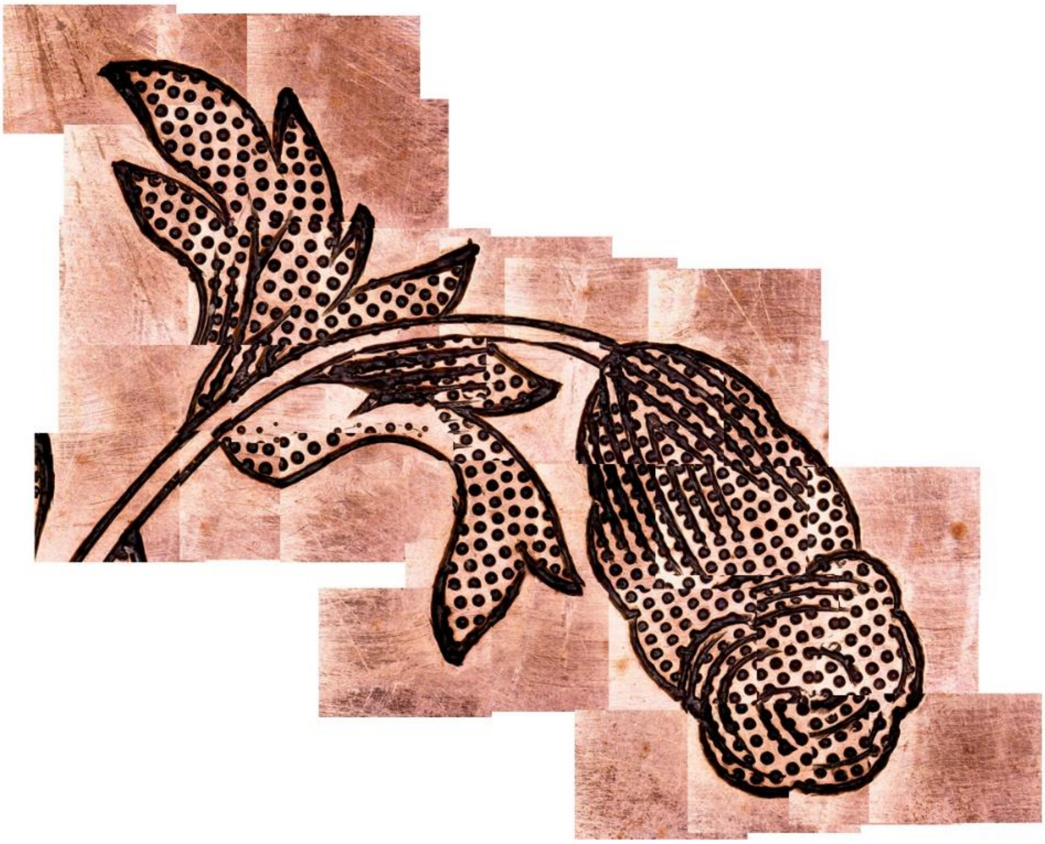


Fig. 6.34. A sewn-together image of microscopic investigations.

Thirty-eight images recorded with the digital microscope were assembled to show this wider area (Fig. 6.34). This provides important visual evidence relating to the skill and techniques. For example, the small inaccuracies at the points of the leaf shapes, and the lack of flow in some of the curves reveal the hesitancies of the apprentice engraver. This type of investigation has great potential for further exploration of the engravings; it might be possible to identify quirks that indicate particular engraving hands, or to distinguish plates bought in from other factories. Better equipment might reduce the time needed to create larger scale studies.

(3) Digital scanning (flat bed and 3-D):

Scanning the copper-plates with a flat-bed scanner and copying on a photocopier were also assessed. Although straightforward in approach, in the context of the archive,[306] these methods were not practical, primarily because of the size limitations.

[306] Space, access, electrical issues.

Fig. 6.35. Results of a digital scan, 2014.

The scans/copies were good and the reflections were minimal. Fig. 6.35 shows a digital scan of a small copper-plate selected to fit the scanner bed. Fig. 6.36 shows a photocopy of the same plate. A black and white copy was chosen for added contrast between the plate and the engraving. Again, the size of the copper-plate was limited by the bed of the available photocopier. Scanning or copying in sections runs greater danger of scratching the plate.

Fig. 6.36. Results of a black and white photocopy, 2015.

In terms of creating a digital surrogate, scanning worked well, but the practicality of use within the archive was a limiting factor. Scanning is certainly a method to pursue under ideal conditions and if a large-bed scanner is available, or smaller copper-plates are concerned.

3D scanning is currently a popular technology. While I believed it could create a digital archive in a quick and efficient manner, the flatness and reflectivity of the copper-plates made me sceptical of its potential for success. Nevertheless, I wanted to explore the limitations.[307]

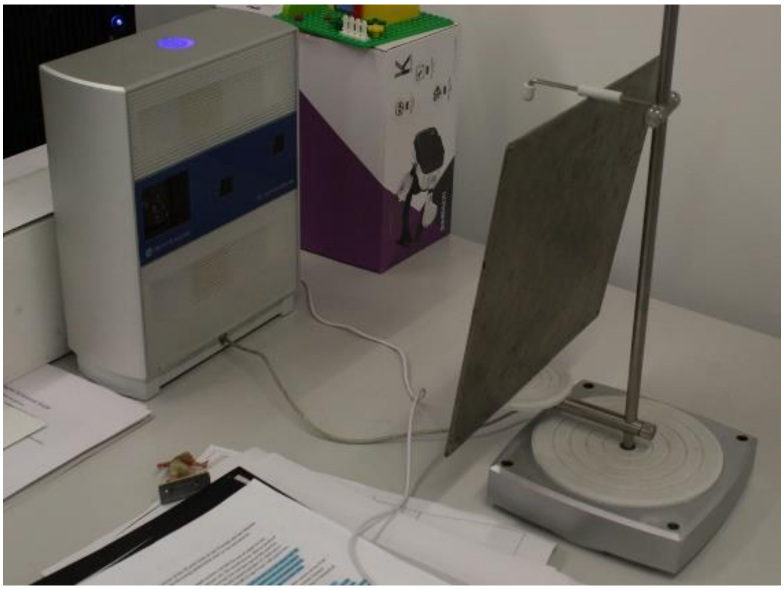


Fig. 6.37. The 3D scanner in use, 2017.

The copper-plate [308] was placed on the turn-table opposite the scanner (Fig. 6.37). This scanner uses two methods of capture, laser and digital imaging, combining these two sets of information in the 3D capture. The copper-plate[309] was reflective and little information could be captured by the lasers in the scanner unlike the flat-bed scanner.

[307] I was assisted by Edmund Keefe, 3D Print Manager, Manchester Metropolitan University, The Shed, Chester Street, M1 5GD in this section of the research.
[308] I chose to use an 1880s "Greek" pattern copper-plate that I had used in the mould-making exercise (see below in this chapter).
[309] In this case, it was a chrome-plated example.

Fig. 6.38. Powder applied before 3D scanning.

The copper-plate was lightly dusted with talcum powder (Fig. 6.38) in an attempt to reduce the reflectivity. This worked to a certain extent but at a cost to the depth and detail of capture.

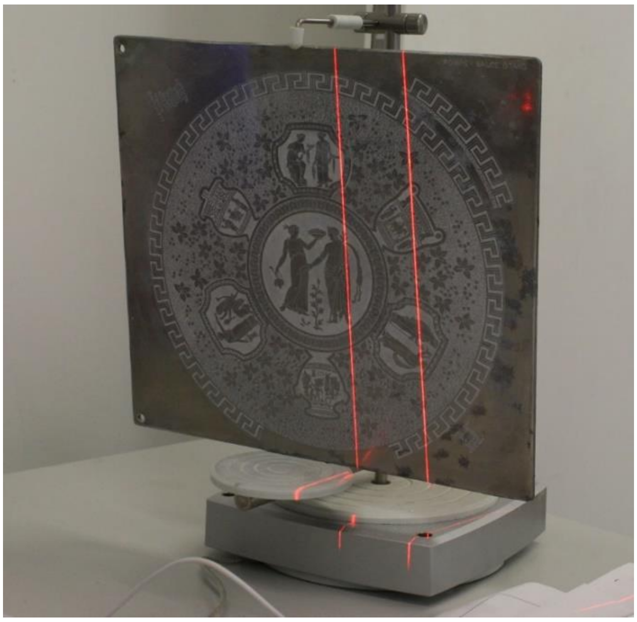


Fig. 6.39. The 3D scanner in use. 2017.

While the digital camera worked better with the reduced reflection, the addition of the talcum powder had the effect of filling the engraving in (Fig. 6.39). This hindered the laser's reading of depth, and the resultant 3D scans were of poor quality.

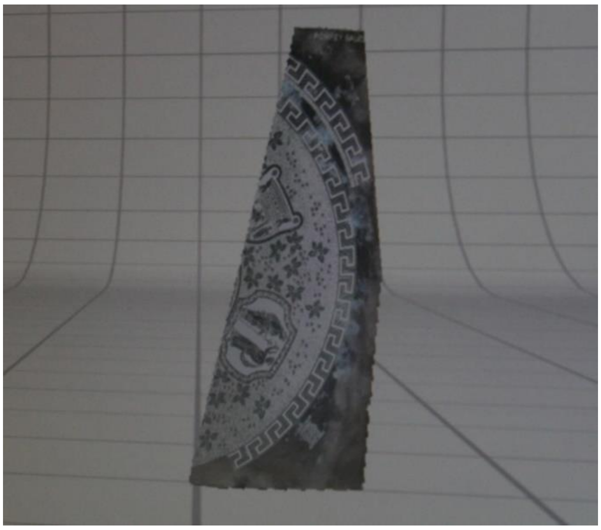


Fig. 6.40. A 3D scan of a copper-plate.

While the scan (Fig. 6.40) looks useable, this small section was all that was able to be successfully read and recorded by the 3D scanner, and the majority of this information was captured digitally, rather than by the laser.

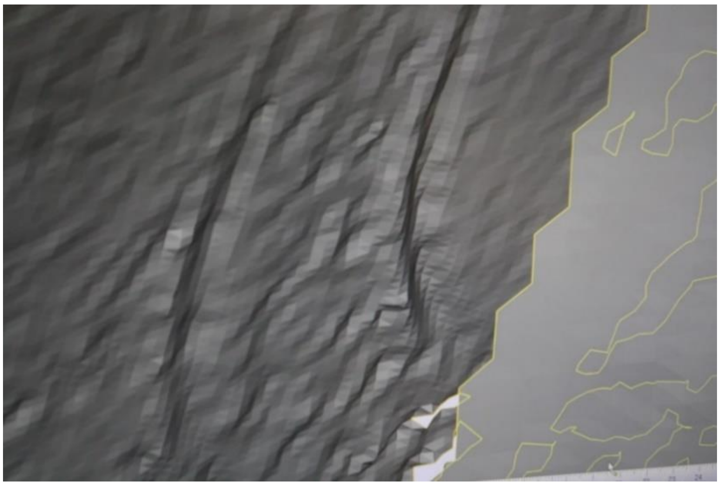


Fig. 6.41. Close-up of a 3D file taken from a copper-plate.

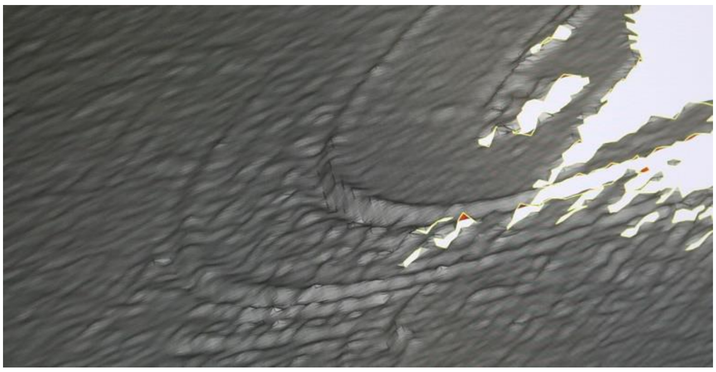


Fig. 6.42. Close-up of a 3D file taken from a copper-plate.

Fig. 6.41 and Fig. 6.42 illustrate the inadequacy of the laser for interpreting the detail and depth of the engraved-work.

(4) Photogrammetry

Photogrammetry is a way in which digital images can be used to measure the distance between common reference points. Using this technology to build a computer-rendered model a copper-plate has potential for digital surrogacy. Three-dimensional rendering from digital images is a technique currently used in many applications from film-making and animation to engineering and architecture. Recurring reference points in multiple images captured at different angles are assembled with the Levenberg–Marquardt algorithm[310] to create a 3-D digital model.

I used Autodesk's 'ReMake' programme as it was user-friendly and there were tutorials available on the internet. ReMake uses images of an object taken from multiple angles and stiches them together to create a computer-based 3D model.[311] The tutorial explained that if any given feature is captured from two angles, these would be included in the render. Placing the object upon newspaper or a similar ground would offer many common points of reference for the rendering software and would lead to a better result. I placed the copper-plate on four sheets of paper printed with text. Using a digital camera on a tripod, the object was moved by five degrees between images. Two-hundred and two images from all angles and heights were taken. Keeping the camera stationary was an attempt to try and limit the reflections and the variability that moving the camera could engender. The exposures were kept on the dark side to limit problems with reflections.

[310] An algorithm often used in computing and mathematics to solve fitting problems.
[311] I familiarised myself with the programme and watched many online tutorials.

Fig. 6.43. Image taken in the capture stage, and Fig. 6.44. The completed render.

These images were uploaded to the programme where they were processed and rendered. After a couple of hours, the newly processed render was available for download. The resultant computer file exceeded expectations (Fig. 6.44). It can be rotated and zoomed in/out around an orbit and can be viewed from any angle (Fig. 6.45.) including from inside and underneath. Some of the background was cropped for ease of viewing.

Fig. 6.45. The render rotated digitally.

Once downloaded, there are many effects that can then be used to refine the render and study it in more detail. Some are illustrated below.

Fig. 6.46. and Fig. 6.47. Two types of render.

Fig. 6.46 shows the render as a 'solid, with a wire frame' connecting constituent parts with lines to form a 3-D model. Fig. 6.47. shows the render 'textured with a wire frame'. In these applications, the wire frame tries to interpret the engraved work.

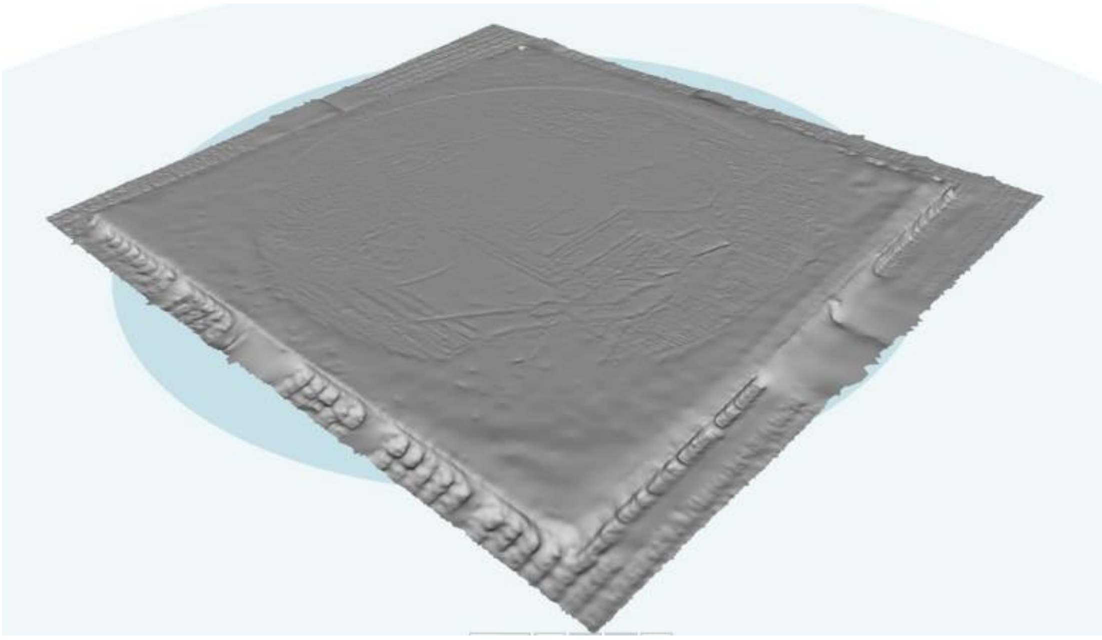


Fig. 6.48. A solid render file.

Fig. 6.48 shows what is known as 'solid'. Here, the rendering software interprets the engraving in depth rather than by colour differentiation.

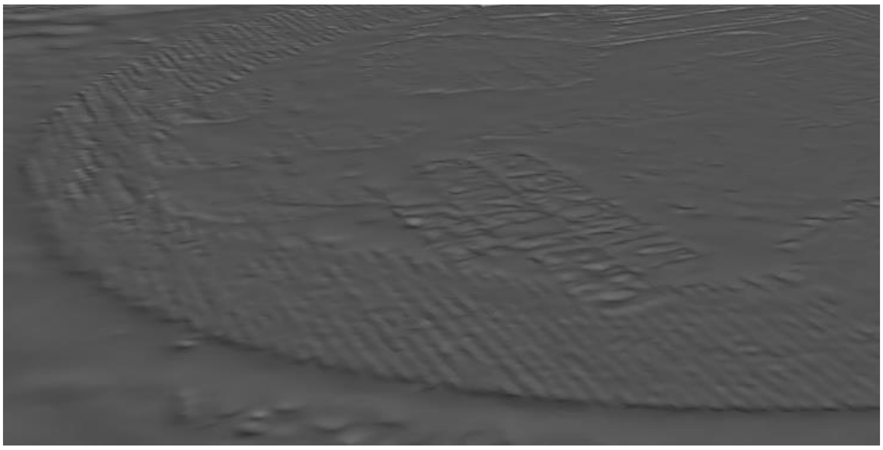


Fig. 6.49. Close-up of a solid render file.

Fig. 6.49 is a close-up that displays as ‘solid’ and is a further interpretation of the engraved-work. This area is of the engraved clouds in the sky and the image title; “First Capital Building in Michigan”. The engraving on the copper-plate is deep and has been engraved to replicate coarse wood engraving. The render was able to capture this to a certain degree (Fig, 6.50).

