THE

SILVER SOCIETY

Journal

12

AUTUMN 2000

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Correspondence regarding the Journal should be addressed to:
Vanessa Brett
PO Box no 1961
Bradford-on-Avon
Wiltshire BA15 2YD, UK.

All other correspondence should be addressed to the secretary:
Keith Grant-Peterkin
22 Orlando Road
London SW4 OLF

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Recent bullion prices
July 2000:
925 standard silver: £2.74 per oz
22 carat gold: £160.18 per oz

In this Journal dates are written in the following styles:

Calendar year pre 1752, 1 January-24 March:
1563/4

Assay year (prior to 1975)
1563/64

More than one calendar year
1563–67

from the editors

It's been quite a year!

The Society has once again been tremendously active – an interesting group of talks at our regular meetings, numerous visits and now a packed Journal. There have been many notable events, and members of the Society have been involved with all of them through their work: the opening of the Gilbert collection at Somerset House, more new silver galleries at the Victoria and Albert Museum, the millennium exhibition at Goldsmiths' Hall, and other exhibitions on the Continent.

At the turn of the century we start the Journal with contemporary work. Although the bulk of this Journal encompasses the myriad ways in which members are fascinated by old silver and plated wares, increasingly we are looking to 'now'. The inspirational exhibition of the Goldsmiths' Company's collection, sadly on view for far too short a time, Seymour Rabinovitch's book on his very personal commissions, our summer meeting at which three silversmiths talked of their work, a visit to Downing Street to see the Silver Trust's collection, have shown that members of the Society are increasingly supporting the craft today rather than being interested only in the past. Obviously we could do more, and ideas are no doubt germinating in the minds of many as to how to respond to the challenge of the new.

It is hard to think how we can do more about the 'old', except to keep at it. There is so much to discover. Once again articles have poured in. The variety of the research being done is quite astonishing. Maybe the cover style of this year's Journal will not be repeated, (a 'special' for the end of a century) but we hope the quality and quantity of writing within can be maintained.

As you all know, the writing and production (other than printing) of the Journal is done voluntarily. Once again we thank all those who give advice and thank authors, whether they submit articles of their own accord or at our suggestion, for their stamina in undertaking the role of proof reader of their own text, in addition to writing and research.

We look forward to receiving your contributions for next year.

Vanessa Brett and John Culme

Our contributors

Peter Cameron gained a degree in history at Peterhouse, Cambridge and shortly thereafter began dealing. His interest in silver began when very young, stimulated by stories about his grandfather, Sydney Bellamy Harman of Harman & Lambert.

Helen Clifford is preparing her PhD thesis, on Parker & Wakelin, for publication. She recently co-authored *Contemporary Silver* with Seymour Rabinovitch and is a tutor on the V&A/RCA MA course on the history of design, at the Victoria & Albert Museum.

Gordon Crosskey is a principal lecturer and fellow of the Royal Northern College of Music and a collector of Sheffield Plate (particularly the early period), a subject he has been seriously researching for the past fifteen years and about which he is currently writing a book. Part of his collection is permanently on loan to Soho House in Birmingham.

John Culme worked at Sotheby's for over thirty years. He now works at Tessiers and is researching the missing registers for the Goldsmiths' Company. He is joint editor of this journal.

Anthony Dove is a retired Lloyd's syndicate accountant who has been interested in plate duty and its marks for some twenty years. A member of this Society, he is a Fellow of the Royal Society of Arts and Honorary Secretary of the Arms & Armour Society.

Ann Eatwell is a curator in the metalwork department of the Victoria and Albert Museum. She is part of a team researching and re-displaying the museum's collection of silver. She was responsible for the re-interpretation of the nineteenth century silver in the newly opened galleries *Silver 1800–2000.*

John Forbes is a liveryman of the Goldsmiths' Company. He joined the staff of the Company in 1946 and was Deputy Warden (head of the assay office) 1953–83. His history of the London Assay Office *Hallmark* was published in 1999.

Eileen Goodway worked for over twenty years in the silver department of Sotheby's. She is now freelance, advising on and researching silver and is events secretary for the Society.

Martin Gubbins was an engineer in the BBC until his retirement in 1976. As well as his research of York's date letters as given in the revised Jackson, he is a collector of close plate, and a member of the Society.

Graham Hughes is the former art director at Goldsmiths' Hall. He has written extensively on modern metalwork.

Charles Hull is a past master of the Pewterers' Company and is curator of their collection of pewter. His family have a long connection with the Company. He developed a vacuum casting technique which is particularly adaptable for the commissioning of replicas. He is a member of the Association of British Pewter Craftsmen.

David Mitchell has for some time studied the goldsmiths' trade in London during the second half of the seventeenth century. He published *Goldsmiths, silversmiths and bankers...1550–1750* in 1995. His most recent research will appear on CD-rom. He is a member of the Society.

Jennifer Montagu was curator of the photographic collection at the Warburg Institute, University of London. She has written extensively on Roman baroque sculpture, including metalwork.

Conor O'Brien was co-author of an article in last year's journal on Dublin hallmarks. He retired from the pharmaceutical industry in 1998. He is a member of the Society.

Piers Percival is a consultant opthalmic surgeon in Scarborough. He is a member of the Society and has recently turned his research activities towards the marks of Elizabethan goldsmiths.

Keith Pinn is a dealer with a business on the borders of Essex and Suffolk. His father started the family collection of paktong which he has expanded and researched, partly in order to correct the myths which surround this alloy.

Philip Priestley retired from Eastman Kodak after thirty-five years service. He taught electronics in the Royal Air Force in the late 1950's, and has spent most of his career working with computers. He is a member of this Society, the Antiquarian Horology Society, the British Horological Institute and is a liveryman of the Clockmakers' Company.

Stephen Pudney is professor of economics at the University of Leicester. His main interest relating to silver is researching the history of commercial silversmiths around 1900. He is a member of the Society.

Kenneth Quickenden is head of the School of Theoretical and Historical Studies in Art & Design at University of Central England. He has been researching the Matthew Boulton archives since the 1970s. He is a member of the Society.

Ubaldo Vitali is a fourth generation Roman silversmith, as well as art historian, currently residing in the United States. A conservator and restorer for major museums and galleries in the US and abroad, he also designs and executes contemporary silver and gold work for museums, galleries and private collectors. He is a member of the Society.

New work

By, and commissioned by, members

This small selection of work celebrates an enduring need for objects that feel and look good. It is representative of patrons from different milieu and pieces made for a variety of reasons, but in one way or another they are linked to the Society, often through the work of its members. Today's craftsmen respond to commissions with an inventiveness of design and technique that builds on the skills of past generations and is continually exciting. The key to the future prosperity of the craft is patronage such as this.

SILVERSMITH

Rod Kelly

In June last year I was contacted by Jane Ryan of Royal Mail. She had seen examples of my work in the slide index at the Crafts Council and to my surprise asked if I would consider designing a postage stamp for the Millennium collection. For the first time in its history Royal Mail planned to commission forty-eight stamps, four to be released each month, covering the history of the United Kingdom over the last one thousand years. Other designers included David Gentlemen, Eduardo Paolozzi, Don McCullin, David Hockney and Antony Gormley, all of whom used different media, representing a wide variety of craft and graphic design techniques.

