

The Physicality of Print

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Abstract

Printmaking within the applied arts is an extremely diverse practice that can extend the concept of what a print can be. Rather than the dissemination of published images and text, in this context printed information is transformed into objects and materials, ceramics, textiles, tableware, clothing. Prints such as these are not 'reproduction' they are 'production'. Process is crucial to both printmaking and the applied arts and the determining aspect of production plays a vital part in defining the qualities of a work such as print-decorated ceramic objects. To work with a printmaking process in this sector requires interpretation, predictive foresight and a degree of 'thinking-through-making' to transpose an image into the physical world of materials and objects.

Printmaking, specifically within the ceramic discipline, is often plagued by issues of integrity brought about by problems relating to 'division', these issues include: -

- The physical divisions between image and object
- The divided tasks in production that can disrupt thinking and making
- A division of perceptions surrounding the surface/form relationship that considers the surface as supplementary or artificial

Commercial production has developed approaches and techniques to integrate surface and form, combat these negative perceptions and raise the value of this type of work. These methods are not, however, always appropriate or accessible to individual ceramist-printmakers working in the studio. How can this sector overcome these negative factors and adopt strategies that invest some value of visual integrity within production?

The research project answers this question in two ways: A low-tech, accessible method was developed in the studio with the aim to offer a new practical approach that physically integrates complex ceramic forms with the

printed image. The aim was to facilitate this unity at an early 'raw-clay' stage, where the combined manipulation of surface and form can take place together, resulting in an aesthetic that has 'visual integrity'. The second aim of the research has been to identify the inherent qualities of working and thinking 'within' the language of ceramics and print materials and processes. 'Syntactic' qualities and factors have been determined through research into historical innovations and the observation of current commercial practice in the field of screenprinting and screenprinted ceramics. This has helped to establish approaches to overcome negative factors relating to the perception of division, and invest integrity in the work through principled approaches to practice.

The project adopts a methodology of 'thinking-through-making' where iterative studio experimentation is undertaken through tacit understanding, gained from experiential knowledge combined with research of contemporary and historical precedents. This approach is reflected upon and informed by writers who discuss working within the inherent language of printmaking.

The research contributes to the advancement of knowledge through the development of a new versatile technique that can be easily accessed by ceramists and printmakers who wish to produce integrated ceramics and print works. This contributes to the advancement of technology, perception and knowledge in the field of printed ceramic objects. My approach and the development of a value system also offers a tool to further the critical evaluation of printed ceramic objects in both the studio and in commercial production. This is of value in a field where there is only limited critical analysis of the formal relationship between the printed image and ceramic object.

I have used the results of the research to produce a body of finished artefacts that are expressions of, and embody the aims of, the research: to create 'visual integrity' within printed ceramic works.

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There are a number of libraries, archives, prints and drawing rooms around the country in which work very knowledgeable, helpful and patient staff that I would like to thank for there help in finding my way through 'stacks' of relevant and irrelevant information.

I would very much like to thank the generosity of the staff and commercial companies who have put time aside for my research within their production facilities including the management for allowing my visits. I am particularly grateful to those staff whom I determined as central to the investigation of the specific role that I have termed as 'Interpretative Mediation'. They include May

Garton at Royal Crown Derby, Tony Venables at Johnson's Tiles Ltd, Martin Norcup at Wedgwood and Denise Brown at Denby.

The thesis builds on 25 years of information and experience that has been informed and contributed to by many other people along the way. I would particularly like to thank the people who taught me my first trade, supported me and offered opportunities to screenprint textiles. I would also like to acknowledge the personnel who I have worked with that have fixed views on technique who said 'you can't do that', for giving me the curiosity and self-determination to prove them wrong and find new approaches to practice.

Author's Declaration

1. During the period of registered study in which this thesis was prepared the author has not been registered for any other academic award or qualification.
2. The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

S. Brown
January 2011

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Introduction

Context of Research

I am an applied art printmaker: In my practice I combine printmaking with applied art materials and processes, textiles, ceramics, glass, concrete and metal. Working in this way determines that print has a relationship with the physical world through materiality and the surfaces of forms. This often means that the aims, results and perceptions of what a print is are very different to those in other print fields such as publication or fine art printmaking.

In this context one can pose the question 'what is an applied art print?' In writing 'Print in Fashion' Marnie Fogg discusses the differences of working with printmaking through her specific discipline of textiles. 'Textiles are designed and printed on the flat, but they have flexible contours. The whole point of textiles is that they become three-dimensional, whether they are on the body or on a sofa or a pair of curtains.' (Fogg, 2006. p.85) With this type of printmaking the 'image' does not relate to the dissemination of 'information', as in a printed book, but instead engages with the physical world of materials and forms. In the case of textiles the inks may be designed to react with the cloth and go on to be formed into complex shapes. I have 12 years experience of working in the area of printed textiles. The relationship that I have found the most compelling over the subsequent decade, however, is the combination of print with ceramics. This fascination is due to the great potential for transformation offered by the physical properties of ceramic materials offered, both in terms of manual manipulation, and the change of state produced by the process of firing.

Applied art screenprinting is a practice where the results are dependent on a number of factors determined by the following. The relationship between the visual intention¹ of the designer interpreted through the principles of the process, combined with the qualities of the materials used as 'ink' and as 'substrate'², and any further processing such as firing needed for vitreous printmaking on metal, glass and ceramics.

I left commercial textile production in 1998 to pursue combining printmaking with other materials, eventually focussing on vitreous materials and particularly ceramics. The issue of surfaces and visual integrity becomes compounded and complex when working within this discipline. With the example of clothing the print is made directly onto the flattened textile and becomes a part of it, the dyes often saturating it and migrating through to the other side of the fabric, after which the material can be easily constructed in such a way as to fit closely to our body. The image/material composite is flexible and so inflects the movements of our body. The relationship between ceramics and the printed surface is very different from this, with the convention being to turn the plastic clay into fired, 'fixed' ceramic form before applying an indirect transfer print to it. By adopting this approach the 'fit' between surface image and the underlying form is worked out and large numbers of repeat cast objects can be decorated with large numbers of repeat printed surface images. Whilst this model for production works well it is prone to a number of problems.

¹ See glossary

² See glossary



Fig 1. Transfer decorated and over painted sauce-boat by Spode 1815

The image above is from the Victoria and Albert Museum's ceramic collection and illustrates one of the issues of working with this approach to decorating ceramic surfaces. The printed image is not designed to have any particular visual relationship with the underlying form. The result of this is that different panels do not form a cohesive whole and the image ends and begins inappropriately.

Regardless of such miss-fits and other poorly designed work, this approach has served the ceramics industry well, especially in the area of tableware production where, as we will see later, efforts to raise the qualities of this relationship have been made. I have over time come to question the conventional approach as being too rigid and am increasingly fascinated with the idea of extending the potential for combining the printed image and ceramic form at an earlier stage. I want to somehow 'clothe' the clay with imagery in its earlier adaptable 'clay' state, where the print can be combined and manipulated together with the form to create a greater degree of visual integrity.

Some attempt has been made to do this by studio ceramists such as Les Lawrence (Scott, 1994) and Stephen Dixon (2005), and both use approaches that apply print onto flat clay panels at a stage where they can be manipulated and joined to produce form. This way of working is, however, extremely limited and the printed surface is likely to be easily smudged, in addition there

is very little sculptural manipulation that a clay panel can be subjected to before it tears.

The negative issues that I have briefly outlined above find common ground through the term 'division'. There are 'visual divisions' such as those between the original idea for an image and its printed version and also 'physical' divisions between the flat two-dimensional print and its application to complex three-dimensional forms. If we look at production itself we can see obvious 'divisions in the social configurations' that punctuate tasks within production. At the heart of the project is the material and process divide between the disciplines of graphics, ceramics and printmaking.

Research Questions

The issues mentioned above are the motivation for my research project and pose a number of questions such as: -

- 'How can a greater sense of visual integrity be achieved within the production of ceramics and print artefacts?'
- 'How can the two-dimensional flat printed image and three-dimensional ceramic object become better integrated and achieve a more balanced perception of value?'
- 'How can the acts of thinking through making be sustained to provide creative continuity, extended throughout the complete process of ceramic form and printed surface production?'
- How can I overcome the inherent divisions within the ceramic and print process?
- What can I do to bring about a unified perception of printed ceramic objects?
- How do I evaluate some sense of 'visual integrity' within this type of production and the objects that result?

Contribution to the Advancement of Knowledge

Whilst this is a practice-based project that is focussed upon problems and outcomes worked through my own studio practice, the strategies and methods that result from this research will be of benefit to the disciplines of both printmaking and ceramics and the inter-disciplinary combination of working between the two.

My specific contribution to the advancement of knowledge centers on the development of a new versatile technique that can be easily accessed by ceramists and printmakers who wish to produce integrated ceramics and print works. The aim of developing this new process is to physically combine the printed surface and form from the beginning of the 'making' stage where the clay can be manually manipulated. This contributes to the advancement of technology, perception and knowledge in the field of printed ceramic objects.

My approach and the development of a value system also offers a tool to further the critical evaluation of printed ceramic objects in both the studio and in commercial production. This is of value in a field where there is only limited critical analysis of the formal relationship between the printed image and ceramic object.

In addition there are various methodological strands and approaches in this project that offer new insights to the field, such as: -

- The generation of a process that creates a model for a continuity of thinking-through-making throughout the entire production process, offering a precedent for an alternative to prescriptive models where initial design work is adhered to throughout production.
- The research offers a model for the re-appraisal of existing, historical or redundant techniques. This is of particular value in the context of

contemporary events in the ceramic discipline that have seen UK production closing down to move overseas, the closure of many ceramic courses in education and the rise of new digital and Computer Aided Design / Computer Aided Manufacture technologies. All of these have impacted on the continuation of use and knowledge of existing technology.

- The research offers a model for innovation through cross-disciplinary experimentation

- The research offers to extend the idea of what a print is? in the context of 'applied art printmaking'. This new process of three-dimensional printmaking offers an accessible, alternative, low-technology approach to the current digital versions that are fast becoming conventional, such as stereo-lithography³.

³ See glossary

Research Methods

Stencil/screenprinting has been identified as the most appropriate technology to answer the research questions for two reasons: My advanced experience, skill-base and knowledge of this technology and the innate relationship the process has with both materials and form. These are vital elements in the relationship between print and ceramics and are at the centre of the research questions.

A number of strands of research were employed. Information gathering and analysis were undertaken alongside to the practical, experimental studio developments in order to feedback and create a loop where one informed the other. Information fed into the studio to influence practical developments and this practice determined further areas for gathering research information.

I undertook a scholarly review of a number of aspects of the stencil/screenprinting process focussing particularly on information on technological and interpretative relationships between: image and print, image and materials, image and form. Historical information informs my awareness of the cross fertilisation of interdisciplinary developments of the stencil/screenprinting process gathered from industry periodicals and publications accessed at the St Bride Printing Library in London. In addition to this, first hand contact with other historians and researchers such as Elinor Noteboom (1992, 1993) in America, Guido Lengwiler (2011) in Switzerland and the thesis by Dr Alan Swale (2008) in Stoke-on-Trent have been very useful to build upon.

Observation and analysis of historical objects was conducted through fieldwork at the Victoria & Albert Museum. The objective was to gather visual information from a breadth of historical precedents in the fields of stencil/screenprinting and printed surface decoration on ceramic forms. This research contributed to my wider understanding of the variants of the

technology specifically focussing on the close relationship between print in combination with materials and forms. The observation included both finished artefacts and the tools of their production, stencils, instruction manuals and works-in-progress. These observations also helped me to form a picture of the interpretative strategies necessary in working with printmaking in general and particularly when applying this process to ceramic materials. Other observations have come from records and collections such as the Peggy Angus archive in East Sussex, the British Museum Prints & Drawings Room and the Capper Ratauld Ltd archive of ceramic transfer prints at Stoke City Library.

Fieldwork was also a method applied in a number of visits to commercial production facilities in and around Stoke-on-Trent. This involved unstructured participant observation, informal interviews, discussion and process analysis, recorded through notes and photography. The aim of this strand being twofold; to identify the personnel involved in the interpretative role of mediation within the social configurations of production discussed in chapter three, and to observe and discuss the technical details, strategies, issues and results of this role.

The studio-based research moved through a number of phases beginning with a practical evaluation of the current convention for this type of production, applying experimental approaches to redefine the existing process and bring it in line in order to answer the relevant research questions. Then followed the development of subject matter drawn from the inherent determining qualities and characteristics of the process. After, which I defined, produced and exhibited a number of finished artefacts that are expressions of, and embody the aims of, the research.

A basic value system was developed through the thesis in order that the development of the studio work would progress with some level of 'principled' integrity. This involved determining and following rules and fundamental

principles and establishing the elements that contribute to form a 'language' of the process that have evolved throughout a history and variation of use. The different strands of the research all fed into this system and the practical developments were built within and through this language.

Dissemination through presentation of conference papers provided opportunities for peer review/feedback, and exhibition of finished works facilitated opportunities for public response. Feedback was not specifically recorded nor is it reported in this document, but the reception of the ideas presented afforded reflection on these issues and contributed to changes between drafts at a crucial stage in the writing up of the research

Existing Research In This Area

I have conducted a search of the field of both ceramics and printmaking separately and also as a combined, inter-disciplinary subject in order to establish what other research is being or has been conducted in this area. In terms of the questions outlined above there is no other project dealing with these specific issues and there is a gap in knowledge in this area.

There are projects that focus on different aspects of the field such as the Doctoral research, entitled 'Ceramics Landscape Memory and Confection' conducted by Dr Paul Scott at Manchester Metropolitan University (2009). For this project Scott, a well-known exponent of ceramics and print, examines the subject matter of printed ceramic imagery. Another PhD project by Dr Alan Swale at the University of Wolverhampton (2008) focuses on historical research. Swale gives a rigorous and focussed account of the early developments of the screenprinted ceramic transfer process at the commercial company Capper Ratauld Ltd.

Other research has looked at technical innovation. One such example is that undertaken by Dr Kevin Petrie at the University of the West of England (1999). This PhD project developed a new water-based transfer system with the aim of making a safer, solvent free version of the existing system. This project makes an adaptation to the conventional system for health and safety objectives.

There are a number of other print related projects that have been produced in association with UWE due to their focus on the subject through work undertaken at the Centre for Fine Print Research. The most significant recent research relates to a large AHRC funded project 'The Fabrication of Three Dimensional Art and Craft Artefacts through Virtual Digital Construction and Output' (2010). Two of the objectives of this project relate to the use of print in producing ceramic form and in integrating colour imaging. While the project

moved these aims forward, in the words of the conclusion, 'the controlled integration of surface colour in ceramics requires a lot more work' (Hoskins 2010). This research at UWE offers a parallel to my aims of integrating the printed image and form and serve to validate the value of my undertaking this research project. My objectives differ from this project quite distinctly, because I am developing an approach that is accessible for the ceramist to adopt with very little need for technology, and one that allows maximum manual intervention at all stages of the process.

Outline of Theoretical Framework

The theoretical framework for the research is established through a number of sources that contribute and build over the course of the written element with the aim to describe, support and discuss the intuitive, experiential approach to my practice that I term as 'thinking-through-making'. This approach is necessary for overcoming the problems determined by my experience of division in the field of ceramics and print, and involves building in a methodology that embraces continuity and integrity in my practice.

To work in this way requires me to undertake intuitive, experimental research in the studio supported and fuelled by a parallel investigation into the principles and factors that contribute to the language of the process. The objective of both strands of the research is for me to be able to tap in to the inherent qualities and characteristics that are fundamental to these methods in order to facilitate two outcomes: The further development of the existing screenprinted ceramic transfer process with the aim to integrate the print and clay material at an early stage where a combined manipulation can occur. Secondly there is an objective to create an understanding of the inherent language of working 'within' the process in order to generate a perception of integrity through adherence to this language.

While some aspects of these developments can be made transparent, the intuitive thinking has to be framed using a different approach. This is the element that is framed by the theoretical writing through contributors that focus upon aspects of thinking 'within' and 'through' the making process.

In the context of printmaking, and specifically screenprinting, there has been a continuous lineage of writers dealing with the idea of an inherent language of the print process. This has been discussed through the notion of the 'syntactic' nature of this type of production. These references frame the value

establishing of an internal language accessed by working within the print process. Walter Benjamin begins this discussion broadly with the idea of the 'aura' of 'original' works of art in his publication 'Art in the Age of the Mechanical Reproduction' (Benjamin, 1935), which has implications for subsequent writers. The printmaking historian and critic William Ivins' (1953) is the first to term and discuss in depth the idea of a print 'syntax' influencing the original work by filtering it through a different process language. Finally Pat Gilmour (1978, 1980) relates this discussion specifically to screenprinting and how artists recognised and exploited the elements of this language in order to make 'original' prints by conceiving the work 'through' the process itself.

Henri Focillon's (1934) publication 'The Life of Forms in Art' adds to this theoretical framework through his parallel views that materials and processes contribute to determine aesthetic results, and that artists can work within these factors when making work. Focillon's writing is used to make transparent the intuitive, tacit process of thinking through making. In addition his text provides an understanding of the idea of 'transposition' a concept that is also inherent within printmaking. Transposition describes the changes from idea to image, print to form and is extended to extremes by the act of 'firing' clay, which determines the transformation of states from flexible to fixed, and from plastic impressible clay to brittle ceramic material.

The exegesis supports and feeds the studio-based approach of working through the language of the materials and processes of ceramics and print to develop a new technique for integrated practice. The writer on decorative design Lewis Day (1904) plays a small part at this point in adding to the theoretical framework through his idea of 'allied processes'. Day's notion of the cross-fertilisation of disciplinary materials and processes practically echo Focillon's concept that forms of art are constantly in flux, crossing over and affecting one another. This approach frames the inter-disciplinary influences

that provide the impetus for my developing a new way of working by considering the use of materials 'allied' to my requirements.

With my technique established the same approach of working within it is used to draw out subject matter 'through' the inherent language of this new process. Focillon's ideas continue to frame this phase, and other relevant writing on 'states' (Parshall et al. 2001) is included in looking at this term as used to describe the intuitive continuity of the working through of 'print states'. A more important influence on the emergence of content (through making) is provided by the idea of being 'between states', a factor of inherent importance to the notion of the 'grotesque'. Geoffrey Hart Galtham (1982) is referred to through his treatise 'On the Grotesque', which frames and supports the final works.

Chapter Synopsis

The purpose of the exegesis is not just to document the technical and studio developments undertaken to overcome division, but also to discuss and provide some access to the immeasurable aspects of intuitive, creative 'thinking-through-making' as a methodology for resolving these issues.

In the first chapter I discuss in detail the nature of the problems and negative factors that I have encountered when working with ceramics and print, linked to the idea of 'division', followed by discussion of a strategy for overcoming these issues centred on the antithesis of this term: 'integrity'. This term relates to, both, the development of a technique for physically joining ceramics and print and also to the development of a perceived value system achieved through working 'within' the internal logic of the materials and processes of the technique: thinking through making. The second section of chapter one continues to explain this idea of 'thinking-through-making' and how it is used within the thesis as a methodology to overcome divisions in the making process. A theoretical framework is introduced to underpin the value of working with this approach, bringing into the project ideas relating to working within the language of process espoused by a number of authors writing on the subject.

The objective of the main body of research in chapter two is to focus on establishing the main principles of the stencil/screenprinting process and build an understanding of some of the more appropriate 'syntactic' elements of the materials and processes used. This research is undertaken in order to demonstrate the qualities of the inherent language of screenprinting, an understanding of which can be used to think through the process more effectively. Chapter two closes with three such case studies from contemporary commercial ceramics and print production that explore the idea

of 'active' qualities, unique to working in this field. Specifically the cases focus on: the 'transformative aspect' of ceramic colour chemistry, 'raised' physical textured prints and 'reactive' prints. This is intended to demonstrate how this type of applied art print necessitates an advanced understanding of the physical material qualities and the processes involved in order to assert some predictive control over their use in production.

The idea of predictive control is taken forward in chapter three where the metaphor of a process language is extended to discuss the role and strategy of 'interpretation'. The transposition of an idea into a graphic, then into a print and finally into ceramic materials is considered through a number of examples that focus on interpretative thinking through the process. Initially this looks at reprographic strategies for working within the language of stencil/screenprinting. We begin to follow developments of this role from very early examples of instruction manuals and publications demonstrating interpretative thinking and direct methods that allow a more integrated approach to making prints. We then move forward to discuss how technological advances, that have become the contemporary convention, have made the process more complicated and less accessible, therefore interpretation of a more specialist role. The review finishes by turning from reprographic interpretation to surface design interpretation and the challenging dialogue involved when trying to marry a planar printed image to a complex three-dimensional object.

Chapter three closes with a case study that looks in detail at this interpretative role, once more focussing specifically on the core area of ceramic and print production. This reveals what happens when interpretation takes place within the distinct social configurations of large-scale production, the task of creating continuity by 'mediation'. The chapter aims to demonstrate how interpretation and mediation are vital aspects of the thinking-through-making approach that create continuity and integrity with an holistic understanding of all aspects of

the materials and processes involved. These factors aid work between the graphic and printmaking disciplines and further into the ceramics discipline.

Chapter four focuses on my practice-based innovation of the stencil/screenprinting process that aims to overcome the divisions described in the earlier chapters. It begins by explaining how the holistic approach to researching the stencil/screenprinting processes led me to adopt and adapt materials and processes from areas 'allied' to the field. It goes on to describe and clarify the intuitive, interpretative, tacit decision-making process that took this idea and then worked it into a fully realised system for integrating ceramics and print. The second half of chapter four focuses on identifying and drawing out thematic content from the syntactic results to create works that have both visual/physical and perceived values of integrity.

In the conclusion we return to the aims of the project and compare them with the results, after which aspects or areas of further research are determined and discussed.

Chapter 1

Division, Integrity & Thinking Through Making

Issues of Division, Within Ceramics & Print Production

In the introduction I outlined my observation that the practice of ceramics and print is beset with issues of division. Over the course of the first section of this chapter I will explain what I mean by this term, its issues and how they impact upon production in the field of ceramics and print. The aim is to convey my motivation for undertaking the research and in doing so I do not intend, at this point, to explain technical details of production but to lay out the issues I face working in this field. After describing these problems I shall explain my strategy for addressing them.

I'd like to begin by focussing on issues within printmaking in general. Frank Getlein writes in his 1964 publication, 'The Bite of the Print', of the indirect nature that separates the different stages of production a printmaker encounters. 'They work in reverse; they create obliquely; their processes of production stand always at one or more removes from their product.' (Getlein. 1964. p.14)

Rather than producing a drawing directly onto the page they work indirectly onto a wood block, metal plate or some other matrix that serves as a carrier for the image. These 'removes', inherent to printmaking, act to divide the process into stages impacting on continuity and immediacy in the act of creativity. This 'oblique' approach has been problematic for artists who value direct autographic action such as painting and sculpting.

In his 1953 publication '*Prints and Visual Communication*' William Ivins describes how Fuch's celebrated herbal was published in Basel in 1542. Ivins suggests that this 'is the first specific statement of the fact that the drawing on the block was not made by the original draughtsman but was a revised

version of his drawing made by a specialist whose business it was to draw with lines that were suitable for their technical purpose.’ (Ivins, 1953. p.44) This example from the early history of print publication illustrates a further divide between ‘thinking and making’ in print production, the division of roles. Printmaking at this time was undertaken by hand and the ‘original⁴’ image, instead of being a result of the direct intentions of the author, would have been changed by the personal choices of the technician. This could be considered as a ‘remote’ way of working, and control over the original aesthetic intentions was ‘divided’ from the results.

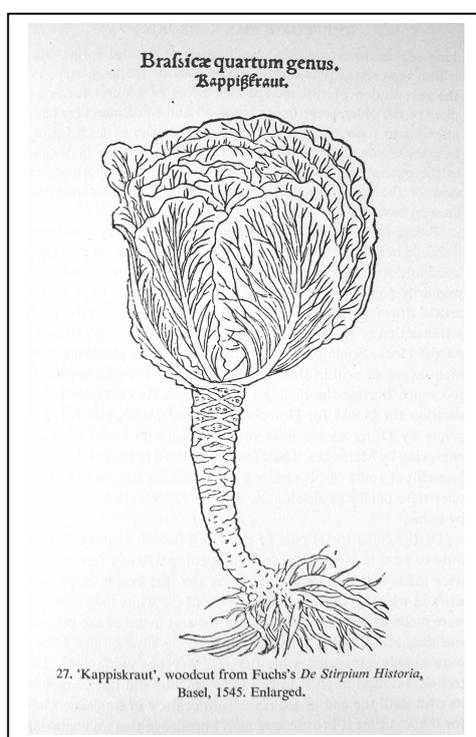


Fig 2. Fuch's Herbal -
*De historia stirpium
commentarii insignes.*
1542

Alongside the issue of personal adaptation, the ‘nature’ of the process and the materials used would have also contributed to the final aesthetic. A wood block must be cut in a method sympathetic to the material’s qualities and limitations. This factor would have required skilled, experiential knowledge of the process and materials to allow for the impact of these inherent characteristics. Without this understanding the original image author, in this case Fuch’s, was reliant upon another practitioner to express his ideas in a new medium, a factor that would remove him from direct involvement. In the

⁴ See glossary

context of large-scale production these separations can be further extended within the model of a division of labour (Smith, 1776) that has been widely adopted to facilitate a cheaper and more rapid output of mass-produced goods. Production in this context is separated into a large number of different roles creating division that stretch from the personnel involved in creating the original design, to those working on its final production.

These two examples offered by Getlein and Ivins describe two aspects of division encountered when working with print processes, and at this point it is relevant to make clear the distinction between them. The ‘removes’ which are described by Getlein relate to the division that is a result of the fragmented production tasks inherent of using printmaking. The discussion of Fuch by Ivins concerns the social divisions that are a product of the potential for using the fragmentation of process as a more expedient production strategy. These two aspects of division are closely connected and it is at times relevant to discuss the division of labour to explore the issue of disruption effected on creative thinking within production, or to highlight the issues of working with divided tasks.

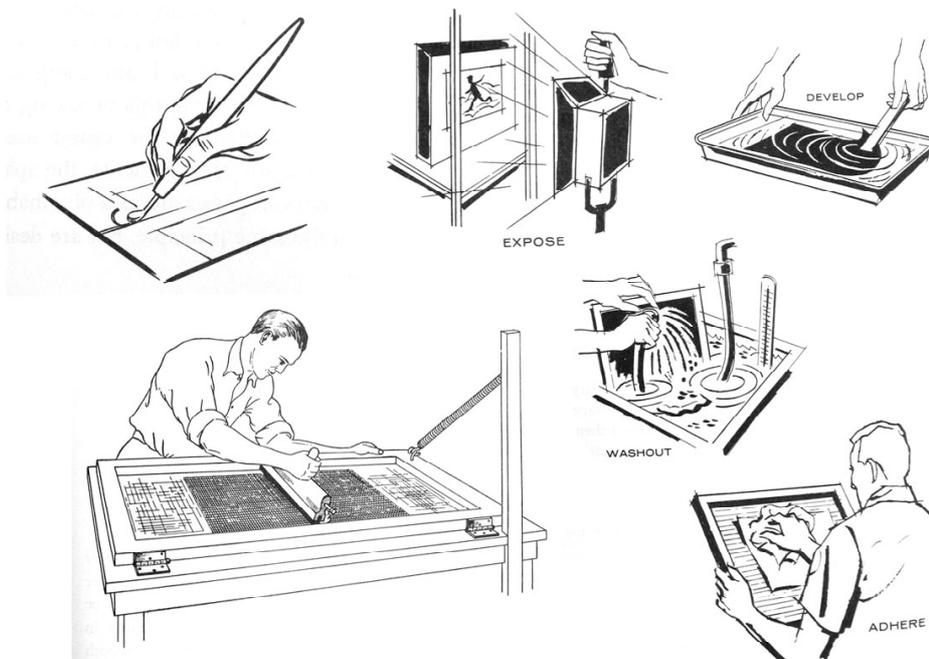


Fig 3. Tasks involved in making a screenprint

In my own specific area of the printmaking profession, screenprinting, there are a large number of different tasks that have to be undertaken in order to take an image and prepare it for printing. I will discuss this in more detail in the next chapter, for now it is enough to list the many activities that are often divided into different roles. These are distinct tasks such as, design origination, colour separation, film production, screen making, ink mixing, sample printing and production printing. This divided approach to labour is also common in most areas of manufacture including the production of ceramic goods. The manufacture of a ceramic object is split into many different process stages from design origination to model making, mould-making, casting, firing, glazing, re-firing and decorating. Often these divided activities can be broken down into further stages. The major issue for my research, within this list, is the position and relationship that decorating has within this line of production. Of all the divisions within ceramic manufacture the most defined is the separation between the print-decorated surface and ceramic form.



Fig 4. The division between surface and form within ceramic manufacture



The issues of interpretative practice discussed in the case of Fuch have become more extreme as technology has progressed. With the field of reprographics⁵ developing processes such as tri-chromatic colour separation⁶ in the latter half of the 20th century, and more recent innovations through digital techniques, the potential for the division between thinking and making

⁵ See glossary

⁶ See glossary

is exaggerated by the complexity of the technology involved. This can have an adverse impact on creativity, as process becomes embedded, divided and 'hidden' from human intervention.

Digitally aided production has spread into many areas of printmaking including ceramics. Recently Johnson's Tiles (Visited Nov 2008) constant search for new processes has led them to become the first manufacturer in the UK to employ digital ink-jet printing of under-glaze full colour imagery directly onto tiles in large-scale production. Once the system is calibrated, scanned-in marble surfaces can be reproduced at such a quality as to be indistinguishable from the real thing.