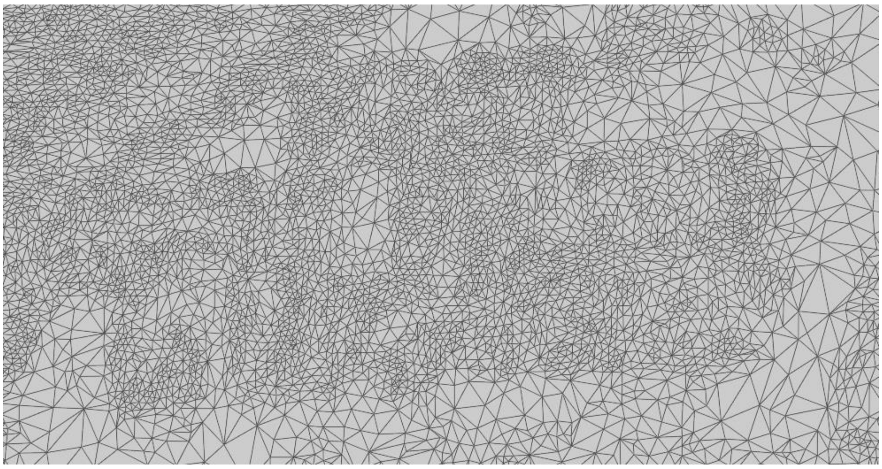
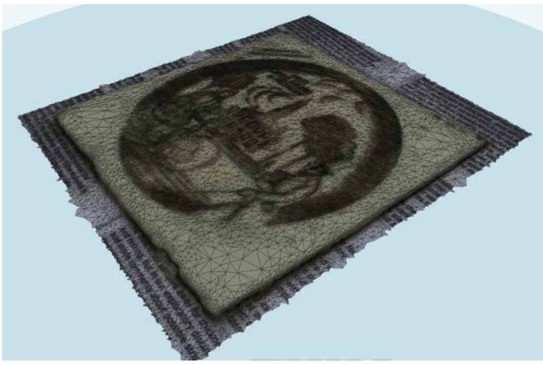


Fig. 6.50 ‘Wire mesh’ close-up of the pattern title.

The reflectivity of the copper-plate was not well-suited to rendering in ReMake, confusing the software. The relative flatness of the copper-plate also made it less suitable as this type of digital image rendering works best with objects of contrast of depth. To avoid the reflectivity of the first copper-plate render, a resin facsimile of a copper-plate was used as the object (See below for resin mould-making). This allowed the use of stronger lighting.

Fig. 6.51. A render file taken from images of a resin facsimile.

While the resultant render (Fig. 6.51) shows some holes in the model, especially in the lower edge of the resin copper-plate, the image is a little brighter and largely faithful to the resin facsimile. Wire frame intermediaries were again made (Fig. 6.52-6.53).



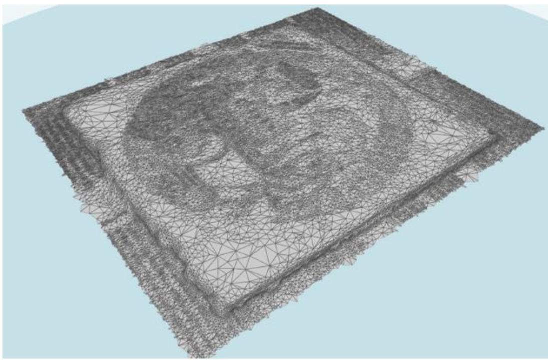


Fig. 6.52. ‘Textured with a wire frame’, and Fig. 6.53. ‘Solid with a wire frame’

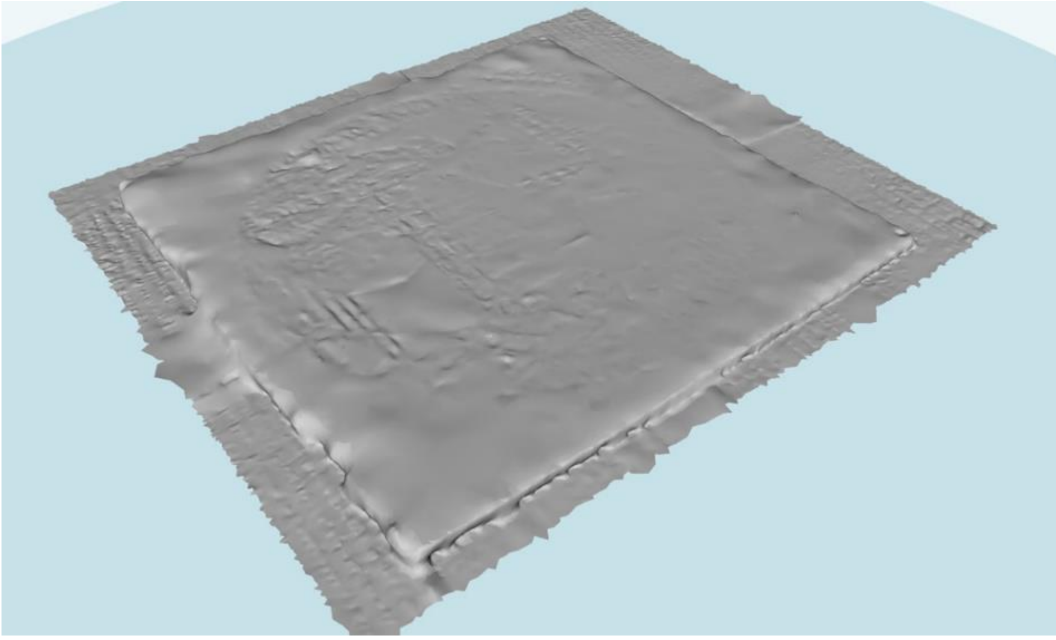


Fig. 6.54. A solid render file.

Fig. 6.54 shows 'solid' alone interpretation of the 'engraving' and its specific depths.

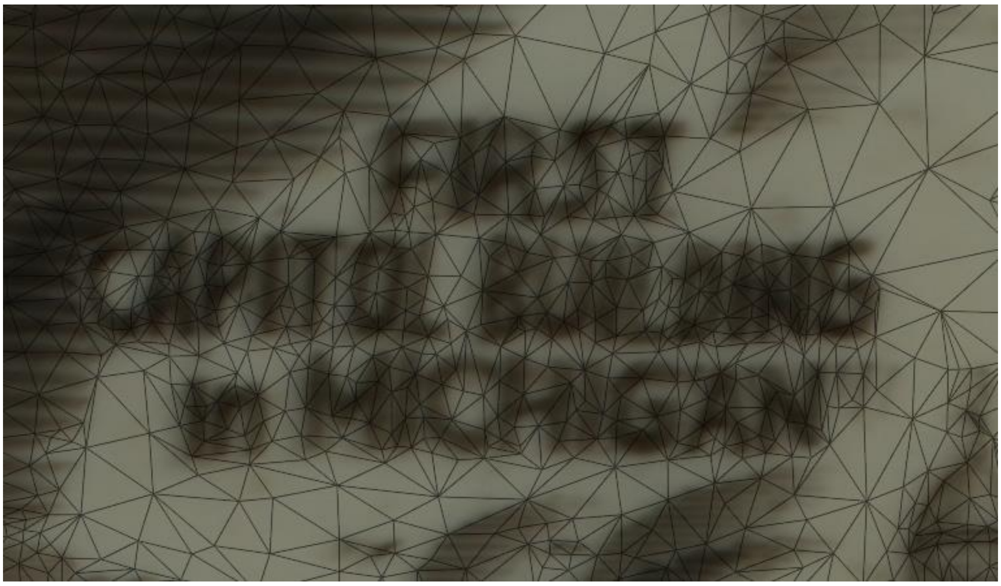


Fig. 6.55. Close-up of a wire mesh render.

Finally, Fig 6.55 shows a close-up of the pattern title with the texture and wire frame. Most of the information about the engraving comes from the colour differentiation in the images rather than a high degree of depth capture. Hence, this method captures mainly the design and is not sufficient to render engraved detail. The extra time involved was not justified by the results.

Material Surrogates[312]

(5) Printing on paper[313]

As the copper-plates were designed to make prints (tissue pulls), I also investigated printing from them. With this method, the detail from the copper-plate is transferred to another non-reflective medium, tissue paper, which is much easier to photograph.

Fig. 6.56. Applying colour to a copper-plate, 2014.

Fig. 6.56 shows the printing colour applied to the copper-plate[314] using a scraper blade while the plate is on the hot-plate. Fig. 6.57 and 6.58 show the excess colour removed in two stages to prepare the plate for printing.

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[312] Although these are physical surrogates, they have been recorded digitally here for ease of inclusion.
[313] I was assisted in both printing methods by Cynny Saddington, ceramic and print artist.
[314] Spode "Aesop's Fables" series, c.1828.

Fig. 6.57. Removal of excess colour with the scraper, and Fig. 6.58. Final removal of excess colour with cotton scrim, 2014.

Fig. 6.59. Tissue applied, and Fig. 6.60 the copper-plate is run through the press, 2014.

Tissue is cut to the size of the plate and brushed with a soap-size. The soft soap makes the paper partially transparent and more flexible, to pick up as much colour from the engraving as possible. The tissue (Fig. 6.59) is then carefully applied to the plate taking care to make sure that there are no wrinkles or bubbles. The copper-plate (Fig. 6.60) and tissue are put through the printing press. This transfers the design from the engraving to the tissue paper.

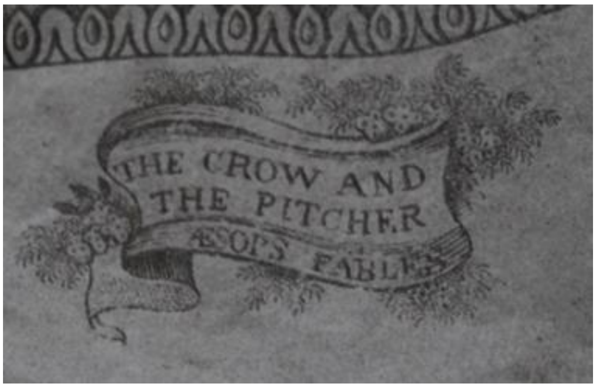


Fig. 6.61. and Fig. 6.62. Two images of a tissue pull, 2014.

The tissue pull gives a clear rendering of the engraving (Fig. 6.61). Details are thoroughly picked up: each punched dot or graver stroke (Fig. 6.62). This print captures all the engraved data in the copper-plate visible with the naked eye and lends itself easily to digital photography. The digital images shown here (Fig. 6.61 and Fig. 6.62) have been flipped horizontally to regain their intended orientation.[315]

Printing on fine art paper with intaglio-ink was also investigated; 100% cotton watercolour paper of 300g/m^2 weight was chosen. Fig. 6.63 shows the intaglio printing ink, the plate oil, the scraper, the dabber, the scrim and the protective gloves. Fig. 6.64. illustrates the copper-plate used.[316]

Fig. 6.63. Printing tools, and Fig. 6.64, a copper-plate from the archive.

[315] This is because transfer-printing is two-stage printing – lift off, put down. Therefore, after one single stage, the image is reversed.

[316] Spode's "Greek" copper-plate, c.1806; "The Dancing Buffoon" and was taken from Wilhelm Tischbein (1791) Collection of engravings from Ancient Vases of Greek Workmanship Discovered in Sepulchres in the Kingdom of the Two Sicilies now in the possession of Sir William Hamilton, Vol. III, P. 18.


Fig. 6.65. The printing ink on the hot plate and Fig 6.66, removing excess colour, 2015.

The process is similar to printing onto tissue; the ink and oil are mixed on the hot plate and applied to the copper-plate (Fig. 6.65). The excess ink is removed as before to ensure a clean, crisp print (Fig. 6.66).

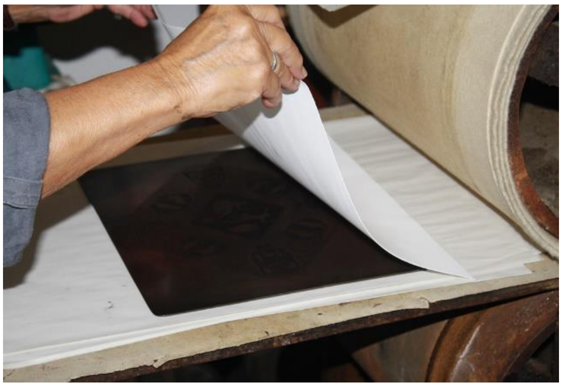



Fig. 6.67. Applying the paper, and Fig. 6.68, removing the paper after printing, 2015.

The paper is soaked in water for 24 hours before printing, then placed onto the inked-plate and put through the press (Fig. 6.67). The paper is then carefully removed from the copper-plate (Fig. 6.68).

Fig. 6.69. A black, paper print. 2015

The transfer and recording of detail is superior to that of tissue printing and the contrast of the black ink on the white paper picks up minute surface marks, with every scratch or abrasion recorded as well as the engraved work (Fig. 6.69). The only interpretive problem is that of image reversal (Fig. 6.70 – 6.71).[317]

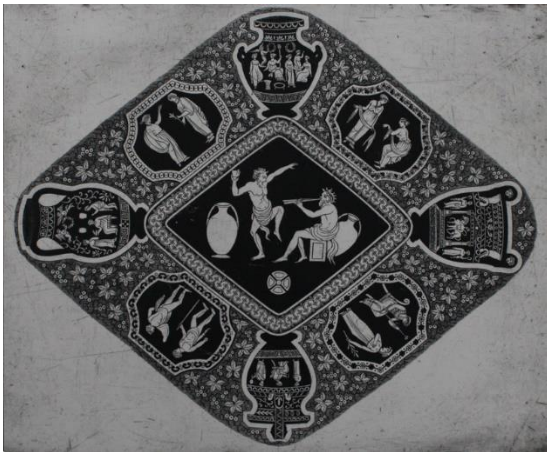



Fig. 6.70. Copper-plate orientation, and Fig 6.71. Print orientation.

[317] Engraving for transfer printing (transferware) along with engraving of dies for the mill engraving process of calico printing (also results in same orientation printing as there is a double reversal) are the only type of engraving/printing where the image on the plate is in the same orientation as the final ware. Printing onto paper as used here has the result of reversing the image.

Fig. 6.72. Image of intaglio print, and Fig 6.73. Digital reversal.

Once photographed, however, this image can be digitally flipped (Fig. 6.72 - 6.73).

This method proved the best way to record plates that were badly worn, particularly when a plate had been re-used and a new engraving was created on the other side. Often, while the engraving was difficult to see or photograph by ordinary means, intaglio printing brought out even the feint remaining lines. An example of such a plate is the back of the "Dancing Buffoon" copper-plate (Fig. 6.74).[318] It was impossible to digitally photograph any engraved work on the reverse of the copper-plate as it was so badly worn.

Fig. 6.74. Paper print of the reverse of a copper-plate.

[318] "Greek", "Dancing Buffoon" copper-plate.

However, intaglio printing revealed, although faintly, a previously engraved and used pattern on the copper-plate.


Fig. 6.75. Close-up of paper print and Fig. 6.76, close-up of ceramic.

Fig. 6.75 shows a close-up of the intaglio print with one of the main elements of the pattern which could be identified as Spode's "Queen Charlotte" (Fig. 6.76).

(6) Rubbing:

Rubbing, popularly known as 'Brass Rubbing' has been a widely used method of recording engraved imagery since the late eighteenth century. The society for brass rubbers, 'The Monumental Brass Society', founded in 1867, now has a membership of over 500 people. The British Museum and Victoria and Albert Museum both have large collections of brass rubbings.

Before beginning these experiments, I read all I could on the technique of brass rubbing. Gittings (1970) and Norris (1965 [1977]) were most useful. While rubbing is a simple method, there are some specialist materials and techniques that produce better results. My search for the heelball wax[319] mentioned in all the rubbing literature proved fruitless. This wax is a mixture of tallow, beeswax and lampblack. It was once used in the shoe-making industry and may no longer be marketed. This wax was chosen for producing good contrast rather than its ability to capture the most detail. Graphite sticks in a variety of hardnesses, a

[319] Heelball was said to be available (Norris, 1965, Busby, 1969 and Bertram, 1972) from Philips and Page, Kensington Church Street, London, but they do not appear to be in business anymore and the literature is now at least forty-four years out of date.

selection of crayons, both wax and non-wax, were trialled with the suggested thin, but stiff technical tracing paper and decorators' lining paper (Fig. 6.77).[320]

Fig. 6.77. Rubbing tools assembled, 2016.

Fig. 6.78. Copper-plate from the archive and Fig. 6.79, paper applied, 2016.

In preparation for rubbing, the paper was held securely over the copper-plate[321] with masking tape. It is crucial that the paper does not move during the rubbing (Fig. 6.78 - Fig. 6.79).

[320] The use of crayons is recommended (Busby, 1969) under the heading of 'Alternative Methods'. I also purchased a roll of decorators' lining paper. This too was suggested in at least five of the books I read on brass rubbing as being a cheap and convenient alternative to the expensive tracing paper.
[321] A Spode "Mandarin" pattern double-engraving for saucer/side plate, c.1890.

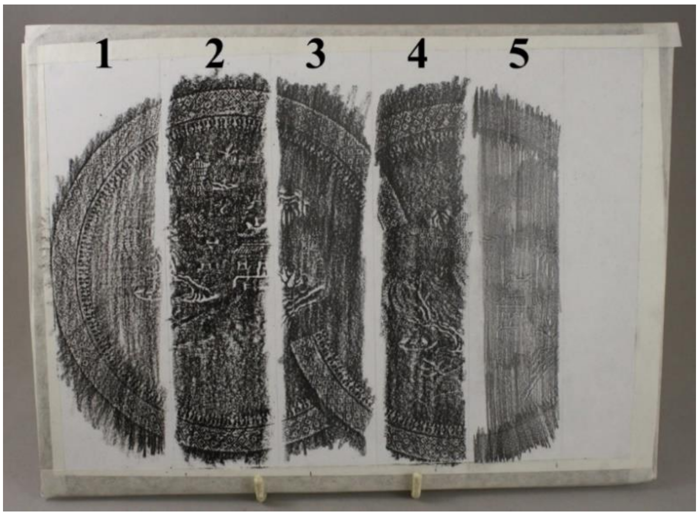


Fig. 6.80. Results of rubbing experimentation, 2016.

Fig. 6.80 illustrates tests over the same plate with (1) wax-less crayon, (2) wax crayon, (3) ‘2B’ graphite stick, (4) ‘9B’ graphite stick, and (5) ‘4H’ pencil. My initial impressions were that the ‘9B’ graphite stick was easiest to use and recorded the engraved work well. However, the ‘4H’ pencil was better at picking up the finer engraving (Fig. 6.81.).

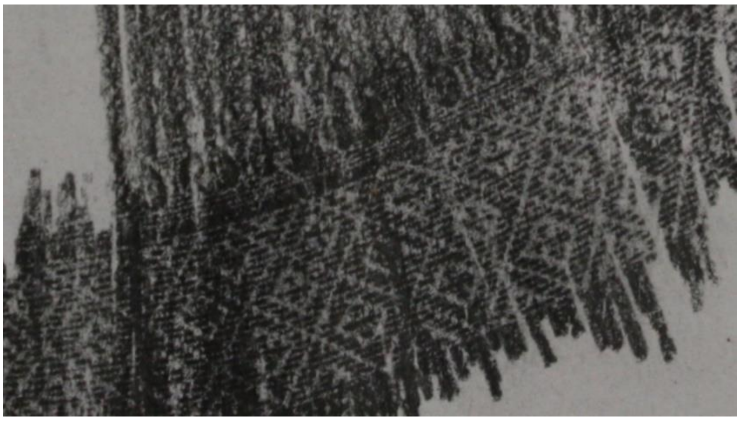
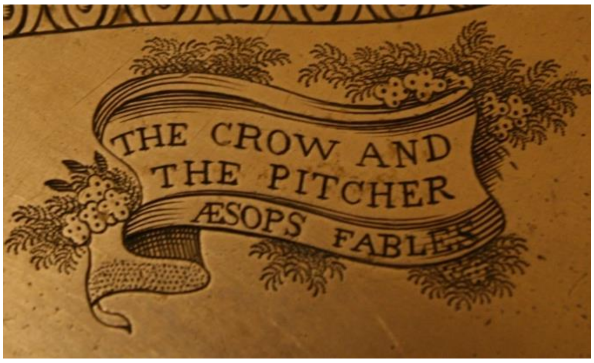


Fig. 6.81. Close-up of rubbing experimentation.