The design department asked that I use the two techniques in which I specialise, low relief chasing and gold inlay, to produce an image that could be photographed and then printed as a stamp.

After some discussion, I chose to depict the Civil War, as I felt the related symbolism would work very well when chased in low relief. The first-class stamp was to be part of 'The Soldiers' Tale', to be released in October 1999. I bought many books to get factual information. I am not a great admirer of many book illustrations: artistic license can be very misleading and I prefer to study the original detail of any object.

I approached the commission in the same way as any piece of functional decorative silver. I spread out in the studio all the images I had gathered, photographs and sketches and, after looking at them for several hours, eliminated those that were not visually interesting. I then drew and re-drew various details, using a thin black graphic ink pen. Each image was kept separate so that I could enlarge or reduce each detail on a photocopier. I then balanced images by moving the various details around until I was happy with the final design, which is often a collage of various pieces of paper with copious quantities of tippex. The final image was then photocopied onto quality watercolour paper.

The completed drawing relates perfectly to the first lines traced onto the silver with chasing tools. I usually transpose the image onto silver by using black copier paper and a scriber, correcting the details with a pencil afterwards. The flat sheet of silver (some seven by nine inches) having been backed with Swedish pitch was then chased with about fifty various steel chasing punches. Usually it takes about one hour to complete one square inch.

Having chased the image, I then engrave the areas which are to receive gold inlay. Each detail is carved out so that the shape is recessed to half of the depth of the silver: about half a millimeter. The edges are undercut with a chisel to provide a dovetail, and the fine gold is cut to fit and eased into position. The gold is then spread with a chasing punch and the edges are pushed under the undercut, trapping it into position.

With the inlay complete the silver panel was ready for photography. The printing process encountered several technical problems. It was decided to build up the image for the stamp by using many shades of grey and black, but they found it difficult to align the gold details exactly; with highly secure printing this is quite a problem.

The design team was very supportive during the whole process. Barry Robinson, the design director, has kept me informed of the many events and articles written about the collection which recently received a silver medal at the British Design Awards. It was a wonderful commission and it is very satisfying to receive letters from all over the world with requests to sign a collector's first day cover.

Design and chased panel for millennium stamp, Rod Kelly, 1999.

PRIVATE COLLECTOR

Charmian Adams

In response to your request for any piece commissioned to mark the millennium, I am delighted to enclose details of a box by Fred Rich. I love hellebores and so does he, so he designed the shape to best accommodate their form. He is thrilled with it and so am I. I bought a tiny pair of enamel earrings from him at his first Goldsmiths' Fair many years ago, so the box is a wonderful progression.

[In answer to your question regarding contemporary silver]: I think the craftsman silversmith has a very uneasy relationship with the manufacturing trade, with obvious exceptions. ... So much manufactured silver is badly designed – in fact not designed at all. The question of security and insurance can worry small retailers. I wish to buy only original, wonderfully designed and made pieces. This is, of course, a very personal judgement, but I am truly excited by the contemporary work available and derive enormous pleasure from the process of commissioning and getting to know the craftsperson.

Enamelled box, Fred Rich, 1999, 9cm (3½in) long

PRIVATE TRUST

Oliver and Penelope Makower started the P&O Makower Trust in 1974. It commissions a piece of silver from a young silversmith each year which is loaned either to the Victoria and Albert Museum or to the Crafts Council collection. In 1993 Pope started a training workshop which takes students who have recently graduated, assisting them at the difficult time when they need to 'find their feet' and start a career.

We like to persuade people to commission silver and this has led me to reflect on the difference between collecting and commissioning. Would it be fair to say that people are frightened of the process of commissioning? If, up till now, you have collected antiques, commissioning is very different, almost the antithesis.

An antique exists; by definition it has done so for some time. The fun is finding it, examining it, identifying it; in my case pretending to know rather more than I actually do. Then there is the business of the price, but here one is usually on fairly safe ground. The price is declared in advance. It is even acceptable, if not to haggle, at least to demur, and you can always walk away.

How different to commission. How do you know you will like something that doesn't yet exist and, as for the price, how ghastly to be presented with something that you neither like nor can afford, and the poor craftsman right there in front of you. And then there is the little matter of taste. Your taste. Are you really going to admit that this tasteless aberration was actually brought into existence at your instigation? Difficult to say that it was inherited from Aunt Agatha with the millennium mark upon it.

As with antiques, a little research pays dividends. The trick is find a maker who suits your taste and your pocket. Museums and art galleries which have a specialism in silver tend to display work by the more established, ie expensive, makers. The Crafts Council publishes lists of galleries and craft fairs now abound. The more adventurous might care to go and look at the degree show at the local art school, now probably part of the university. These normally take place in June or July and culminate in two great national jamborees: *New Designers*, the pick of the degree shows at the Business Design Centre in Islington, and *Passing Out*, organised by the Goldsmiths' Company at different colleges round the country. Once you have identified someone whose work you really admire and from the prices charged seems affordable, the rest is easy.

In fact it is enormous fun, because you are actually taking part in the creative process (to create is one of mankind's basic desires, but that's another story). Of course one will want to avoid pitfalls, but craftsmen are honest people and misadventures are almost always the result of misunderstandings; things not written down, or worse, not discussed. Pope and I use a glorified check-list. Is the piece to be engraved and who pays for the hallmarking? We also prefer to keep open an option to say 'no' until we have seen a model or at least a drawing, and so we offer a modest design fee to be invoked only if we can't bear what turns out. In fact we have never used this get-out, but it's a comfort to have it just the same.

Then come the delights. Your piece, very much your own.

Most artists struggle, none more than young silversmiths, and possibly you have helped a mite. OK, antique dealers struggle too, but not in quite the same way. And then there is the pleasant thought that you have helped to bring a piece of beauty into existence.

To come back to the comparison. If the collector is the hunter-gatherer, maybe someone who commissions is the farmer, sowing and reaping and enjoying the result.