Fig 5. Left - Digital self-calibration and print fired onto ceramic tile
Middle & Right – Scanned and digitally printed tile complete with a blemish that was present in the natural marble version. This is Photoshop-ed out for production and represents the minimal design decision making that is necessary for this type of print job

This approach to production renders many of the tasks of the original designer redundant, replacing creative acts with mundane operations such as scanning-in and cleaning up imagery. The shift has also had an impact on the print development team, who had been responsible for interpreting the imagery into the inherent qualities of the ceramic and print, materials and processes. In this case the creative act of thinking within making is an unwanted aspect of expedient production methods that ensure that reproduction of the original has little material, process or human voice to

contaminate or slow down procedures. The resulting 'marble effect' tiles are incredible copies of the slices of natural materials that they replicate and because the digital printer can be set to randomly 'choose' unique sections of a very large area of imagery, each tile can be different. According to Johnson's these reproductions often evade detection and are not distinguished from the real thing by the buyer (Johnsons, 2009). Though well reproduced, Johnson's marble prints on tiles could be described as fakes, imitations of real materials. The idea of printed reproduction can be seen as a procedure associated with artifice, through associations with the copy. It could be seen as sterile and false, a facsimile of the true original, especially in the context of a dehumanised production process. In his chapter 'The Lamp of Truth' in 'The Seven Lamps of Architecture', John Ruskin (1905) wrote of such 'surface deceits' reacting against the inappropriate painting of surfaces to represent some other material than that of which they actually consist. This was a line of thinking that latterly influenced the often quoted Modernist doctrine of 'a truth to materials' (Semper. 1851), which could be thought of in this context as the 'inappropriate' use of surface imagery disguising the 'reality' of those material qualities which lie below the surface. Examples of this are the wooden surface veneers that disguise a cheap material underneath or the gold plating of jewellery concealing a base metal beneath. The idea of deceit, which is associated with applied coverings, can be extended to include the perception of 'marble' prints applied to ceramic surfaces. Even very general perceptions of the 'surface' are often the pejorative, seen as a 'relatively thin, two dimensional, superficial, coating'. The surface has been associated with the façade, or a deception that as a surface 'effect' could be considered as 'artifice', dividing surface and form.

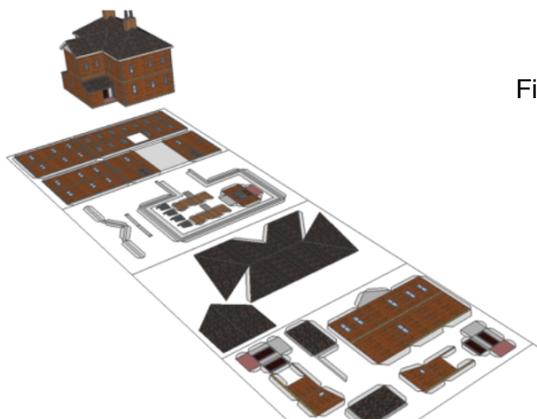


Fig 6. Print as 'façade'

In addition to direct digital printing techniques, digital technology has also advanced the production of in-direct transfer printing for ceramics enabling individual practitioners to design cheap one-off and small batches of transfers that can be applied to bought-in ceramic white-ware. The impact of this print revolution is to provide easy access to ceramic decoration but has also had the effect of removing technique from production, allowing designers with little or no material and process experience to decorate ceramics. In this context the divide between generating an image and the decision to apply it to ceramics usually requires little or no adaptation of the physical properties of the image to the underlying form or material qualities. The origination of the image is usually a distinct and separate act and application of it across a range of easily printable materials is often an afterthought. The 2008 book 'Fragiles: Porcelain, Glass & Ceramic' (Klanten et al, 2008) shows the recent proliferation of this category of printed ceramic objects with a whole chapter dedicated to 'Porcelain as Canvas'. Here the image dominates, and is often designed by a visual artist or an illustrator rather than a ceramic designer. The use of ceramics here is relegated to being used as a mere 'canvas' with no acknowledgement of its material qualities and often no dialogue with the form of the object.

Fig 7. Worcester Saucer 1765
With transfer printed 'picture' in
black enamel



The physical divide between the production of ceramic forms and surface prints is rooted in the practicalities of production. In large-scale manufacturing the ceramic form needs to be completed before prints can be added to it, an approach that adds to the suggestion of 'artificial' activity, removed from

spontaneity. The implications of this separation go further because the form often provides the function of the object, giving it a dominant role in the relationship. The application of a print to the surface is a secondary consideration and provides no obvious physical function, the form can operate without it, and as such the surface image is supplementary. Decorative surface prints can easily be replaced by manufacturers who put new ones on old forms to revitalise an existing product. This ephemerality of decorative imagery can further undermine the role of surface design in its relationship with form. These factors have evolved a hierarchy predominantly favours form design over surface design, while the wider perception of a decorative print applied to an object may have negative associations of being fake, attached to the surface like a cheap 'sticker'.



Fig 8. Decorative wood Veneer



Fig 9. Decoupage customised box

All of these issues can put obstacles in the process of thinking through making, which divide and alienate the original intention. They are negative factors that are more apparent when working between two disciplines such as ceramics and print, each with their own inherent qualities, and issues that need to be sensitively integrated when used in combined production.

Overcoming Division Through the Idea of 'Integrity'

If problems arise from issues of division and separation, then addressing them should restore 'continuity' and 'completeness' of thinking through making in production. A word that I have found significant in working through these issues, and one that has become an idea and an approach which represents its antithesis, is 'integrity'.

From the verb 'integrate', these words share a Latin root (etymology) meaning the 'whole' or 'entirety' of something. There are two definitions that describe my aims, the first is the undivided physical state of material wholeness, intactness, completeness and entirety (Cox, 2008). The second definition has developed an almost moral dimension, suggesting something akin to a value system based on qualities achieved through an adherence to virtue through continuity and a consistent framework of principles.

Applying these ideas to the research it could be said that the printed ceramic surface is perceived as having a lack of 'integrity'. This relates to both a 'physical' integrity, which is the state of being undivided, and a 'principled' integrity relating to the continuity of thinking-through-making throughout the process of development and production, and which maintains an 'appropriate' use of the printed ceramic surface.

The physical aspect of the term is relatively straightforward and relates to aspects of division that I have discussed, such as the physical separation of surface and form. A principled use of the term applies to dealing with the negative perceptions and associations that have arisen as a result of these physical and practical divisions.

These two aspects of integrity are entwined and two of my immediate questions highlight these links: 'how can the two-dimensional flat printed image and three-dimensional ceramic object become integrated and achieve

a more balanced perception of value?’ And ‘how can the acts of thinking through and within making be facilitated and sustained to provide creative continuity, extended throughout the complete process of form and surface production?’ The first question determines the development of practical strategies for the physical integration of the printed surface and ceramic form, which leads to a reappraisal of the associated value systems. The latter looks to divisions in production and suggests that there is virtue in developing continuity through both practical and principled means.

I have stated that the establishment of ‘principles’ can help to determine integrity of use, and it is important to briefly discuss my application of the word to this research. Once again definitions help me set down my use of the term. ‘Principles’ are an adherence to the fundamental truth or source from which something proceeds, a foundation quality or attribute that determines the nature of something: essential characteristic or character. Principles also determine elementary parts of a subject of study, and this combines with establishing fundamental truths derived from the source of the subject. As with integrity, there is also a moral perspective to the term that can be applied to actions or motives derived from such a set of laws.

To summarise the application of this term according to these definitions: my methodological approach relates to researching the fundamental elements of my subject and using them as guidance or motives for actions and decision making within my practice. This contributes to establishing a basic value system within my practice through an adherence to the fundamental sources (truths) found within the elements of the process and the application of ‘appropriate’ approaches to the field, according to these principles.

Returning to the idea of integrity I propose that in the context of this thesis, and aside from its practical/physical definition, it represents the ‘whole’ knowledge of the field. This suggests a holistic methodology that also works in antithesis to the issues of division that I have discussed.

Such an approach determines that I should draw the information that defines these principles from the 'whole' of the discipline. This includes looking at the breadth of practice and applications that range from historical precedents initiated by the pioneers of the process through to the observation of current commercial production in the field, allowing me an insight into shared principles. I also intend to look at the breadth of the different technical aspects of screenprinting from the more basic 'open' stencil⁷ methods through to hand and photographic methods. In addition the research will explore a number of different roles within the social configurations of production to examine the intuitive input of interpretation needed when production crosses disciplines.

The aim of this inclusive research is to: -

- Establish a guiding set of principles for working with ceramics and print to be used to overcome negative associations within the field

- Determine the ingredients to form a strategy and process for the physical reintegration of the printed surface and ceramic form

- Establish cases where a continuity of thinking through making occurs within the social configurations of production

- Use these guiding principles effectively and appropriately to adopt an approach of 'thinking-through-making' and produce a body of work developed through an adherence to the aims of 'integrity'.

⁷ See glossary under 'stencil'

Thinking 'Within & Through' Making

In this section I aim to explain what I mean by the phrase 'thinking through making', its relevance as a useful methodology for answering the questions I have posed, and its relationship to practice-based research as a mode of inquiry.

An appropriate metaphoric tool that can be used to explain the tacit, experiential activity of 'thinking-through-making' is to compare it to thinking through an acquired language. When we first learn a new language it is necessary to piece together the 'syntactic elements', such as the most appropriate words in the right order with the correct emphasis to communicate the idea successfully. In the next chapter we will discuss how print critics have used the term 'syntax' to discuss a language inherent in printmaking, and how these syntactic elements contribute to determining meaning themselves; qualities that have to be learned and worked with. As we become experts in our new language, be it French, a computer language or a musical one, we stop being aware of the thought process (Noë, 2009). Thoughts connect and flow more intuitively and this expert/intuitive level can be compared to the creative act of 'thinking through making' in studio-based practice.

Practice-based research is the most appropriate mode with which to undertake this enquiry because it offers me the opportunity to work within the process, change it, and reflect upon this activity, making new meaning through the written document.

Barbara Bolt (Barrett, Bolt, 2007, p27) discusses the importance of practice-based methodology in her essay 'The Magic in Handling'. In it she looks at how working through process allows new meaning to emerge through the focus on what she has termed as 'material thinking'. She refers to the work of Martin Heidegger who sets out 'to examine the particular form of knowledge

that arises from our handling of materials and processes.’ Bolt builds on Heidegger’s argument that we do not come to ‘know’ the world first theoretically through contemplating knowledge but rather, through handling. Bolt quotes Heidegger’s claim that knowledge emerges ‘in the involvement with materials, methods, tools and ideas of practice.’ (Barrett, Bolt, 2007, p.27) And this is true for my practice-based enquiry, I chose to begin by absorbing gathered information on the relevant processes, first-hand observation of them, their resultant artefacts, and through a simultaneous enquiry, build new meaning by ‘handling’ these tools, processes and materials. Bolt concludes in her essay that ‘praxical knowledge involves a reflexive knowing that imbricates and follows on from handling’ arguing ‘that this reflexivity forms the locus of practice-led research’s radical potential to effect movement.’ (Barrett, Bolt, 2007, p.30) Like Bolt, I feel that the theoretical reflection that articulates and frames the activity of ‘thinking through making’ is emergent and I will return to discuss it later at appropriate points in the thesis.

Shaun McNiff states in his discussion of practice-based research methods (Knowles, Cole, 2008) that ‘where science focuses on what can be objectively measured, art emphasises the unique and immeasurable aesthetic qualities’. My question as a practitioner is how do I explain the ‘immeasurable’ aspect of intuitive, creativity within this research? One method, as I have mentioned, is through metaphor and I have said that I find it useful to think of working ‘within’ a process as thinking about it having an inherent ‘language’. I have also attempted to create an understanding of the concept of ‘thinking through making’ relating to the idea that process is ‘alive’; has a ‘life’, and that this life contributes at many levels in determining the results of its use. It is by understanding as many aspects as possible of this ‘life’ that a practitioner can begin to work ‘with and through’ the process and that this approach will, in turn, lead to (the maintenance) of ‘integrity’ within practice. Henri Focillon (1934) provides the theoretical framework for this idea in his book ‘The Life of Forms in Art’.

Focillon (1881 – 1943) was an esteemed art historian working and teaching at various prestigious museums and Universities including the Sorbonne and finally at Yale in the United States. Best known for his works on Medieval Art he was also a poet and printmaker (as was his father) and in 1934 he published his treatise on art, 'Vie des Formes' (The Life of Forms). It has been said that Focillon was a 'formalist', and that 'he attempted to establish formalist principles of interpretation based on what he called "pure visuality" in antithesis to the analytic objectivity that dominated modern art historical writing' (Sorensen, 2000). In the context of art theory the concept of formalism defines that the artistic value of a work as entirely determined by its form, process, materials and visual qualities. A formalist approach to making artworks would broadly reject realism, content and context in favor of compositional elements such as line and shape, colour and texture.

Whilst Focillon's approach can generally be considered to be allied to this understanding of artworks, I don't consider his treatise to follow a strict formalist approach to understanding the development of works, his ideas are far more complex than this simple definition. He does not reject the context and content of the work but looks at these issues as a part of a dynamic system, where the 'manifold and stratified character' of the forms of art are determined by the realms of 'space', 'matter', the 'mind' and 'time'. The qualities that link him with formalist analysis are brought out from 'within' the life of forms, from intention through to production. It is this aspect of Focillon's writing that I relate my approaches to.

He uses 'forms' as a flexible term to describe the materials, processes and works produced through creative intent. By discussing the 'life' of these forms through using 'flexible and open models' Focillon offers his unique vision as an historian of their development. He suggests that '....deep within ourselves we know that time is a "becoming" (Focillon, 1934, p.139) proposing that:

‘Forms are always tending toward realization; they do, in fact, realize themselves and create a world that acts and reacts.’ (Focillon, 1934, p.127)

As an historian Focillon rejects the idea of a linear timeline of developments. ‘Always becoming’ and ‘tending toward realization’, he sees the process of creativity as a more fluid and interweaving activity, a state of flux where results are just one point or ‘protuberance’ within this whole life of forms. They ‘realise themselves’ he says, relating to the inherent determining aspects of the creative process, ‘creating a world that acts and reacts, in other words they are subject to nurture from external conditions, including us, as we are also subject to work ‘within’ the nature of their creative language. It is these ideas from Focillon on the determining influence of process and materials on the thinking through making process that supports my thesis. This way of thinking acknowledges that materials and processes are in dialogue with the artist in the development of work, and contribute to determine and influence practice. Focillon writes about the artist’s unique position: ‘his vision ‘(the artist) is within the forms’, he is able to think ‘within’ the inherent language of materials and processes; to have some inner vision, some foresight of the potential results and variations and this frames my idea of thinking through making.

Focillon understands the important determining nature of the materials, processes and results: ‘Forms never cease to live. In their separate state, they still clamour for action, they still take absolute possession of whatever action has propagated them, in order to augment, strengthen and shape it.’ (Focillon, 1934, p.127) This idea that a ‘form’ has a ‘life’ has been important for me in thinking through the textile/ceramic/screenprinting process that I have developed, which will be discussed in chapter four. In the context of this thesis, ‘form’ can be seen as the process itself, stencil/screenprinting, organic and ever adapting, ‘clamouring for action’, as we will discover, in the historical context of its continual development. This approach to thinking of the process as a live form renders all aspects of it valid. Historical precedents for its use

can be returned to, and processes 'allied' to its basic principles can be fed into the thinking through making process if appropriate and necessary for developments toward the specific criteria of the project. The idea of 'allied processes will be picked back up at the beginning of chapter four using Lewis Day's writing on the subject to offer some practical examples. Day also offers a strategy for integrating surface imagery with the underlying object by thinking about the way the form has been constructed, 'the constructional idea' (Day, 1904. p.267). This illustrates another way of thinking through processes that links to Focillon and what he describes as 'the law of technical primacy' (Focillon. 1934. pp.51,52). This law, Focillon tells us, was originally 'formulated by Louis Brehier' and relates to visual style following an 'inner logic'. As with Day, Brehier and Focillon suggest that an historical style is influenced by a dominant 'technique', 'that overrides other techniques and that gives the style its tonality'

He goes on to suggest that within this process there is adaptability and variation that see other factors vying for primacy, and may one day become the dominant influence. It could be said that in the limited confines of this project that I am trying to draw out these influences and develop a new style that will emerge from adapting technique and add a new 'tonality' to the existing process.

We will return to Focillon's writing in later chapters to frame my use of thinking through making and his thoughts on the life of forms. Forms, that when considered in the context of the creative process, feel tangibly alive with a vital presence, influencing and determining the artworks that result. They seem to become animate elements, we need to understand their natural history and tame them to work with us in order that we can think 'with and through' them. It is to this end that we will now embark on an exploration of the basic aesthetic principles and syntactic elements of the language of the 'life' of stencil/screenprinting.

Chapter 2

Establishing Aesthetic Principles & Syntactic Qualities of the Stencil/Screenprinting Processes

There are many reasons that the stencil/screenprinting process is the most relevant process through which I choose to conduct the research, these reasons will become apparent in this chapter. Briefly, of all the print processes available, prior to digital techniques, screenprinting has had the closest relationship with materials and form, which offers potential for physically integrating print with form. This will be demonstrated over the course of this and the following chapters. While digital methods have now moved into this territory they are not nearly as accessible and adaptable as screenprinting is within the small studio context. These factors, as well as my experience and knowledge of the process have led me to choose screenprinting for this project.

Technical Overview of Stencils & Screenprinting

As a preface to exploring in detail and defining the principles of the process it is relevant to provide a brief overview of the basic technique.

The simplest version of the process, the open stencil, is a thin sheet of material with a shape cut out of it. When this stencil is placed onto a surface and paint or ink is applied over and pushed through the structure with a brush, it masks everything except that shape, which is left as a controlled print on the surface of the substrate. The open stencil consists of one strong, unsupported physical structure, and therefore the imagery is determined by the limitations of that single structure.



Fig 10. Demonstration of Pochoir (stencil printing)

A stencil continues to be the controlling mask when using the screenprinting process, and it can consist of the same thin sheet of material as used with the open stencil method. However, because the stencil is placed on a mesh support - the fabric 'screen'⁸ - it can be far more complex and composed of very small, unconnected 'floating' areas of masking media. Such stencils are usually made nowadays from other more sophisticated materials such as a liquid photo-emulsion⁹ that is applied directly to the screen mesh, after which extremely small areas can be fixed or removed through exposing the emulsion to a light source. To make a screenprint, ink is pressed through this mesh/stencil matrix, by using a squeegee, and as with the open stencil method, where there are areas with no physical mask, the ink passes through to define and produce a printed image.



Fig 11. Drawing the squeegee across the screen pushes the ink through the open areas of mesh (defined by the stencil mask) and leaves a deposit on the surface of the substrate beneath

⁸ See glossary under 'stencil'

⁹ See glossary under direct Photo Stencil'

There are a great number of variables that affect the results of this process, which are discussed in detail later and which relate predominantly to the ink used and material substrate that the print is intended for. For example, when printing ink onto a textile substrate the screen can sit directly onto its surface because the fabric substrate is absorbent. However, when printing directly onto an unyielding substrate such as glass to create a small distance between the screen and substrate is needed - known as 'snap-off' - so that the screen breaks away after the squeegee has travelled across its surface and the ink does not stick the screen to the glass.

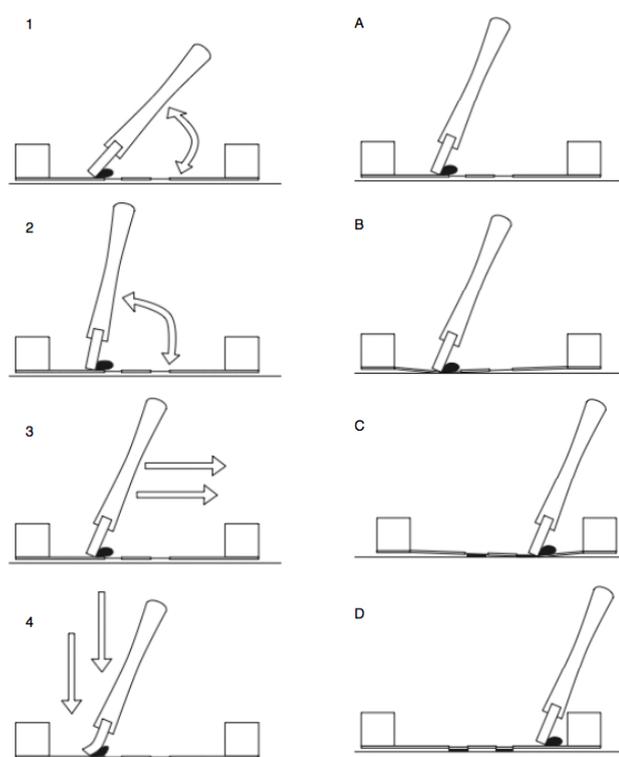


Fig 12.

'Pulling the squeegee'

The squeegee is the tool that pushes the ink through the screen. Changing angle (1,2), speed (3) and applying different degrees of pressure controls the deposit of ink produced

'Snap off'

This is the distance between the screen mesh and the surface (A) you are printing onto, usually around 3mm-4mm. Snap off ensures that the mesh only touches the surface where the squeegee is pushing the ink through (B) and then breaks away behind it (C) so the mesh does not stick to the surface due to the 'stickiness' of the ink deposited (D)

The squeegee is the tool that pushes the ink through the screen using a horizontal rubber blade, and the adjustment of it can also produce differing degrees of ink deposit. In addition to this, different screen mesh grades will determine both what can pass through as ink, the deposit laid down, and the definition of the artwork used. A coarse screen will allow heavy materials and heavy deposits to be worked with but fine imagery will not be supported,

conversely, fine mesh will support detailed imagery but restrict the grade of ink and the amount of deposit will be limited.

To fully comprehend the complex relationship between these variables and 'think through' the process, it is necessary to understand the principles and build an advanced knowledge of its defining details. It is to the principles of this 'process language' and the 'syntactical elements' that we turn in the following sections of this chapter. To begin with we will look at the how other writers have applied this term 'syntax' to printmaking and specifically to screenprinting, in relation to an inherent language of the process.

Introducing the Concept of a Print Syntax

In his publication 'What do Pictures Want? - The Lives and Loves of Images' WJT Mitchell argues that 'Images matter in more than one sense. That is, they make a difference, are important, and make demands. But they are themselves matter, in the sense that they are always embodied in material objects, in things, whether stone, or metal, or canvas, or celluloid, or in the labyrinth of the lived body and its memories, fantasies, and experiences.' Mitchell (2005) is proposing here that images can be considered as 'material'. This acknowledges that whether produced upon paper, or as a series of lit pixels, there is a materiality to their expression, which can inform our perception of the image. David Summers extends this idea to include process in his 'Real Spaces' by stating that 'the technological conditions of a work of art are in one way or another essential to its understanding.' (Summers, 2002, p.72) These two statements form the premise of this chapter and the following thesis: images are material and processes are content. These are important ideas in the context of the research for two reasons: the concept of 'materiality' of a print suggests a route to physical integration; and that the inherent qualities and characteristics of the material and process define a language and suggest content.

At the turn of the nineteenth and through the twentieth century, artists recognised and were increasingly drawn to reference the materials and processes that they used to make artworks. Harold Osborne has written about artists working with abstraction and begins his analysis of this area with reference to Information Theory. Osborne defines three categories that could be helpful in order to understand aspects of these types of artworks: 'semantic', 'expressive' and 'syntactical information'. Of this last category he determines that syntactical information can be used to describe works of art that 'transmit information about themselves, their own properties and structure, the relations among their parts, the materials from which they are made.' (Osborne, 1979, p. 6) Over time this definition has been broadened in

dictionary terms to include the 'orderly or systematic arrangement of parts or elements; a connected order or system of things' (Shorter Oxford Dictionary, 2007)

Although it wasn't until the Twentieth Century that artists began to focus on this 'grammar' for the ideas and content of their work it has long been an integral aspect of the printmaking discipline. William Ivins first uses the word in relation to printmaking in the mid 1950's. The main thrust of Ivins thesis relates to the contribution that 'exactly repeatable pictorial statements' (Ivins, 1953. p.3), that is prints and photography, have made to technological and scientific progress. Syntax, he suggests is obstructive in striving for the ideal of 'exact' repetition in publishing visual information.

In one example Ivins discusses the limitations of the visual report that was made by hand before the days of the photograph. The person making the work 'had learned to see in a particular way and to lay his lines in accordance with the requirements of some particular convention or system of linear structure, and anything that that way of seeing and that convention of drawing were not calculated to catch and bring out failed to be brought out in his statement. For shortness' sake I [Ivins] shall frequently refer to such conventions as syntaxes.' (Ivins, 1953, pp. 60,61)

Ivins continues to describe how different cultures have different kinds of 'vision and drawing', and that in engaging with reproduction 'the copyist felt under no obligation to be faithful to either the particular forms or the linear syntax of the earlier draughtsman he thought he was copying.' Offering the example of Dürer copying a print by Mantegna: 'he refused to follow Mantegna's syntax, and retold the story, as he thought, in his own syntax. I doubt if it ever occurred to him that in changing the syntax he completely changed both the facts and the story.' (Ivins, 1953, p. 61)

For Ivins syntax was an obstruction. The issue of translation compromised his argument that printed imagery was more important than printed text as a means to communicate ideas. As far as he was concerned the goal for published print should be the elimination of any syntactic changes of information in favour of the 'truth' of the original image.

Ivins notion of syntax has a lot in common with ideas first expressed in Walter Benjamin's 'The Work of Art in the Age of Mechanical Reproduction'. In his widely read essay, Benjamin discusses the idea that a unique work of art has particular properties that can only be experienced in their presence, and that these properties are not intrinsic to the art object but in its cultural value, through aspects such as provenance and exclusivity that relate to the power of ritual. Benjamin states that new forms of mechanical reproduction including film would destroy the concept of an original and the ritual 'aura' would be removed: 'For the first time in world history mechanical reproduction emancipates the work of art from its parasitical dependence on ritual.' (Benjamin. 1935. p.224)

Benjamin's 'aura' of the ritual could in some way be related to Ivins' obstructive syntax in that characteristics and associations of the crafting of a work add a layer of narrative on the ritual manipulation of materials through process. Benjamin was correct that methods for reproduction would democratise art through widespread dissemination, and in many respects we now look beyond the syntactic aspects of reproduced media such as photography, music and the moving image. In reality, however, the removal of all traces of syntactic information is impossible, and this is particularly true in printmaking. A trace of the method of reproduction that has been used is always evident in some small way. A truth to the original image is only possible if the original is conceived and produced 'through' the print process that it would eventually be published in itself, removing the need for 're'-production. At the end of the 1970's and in direct reference to screenprinting, the print critic Pat Gilmour (1978, 1980) picks up Ivins' thread and focuses on

this issue. There is a change in the use of the term syntax with Gilmour's discussion, and she employs it in a more objective way, taking it away from the subject of exact reproduction. She revisits Ivins example of Dürer and Mantegna but in this case uses it in a positive manner, to illustrate the power and value of working within the unique qualities and characteristics of a medium such as screenprinting (Gilmour, 1980, p.21).

Gilmour outlines how the acceptance of the 'original' print came about in the 1960's, because of this shift. The perception of what constitutes an original was changed partly through artists understanding and elevating the unique syntax of the medium used, and exploiting its potential to move from being a by-product of the means of production to being the content of the work itself. Gilmour reinforces the idea that the conflict between original information and reproduction can be resolved by the artist working through the most appropriate methods that map onto the syntax of the printmaking process employed (Gilmour, 1980, pp. 14 - 18).

She uses the example of a number of artists in the sixties who were asked to produce a screenprint, and they chose to work on the originals through watercolour painting. 'The results are quite unacceptable because they have been produced in the wrong medium. It is a travesty of what the particular qualities and textures of screenprinting can be made to do.' (Gilmour, 1980, p.21).

The Pop Artists who embraced screenprinting during this period also exploited its strong commercial associations. Amongst their various themes references were made to the syntactic content of commercial use of the process: employing Ben Day dots¹⁰ and screens 'breaking down'¹¹, both examples which looked inward at technique as content.

¹⁰ See glossary

¹¹ See glossary



Fig 13. 'Marilyn Diptych' of 1962 - Warhol employs the physical/visual result of the over use of a screen stencil to represent the psychological 'breaking down' of the movie star. The multiple symbolises the perception of the movie business as a production line

While Osborne's description comes close to the dictionary definition for syntax, it is plain to see that over the years the term has been adapted to fit the individual writer's subject matter. For Ivins it was the inherent characteristics of a process that obstructed reporting the original information, while for Gilmour it was the means by which the paradigm shift in printmaking allowed material and process the self-referentiality that became content, and allowed the original print to develop.

I would like now to bring into this project Gilmour's idea that a print syntax (or materials/process language) used as self-referential elements, contribute to, and determine aesthetic results. This idea relates back to what Focillon describes as the 'inner logic' that requires an artist's vision to work within form and with matter and technique. In order to do this one needs to understand the 'inner logic', as we will attempt to do in the following chapters.

A Binary Aesthetic & Direct Ink/Substrate Relationship

The ritual that Walter Benjamin refers to in his essay could be thought of as the act of printmaking itself. An evocative precedent for the ritual act of printmaking are the negatives of hand prints from over 32,000 years ago that are to be found in the Chauvet Cave in France (Clottes, 2003). These extremely early examples illustrate the basic principles of the stencil/screenprinting process and a good place to begin to analyse these properties.

The production of the cave prints required the image-maker to place his hand upon the cave wall and blow pigment out of his mouth over this area. The resulting handprint is both an image and a recording of human presence, such as a signature of the authorship of the image that we relate to as the original. The print is in reverse, and what remains is a strongly contrasting visual 'hole'.