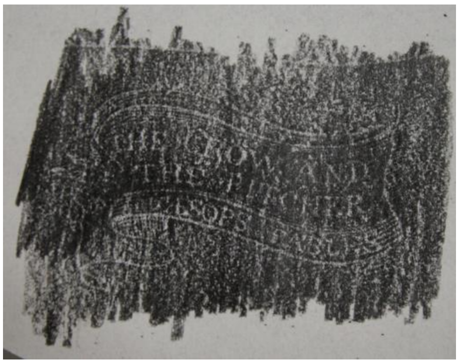


Fig. 6.82, and Fig. 6.83. Close-ups of engraved-work and rubbing.

To probe further, I tried the 4H pencil over tracing paper on a back stamp[322] (Fig. 6.82) to check legibility. The title was readable, but surrounding floral detail was poorly captured (Fig. 6.83). A variety of wax crayons were tried to test the effect of colour, but the overall replication was poor.

Another method of rubbing, pioneered by Thomas Reed and William Street in the 1960s, is to use stiff aluminium foil (50 micron) (Busby 1969: 53). This method produces a 'positive' of the engraving, rather than the 'negative' of traditional brass rubbing.

Fig. 6.84. Foil method rubbing tools, 2016.

The foil method requires only the foil and a soft nail brush for the rubbing stage. Once rubbed, the underside is coated with a substance to make it hard, such as fibreglass resin. Once dry, the rubbing is lightly wiped with shoe black or printing ink which fills the impressions, producing a strong contrast with the shiny foil. In effect, the foil replicates the surface of the copper-plate. In practice, the duller side of the foil was placed upward on the plate and secured, care being taken to ensure the foil was perfectly flat. It was found that a stiff, short-bristled brush was needed to fully push the foil into the engraving (Fig. 6.85-6.86).

[322] A Spode "Aesop's Fables" series sauce tureen stand; "The Crow and the Pitcher", c.1828

Fig. 6.85. Using a stiff brush for rubbing with the foil method.

Fig. 6.86. Result of the brush forcing the foil into the engraved work.

Fig. 6.87. Applying boot polish to the foil method, 2016.

A short-cut that removes the need for stabilising the foil with resin was realised by applying the colour while the foil was still in place over the engraved copper-plate (Fig. 6.87). Fig. 6.88 shows the result of foil rubbing and colour application.

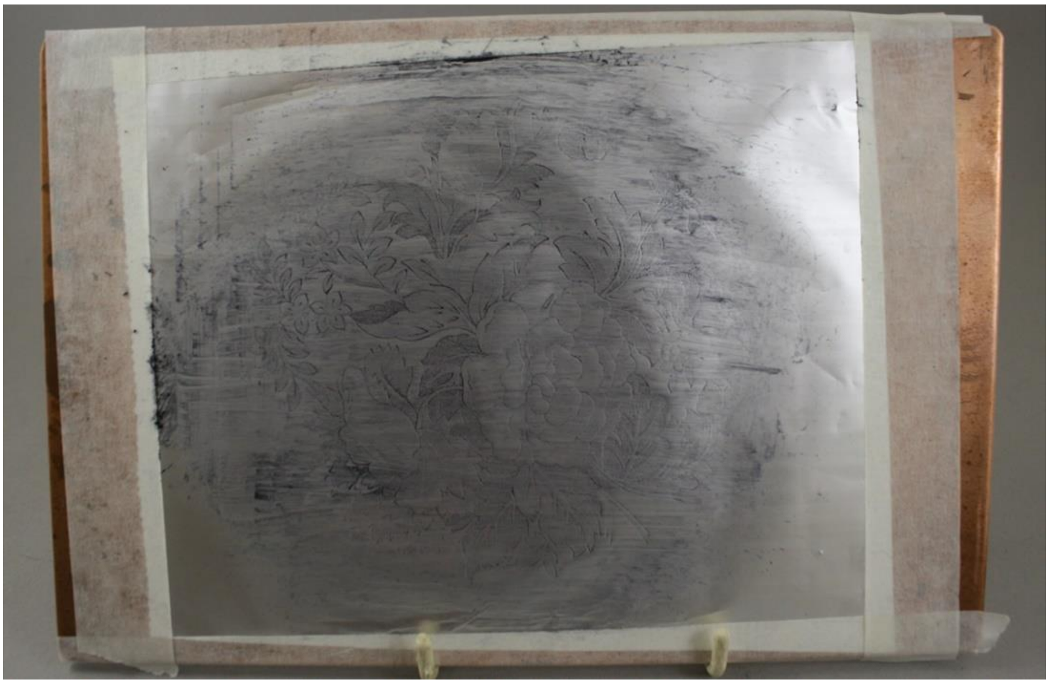


Fig. 6.88. Result of the foil and polish method, 2016.

Fig. 6.89. Close-up of the foil and polish method.

A close-up (Fig. 6.89) reveals a fair degree of replication of the engraving, enabling a relatively cheap and accurate copy of the engraved work to be retained. The application of colour dulled the foil further, making it easier to photograph.

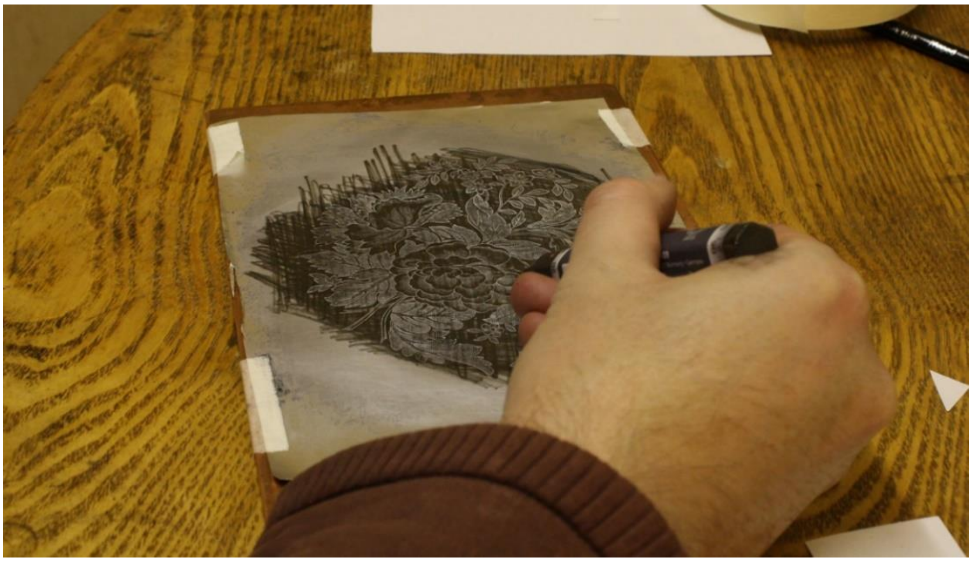


Fig. 6.90. Combination method in use, 2016.

As a further experiment, I combined both methods, following the foil technique with rubbing using the '9B' graphite stick (Fig. 6.90).

Fig. 6.91. Results of the combination rubbing method.

This produced an unexpected result, giving the clearest delineation of all the rubbing methods (Fig. 6.91). Examined close up, each engraved line and every punched dot was well defined, although the combined technique creates a negative of the original engraving (Fig. 6.92 – 6.93).

Fig. 6.92. Close-up of the combination rubbing method.

Fig. 6.93. Close-up of the combination rubbing method.

(7) Mould-making:

As further investigation into the surrogacy of copper-plates, moulded replicas were investigated. [323] This involves making a mould of an existing copper-plate and then casting a facsimile in resin. A silicon mould and resin casting technique was chosen as this has been tested already for cultural heritage applications. It is relatively quick and easy, and the result is hard-wearing. Here, I was looking to see if the cast replica could replace in any way the need to handle the original copper-plates. While access to archival material for study is of prime importance, this access should not come at the cost of loss or damage to any archival material. The provision of physical surrogates would be a manner in which certain types of access could be granted with no risk to the archive, for example open display, handling sessions or technical demonstrations.

I used three copper-plates for these experiments: one finely-engraved,[324] one coarsely-engraved,[325] and one with elements of coarse and fine engraved-work. [326] The three examples were chosen represented a wide time-span, and also different engraving techniques, depths and styles for a thorough assessment of moulding possibilities. The following image essay describes the moulding process.

Fig. 6.94: copper-plate from the archive.

[323] I was aided in the mould-making by experienced mould-maker, Peter Jones.
[324] From the “Game” series.
[325] Engraved for the Hudson Company
[326] From the “Greek” series.

Fig. 6.94. The “Greek” series copper-plate was the mixed-type engraving chosen for moulding tests. It measures 267mm x 244mm x 3mm, weighing 1805g. It exhibits various features: copper-plating,[327] back-stamp marks, an extra section of border, an engraved description and knocking-up on the verso.

Fig. 6.95: The copper-plate secured in the plastic frame, 2016.

Fig. 6.95. Before the mould-making could begin, a frame was constructed to contain the viscous silicon. Right-angled plastic strip cut to size and attached to a wooden board using double-sided tape was sealed at the corners with a hot melt glue gun. The copper-plate was held in place with one piece of double-sided tape.

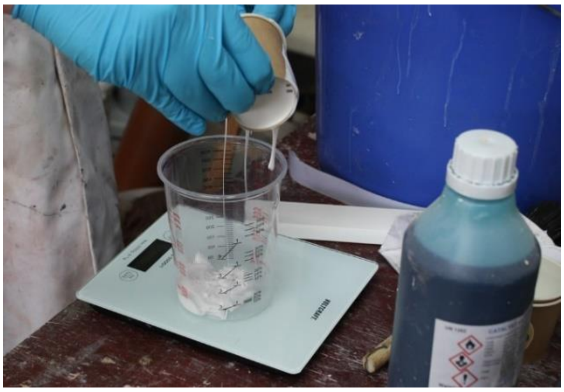


Fig. 6.96 - Fig. 6.97. The silicon and catalyst were weighed out using a ratio of 10 to 1 and evenly mixed using a wooden spatula.

[327] The electro-plating is probably iron as this was the most commonly-used material at Spode and this example shows signs of rust.

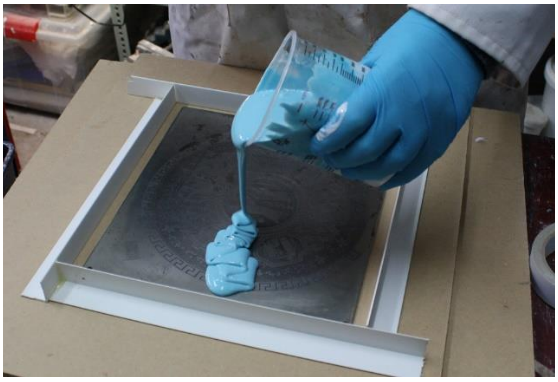



Fig. 6.98. The silicon applied and Fig. 6.99, the silicon is spread evenly.

Fig. 6.98 - 6.99. A light covering of release-agent was sprayed onto the copper-plate and wiped with a clean, lint-free cloth. The silicon mixture was poured onto the surface of the copper-plate. A wooden paddle was used to gently massage the silicon into the engraving. Care was taken not to scratch the surface of the copper-plate and to ensure the engraving was filled without adding air bubbles.

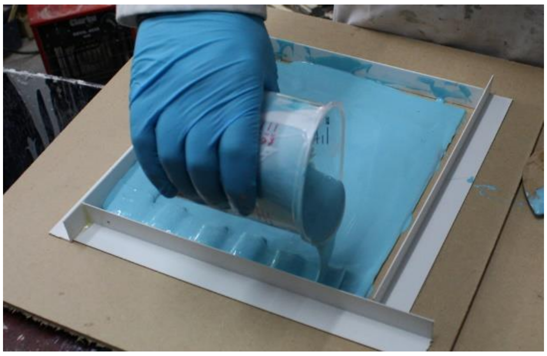
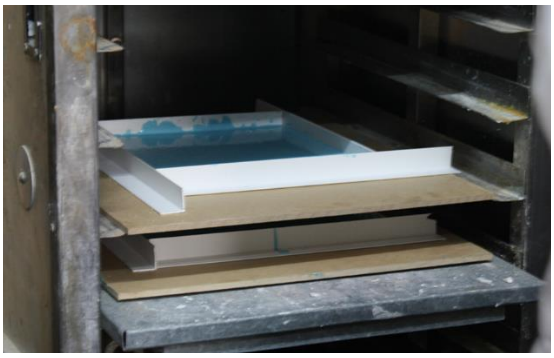



Fig. 6.100. The copper-plate is fully coated, and Fig. 6.101 placed in the oven to cure.

Fig. 6.100 - 6.101. Once a light coat was applied to the surface of the engraving, the rest of the mixed silicon was poured over to a depth of approximately 5mm, again avoiding air bubbles. The mould was placed into a drying oven for about two hours at fifty degrees Celsius to cure.

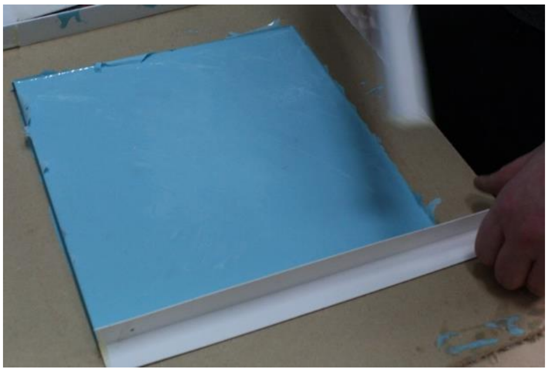



Fig. 6.102. The plastic frame is removed and Fig. 6.103 excess silicon is removed.

Fig. 6.102 - 6.103. On removal from the oven, the cure was checked with the finger tips ensuring a hard and rubber-like character. The retaining walls were removed with a sharp blade, as well as any unwanted flashing.

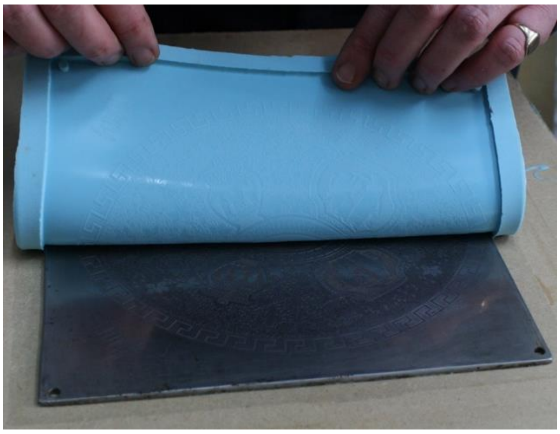



Fig. 6.104 and Fig. 6.105. The silicon is removed from the copper-plate.

Fig. 6.104 – 6.105. The mould was eased from the wooden board and carefully peeled up and away from the copper-plate. Care was needed not to rip, stretch and force the mould. The success of the process could now be assessed; a crisp and detailed mould of the engraved-work was visible.


Fig. 6.106 and Fig 6.107. The resin is measured and mixed, 2016.

Fig. 6.106 - 6.107. The next stage was to make a resin copy of the copper-plate. The two-part resin was mixed in a 1 to 1 ratio. On this occasion, fine copper powder was added to the resin mix at a ratio of a third of each constituent part.[328] Adding the powder was to give

[328] 33:33:33 ratio of two-part resin and copper powder.

the resin the appearance of copper. Further, the copper would settle into the fine detail captured by the silicon mould, increasing the effectiveness.

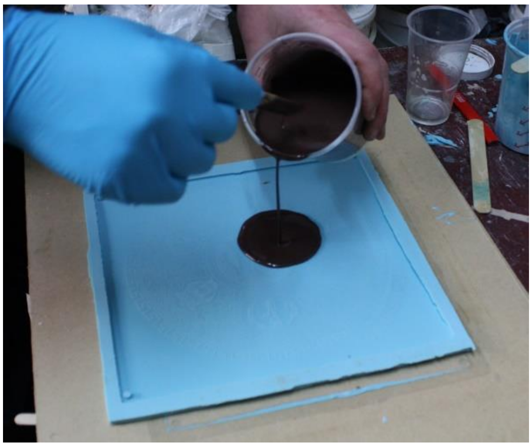
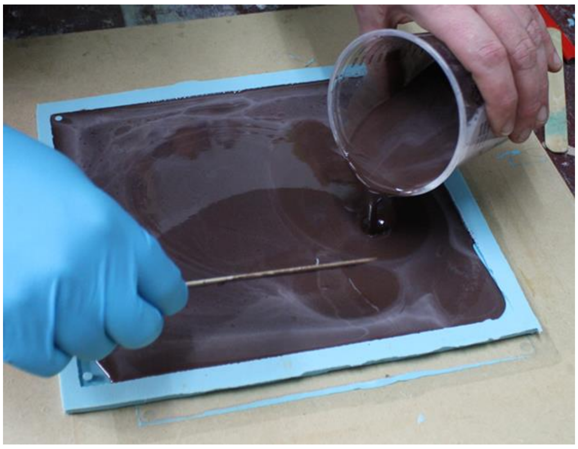



Fig. 6.108 and Fig. 6.109. The resin mix is applied to the silicon mould.

Fig. 6.108 - 6.109. The copper-resin mix was slowly poured into the mould ensuring thorough coverage but avoiding bubbles. A wooden spatula was used to spread the mix across the mould.

Fig. 6.110. The silicon mould is removed from the cured resin.

Fig. 6.110. After ten minutes, the exothermic properties of the resin had set it hard and the silicon mould could be turned over and peeled back gently to avoid damage to the mould.

Fig. 6.111. The result was a facsimile of the original in resin and copper.

Fig. 6.112. The resin mould is polished.

Fig. 6.112. A small amount of automobile scratch remover was used to polish the surface of the facsimile.


Fig. 6.113 and Fig. 6.114. Side-by-side comparison of resin and copper-plate, 2016.

Fig. 6.113 - Fig. 6.114. These final images show the resin example against the plated copper original. The degree of detail capture and replication was high.

One potential use for a facsimile is to print from. I was concerned the resin would not stand up to the temperature of the hot plate process, so ‘intaglio printing’ was chosen. This aimed to test if enough engraved detail is captured in the facsimile to transfer to a print.

Traditionally, intaglio printing warms the copper-plate and the ink, but the ink is viscous at room temperature. Hence, the inked resin plate was warmed on a radiator before printing, but not enough to risk damage to the resin. Further experiments might usefully determine the heat resistance of a resin facsimile, to ascertain if it could be used as a substitute in hot, press printing. [329]

A metal scraper is normally used to apply the printing colour to the copper-plate and remove the excess in the hot press printing method, but as with the use of heat, the risk of damaging the resin was too great and a piece of stiff cardboard was used to force the intaglio ink into the ‘engraved-work’ of the facsimile and to remove the excess. The use of a less ‘aggressive’ scraper[330] is commonplace in intaglio printing from engraved and etched copper-plates.