'Venus', Hiroshi Suzuki, 2000. The piece was raised using a snarling iron. The finish is white (heated and pickled many times), with a very slight sheen. (P&O Makower Trust)

DEALER

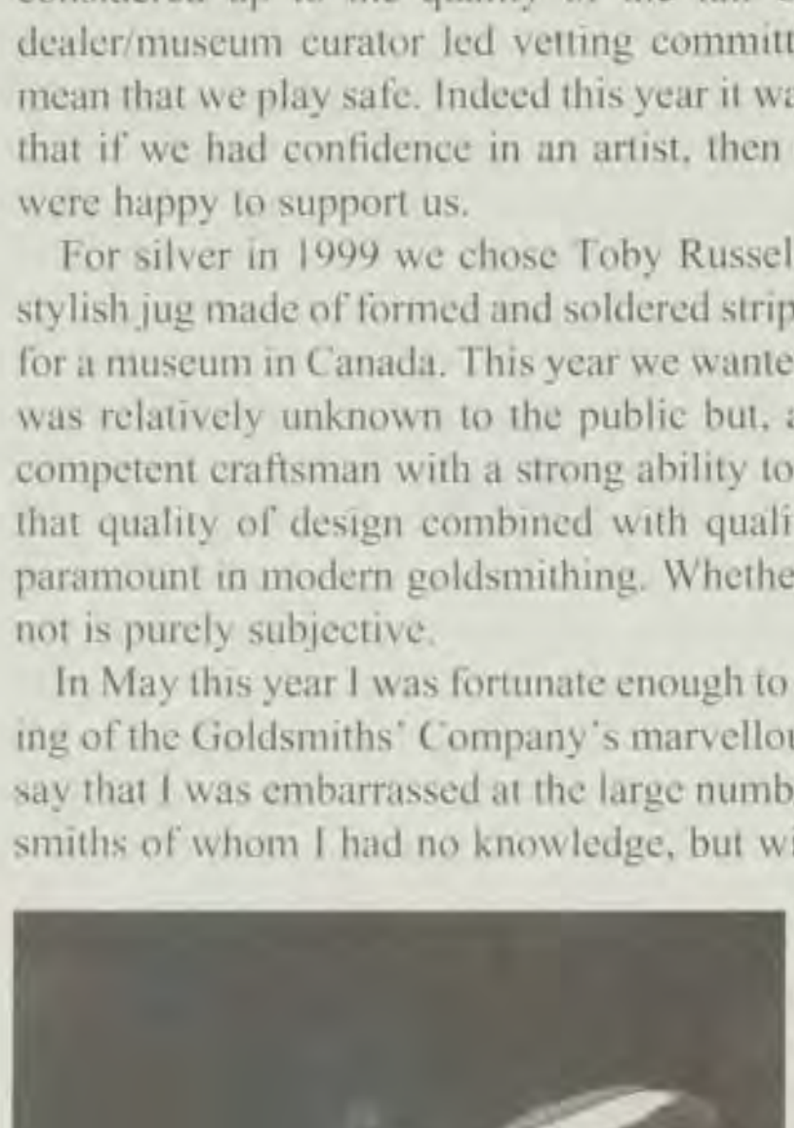
Namara Fine Art

Since the dateline at the Grosvenor House Antiques Fair was dropped a few years ago, we have exhibited some contemporary work in silver, glass and ceramic, alongside the "old stuff" on our stand. Since ours is virtually the first stand that you see when you enter the fair, Lucy and I have given considerable thought to who we should exhibit. There is always the fear that pieces may not be

considered up to the quality of the fair by the largely antique dealer/museum curator led vetting committees, but this does not mean that we play safe. Indeed this year it was heartening to be told that if we had confidence in an artist, then the vetting committee were happy to support us.

For silver in 1999 we chose Toby Russell and his work, a very stylish jug made of formed and soldered strips of silver, was bought for a museum in Canada. This year we wanted to find someone who was relatively unknown to the public but, as with Toby, a really competent craftsman with a strong ability to design. It seems to us that quality of design combined with quality of manufacture are paramount in modern goldsmithing. Whether you like the piece or not is purely subjective.

In May this year I was fortunate enough to be invited to the opening of the Goldsmiths' Company's marvellous exhibition. I have to say that I was embarrassed at the large number of really good goldsmiths of whom I had no knowledge, but with the Fair coming up I concentrated on the new goldsmiths whose work was shown towards the end of the exhibition. Amongst the exhibits was a very impressive jug by Shannon O'Neill. Unsure as to whether this might be male or female, I asked the curator, Rosemary Ransome-Wallis, to identify the goldsmith responsible. Rosemary obliged by pointing out a young lady, surely too elfin to have produced such a powerful piece, but it was indeed her. Shannon has been something of a protégé of the Goldsmiths' Company, having been awarded a grant to work in a number of commercial workshops and she has studied in the United States and India; she has made numerous pieces for institutions.



Teapot, Shannon O'Neil, 2000.

I think Shannon was somewhat bemused by my request for a piece for an antiques fair, of which she had probably never heard, but she reluctantly agreed to talk about the possibility of us having something. The teapot which she made seems perfectly to bridge the gap between the old and the new.

It may not seem obvious to some but her design is derived from a jug by Paul de Lamerie. Shannon works in Manchester and a friend of hers had rung her to tell of a wonderful piece she had seen in the City Art Gallery. (It was shown in the Lamerie exhibition at Goldsmiths' Hall, 1990, no18, a hot milk jug of 1726/27.) Shannon's friend described the jug over the telephone: it had an egg-shaped body, a beak spout, wood handle and finial, and rested on three hoof feet. When Lucy and I saw the finished pot we were both thrilled and amused. A Limerick emerged along the lines of

> How many revs per minute would Lamerie turn in his grave
> If he could see the silver teapot that Shannon O'Neil had made!

We cannot have been far wrong as the pot sold in the first few minutes of the Fair, gone to join Toby Russell's jug in Canada.

Charles Truman and Lucy Burniston

PERPETUATION OF ANONYMITY AND TRADITIONAL DESIGN

Manufacturing silversmiths often prefer to continue the traditions of anonymity, hiding their identity behind the mark of a designer or retailer. Such is the case with my caddy spoon, the name of whose maker I shall have to commit to my private journal!

I suppose it might have something to do with my having been brought up in Bexhill-on-Sea, but I have always been fascinated by the tides and the temporary landscapes of the shore. As a child, unwittingly stirring in my great uncle memories of a long-forgotten music hall ditty by Fred Earle (1877-1915), I hung a yard of seaweed outside our backdoor as a makeshift barometer. And it is strange that later I should have wandered into the realms of eighteenth and nineteenth century silver and objects of vertu, so many designs for which were adaptations of marine life and its debris.

If an expert at Sotheby's is allowed to have favourites among the myriad objects which wash up, so to speak, on his desk for cataloguing, then I must own to two items in particular which delighted both my professional and personal eye. One of these was the wonderful Paul de Lamerie soup tureen and cover which throughout the nineteenth century and much of the twentieth belonged to the Drury-Lowe family. The other was the mid-eighteenth century watercolour design for a gold and enamel snuff box, its granulated surface made in imitation of yellow sand strewn with coral twigs, seaweed and coloured shells. The design itself and the box, from the Paris atelier of Jean Ducrollay, have now been reunited in the Gilbert Collection.

Caddy spoon, designed by John Culme.

I have always enjoyed drawing even though my efforts are really nothing out of the ordinary. But having studied old silver it is not so surprising that my pencil has often turned to doodling arabesques, scrolling foliage and Aymé Videau marigolds, as well as shapes for teapots and wine labels.

I have been thinking about designs for silver on and off since the 1970s, and recently I plucked up courage to show one of my sketches to a manufacturing silversmith. Predictably the design in question - for a caddy spoon - has a marine theme: two shells connected by a spray of seaweed. Although clearly informed by eighteenth and nineteenth century prototypes, I can claim the design to be my own. To my astonishment the silversmith offered to have my concept modelled and, once the wax was approved, cast in sterling silver. The illustration shows the finished article, and none is more surprised than myself to see it now as a solid three-dimensional object weighing nicely in the palm of my hand. It's a long way from my barometric seaweed, yet the absurdity of their kinship has not entirely escaped me.