Fig 14. Pre-historic hand Stencil at Chauvet Cave, France

This first powerful yet most simple example sets up the basic aesthetic of stencil work that continues to be associated with the process today. The application of pigment, in bold, solid areas where there is no stencil masking the wall, and a bare substrate where the stencil masks the pigment, can be perceived as a figure/ground relationship. This pictorial dynamic, a strongly contrasting positive and negative image, has been much discussed by writers such as Gombrich (1984) and Brett (2005), referred to as counterchange.

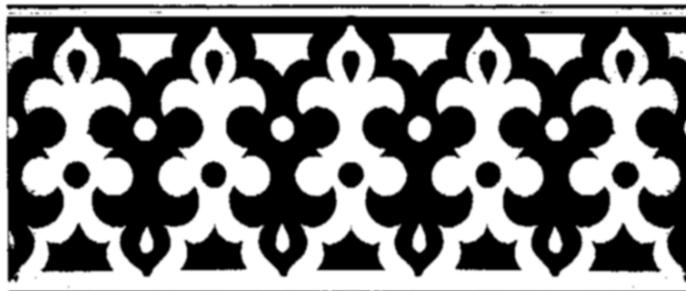


Fig 15. An example of Islamic 'counterchange'

The figure/ground relationship has a great affinity with stencils through the physical act of cutting a stencil. This produces both the positive and negative image, both of which are usable as a stencil, one the reverse of the other; this does not occur though the reprographic aspect of any other print processes.

The Binary Principle in stencil/screenprinting is a constant, whether using a hand-cut open stencil or a 140 dots per inch halftone¹² stencil, there is no difference except in the method of creating the image/stencil. Hand-cut paper and digitally printed film for photo-stencil, are different means to the same end producing imagery defined by the binary principle.

On the cave wall the image is reversed and the underlying substrate itself becomes image, or to put it another way: ground becomes figure. This relationship with materials and the potential relationships that are forged with the underlying substrate are vital and integral aspects of the stencil/screenprinting process.

The strengths and limitations of the binary process, in combination with the direct relationship between pigment and substrate, determine the basic aesthetic qualities inherent in the syntax of stencil and screenprinting processes. We will now expand and discuss in detail the nature of this direct relationship between ink and substrate.

¹² See glossary

From Open Stencil to Mesh Support

In order to further demonstrate the importance of the ‘direct ink/substrate integration’, it is necessary to discuss technical developments that led to the adaptation of simple stencils to the fully-fledged screenprinting process.

The use of the hand as a stencil in the earliest example on cave walls can be considered as a mask, the reverse of which is known as the ‘open’ stencil. While this low-tech approach has found continued use throughout history and provides the most immediate relationship between ink and substrate there are major aesthetic limitations in using the technique. These include the use of unsupported cut-out masks and ‘floating’ areas such as the centre of a letter ‘O’.

An artisan working with small batches of printed textiles in Japan was particularly motivated to overcome these limitations. Yuzensai Miyasaki who lived in Kyoto from 1664-1736 developed the so-called ‘tie-less’ stencil. The process involved cutting more than one stencil paper and sandwiching a grid of fine silk threads between them in order to support any loose or floating elements (Van Duppen, 1982) and these became known as Katagami stencils¹³. The silk threads would have been to hand in the textile artist’s studio and it was through material knowledge and craft skills from this discipline that suggested an innovative strategy for improving the accuracy of the open stencil process.



Fig 16. ‘Katagami’ stencil
V&A Collection

¹³ See glossary

It was not though until the early years of the 20th century that printmakers began to fully exploit the potential of a mesh support 'screen'. Developments in driving forward the use of a standardised printing 'screen' would come from a somewhat unlikely source. Once again the area of commercial and applied art textiles would contribute, this time through the flour milling industry in America. The necessity to sieve and grade fine flour produced by companies in America had created a demand for meshes woven in extremely accurate grades. (Biegeleisen, Busenbark, 1938. p.42.) These meshes were crucial to the early pioneers of the screenprinting process, who needed a strong support for combining stencils while - as with the sieving action that they were originally designed for - they allowed different weights of pigment to be pushed through the mesh.

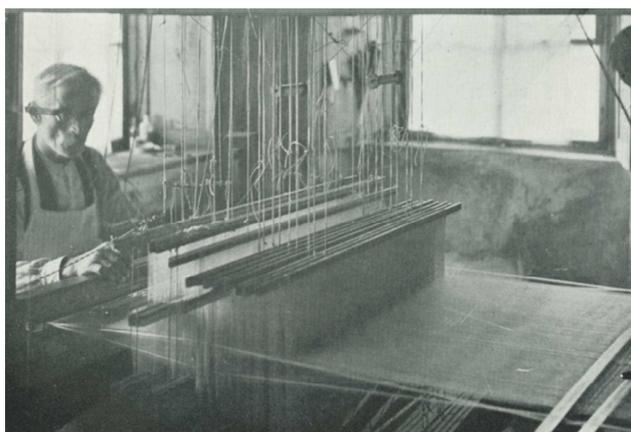
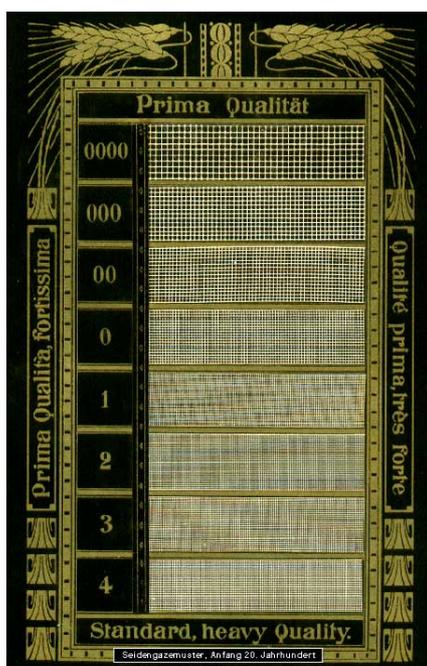


Fig 17. Above - Swiss mesh weavers

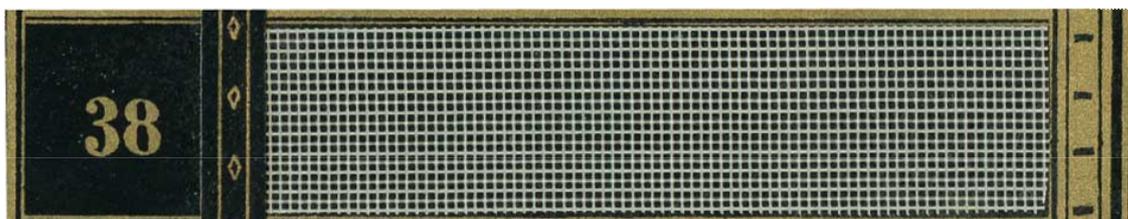


Fig 18. Left and above - Graded mesh for sieving flour that was employed by early screenprinters

The production and grading of a range of differing mesh sizes would become crucial for screenprinters. The coarsest of meshes would facilitate working with a vast array of different materials, whilst the very fine grade provided the accuracy necessary for the ultimate development of screenprinted imagery produced through photographic technology. With the move to a mesh support, however, even the coarse grades offered a huge advance in the kind of imagery that could be used, with the (continued advantage of the) potential for laying down heavy deposits of 'ink'.

Large Solid Areas of Colour, Heavy Deposits & the Advertising Effect

The textile trade was among the earliest applied art disciplines to explore the possibilities of screenprinting, with commercial production fully functional in the 1930's (Jackson, 2002). Textile printers soon began to compare the new process's potential for leaving a heavy deposit of ink, with existing print technology.



Fig 19. Fabric being printed in the UK in 1930

Commercial textile printers can have difficulties with producing large solid areas of colour, especially when printing onto a dark ground. This was particularly problematic before to the twentieth century. One of the reasons for this is that the intaglio process, the main technique for textile printing at the time, requires large amounts of pressure to be applied by the plate onto the substrate. This pressure prevents thick layers of ink from being printed, and in turn prohibits the use of heavy pigments, with the detailed matrix of an etched plate only able to hold a limited amount of ink. Another major issue was holding the ink on the plate in large open areas. When the engraved or etched plate is loaded, the residue is wiped clean from the rest of the image and with large open areas this would have the effect of removing most of the ink from within the open area.

The woodblock printing method was more suitable for creating flat areas of colour and has been used widely for textile printing, but it was also subject to limitations of the pressure needed to produce the print. This factor would produce a physically thinner layer and also squash the ink towards the edges of the wood face leaving a thicker edge in these areas. On the block being lifted away, suction would cause these larger reservoirs on the surface of the textile or paper substrate to further splay out or be raised as illustrated below. The aesthetic of printing large areas in this way had positive characteristics that were exploited very successfully at times, nevertheless a 'clean' solid open area of colour remained difficult to achieve.



Fig 20. Woodblock printed white on green wallpaper

Detail of compressed deposit of white ink

These comparisons serve to illustrate what an enthusiastic a welcome would have been given to a technique such as screenprinting with its capacity for open areas of heavily deposited colour. Screenprinting offered the potential to print a white or extremely bright hue on a black substrate with little loss of brilliance.

Surface imagery in the natural world has an important function in communicating attraction and repulsion through displays that 'advertise' or 'camouflage'. These strategies find parallels in human activities including the 'advertising effect' as used in modern commercial displays. This visual factor can be enhanced by the stencil/screenprinting's inherent potential to use saturated colour, and in the amount of physical pigment that the process lays

down. It is these fundamental qualities of the process that have helped to determine roles for the medium that focus on attraction.

In the second half of the 20th century ultra bright inks would cause much excitement in the sign and display trade, with their obvious commercial potential for attracting attention to advertisements. Dane & Co. who had been manufacturing screen process colours and equipment since 1925, were one of the first companies to develop and supply 'Day-Glo' inks for the UK market in 1950. (Skinner, Wilkinson. 1953) As the company's advertisement says, they were in: 'The race for bigger... bolder...brighter...'



Fig 21. Advertisements in sign industry trade journals from the 1950's illustrate the link between bold graphics and bright displays through the use of the screenprinting process

Sign producers realised from an early stage the possibilities of this new process as a tool for the mass communication of visual imagery. This response was encouraged by the development of department and chain stores (Biegeleisen. 1963. p. 3). This retail sector required a high turnover of cheap, quickly produced batches of in-store advertisement signage, known in Britain as 'Point of Sales' (PoS) and in America as 'Point of Purchase' (PoP) signs. Although not as complex a means of communication as a ubiquitously

published book or a daily newspaper, commercial display has become extensive, building from small graphic components into an incredibly rich means by which visual information is spread. The access that the newly developed screenprinting process showed itself to have with bright inks that could be printed over a large range of materials, contributed to this visual backdrop in the latter half or the 20th century.

'Active' Prints & Material Aesthetics in Commercial Ceramic Production

So far we have discussed fundamental principles, that contribute to general characteristics of the stencil/screenprinting process. We will now turn to the specialist area where screenprinting is used in combination with ceramic production. This next section challenges the notion of what a reproduction can be, as inks and substrates are subjected to volatile transformative events earning them the label: 'Active Inks'. The reason for discussing this area of production is to identify precedents where the relationship between print and ceramic materials can be considered to have an advanced physical and visual integrity.

The applied art and commercial sector were the earliest to recognise the importance of screenprinting, explore and exploit it. The process is sympathetic through a number of defining factors that we have discussed the potential for working with a vast and disparate breadth of pigment material and substrates, combined with a direct approach to laying down a large variety of controllable deposits. An additional factor is the 'reduced' aesthetic, determined by what has been outlined as the binary nature of the process. This aesthetic has an affinity with abstracted or stylised imagery such as signs, patterns and motifs used in the production and decoration of commercial, applied or 'useful' objects.



Fig 21.
Early vitreous
enamel road sign
(1920) and
advertisement
(1917)



Commercial ceramic production was, however, comparatively late in recognising the potential for screenprinting. In America vitreous enamel sign producers were using materials allied to ceramic production as early as 1916 (Noteboom, 1992) and the process had a major effect upon textile manufacturing from the early 1930's. Screenprinting was known by the ceramic tableware industry at this period but was initially rejected because the process achieved only poor quality print. Unable to provide the kind of detail required in competition with lithographic prints, during the next two decades it caught up through developments in other disciplines until its worth was proven. (David Queensbury. Interview London. 09.07.08).

Other reasons for this resistance included tradition (*Screen Process Printing*. 1956. pp. 66, 67), and a reluctance to replace the expensive development and set-up costs of existing technologies. Copper plate printing and its variations had dominated printed ceramics for the past two centuries and continued alongside the relatively recent addition of lithography. Screenprinting seemed to the ceramic industry to be under-developed and crude in its inability to create tonal qualities for the intimate scale required for the decoration of ceramic objects (Kerridge. 1956. p.54).

Restrictions were put on materials and manufacturing during the Second World War that curtailed the manufacture of decorated ceramics for the home market. This limited any further developments in applying the new technique to ceramics until 1952 (*Screen Process Printing*. 1952. p.67). Two companies independently led the field in working with the process in Britain in the late 1940's: Johnson Matthey (Swale, 2008) developing the process for transfer printing and Carter's of Poole (Peggy Angus Archive) working with screenprinting directly onto tiles. At the same time as Johnson Matthey, the Vitachrome Company in the United States, an early licensee of the Selectasine process, developed transfer printing for ceramics (Lengwiler. P.13).



Fig 22. Left – Direct screenprinted tile from Carters of Poole 1951
 Right – Detail of a screenprinted sheet of ceramic transfers from Capper Ratauld 1950's

It is in the ceramic field that the syntactic qualities of the process are most radically transformed, through the extreme conditions of firing. We will now look at this use of active production processes through examples from three ceramic manufacturing companies.

The ceramic substrate offers unique possibilities for printmaking via the different states that clay passes through to become fired ceramic material. This inherent necessity to subject the clay substrate to high temperatures even up to 1300 degrees centigrade, requires the printer to re-think the notion of what ink is. Pigments are no longer required to be merely colourfast to sunlight, but have to survive extremes of heat. These states define qualities achieved through the transformative event of firing and include: plastic clay, biscuit fired ceramic and glazed ceramic. Every 'state' can potentially be imprinted with an image at each stage of production. The potential of working through a number of layers and ceramic 'states' requires different 'inks' to be used including those used for: 'Under-glaze', 'In-glaze', 'Glaze' and 'On-glaze' printing¹⁴. The minerals involved in making this ceramic ink determine that colours often only achieve their desired hue after being fired. The initial colour mixed 'by eye' can look significantly different from the resulting fired colour.

¹⁴ See glossary under 'inks'

Screenprinted Ceramics at Royal Crown Derby:

Black is Blue

Colour ambiguity is illustrated with an example from the ceramic manufacturing company Royal Crown Derby's current screenprinting production. The in-glaze blue ink used in printing much of the company's decorated ware is a major visual component of their popular Imari¹⁵-inspired ranges and has been associated with the company since the 19th century (Cox. 2000. p.14).

The challenge of using ceramic colour is continuity, from sample production to full production and over further repeats runs. When the screenprinter makes a print he has no way of knowing by sight alone that the print produced will result in this required colour of blue when fired: every print produced using cobalt oxide, previous to firing, looks black.

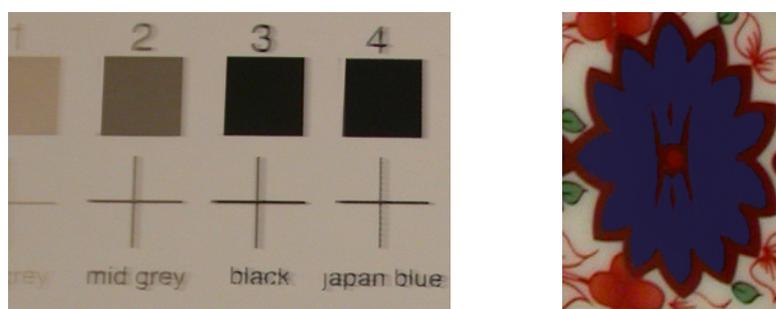


Fig 23. Royal Crown Derby's 'Japan Blue' – Transfer print before firing and the in-glaze fired version

We have discussed how the screenprinting process offers a large range of potential densities of ink deposit and the screenprint operative also has many variables in production through which to affect change, and attempt to control the print through the use of automatic machinery. Angle of squeegee, cross section of squeegee blade, flexibility of squeegee blade, pressure applied, speed of print stroke, mesh count, tautness of mesh, depth of stencil and snap off are all factors which help to realise differing quantities and qualities of

¹⁵ See glossary

printed ink. And this is assuming that the proportions of the ink recipe were mixed correctly. It is simply not possible to judge this type of printmaking by the human eye alone and so a device called a densitometer¹⁶ is used to measure the deposit of ink produced at the sampling stage. Using production conditions the ink is printed onto a clear sheet and a densitometer measurement noted with additional notes added, relating to specific variables of the print equipment. When the printers come to the production run, these notes allow them to accurately predict the colour that will result after the transformation of firing the ink (Discussion with sample printer. Royal Crown Derby. 22.10.08).



Fig 24. Royal Crown Derby's 'densitometer'

¹⁶ See glossary

Screenprinted Ceramics at Johnson's Tiles Ltd: Vitrosa 'Physical' Prints

We have noted the unique relationship that screenprinting has with heavy deposits of ink, offers an example of the positive effects of this quality. Johnson's began to work with screenprinting in the mid to late 1960's (Discussion with Tony Venables. Johnson's Tiles Limited. 14.11.09), although other print techniques have almost replaced its use in major production, it is still used at Johnson's, brought in to print the heavier pigments such as precious metal printing. It has also been employed to produce a printed effect unique to printing directly onto tiles: the 'Vitrosa'¹⁷ process. This process involves using an extremely coarse mesh, such as 15 threads per cm¹⁸, onto which a photo-stencil is imposed and a fine powder of ceramic frit, called Vitrosa powder, is passed through. The ink is pushed back and forth on the screen by a 'V' shaper hopper that exerts very little pressure and which contains the powder and replaces the squeegee and the flood blades¹⁹ that normally 'load' the screen with ink. The process leaves a huge deposit of powder, which 'falls' through the mesh; a process that can be repeated a number of times, if necessary. After firing the frit produces a raised clear, or frosted, area that can be appreciated for its own 'embossed' qualities or interact with a flat print underneath.



Fig 25. Vitrosa frit powder deposit before being fired

¹⁷ See glossary

¹⁸ See glossary under 't'

¹⁹ See glossary

This selection of images illustrate Johnson's use of this process on their tile patterns to produce differing visual, tactile printed effects ranging from a heavy solid, through semi-translucent, to transparent depending on the materials used to print with. The semi-translucent Vitrosa print can be used to 'knock out' areas of underlying print work such as in the examples below. The use of the technique over the oranges and limes in the example of the tile border, bottom left, provides a 'wet' quality to the printed image beneath. Perhaps the most visual appeal is achieved in the 'Bloom' tile from the 'Concepts' range where the print technique is used to raise the petals of the Chrysanthemum with a gloss white that fits perfectly into the black outline print. Printed onto a matt white background it exploits the effect subtly to give the image a physical, tactile presence.



Fig 26. Various samples of 'Vitrosa' tile work at Johnson Tiles Ltd. The effects range from (top right) selectively and partially obscuring the underlying image – (bottom right) selectively and partially obscuring whilst adding dimension – (bottom left) adding translucent gloss dimension over an image – (top left) adding opaque relief to fit within a print

Screenprinted Ceramics at Denby: 'Reactive' Prints

The ceramic manufacturing company Denby (Visited October 2009) shows how screenprinting has been used to exploit the variables of transformation inherent of ceramic production in order to define a more reactive aesthetic.

Denby had been working with hand-decorated surface designs for nearly two decades when they introduced the 'Arabesque' range in 1962. It became a design classic produced until 1984, contributing to the identity of Denby's distinct style evoking 'the influence of the traditional studio potter' often with multi-glaze surface effects (Hopwood, Hopwood. 1997. pp.72, 86). In 1975 Denby made the decision to switch the production of their surface decoration from hand painted glazes to screenprinted versions, to meet the demands of higher output offered by mechanised production. The challenge at Denby was to undertake this transition of production technique without losing any of the distinct surface qualities that had identified the brand. For a long-running range such as Arabesque a seamless conversion was required in order that the buying public would not identify any major differences in an ongoing product. The issues that the Denby printmakers faced involved the continuity of style while converting the syntax of hand-brushed glaze marks and motifs that reacted with the underlying glazed body, into a process of mechanical reproduction. As outlined at the beginning of this chapter the idea of 'mechanical reproduction' is not always the best way to describe the screenprinting process and we will see here how the definition gets blurred.

The affinity that screenprinting has with physical materials has allowed Denby to continue to work with the same heavy deposits of printed glaze that they had used in hand-decorating methods. The resulting 'reactive glaze' prints are key to Denby's transition to mechanisation. The variables in play between the decorative glazes applied over the base glazes cause each print to behave slightly differently, achieving an individual result.



Fig 27. Arabesque – Left hand painted
Right screenprinted versions

The variation achieved with the screenprinted versions relies on the reactive glaze print process and much thought goes into this balance between repetition and deviation. But it is not always possible to achieve the required reactive qualities through reliance on the glazes alone. It is rather the mixture of material interaction and skilled reprographics that produce the best results.

Denby continue to use a reprographic camera rather than new digital imaging technologies. The actual brush-strokes are photographed and interpreted using the camerawork discussed in chapter two. The example below of two screen stencils shows how the handmade marks are reproduced using a combination of heavy textured/solid areas of reactive glaze that were produced employing ‘tone-line’ (Lundqvist, Pär. 1967. p.85) camerawork (on the right), overprinted with areas of a conventional halftone in a different glaze (on the left).

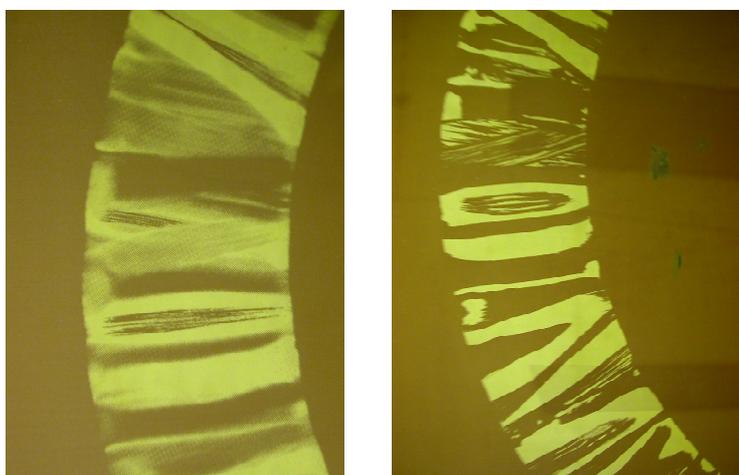


Fig 28. Two different methods of emulating the varied qualities of a brushstroke – On left a camera reproduction of the brush mark is used – On right the stencil is much simpler, the variation coming from the resulting reactive print– They work best when used together

The issue of being able to see the ‘mechanical tone’²⁰ is overcome by the reaction between the two printed glaze layers. The ‘half-tone dots’ move, spread, merge and take on a more organic quality than a precise unchanged version would, and blend the two different reproductions of brush marks into a new more fluid combination. This system is not merely a highly convincing reproduction of the Denby house style but a successful conversion from one syntax to another through an expert understanding of the materials and processes that the two share.

The case of ‘Arabesque’ could be regarded as a mechanical reproduction because it is derived from existing surface imagery, and this is still one of the approaches to surface design that Denby has continued to follow, ‘emulating’ an initially hand-brushed design. But since their early use of screenprinting the designers have also developed a methodology that involves working ‘within’ the possibilities and limitations of the process, evolving surface imagery that bridges the hand and the mechanical.



Fig 29. Denby ‘Azure Shell’ screenprinted reactive imagery

A more recent example where the surface design effects have been determined by working ‘through’ the process is the large curved mug from the current ‘Azure Shell’ range. It has a complex design that appears to consist of hundreds of dabs of glaze over a glazed body. Each of the dabs seem to have moved and reacted with one another and the underlying glaze. This surface

²⁰ See glossary

pattern would have taken a hand-decorator a prohibitive amount of time to realise on a mug which only has a limited market value²¹. Screenprinting the imagery has allowed this kind of complex work to be expedient and still within the house style suggestive of hand-produced work. In reality of production costs screenprinting is the only way that this pattern line could have been realised. When scrutinising one mug next to another, it is apparent to anyone looking for similarities that these surfaces originate from the same matrix with exactly repeated configurations. However, comparing the dabs of glaze individually shows that each one is unique through the transforming reaction that occurs in the kiln.

At Denby a different type of printed information is produced, in which it is the syntactic qualities of the materials and process are allowed to generate the statement. Rather than print being used passively to report information, at Denby their printed surfaces generate new information through transformation and reaction, challenging our perceptions of what a print is.

The three examples from current commercial ceramic production offered above reveal the broad range of active and reactive print work made accessible through the screenprinting process and its special affinity with materials. This contributed to an expansion of the potential for surface design imagery and effects within the ceramic industry.

These cases demonstrate how working through the experiential knowledge of active materials and processes can lead to entirely new and changeable visual content. To be in control of this, and in order to be able to design in this way, it is necessary to predict results prior to a print's transformation, and this calls for advanced interpretative abilities. In addition to these skills, and in order to take an image through the many layers and social configurations of commercial production, requires good communication and mediation to take

²¹ Denby's Shell Large Curve Mug retails at £15.75 compared with approx £8.00 for an equivalent plain mug. This price would not permit hand decoration of such a magnitude to be undertaken – prices from www.denby.co.uk - accessed 09.11.09.

place. And it is to both of these issues of 'interpretative mediation' that we turn
i n t h e n e x t c h a p t e r .

Chapter 3

The Role of Interpretative Mediation Within Ceramics and Print Production

Introducing Interpretative Mediation

In the last chapter the fundamental principles of the stencil/screenprinting process were established, and an understanding of some of the syntactic elements that constitute the language of stencil/screenprinting was outlined. One of the aims of this research is to bring value to working 'within' this language of process in order to provide 'integrity' in the work. If we extend this metaphor of a language of printmaking we can begin to discuss the role in production that facilitates the 'interpretation' of the language of one discipline into another, working 'within' and 'between' processes. Determining this role and examining it, will provide a better understanding of the process of thinking through making.

We have discussed how printmaking involves a number of divided activities, which determine that it is inherently a 'transformative' act. This could involve, for example, taking the medium of a painting and converting it into the very different medium of a photolithographic cover for a book. This transformative process is further complicated within an inter-disciplinary context, because of the difference between ceramic materials and processes that have been developed through altogether separate requirements to those of printmaking. In the context of this project taking an image, or an idea for an image, and converting it from the language of graphics into the language of ceramics requires 'interpretation'. In addition to this, in the context of large-scale print production, it is often necessary to have a specific role of 'interpreter' who provides mediation between the divisions of labour in order to ensure continuity in thinking throughout production. The interpretation process can be thought of as facilitating intuitive mediation, an activity which operates both

creatively to convert from one language to another and communicatively to bridge the divisions of labour within production.

It is important here to note the use of the term 'interpretation' rather than 'translation' and there is a paragraph in John Le Carré's novel 'The Mission Song' of 2006 that offers a literary insight to the difference between the two that will be helpful to our understanding of the role: 'Never mistake, please, your mere translator for your top interpreter. An interpreter is a translator, true, but not the other way round. A translator can be anyone with half a language skill and a dictionary and a desk to sit at while he burns the midnight oil.....He has nothing in common with the simultaneous interpreter sweating it out through six hours of complex negotiations. Your top interpreter has to think as fast as a numbers boy in a coloured jacket buying financial futures. Better sometimes if he doesn't think at all, but orders the spinning cogs on both sides of his head to mesh together, then sits back and waits to see what pours out of his mouth' (Le Carré. 2006). This quote perfectly illustrates the process of mediation between two parties and the attempt to communicate the essential essence of that idea from one party to another. It demonstrates the inadequacy of the mere 'mechanical' notion of translation that requires little consideration of the act of communicating ideas. This 'appropriate' communication of ideas throughout production and into reality is at the heart of the thinking-through-making process, which brings continuity and integrity to overcome division in production.

Focillon touches upon the issue of interpretation in 'The Life of Forms...In the Realm of Space' where he uses the example of a builder to discuss what he calls the 'transposition' of form into space. He outlines all the varied and diverse roles that the builder has to adopt to undertake this process: 'a geometrician in the drafting of the plan, a mechanic to assemble, a painter to distribute visual effects and a sculptor in the treatment of masses. What Focillon is describing here is how one person must 'assume these different personalities in different degrees' in order to interpret a drafted idea into a

form in space. He states that The Law of Technical Primacy is 'unquestionably the principal factor in such transpositions' referring to the necessity for an understanding of the primary technology in order to successfully undertake these transitions (Focillon, 1936. p.76)

Pat Gilmour adds another dimension to the role of creative interpretation in her thorough essay on the relationship between Chris Prater and the artists that he worked with at Kelpra studios. Artists who began to use the screenprinting process in the 1960's such as Eduardo Paolozzi often had insufficient knowledge of how to use the relatively new technique and therefore relied heavily upon the skilled knowledge of Prater in order to realise their ideas in the language of the process. Prater changed perceptions of the value of technical input, in relation to the origination of a print, moving from technical advisor to creative collaborator. Gilmour said of Prater that: 'Practically every folio made at Kelpra shows a unique coupling of the idea on the part of the artist with a creative interpretation on the part of the printer' (Gilmour, 1980. p.23).

This relationship substantially shifts our perceptions of where creativity lies within the production process. It is also a factor in commercial production where the designer does not necessarily have the technical skills, material knowledge and experience, to understand the influence of Focillon's 'technical primacy', upon the visual results throughout production.