Getting the correct pressure on the press was a primary concern in the printing phase. The facsimile is not perfectly flat as it has taken the shape of the copper-plate that it was moulded from (which also was not perfectly flat).[331] If a plate is not perfectly flat, low areas tend to print poorly, but extra pressure from the press compensates and a good print can still be taken. Since the resin is brittle and may have not stood up to additional pressure from the press, this was avoided. The facsimile was run through the press without paper several times until an acceptable pressure was found. After the printing took place, the facsimile was able to be cleaned with turpentine to remove excess ink, and to be thoroughly washed using warm, soapy water.

[329] It would be important to determine whether heat would cause the resin to give off harmful gases, making the process unsafe.

[330] While some printers use a metal scraper in this type of printing, the usual technique is to use inky tarlatan fabric to rub the ink into the plate and a cleaner tarlatan to remove the ink. The heel of the hand dipped in a bit of whiting can be used to clean the tone completely from the face if not desired.

[331] Some copper-plates are not perfectly flat having been damaged through storage or use. Additionally, extra care can be taken when the resin is placed into the mould to correct any defects that are obvious in the copper original. Taking the time to set the mould up correctly will in the long run, make for a far better and more useable facsimile.

For a direct comparison, a print from the facsimile and one from the original copper-plate using the same ink and paper were used. Fig. 6.115 shows the print from the resin plate, and Fig. 6.116 the print from the copper. The printing pressure used for the resin plate was somewhat light and shows signs of this within the 'grapevine' areas of the design, which have printed slightly light. In terms of 'proof-of-concept' however, the resultant print was of sufficient quality and detail to be useful as a replacement for routine "naked eye" study and demonstration.

Fig. 6.115. and Fig 6.116. Side-by-side comparison of print from resin and 1920s copper-plate. 2017.

If the resultant print (Fig. 6.115)[332] is compared with the copper-plate (Fig. 6.116), it is clear there is more detail in the original copper-plate. This is not all due to deficiencies in the replica plate, but could reflect the over-removal of excess ink from the plate, and the weaker pressure of the printing press.

[332] Digitally recorded and flipped to illustrate original orientation.

Fig. 6.117. and Fig. 6.118. Two further resin facsimiles.

This experimental work involved moulds from two other copper-plates, a deeply engraved copper-plate (Fig. 6.117) and a lightly engraved copper-plate (Fig. 6.118.). The depth and coarseness had no bearing upon just how much or how little detail the silicon could capture. These facsimiles were moulded using the same method illustrated above, but without the addition of the copper to the resin. The engraved-work was highlighted in the above examples using furniture stain.

Fig. 6.119. Detail recorded in a resin facsimile, 2016

Viewing the resin plate under back-light, although difficult to capture with a camera, gives a different perspective on the engraved work as it takes on a semi-translucent appearance (Fig. 6.119).

Fig. 6.120. Close-up of facsimile detail.

Fig. 6.120 shows the detail transferred to the resin facsimile that can be captured digitally using a back-light. Being able to study the engraving from either side in a more three-dimensional way could offer further detail about the depth of engravings, tools marks and the purposes of techniques employed. While some detail is lost in the transfer of data from original to mould to facsimile, enough is present to make further study possible.

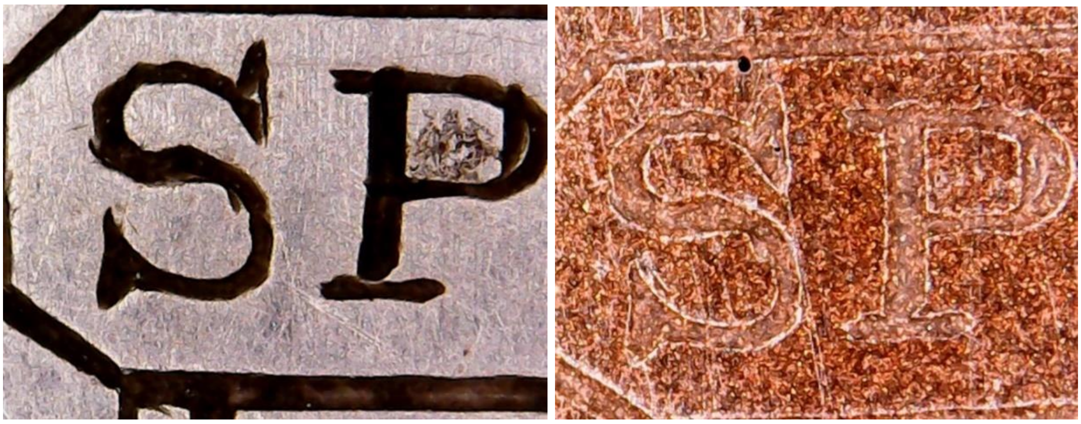
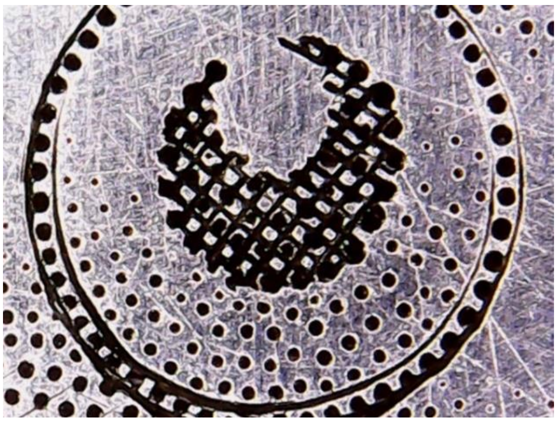


Fig. 6.121, and Fig. 6.122. Comparison of microscopy of copper-plate and facsimile.

The two images above show an 800x magnified comparison between the copper original (Fig. 6.121) and copper-resin facsimile (Fig. 6.122). It is clear to see that while the entire detail has not been captured and replicated, but the degree of transfer is high. It is possible that the loss of definition between the original and the facsimile is through the making of the resin facsimile and not the silicon mould. The addition of copper powder used in the resin-mix could have hampered recording the finest detail.

The transfer of data in the form of engraved-work between the original and the silicon mould is faithful and near complete. If a finer resin was used, especially without the addition of copper powder, the results would be finer still and a more accurate representation of the original. In support of this, below are images of the finest engraved-work recorded in this experiment in the “Trout” copper-plate (Fig. 6.123-6.124).



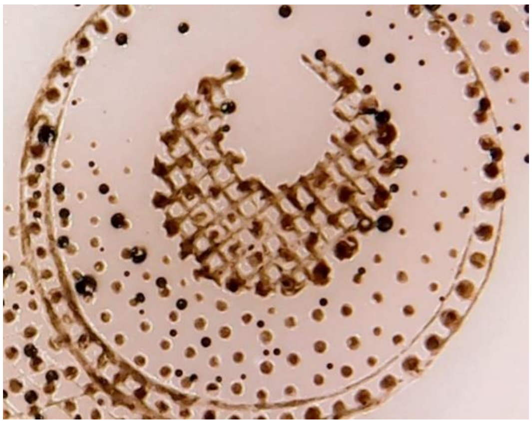


Fig. 6.123. Detail of copper, and Fig. 6.124 Detail of resin cast.

The microscopic view shows one of the eyes of the trout. The degree of detail transferred to the facsimile is slightly higher using resin alone. The main defect is the fine air bubbles seen in the microscopic view of the resin example.

The possibilities of damaging the original copper-plate while using this process appear to be minimal. A piece of copper and iron were tested several days before this moulding process took place with both the releasing-agent and the silicon, with no evident damage. I spoke with Mike Neilson, a replication specialist in the Department of Conservation at the British Museum who informed me that their preferred method of mould-making from metals was to create a barrier between the metal and the silicon. Metal lacquers such as Ercalene[333] used by silversmiths create a pre-moulding barrier, but without the loss of any detail. Neilson reports that; “a physical barrier of this type will prevent any potential

[333] Metal lacquers can be fairly harmful to health. Ercalene lacquer is commonly used on museum silver and brass objects to prevent tarnishing. It is normally applied with a spray gun in a fume extraction booth. A level of skill and experience is needed to form an even and complete coating layer. If parts of the metal are left uncoated, then they can preferentially corrode.

damage such as staining."[334] While any study and usage of any copper-plate from the archive does create the possibility of damage and loss, this method seems relatively safe and certainly seems to present less risk than continued printing of the original plate.

I have chosen to call the resultant piece a facsimile as it is not a copy; it was hand-made by an artisan mould-maker of an original, hand-engraved copper-plate. A facsimile would be a useful teaching-aid for students and anyone interested in the hand-engraved-work of the transferware industry. A facsimile could be handled and would give a similar experience to those looking at it, as if they were holding and handling a genuine copper-plate. The copper/resin facsimile feels 'cold' to the touch and looks copper-like. If the facsimile were to get damaged, another could relatively easily and inexpensively be made from the silicon mould. One silicon mould is capable of making in excess of a hundred facsimiles[335] before it begins to show signs of wear and another would have to be taken. This would be especially useful in a museum that allowed a hands-on approach to learning. Facsimiles not only allow a more risk-free inspection of the copper-plates, but reduce the risk of loss through theft.

Mould-making findings

The facsimile can be used to demonstrate the printing process without fear of damaging a copper-plate from the archive. While the transfer of detail is not as detailed and crisp as would be seen by using the traditional method, it demonstrates the method thoroughly. The facsimile can be used on the hot plate with intaglio ink. Intaglio ink was not intended to be used in conjunction with tissue paper, but in terms of use in an educational and demonstrative setting, this method works perfectly well. As long as the demonstrator informs the audience about the discreet changes to the method shown and the reasoning behind it, then this is an excellent dissemination method that is both informative and educational, but without the fear of damaging heritage within the archive. There is a question of longevity to be raised against the use of the facsimile in this manner, but given the economic costs and time to create another against the potential lifespan, it far out-weighs the use and consequent wear to an original copper-plate. While estimates cannot yet be given about a potential shelf-life and life-expectancy of a facsimile in demonstration

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[334] Staining is a vague term that might encompass colour change, chemical reaction or residues. It is possible that the British Museum has not investigated the long-term effects of the silicon because their policy from the start was to protect the metal with a lacquer barrier layer.

[335] Based upon the information of Peter Jones who is the trained mould-maker that helped with this part of the research.

work, during this experimentation, there appeared to be little or no damage and wear evident. If care is taken with the application/removal of ink and printing, cleaning and storage, then a facsimile could be used in demonstrations. Harder wearing materials could be used to create the facsimile as long as detail from the engraving captured by the silicon mould was not sacrificed. The addition of a third of copper powder to the ‘Greek facsimile’ possibly accounted for its performance and durability during this experimentation. The resultant prints are of sufficient quality to demonstrate the transferware printing process.

The copper/resin facsimiles are sufficiently good in terms of detail and appearance that they could be used in place of the originals. The Spode Museum Trust have several copper-plates on display in the Visitor Centre and while this affords visitors the opportunity to view original copper-plates, it does come with added security concerns. Copper/resin facsimiles could be substituted for the originals. This would greater strengthen the Trust’s role as a custodian and protector of the archive and additionally lessen the insurance implications for the Trust.

Fig. 6.125. Facsimile plate with colour in the ‘engraved-work’, 2017.

Fig. 6.125 shows the facsimile with a small amount of intaglio ink within the ‘engraving’. This further adds to its appearance in terms of being used as a full surrogate in a display setting. During this process, I showed both the facsimile and the original copper-plate to fifteen people, and simply asked them; “Without touching them, do you notice anything unusual about these two copper-plates?” No-one suspected that one was a resin-made facsimile.

Moulded facsimiles offer many benefits as discussed above, but the ability to study the engraved-work without causing further damage to the original is a step forward. In terms of digital surrogacy or surrogacy in general of archival material, these facsimiles have several benefits, most notably tactile studies and a reduction in risk to the archive.

(8) Methods used in combination

I tried combining methods to determine if this would add understanding of the engraving. Both digital and material were used. In this case below, the digital microscope images are combined with the colour inversion method (Fig. 6.126 - 6.127).

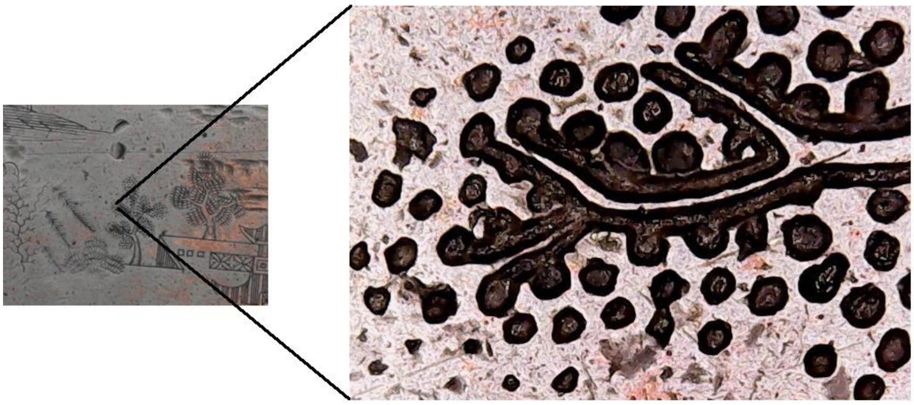

Fig. 6.126. Detail of the tips of the trees to the right-hand side of the bridge.

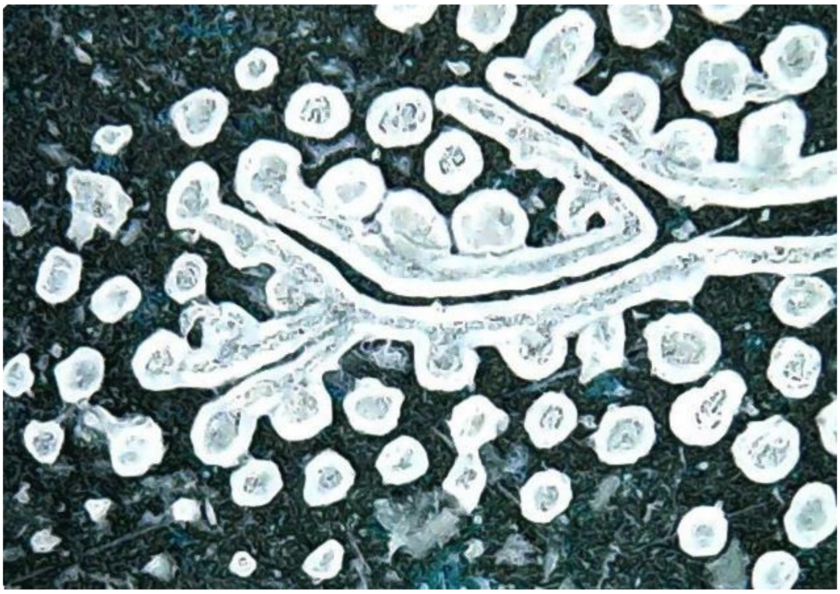

Fig. 6.127. Colour inversion of the same image.

 

Fig. 6.128. and Fig. 6.129. Colour inversions of other methods, 2016.

Fig. 6.128 shows a colour inversion of a section recorded using the baby powder method (see Fig. 6.15), while Fig. 6.129 shows a close-up inversion of the graphite over foil rubbing method (see Fig. 6.92). The application of the colour inversion to another surrogate (digital or material) was useful as it provides contrast and in the case of the rubbing method; it turns the negative into a positive. In some cases, this makes the interpretation of the engraved work easier.

Findings

There are several factors that must be considered and taken into account while trying to draw a conclusion on the usefulness of these methods. These are: (1) practicality of method, (2) success of method judged by visual clarity, (3) repeatability of results, (4) potential damage caused to originals by employing a given method, (5) affording of better examination or interpretation, and (6) potential for risk reduction to the archive.

(1) Practicality has to be a consideration, especially given the size of the archive, its condition and current location. The physical access to the copper-plate room on a disused factory site has not always been easy. There are inherent security issues given the intrinsic value of the materials, and as in any archive, the need for supervision of researchers.[336] The size and weight of some of the copper-plates make them physically demanding to handle, especially as they are susceptible to scratching.

[336] This has not been an issue for me because I am a trustee of the archive.

The care needs of the surrogates must be also examined. Gorman and Shep (2006: 61) write of the "costly and time-consuming processes to be carried out on them every few years…with digital objects." In this regard, the convenience of digital media must be balanced against the long life of paper or resin surrogates.

(2) The method must produce results that are an accurate representation of the original. Conway (2011) notes that:

> Although digital repository developers have expended significant effort to establish the trustworthiness of repository procedures and infrastructures, relatively little attention has been paid to the quality and usefulness of the preserved content itself.

It is of prime importance that a surrogate is true representation of the original, but also accessible and useable.

(3) Repeatability is another criterion for usefulness. The effectiveness of a method is founded in results obtained that are reproducible every time and by multiple (trained) users.

(4) The potential to damage archival artefacts while creating the surrogates must be assessed.[337] A balance must be struck between a singular intervention that allows the creation of a surrogate that serves common research and display needs and consequential archival damage. Some methods required the removal of a copper-plate from the archive to be studied elsewhere. This presents other issues such as security, insurance and loss or damage.

(5) The method must facilitate further examination/interpretation of the engraved-work. This is a key factor in further developing surrogates and was a fundamental part of my approach; a surrogate method had to permit the provision of knowledge of the engraved-work rather than being fundamentally about image capture.

[337] Every time a plate is handled and taken in and out of the pen and touched by human hands, there is a degree of damage being done. Whether this is from the acid in one's hands or the act of dusting the plate before recording it, it could be argued that all these acts caused a degree of damage however small this may be.

(6) The assessment of heritage or archival material at risk are a prime consideration when considering surrogacy, either digital or material. Alison Walker (2001) writing about preservation notes:

> The impact of digital media on preservation came in two ways: through the investigation of the potential of digitization for preserving text and intellectual content, and through the perceived need and urgency of ensuring that digital content could itself be preserved…Stefan Michalski's description of the nine agents of deterioration. The agents defined were: direct physical forces; thieves, vandals and displacers; fire; water; pests; contaminants; light; incorrect relative humidity; and incorrect temperature.

While it is difficult to fully assess the safety of this archive as the factors that affect this are so changeable in its current location, the security concerns are a prime consideration. The fragility of the archive with potential environmental influences (such as the accumulation of rust) and the ease in which the engraving can be damaged due to poor handling demonstrate its delicate state. Walker (2001) also noted:

> Surrogacy, or substitution to provide substitute copies for fragile or heavily used material.

The comparative analysis of the methods evaluated are presented in the chart below. A tick represents yes and a cross represents no.

Digital Surrogate Method	**Success**	**Practicality**	**Potential Archival Damage***	**Provision of Additional Knowledge**
Digital Photography	✓	✓	×	✓
Talcum Powder Photography	✓	×	✓	✓
Colour Inversions	✓	✓	×	✓
Displacement Mapping	×	✓	×	×
Microscopy	✓	✓	×	✓
Scanning/photocopying	✓	×	×	✓
3D Scanning	×	✓	✓	×
Photogrammetry	×	✓	×	×
Material Surrogate Method				
Tissue Printing	✓	×	✓	✓

Fine Art Printing	✓	✗	✓	✗
Rubbing	✓	✓	✗	✓
Mould Making	✓	✓	✗	✓

* Any method carries some potential risk, even those marked with an '✗', as indeed does doing nothing at all.