John Culme

MUSEUM

The Ashmolean Museum, Oxford

Thanks to an imaginative donation from Mrs Rosa Edwards, the Ashmolean Museum, Oxford, was able to offer a commission for a piece of silver to celebrate the millennium. With advice from Dr Helen Clifford of the V&A/Royal College of Art MA course in decorative arts, a limited competition was held and four outstanding young silversmiths were invited to submit work. The commission was awarded to Tara Coomber, a recent graduate of the School of Jewellery at Birmingham Institute of Art and Design. Ms Coomber was invited to take inspiration from the Museum's existing silver collection, which includes one of the finest groups anywhere of English table silver of the late Stuart and early Georgian periods. The piece that is emerging is a jug of about a litre capacity, of which Ms Coomber writes: 'Inspired by the collection in the Museum's silver gallery, I have taken characteristics of those pieces and incorporated them into my own designs. The tall graceful forms reflect a humour and sense of a living presence, for example like the coffee and chocolate pots with their whimsical fat-bellied bodies'.

The illustration is one of her working drawings towards the final piece.

Timothy Wilson

Design for a jug. (fourth drawing)
Tara Coomber,
for the Asmmolean Museum
(copyright: Tara Coomber)

(Left)
John Major, by John Wonnacott (By courtesy of the National Portrait Gallery, London)

(Right)
Dish, Jane Short, 35cm (13¾ in) diameter, 1999 (Worshipful Company of Goldsmiths).

FOR GOVERNMENT USE

The Silver Trust

The portrait of John Major in 10 Downing Street, by John Wonnacott, depicts a bowl by Rod Kelly, a candelabrum by Michael Rowe and a dish by Toby Russell, commissioned by The Silver Trust. This privately-funded trust was set up in 1985 to create a collection of silver that would be available on loan for use in government houses and embassies.

INSTITUTION

The Worshipful Company of Goldsmiths commissioned four pieces of silver for the millennium, by Malcolm Appleby, Stuart Devlin, Toby Russell and Jane Short. These are the latest products of a laudable policy to encourage and support the trade (some prefer the word 'craft') through patronage. The Company's collection featured in the exhibition *Treasures of the 20th Century*, this summer.

Beyond the secret traditions:

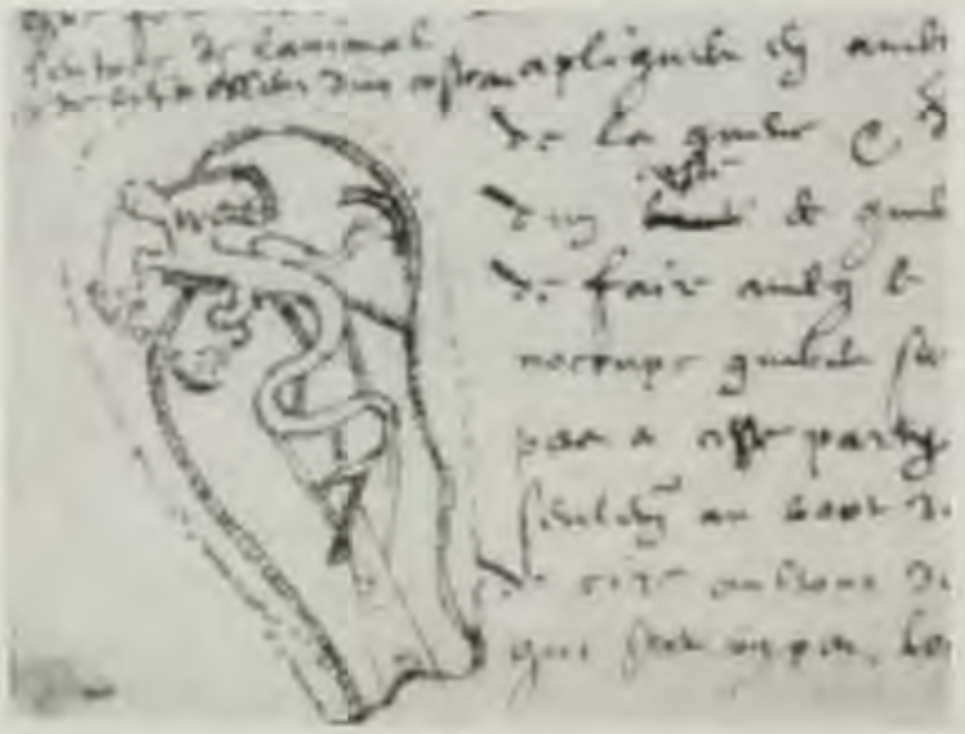
the evolution of styles and techniques in the art of the goldsmith

Ubaldo Vitali

> They design the multiplying and beautifying of mechanick Arts: And the Noise of mechanick Instruments is heard in Whitehall itself. They intend the Perfection of Graving, Statuary, Limning, Coining, and all the Works of Smiths, in Iron, or Steel, or Silver.[1]

Far too frequently works of art in silver are admired in an aura of splendid isolation because of the artificial parameters we have come to impose upon them. When looking at such works we usually limit our analysis to style and form, patrons, history and provenance and marks for place of origin and maker, as well as the techniques of construction. Conversely, we fail to explore the goldsmith's complex creative process and the crucial role he played in the pursuit of his art as well as his contribution in the shaping and developing of our intellectual history. No less than painting, sculpture or architecture, these works of art in silver or gold represent and illustrate specific stages of intellectual evolution. Furthermore, we should look at the goldsmiths' artifacts not merely as the result of various techniques, such as raising, chasing, soldering, or casting, but most significantly, of his *technē*, a term to be understood within the context of its ancient multiplicity of meanings, such as art, knowledge, wisdom, skill, science, experience etc.[2] For the goldsmith *technē* was and still remains an empirical collection of different notions taken from a multitude of arts and sciences, ranging from drawing, sculpture and architecture to alchemy, chemistry and metallurgy, from mechanics to hydraulics. In the goldsmiths' creative process the portrayal of the vision 'must be preceded by a complex of various kinds of knowledge'.[3] The variety in the spectrum of this knowledge determines the degree by which they can communicate their vision to others. Ultimately, the evolution of the goldsmiths' style is bound by and lies within the transformation of his *technē*. Until the seventeenth century his *modus operandi*, that converted the original idea into the artifact, remained constrained within the secret traditions of a workshop. Through the ages these traditions had been carefully preserved and conveyed from father to son or from master to apprentice under the total control of the guild system. While offering protection, these guilds simultaneously enforced a *status quo* by limiting the transfer of knowledge to only the local workshops. This paper is devoted to two concurrent themes inherent within our intellectual history and the impact of each upon the goldsmith. The first is the technical evolution spurred by experimental science and its dissemination throughout Europe between the seventeenth and early eighteenth centuries. Second, is an analysis of some of the stylistic changes that occurred as a direct result of moving beyond those traditional workshop secrets.