The need to work in certain contexts with another person, or team of people, to facilitate production determines that the role of interpreting between materials and processes should also involve effective 'mediation' between the social configurations of production. If the interpretative role relates to the appropriate transposing of ideas into materials and processes, then the role of mediation relates to the continuity of thinking-through-making throughout the different aspects of production. Scale of production influences these two aspects as mediation, in the context of large-scale production, may involve

complex meetings between a number of departments such as is the case at a company such as Royal Crown Derby. Though within the studio context it may simply require collaboration with a single technical advisor such as at Kelpra in the 60's. Although working alone does not require 'social' mediation as such, continuity of thinking-through-making still has to be maintained. Not only does Focillon's fictional lone-builder have to know when to act as a drafter and when to act as a sculptor of masses, but he has to bridge these two acts and follow some internal logic of his own in order to transpose a drawn design into stone, in space, appropriately and with a continuity of intentions.

It is tacit, experiential knowledge that allows foresight into the variables of the production process, drives the interpretative process and is vital within all these modes of production. If we return specifically to the subject of stencil/screenprinting, it relates to bridging the fundamental differences between one or all of the factors that we have discussed in the last chapter and will continue to cover in this one. This includes working between the original and the print, the binary principle and the requirement of colour in a work, the adaptation of an image into the language of materials and/or the application of an image onto the surface of a form. These are all extremely important factors within the context of this research, in creating an understanding of how to create integrity and continuity in ceramics and print production.

I believe that to successfully and appropriately bridge the divides, listed in the first chapter, it is necessary to have a complete holistic understanding of the entirety of the production process, its history of uses, principles and the syntactic elements that contribute to form its inherent language alongside an expert tacit, experiential knowledge. This allows us to occupy an expert position where acquired knowledge informs intuitive making and, as Le Carré puts it, the spinning cogs on both sides of our head mesh together and we wait to see what pours out.

These examples of the issues of thinking through the production process build an understanding of the need for a role that interprets of an original visual intention into the language of materials and processes, and where a part of that task is to understand, predict and mediate the different roles between design and production.

In order to build a better understanding of this activity we will first look at how the role of interpretation has developed from the specific perspective of transposing visual intentions into the language of the stencil/screenprinting process. This is one vital aspect of the interpretative role, and has been known amongst other terms as 'graphic design' or 'reprographics'. We will see by the end of this chapter that these titles only describe one important part of the job of interpretation.

'Reprographic design', at its simplest, performs all the interpretative tasks that take an existing image in one medium and interpret it into the print language being used. In some current print production facilities this may be a straightforward procedure where a full colour image is digitally translated into four colours, checked and printed out. In the cases where print is destined to be produced in a more complex process such as onto a material that has defining characteristics or applied to a form and, in the case of ceramics fired to 1260 degrees centigrade, then the process of interpretation becomes more advanced and complex.

In this chapter we will examine the role in its simplest form, starting with early methods that were developed to interpret imagery 'through' the stencil/screenprinting process. The aim is to define some basic principles of this interpretational process. We will continue with more complex issues such as photographic techniques that define the role as a more specialist activity. After which, advanced tasks concern the interpretation of a flat print for a three-dimensional form, and thence onto fired ceramic objects. The objectives are to examine the interpretational act through example and build an

understanding of strategies employed for working within the language of stencil/screenprinting and between ceramic and print media. This insight will address the issues of division determined in chapter one.

Reprographic Interpretation:

Transposing Imagery Into the Language of Print

Autographic Stencils: From 'Cut Out' to 'Brushed On'

Precedents for the technique of hand-cutting stencil masks exist in the art of paper cutting, an activity that has a long tradition of use in most countries of the world to the present day (Britton Newell. 2008). Although the new approach of adding a support mesh allowed for a dramatic increase in the sophistication of stencil qualities, initially it continued to be limited by the use of existing hand-cut stencil technology. While the mesh support meant that the cut elements of the stencil could be smaller, float freely and become more complex in shape, the hair mesh came as an 'addition' to the existing stencil elements. This was a matrix that was added to the stencil rather than an existing mesh screen that could have a stencil added to it, and when this latter fundamental change occurred it determined that other stencil strategies could be considered. This development allowed the screenprinter something to work on that was very similar to an artist's 'blank canvas'. Instead of beginning with the whole stencil material and removing elements from it, as in the case of making an 'open' stencil, they could now begin with the mesh and 'paint' the stencil on to this support. The silk cloth, that was readily available in a number of different graded mesh counts, had the interesting property of being both coarse enough that different paints could be made to pass through it, indifferent to the thread structure, but also they could be made to sit upon it as an image, drying into the mesh and effectively blocking this sieving action. This provides a new way of thinking about producing a stencil, replacing the 'cutting out' of materials with a very different type of direct hand mark-making through the use of brushes and crayons to 'add onto'.

Sign writers were amongst the first individuals to begin to form interpretative strategies for converting imagery into stencils for screenprinting. This is

because they already possessed skills that were sympathetic to the new screen process. They were adept with both the knife and brush in producing hand 'cut' or 'written' signs and would have easily transferred these abilities to making stencils for screens.

The basic principle that determined a binary aesthetic remained the same in moving from the open stencil to the silkscreen process. The screen cannot 'recognise' the greys of continuous tone: ink can either pass through the mesh or be prevented from passing through.

The innovation of a brushed-on stencil offered by the supportive mesh screen matrix greatly expanded the process' aesthetic potential. A brush-stroke shows the trace of its relationship with the substrate that it is worked onto, such as the texture of a screen consisting of warp and weft threads. A brush loaded with a suitable medium will generate a stroke that begins with a saturated deposit but will increasingly break over this texture as the medium runs out. Because the screen is not in reality a solid but consists of physical threads and gaps this has the effect, as the brush is dragged across the thread, of either filling the gaps or leaving them empty. The resulting visual aesthetic is very different, instead of the absolute clarity of a cut line, the painted-on stencil captures something of the hand-made brushstroke with its recognisable 'broken tail' and begins to add a crude perception of textured tonal qualities to the aesthetic possibilities of working with the process.

In his chapter, 'Silk Screen as a Fine Art Medium' originally published in 1938, Jack Biegeleisen documents the link between these new stencil 'marks' and fine art painters who were exploiting the painterly qualities of this type of stencil production. The print curator Carl Zigrosser and early screenprint artist Anthony Velonis would loosely define these artists as 'Serigraphers²²,' in order to differentiate between the artist's use of screenprinting and that of

²² See glossary

commercial use, the term also referenced to the ‘autographic²³’ production of the stencil. ‘Although all of the stencil making techniques offer interesting opportunities for the serigraphers, the most popular method appears to be the tusche²⁴ stencil technique. This may be because this method, more than others, is singularly responsive to individual treatment and improvisations. Tusche may be used in crayon or liquid form and allows for a wide range of textural as well as spontaneous brush effects.’ Biegeleisen continues to outline some of the effects that can be created through a type of ‘frottage²⁵’ approach where a textured abrasive material is placed ‘directly under the silk and, pressing over it with tusche crayon, ‘a variety of effects comes to life.’ He goes on to say that ‘Liquid tusche allows for spatter, stipple, dry brush and other techniques of a spontaneous and personal character.’ (Biegeleisen. 1938, 1941, 1963. pp. 207, 208)

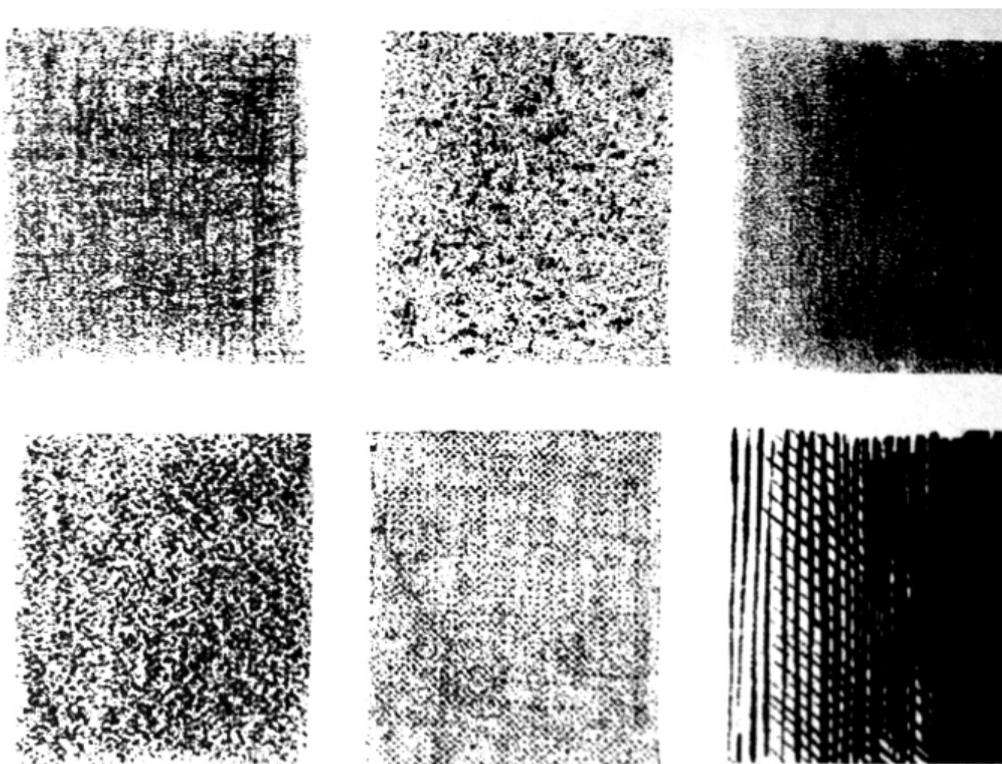


Fig 30. The page of effects offered by Biegeleisen as examples, show some results of this frottage method and illustrate the ‘reduced’ tone work that was an aspect of the ‘serigrapher’s’ palette of marks

²³ See glossary

²⁴ See glossary

²⁵ See glossary

This combination opened up a whole new way of working with print that had an affinity with hand-painted methodologies for producing imagery. Layers of ink could be overprinted one over another with a huge variance of opacity, mirroring the layers of over-painting familiar to artist/painters for centuries

The Selectasine Company was a commercial business involved in the early developments and promotion of the new screenprinting process. They released a handbook, first published in 1923, which continued throughout the 1920's and contained a multitude of strategies for producing stencils. The handbook was loaned to licensees and contained information on printing techniques alongside actual screenprinted final and work-in-progress examples. Between 1925 and 1927 the company released a number of 'service features' intended to update and inform the licensees of the latest developments (Lengwiler p. 46).

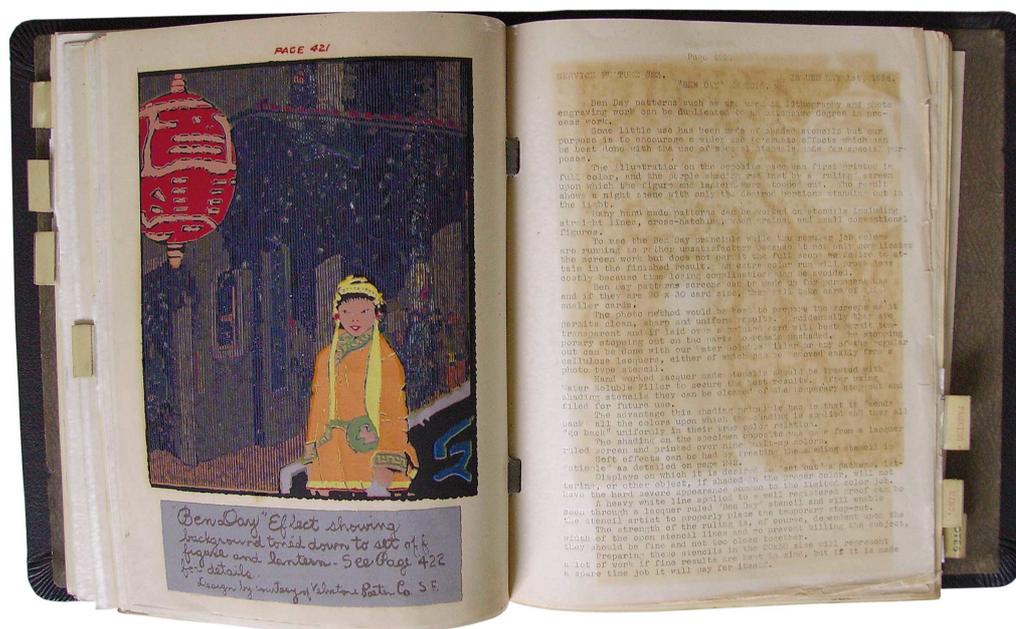


Fig 31. The Selectasine Handbook

The handbook helps in providing an in-depth understanding of the activities and aesthetic qualities that were being determined by these early pioneers of

screenprinting working ‘through’ the process. The instructional publication communicated ideas in the medium it was discussing; there was no obstruction through a change of syntax with the result that the qualities and problems were there for the printers to experience first hand. The issue that concerned William Ivins of syntax being obstructive in publishing information, is in this case overcome because the syntax is the subject.

The company supported the use of the fledgling process in many ways and in doing so secured itself a share of this new business through selling the company’s own developments in the field, such as ‘Reversline Ink & Meshsealer’ (Selectasine Handbook. Jan. 1926).



Fig 32. Selectasine’s advert for Reversline Ink & Meshsealer - 1926

These two specific products dealt with an issue arising from hand-brushed stencils made in the binary process. An image painted directly onto the screen with a block acts as a mask and therefore does not represent the brush stroke but its reverse image. The new products from Selectasine (and other generic versions) allowed positive painted line-work to be achieved. This was made possible by painting the intended design onto the mesh with an oil-based medium, and filling the remainder with a water-based medium. When dry the first could be washed out with a solvent leaving the second block unaffected. A print pulled though the remaining open mesh would produce a positive handmade mark and become better known as the ‘gum and tusche’ method used widely both by the artists of serigraphy and for commercial ends (Biegeleisen. 1938, 1941, 1963. pp. 207, 208).



Fig 33. 'Hot Franks' with solid and textured detail produced by hand-cut and brushed stencils by Leon Bibel 1942

This 1942 screenprint by the WPA/FAP²⁶ artist Leon Bibel demonstrates these early methods. The geometric elements exploit the bold flat areas of rich impasto, 'stepped' layers of colour created through hard-edged hand cut stencils. In contrast the background elements are roughly textured through the use of 'tusche and glue stencils' to break between two tones of colour. This example shows how the artist has thought through the production of the print, exploiting the different syntactic elements of the process to create thick overlaid texture in a lighter colour than the underlying hue (Coppel. 2008).

The Selectasine handbook is defined by the company's understanding of the inherent properties of the process, and how best to work with it in order to draw out and control the variations. The writers of the handbook have an open, experimental relationship with the screenprinting process, and they leapt upon any variable that yielded a new effect such as the entries relating

²⁶ See glossary

to 'Stipple Effects' and 'Blotter Tonal Shading', and exploited every new characteristic discovered (Selectasine Handbook. Feb & Dec 1926).



Fig 34. 'Stipple Effects'
Selectasine Handbook
February 1st 1926

These early examples demonstrate syntactic aspects inherent of interpreting imagery into the language of the process and which determine aesthetic qualities. We have begun to understand some of the interpretative thinking that facilitates the transformation of imagery into this language. The pioneer guidebooks like this one by the Selectasine Company, and classes by experts such as the WPA/FAP artist Anthony Velonis, provided clear methodological approaches for working within the language of screenprinting. The initial technology was simple and used direct methods that allowed immediacy and a certain degree of integrity employing actual marks and gestures from the artist's hand. An individual could work alone with these simple limitations interpreting a personal style through the language of the process. Once new applications of the process began to emerge, however, technological developments brought about new, more complex, methods. This made certain aspects of the process increasingly inaccessible and determined the need for expert knowledge and more sophisticated interpretative skills. The pursuit of the ability to use continuous tone and photographic reproduction caused this evolutionary stage, and we will discuss this in more detail in the next section.

Photo-Reprographics: Technological Division Necessitates Creative Interpretation

Fig 35.

Continuous
tone



Printmaking developments have over the years increasingly been engaged with a quest for ‘continuous tone²⁷’. This term is used to describe an image where the tonal qualities are not broken down by translation but continue seamlessly across the tonal range. As we have seen, the aesthetic nature of the stencil, screenprinting process is binary: no tones, with no compromise. This fact, in principle, renders the tonal ‘photographic image’, totally alien to the stencil and screenprinting process. This presented problems when it came to the use of a photographic aesthetic. Photo-lithographic²⁸ techniques were already being explored and becoming well established when screenprinting arrived on the scene. Whilst this could have given the impression that screenprinting was inferior, it allowed the early screen processors and artists some time and a strong inducement to develop alternative interpretative strategies within the process’ natural capabilities of working with tonal qualities.

In developing the use of the photo-stencil²⁹ process for screenprinting the basic principles that determine a binary aesthetic continue to operate. The light sensitive emulsion on a screen’s surface hardens by exposure to a light source. Where open areas of mesh are required, for ink to pass through, an opaque film is used to block the light, this prevents the emulsion from hardening and it can then be washed away with water. There is only blocked mesh and open mesh and nothing in-between.

²⁷ See glossary

²⁸ See glossary

²⁹ See glossary under stencil

At its simplest a photo-stencil can be produced onto a screen using an opaque flat object such as a piece of lace to block the light source and produce a screen stencil that prints a positive image. The photographic process used to make screen stencils could be more specifically termed as a 'photogram'³⁰.



Fig 36. Photo-stencil produced using lace to physically block the light from hardening the photo-emulsion

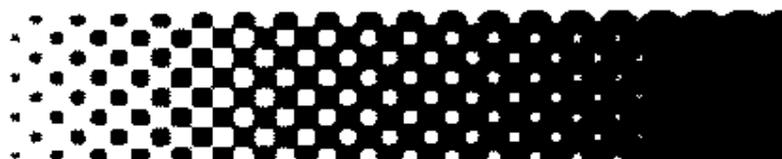
The challenge in producing photographic images for screenprinting comes when tone is involved: how can this maximum contrast process see a mid-tone? A grey? Print and photographic processes all have their distinct strategies for getting as close as possible to the effect of continuous tone. Conventional photography came very close to achieving continuous tone prints through the control of the accumulation of silver halide particles (Lundqvist. 1967, 1972. p.27). The only way to work with tonal imagery using the screenprint process is through a process of translation, such as by converting an image into a 'halftone'. We have seen through the brushed-on 'tusche' examples that stippling and the creation of small dots can result in a coarse emulation of tonal qualities. And the strategy is the same for photo-stencils: the opaque image that will be used on the film mask to block the light is one that has been converted into small particles such as half-tone dots, which from a distance optically replicate tones, as illustrated above. Prior to

³⁰ See glossary

digital technology a reprographic camera would be used to create a tonal mask film for screenprinting a halftone. A photograph is taken of the original full-tone image through a special optical filter that imposes its properties onto the resulting photograph. The filter divides the image into a grid-like matrix with every small division having the optical quality that reduces the tonal value of that area into correlating black opaque 'halftone' dots.

Fig 37.

Halftone



Scale also has important implications with the illusion of continuous tone. Where an artist's print can take up the whole wall of a gallery, to be viewed at some distance, a domestic object such as a decorated piece of ceramics is small and intimate. It invites a different degree of scrutiny that would shatter the illusion of the halftone print, and demands a much smaller resolution, which is hard with the limitations of the support mesh.

A screen's mesh structure precludes the ideal of continuous tone, the physical grid of threads will not allow it, they will obstruct where they are present. Conversely, if we consider a half-tone stencil 'dot' as being the centre of the 'O' it can only be scaled down to a certain degree, too much reduction will lead to the same issue encountered by the open stencil system: the dot could float free of the supporting mesh and fall through the gap. This limits the resolution of the mechanical half-tone dot where the aim is for it to be unseen by the viewer. The relationship that the screenprinting process has with materials and heavy deposits of ink is another issue. If the aim is to exploit these characteristics it is necessary to work with an appropriate coarse grade of mesh in order to allow the material to pass through. These two factors work in opposing directions: A continuous tone image requires the finest half-tone resolution possible, whilst an ink that requires a large deposit or heavy pigment needs as coarse a mesh as possible. These factors create a situation

where there can only be compromise. The mechanical tone will be obvious, destroying the illusion of a continuous tone, or the ink will not go through the screen or deposit enough ink on the substrate. And/or, the mesh will not support the very small dots of the tone and the stencil will fall away. This unsolvable equation extends the challenge of creating the illusion of photographic continuous tone especially in an area such as screenprinted ceramic decoration. This is the difficult relationship between the minute resolution desired and the coarse scale of the screen-mesh necessary to work with the mineral pigments of the ceramic process³¹.

To tackle the challenge of producing tonal and photographic work effectively through the screenprinting process technology had to be advanced, and these complex techniques necessitate the act of creative interpretation to translate this type of image appropriately into the print language. For most of the 20th century the issues of compromise, illusion and apt translation between the photographic image and capabilities of the stencil process were, tackled by the reprographic camera operator³². This person played a crucial role in developing strategies to bridge the issue of interpretation. In the 1963 publication 'Design by Photography' the German photographer O.R. Cröy describes his 30-year exploration of this field. While Cröy's aims were to discuss creative photography as an art form, some sections illustrate the parallel aims of the commercial reprographic camera operator in relation to converting, eliminating or creating an illusion of photographic tonal qualities. He describes these efforts as 'elimination and simplification' (Cröy, 1963). 'The starting point is a photograph, as it is. It still shows everything that the lens projected on the film – the available reality. The first individual acts of interference in the process are deliberate leaving out, simplification and reduction. Their contribution to the graphic interpretation is to convert the totality of the photograph into simpler forms by elimination. The methods of this subtractive approach are as varied as the results.....special procedures of

³¹ See V&A Appendix - *Interpreting A Print Language*.

³² See glossary

this nature involve printing on hard paper, tone separation, solarisation and the line process.’ (Cröy, 1963. pp.12,13). Cröy’s photographic techniques show the same simplifying strategies that have been used to produce films appropriate to the binary principle necessary for making photo-stencils for screenprinting.

An example of a print in the 1923 copy of the Selectasine handbook has been produced by the very early use of a photopositive film to work with the photo-stencil process. The result shows how the limitations of working within the inherent language of this new print technology generated an aesthetic which artists would exploit forty years later. The writers of the handbook recognise and exploit these ‘graphic qualities’ of the image, that is to say the effects of clearly defined limitations imposed on a photograph by an interpretative process.

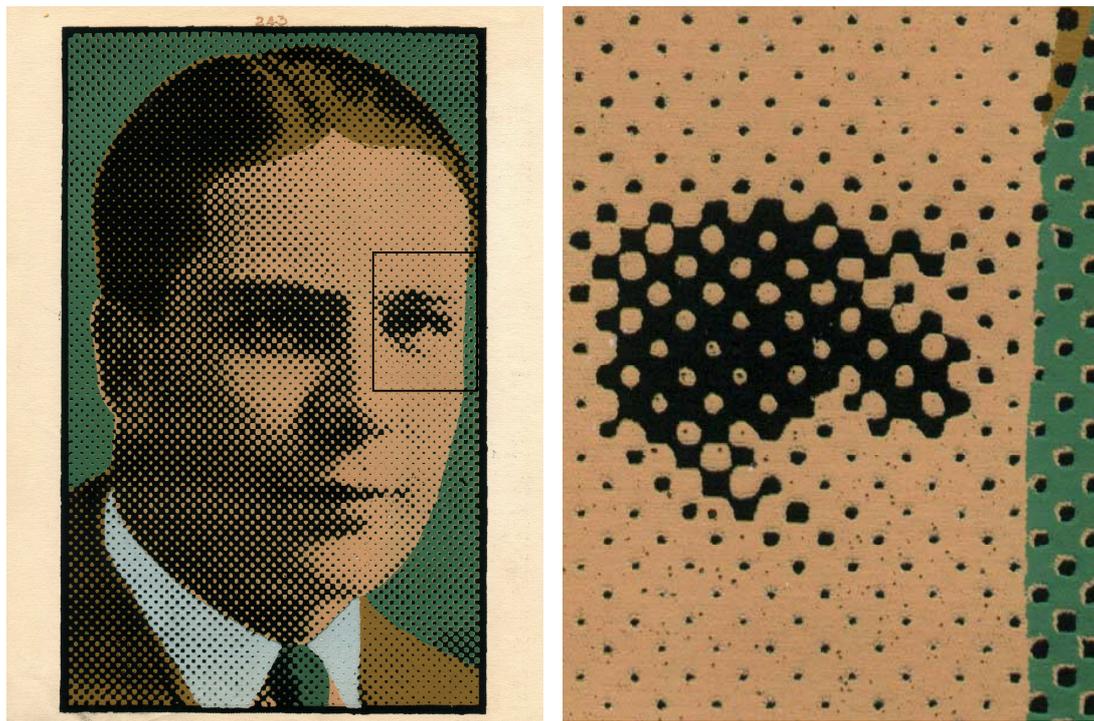


Fig 38. Selectasine Handbook 1920 ‘Halftones’ and detail

Another reprographic technique, four colour process, or 'tri-chromatic'³³, printing (three colours and black), employed the halftone simulation of tonal qualities over four separate colour layers. These intermixed optically on the substrate to produce full colour in a far more efficient way than the many separate colour layers of earlier autographic methods. The halftone and tri-chromatic techniques became two primary techniques for interpreting tone and full colour for screenprinting. This was an expedient direction for commercial production, and chosen by creative practitioners such as the Pop artists to emphasise this syntactic feature of commercial printing. But the often visible, 'mechanical' dots or 'rosettes' of these techniques were not always an appropriate or welcome aesthetic because they look artificial. The creative cameraman Dennis Francis at Kelpra Studios would pioneer another method, which became known as 'posterisation' through its link to poster work (Gilmour, 1980. p.22). This approach returned to using 'stepped' tones of a colour to generate an illusion of tone with the innovation of using the camera to make the separations. Decreasing amounts of visual information were printed down one over the other in darker hues to create depth. The method was among those that became known as 'spot' separations³⁴, and produced subtler tonal variations than what became known as 'mechanical tone'.

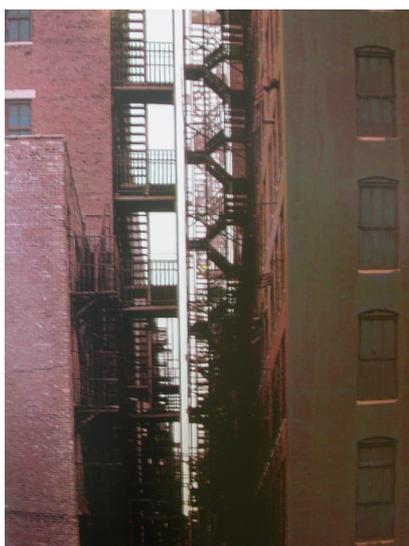


Fig 39. Detail of Gerd Winner's 'New York Canyon' Screenprint from Kelpra Studios

- Dennis Francis, reprographic camera operator pioneered posterisation at Kelpra as a way to create tonal gradations without the use of the mechanical appearance of halftones

³³ See glossary

³⁴ See glossary

The limitations of working with photographic imagery limitations on the screenprinting process have not prevented its use; rather it has determined new approaches and strategies for interpretation that have become aesthetically valued in themselves. The reduction and transformation of the reality of a photographic image becomes the focus, line artwork and coarse halftones are employed graphically to turn them from 'reality' into a stylised version of reality. This interest in abstracting, simplifying and stylising comes through working with the printmaking process' unique syntactic content, rather than the pursuit of continuous tone or photo-realism. Creative camera-work, such as at Kelpra studios in the 1960's described by Cröy, shifted the emphasis from the aim of continuous tone to an interpretation of the photograph which engaged with the nature of the process. This became more than a compromise, it was a distinct aesthetic style.



Fig 40. Eduardo Paolozzi's 'Automobile Head', British Museum. 1954

Diverse imagery was easily accommodated through the medium of screenprinting and assimilated into a new syntax that does not re-present the image, but takes the existing and reprocessed it into a new work. The artist Eduardo Paolozzi's early venture into producing a screenprinted image, 'Automobile Head' of 1954, uses inherent qualities of the screenprinted photo-stencil process. 'Screenprinting was ideally suited to Paolozzi's 'collagiste'

method of working: without its development “the realisation of Paolozzi’s complex concepts would never have been possible. It was not until screenprinting that the seemingly conflicting component parts of a collage, a screen cliché and a flat coloured surface, photo and design structure, Frank Stella reproduction and banana girls could meet together on one and the same plane’ (Carey, Griffiths. 1990. p.227) Rather than reproducing the distinct variety of visual qualities of a collaged work, they become homogenized into a uniform composition when processed through screenprinting. This identifies screenprinting as a process more for ‘interpretation’ than for reproduction.

As the term ‘reproduction’ is inadequate to describe the totality of screenprinting, so is reprographics unable to convey the complete role of transposing an initial image into a final screenprint. The reprographic activities discussed in this section do not describe the whole story. As we saw in Chapter Two when working with ‘active’ ceramic materials, it is vital to extend the understanding of the production process to include such variables. Production could also involve working with complex forms requiring the interpretation of a flat image onto the surface of an object. Continuing with the same theme of interpretation we now shift our focus to look at the interpretative manipulation of physical properties in order to achieve visual integrity between the printed image and form.

Formal Interpretation:

Designing a Dialogue Between Image & Form

The starting point for all printmaking processes is a two-dimensional plane. The woodcut face, the etched plate, lithographic stone and the screen are all physical carriers, the matrices of print production. The basic principles of these processes have been developed largely to produce repeat impressions of a two-dimensional image onto a flat paper substrate (Gascoigne. 2004. p.4) The early dominance of print as a publishing medium contributed to determine flat formats such as the book and the picture or poster intended for wall-mounted display.