Digital surrogacy creation:

Once the reflective issues of the copper-plates had been addressed, digital photographs achieved good quality. This allowed further manipulation of the digital files, and methods used in combination with photography. Colour inversions of the digital image proved a simple means to improve contrast and to improve understanding of the engravings. Microscopy was found a practical method that provided valuable information about the engraving, tools and techniques used.

Material surrogate creation:

Tissue printing created a true copy of the engraved detail of the copper-plate, allowing the engraved work to be digitally recorded from the print. Fine art printing captured not only the engraving but wear to the plate; this method was able to reveal even badly worn engravings. Both methods take a toll on archival material. A successful method of rubbing was found in the combined technique of foil and graphite. Mould-making allows creation of facsimiles that can then be used as a surrogate for the copper original. There is potential damage[338] to consider from the materials used to create the moulds, but this method was useful for capturing most of the engraved-detail. All of the material surrogates can be digitally recorded and processed further.

Summary:

The focus of this research was to find suitable methods that would, in the future, enable the creation of a digital archive and "a new dimension for preservation" (Walker 2001). This

[338] The best practice is to use a lacquer barrier layer to protect the metal from the silicon. This requires experience and equipment not yet available at the Spode Museum Trust.

would enable routine study and research of archival material “without handling the original” (Walker 2001). Gorman and Shep (2006: 11) write that:

> The rapid development of digital technologies in the last decade of the 20th century can already be seen to have wrought a fundamental change in cultural attitudes...it has transformed our knowledge and perhaps even our concept of the world we live in.

The advances in technology and its acceptance has facilitated a change in emphasis in archival practice as Harvey & Mahard (2014: 4) note:

> It is now almost impossible to conceive of a collection that does not contain digital objects, most likely in multiple formats.

The preponderant opinion in favour of digitisation is espoused by Gorman and Shep (2006: 13):

> There is no alternative to becoming a digital repository […] digital technologies offer unprecedented opportunities to heritage institutions and promoters of heritage preservation.

It is therefore important that “digital archives accept and preserve digital content for long-term use” (Conway 2011). The creation of surrogates through digital or material methods generate facsimiles, but we must question what they are and study the interplay between these and the originals. Gorman and Shep (2006: 62):

> The relationship between an artefact and its various surrogates is a problematic one and has to be carefully thought through in all aspects of preservation management. In the digital world, the authenticity and authentication of mass seemingly identical copies of an original can cause great confusion, but increasingly there are means of validating and tracking surrogates.

The limitations of surrogacy must be recognised, but the alternative to not undertaking this work is far wider reaching in terms of cultural and heritage losses as Gorman and Shep (2006: 59) acknowledge:

> Creating surrogates can never replicate or preserve everything about an original object, but creating no surrogates could mean that everything is lost in the case of fragile or compromised originals.

Concurring broadly with Gorman and Shep, this research looked at digital surrogates, and beyond to physical and mixed techniques. Moving on from simply replicating, this research found greatest value when the surrogate either increased our ability to read the information of the original, or offered assistance in preservation of the original.

Chapter Six Highlight

Microscopy investigation of a single copper-plate

This section explores how microscopy can be used to further expand our knowledge of engraving. The highlighted areas of investigation will be: (1) the engraving techniques employed, (2) an investigation of engraving control, (3) the assessment of an individual engraver, (4) the analysis of fine art engraving style in a transferware engraving.

Fig. 6.130 and Fig. 6.131. Copper-plate from the archive and Spode ceramic.

The copper-plate[339] (Fig. 6.130) selected was engraved by Frank Boothby to commemorate the life and work of Josiah Spode I. The engraving shows a portrait bust of Spode over a background of the "Italian" pattern centre, completed by the "Italian" border on the ceramic (Fig. 6.131.). It was produced around 1983.[340]

(1) Engraving techniques:

Microscopy is a method that can assist in identification of engraving techniques. The magnified view provided by microscopy can often remove ambiguities left by other forms of visual assessment. Below is a short picture essay that demonstrates the utility of microscopy for identification of techniques, assessment of order of working, and judgement of quality.

[339] This copper-plate is also featured in Chapter Four under 'Authorship'.
[340] 1983 was the sestercentennial of the birth of Josiah Spode I.

 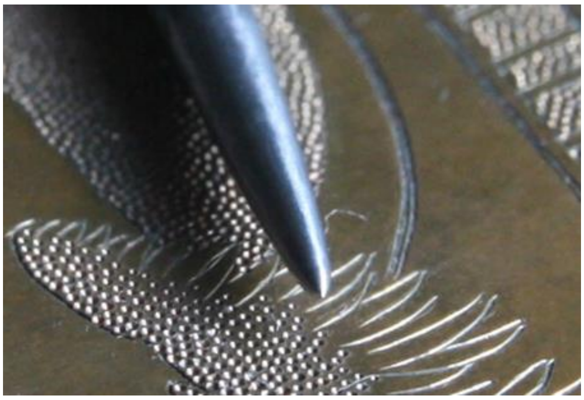

Fig. 6.132. The graver in use, and Fig. 6.133, the punch.

It is possible to match the shape of the tools with the impressions made upon the copper. Fig. 6.132 shows an image of a graver cutting a line. Fig. 6.133 shows a close-up of the conical point of a single point punch.

 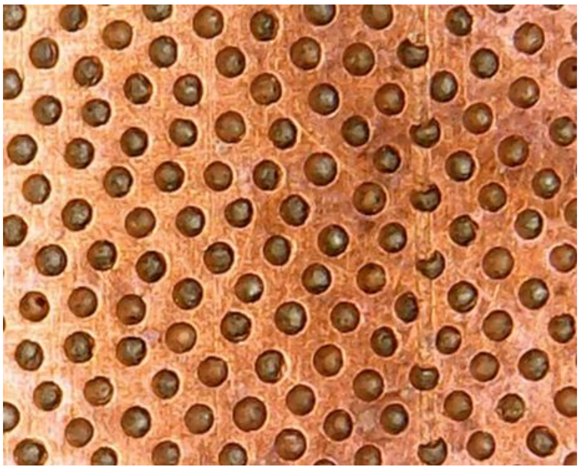

Fig. 6.134. Engraved lines and Fig. 6.135 punched holes.

Fig. 6.134 – The long, parallel channels are cut and show slight variation in width characteristic of the hand-controlled graver.[341] Fig. 6.135 - The evenly distributed, but irregular spacing of the circular depressions is characteristic of the single-hole punching and are largely circular and dome-shaped.[342]

[341] This section of lines was cut with a graver and portrays the water in the scene that is in front of the ruined arch to the left-hand side.
[342] This illustrates the punching to the lower right-hand side of the pattern that indicates grass or other low foliage beneath the tree.

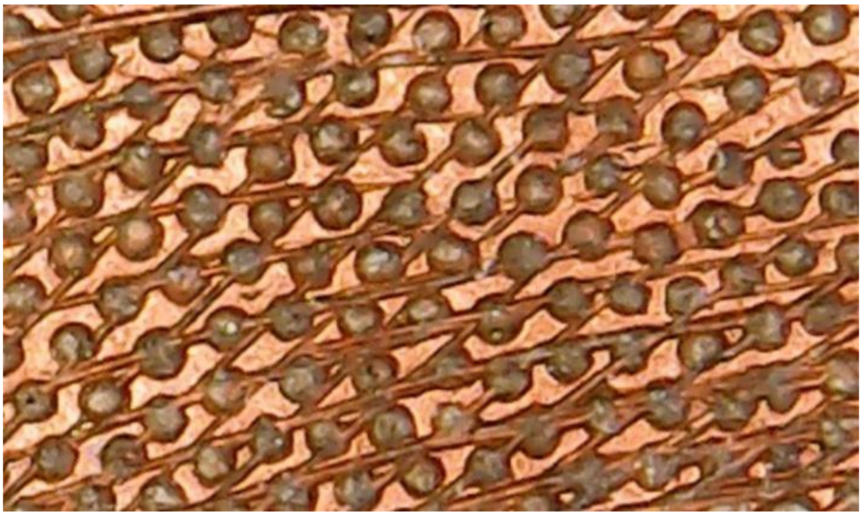

Fig. 6.136. Punching and line-work used in combination.

Fig. 6.136 – Line-work and punching were used in combination.[343] This combination of lines and dots adds tonality, but more importantly, the suggestion of texture.

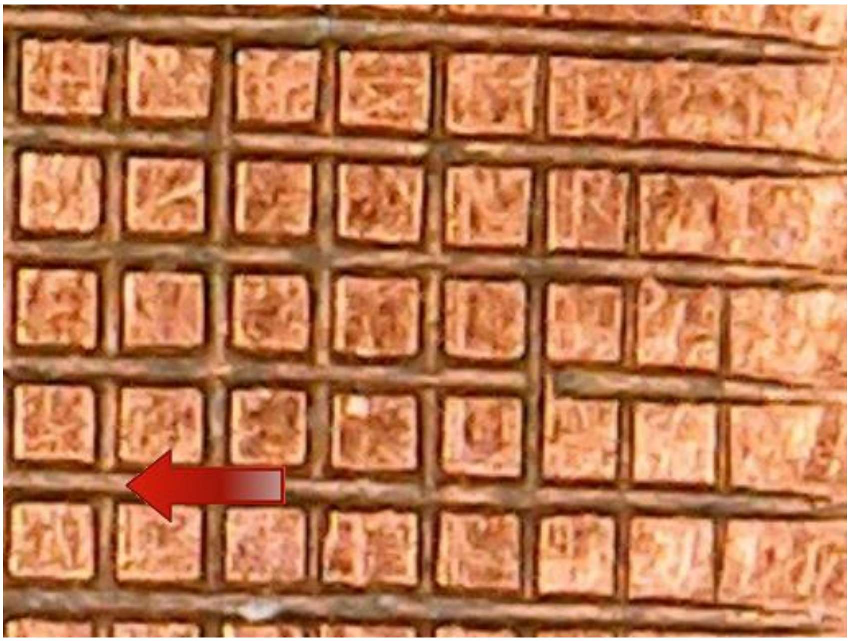

Fig. 6.137. Cross-hatched lines in an engraving.

Fig. 6.137. In an area where lines are seen to cross each other, microscopy provides evidence to confirm the order of cutting.[344] The horizontal lines are continuous and noticeably disrupt the flow of the vertical cuts. This is particularly evident at the point indicated by the arrow.

[343] This image comes from the part of the plate depicting one of Josiah Spode's eyebrows.
[344] This demonstrates the cross-hatched area of 'ground' to the left of the tree on the right-hand side.

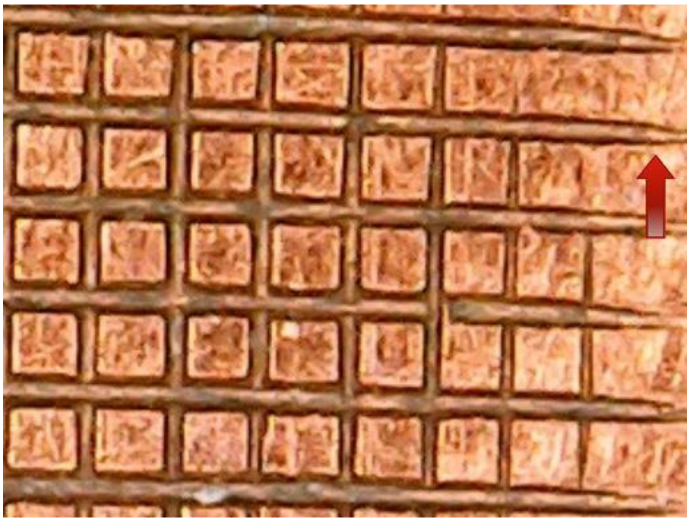

Fig. 6.138. Cross-hatched lines in an engraving.

Fig. 6.138 – the arrow indicates the point at which the graver entered the copper-plate. When starting to cut a line, the width of the cut line is at its narrowest point.

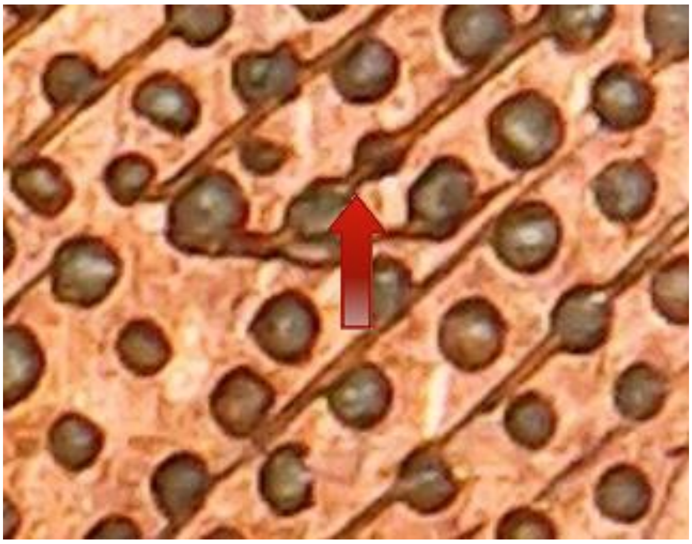

Fig. 6.139. Defining the order of combination engraved-work.

Fig. 6.139 – it is possible with microscopy to determine that the punching was undertaken before the graver-cut lines were added.[345] The arrow in the image shows a point where the line is seen cutting through a punched dot. The punching is laid down first to define the area and then the graver lines are added to supplement the texture and tone needed to represent the subject matter portrayed. Therefore, microscopy enhances our understanding of working methods.

[345] This image is taken from Josiah Spode's right eyebrow, from the perspective of the sitter.

Fig. 6.140. Layout lines on a copper-plate.

Fig. 6.140. - A lay-out line is visible with microscopy (marked with two arrows).[346] The scratched line is too shallow to translate to the ceramic ware. Before starting the engraving, a fine circumference line was scratched with a pair of compasses to define the area of the engraving. After two applications of planishing[347] the faint line is indistinguishable to the naked eye, but can just be observed under the microscope (Fig. 6.140).

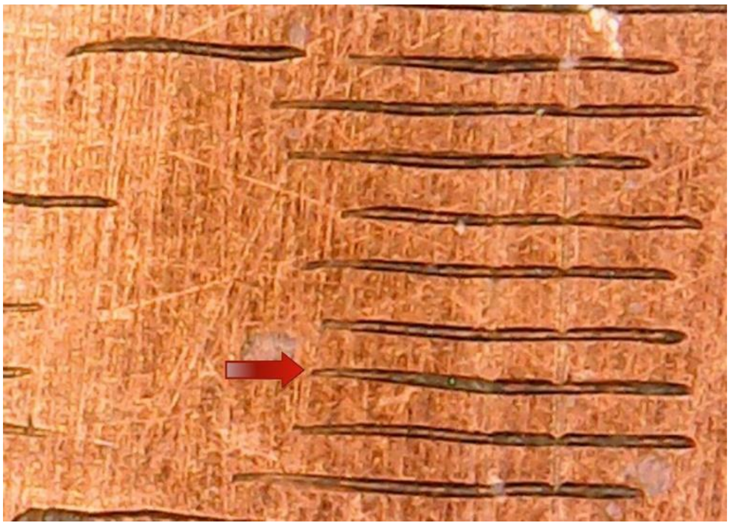

Fig. 6.141. Direction of line-work in an engraving.

[346] This illustrates an area at the lower, left-hand side of the pattern between Josiah Spode's jacket and the ground-work behind.

[347] Planishing takes place at least twice to remove the burr created by the act of punching and then re-punching.

Fig. 6.141. – The arrow marks the entry point of the graver on this line (the others were also engraved from the left-hand side with the plate rotated by one-hundred and eighty degrees).[348] At the other end of the line, it is noticeably wider where Boothby has flicked the graver tip upwards to finish the line and remove the burr. In most cases, the lines would be backed-up (engraved from both directions to ensure a square end to the cut), but was left in this case for the desired visual effect. The entry-point cut shows the shape of the graver, in this case the blade is narrow and angular.

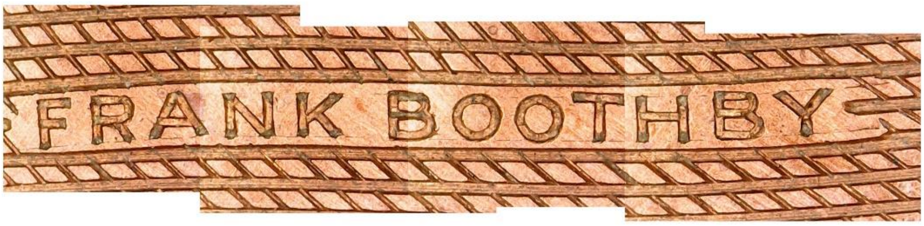

Fig. 6.142. Sewn together microscopy investigation.

This sewn-together image of four microscopic images of Boothby's name (Fig. 6.142) demonstrates the use of another piece of equipment that engravers had at their disposal: a graver with a wider blade and a square profile known as a scorper.

Fig. 6.143. Assessment of tool use in an engraving.

Fig. 6.143 shows a single image of Fig. 6.142 and the arrow denotes that the horizontal line in the 'H' was cut after the left-hand vertical line; the line ends and is square-shaped. This is an indicator of the use of a scorper. The positive and precise definition of the letters in such a small area would be difficult to achieve with a graver.

348 This image shows an area of the ruined classical stone arch that suggests block-work in its construction.

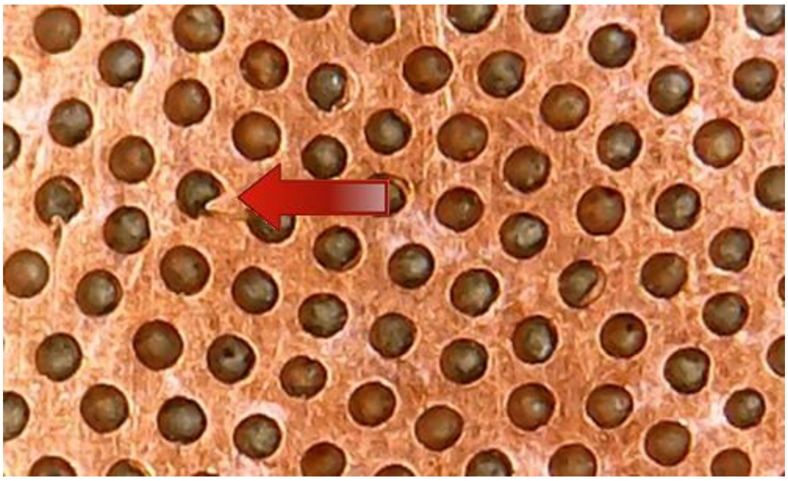

Fig. 6.144. Looking for punched holes not re-entered after planishing.