Historically goldsmiths methodically recorded their so-called mysteries for their own use. These manuscripts, of which only a few have survived, reveal secret recipes for the alloying and colouring of metals as well as descriptions of such complex processes as, for instance, the casting of a small lizard described and illustrated in the late sixteenth century manuscript now in the Bibliothèque Nationale [**1**].[4] The early treatises on goldsmithing from Theophilus' twelfth century *De diversis artibus* to Biringuccio's sixteenth century *Pirotechnia* or Cellini's *Trattati*, although thorough and informative, for the most part contained only very basic information that was already known to most



1 *Manuscript circa 1570–90, anonymous French goldsmith, containing a description of the method for casting a small lizard. (Bibliothèque Nationale, Paris)*

1. T. Sprat, *The History of the Royal Society of London, for the Improving of Natural Knowledge*, London 1667, 3rd edition 1722, p149.

2. For a lucid description of the meaning of *Technē* in ancient times, see D. Roochnik, *Of Art and Wisdom: Plato's Understanding of Technē*, University Park 1996.

3. B. Croce, *Aesthetics as science of expression and general linguistic*, (trans) D. Amslie, 2nd edition, Boston 1983, pp111–17.

4. Bibliothèque Nationale, Paris, Ms Fr.640, f° 124 v°. For further examples and discussion of the manuscripts, see L. Amico, *Bernard Palissy et ses continuateurs*, Paris 1996, pp86–90.

European workshops and lacked the *avant-garde* techniques or secret recipes.[5] Such secrets remained securely shielded by the writers. In some cases even detailed descriptions of specific processes were intentionally kept mysterious. For instance, according to Theophilus, Spanish gold was a counterfeit alloy composed of red copper, human blood, basilisk's powder and vinegar. The basilisk, a favourite of the medieval alchemist, was a legendary and terrifying animal, half chicken and half serpent-dragon that could kill by merely a glance. Theophilus, described in detail the breeding process of this animal:

> ...in a dungeon walled with stones...Put two cocks twelve to fifteen years old and give them plenty of food. As a result of the heat of their fatness they copulate and lay eggs. After the eggs are laid the cocks are removed and toads are put in to hatch the eggs. From these eggs male chickens will emerge but after seven days serpent tails will grow on them...

And he goes on

> You bury these chickens in a brazen pot with a copper lid for six months, then unearth the pot and set fire under it until the beasts are completely burned... To these ashes add dried ground blood of a red-headed man...and temper it with sharp vinegar.[6]

He used alchemical symbols for this formula, intended only for the adept, in order to prevent the knowledge of counterfeiting gold from falling into the wrong hands.[7] It was the intellectual struggle of the seventeenth century that brought the goldsmith's mysteries from magic and alchemy, as in Theophilus' recipe, to experimental science and later to industry.

One of the major characteristics of the seventeenth century was the formation of academies or learned societies throughout Europe dedicated to the flowering of specific aspects of intellectual pursuits, such as poetry, music, literature, painting, philosophy, mechanics, science and others. Such was their popularity that in Rome alone over two hundred flourished during the seventeenth century. Historically, the first truly scientific academy was the *Accademia dei Lincei* founded in Rome in 1603 by the young nobleman Federico Cesi at the young age of eighteen.[8] From the outset the academy was totally embedded in magic. For example, the minutes of their first meeting contains a propitiatory astrological chart revealing that it took place at a specified hour and day, 17 August 1603, in order to assure the proper beneficial influences of the planets, Mercury in particular. In typical early seventeenth century fashion, this meeting included magic rituals based on Hermeticism and the manipulation of planets and various metals in order to attract the sympathetic forces conducive to their studies. They also adopted a cryptic language based on astrological signs.[9] Within two years, however, with a total reversal of attitude, Cesi established the official by-laws of the academy stating that,

> their purpose was not only to acquire wisdom and knowledge but to diffuse this knowledge among all men by voice and by writings.[10]

Such innovative policies of enlightenment and intellectual dissemination of knowledge soon became the rule for all scientific academies. A striking example of this seventeenth century co-existence of magic and science is the appearance of two very opposite figures among the first ten members of this academy. On one front we see the Neopolitan, Giovan Battista della Porta, the last of the great magicians, and on the other, Galileo Galilei, considered by many to be the father of modern science.[11] In their pursuit of knowledge and its propagation, the academy began publishing such scientific works as Galileo's first book on solar spots.[12] However, it was not in Rome but in England that the prophetic thinker of the modern era appeared. Philosophically, the real hero of this intellectual revolution was Sir Francis Bacon, who led the way towards an entirely new line of enquiry. All previously accepted Aristotelian knowledge was now being challenged and proof through experimentation became the only judge of truth. Bacon also emphasised that the ultimate goal of scientific knowledge should be its utilitarian character, that is to endow human life with powers through new discoveries.[13] In his last unfinished work of fiction, *The New Atlantis*, published posthumously in 1627, Bacon described a society of experimenters, a sort of romantic model that became the real manifesto for the learned societies of the late seventeenth century and, to some extent, for the Freemasons of the eighteenth century.[14] This Utopian model, symbolically called *Solomon's House*, was in the ideal commonwealth of Bensalem, a Hebrew word signifying 'son of peace'. Among the treasures of this house were a series of laboratories devoted to all conceivable subjects of experimental research, from astrological to botanical, from chemical-pharmaceutical to mechanical. Bacon wrote that among the several assignments for the fellows in this Utopian society were,

> twelve that sail into foreign countries...who bring us the books, and abstracts and patterns of experiments of all other parts [of the world]. These we call Merchants of Light. We have three that collect the experiments that are in all books. These we call Depredators. We have three, that collect the experiments of all mechanical arts: and also of practices that are not into the arts. These we call Mystery Men.[15]

We cannot help but wonder if the choice of the term 'mystery' may have been inspired by the goldsmiths' mystery or guild. Throughout his writings, Bacon stressed the great value of studying the crafts and their technical processes of knowledge as well as the neglect by philosophers to study the mechanical arts because of their contempt towards manual labour. But, by the second half of the century, this attitude was changing and it became fashionable, even for noblemen, to indulge in mechanical activities.[16] The increasing interest in artisans' skills and labour among learned men became evident in several contemporary publications.

In 1648, John Wilkins, one of the future founders of the Royal Society in England, published

5. For English translations, see Theophilus, *On Divers Arts*, (trans) J.Hawthorne and C.Smith, New York 1979; V. Biringuccio, *The Pirotechnia*, (trans) C.Smith and M.Gnudi, New York 1990; B.Cellini, *The Treatises on Goldsmithing and Sculpture*, (trans) C.Ashbee, New York 1967.

6. Theophilus, 1979, pp119-20.

7. This passage in Theophilus is in my opinion more than 'a garbled account ...in the lurid language of alchemy', as some scholars have suggested (Theophilus 1979, p119) but a very specific and factual recipe described in alchemical symbols.

8. On the Accademia dei Lincei, see A. Capecchi, et al, *L'Accademia dei Lincei e la cultura europea nel XVII secolo*, exhibition catalogue, Rome 1992.