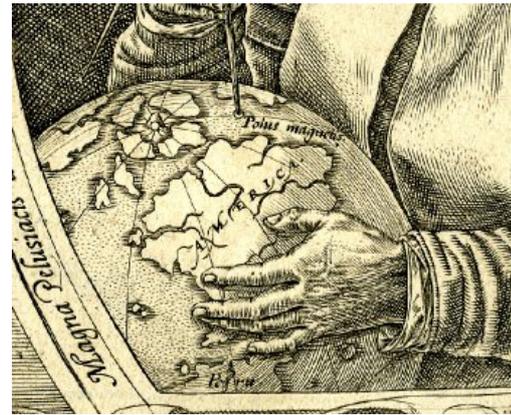
Returning to the specific context of print and ceramics, so far we have mainly discussed ceramic materials' unique alchemy and transformative qualities. We have discussed some examples and issues of working with print destined for ceramic form and will expand on this in the following sections. The primary concern, in this context, is how a flat print can undergo a very different type of transformation through a dialogue with the complexities of the surface covering a three-dimensional form. There are no obvious solutions because of the endless variables involved in combining different forms, materials and images. To begin to create an understanding of the challenges involved, this analysis will focus on certain specific strategies, looking mainly at commercial ceramic and print production but including individual expression. The aim is to examine methodologies for these dialogues and the results of following them.

How do we begin to imagine ways to bridge the differences between flat print and form? One area that has had to overcome this challenge is map-making. Cartographers throughout history have striven to represent the complex form of the world's surface with flat functional maps suitable for navigation. Carl Friedrich Gauss's Theorema Egregium (1828) proved that a sphere cannot be represented on a plane without distortion. Any method of representing a

sphere's surface on a plane is a map projection³⁵. The print below shows the early cartographer Gerardus Mercator who produced a map in 1569 through one of the earliest strategies, known today as cylindrical projection. His map was printed in a large-scale over eighteen separate sheets measuring 202 cm by 124 cm. The detailed section of Mercator's portrait shows him holding his world globe with the tactic he developed for interpreting the sphere by dividing it into leaf-shaped segments.



Fig 41.
Gerardus Mercator
Right – Detail
showing a globe
broken into parts
by 'Mercator lines'



This example looks at the dialogue between image and form from the opposite viewpoint. An existing image-covered object has to be 'broken down' into flat printed sections. Surface designers working in the ceramic industry are faced with a highly complex task, as a direct reverse of the cartographers challenge they relate flat imagery to form.

In the introduction we looked an example where a printed pattern field was cut and pasted with no regard to the ill-fitting appearance of joins. These photographs show another example where prints are distinctly 'placed' around the object and the space between filled with a pattern field. This 'jigsaw' strategy was and remains a common approach for covering the surface of a ceramic form.

³⁵ See glossary



Fig 42. 'Thirty-gallon Jug', about 1830. The detail in the image to the right shows the adverse effect of images mis-fitting at the seams

Another example, this time from the V&A's Prints and Drawings room, shows an altogether different strategy for combining a printed image with a ceramic form. Here is a more considered approach to surface design where a designed distortion of the flat image allows the pictorial image to 'fit' a complex curved form, in this case the lid of a Tureen. The complexity of the form is accommodated by intentional distortion of the image that will be applied to the surface, and is therefore like the cartographers approach.



Fig 43. Original drawing, to be made into an engraving for the copper-plate transfer method, shaped to fit a curved form.

Although this example is the product of many hours of planning and hand drawing, the resulting integrity of the relationship between the printed image and form would greatly raise the visual appreciation, and therefore value, of the work. Industry has reasons and resources to make the considerable investment at the surface design stage that takes the dialogue between image and form forward and create a more sophisticated connection between the two. This investment has allowed for surface design strategies to develop a more integrated approach between print and form that 'inflects' the object, making direct reference to the topographic dimension of the surface.

The main market for commercial ceramic production is tableware. Mass demand and expediency of production have determined over the course of history that the primary shapes have evolved through commercial production methods. The rotation of the potter's wheel has dominated the majority of these developments and the plaster lathe and whirler have determined the rotating shapes of the models developed for cast objects. This technology defines geometric forms often in the round which are not unlike the complex curves of the earth's globe, the form that has provided such a challenge to cartographers. The more geometric and symmetrical these forms are, the simpler the strategy for 'flattening out' the surfaces to be printed can be. The object illustrated below produced by Wedgwood has a simple vertical line decoration that can be repeated and rotated around the form. We have seen how Mercator's strategy was to taper the surface imagery near the polar base to fit to, and inflect, the form's distortion; and the same method has been used in decorating this shape.



Fig 44. Platinum Gift Bowl -
Jasper Conran at Wedgwood

This surface design methodology employs the natural geometry found within the form and articulates its inflection, reinforcing the relationship with its surface. Lewis Day discusses similar tactics for designers decorating these types of forms in his 1904 publication 'Ornament and its Application'. In the chapter entitled 'Obedient Ornament'³⁶ Day states that: 'Corresponding to the natural lines of circle decoration are the stripes and bands on which the decoration of vases and other vessels circular in plan is most happily set out. A vase is naturally decorated on the lines of its plan – in horizontal bands...or on vertical lines... each of which, separately, corresponds with its longitudinal section, though collectively they converge in the narrower and swell out in the wider parts of the vessel.' (Day. 1904. p.279) Gombrich refers to such elements as the inflecting lines of the Wedgwood bowl, as structural aids to 'make an object *übersichtlich*, visually easy to grasp' (Gombrich. 1979. p.164) This term suggests a perception of visual integrity between the surface image and form where one relates to the other in a harmonic relationship.

In the Wedgwood example a skeletal structure describes the object and becomes visible as the form is broken down into smaller leaf sections, and as with Mercator's segments a basic structural precedent is established. These smaller elements within the overall form are easier to deal with than working simultaneously over the entire surface, and they can be dealt with in terms of 'frames' to be 'filled'³⁷ (Gombrich. 1979.) through further embellishment.

Division as the major problem to overcome when integrating imagery with form was defined in Chapter one. It is an inescapable factor when you bring together a flat print with a complex three-dimensional object. The image begins and end but the form continues and so there will always be seams and thresholds to deal with. Incorporating them into the surface design of the work can turn this weakness into a positive visual aesthetic.

³⁶ See glossary

³⁷ Gombrich discusses: - 'Subdivision' p 53, 54 - 'Framing and filling' p. 74 - 'Successive enrichment' p. 80

Lewis Day seemed to find the greatest satisfaction in surface design that uses the 'scaffolding' of a form's structure and, like Focillon, he also recognised the determining nature of production processes in surface design that 'introduce shapes which explain the form of the vessel.' While the example at the opening of this section discussed the decisive effect of the lathe and whirler, Day (1904. p.280) used hand-produced metalwork for his example, 'which lends itself to the beating up of such bulbous forms'. Day illustrated this example with an object where a number of identical bulges have been raised around a vessel's waist. He suggested that this embellishment of the functional production process of raising metal can in turn be used as structural shapes and precedents for further embellishment, through a contrast of 'delicate chasing or other rich detail.' (Day, 1904. p.280) Gombrich (1979. p.165) calls this 'explanatory articulation' and uses examples from architectonic forms declaring that in the case of the Alhambra 'it needs no elaborate analysis to show that the main articulations of the building still serve as the frame for the decorator'

The acknowledgement of the production process is described by Day (1904. p.267) as 'an axiom of design that decoration should follow and enforce the lines of the thing decorated, from first to last faithfully subserving the constructional idea.' However, he understood that there are exceptions to every rule and suggested that 'the dictum as to following lines of construction holds good only in so far as they are worth consideration' (Day, 1904. p.269). 'Consideration' is the point to take forward, if one is to consider the use of imagery on a form's surface then there should be a strategy for meaningful dialogue, or else surface and form remain divided or one becomes relegated. A representational 'picture' and a form of complex character are at the offset these two things independently. If there is no acknowledgement of a dialogue between the two, then they remain apart.



Fig 45. Japanese Porcelain
Bottle 1800–1875.

Day's (1904, p.280) discussion on this theme turned to the Japanese use of the ceramic surface as a canvas, making the criticism that: 'the distortion of the picture on the curved surface of a vase is less objectionable than the discord between the harshly defined patch it makes and the shape of the vase itself.' We can see from the example below right how Day was disturbed not by the image itself but by the disruption to the relationship between image and form caused by this visual dissonance. This conflict of surface and form information can be used to great creative effect, and many people today would disagree with Day about his example of Japanese pottery. What Day does, however, is echo Gombrich and Focillon in a positive view of working decoratively within the nature of an object's production and formal properties. Gombrich's term *übersichtlich*, visually easy to grasp, describes the value that I am aiming to achieve through creating a harmonic relationship between my surface imagery and forms.

Interpretative Mediation Within the Social Configurations of Screenprint Production: Royal Crown Derby, a Case Study

The distinct skills necessary to produce a print are more transparent within larger scales of commercial production, where these tasks are often divided into separate roles. This divided approach to production falls within the model described as the 'Division of Labour', applied to the organisation of labour within manufacturing management (Taylor. 1911). It is often seen as a restrictive model where the role of interpretation on the factory floor is denied. In this model 'thinking and making' are seen as sequential, where ideas happen first and then they are put into action with little or no further mental input.

This model of production has been criticised by scientists and researchers (Dewey. 1931) together with other American Pragmatists whose critique draws on an understanding of tool use and which suggests that the 'grasping' of both the conceptual and the physical happens within a dynamic process and cannot be separated. This is a strand of 'Practice Turn' theory (Schatzki. 2001), which is in turn a strand of 'Praxeology'. The latter encompasses the area of 'theories of practice', which was first introduced in the 1980's by Sherry Ortner with reference to new ways of theorising Anthropology. The term has since become widely used by a more diverse set of contemporary philosophers and social theorists that want to move beyond contemporary conceptual dichotomies of thinking such as: theory / practice, problem solving / critical, discourse / action, objectivity / subjectivity, material / social (Bueger. 2009). This encompasses a large area of research theory and beyond the focus of this project, but it is useful as a way of considering the dichotomy between 'thinking / making' that I refer to as 'division' and have encountered within ceramics and print practice.

In management science there are calls for new models based on 'Dialogue' attributed to the Russian philosopher Bakhtin. The call for dialogue and a

simultaneous act of thinking and making reflects the importance of the role that I have defined as 'interpretative mediation' within production.

My role in industry was to take a clients design and make it ready for production, an activity that could be considered interpretative mediation as described through this chapter. In my experience, the activities involved in all aspects of production have the potential to be extremely dynamic when the variables of tools and materials come in to play. These features can dramatically change planned results, changes that have to be reflected upon, and adjustments made, in order to ensure the continuity of intended aims. At face value the 'design' is the final definition of the 'original' visual intention, and all that follows is a mechanical undertaking of that ideal. In reality much of the thinking comes later in production in order to transpose and carry this intention through to finished results. In order to reduce and control the possible delays brought about by the variables of production, a role is often created within the social configurations of production where experiential knowledge is employed to predict these issues, make adjustments and mediate between design and production. In order to understand the dynamics of this activity further my research has involved field observation within ceramics and print production at a number of companies in Staffordshire including Royal Crown Derby. It is interesting to note that a role has emerged in every one of these companies and that fits what I have described as 'interpretative mediation'. It is my understanding that the complexity of the process involved in transposing a visual intent through many layers of activity into a fired ceramic form has engendered this role.

In producing their paperweight range Royal Crown Derby have built on a strong tradition of the company producing ceramic figures and toys dating back to the establishment of their first factory in 1750. The early objects would have been hand decorated but the company began to develop the use of screenprinting to speed up production from the mid 1960's onwards. With the idea of creating the new paperweight range in 1981 the art director Jo Ledger

decided to exploit the specialist knowledge that the staff had built up in this area (Cox. 2000. pp.15,16).

Long-standing personnel undertake all aspects of production in-house and on one site. They offer an interesting study of the development and implementation of strategies for working through a constant stream of new designs, where the value of the objects is created through their high-quality screenprinted surfaces. There is a distinct 'house' style determined through a number of historical factors including the influence from Imari decoration. The ongoing success of their figurative paperweight products has been based to a large degree on the grasp of the unique qualities of screenprinting in the ceramic medium, understood by the staff that mediate between design and print production.

Vital to Derby's success are 'the separators' in the department known as the 'Technical Studio'. One of the jobs, as their acquired title suggests, is to produce the colour separations³⁸ from the concept designs. In reality they do far more than this, occupying a position of creative, 'interpretative mediation'. They are responsible for making the interpretation from concept to physical reality. The creative effort is far from complete when the design team hand their images over to the separators, although these drawings have much of the visual information necessary to understand the style and character of the piece, they are visuals of a finished object not the actual surface imagery. And it is at this point, alongside a pre-production sampling department, that thinking and making fully engage to make these concepts a reality.

Beginning with the designer's visuals and the stylistically undefined blank ceramic form of in this case a figurine for an Otter, the separators begin the process of interpretation. They first need to establish the 'fit' that allows the form to be broken down into areas that can be flattened out for the print process and then applied to the complex form. By covering the surface with

³⁸ See glossary

masking tape or a special film and working through a large number of drawings onto the actual form they arrive at solutions that are then tried out in production. This fitting stage is unique to each new object that comes through the department, and breaking down the form into the most appropriate sections is crucial to the success of the piece both visually and in production terms.



Fig 46. Concept drawing

Otter 'blank'

Unwrapped 'fit' for Otter

One of the primary aims of the separators is to reduce the form into smaller sections that can be flattened and therefore printed. They must also do this by the most expedient means, with the fewest possible sections. This is so that those whose job it is to apply the different transfer sections, known as the lithographers³⁹, can complete the task with speed and efficiency. The different sections are required to cover a form in a way that appears to be seamless, creating visual integrity over the surface of the form. This is achieved through the unique material properties of the ceramic glaze layer, and the use of inglaze and onglaze colour pigments that are fired separately at two different temperatures. The inglaze imagery is applied and fired to around 1100 degrees Centigrade and then the onglaze prints are applied over these and fired at around 800 degrees. The result of this strategy is to create one layer that bridges the gaps of the other layer, producing a continuity of surface imagery and acting to unify the print and form. The shapes of the resultant

³⁹ This is a misnomer: a term that has remained to describe the actual transfers, that had been produced by the lithographic process, and became associated with the personnel who applied them – Research undertaken at Royal Crown Derby 22.10.08

'fits' will have an impact on the surface imagery, and important decisions have to be made on the relationships between the sections and their thresholds.



Fig 47. Final 'Fit' for Otter



Inglaze blue and Onglaze Gold

The separators use their experience and subjective foresight as well as a great deal of trial and error in order to meet these aims before the best fitting shapes are put into a production test by the lithographers; rejected and reworked, or accepted and signed off. Meetings to liaise between departments are crucial to the continuous understanding of, and mediation between, the different aspects of production. Once the 'fits' are signed off then the next stage begins where the visual style of the original painted colour-concept view are interpreted into the hand drawn marks and layers of the surface design.



Fig 48. Left hand image – Initial mark making
Middle and right – Final artworks for the gold and orange layer separations

This is an extremely long process⁴⁰ where skills and experiential knowledge are put into practice as the minute handmade marks of the separator try to capture the overall aesthetic characteristics of the original design. This stage involves working with the aesthetic style of an individual designer, in the house-style, while judging the inflection of the final three-dimensional form of the object and the qualities of the ceramic medium that will be used. Le Carré's metaphor of 'spinning cogs' must be in full motion during this activity. Many sketches made directly onto the fitted sections are produced attempting to create a form that is essentially 'clothed' with the design. The original concept view does not capture all aspects of the object's surface in which case the separators need to create whole new areas of imagery that were previously undefined. Once the overall composition is decided upon then the actual mark-making can begin, with some brush-marks being so small that a knife is used to remove parts of the mark to reduce its scale further.

The separators' knowledge of screenprinting's limitations has led them to reject strategies that attempt to emulate continuous tone, such as halftones and tri-chromatic colour separations, in favour of a type of 'posterised' strategy for suggesting tone, sympathetic to the process. This strategy concurs with my discussion in the last chapter of the inappropriateness of continuous tone imagery when working with the screenprinting process, and demonstrates how the separators are working within the appropriate language of the process. They have to achieve the stepped layering of colour necessary for this aesthetic by separating the different colour layers and drawing them by hand, one colour at a time, onto translucent paper. Where the tonal stepping occurs each layer of marks has another smaller set that has to be created to sit exactly in place over the previous ones, to describe the darker hue that will sit over the previous colour. The separators' understanding of the ceramic pigments to be used and the chemical reactions that could potentially

⁴⁰ May Garton worked for nearly one whole year on the recent large Owl surface design shown in the British Ceramic Biennial 'Award' - Research undertaken at Royal Crown Derby 22.10.08

occur between these layers guide their decisions as to how the colours are distributed between the layers and their relationship with one another.



Fig 49. 'Stepped' strategy

CAD composite for Otter

Once the imagery of the different colour films has been produced they are scanned into the computer to create composites. This is a relatively recent addition to the procedure, before the advent of digital techniques the separate sheets of imagery would have been photographically reproduced through the use of a reprographic camera, as described in the last chapter. Scanning their images into a computer gives the separators a tool that enables them to visualise composite views of the separations in full colour, speeding up the foresight of potential problems. These 'colour separation' images can then be checked before they are finally printed out as film by a digital printer called an image setter⁴¹. The photopositive films are output and then used to produce a photo-stencil on a screen and sent to the print sampling department. At the same time the separators pass the specific colour references on to the ink-mixing department where the correct colours of inglaze and onglaze pigment are mixed with a screenprinting medium and milled to the correct consistency.

⁴¹ See glossary



Fig 50. Colour mixer



Print sampling and production

The variables of working with colour that are encountered at the proofing stage have been discussed in the last chapter, along with the precise use of a densitometer and the detailed empirical data recorded and used in this department. Each colour is then printed separately in the order that is determined through discussion between the print sampling and Technical Studio staff.



Fig 51. 'Lithographer'



Rejected version of Otter ('Dripping nose')

After many further trials the Otter eventually goes into full production only to suffer the very unsightly fault of having his nose drip half way down his face. This fault has slipped through the previous trials only to surface in the last end procedure of final production. The long printed section supported by the 'covercoat' that goes all the way over the figurine's back, and then over its

head, has been applied with a slightly heavier hand than when the sample was made, making it stretch slightly and cause the Otter to have an overstated proboscis. The conditions that produced the initial sample cannot be reproduced in production without adding time to the application process. Over a large production run this would prove too costly and the risk of the deformity slipping through is thought too high. Production is stopped and the separators decide that the best solution for is to split the panel into two, in order to prevent the elongation from occurring by using shorter panels for the fit. The separators have to take the whole process back to the artwork stage and split the separations. But to uphold the integrated aesthetic they have to hide the split by dividing it between the two different layers of inglaze and onglaze printing. In addition to this, the colour lab has to mix a whole new batch of onglaze pigment that matches exactly to the very different chemistry of the existing inglaze pigments, then they trial the whole thing over again.

Overall the strategies and results at Royal Crown Derby are the best example that I have seen of thinking through making within ceramics and print production. The case demonstrates how thinking and making are not divided as dichotomies, but are enacted simultaneously within all of the roles within the complex layers of production, mediated by the pivotal 'interpretative' position of the separators. Division between image and form is overcome through advance tactics developed by working through the process over a number of years. The high value that the work has in the market place, is due almost entirely to the addition of the highly sophisticated print work over what would be an extremely cheap ceramic form. This reflects the heightened integrity perceivable in these objects.

In the next chapter we begin to look at the differences between this successful case study of commercial ceramics and print production at Royal Crown Derby, and the very different context of studio production.

*Chapter 4**Thinking Through a Strategy for Visual Integrity in the Studio-Based Production of Printed Ceramic Artefacts**Studio-Based Dialogues: Between Print & Form*

Royal Crown Derby offers a very successful case for an integrated approach to the production of ceramics and printed objects. A new object or range can be developed with the highest qualities and a sophisticated relationship between surface and form. This is put into production with the confidence that these qualities can be maintained through a large number of objects, to make a return on the company's investment.

Approaches to studio practice differ vastly from commercial mass-production, and this is reflected in the equipment that is used in these two areas. Some techniques are almost completely prohibitive for studio practice, for example 'raised paste' prints, which are the only aspect of Royal Crown Derby's print production that is out-sourced to a specialist company (Discussion with Peter Allen at Royal Crown Derby 22.10.08). While this technical knowledge is available to the studio practitioner⁴² the technique itself can only be printed by using precision semi-automated machinery, which incurs high set-up costs. This machinery is necessary for large-scale production in order to deliver controlled continuity, where a large investment can be figured into the overall pricing of the object. Individuals do not generally make large numbers of exactly the same objects and so their investment in equipment is limited and not aimed at automatic high-production repetition.

⁴² Etch Imitation System for Decal One-Fire-Application for Porcelain and Bone China. Technical Information (Worksheet) Nr. 9.26/2 W.C. Heraeus. Ceramic Colours Division (CCD). Hanau.

Studio practitioners do look towards commercial production for precedents when combining print with ceramics, and the method known as transfer printing that Royal Crown Derby use is the most common. This technique is the most widely used but the approach that is used at Derby of 'fitting' the print to the form is impossible in the context of studio production. Far too much time is invested at the interpretation stages to be worthwhile for the production of one-off or small batches in the studio. Studio ceramists often remain handicapped by the technology and time available, choosing much simpler approaches, such as limiting imagery to one colour, and adopting a loose collage relationship with the underlying form (Scott. 1994, 2002).

Aside from working in collaboration with industry, studio practitioners are offered some access to the qualities, precision and special effects of the industrial aesthetic through the use of 'stock' transfer prints. These widely available pre-printed transfer sheets are often produced with no specific form or end use in mind and comprise a range of versatile imagery that can be cut and pasted to decorate ceramic objects.

One of the first ceramists to exploit this resource was Howard Kottler. He first came across industrially produced transfer 'decals' whilst on a residency in the 1950's at the Arabia Ceramics factory in Finland. These transfer sheets would become as much the raw material of Kottler's work as a bag of clay and he 'set out to find ways of using repeated images'. Initially he covered entire forms 'wallpapering' patterns such as paisley over the entire surface of a gold glazed object 'expanding [the surfaces'] visual depth' (Failing. 1995. p.57). Kottler's further use of transfers during the nineteen seventies would, however, abandon form in favour of developing a highly sophisticated cut and paste approach on plates. Continuing to use the found stock transfers, he removed, added and juxtaposed collaged imagery to make visual puns of the transfer's original content and comment on contemporary culture (Failing.

1995. p.76). Since Kottler's early use of stock transfer prints they have proliferated throughout the world of studio ceramics.



Fig 52. Howard Kottler. *'Bunny Hop Pot'* 1970 Howard Kottler. *Colonial Rockettes*. 1967.

The technology has become more accessible enabling ceramists to produce prints in the studio and Kottler's cut and paste, collage approach still remains the preference over Derby's 'fitted' dialogue with form (Scott. 1994, 2002). Apart from the costs, reluctance to work with the Derby approach is perhaps because it is considered to be creatively restricting, with a massive amount of preparation for extremely rigid results. Individual studio practitioners cannot easily compete with the precision qualities and development time of a printed ceramic object, but they can offer a continuity of creativity and variation within the production process.

In the introduction two artists (Lawrence and Dixon) were discussed, who successfully combine print with clay materials and then go on to produce simple forms from these panels. Although the visual integrity shown in these examples is limited, the methods that they use allow for intuitive creativity within the very tight constraints of the materials and processes employed. It is this factor of creative variation that gives studio practitioners an edge over

commercial production. But does creative variation have to be at the loss of visual integrity?



Fig 53
Above – Les Lawrence *'New Visions Teapot'*



Right – Stephen Dixon *'Their Finest Hour'*

Occasionally individuals negotiate a more intimate and integrated dialogue between the printed image and ceramic form in their studio practice, and a more successful dialogue is seen in the work of the Japanese artist Harumi Nakashima. Nakashima's ceramic sculptures with screenprinted transfer surface imagery such as *'Dissolving into Darkness with its Parts Wobbling'* employ simple disc-shaped motifs of varying scale applied to highly organic ceramic forms. The circles defy orientation and are placed in such a way as to articulate larger and smaller areas of the object, creating a visual unity between the surface imagery and underlying form. Nakashima's surface prints give the illusion of the integrity of an all-over-print.

Fig 54. *'Dissolving into Darkness with its Parts Wobbling'* - Harumi Nakashima



We are very familiar with the classic polka-dot pattern and although he only applies the separated network of dots as 'figure', our minds include the white glaze as 'ground' creating a complete field (Gombrich. 1979, 1984). The integration that Nakashima achieves owes a great deal to the distortion of scale of the discs that he applies to cover the surface of his objects: '...he used the dots to emphasise and synchronise with the form's protrusions. They make the twisting, outreaching and rising of the form more visible. The dots play an important role in the expression of the work itself' (De Brukyner. 2002. pp. 71-73). This visual integration works because the printed image articulates the inflection of the underlying form; dots swell as the form swells and vice versa.

Nakashima's application of the motifs can accommodate some variation, loosening the huge restrictions and time spent where a more complex print needs to 'fit' extremely accurately to the form, as in the case at Derby. His strategy for integrating the printed image and form is highly successful, yet if he moved away from using a simple 'roundel' motif, complexity would soon undermine the relationship. Whilst he can explore any bulbous, curved form with these simple motifs, the repetition of such similar works reduces the impact and the strategy faces a redundancy of visual interest.

We have established that visual integrity can raise the perceived value of an object through the positive aspects of working within the language of a process, and by unifying image and object. This has been valued critically by writers such as Gilmour, Day and Gombrich and commercially by companies such as Royal Crown Derby. We have also identified that studio practitioners can differentiate themselves from commercial manufacturers in this sector through the additional factors of creative versatility within production through variations of image and form dialogues.

I have discussed over the course of the document a variety of examples of how commercial companies and individual practitioners have thought through

the process of stencil/screenprinting, in order to overcome factors of division. This approach of working within the language and limitations of the process has led us from a simple understanding of the basic principles, through to complicated interpretational strategies for combining the printed image with transformative materials and complex forms. We have explored the sector's historical developments and contemporary adaptations, both in the studio and large-scale commercial production. There are precedents that can be drawn upon to overcoming issues of division, and for the value of integrating print and form. There is not, however, one single strategy that offers the studio practitioner a versatile and easily accessible approach that fully integrates print with the clay form at a stage or state where the two can be intimately manipulated by hand, thus extending thinking through to the final stage of production. It is my aim to fill this gap in knowledge.

Inspiration for Innovation & 'Allied' Processes

Most practitioners who work with ceramics and print began by exploring the ceramic transfer system as used by Royal Crown Derby. This has come to be regarded as the 'conventional approach' and serves the industrial context well.

It has benefited to commercial manufacturers for specific aspects of this type of production to be standardised, such as the different grading of mesh that we discussed in chapter one. Similarly a controllable quality hand-cut film for making stencils gave the earliest ink companies the incentive to produce a vast series of standard ink for all types of application (Biegeleisen. 1938, 1941, 1963. pp. 3,4). All of these developments, and the impetus of the economic benefits of establishing fail-safe commercial systems, set in place the idea of paradigms that are often referred to as 'traditional' approaches. The notion of 'tradition' can have a strong influence on studio practitioners, especially within the applied arts, and approaches can become entrenched and limited to fixed and specific methods. It is healthy to question these established approaches and rather than using 'off the shelf' materials and processes, to reconnect with innovation in the context of a fresh project. My research project required a total rethinking of the conventional ceramic transfer system to bring about a unified approach to working with the printed image/surface and ceramic form in the studio.

I have shown that my methodology rejects the idea of process as 'fixed solutions' laid down as patents or as tradition, in favour of open, inclusive strategies. I discussed in the second chapter how Henri Focillon's writing on the 'life of forms' has influenced this thinking in regard to an open-ended enquiry into the developing of technology. Lewis Day adds to this understanding in his writing on interrelating technology outlined in his chapter on 'allied processes'. Day goes as far as suggesting that the open stencil

technique should be considered an ‘allied process’ to the craft of fretwork in thinking through its principles of working with cut material: ‘Stencilled ornament is literally a positive of which the negative is a fret.’ In using the term ‘À jour’, meaning to let light through, to describe the interrelating principle of both stencil and fret work, Day (1904. pp.203, 208) deconstructs material and process boundaries. Rather than seeing existing techniques that have been invented and defined, we can think of fundamental principles that can be adapted and applied across a broad range of contexts. With this reading of technology we can find comparisons between stencil/screenprinting and many other processes such as *pietre dure*⁴³, stone inlay and the more recent technique of laser-cutting, while printmaking in general terms can be seen to be allied to casting.

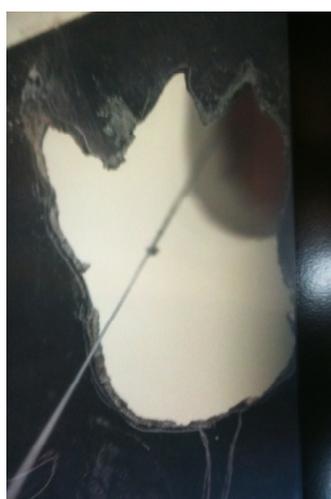


Fig 55. Cutting out for Pietre dure

Inlaid Pieter dure

Wood fretwork

I believe that this cross-disciplinary approach to innovation is integral to the adaptive spirit, which has been present throughout the history of the stencil/screenprinting process. It has been ideas, materials and processes that have come from ‘allied’ processes, which have been of vital importance to developments in screenprinting. This is highlighted by the examples, previously discussed, of how a Japanese artisan and weavers for the U.S. flour milling trade used materials and knowledge from the textile discipline applied to printmaking to develop the mesh screen. We can consider much of

⁴³ See glossary

the screenprinting process as bundled together from existing iterations of tools and technology that already existed for different purposes. Even the squeegee had been in general printmaking use years before being borrowed to push ink through a mesh screen.