The arrow in this image (Fig. 6.144) marks a punched dot that exhibits signs of planishing. When a punch makes an impression upon the copper, it raises a burr around the hole it makes. This burr must be removed to ensure the printer's scraper blade can move across the copper surface unimpeded. The burr is removed by planishing with a hone stone. Planishing has the effect of filling the holes in slightly as some of the burr-copper is pushed back in rather than being wholly removed by the hone stone. Once planished, every single punched dot must be re-entered to define them in terms of width and depth. This action again raises a burr and the process repeats. Very occasionally, punched dots get missed when they are entered for the final time and the arrow in Fig. 6.144 indicates a dot that was missed when re-entering took place.[349] This is evidenced by its shape; it has a crescent moon shape rather than being of circular form exhibited by the surrounding dots. It is also possible to assess the direction of planishing as the portion of the holes that become more filled in during this process in the leading edge from the main stroke of the hone stone. In this case, the indication is that the direction of planishing was at forty-five degrees to the orientation of the image moving upwards from right to left.

(2) Engraving control:

It is possible using the degree of magnification[350] of the microscope to assess engraving control. While the subtle variation provided by hand work was evidently valued and

[349] It was a real struggle to find an example of this occurring on the Boothby copper-plate. This is testament to the accuracy of Boothby and that he did not miss many dots when re-entering (there are many thousands of punched dots within this engraving).
[350] 800 times magnification.

actively pursued, it is important to undertake this assessment in areas where the tonality[351] was intended to be consistent; where the intention was for total accuracy of engraving, even if it was not achieved.

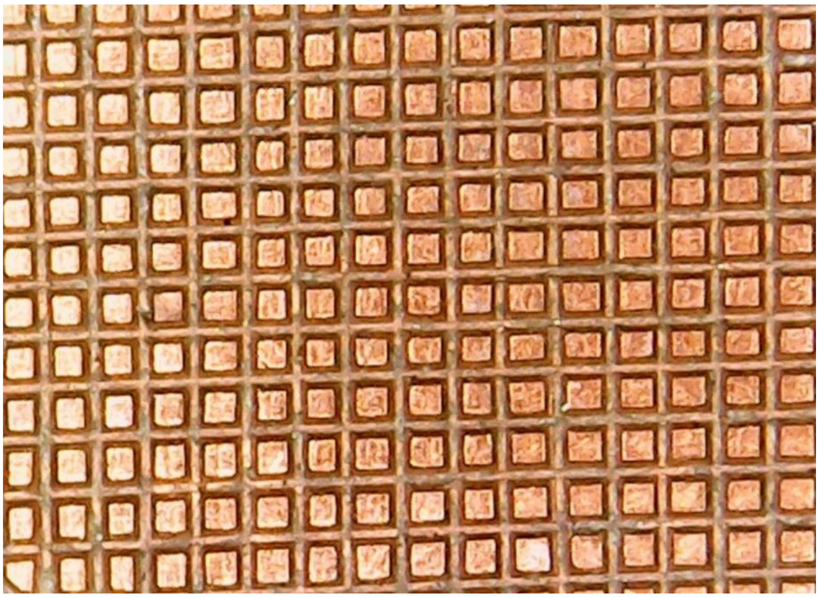

Fig. 6.145. Cross-hatched lines in an engraving.

Fig. 6.145 is of an area 4mm wide on the copper-plate.[352] There are fifteen completed vertical lines in this section. Measuring the gaps between the centres of the lines reveals that all the gaps bar three are identical. As an example, the gap between the tenth and eleventh, from the left, is 5% wider than the preceding lines. While this gap is noticeable when magnified, is minimal when the size of the area is taken into consideration on the copper-plate. Many engravers, including Heath use a two-line graver when engraving lines that are parallel to one another to keep the same gauge[353] and maintain accuracy. The first line is cut with a single-line graver and then a two-blade graver cuts the rest. One blade rides within the first-cut line while the other cuts a new line parallel to it. It is therefore unlikely that the gauge will alter. This evidence of variances in gauge suggests that Boothby used a single-blade graver to cut this whole piece which further suggests he was highly accurate.

[351] Tonality is in reference to how the engraving technique is translated to the ceramic ware.
[352] An image of an area of cross-hatching to the left of the right-hand tree.
[353] Gauge is the distance between the engraved lines.

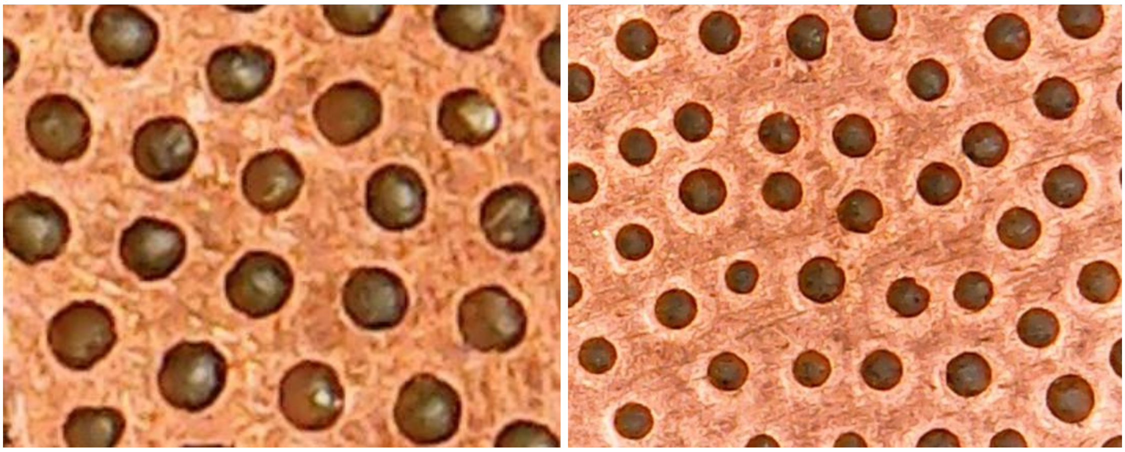

Fig. 6.146 and Fig. 6.147. Comparison of punching techniques.

Fig. 6.146 demonstrates another trait of control used by the engraver. The punch points are conical: the tip is a smaller diameter than further up the shaft of the punch. Therefore, the diameter of the punched dot on the copper surface has a direct bearing upon how much of the punch went into the copper. This is an indication of punching technique; the harder the punch is hit with the punching hammer, the deeper it will go and consequently, a larger diameter punched dot will be created. The inference here is that if all the punched dots have a similar or same size diameter, then this indicates that they were all punched with the same force of blow from the hammer. Fig. 6.147 is taken from an apprentice[354] copper-plate; the holes are less evenly spaced and differ in diameter. This demonstrates that while their punching was proficient, the degree of control had yet to be reached.

It is known that at other contemporary factories, the use of a multi-dot punch[355] was employed. This was a quicker way to punch large areas and allowed the less-skilled engraver to create even tonal areas more easily. Furbur noted that:

> I used a two-dot [punch at Mason's]. I don't class this as being very good and this is all two-dot punching; it's virtually in straight lines and that would be created with a two-dot.

[354] This microscopic image was taken from an apprentice (two years into their training) copper-plate where the apprentice was required to punch holes of the same diameter and width apart as part of their training.
[355] A punch that had more than one point. Some were two-point, others were four or more.

 

Fig. 6.148. and Fig. 6.149. “Wild Rose” ceramic and close-up of punch-work, c.1850.

Fig. 6.148 shows a “Wild Rose” ceramic by an unknown maker,[356] c.1850. It is poorly potted and printed, and the engraving is of a low standard. Fig. 6.149 shows a section of the tree punched with a two or four-headed punch. This gives a mechanical look to the engraving. The punched dots have a predictable and repeated pattern that is prominent especially within an expanse of punching.

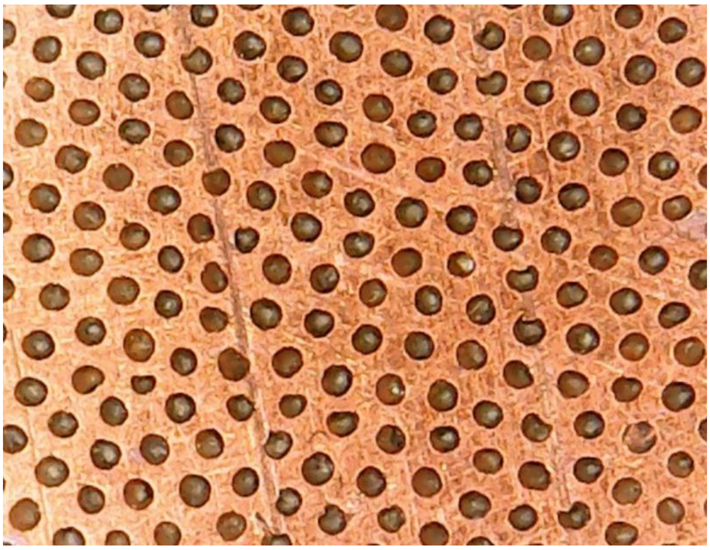

Fig. 6.150. Punch-work in an engraving.

In a section[357] that was intended to have the same tonal value throughout (Fig. 6.150), the punching is evenly distributed, but it is clear that only a single point punch was used. This is evidenced by the lack of pattern or uniformity as in a grid structure demonstrated in the ceramic in Fig. 6.148.

[356] Non-Spode as they did not produce this pattern.
[357] This area of punching is taken from the sky at the top of the pattern in the Boothby copper-plate.

During the Process Documentation phase with Heath, I noticed the way in which he cuts a line with a graver. The graver is not simply pushed in a straight line to cut into the copper, but instead is manipulated with a noticeable rocking motion. While subtle and being a prime example of the embodied understanding of work, it is this motion that enables the cutting of the line. This was something that I had observed with Heath's work, but he did not mention it as he tried to explain to me about the process of using a graver to cut a line. It is the faint sashaying of the graver in the hand of the engraver that permits the biting of the blade in the copper in almost a rocking action. Evidence of this action is held within the lines of an engraving.

Fig. 6.151. Microscopy of a graver-cut line indicating manipulation by engraver.

Fig. 6.151 shows the line is not perfectly uniform in terms of cutting, depth and parallel sides.[358] It is possible that this inconsistent appearance was caused by the gentle, but positive manipulation of the graver in Boothby's hand as it made its cut. The microscopic investigation does permit questions to be asked and how specific methods translate to the copper surface and to possibly assign a hand to a specific engraving.

(3) Assessment of an individual engraver:

Boothby was considered to be one of the very best to have ever worked in the industry. Wood commented:

> He [Frank Boothby] was a brilliant engraver. The others would have made a very good fist of it, but not as good as Frank's. But if something was needed to be spot on, Frank would have got it.

Holdway also noted that:

> I mean, we'd got Frank Boothby up there, right up there and none of us matched his work really, to be honest.

[358] This image is taken of a single line from the left-hand side of the copper-plate that represents water.

Assessment of an individual can be subjective.[359] The assessment of engraving control that the microscopy has allowed through counting lines, dots and their relative spacing demonstrates that Boothby was highly-skilled. Mistakes in an engraving can be used as an indicator of proficiency and attention to detail. A mistake can be a very minor slip or extension of a line that was not intended and are often so small that they are difficult to detect, especially when translated to the ceramic ware.

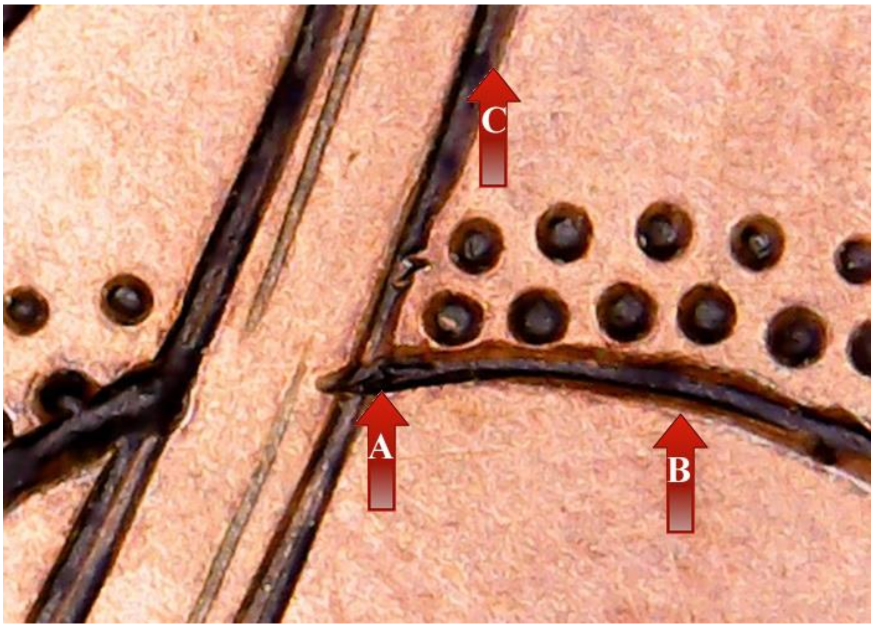

Fig. 6.152. Assessment of 'mistakes' within an engraving.

Fig. 6.152 shows an example of a mistake. Line 'C' was cut first and then line 'B' was cut up to line 'C', but at the intersection marked 'A', the line 'B' is seen to be cutting through line 'C' and going beyond. This is an easy error to make and while not crucial to the look of the ceramic ware, this microscopic investigation allows assessment of an individual engraver. Fig. 6.152 is a microscopic image of an apprentice[360] copper-plate from the archive. I was not able to find an example of this type of error within the Boothby copper-plate despite searching with the microscope for several hours. This is an indication of the ability and skill level that Boothby possessed.

(4) The analysis of fine art engraving style in a transferware engraving:

[359] The greatest assessment is probably from within; a peer review that without exception tells of a man whose talents as an engraver were high.

[360] Engraved by ex-Spode apprentice and engraver, Darren Furbur.

The style of the engraving of the portrait[361] is so different from that of the rest of the copper-plate; it is much more in the style of fine art engraving, especially in the treatment of Spode's clothing.

Fig. 6.153. Frank Boothby adding punching to an engraving, c.1983. (CHC)

The image that Boothby used as inspiaration for this engraving was hand-painted therefore he was not copying the engraving style of an existing print (Fig. 6.153). It is plausible that Boothby was aware of different styles even though his career did not often provide opportunities to use other styles. It has not been possible to discover if the decision to engrave in this manner was Boothby's or a manager's and if Boothby had to study and practise a different and distinct style. This is the only example of the two different styles being used together found within the archive.

The way in which darker areas are created in transferware engraving is to use the cross-hatching technique. The way this is achieved is by engraving parallel lines of an equal depth, width and distance apart. These lines are repeated at ninety degrees to the first set which creates an equal gauge.[362]

[361] Josiah Spode I.
[362] Gauge is the distance the engraved lines are apart from each other.


Fig. 6.154 and Fig. 6.155. Cross-hatched lines in an engraving.

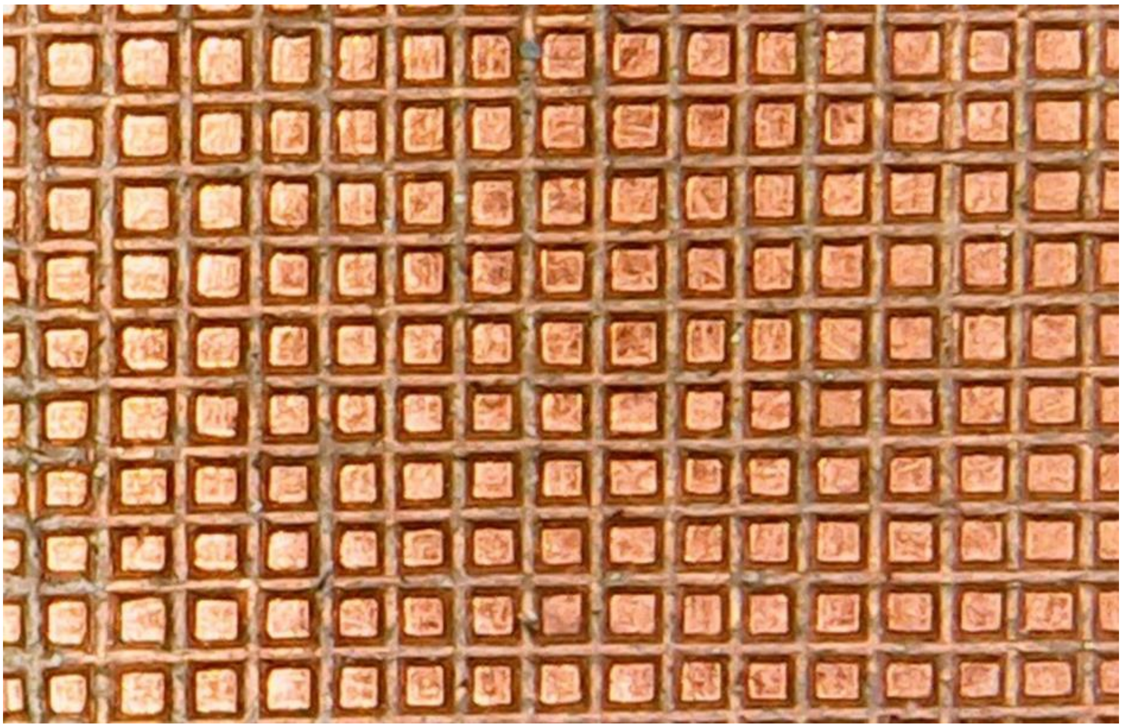

Fig. 6.156. Microscopy of cross-hatched lines in an engraving.

Fig. 6.154 and Fig. 6.155 are close-ups of cross-hatched areas taken using a digital camera of two different areas of cross-hatching. Fig. 6.156 is a microscopic image of the area in Fig. 6.155. This demonstrates that the transferware-specific type of cross-hatching is to use lines that are equal in width and gauge in both directions.

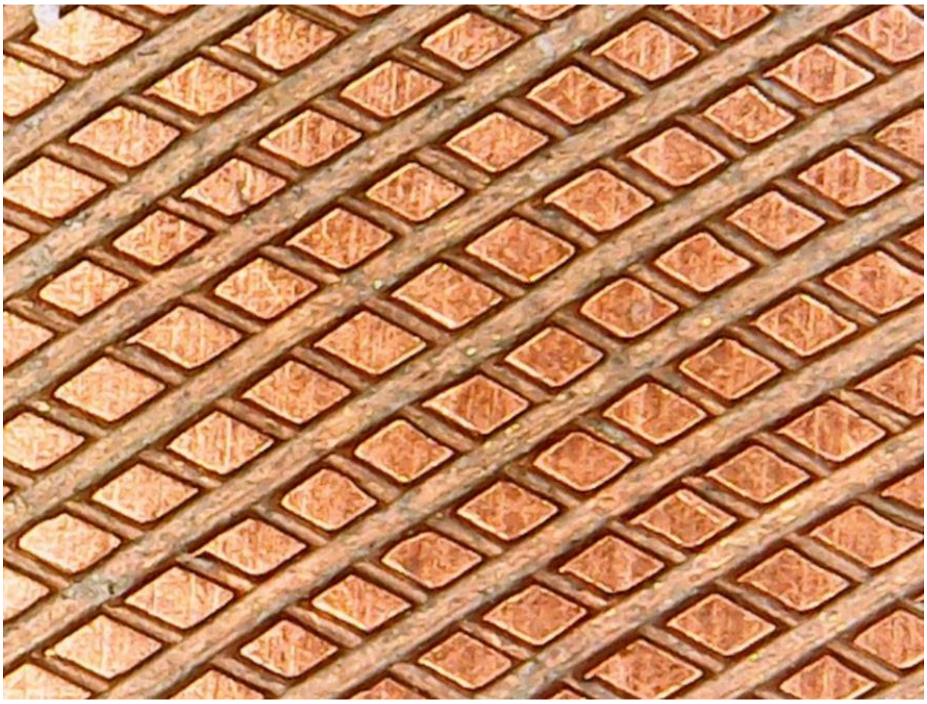

Fig. 6.157. Microscopy of cross-hatched lines in an engraving in a non-transferware style.