9. Ibid, fig4, p55.

10. Ibid, p4.

11. The work that gave Della Porta European fame was *Magiae naturalis libri xx*, Naples 1558; for the English translation, see J. B. Porta, *Natural Magick*, London 1658.

12. Galileo Galilei, *Istoria e dimostrazioni intorno alle macchie solari*, Rome 1613.

13. On Sir Francis Bacon, see P.Zagorin, *Francis Bacon*, Princeton 1998; P.Rossi, *Francis Bacon: from Magic to Science*, (trans) S. Rabinovitch, Chicago 1968. J.Spedding, *The Letters and Life of Francis Bacon, Including All His Occasional Works*, London 1890, 7 vols, remains the most comprehensive study.

14. F. Bacon, *The New Atlantis a Worke unfinished*, London 1627.

15. Quoted in M.Ornstein, *The Role of Scientific Societies in the Seventeenth Century*, New York 1975, p270.

16. On the attitude towards manual labour and the mechanical arts, see F. Healey, 'The Enlightenment View of "Homo Faber"', in *Studies on Voltaire and the Eighteenth Century*, XXV 1963, pp837-59.

Mathematical Magick, a book on mathematics and machines in which he directly addressed the prejudices against the mechanical arts.[17] In it he describes the incident when Heraclitus was seen by his students in a workshop and the shame they felt at their discovery. Because of their refusal to enter he reassured them that 'the gods are conversant in such places as in others' and that 'divine power and wisdom resided in such places'.[18] We should note that John Wilkins was the son of an Oxford goldsmith and well aware that power and wisdom resided in these workshops.

This growing attitude toward artisans was also prevalent in French publications. For instance, Jacques Aleaume's 1643 book on practical and speculative perspective was addressed not only to elite painters and architects, but to chasers, engravers, and weavers as well.[19] André Félibien's 1676 dictionary of architecture, sculpture, painting and other arts dependent upon them, strove to do away with what he called 'craft secrets' and 'mysteries', thereby making such secrets clear and accessible to the layman.[20] He even turned directly to craftsmen for the explanation of their terms, and dedicated eight chapters of his publication to various crafts, with illustrations identifying their tools and their proper use. Within two short years the same approach was adopted in England, as seen in Joseph Maxon's *Mechanick Exercises or the Doctrine of Handyworks*.[21] A mere 6d per publication assured the accessibility of his *Mechanick Exercises* to the artisan for whom they were intended. Like Felibien, Maxon delineated the tools and techniques used in the crafts. In his own words we read: 'These arts, are described in workman's phrases and their terms explained'. He laid bare the 'art and mystery' of the crafts while emphasising the paramount importance of the principles of mathematics and geometry and their essential role in the successful practice of the arts. By the 1660s an enormous shift towards the transfer of technology was taking place, from the guild-controlled workshops to printed books. The empirical knowledge accumulated through the centuries by various craftsmen could now for the first time be shared, studied and improved by experimental philosophers. This momentum was fostered by and channelled through the learned societies. Although many societies as well as independent experimental philosophers flourished throughout Europe, this article is limited to the French Academy of Science, the Royal Society in London, and the transfer of knowledge between France and England.[22]

The Académie des Sciences

The French Academy of Science, founded in 1666, emerged from a group of erudite thinkers who entertained themselves in a fashion that had become commonplace in many European cities: with the problems of mathematical analysis, astronomical observations, physical experiments and the like.[23] They included such famous intellectuals as Blaise Pascal, Giandomenico Cassini, Pierre Gassendi and Christian Huygens, who met at regular intervals in various locations. From 1657 on these meetings were often held at the home of Henry-Louis Montmor and thus they soon became known as the Montmorians.[24] Many of them were members of, and in close contact with, the newly founded Royal Society in London. Among the Mortmorians there was also a select group who published their travels in journals. This is significant, since travel was a pivotal factor in the transfer of technology. Among such publications was Samuel Sorbière's *Relation d'un voyage en Engleterre* (1664), a controversial book that managed to offend both the French and the English.[25] During his visit to the Royal Society Sorbière was amazed to see eminent English statesmen in St James's Park occupied in such humble tasks as the preparation of new machines for experiments or adjusting telescopes. In astonishment he remarked that one would never find French nobles engaged in such tasks, stating that, 'they would consider themselves dishonoured if they dabbled in anything other than dreaming up new fashions'. He described the English nobility as 'learned' and 'enlightened' with no desire to fall back into the 'customary idleness of courtiers'.[26] Comments such as these resulted in the suppression of the book by Louis XIV and the banishment of poor Sorbière to Nantes. Another famous Mortmorian, Balthasar de Monconys, known to his friends as Technophilus, published a richly illustrated *Journal des Voyages* with an infinite number of machines, curiosities, and secret recipes.[27] From several accounts of the period we learn that the gentleman's Grand Tour was not only to visit monuments and collect works of art but to seek and acquire scientific knowledge as well. In fact, by the eighteenth century we know that some bordered on industrial espionage.[28]

Finally, Colbert proposed and obtained from Louis XIV the elevation of these informal gatherings to an official status. In his establishment of the Académie des Sciences Colbert fulfilled a dual purpose. While enhancing theoretical sciences he simultaneously fostered investigations that advanced the *arts et métiers* of France. A case in point was his contemporaneous founding of the Gobelins factory whose main purpose was to benefit and perfect the arts in France. All of the original sixteen members of the Academy were hand picked by Colbert and as pensioners they received an annual stipend of 1,500 livres. Beyond this, the king established a fund of 12,000 livres for expenditure such as instruments and supplies. Like those described in Bacon's *Salomon's House*, the academicians met regularly for discussions ranging from astronomical observation to animal dissection and purely mechanical experimentation. Together they compiled and amassed information for comprehensive and encyclopedic publications on specific areas. Since its inception the Academy realised the importance of improving the arts and trades. To this end

17. J. Wilkins, *Mathematical Magick*, London 1648. B.Shapiro, *John Wilkins, 1614–1672; An Intellectual Biography*, Berkeley 1969. See also, J.Aubrey, *Brief Lives*, (ed) A.Clark, Oxford II, 1898, pp299–302.

18. Quoted in J.A. Bennet, 'The Mechanics' Philosophy and the mechanical Philosophy', in *History of Science*, 24, 1986, p22.

19. J. Aleaume, *La Perspective Speculative, et Pratique*, Paris 1643.

20. A. Félibien, *Des principes De L'Architecture, De la Sculpture, De La Painture, Et Des Autres Arts Qui En dépendent. Avec Un Dictionnaire des Termes propres à chacun de ces Arts*, Paris 1676.

21. J.Maxon, *Mechanick Exercises or the Doctrine of Handyworks*, London 1678. For the complete series with analysis, see Maxon. *Mechanick Exercises or the Doctrine of Handyworks*, (ed) C.Montgomery, New York 1970.

22. On European scientific societies, see M.Ornstein, *The Role of Scientific Societies in the Seventeenth Century*, New York 1975. See also P. Rossi, *Philosophy, Technology and the Arts in the Early Modern Era*, (trans) S. Attanasio, New York, 1970. On experimental philosophy, see S. Shapin, *The Scientific Revolution*, Chicago 1996.