Thinking around the benefit of an approach where allied processes can bring about adaptation led to the spark of inspiration for my development of the technique. There is nothing wrong with the fundamental premise for the conventional ceramic transfer process apart from the division between the tasks of form generation and application of print. With this in mind I knew that the first alteration that was necessary was to bring the two activities together at an earlier stage in the production process. The print is brought in contact with the form by the 'covercoat'⁴⁴ support layer and the slight flexibility of this allows for some manipulation to accommodate complex curved surfaces. Reducing the characteristics of this layer down to its essence as a flexible support material I looked to other areas for allied materials, which could be better used at the raw clay state and are more flexible. With my background in printed textiles the connection was made and I felt that the most fertile opportunities would come from using a high stretch fabric to replace the gelatine support layer. Rather than applying a flexible layer to a fixed form I considered bringing together a screenprinted flexible substrate with raw clay at a stage where both can be manipulated as an integrated image/form. It also occurred to me that the textile substrate could be fashioned into an envelope structure with the print on the inside, clay could then be pressed into and in contact with the print/fabric composite. This seemingly 'inflated' form could then be manipulated or 'sculpted' by hand with the print and form acting as one integral material. When finished and dry this would then be fired, burning the fabric away and leaving the ceramic pigments fused onto the surface of the object. The technique would create a physical unity while also extending the process of thinking through the whole of the object's design throughout the actual making process.

⁴⁴ See glossary

Thinking Within the Defining Factors of the New Process

With the basis of the technique established in theory, many new issues would have to be worked through for this idea to be put into practice. While the premise of making a print onto textiles is straightforward, combining this practice with ceramic materials and processes is an entirely new way of working. This needed considerable adaptation and thinking through a new set of defining factors such as print adhesion, pigment stretch and transference.

Substrate and Stitch

The first issue to deal with in adapting the transfer system was to establish the most suitable fabric substrate to use. This material would be used as both printed transfer and flexible mould material. I tested the suitability of a number of fabrics with this in mind. Initially I thought that cotton would be the most appropriate to use because it is made from natural fibres and clay is absorbed and bonds well with its cellulose structure. This fabric, however, does not have a good stretch memory and so when it became wet through contact with the clay body it became too loose to be effective as a structure. The absorbency of the cotton was not a benefit either and resulted in too much clay being left on the fabric's surface, which would disrupt any surface imagery.



Fig 56. Cotton single jersey



A variety of substrates were tested

In response to this I looked to artificial fabric with non-absorbent, hi-stretch properties, finally focussing on Lycra, which has excellent stretch qualities that remained unaffected by the moisture of the clay. There are different types of fabric with a Lycra component and some of the textiles only stretch in one direction, elongating warp or weft. I decided that the two-way stretch offered the most potential for manipulation. While the clay would still penetrate the fabric and come to the surface, I realised that because this is a waterproof layer I could wash down the larger pieces with a hose to remove any clay residue. The maximum amount of stretch exerted on a test piece is compared here with stable non-stretching cotton sheeting, demonstrating the extent of the size difference.



Fabric stretch comparisons



Testing for disruption to the print through stretch

I made some simple fabric mould/envelopes and pressed clay into them putting the fabric under tension and fired the tests. The Lycra proved to work well under these conditions but the thread used to join the fabric panels burned away earlier than the fabric, which pulled apart at the seams. I solved

this by sourcing some heat-resistant thread used in protective clothing for fire officers that burns away at a similar temperature to the Lycra former. This resolved the problem of joining the textile elements together.



High temperature thread



Early burn-out of thread
caused gaping

Ink

With a suitable substrate established I turned to the challenge of developing an ink that would be compatible with Lycra, retain good adhesion throughout the activity of press-moulding, and transfer a good deposit of ceramic pigment onto the clay when fired away. Ceramic ink is not made to be printed onto textiles, there are no precedents for this type of practice that could be drawn on, and this required me to develop a unique recipe. My starting point was to break down the components of a printing ink into basic constituents, a medium and a coloured pigment.

I decided that the pigments would come from ceramics, as these have been well proven to survive the high temperatures necessary for firing in the kiln. Because this is a transfer technique and the printed pigment is essentially a residue left after the paper has burnt away, my initial idea was to try the strongest pigments available to give the method the best chance. For this I decided to use two of the strongest oxide colourants, copper and cobalt.

There are many ceramic mediums commercially available but it seemed obvious to me that the main quality that I required would be compatibility with the fabric, and this decision led me to trial textile mediums. The first one that I decided to work with has additional properties; called 'puff binder' it expands when heated to 140 degrees centigrade. This is a medium that I had experience of through my commercial career and when I came to work with ceramics I began to use it to press textured imagery into the clay surface. The technique relies on the screenprint process's potential for passing this thick ink through coarse mesh as we discussed in chapter two. I felt that if I loaded ceramic pigment into this binder and then made it expand, that the raised, textured print would embed the pigment further into the clay giving good adhesion.

It would also have the effect of producing a slightly textured surface, an altogether more integrated perception of the print and the form.



Expanding base loaded with ceramic pigment



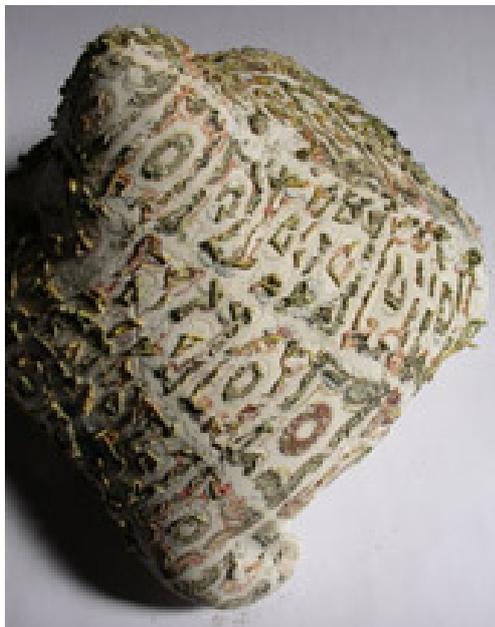
'Cornucopia'

The initial ink/substrate trials were very successful, proving the potential of the new process. I made a number of pieces based on the simple decorative 'Cornucopia' motif exploiting the new capacity for having the surface image travel from the outside to the inside of the form. The extent of visual integrity achieved between the image and these forms would not be possible with any other print technique. The aesthetic of the surface was also interesting as the oxides 'fumed'⁴⁵ slightly giving a toasted, aged appearance. The colour palette that I was able to achieve through using oxides was very restricted and so I switched to using underglazes, these have a large range of hues and are designed to fire to high temperatures. Unfortunately the pigments proved to be too weak in small amounts, and in large amounts undermined the adhesion of the ink so much that it rubbed away from the textile surface.

Although successful, I deemed this ink recipe to be too limited and I made the decision to redevelop my ink completely with the specific aim of creating a successful breadth of printed/fired colours.

⁴⁵ See glossary

The puff binder is an oil-based ink and the problem seemed to be in getting it to accept a large quantity of additional dry pigment. I researched a new textile ink that is water-based, better suited to be mixed with a dry pigment so I could load a high percentage into the recipe. Moving away from the puff binder, however, meant that I was now faced with problems of print adhesion, as there was now no physical 'embedding' of the pigment into the surface of the clay. Initial tests failed to bond the ink to the surface of the clay as illustrated below.



Adhesion problems with the expanding base / underglaze mix

I decided to try a different approach and rather than embedding the ink I would 'stick' it to the surface. There are ceramic materials and glaze ingredients that cause materials to melt such as frits and fluxes, and I reasoned that these could help my printed pigment to stick onto the ceramic surface. For my first trials I simply brushed the fluxing agent over the surface of the fabric that had been filled with clay, thinking that this would physically seal the print in. When dry the tests were fired resulting in the successful adhesion of the ink. In addition the glazed-over pigment looked stronger and, in places where the frit had been overloaded, the print had the curious effect of looking like it was melting and moving.



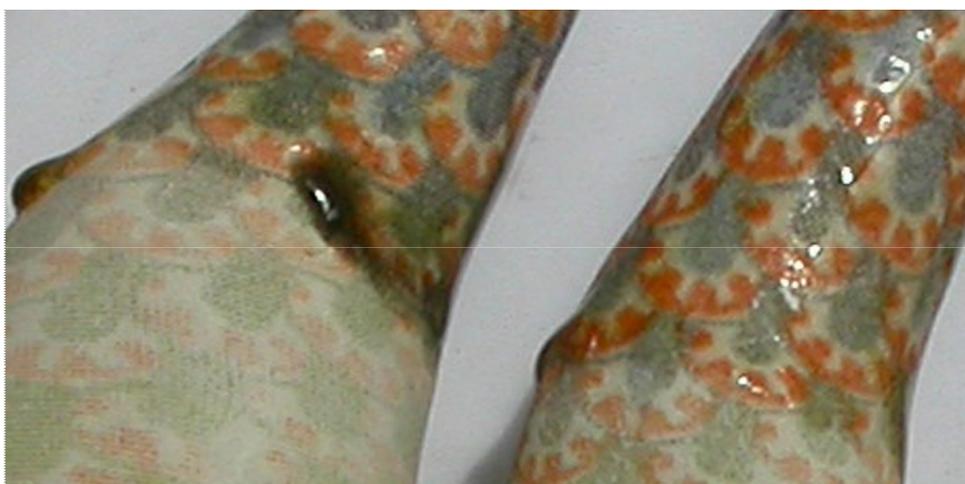
Low temperature frit tests, aiming to seal the print onto the clay surface

Although these initial tests were still limited to muted tones and black, I had resolved the issue of physically integrating the ink into the surface of the ceramic material. Further than this, because the ink was under the glaze-like flux coating and had begun to fuse in places, the integrity between surface and form was enhanced. The positive results of this exploration of a frit/flux coating encouraged me to also add this ingredient to the ink recipe. The new 'melting' quality of the print caused by the fluxing ink extended my technique further into the 'active printmaking' territory that I described in Chapter Two. There is a vast range of ceramic ingredients with the potential to affect fired pigment qualities, and this addition of an active, fluxing material extended the possible variations that can be produced from the same print.



Soft Borax frit is brushed over fabric and then fired resulting in a raw glazed coating that reacts with the underlying print

The next major issue in developing the ink recipe and surface coating was colour range and colour response to the flux material. My adaptations had allowed me to successfully mix large quantities of underglaze pigment into the new medium resulting in the possibility of working with a broad range of colours. The low-temperature frit fluxes that I had begun working with were, however, having an adverse effect on some of the bright colour work, turning them towards green. This had not been apparent when I was only working with the muted colours and black. Once more I could have settled on a limited number of colours, but I was determined to extend my palette to a full range. An additional problem was the commercial withdrawal of the specific flux that I had been using, which forced me to find a replacement.

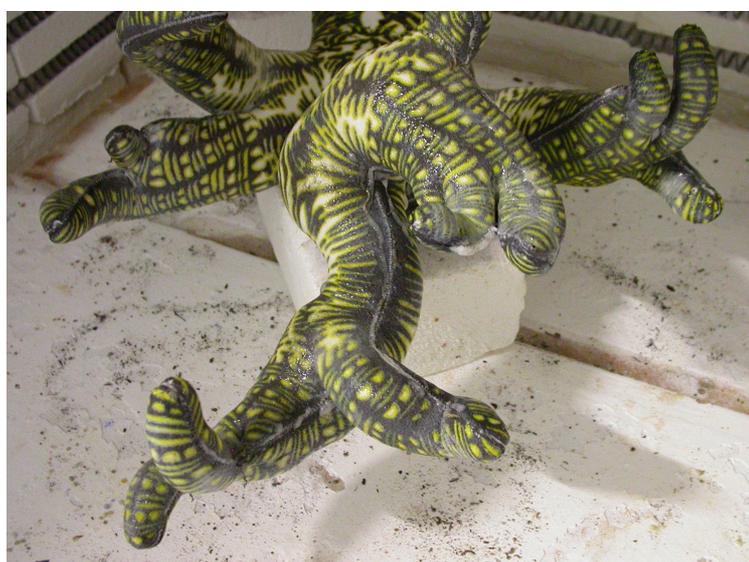


Poor colour response due to the reaction of low temperature frit to underglaze colours

I had chosen to use low temperature clays with the idea that they result have less firing problems, and this influenced my exploration of appropriate fluxing frits. While there were many interesting qualities that resulted from using the coating over black, including dry, matt and gloss versions, when bright colours were introduced the response became 'muddy' and impure. After exhausting the possibilities of success with the low temperature materials I decided to change direction and turned to using a high-temperature porcelain clay body and the appropriate high-temperature flux ingredients. This proved to be very

successful and told me that I had been looking to the wrong end of the firing range and should shift to high-temperature work.

After exploring a number of high-temperature fluxes the final ink recipe that I developed used Cornish Stone, which did not adversely change the pigment's hue. While the flux gives a good colour response it also reveals a character of its own, with variations between a clear glaze-like coverage, through to a milky appearance and at times resulting in areas that 'crawl'⁴⁶. The active variables give the impression that image and form were created at a stage prior to the final glazing aspect of production, with ink, clay body and glaze surface all unified. This combats any negative perceptions that have risen through the conventional method of sticking a print onto a finished object as a supplementary process. These developments allowed me to adopt a full colour range of strong underglaze pigments that, when taken to a fully vitrified temperature on a white Porcelain body, resulted in the bright colours that I had aimed for.



Switching to high temperature clay and frit solved problems of colour response

The Daler-Rowney textile print medium is water-based which met my desire for a healthy alternative to conventional oil-based mediums and the solvent-based covercoat. The medium air-dries quickly between prints, is readily

⁴⁶ See glossary

available, made to adhere well to textiles and retains good fluidity when loaded high with ceramic pigment powders. It also burns away and releases the ceramic pigment onto the clay body well when fired.

The recipe established a good 'standard' ink to begin to work with. One remaining problem to resolve came from the seemingly positive quality of flexibility in the fabric substrate. The potential for hi-stretch that the Lycra offers also has the effect of spreading the pigment out over an increased area, reducing the overall strength of saturation.



Fully stretched and fired. Illustrating the issues of reducing saturation of ink



Unstretched, this image shows the potential saturation of ink

This illustrates the to and fro involved in process development and adjustments needed in response to introducing a new material or quality to a process. In chapter two we discussed the stencil/screenprinting's unique potential to lay down heavy layer deposits of materials and this ability was put into practice to resolve the issue. By using a very coarse mesh screen (34t⁴⁷), adjusting my squeegee angle and slowing its speed I was able to produce a print that fully saturated the fabric. The textile substrate is able to absorb far more ink than other versions, such as the conventional transfer paper system, and this heavily loaded substrate solved the problem.

I made these developments by thinking through tacit, experiential knowledge of both textile and ceramic materials and processes, intuitively responding to

⁴⁷ See glossary

the problems when they occurred. This is the active state of reflexive knowing that Barbara Bolt describes as 'handling' in chapter one, that 'forms the locus of practice-led research's radical potential to effect movement.' Part of the development process can be described as empirical testing, reflecting on results and retesting, but there is also an aspect that draws from a deeper well of understanding. This is the intuitive prediction of results which can make a creative leap forward through gathered associations that emerge from indiscernible sources.

Developing a Dialogue Between the Screenprinted Image & Ceramic Form: Thresholds

The development of the ink/substrate/flux composite meant that I had produced a viable, basic system for integrating image and form physically. Establishing this method was vital to the research project and provided many of the key aspects of what we have discussed as a process's 'syntax'. These elements can be fed back in to further define content, thus enhancing the integrity of all aspects of the work.

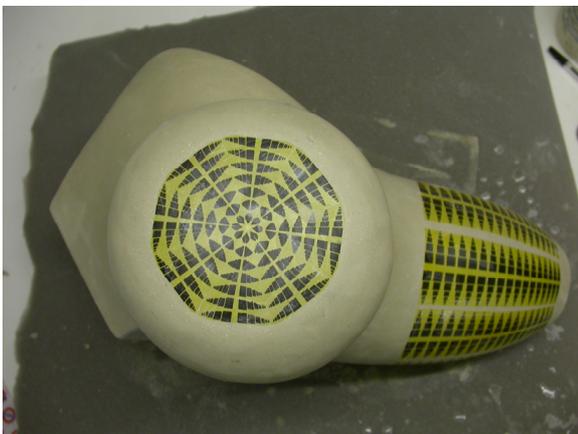
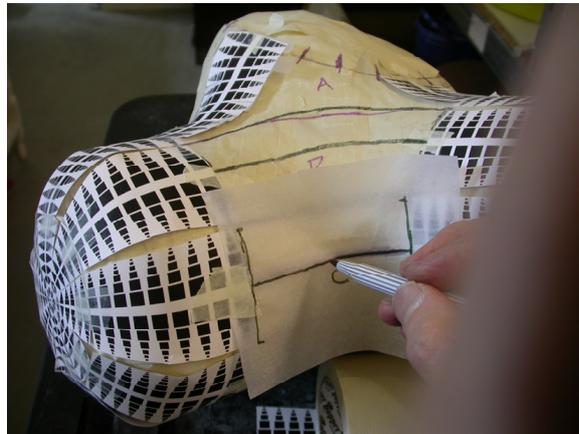
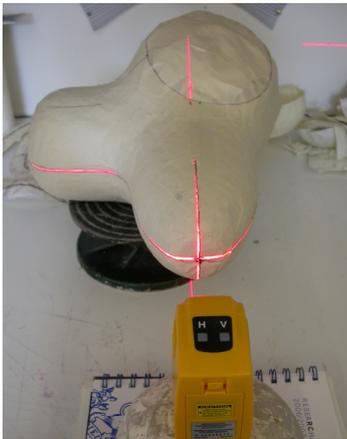
The technique was only the physical aspect of the process, in addition to this I needed to explore what could define an integrated relationship between the image used and the underlying form. The questions were raised: where does an integrated dialogue between the screenprinted image and form begin? And what type of imagery is 'appropriate' to use?

This aspect of the investigation began prior to resolving the physical strategy that I have described above and therefore I started to explore this relationship using the conventional approach observed at companies such as Royal Crown Derby. At Derby, however, the dialogue between image and form has a strong set of defining factors: the figures they produce represent animals and therefore have surfaces that relate to their characteristics, albeit stylised versions, and even the style is within the defined parameters of the Imari aesthetic and their past work. I wanted to take away such defining references to see how I would respond to a neutral form and determine the dialogue at its most basic.

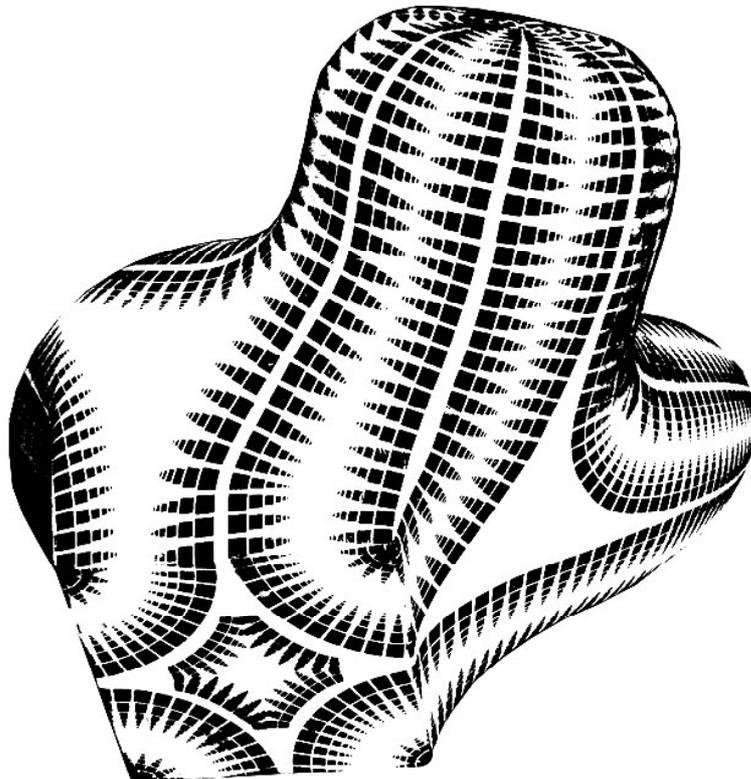
I initially developed a number of forms consisting of a combination of basic geometric shapes with complex curves, to which I offered up the most neutral of imagery, the square pixel. I adopted an approach learned from the strategies for dialogue that I researched in chapter three. The method I used related to what we have discussed as 'obedient ornament' and ideas derived

from Day and Gombrich concerning surface imagery that express the inflection of the underlying form.

The objects were constructed by combining simple geometric domes and flat tiles, I then lofted between planes and joined them up to produce a new form. Responding to the form I attempted to find its defining landmarks with which to initiate a starting point. I later recognised this strategy as what has been called 'explanatory articulation' (Gombrich. 1979, 1984) and Day's notion that a form's production can be suggested through corresponding surface decoration. This determined that the domes which had been made in-the-round on a lathe should be defined by horizontal or vertical radiating lines. The centre of these shapes provided the starting point from which the pixel motif could extend as in the Mercator example. After following these strategies and with some structure in place then the gaps between them could be extended to meet and join up.



In order to test the increased visual value of 'explanatory articulation' I used a black printed image on a white form. By photographing the object and manipulating the image using computer software, such as Photoshop, it is possible to increase the contrast until the form disappears leaving only the black surface imagery. The photograph illustrated has been adjusted in this way and the surface imagery is all that is needed to understand the missing form, it renders it *übersichtlich*: visually easy to grasp (Gombrich. 1979, 1984. p.164). This was the relationship between surface image and form that I was aiming for in my work, where the surface image enhanced the formal properties of the object.



Ceramic object with all formal information removed. The surface print is all that remains to describe the form, yet it remains visually easy to comprehend as a 3D object

Once I had developed the printed, flexible mould technique I began to think through the new dialogue that I had created between image and form, how did it compare with conventional methods. The main difference is that I do not begin with a fixed form that imagery is applied to, rather I begin with an image that becomes a mould, which determines the form: the dialogue is reversed. This re-posed the question of where to begin? Instead of finding my way around a blank form I had to find my way around a blank page.

As a result of this approach my generation of imagery, which had been in response to formal landmarks, became reversed and the imagery itself would be used to generate structure and form. It is at this point that the tacit, experiential knowledge I have described as interpretative mediation in chapter three becomes a crucial aspect of the design process. By working with this reversed approach it is necessary to have advance knowledge of possibilities to try to predict variables determined by the new process.

I decided to continue to use the approach of relating image and form through prominent landmarks. By thinking through the materials used I determined the most prominent and constructive formal landmarks that I could potentially use creatively, to be the edges and thresholds of the fabric panels. It is here that changes can be made by altering my design of the silhouette outline of the piece of cloth. Gombrich discusses our natural tendency to find the edges and landmarks of an image, referencing research that records the way our eyes 'read' the features and outlines of objects first (Gombrich. 1979, 1984. p.122).

My initial responses were largely intuitive and I built from this position, using trial and error to bring together different outlines. I decided to give my exploration of this area some definition by creating boundaries to work within. One of the driving aspects of the research has been to readdress the pejorative perception of surface decoration as supplementary to form, as discussed in the introduction. If we look at a commercially produced ceramic object next to the transfer sheet printed to decorate its surface it is clear that

the object can exist alone but that the printed sheet of imagery makes no sense at all when devoid of its intended form. Because of this it became increasingly important to me that my original image, which initiates the dialogue, could stand alone as a work. With this reading the image is then both the premise for the final ceramic image/form and also has the potential to be a print in its own right. The aim of this approach is to try to rebalance the perception of the image/form dialogue and increase the integrity of this type of print. I decided not to produce structures from a large number of different panels in the way a tailor might. Instead my image-‘garment’ would be limited to one image that would simply be mirrored to create a panel for the reverse of the mould, or a series of mirrored and joined panels. This allowed me to focus on one image, one perimeter threshold.

My first exploration of this dialogue, determined by the threshold, focussed on making the image come away from the surface, simply overcoming the flat plain. This was achieved with a series of formal explorations based on imagery growing from the centre of the panel and ‘bursting’ forth. The initial inspiration for this was Gombrich’s discussion of Koenig’s research into the formal development of military uniforms (Gombrich. 1979, 1984. p.228). The image Gombrich presents shows how plain army jackets became increasingly elaborated over the years, especially the button fastenings until in some instances, they completely take over the front of the garment in what Gombrich describes as ‘the change of function from practical usefulness to display’ (Gombrich. 1979, 1984. p.227). Display has been a constant influence throughout the research and I used this visual example of expanding seams and thresholds as a starting point for a number of forms.

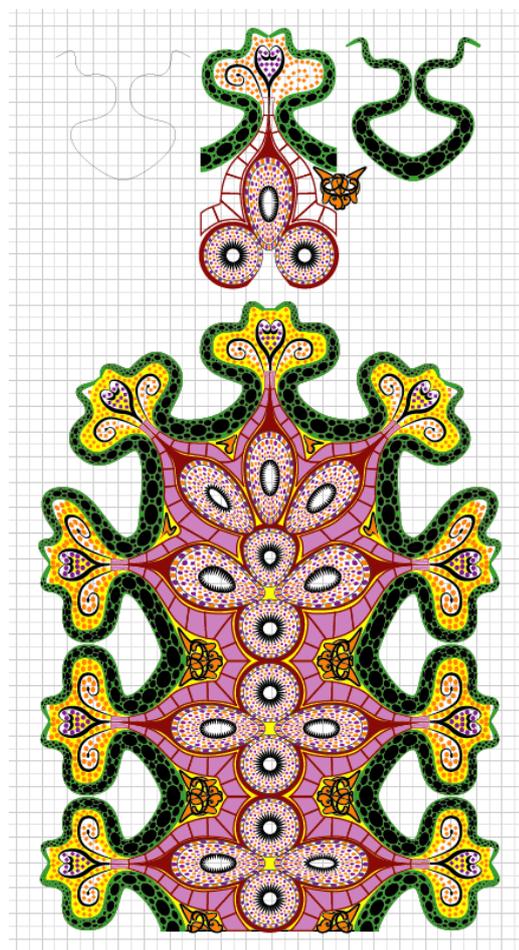
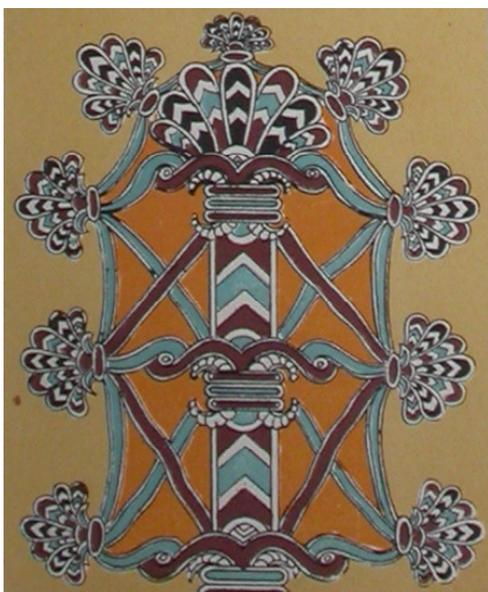
Leaving the basic pixel motif behind, decisions concerning the ‘type’ of imagery that I would develop were informed by the research in chapter three. This suggested a rejection of photographic, tonal imagery in favour of using hi-contrast, binary, illustrative, pattern and decoration. We have discussed why this type of imagery is considered to be more ‘appropriate’ for working

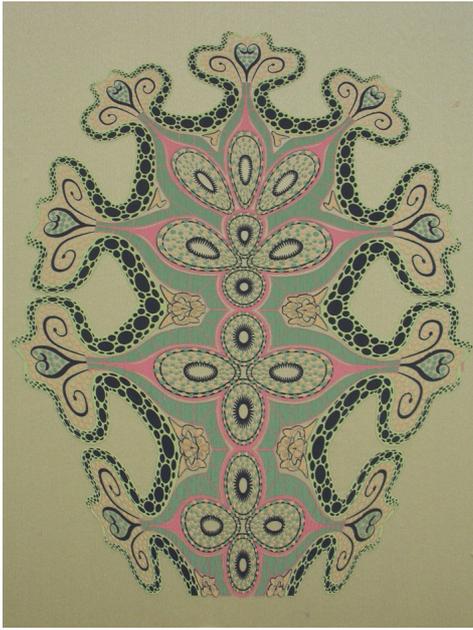
within the language of screenprinting especially when working with coarse screens and heavy deposits, which would compromise the use of fine tonal imagery. Another reason that this image type is highly appropriate and has also been adopted by companies such as Royal Crown Derby is because it can be better made to 'fit' to forms and manipulated to articulate the inflection of them. With the establishment of these guiding factors I began to focus on the development of individual image 'artworks'.

In the case of the imagery developed for 'Gourd I' illustrated below I wanted the pattern motifs to relate to the structural narrative of the piece. I found a motif from Owen Jones (1856) *Grammar of Ornament* with a 'lumpen' periphery, which related visually to the elaboration of thresholds, and I developed my own version of this image. Starting with a central 'seed' I grew this outwards, making reference to Koenig's button embellishment phenomenon. This disrupted the surface of the image with the intention that it would also disrupt the surface of the resulting form.