Fig. 6.157 shows a microscopic view of an area of cross-hatching that depicts Spode's jacket. This demonstrates a totally different method and is more typical of the approach taken in engraving for fine art printmaking. There are two distinct differences used here. Firstly, there are two different sizes of line employed. One set of lines is approximately twice as wide as the other. Secondly, the lines are curved to suggest texture and shape to the garment that is being portrayed in the engraving. The gauge is kept as consistent as the transferware-specific example.

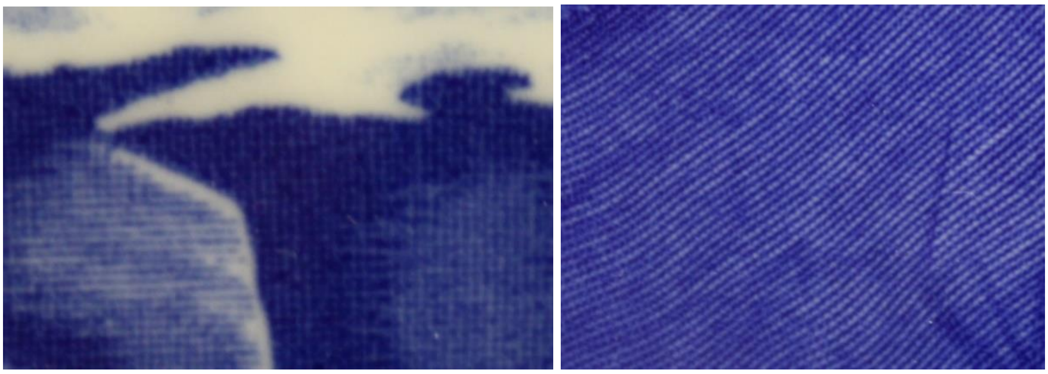

Fig. 6.158 and Fig. 6.159. Comparison in a ceramic of cross-hatching styles.

Fig. 6.158 and Fig. 6.159 are the same two areas as illustrated above (Fig. 6.156 and Fig. 157), but as seen on the transferware product. The curved style shows more sensitivity to the subject matter and gives the viewer of the piece an excellent understanding of the material depicted (Fig. 6.159). This not only suggests light and shade, but gives a convincing depiction of the material and the way it was made and behaves on the wearer in a very informed way.

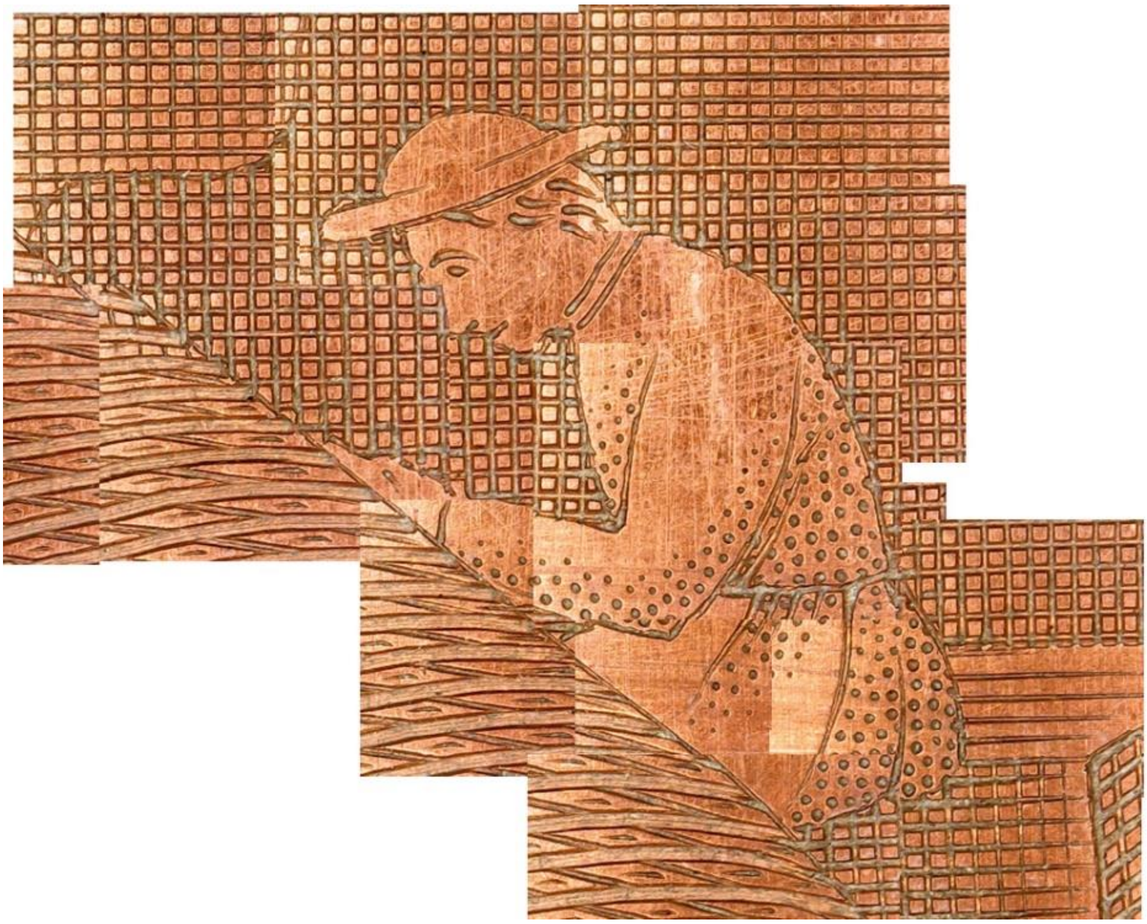

Fig. 6.160. Sewn together image of microscopy investigations.

It is at the points where these two styles meet that the difference is most apparent as seen in Fig. 6.160 (sewn together microscopy image) where Spode's jacket meets the cross-hatched area behind him. The other figure depicted is the so-called 'reading woman'. While she is much smaller, her depiction in terms of engraving is very minimal with just outlines and a light degree of tone added. The curved hatching style gives the portrait more three-dimensionality compared to the flatter treatment of the decorative figural element.

Fig. 6.161. Fine art print of Thomas Pennant, c.1779.

Fig. 6.161 shows an illustration of a fine art print, published in 1779.[363] The comparison in styles between the treatment of Josiah Spode I revealed in the microscopy and that seen in the engraving of the fine art print is important.

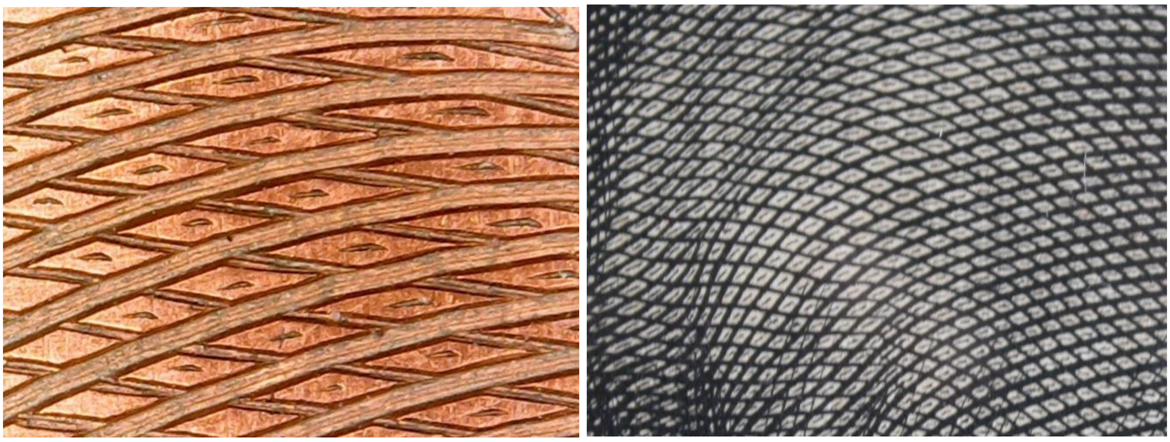

Fig. 6.162. and fig. 6.163. Comparison of engraving styles.

[363] c.1779 titled print; “Thomas Pennant Esq.”

In the close-ups between the microscopic Boothby engraving (Fig. 6.162) and the 1779 engraving (Fig. 6.163), similarity of working method can be observed as a “lozenge and dot” technique (Irvins 1943 [1987]: 67).

It is indicative that Boothby wanted the portrait to read as realistic (3-D) and the background as decorative (flat). Regardless of Boothby’s unfamiliarity with this technique, the microscopic investigation demonstrates the competency with which he undertook the work.

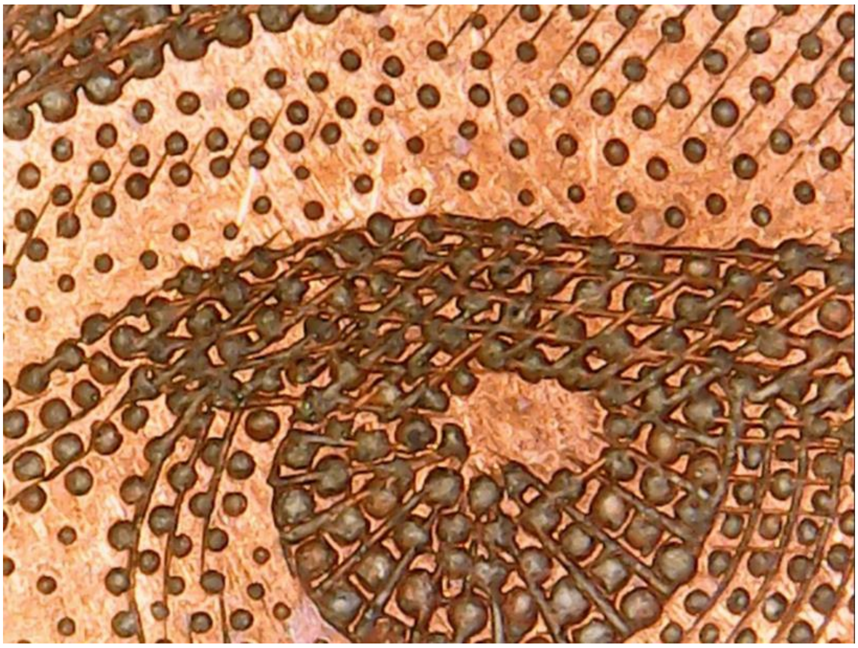

Fig. 6.164. Microscopy of engraved eye detail.

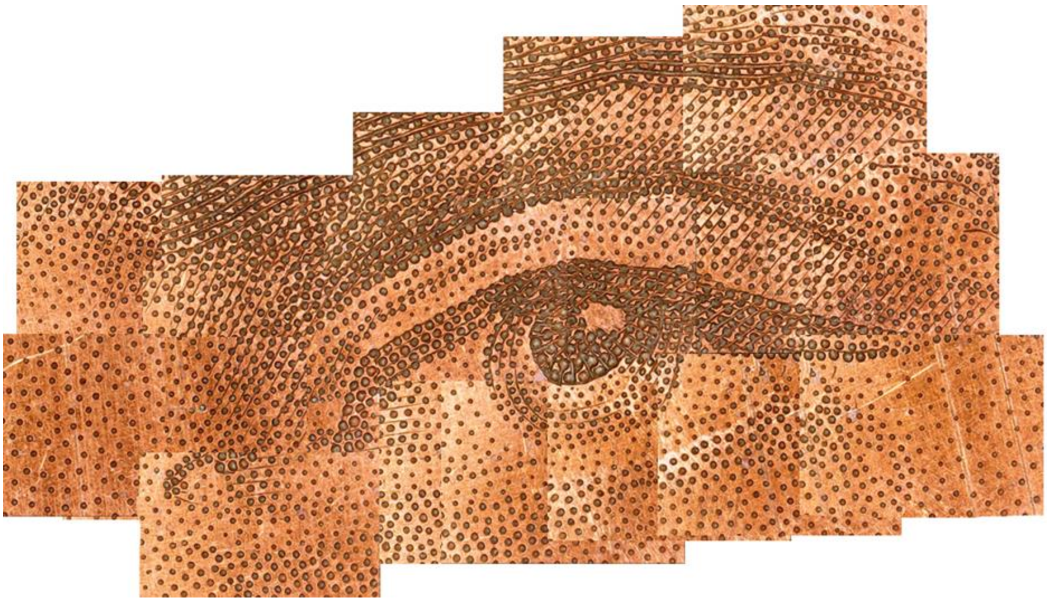

Fig. 6.165. Sewn together image of microscopy investigations.

Fig. 6.164 and fig. 6.165. The way in which Boothby engraved the eyes is also similar to the more classical style of fine art print engraving. Below (Fig. 6.166) is a print engraved in c.1733 of King Charles I.

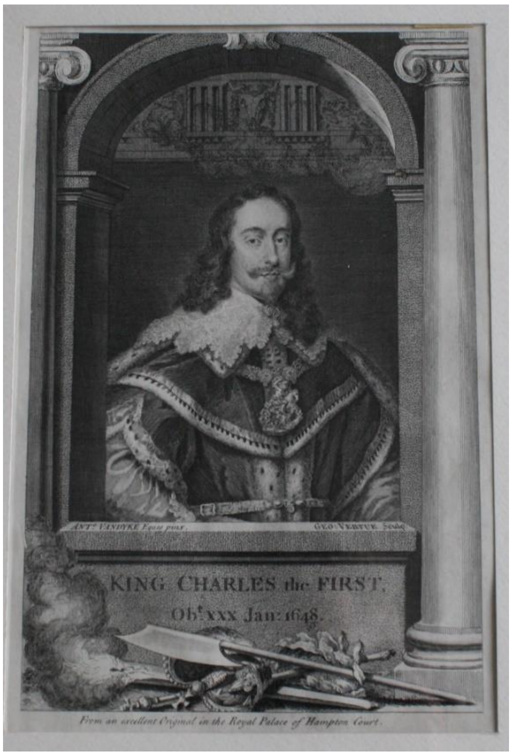

Fig. 6.166. Fine art print of King Charles I, c.1733.

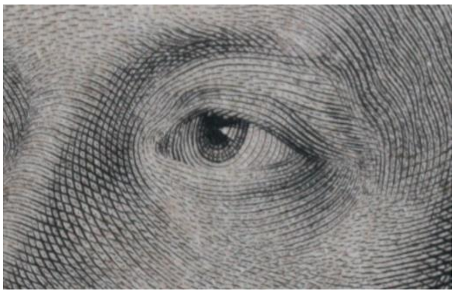

Fig. 6.167 and fig. 6.168. Comparison of engraving styles in fine art engraving.

Fig. 6.167 and Fig. 6.168 are close-ups of the eyes in both the Charles I and the 1779 Pennant print (Fig. 6.161). Sophisticated use of short strokes (Irvins 1943 [1987]: 66) and graver lines create the light and dark areas of the eye in a very similar way that Boothby employs.

A further comparison would be how the engraving translates to its intended medium: printed paper seen with the printed ceramic to allow comparison of the intended realisation of the engraving.

Fig. 6.169. Close-up of an eye printed on a ceramic.

The engravers' skill is in knowing what engraving techniques to employ and how these will translate into the ceramic ware (Fig. 6.169) in a similar way that the fine art print engraver appreciates these subtle nuances.

Below are two images for comparison. To the left (Fig. 6.170) of the Pennant print and to the right (Fig. 6.171) is an image taken in black and white of the Boothby example from the finished ceramic.

Fig. 6.170. and Fig. 6.171. Comparison of engraving styles in fine art engraving and transferware.

The comparison is useful, but this rather brings out the profound differences in styles and treatments. Each different engraver knew how to use his skills to create a look that would work when transferred to the final medium. The sensitivity and awareness of other types of engraving techniques in the fine arts and the ability to produce different techniques in an adept manner illustrates Boothby's flexibility and willingness to expand his repertoire.

Evaluation of Microscopy:

The method of microscopy allows for a greater insight in many aspects of engraving as discussed above.

Fig. 6.172. Close-up of an engraved eye.

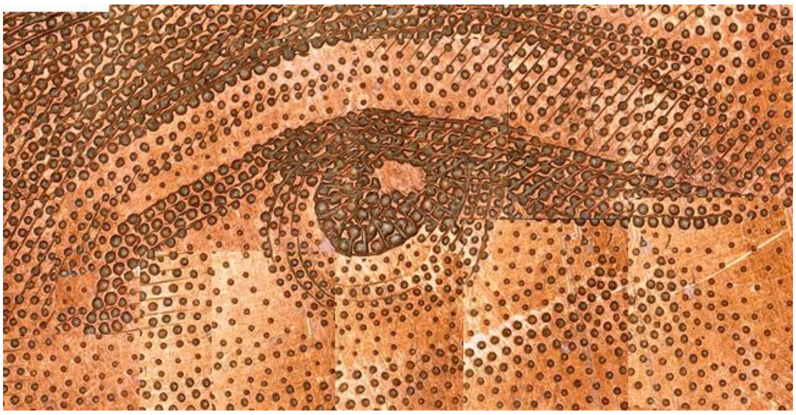

Fig. 6.173. Sewn together image of microscopy investigations.

Fig. 6.172 shows a close-up digital image recorded with a digital camera. Fig. 6.173 shows an image of twenty microscopic images sewn together of the same area in Fig. 6.172. The limitations of space within the context of this thesis are such that the sewn image has to be relatively small, but even at this size, when compared with the digital camera image (Fig. 6.172) there is more detail recorded and the clarity and colour of the image are better. Fig. 6.173 is 4768 pixels wide at 100% magnification, or 126cm wide. At this level of reproduction, the engraving techniques can be studied in far greater detail than with the use of a digital camera image.

The limitations of the use of microscopy are in examining a ceramic rather than the copper-plate as demonstrated in the following picture essay:

Fig. 6.174 is a ceramic discussed above in Fig. 6.148.