23. On the French Academy of Science, see J. Bertrand, *L'Académie Des Sciences et Les Académiciens de 1666 a 1793*, Paris 1869, 2 vols. See also R. Hahn, *The anatomy of a scientific institution: the Paris academy of Sciences, 1666–1803*, Berkley 1971.

24. For a discussion of the Montmorians and seventeenth century ideology, see E.Harth, *Ideology and Culture in Seventeenth-Century France*, Ithaca 1983, pp224–50.

25. The *Relation d'un voyage en Engleterre* was first published by Bellaine in 1664 without the author's name. It was later published under the name of S. Sorbière, *Relation d'un voyage en Engleterre, où sont touchées plusieurs choses, qui regardent l'estat des sciences, et de la religion, et autres matières curieuses*, Cologne 1667.

26. Quoted in E.Harth, *Ideology and Culture in Seventeenth-Century France*, Ithaca 1983, pp233–34.

27. B. de Moncony, *Journal des voyages*, Lyon1665-66, 3 vols.

they commissioned their junior member, Monsieur Couplet, professor of mathematics and mechanics, to 'look at the workers in the arts and trades, at their tools and instruments, at their manner of use, know what is missing and learn all of their secrets and sophistication'.[29] For this project the Academy collected and catalogued tools, instruments and machines that, after a century of delay, was published as *Machines et inventions approuvées par l'Académie royale des science*.[30] We should note that many of the illustrations in Diderot's *Encyclopedia* on the arts and trades were taken directly from records the Academy had collected. Some of their own experiments and those conducted by others were published in the *Journal des sçavans*, the first scientific journal founded in 1665 and closely connected with the Academy.[31] Following Colbert's death, the Academy became more and more concerned with purely scientific experimentation to the total neglect of the applied arts. Conversely, the Royal Society in London, through its dissemination of all forms of experimental knowledge, rapidly advanced the quality of English workmanship in the arts. Finally, in 1726 an elite and disgruntled group dedicated to the study of all of the arts and sciences formed their own academy, the *Societé des arts de Paris*. Throughout its short duration of approximately one decade its membership came to include some of the most interesting figures in the mechanical and applied arts. During this most intriguing period of silversmithing technology transfer between France and England, it included the great French goldsmith Thomas Germain. Unfortunately a fair discussion of the history and complexity of the Society demands a separate and lengthy study and cannot be adequately addressed in this essay.[32]

The full impact on the goldsmith's *technē* of the Academy's new impetus towards enquiry and natural philosophy is hard to assess and quantify because very often the benefits came from indirect sources, such as experiments or publications in chemistry, physics or mechanics. This is evidenced, for example, by significant improvements on the use and technology of the lathe. In 1689 Charles Plumier completed the first treatise on the use and construction of the lathe which was published in Lyon in 1701 as *L'Art du Tourner*. It contains an engraving depicting the sophisticated lathe that is found more than half a century later in Diderot.[33][2] More significantly, similar research on the lathe was being conducted in England and appeared simultaneously in the London journal, *Mechanick Exercise*, discussed above. Furthermore, new laws of physics were quickly adopted to improve existing methods in the arts. In his treatise *The Equilibrium of Liquids: and the Weight of the Mass of the Air* published posthumously in 1663, Blaise Pascal, with a revolutionary theory, demonstrated that

> the weight of a liquid on a specific point is determined by the area multiplied by its height.

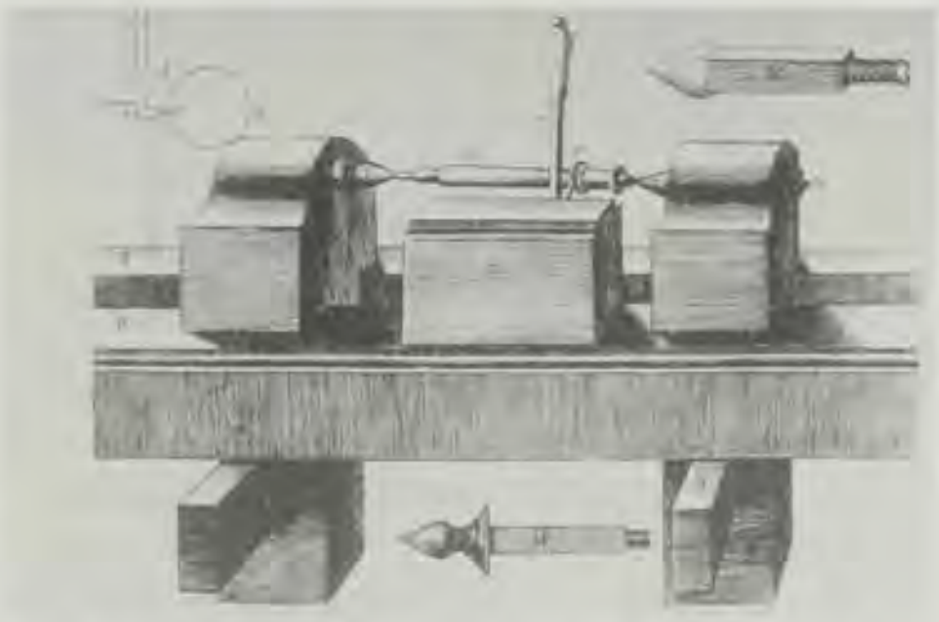
He went on

> What I have said for water applies to every liquid[34]

His law could now be applied to silver, gold, and other metals in their molten states. Pascal's experiments on hydraulics and vacuum fascinated researchers throughout Europe and immediately became the focus of intense studies and his new concepts were soon incorporated into metal-casting practices. From the engraving in the Diderot *Encyclopedia* illustrating the casting of Louis XIV's equestrian statue, installed in the Place Vendôme in 1699, we can see that all of the channels carrying the molten metal to the statue, as well as the air vents for the escaping gasses, are all positioned and sized to take full advantage of Pascal's theory and are no longer done in an empirical way.

The Royal Society

The Royal Society was founded in London in 1660, six years earlier than the French Academy. Like its French counterpart, it began with informal meetings of a group of men deeply interested in experimental knowledge who called themselves the Philosophical Society of Oxford.[35] Membership included such outstanding personages as John Wilkins, Robert Boyle, Christopher Wren, Lawrence Rooke and John Evelyn among others. Robert Boyle referred to this group as the 'invisible college'. They transferred their meeting place to Gresham College in London after Wren and Rooke were given professorships there, and occasionally they met at Bull Head Tavern in Cheapside.[36] Though it has never been noted, it is my belief that Boyle's concept of an 'invisible college' can be traced back to the hermetic and alchemical 'Temple of Knowledge' or 'Collegium Fraternitatis'. This imaginary college 'is in no place but everywhere; that all men have seen it but not recognised; and that is to be truly discovered only by those of pure art'.[37] Like Newton and Ashmole, Boyle's intellectual pursuits continued to be strongly imbedded in hermeticism and alchemy, re-affirming the co-existence of magic and modern science throughout the seventeenth century.[38] Glanville's sardonic lines capture the essence of the founding of the Society.