Below - Nineveh & Persia No 12. Owen Jones – *Grammar of Ornament*

Right - Threshold Image Development for 'Gourd I'





Textile print for *'Gourd I'*



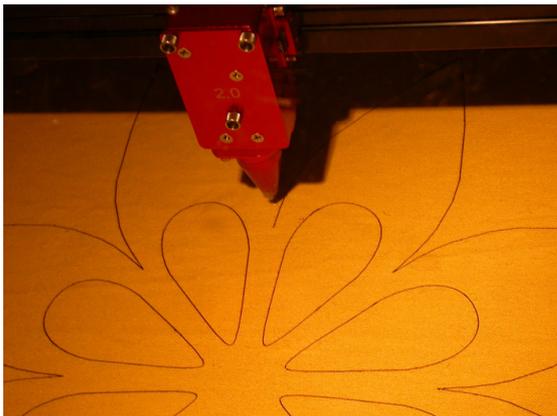
'Gourd I' From *'Gourd' Series*

The image was screenprinted in five colours onto three panels with ceramic pigments, sewn together at the edge of the design and clay was pushed into this textile mould. Where the protuberances come away from the outline the resulting form swells or bulges away from the flat plain created by the interior of the panel. The resulting ceramic piece has been defined by the lumps at the threshold of the panel seams which suggest an organic gourd-like form. With just this change in the outline profile of the fabric panel my aim that a two-dimensional image could determine a three-dimensional form was achieved, the dialogue reversed and integrity enhanced.

Constructing I: Making Fabric Moulds

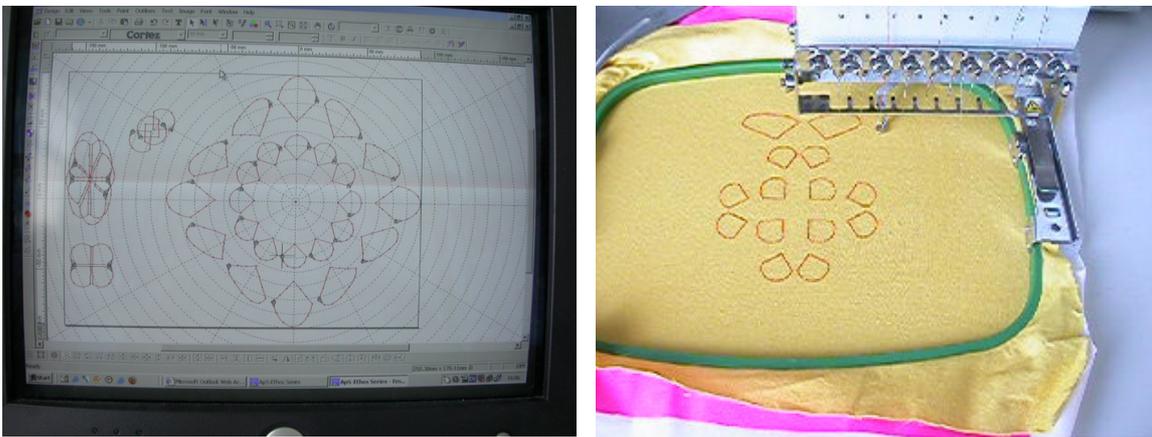
While the seam is the determining factor for the creative dialogue between the print and the form, it also presented a challenge in accuracy when joining the thresholds together. The new high-temperature stitch had revived the potential for constructing form from the separate fabric panels, but with these thresholds as a visual focus the quality of join would be under close scrutiny. If the printed image had minute detailing and the two panels miss-registered it would be aesthetically clumsy and undermine the perception of visual integrity that I had been aiming for.

Initially I pinned the two panels together in a conventional way, but this proved to be extremely time-consuming and was not a guarantee of accuracy unless I used a lot of pins. This limitation required me to think through other means to join the panels. Once more I looked to allied processes and my first response was to explore the use of new technology to improve speed and accuracy. Laser cutting was quick and provided very precise, repeatable fabric panels. These could be quickly and perfectly matched together but did not eliminate the need for a 'pinning' system to maintain their registration during stitching.



Laser cutting the fabric panels

I then turned to developments with stitch to see if computer aided embroidery would help. This method produced the precision joining I was looking for, with stitch lines following my computer designs exactly, however, the problems with registering between panels still remained. This is because the two layers of fabric had to be stretched taught upon the 'hoop' that the machine operates within, and there is always some degree of movement between these two panels. If the relationship between the two printed panels was loose or ambiguous, then this method would produce perfect stitch-constructed envelopes, but my aim remained a control that would allow a more precise visual integrity.



CAD/CAM stitching the panels together

The hi-tech line of research was rejected and I turned once more to thinking about the cross-disciplinary application of existing technology within my own experience. I recalled that as a commercial textile printer we had used a 'printable glue' to stick metallic foils onto garments for decoration and I reasoned that it may be possible to use a printable glue as a more effective way to join my two panels together. 'Plastisol' textile ink is an opaque oil-based system cured by heat, when reheated it melts slightly and can be stuck firmly to itself. I remembered that this had happened on occasion by accident and began to make some tests to see if this property could be controlled.

Once again I employed a very coarse screen to print a detailed symmetrical outline silhouette onto a number of fabric panels, these were spray mounted onto ceramic transfer paper for stability. I dried them with a heat gun and then cut around the shapes, offering them up to one another, I then used a commercial machine to successfully heat press them together, proving this approach to be an extremely accurate 'registration' system. The backing paper was removed and the black ink outlines of the threshold could be easily followed by eye on a sewing machine to stitch the panels together.



Heat pressing the panels together accurately using plastisol ink as a glue

Constructing II: Filling, Manipulating & 'Sculpting Print'

While the construction of the fabric moulds necessitated a re-think of technology for joining the fabric, filling the textile moulds with clay presented a more tacit challenge. The use of moulds to form clay has ancient precedents, but using fabric as a former is a new area and I had to learn new approaches to control results. The closest conventional method is press-moulding and this is how I thought about adding the clay to the interior of the textile envelopes, there are more differences, however, than similarities to this technique.

The use of porcelain as a clay body determined that pieces would be hollow to avoid problems of drying, cracking and breakages in the kiln. Therefore it was not just a matter of fully stuffing clay into the moulds, but rather required carefully filling them with a controlled thickness of clay walls. Large, open bag-like mould constructions provide easy access for pushing and press-moulding the clay inside, but because there is less complex physical structure within these forms the adhesion between the clay and the fabric can become compromised, allowing only very simple inflating and manipulation to be undertaken.



Above - Large moulds provide easy access



Right – These 'open' structures were problematic having poor adhesion between fabric and clay and needed additional support

This suggested to me that a more complex structure needed to be designed into the pieces to maintain tension between clay and mould wall. This is a good example of how the process contributed a continual determining influence on aesthetic considerations in the work: a new guiding principle came into affect as a result of a syntactic element having influence. This came about by thinking 'through' the process and working 'with' the most successful and appropriate guiding factors. The lumps at the threshold of the 'Gourd' series were introduced to help add to this revised approach, and became a formal motif that I repeated in later work.



Elements were introduced that would encourage structural integrity that became formal features of the objects repeated in other forms and determining the aesthetic direction of the work

Other aspects of the filling process fell back on tacit experiential knowledge of working with the clay material. The difficulty of getting clay into the less open areas was overcome by dropping small balls of clay into the fabric and then pushing this down and outwards by hand. This begins to expand the fabric mould and open it back up again, the more this is done then the more the space opened up and the easier it was to continue. The initial aim with all the works was to get them to a stage where they were simply 'inflated' with a consistent wall thickness of clay and the addition of a core of waste fabric to maintain tension in the hollow forms and allow them to dry consistently.

The need for areas of complexity caused me to break the design of the forms down into a series of nodules, tendrils and smaller elements that wound along the seam. The scale of some of these parts of the mould prohibited hand-filling altogether and required me to develop a new method. I had seen a ceramist adapt a builder's 'caulk' injection gun to use for extruding thin clay lines, and I thought that this could be used to 'inject' clay into my smaller moulds.



For medium sized cavities I dropped small clay balls into the mould and used a tool to compact them



For small elements I mixed a thick paste and injected this into the mould with a caulk gun

The consistency of the clay needed to be adjusted, as slip was too wet and plastic clay too thick to pass through the fine pipe that I glued to the gun's canister. Once the clay passed easily through the tube I could reach into the tightest spaces of the moulds and fill very small elements completely with clay. Where the form consisted of both small and large areas I first filled the tight elements with the softer clay, and then when I switched to press

moulding into the bigger spaces the thicker clay would form a seal to hold the thinner volume in. The decision where a hole in the seam should be placed to fit in my hand, or the injection gun, was informed by two factors: ease of access to the majority of areas, and the least disruptive place to leave any resulting, hand-stitched 'scar'.

Once the form was fully inflated with clay the entry holes were sewn up and manipulation could begin. This is the final stage of the making of the work and represents the most intuitive aspect of it. While each new work feeds into my experiential understanding of the technique's strengths and weaknesses, if it is the first time that I have inflated an image/mould envelope then I am always presented with something new to respond to. As well as my own aesthetic aims the act of 'sculpting' becomes a balance of several other defining factors; one is the inbuilt design of the image/mould structure, which is increasingly redefined with each new exploration of the technique, another is the material properties and still other more subtle variations of the process.



We have discussed the importance my methodology places on working within the process and the value of responding to the technology used: the Lycra stretches well but has limitations, the seams will not stretch because the thread is inflexible, the textile/clay composite has to be eased into new positions, gradually and carefully as the Lycra can become overstressed and rip. The clay/substrate composite layer will become separated if it is manipulated into particularly complex positions. The clay has its own

strengths and weaknesses that determine scale, shape and the boundaries of manipulation. The whole making procedure is aggravated by the fact that porcelain can become easily overworked and, because it is enclosed within and has a core of fabric, it is drying quicker than normal. This speeds up the decision making process and forces the act of manipulation to be undertaken in one quick, uninterrupted performance. Strategies are learned by experience such as relieving stresses by bunching up the clay/fabric composite layer like the rippling folds of skin in a pair of bellows.

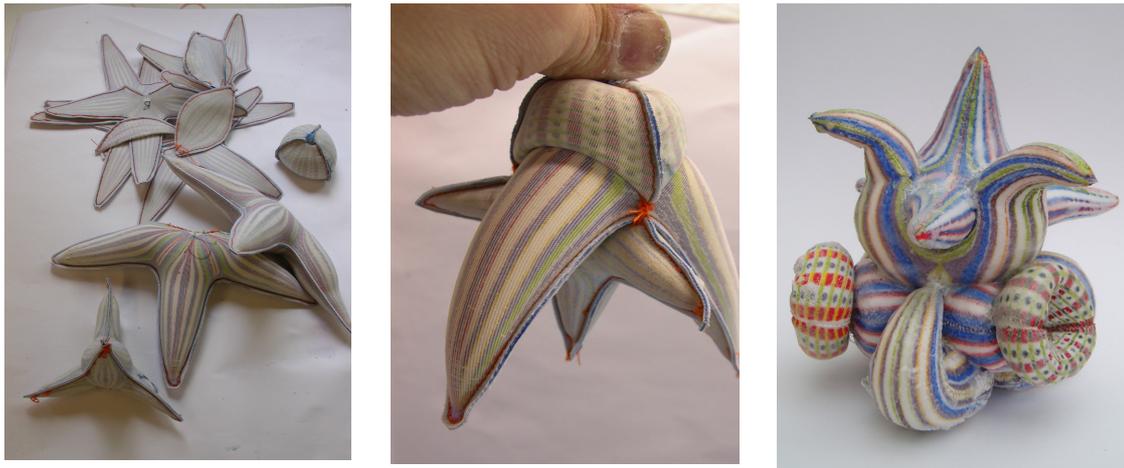


Bunching up and rippling the fabric added structure to large areas and also relived stress in a piece

One has to build up and work with successful structural precedents, exploring new ones and pushing the limits of these factors to work towards the overall formal aims of the work. In some cases the forms need to be strapped up to keep them in shape, while for the larger open forms it has been necessary to stop them from collapsing in on themselves by propping them into containers and using padding.

Developing a method for accurate registration and the injection moulding system suggested the idea of developing much smaller individual moulds. These solid forms create the possibility of producing complex amalgamations. Forms are filled with a wetter clay mix, which behaves very differently from

clay used for the press-moulded versions. They are essentially sacs of fluid clay that can be squashed together and held in tension, pulled into more singular forms with thread. When these combinations of moulds are dry and fired the covering flux layer fuses the different parts together as a whole. Some of these smaller pieces exemplify my aims to physically integrate print into complex forms, and it is impossible to tell that they began as separate elements.



Form built up through the amalgamation and fusing together of small components

The final glazing is the alchemical act, fusing disparate parts together and burning away the fabric to reveal the print. The variables of ceramic materials, fired to temperatures of over 1250 degrees C, always result in surprise revelations such as the flux creating an interesting skin-like covering, pulling back in places to reveal the print beneath, or flowing smoothly over a flat area of the form. At this stage the activities of thinking and making have ceased, all invested as potential in the pre-fired object. Upon firing the material and process qualities of ceramics are working alone with these inherent potentials: the flux/glaze running because it is thicker in some places than others, thin tendrils of porcelain may slump slightly in the heat, or overlaid ceramic colours may react with each other. Interpretative prediction based upon a tacit, experiential understanding of the variables to date has put in place a safety net to limit the weaknesses and exploit strengths, but the serendipity of a kiln firing is an important ingredient of the process too.



Above - Dry clay/textile composite
Frit layer sprayed over
Finished fired piece



Above - The skin like
glaze/frit splits, breaks and
crawls over the surface

In this section I have aimed to make transparent the intuitive decision-making process that enabled me to work through the development of a new method for combining ceramics and print. So far we have not discussed subject matter specifically but rather, through focussing on the determining factors of the process, I have outlined the 'syntax' that I will work within to draw out subject matter. Adding this new layer of reference to the inherent qualities of the process, will contribute to the integrity of the work.

*The Emergence of Subject Matter Through Making:
From the Apotropaic of 'Growth' to the Grotesque 'Between'*

A number of factors can be clearly defined as determining the nature of the new process. Such elements as 'display', 'thresholds' and 'transformation' are words that can also act as triggers for content through metaphor or association.

In this next section there is a shift in focus from defining the dialogue between the print and form, and defining the finished work of art: from pure visual and physical aesthetics to concept/subject of the work. The two are inextricably together but I have very different objectives for their perception. I have discussed the divide between surface and form, and my strategy for overcoming this to integrate them as one object that I can continue to manipulate. My aim is that the perception of this surface/form composite should be undivided and the object should be '*übersichtlich*': visually easy to grasp. Having consolidated this relationship the subject matter will go on to draw from self-referencing aspects of the process language leading to a very different perception of the finished works, engaging with ambiguity and the liminal.

One of the main syntactic determinants of the new process is the threshold, joins and seams of imagery and the mould envelope, edges and entry points all influence the physical dimension of the work, and are aspects that I intend to draw subject/content from. We have seen that decoration has a particular relationship with formal landmarks and one of the more potent examples, the Apotropaic⁴⁸, is discussed by a number of writers on decoration (Gombrich 1979. Trilling. 2001, 2003. et al). This term means anything that is intended to

⁴⁸ See glossary

ward off evil or bad luck and has a strong link to the protection of thresholds⁴⁹. There are a number of examples of this type of decoration, for instance 'interlace'. This is used on borders, ends, and the areas of a structure that may be considered to be weak points or gaps. Interlace imagery often winds and entangles itself into lattice-work and writhing serpent bodies within which the evil 'eye' becomes trapped and prevented from going further inside, protecting the interior (Gombrich. 1979. p.140, 263).

I had previously been interested in the idea of protective forms such as armour and shells, having explored the process's potential for decorating the inside of hollow structures⁵⁰. This was further inspired by examples of drawings of decorated armour in the V&A Museum's collection⁵¹ and realising the link between armourers and printmaking through their use of etched surfaces.

The development of imagery for the piece called 'Between' extends that which was used in the 'Gourd Series' using interlace imagery and the premise of protective symbolism to generate a weaving winding border. Embellishing the peaks of the 'bulges' are a series of 'fronds' that reach down into the interior as a plant would and join with a series of framed 'holes'. The 'fronds', 'bulges' and 'holes' have both symbolic potency related to the Apotropaic and are also shapes that I have developed for their potential to contribute to structural strength.



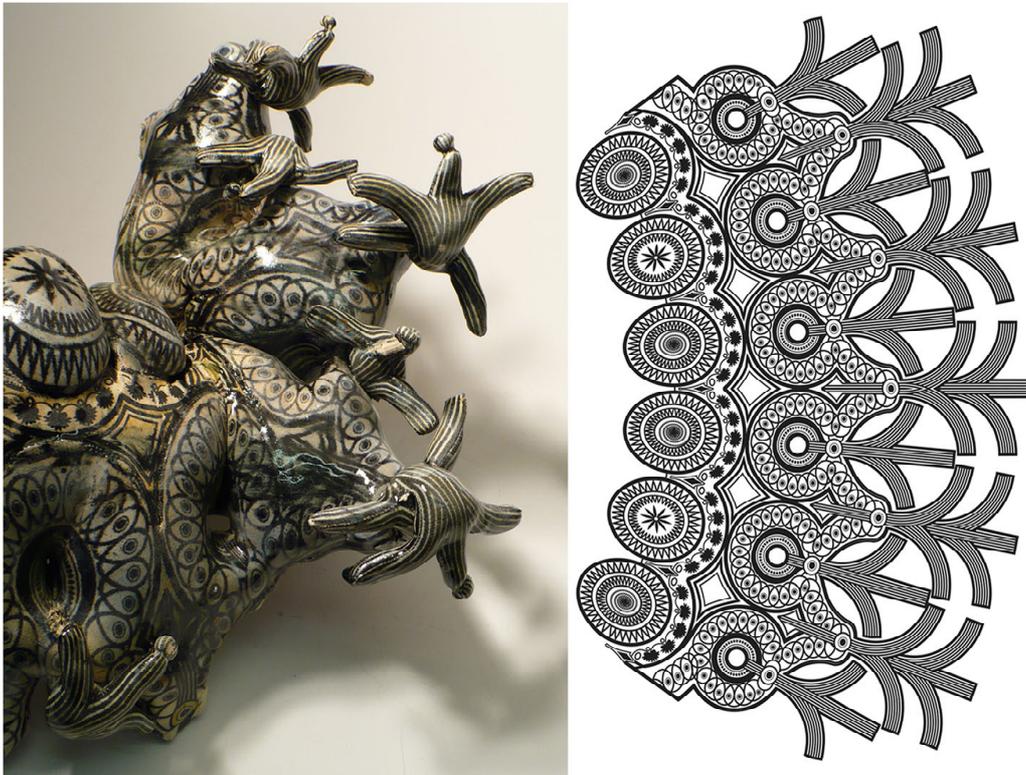
*'Apotropaic Interlace' –
Design for 'Between'*

⁴⁹ Such as the 'caches' described by Dinah Eastop from the Textile Conservation Centre, University of Southampton in her presentation '*Surfaces in conservation as material culture*'. Surface Tensions Symposium. University for the Creative Arts, Rochester. 26 June 2009.

⁵⁰ See '*Armour/Shell*' in the selected artwork appendix.

⁵¹ See V&A Appendix

The resulting image had been intended for use in producing a curved decorative object to be placed over a doorway to protect a room, a threshold. The surprise revelation was the extent of the transformation that occurred when the opposing envelopes were filled with clay and the formal qualities of the piece emerged. What started life as a two-dimensional pattern decoration became an amorphous animal/island hybrid. The technical development of colour had not progressed beyond black and sepia hues at this stage and combine with a layer of ceramic flux applied before firing, this gave the piece a melting gothic aesthetic.



'Between'

The formal change had occurred because the flexible mould shape for 'Between' suggested little about how it should best be filled with clay and the form be physically manipulated. The earlier 'Gourd' image/form combinations asked that they would be simply 'inflated' so they looked like they were about to burst, and this required little further manipulation of the form.

'Between' was awkward from the start, I had to string up the unwieldy structure, work fast and immediately. It was not possible to retain continuity of form over the repeated areas and the addition of the holes set up new transformations that, when combined with the bulges, generated an alien landscape of contorted forms.



Making '*Between*'

My methodological approach to the image/form development has been to reflect upon the resulting qualities determined by the materials and process and feed this back into the content and subject matter. Following the aesthetic results of 'Between' I recognised another aspect of decoration that I had previously been drawn to, the grotesque. The reference had emerged when I started to mirror my imagery between two panels, something that was an integral aspect of the early 'Grottesche' (Zamperini. 2007, 2008. p.8) work. With the added visual jolt from 'Between' new associations materialised, such as the link to transformation and the hybrid nature of the grotesque.

The grotesque is a term often used to describe 'metamorphoses, ambiguity, and a hybridisation of 'shuffled familiarity'.....'It is our interpretation of the form that matters, the degree to which we perceive the principle of unity that binds together the antagonistic parts' (Zamperini. 2007, 2008. p.8). Giving the title

‘Between’ to this piece makes reference to what Galt Harpham calls a ‘liminal’ phase, “between two worlds” that is an inherent aspect of the grotesque and which ‘occupies a gap or interval; it is the middle of a narrative of emergent comprehension.’ (Galt Harpham. 1982. pp.13-15)



'Growth'

‘Growth’ is another decorative Apotropaic piece that I developed with the intention to display it above a doorway referencing protective symbols for domestic entrances⁵². The work continued the use of the ‘bulge’ deformation at the image threshold, but the main aim had been to use the same motif repeated over a number of forms that seemed to be unwinding and growing. This follows a line of thinking which began with the ‘Gourd’ series that aimed to capture some aspect of what Gombrich (1979, 1984. p.261) describes as ‘animation’ in decorative work. I had begun to move away from this direction and the resulting group of work for ‘Growth’ failed to satisfy my imagination. However, the visual surprise of ‘Between’ prompted me to re-evaluate the use of the imagery I had developed for ‘Growth’. This time instead of merely ‘inflating’ the shapes I would apply the same intuitive approach to manipulating the form that I had adopted for ‘Between’.

⁵² Such as the practice of decorating domestic thresholds with colourful rice paste patterns in India known as Kolam – see glossary

Taking the larger mid-section I encouraged the fleshy, folding details that were an inherent aspect of pushing the soft porcelain clay into a flexible fabric 'garment'. Instead of urging and adjusting the emerging form back towards the original planned image/shape, I twisted, warped and deformed the clay/textile materials. Fabric stretched and rippled and porcelain filled and swelled the form holding it, imprinting and capturing detail as is the nature of clay. I found, recognised and accentuated these determining qualities, encouraging the perverse transformation of an abstract decorative motif into a Kraken-like writhing figurative form, and from the former 'Growth', 'Writhe' was created.



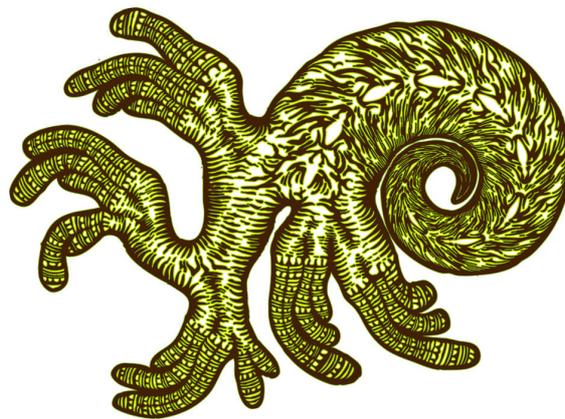
'Writhe I'

'Ceaseless States': A Record of Thinking Through Making

I would like at this point to reflect on how I have been thinking through 'iterations' of a developmental process. The last section discussed how revisiting 'Growth' with new knowledge progressed the content of the work and changed it into another, 'Writhe'. The differences between the two works happened at the very end of their production, with the design, print and mould stages of both of them identical up to that point. The changes in creative intentions, which occurred when adding and manipulating the clay, produced a very different result.

This use of the production development process as a creative strategy has precedence in the printmaking discipline. Subtle changes in aspects of a print's development are often trialled or 'proofed' through test prints known as 'states'. When an engraver adds a new set of marks to a plate he may wish to see how this has affected the image being worked upon and this is a new state. The dictionary definition of state that is relevant in this context relates to 'the condition that something is in at a particular time.' In terms of the physical properties of a substance we can consider the example of gas, liquid and solid being the different states of water. As a printmaking term the word is used to describe any changes that are made to the print matrix that produce a new aesthetic result.

The late 19th century art critic Phillipe Burty was an early advocate of the creative possibilities for the changes in a print's production and promoted the term 'belle épreuve' to describe the 'beautiful proof'. His original intention was to define very limited or unique impressions taken from an intaglio plate but this had developed by the turn of the century 'to realize the potential variability of a plate.' (Parshall. 2001). One review from 1899 that described the artist Félix Buhot's printed work exulted in his creation of 'these variants, these ceaseless states, these metamorphoses, these counterproofs sometimes almost to the point of obsession....la belle épreuve'. (Parshall. 2001)



'Mandrake Series – Single Tuber' - Ceramic State & Textile State

In the catalogue for the exhibition 'The Unfinished Print' Judith Brodie adds to this creative reading of the term, writing about the 'metamorphosis' of Jacques Villon's *La Parisienne*, she suggests that 'the print deviates from the usual norms of printmaking: there is no definitive state.' (Parshall. 2001)

In this context prints can be returned to for continuation or alteration, be wiped back and revised or left unfinished, the whole lineage can be recorded and any or all of the states can potentially be chosen to represent a finished work. This open and experimental approach to printmaking embraces the process itself as an agent for creative variation and transformation, and can be seen as an additional aspect of my methodological approach to thinking through and within the making process. Thinking through the process, a work is the extension of its life, emerging and evolving, the maker mediating and reflecting on the different states that result. Focillon also connected the ideas

he had on the 'life of forms in art' relate to printmaking: 'This is the fundamental interest.....that the "history" of a work of art has for us before it attains its ultimate form – in the analysis, that is, of the preliminary ideas, the sketches, the rough drafts that precede the finished statue or painting. These rapidly changing, impatient metamorphoses...What we have here is the very technique of the life of forms itself, its own biological development.' (Focillon. 1935. p.105)

Focillon specifically relates these ideas to printmaking with an example of how an engraving plate is increasingly worn away through the production of an edition: 'Thus, because a masterpiece has been destroyed before our very eyes, the realization inevitably arises in our minds of how active and animate a concept is that of technique.' (Focillon. 1935. p.116) Rather than discussing the 'mechanical' repeat that has long been a focus of criticism aimed at printmaking, Focillon instead observes the inherent nature of change within this type of production. 'Repeated reprintings will weaken....worn plates, indeed, preserve only the bottom courses of the once unblemished work, as an ancient city, now flush with the ground, discloses merely the general plan of its buildings. It is a kind of reverse genealogy, a kind of inverted assay of the rich resources of that which has passed away.' (Focillon. 1935. 2001. p.116).

These observations reinforce the fact that process itself is an active agent in the creative process and that the changes which occur, and iterations that are a result of this process, all have validity. The term 'matrix' links printmaking with moulding, through its early use to describe the casting of type. The serial nature of printmaking and moulding determine that any slight change or transformation is recorded in the state of the multiple.

The life of forms and ceaseless states of printing link back to the grotesque through a number of references to 'metamorphoses' and the idea of 'altered states'. Writing '*On the Grotesque*' Geoffrey Galt Harpham could be echoing Focillon's words on the emergent nature of form: 'The perception of the grotesque is never a fixed or stable thing, but always a process a progression.....The grotesque occupies a gap or interval; it is the middle of a narrative of emergent comprehension' (Galt Harpham. 1982. pp.14,15) We can add this reference to the understanding of the visual/formal development of my work. My aim is to capture the emergence of a work at a state that can be considered somewhere 'between' inception and finished, capturing movement, making, manipulation, emergence 'from/to', referencing the life of the process itself. In my practice no one state is the quintessence of an idea, it is part of an idea that is 'becoming' and always in 'realisation'. At times aspects of the idea may seem realised but as Focillon puts it, that state is as a 'node, a protuberance' and only one aspect of that idea's life. In this context design becomes a protean activity with the work in flux, allowed to change meaning and shift its identity as it changes form. This approach to the development of an artwork requires reflection at a number of punctuated stages within the production process. At which point can the work can be brought to a kind of 'completion'? The first of these procedures is the generation of an image through a number of stages and variations, from which one or more are selected. This work can be considered to be both 'artwork' and 'matrix' for the further generation of structure and form. The next punctuation point is the production of a screenprinted former, with the additional choices of colour and screen/image combinations, constructed in a

further variety of repeat or twin opposing panel versions. This is followed by the material transformation from textile/clay composite with a surface flux treatment into a fired, decorated ceramic form/object. This phased approach embraces potential variation and transformation, lets me continue to develop a work or return to different stages to rethink its development. The re-working of *'Growth'* demonstrates the creative benefit of this design methodology, which we will continue to explore through the development of new works in the following sections.

Mandrake



Fig 56. Pair of Wall Lights, Sèvres
1760-1 V&A Museum

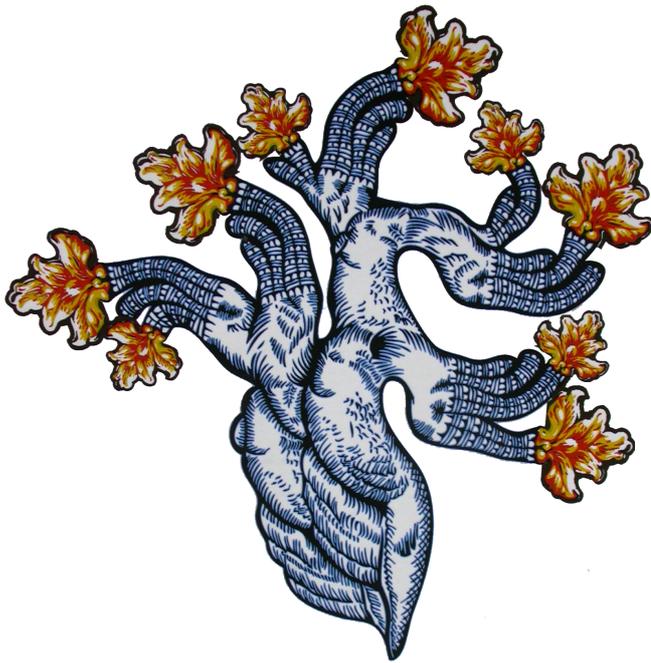


Genus Mandragora: The Mandrake

The inspiration for the next body of work came from a pair of Sèvres porcelain candlestick holders in the V&A collection⁵³. Their plant-like 'tendrils' reminded me of the story of the mandrake plant that I had come across when exploring ideas surrounding the grotesque and transformation. The mandrake has mythical properties associated with its root, which like other tubers such as ginger give the impression of being a hybrid form with both animal and vegetable qualities. The threshold can also be associated with the mandrake; it being between two organic states; both/and, 'animal/vegetable'. Its position both above ground and below also suggests a liminal state between two different physical dimensions. I used the transformative nature of the process to express these ideas through my own piece based upon these influences. The two-dimensional printed image on the textile material is displayed in combination with the three-dimensional, ceramic and print, objects. The work occupies both dimensions, mirroring and emerging from one to another, celebrating the two different states of its development equally.