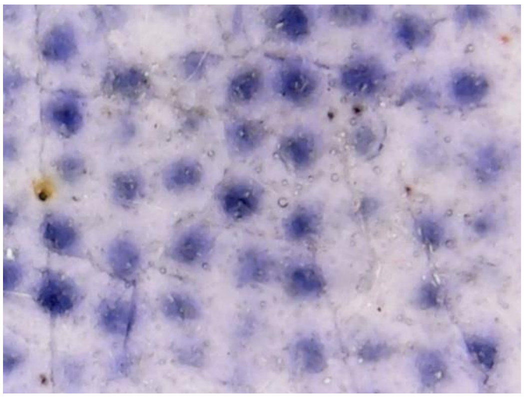
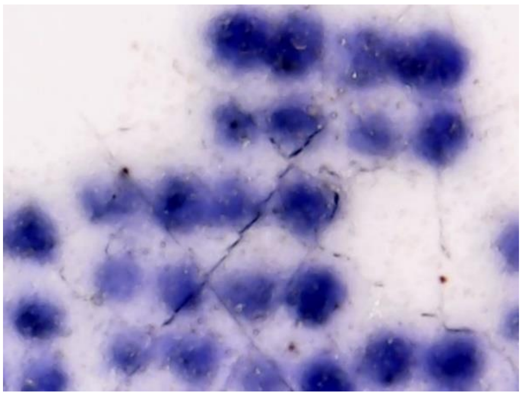

Fig. 6.175 and Fig. 6.176. Microscopic investigations of punching.

A microscopic investigation of the punching is illustrated in Fig. 6.175. (#1 in Fig. 6.174) and Fig. 6.176. (#2 in Fig. 6.174).

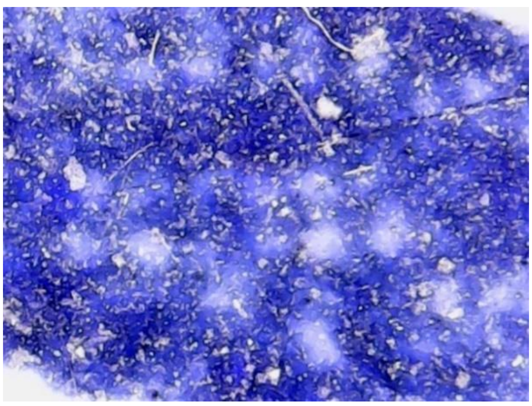
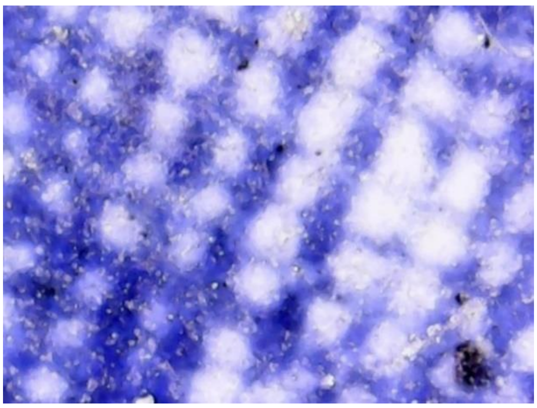

Fig. 6.177 and Fig. 6.178. Microscopic investigations of cross-hatching.

Fig. 6.177. (#3 in Fig. 6.174) and Fig. 6.178. (#4 in Fig. 6.174) are illustrations of graver-work.

While some of the detail is able to be read in the four illustrations above (Fig. 6.175-178), the poor-quality printing (in this example), the reflective nature of the glaze and the effect of the lead glaze[364] makes interpretation of the engraved-work problematic. This is demonstrated in Fig.177. in which it is difficult to be clear about the engraving techniques used.

Poor glaze application[365] has allowed a single, small area of the border to be assessed as cross-hatching. This is illustrated in Fig. 6.178: the rest of the cross-hatched border in this ceramic (Fig. 6.174) displays as a solid blue under a microscope. Microscopy is more useful to assess the impact of a lead glaze[366] in a ceramic rather than engraving technique.

As discussed above, employing this method facilitates the interpretation and use of specific tools, techniques, and order of work observed and provides evidence for assessments of engraving quality. Microscopy is a useful addition to a researcher's armoury allowing further understanding into the manufacture of engraved copper-plates and the activities of copper-plate engravers.

[364] See Chapter Three; 'Reading an engraving in the ceramic' for further details of the effects of lead and leadless glazes.
[365] Thin glaze applied; the result when fired does not soften the colour as seen in the rest of the ceramic.
[366] See Chapter Three for further details of the lead glaze.

Chapter Seven:

Analysis and Conclusions:

At the heart of this research is a complex multi-stage factory process that involves design, pictorial translation, engraving, transfer printing, transfer application, and ceramic firing. This thesis examined the engraver's role in this process. Close examination of the evidence found in the Spode copper-plate archive, evidence largely overlooked, has added to our understanding of the development of the engraver for that role. Carried out alongside interviews with former engravers, stage-by-stage documentation of their work, and experiential engagement with the process, the research has uncovered a surprising continuity in engraving practice at Spode over the course of two hundred years. This continuity of practice lends the researcher greater ability to understand the copper-plate archive across its time span. Cross-referencing between the archive and other sources, collections and literature has shown how the archive can inform a wider understanding of design and culture.[367]

Summary of key findings mapped against the literature:

The literature on transferware is largely directed to the needs of the collector. Investigations have mainly dealt with factory identification, date and pattern derivation. While providing some information about tools, materials and techniques, the process of engraving has not until now been examined in detail. The scope of work undertaken by transferware engravers has not been defined, nor their training to fit this role. Notably, the difference between the engraver and the designer, and their relationship to source imagery and authorship had previously been little explored. In terms of existing debates, was the engraver an artist or artisan? Within their role, the extent that engravers initiated or

[367] "Unlike books, archival records are not understood on their own as individual items. Their meaning comes from their relationships with other records and the people or organisations that created and used them". http://www.nationalarchives.gov.uk/documents/archives/archive-principles-and-practice-an-introduction-to-archives-for-non-archivists.pdf (page 8).

modified designs, altered motifs or rejected elements that were technically unsuitable, required further elucidation. Further examination of the copper-plate archive revealed discrepancies between the new evidence and the existing description of engraving techniques.

(1) Some tools are described and illustrated in the literature (Drakard & Holdway, 1983 [2002]), but the link between these inanimate objects and their specific use in certain processes was not well documented or understood. The interpolation of images of tools, descriptions of techniques and analysis of copper-plates in this thesis has built upon the work in the literature. The use of copper-plates to provide evidence and details of technical engraved-work, industrial context and design origin builds upon existing archive-based research (Priestman, 2001 and Hyland, 2008).

(2) The process of engraving a design, although broadly represented (Drakard & Holdway, 1983 [2002]), had not been treated in detail, nor was the process of skill development, speed or accuracy of working. More detailed knowledge of tools, and techniques, and more insight into the training, specialisation and historical development of engraving was needed. The background, training, and working careers of engravers, especially in an industrial context, was poorly understood. These omissions have been investigated in this thesis through an examination into the background, training, practicing and skill acquisition of the engravers. The engravers' interviews and archival material have added primary and secondary source evidence to these arguments. The level and length of training is now known to have varied between five and seven years, but the time taken to absorb the skills is in accordance with the theoretical timeframe (Sennett, 2008) of ten-thousand hours (although Nancarrow, in about a third of the Sennett-proposed time, had gained proficiency, was still not considered production-ready).

The way in which a craftsman operates in the material world and acquires skills by repetition to the point of second nature absorption (Dant, 2005) is supported by this thesis. My personal experience of an apprenticeship in engraving along with the process documentation work and the engravers' interviews granted an exploration of tacit knowledge and its application in this field. Working with engravers and my own engraving experience has facilitated intimate observation of the interaction between humans, their tools (Malafouris 2013) and their surroundings (Sennett, 2008). Observational learning, in the absence of written instruction, as a method of skill transfer was not only observed but experienced.

(3) The use of images and image selection in the transferware industry has been thematically divided into date ranges by Coysh and Henrywood (1982). The first period, 1780 – 1800, was almost exclusively Chinese-inspired. Subsequent periods saw the introduction of Western-imagery taken from contemporary material found in publications, paintings and prints. The evidence in the archive(s) have confirmed the thematic progression of pattern design. The symbiotic relationship between ceramic patterns and contemporary fashions led by culture, exploration and expansion is widely acknowledged (Drakard and Holdway, 1983 [2002]). Events and prevailing tastes were quickly represented on readily-available ceramic products. Information in the copper-plate and ceramic archive have confirmed the link between source imagery (Coysh and Henrywood, 1982) and the link with a broad market led by fashion.

The relative contribution and priority of design and technology to the final appearance of transferware is a significant area for debate in which the transferware tradition raises the important question of authorship. When an engraving is finished, whose work is it: the original creator of the source-work (Coysh & Henrywood, 1982), the factory's designer, the engraver or a collective body? With all of the possible inputs and phases of design creation and adaptation, this thesis posits the work of the industry as having multiple authorship.

(4) Evidence of creative input by the engraver has been difficult to uncover, but several examples have been noted. Holdway was allowed to use line-work in a new engraving which was against the house-style (punching) at that time (Chapter Five; "Willow case study). Heath suggested adapting a design ("Indian Sporting") by suppressing the inhumanity and this goes beyond the role of the engraver (Chapter Four; Evidence of creative input). This evidence has largely come from interviewing workers who formerly worked in the industry and was supplemented with evidence from the archive; it is a new addition to the accepted knowledge in this field which was previously poorly understood.

(5) There is a link between the role of the engraver as a designer and as an artist/artisan. Artist versus artisan has been a longstanding debate with roots in the nineteenth century.

This thesis offers evidence-based observations and those taken from interviews of engravers who worked in the trade. The work of engraving as a creative process or a replicative action has been a recurrent debate in the context of other similar industries, but has not been researched in the ceramics industry. In a wider context, engraving was considered by the Royal Academy of Arts to be a reproductive process and engravers were seen to be artisans rather than artists (Lambert, 1987). The engravers' interviews revealed that the work undertaken by the transferware engraver was a replicative, but adaptive process. The interviews have revealed that engravers had a less important role in the design phase and were mediators between design and production and that the majority of designs came from source images. Translation of designs from the design department by turning drawings and washes into the engraving language of lines and dots was the engravers' key role. While the link between source prints and transferware patterns (Coysh & Henrywood, 1982) is known, the role that the engravers played in adaptation was poorly understood. To better understand the outputs of the engravers, in the context of the ceramic industry and other engraver-based industries, it was important to define their particular role in the appearance of the final product.

(6) The evidence in the literature does not fully match the evidence in the archive. An example is the theory that technique may have controlled style (Little, 1969 and Coysh & Stefano, 1981) whereas evidence in the archive suggests that stylistic choices were more important than technical development alone. Analysis of the evidence in punched engraving suggests that the use for punching as a technique was a stylistic choice rather than being a mere technical development. Studying primary archival materials has shown that technological advances in paper development (Richards, 2003) may have been less important than pattern style in terms of engraving technique used.

Summary of findings and contributions to knowledge

The principal aim of this research was to demonstrate the importance of the Spode copper-plate archive as a repository of craft and design knowledge. The scale and relative integrity of this archive makes it an outstanding resource for further study of the history of the transferware industry. Due to its inherent metal value, such an archive may face continual demands for reduction and rationalisation. This research adds justification for the preservation of the complete remaining archive.

This research has expanded and built upon existing literature by combining object-based study and historical documents, with the unique opportunity to examine one factory and its archive. The relationship between the surviving archive and the engraver are part of my theoretical approach of scientific connoisseurship, material culture studies and a new approach to art history that includes social and cultural context.

Primary and secondary source evidence was gathered through interviews that provided valuable information that would not have been possible by studying archival material alone. The interviews and questionnaire (Gillham, 2000) (transcribed in full in the engravers' appendix) serve as a record of oral history and selected quotes interpolate this thesis. The value of working with those directly involved (Beynon, 1973) within the research field is an aspect often omitted from the transferware literature.

Chapter related assessment of findings and contributions to knowledge:

1. CONTEXT:
   It is a <u>key finding</u> that Spode's archive is the most complete survival in the British transferware industry. This adds to its importance as a resource. The European archives that Paul Scott studied contain copper-plates, design material and ceramics, therefore, <u>further study</u> might include looking at differences in engraving practice abroad.

   The value of working with primary source material is apparent in this research.[368] This has allowed me to cross-reference the primary source material with the interviews, ceramics products and most importantly, the current literature. An advantage that I have gained over the publishers of previous works is the unlimited access to the Spode archive in its entirety. My position as a trustee of the Spode Museum Trust has enabled this access and my networking within the industry has allowed for privileged contact with people who worked in the pottery industry.

[368] Having conducted large-scale unwrapping and sorting within the archive, I have discovered that the archive is not a complete record of the factory's transferware output. However, within over 40,000 pieces, it offers a representative exemplar of styles, techniques and production plates across the factory's life (1784 - 2008) and of the work undertaken by the engravers.

Another finding is that Spode's was seen as the best engraving in the industry. This reputation may have been a factor in the continuity of practice, shunning innovations. It may also have necessitated perpetuation of practice through apprenticeship. Someone with pre-existing experience would need re-training to work at Spode. Although it has not been strongly emphasised in the thesis, aspects of engraving that contributed to "Spode-ness," have begun to be uncovered. These contribute to our understanding of factory-level design where the individual hand had to be sub-ordinated to a "house style." This touches on debates about authorship.

Literature on Spode transferware (Drakard & Holdway, 1983 [2002], Copeland, R. 1980 [1993]) has focused on the single firm rather than its wider industrial context. While providing useful information of tools, techniques and pattern design, this literature provides little industrial context. The study of a single copper-plate (Chapter Five Highlight) and an assemblage of tissue pulls (Chapter Four Highlight) engraved contemporarily to Spode's works at two different factories has allowed important comparative insight into themes, tools used, techniques and skill levels. This adds valuable context within the transferware industry.

2. APPRENTICESHIP:

Apprenticeship involves learning by doing, developing the coordination of hand, tool, eye and brain. The interview evidence, such as Nancarrow's "just clicked," and other findings support existing theories around tacit knowledge, and add further examples to elucidate development of craft skills [contribution to knowledge]. The study of apprentice plates adds to our knowledge of the training mechanisms at various stages of the factory's life and is further evidence for the preservation of the remaining archive in its current entirety.

The personal apprenticeship investigation facilitated a greater understanding of the tacit nature of skill acquisition through observation, listening, interpretation and the haptic encounter of the material nature of a craft. Closely working with an established practitioner promoted the generation of collaborative knowledge that is often absent in academic research.

3. PROCESS:

   [Findings] With the development of the punching technique at an earlier stage than previously credited, the two major processes for engraving at Spode were set for the next 200 years. The innovations that were accepted were to do with speeding up the transfer process rather than the engraving process itself, such as the Murray Curvex machine. The one exception was the introduction of roller engraving. Due to the disappearance of the roller archive, study of this important development was curtailed. However, this argues for the importance of the archive, and exposes the threat posed by being constituted of metal with intrinsic value. The rollers were more threatened than the plates because of the increased weight of copper contained. Understanding and knowing how to read a copper-plate was a focus of this research; this facilitates greater understanding of the role of the engraver, archival practice and relative continuity of practice in the industry. Greater understanding of the scale and pace of change at Spode, and the surprising level of continuity, <u>contributes to our historical knowledge</u>, posing new questions about the importance of innovation within industry [contributing to the debate about innovation].

4. ARTISTIC STATUS:

   The engraver's role was not that of a designer, but rather an interpreter of design; a translational role. The results had to be in keeping with "house style" so to suppress the individual hand to some extent. On the rare occasion when something different was attempted, for example the commemorative portrait (Chapter Four "Authorship" and Chapter Six Highlight), the work was signed. The assignment of 'multiple authorship' as a way of understanding the journey of images of transferware patterns has been a key outcome of this research. Creativity was supressed along with individual authorship, although there was a degree of confined autonomy within which an engraver operated. Interpretation that generated handmade translations is a phrase that far better defines their role rather than that of expressive freedom. These findings <u>contribute to the historical debates about artist versus artisan, the role of the engraver, and add nuance to more recent understandings of authorship</u>.

5. CASE STUDIES:

The case studies helped to develop and demonstrate the use of diagnostic details that allow the "reading" of information from copper-plates. Such diagnostic techniques contribute to our understanding of investigative methods for object-based research, to connoisseurship studies, and to an appreciation of materiality in research. Despite changes in other industries, transferware engraving had relative continuity with only three main changes; punching[369] introduced, engraving onto copper rollers[370] and engraving for Murray Curvex printing.[371] The two case studies based on archival material have enabled the presentation of evidence to establish that transferware engraving had relative continuity with only three changes in two-hundred and twenty-four years (1784-2008).

6. ARCHIVE:

   The preservation of the archive involves issues of security, not just making it available for study and pleasure. Surrogates are seen to have an important role in assuring preservation while ensuring an acceptable route for routine access. The findings related to surrogate provide further examples that contribute to the debate about preservation surrogates within the museum, library and archive fields. Having conducted investigation into the best methods for the creation of digital and material surrogates, it has been established that photographic recording of the copper-plates, carefully set up gave the best digital results. Further investigation with a digital microscope allowed for additional insights. Mould-making facilitated the development of a material surrogate that could be used as a display alternative to the precious original copper-plate. Fine art paper printing was the only method that permitted the recording of information from worn or damaged copper-plates. This research aims to facilitate the creation of a digital archive (Conway, 2011) for the Spode Museum Trust to aid further research in this field.

FUTURE RESEARCH:

[369] Engravers predominately used two techniques; engraving with a graver to cut lines and using a punch and hammer to create dot or circles.
[370] In the mid-nineteenth century, patterns were engraved onto cylindrical copper rollers to be used in roller printing machines in an attempt to mechanise and speed-up the transfer-printing process.
[371] In 1951, Guy Murray patented a machine (developed at Spode) that took prints from hand-engraved copper-plates using a gelatine bomb rather than the tissue paper that had previously been used. This sped up the production and removed the need for the printers and transferrers.

The microscopic investigation has shown that there is much more information that might be uncovered by going beyond unaided visual examination. For example, with sufficient magnification it might be possible to study the shapes of different engravers' characteristic groove-making. Each hand will have a different tendency to rock from side to side, or start/end distinctively. Further microscopic work might even be able to identify individual hands. This shows the importance of retaining the copper-plates in their entirety, even the apprentice work. Survival of the archive will ensure the ability to pursue new and more detailed questions with the advancement in techniques of investigation.

Material surrogates (moulded facsimiles) have potential as a display replacement for a valuable copper-plate. More facsimiles are needed to be made and tested in a museum environment and assessment made for their realism and practical usage. The use of the material resin facsimile as a demonstrator tool also needs further investigation as its lifespan is determined. If these resin facsimiles are to be made, further evaluation needs to be made as to the impact of using silicon moulds upon the copper-plates.

Design department records, while difficult to find in this archive, needs further investigation in other archives, including those Paul Scott looked at in Europe. Evidence of the step between source and engraving may exist in other archives and the examination of this key step will further add to our understanding of the journey of images from source to engraving.

A more detailed understanding of the relationship between the Chinese export wares and the British potteries that copied their wares is needed. Not only does this include identifying the specific sources, but understanding how these were acquired by the British ceramic manufacturers. Potteries that had a link with London appear to be at the forefront of this adaptive trade and the existence of Chinese shards at factories such as Spode needs greater investigation.

Finally, one particular phrase that has stuck with me throughout this research, and will continue to do so, was taken from the Fred Taylor interview, in which he profoundly notes:

> "Apprenticeship is for life".

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