⁵³ See V&A Appendix

The work's formal development passed through a number of states and focussed on two elements; the branch/finger like 'fronds' and the 'tuber/tail' body. The first image state came from working with a 16th century woodcut of a grotesque hybrid: rabbit/moth/deer (Huber. 1982). I chose to use the syntactic qualities of this image, and the print process that produced it, because I wanted an aesthetic that was appropriate both for suggesting the marks of a tree bark surface, and the binary nature of the screenprinting process. Woodcut imagery is a binary process, and offered me a found original as a starting point to adapt and interpret into an entirely different form, that retained an echo of its origination. I worked by hand on a black and white copy of the block print and processed it through computer software, allowing me to give the image more surface depth through the posterised technique discussed in chapter two.



'Mandrake Series' - First Image State 2008

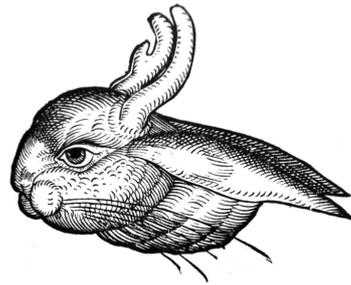
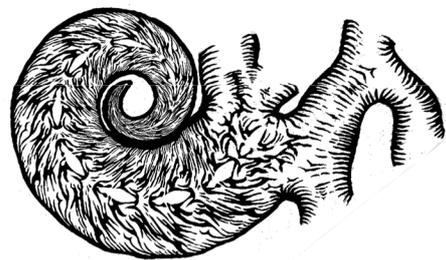


Fig 57. Original 16th C woodcut



Spiral/corkscrew 'tuber' development

The initial result was an image that could exist as a decorative motif, having the 'DNA' of animal and plant, decoration and representation, woodcut and screenprint all welded together (not unlike Paolozzi's approach to his 'Automobile Head') The first fully realised state of this form was exhibited at the Royal College of Art's work-in-progress show, and was very different to the version exhibited at the College's summer show six months later. Reflection on the work-in-progress show led me to adapt the tuber part of the image that had contributed little to defining the form. With a better experiential knowledge of the possibilities offered by the image/form relationship I felt that I should explore the potential of a spiralling tuber image, which I predicted would produce a corkscrewing form. This change gave the work a stronger animal characteristic and a better balance to the hybrid perception of the work. The flowers at the tips of the fronds were also completely reworked as highly posterised illustrated images that gave them a more ambiguous aesthetic, between flames and flowers, offering a further reading of the forms as dragon/plant. In adapting the tuber into a spiral/corkscrew another formal aspect visually dominated the work, the seam. This was a syntactic element determined by the nature of joining the textile components and had come to play a central role in the perception of the new piece. Gottfried Semper (2004, p.153) in his 'Style in the Technical and Tectonic Arts' gives great importance to textiles and especially the seam, which he calls 'an expedient that was invented to join pieces of a homogeneous nature – namely, surfaces – into a whole' We could also say that it is the physical and symbolic site where the idea of division is overcome.



Textile seam



Fired seam trace

In his passage on the seam Semper states 'the principle of making a virtue from necessity'. Rather than hiding the nature of the material and means of something such as a seam, one should stress this attribute. The use of the seam within my work leaves a trace of itself as a strong visual statement. As a small furrowed, disruptive, depression, it defines the edge of the textile panel and the printed image and so it exerts a large influence on the final form. It is at the seam that I am able to disrupt the planar surface with lumps, tendrils and outcrops of form. It is also at the seam where the two mirrored halves of the image come together to form a new symmetrical image where the edge becomes central⁵⁴. The nature of the seam is to emphasise and draw further attention to this juncture, and I amplified this effect by adapting the design. The flow of the corkscrewing tail is reinforced through the spine of the seam running along the median line of the body, and this is accentuated through the fluid inflection of the surface imagery.



'Mandrake II – Double Tuber'

⁵⁴ This links to ideas within the exploration of the grotesque where the margin becomes central – Galt Harpham. 1982.

It has been a simple matter to demonstrate the success of my strategy for 'physical integration' through the unified results of the new process. Semper's writing on the seam offers a tangible example of a 'principled approach' to this integration. Rather than thinking of the seam as a negative necessity of production to be eliminated, or hidden, it serves as a formal landmark to be embellished, and in this case adds to the desired aesthetic of the work.

Moreau

The use of multiple elements within a work has been a recurring strategy in my practice as a ceramist, and has allowed me to explore larger formal compositions⁵⁵. With this in mind and as a part of my on-going reflection I decided to produce a series of photographic investigations that portrayed different combinations of forms accumulated from various tests and earlier work. This extended the creative process beyond the firing state to assemble compositions of pre-fired component parts. The photographic documentation began to suggest a different scale for the hybrid animal/vegetable association, referencing landscape. I continued to explore these amalgamations and the photographs formed the inspiration for the next work 'Moreau'.



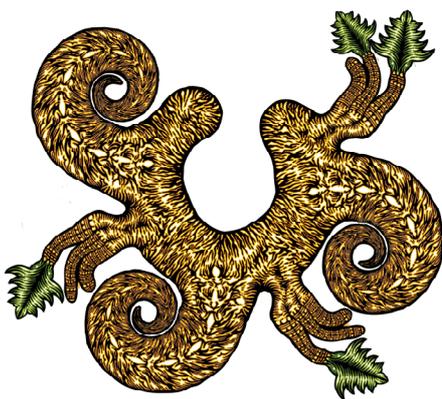
Island maquette - accumulation of existing objects

“You see, I went on with this research just the way it led me. That is the only way I ever heard of true research going. I asked a question, devised some method of obtaining an answer, and got a fresh question. Was this possible or that possible? You cannot imagine what this means to an investigator, what an intellectual passion grows upon him!...I wanted—it was the one thing I wanted—to find out the extreme limit of plasticity in a living shape.” – Chapter

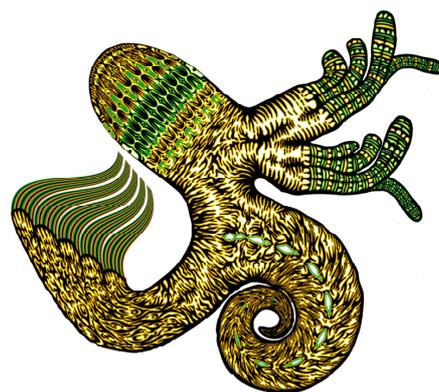
⁵⁵ See 'Hubris' in the selected artworks appendix

14. Doctor Moreau Explains. The Island of Doctor Moreau – H.G. Wells – 1896.

The title links the strangely familiar, hybrid, landscape/figurative forms, that resulted from this period of my enquiry, with the fictional Doctor Moreau's grotesque experiments into the 'plasticity' of nature's forms. Taking reference from my 'recycling' of existing objects I designed and produced new landscapes which appear to be alive with active energy, suggesting sentience and animation more associated with the animal world than land as a solid mass under our feet; 'we are definitely not in Kansas Toto' (Dorothy. *The Wizard of Oz*. Metro-Goldwyn-Mayer. 1939). The imagery that I developed for Moreau extended the forms developed for the Mandrake series, making the two projects related in the genealogy of this period's work. Like our imaginary Doctor, I used the visual 'DNA' of the existing form, changed scale, reconfigured elements and added new integral features. Once again the initial images exist both as individual artworks and as a matrix for form generation. By this stage my tacit, experiential knowledge had become more attuned to 'reading' the possibilities offered by these two-dimensional topographical guides and allowing me to make formal choices through a predictive approach to the design work.



'Island I – Image State'



'Island II – Image State'

I developed the two images illustrated above, produced new colour-ways for the work and printed two sets of each to be transformed into ceramics. These identical image/moulds then generated a number of very different ceramic

forms that were made to fit loosely together as structure for the landscape. Responding to the successful combinations of diverse scale in my photographed maquettes, I also produced a number of small-scale elements that were added to the larger pieces to create detail.

The four larger island structures were given four different coatings of the ceramic flux, to produce a simple glaze-like surface treatment. The different recipes were brushed over the fabric at a raw stage to produce qualities ranging from almost opaque, through to translucent. This layer blurs the reading of the 'mechanical' nature of a printed surface, not unlike the reactive glaze prints from Denby. In the case of 'Moreau' the intention was to create a heavily defined 'skin' layer over the print to suggest that the printed image is fully integrated with the form and the thick surface coating is the addition not the print. The result is reminiscent of a snake-skin just before it is shed to reveal the next layer.



'Moreau'



Heavy flux surface layer

The 'island' coils and twists in on itself, branching out and flowering, with fronds seemingly moving in the wind. Materials and process have determined aspects of the formation as they do in the natural world yet, as in the novel that gives the piece its title, man's design is also present. "Yes. These creatures you have seen are animals carven and wrought into new shapes.... to modify the articulations of its limbs; and, indeed, to change it in its most intimate structure." (Wells.1994. p.27)

Arlecchino the Brave: Display & Costume

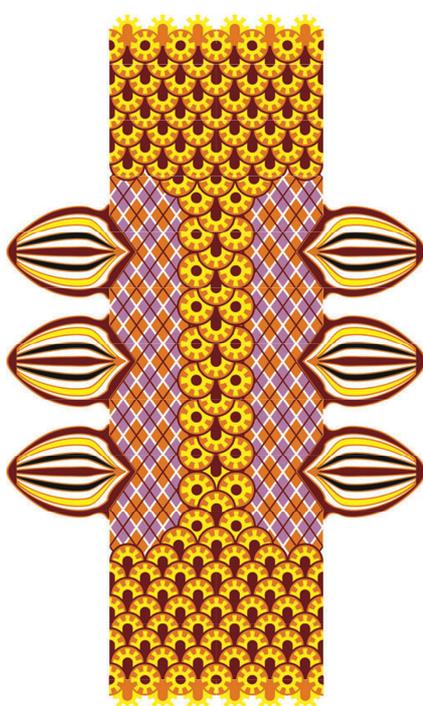
After making the 'Writhe' pieces it became obvious to me that the fabric moulding process encouraged a figurative reading of the clay work. Visual associations with limbs and torsos are made because of the way the clay is contained and influenced by the bulging, folding textile 'garment'. Up until this stage I had exploited this aspect to add hybrid ambiguity to the work but now felt that it was appropriate to tackle the figure directly.

The Commedia dell'arte figurines in the V&A Museum's ceramics collection have always drawn my attention. They were produced by the German company Meissen in the 18th century as ornaments portraying the different characters of this popular entertainment. The Harlequin, or 'Arlecchino' particularly appeals to me as the clumsy fool or 'zanni'⁵⁶, his costume of diamonds is all we need to see to realise who he is and something about his nature and behaviour. The power of surface pattern to carry this information is of great importance in the natural world where body markings convey warning, attraction or repulsion. Humans have exploited this through costume and clothing. With my early career as a textile printer garments have been a constant point of reference throughout the research and I decided to produce a kind of costume through which I could explore the character of the Harlequin figure.

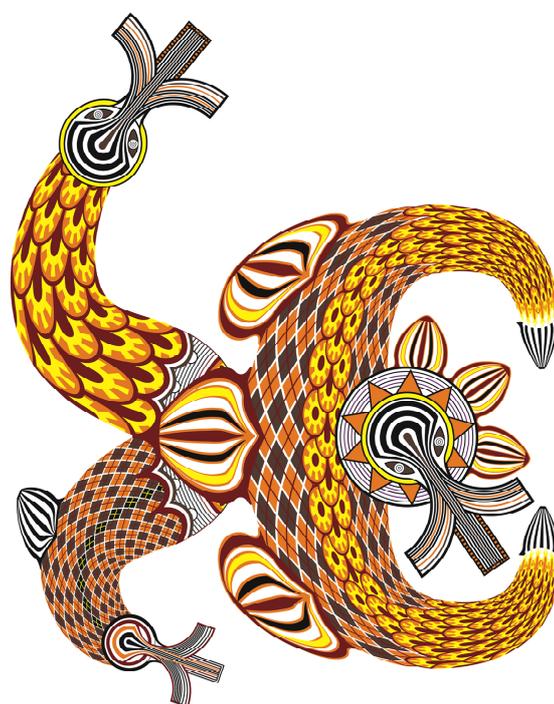
This work had begun alongside the 'Mandrake/Moreau' series of developments and one of the overarching technical issues that I needed to deal with at this point was colour. The earlier works, 'Between' and 'Writhe' had all been produced with a sombre pallet of black and muted tones due to a number of factors mentioned earlier. I had exploited this dark aesthetic through the work so far but felt that the new subject matter of display required me to develop colour.

⁵⁶ See glossary

The discussion in chapter two of screenprinting's abilities to produce bright colours and achieve an 'advertising effect' influenced my desire to push the colours as far as possible to create a range that could convey this subject matter. This led to the switch to high-fired porcelain clay and a total reworking of my recipes, as detailed earlier. A new high temperature flux and set of underglaze powders sourced from Jingdezhen in China were the final ingredients in creating a full pallet of bright controllable ceramic colours, and Arlecchino became 'Arlecchino the Brave'⁵⁷.



Pattern field for 'Arlecchino'



'Arlecchino - Image State IV'

The image development for the 'costume/garment' started with the diamonds synonymous with the Harlequin character. Once again I borrowed a motif from Owen Jones (1856) *Grammar of Ornament* for variation and to give the impression of stylised scales or feathers. The 'bulges' and 'fronds' from earlier work had now become a part of my visual language and were used to

⁵⁷ 'Splendid; spectacular; showy; handsome. Dec out; adorn.' - *Shorter Oxford English Dictionary On Historical Principles*. Sixth edition, Volume 2. N-Z. Oxford University Press. 2007.

intervene with the form at its perimeter allowing for three-dimensional variations in the resulting ceramic work.

At this time the 'Mandrake/Moreau' work was exploring a hand-drawn aesthetic and, in contrast, I chose with 'Arlecchino' to exploit the computer's ability to manipulate pattern imagery. Taking my bright, advertising, pattern fields I transformed them into the limbs and overall posture of the tumbling clown, with the aim to instil an inflection of movement within the image that could also be carried forward into the final forms.

The pose that I chose to draw out of the figure relates to the clumsy nature of the character, empowered by humour he is ultimately reduced to the ridiculous. The awkward twisted position of the failed tumble combines with the blatant gaudy deformed display of the costume that obscures the body beneath. Imagine the combination of an uncomfortable Leigh Bowery performance in an enveloping Japanese Zenti, suit designed by the late Alexander McQueen, such a hybrid vision attracts and repulses in equal measures.



Fig 58. Japanese Zenti suit

Alexander McQueen 2010

A Meissen Harlequin

'Arlecchino' was not developed with the same aims of reference to the grotesque specifically, but here the human form has become misshapen and contorted, blurring our reading of the piece, hinting at the grotesque through 'forms that are both/and, neither/nor, forms that we, despite ourselves, cannot help recognising as human' (Galt Harpham. 1982. p.38).



'Arlecchino the Brave – Ridiculous Attitude I'

Conclusion

This thesis has considered printmaking as subject to division, and has examined the extension of this issue when print is combined with the materials and forms of ceramics. The research project has mainly focused on overcoming the physical division between the printed surface and ceramic form, but has also looked at the fragmentation of thinking and making through the division of production activities. The aim in addressing this latter aspect of division is to provide an approach where thinking and making are integrated, and creativity is extended up to the final stages of production.

In the introduction I listed a number of questions that stimulated the research: how could I help to raise the value of ceramics and print? And how might I balance and integrate the dialogue between the printed surface image and the underlying ceramic form? In addressing these problems, the main objective has been to overcome negative perceptions of this field of activity, caused by division in creativity, and show instead that integrity could be achieved through the use of innovative techniques. To carry out this research I used methods that combined practical studio enquiry with relevant historical, theoretical research and observation.

The primary aim of the studio investigation has involved the development of practical techniques and strategies to physically integrate the printed surface and the clay form. The research identified certain principles and inherent 'syntactic' qualities of the materials and processes used. This allowed me to establish an expert understanding of the language of my own process, with the aim of thinking through and working within this language. The value that practitioners can derive from this approach is reinforced through discussion of ideas of form, by authors such as William Ivins (1953), Pat Gilmour (1979, 1980) and Henri Focillon (1934). Finally, and with the practical and principled strategies established, I have applied a parallel methodology to the development of the content and subject matter of finished artworks. This final

stage again drew from inherent qualities and characteristics determined through the process, from which ideas were developed through association and metaphor. All aspects of the practice - including the development of a new technique, the development of an approach to practice and the development of subject matter - stemmed from thinking through and working within the inherent process language with the aim that the continuity of this approach would provide a sense of principled integrity.

How might the results of this research be evaluated? It is a simple matter to discuss the physical integration of printed image and form in the procedure that I have developed, and in the final works I have produced. It is an altogether different matter to show evidence of the broader, subtler aspects of integrity. The success of this aspect of the research, I would argue, relates more to my general approach to practice rather than any one tangible outcome. When making is built upon principles of integrity, the work is suffused with this quality.

Evaluating Visual Integrity and Establishing Principles that Overcome Division Within Printed Ceramic Artefacts

Below is a set of standards that I have drawn from the research undertaken during this project. The aim in reflecting on these observations is to make transparent my approaches for adding the value of visual and principled integrity to the final works. One definition of integrity is 'to uphold continuity of principle.' By defining and adhering to a clear set of guiding standards I hope to raise the appreciation of this sector of practice. While these standards are meant to evaluate my own studio approach the criteria would also be useful in a critical evaluation of other works that could be considered to engage with aspects of visual integrity. It is not my intention that all aspects of the criteria should be related to an object at once; the aim, rather, is to give a sense of guidance for evaluation, not to provide a set of rules.

Observations on Integrity - (Within the production of ceramics and print artefacts)

- Making work within the inherent qualities and characteristics of a print process raises the perception of value within a work - I have discussed this shift in values referencing writers on the subject such as Pat Gilmour and Henri Focillon. While Focillon's ideas are constructed through general art historical observation, Gilmour (1979, 1980) discusses a period-specific case study. She relates how, in the 1960's, artists overcame negative perceptions of print as 'reproduction' and began to make and define the 'original print' by working with, and through, the determining aspect of a print 'language'.
- Printed ceramic work which is (or seems to be) made in one piece, or in one continuous activity, conveys a greater sense of integrity. Evidence of physical division can lower the perceived value of a work – The act of joining elements together can retain a trace of

division through seams, as in the casting process, and this can undermine the visual integrity of a piece of work. In the discipline of ceramics there is a perception that objects which are physically combined at a clay state and fired as one homogenous form have a higher value than forms that are 'glued' together later. This is because there is a visual division but also because there is a perception that thinking through making has been disrupted. My new process offers the potential to build upon and accumulate forms at the clay state which fuse together upon firing, enhancing visual integrity and the perception of a continuity of thinking-through-making.

- The join, seam or threshold is an unavoidable result of applying a two-dimensional image to a three-dimensional form. It is usually impossible to entirely remove this by-product and therefore it becomes a determining factor of the object's aesthetic. It should be treated as such. Gottfried Semper (Reprint 2004) provides an approach to overcoming the negative perceptions of these seams by following 'the principle of making a virtue from necessity'. In other words, if a formal feature cannot be removed, then it should be enhanced and embellished so that the negative visual element becomes a positive compositional device.
- The perception of visual integrity is effected by the quality of 'fit' between a printed image and form - We have seen how a printed ceramic surface can raise the value of an object through the case of Royal Crown Derby. In this example the undecorated ceramic form is almost worthless, and it is the addition of the screenprint to the surface that makes the object highly valuable. This is partly because of the quality of print-work and materials but a major contributing factor is the quality of the 'fit': the precise nature of the visual integration of the print with the underlying form. The technique that I have developed for accurately registering seams

and my approach to in-mould decoration ensures that the surface and form fit.

- Surface imagery and object should be conceived and designed with each in mind. This approach addresses the hierarchy which has evolved in the ceramics industry where forms are produced first and valued over any surface decoration. With my new method the image is developed first, can stand alone, and determines the character of the form, thus reversing the relationship.
- To achieve a heightened value of visual integrity the printed surface and ceramic form should inform and/or inflect one another's shape or acknowledge their formal relationship. This creates a form that Gombrich (1979, 1984. p.164) might describe as 'übersichtlich,' or 'visually easy to grasp', which suggests that visual integrity leads to the positive perception of harmonic unity between surface image and form. The mirroring of surface and formal inflection can also relate explicitly to an object's production, which can be seen as extending the understanding of developments in an artefact, as discussed by Lewis Day (1904).
- There should be a 'continuity' of thinking through as much of the making process as possible. This overcomes the separation/dichotomy between theory and practice (or ideas and production) that is common within managed manufacturing.
- The transposing of an image into print and then onto ceramic materials should be undertaken through an interpretative process which acknowledges and is sensitive to the determining influence of these factors.
- Physical and visual integrity can be enhanced through the use of ink that has an optimized relationship with the 'material' of the ceramic surface itself. The principle of direct ink/substrate integration can be exploited to put down heavy layers or reactive materials, such as oxides, that 'bite' into the ceramic surface. In addition there are textural prints that are either pushed into or

raised from the clay surface, becoming a fully integrated aspect of the ceramic object.

- Though there are many examples of printmaking strategies that create the perception of tonal value (such as 'gum & tusche', 'posterisation' developed at Kelpra studios and the 'line-process' as outlined by Cröy (1963), as discussed in chapter three), continuous tone is not within the basic language of the screenprinting process, and in combination with ceramic it causes problems with visual integrity. Imagery intended for screenprinting should be made subject to the limitations of a binary aesthetic. Strategies should be adopted or developed that work within this inherent aspect of the process language.
- The act of filtering imagery through the 'simplification methods' necessary to produce a screenprint, unifies different aesthetics and produces an integrated homogeneous image composition. (As demonstrated by the Paolozzi print 'Automobile Head')

Forms of Knowledge & Contribution to Knowledge

The innovations that I have made in the studio were brought about through the adaptation of existing knowledge combined with my own experience. My expert knowledge of the conventional technique for combining ceramics and print was reappraised in relation to my research into applicable allied technology. The objective has been to try to make explicit the tacit nature of the development of this new process for overcoming division within ceramics and print production methods.

My research attempted to capture and record appropriate precedents of tacit knowledge from a variety of sources, including analysis of technical instruction publications such the earliest commercial handbook for screenprinting produced by the Selectasine Company. I also undertook a series of informal participant observation and interviews . Some conversations focussed on the procedural knowledge of the staff member, and included task analysis in order to better understand the details of production.

Task analysis became the starting point for my re-thinking of the conventional ceramics and print method in the studio. I adopted a holistic approach when gathering information to help foster a better understanding of the processes, materials and variants that I was using. I also felt, however, that there was an advantage in breaking down this system into its fundamental parts. Tacit elements were drawn out, reflected upon and transformed into explicit knowledge through codified principles. These principles were re-applied to my practice and embedded into the iterative development of new works.

The method for producing these works is unique and contributes knowledge to both printmaking and the ceramics discipline. Its development also provides a methodology where the primacy of conventional and traditional approaches is questioned. The process can be considered alongside new technological advances, as printmaking moves into the three-dimensional world via digital

techniques. My method provides an alternative to this type of production; in both cases print and form are integrated, but in my practice, manual intervention (and hence thinking through making) is possible up until the final resolution of the object.

Dissemination

One way that I have been able to disseminate this project's results has been through exhibition of the resulting body of work. The works have been shown a number of times, including at the British Ceramics Biennale in 2010. They have been well received, with many sales and commissions. The most recent piece, 'Moreau – Archipelago,' will be exhibited in January 2011 at an exhibition titled 'Prints and Transfers' at the Galerie Handwerk in Munich. The selected artists represent the foremost ceramists working with print in Europe; this will be an opportunity for the work to be presented within the context of my immediate peer group. The gallery has selected images of my work to promote the exhibition.



Another method of dissemination has been through presentations at conferences and symposia in the context of ceramics, glass and printmaking disciplines. The subject of these talks have included: 'Physical Prints in Glass' at the Royal College of Art, 'The Physicality of Print' at Bath Spa University, 'Dialogues Between Print, Material and Form' at Sunderland University, 'Questions of Integrity and Artifice in Developing Strategies for an Integrated Relationship Between the Printed Surface and Ceramic Form' at UCA Rochester University⁵⁸ and 'The Role of Interpretative Mediation in Applied Art Screenprinting: A Model For Production' at 'Impact 6' Interdisciplinary Print

⁵⁸ See presentation appendix

Conference hosted by University West of England⁵⁹. The text from two of these presentations is documented in an appendix of this thesis.



The presentation delivered at Rochester is going to be published in 2011 in an anthology of essays entitled *Surface Tensions* (Routledge), and some aspects of the research will also be featured in Kevin Petrie's new book on transfer printing.

The ideas and methods that I have developed over the duration of this project also feed directly into my teaching practice. In addition to visits at a wide variety of Universities in the UK and internationally, I have provided regular support to students working with print and surface design on the Ceramics and Glass course at the Royal College of Art. This activity has stimulated a discrete strand of activity within the department, and may lead to an event that will mediate the exchange of knowledge from a number of research practitioners working in this field.

The knowledge I have learned through the research is, perhaps, best expressed through the hands-on teaching of workshops. I have continually engaged with this activity over the course of the research and will continue to in the future. Seeing and doing plants the seeds of knowledge in the most direct way and generates the earliest and more interesting results.

⁵⁹ See presentation appendix

Future Research

This research project is one aspect of my larger objective: to examine and extend the potential of what a print can be, in the context of the applied arts.

The enquiry that I have undertaken, which concerns the inherent language of the stencil/screenprinting process, can be applied to other printmaking techniques, including new technologies. The broad range of methods within 'rapid prototyping' are relatively new, and using the same approach to determine the syntactic aspects of these processes would greatly benefit artists and critics in the field. Practitioners working within the applied arts are in a good position to expand understanding of how to work and think through these processes and explore approaches that add tactile, human intervention to these new forms of print-based production and reproduction. Applied arts practitioners such as Robert Dawson, the research group Autonomic and Geoffrey Mann are examples of such interveners who work with new digital printmaking production. They operate as 'ghosts in the machine', subverting the pre-determined programming or engineering of machine technology. The inherent language of these new print processes is a potential topic that I would like to pursue researching.

The comparison between my technique and rapid prototyping will form the basis for a new research project that I will undertake sponsored by the Bullseye Glass Company in Portland USA. I shall apply a similar set of aims to this new project as I have in the PhD: the materiality of printing glass and the physicality of printing glass. This will culminate in participation in the BeCon glass conference in the summer of 2011, in which my studio practice will be contrasted with a commercial company who rapid-forms glass. The idea is to look at seemingly oppositional approaches to practice: hi-tech against lo-tech, in-source against out-sourced. But I also plan to ask how these two methodologies can inform one another. In addition to the

presentation at the conference I have been invited to make work for an exhibition and deliver a series of workshops to disseminate the approach.



Bullseye Glass Company -
Exploration of layered structure and
sublimated colour in screenprinted glass



Queensbury Hunt -
Exploration of depth and reaction
in screenprinted glazes

In chapter two I focussed on the unique relationship that screenprinting has with materials through the possibility of combining a wide variety of ‘inks’, in large quantities on a breadth of ‘substrates’. This area also has potential for further research, which would aim to map the variable interactions of different printing materials. There are existing publications that explore surface qualities in the applied arts, such as ceramic glazes and patina effects on metal, and many that explore the interactions of colour. A subject that has not been covered, however, is the material quality of the graphic image. A publication which combines empirical data with metaphorical and qualitative observations, would be of use to practitioners working in the field of applied printmaking.

This line of research into the materiality of printmaking has led to my work as a print consultant for the well-known ceramic design team Queensbury Hunt. I have begun to develop some of the qualities of reactive ceramic printing discussed in chapter two in a speculative project that aims to develop unique aesthetic qualities in a printed ceramic surface. Results from the reactive criteria have led to a strand of enquiry that focuses upon qualities of

translucency and depth in a ceramic print. These characteristics are usually found in glazes, rather than in decals, which can reduce labour within the production process and overall costs.

This aspect of the project has now become 'live' and will shortly be going into production at a ceramics and print facility in Portugal. The speculative developments continue to explore physical/material properties in ceramic prints and have the potential to feed into a larger project, which could result in a wider exploration of the graphic image in the context of applied art materials such as the publication outlined above. This is a timely area of study; digital methods of reproduction have made printing images ever more accessible but often de-emphasize the inherent material qualities of printmaking processes.

Through the research that I have undertaken for this project I have questioned the relationship that I have with my 'craft' and realised that I am resistant to the constrictive influence of the idea of 'tradition', which can 'define' process as fixed. Yet, rather than dispelling all controlling factors in an anything goes approach, the innovations that I make are based firmly upon principled approaches to practice.

Research, such as this project, that aims to define and work with the inner language of printmaking, can reawaken makers to the potential of this interesting and under-exploited area of the applied arts.