2 *C. Plumier, L'Art du Tourner, 1701. Metal-cutting lathe.*

28. For an insightful discussion of the transfer of technology, see J. Harris, *Industrial Espionage and Technology Transfer. Britain and France in the Eighteenth Century*, Aldershot 1998.

29. J. Bertrand, *L'Académie Des Sciences et Les Académiciens de 1666 a 1793*, Paris 1869, 2 vols, p8.

30. M.Gallon, *Machines et inventions approuvées par l'Académie royale des science depuis son établissement jusqu'à présent: avec leur déscription. Dessinées et publiées du consentement de l'Académie*, Paris 1777, 7 vols.

31. For the Journal des sçavans, see M.Ornstein, *The Role of Scientific Societies in the Seventeenth Century*, New York 1975, pp198–209.

32. On the Societé des Art , see J. Bertrand, *L'Académie Des Sciences et Les Académiciens de 1666 a 1793*, Paris 1869, 2 vols p98. See also R. Hahn, 'The Application of science to society: the societies of arts', *Studies on Voltaire and the Eighteenth Century*, XXV 1963, pp829–36. See also 'Science and the Arts in France The Limitations of an Encyclopedic Ideology', *Studies in Eighteenth-Century Culture*, X 1981, pp77–93.

33. C. Plumier, *L'Art du Tourner*, Lyon 1701.

34. For the English translation, see B. Pascal, The phisical treatises of Pascal: *The Equilibrium of Liquids: and the Weight of the Mass of the Air*, (trans) I. & A.Spiers, New York 1973.

35. On the Royal Society, see Sprat, 1722; M.Ornstein, *The Role of Scientific Societies in the Seventeenth Century*, New York 1975, pp91–138.

36. On the use of the term Invisible College by Boyle, see L. Trenchard More, *The Life and works of the Honorable Robert Boyle*, Oxford 1944, pp53–127.

37. M.Hall, *Codex Rosae Crucis*, Los Angeles, 1971, p40. See also A. Rooley, 'The Invisible College' in *Alexandria*, III 1995, pp204–11.

38. On Newton, see C. Webster, *From Paracelsus to Newton: Magic & the Making of Modern Science*, New York 1982. For Boyle as alchemist, see L. Trenchard More, *The Life and works of the Honourable Robert Boyle*, Oxford 1944, pp214–30.

At Gresham College a learned nott
Unparalleled design have layed
To make themself a corporation
And know all things by demonstration.

These are not men of common mould,
They covet fame but condemn gold.
The college Gresham shall hereafter
Be the whole world's University.

Oxford and Cambridge are our laughter:
Their learning is but pedantry.
These new collegiates do assure us
Aristotle is an ass to Epicurus.[39]

Such sarcasm reflected the opposition to experimental science posed by universities. It was not until 1683 that the Ashmolean Museum was eventually furnished with a chemical laboratory. On 15 July 1662 Charles II established the Royal Society by charter and granted them a coat-of-arms. But, unlike the French Academy, he offered no financial provision whatsoever. More important, however, were the freedom and independence allotted them by the charter. For instance, they had the authority to 'hold correspondence and intelligence with strangers without any interruptions or molestations'. This included individuals or countries with religious differences or even at war. Religion was differentiated from the workings of the Society. According to Sprat, all of Europe should stand united 'against powerful and barbarous Foes, that have not been fully subdued almost these six thousand years, Ignorance, and False Opinions. Against these, it becomes us, to go forth in one common Expedition'.[40] Though some fellows were from the universities, unlike the French Academy some of the membership included amateurs from every walk of life, such as merchants, artisans and people with mechanical and commercial skills. As many as thirty-five out of ninety-six Society members were chosen to study the history of trades, their appropriate tools and how to improve them with particular emphasis on foreign methods. As with other learned Societies, its aim was not limited to experimentation alone, but to the dissemination of all acquired knowledge through public lectures and publications. Their method of enquiry was boundless and included questionnaires sent to the Society's friends in distant lands, at times seeking scientific answers to old tales. An inquiry to Java, for example asks, 'whether diamonds and other precious stones grow again after three or four years in the same place?'.[41]

The pages of the Society's *History* abound with a multitude of experiments affecting the goldsmith, from annealing to gilding to new screw machines. They investigated how fire effected the weight of metal, their co-efficient of expansion and their specific weights. Now, for the first time, a goldsmith could know exactly how much silver to melt for a lost-wax casting by simply weighing the wax and multiplying it by the silver's specific weight. They amassed information and secrets on all the great and most substantial trades that they collected into *Histories*. Their aim was 'to bring innumerable benefits to all practical Arts....In short, by this help the worst Artificers will be well instructed, by considering the Methods, and Tools of the best'.[42] Some of the accounts dealt with the refining of gold, silver, copper, the gilding with mercury, hardening of steel, manufacturing of pitch, and the colouring of various metals. Some recipes for the goldsmith were less appealing than others: 'Lastly the stale Urine, or old mudd of pissing places, will colour a well scoured small piece of Silver, into a Golden colour'.[43] All the empirical guessing, once referred to as mysteries, was disappearing.

As we have seen, the major contribution to the Society by Charles II and his cousin Prince Rupert, was not money but royal example. Prince Rupert was credited with many inventions. Besides the famous Prince Rupert's Drops, and his role in the introduction of the mezzotint technique into England, there was also a popular alloy that would take the name of Prince's Metal.[44] Many experiments, including those from foreign Societies, were published in their own periodical, *Philosophical Transactions*.[45]

The well-known book *A New Touchstone for Gold and Silver Wares*, by the goldsmith William Badcock, was but one of a multitude of publications spurred by experimental philosophy and all contributing to the enrichment of the goldsmiths' *techne*.[46] They encompassed many fields, from chemistry to physics, and from mechanics to architecture. Among them we find Webster's, *Metallographia or An History of Metals* (1671), dedicated to the metallurgist par excellence, Prince Rupert; *A Treatise on Japanning and Varnishing* (1688), containing useful recipes for metal refining, mercury gilding, as well as oriental imagery similar to those seen on chinoiserie silver; *Chemical Lectures, publickly read in London* (1733) by Peter Shaw, whose title page stated, 'for the improvement of the arts and trades'. Some of the lectures were tailored specifically for improving silver production: Peter Shaw's translation of Dr Boerhaave's *Elementa Chemiae* under the title *The new Method of chemistry* included an array of significant and practical information for the goldsmith as well as an appendix dedicated to 'Enlarging the bound of Chemistry with sculpture'.[47] Among the many books published, I chose those cited because they were a part of the reference library of the great Matthew Boulton.[48] Given their relevance, we must also list the early English encyclopedic dictionaries published by Royal Society fellows: John Harris' *Lexicon Technicum of Art and Science explaining not only the terms of art but the arts themselves* (1704) and Ephraim Chambers' *Cyclopaedia* (1728), with definitions of the terms in several arts both liberal and mechanical.[49]

Towards new technical frontiers and styles

The dissemination of knowledge expounded by the learned societies and the experimental philosophers greatly altered the course of our intellectual history

39. The poem attributed to William Glanvill is quoted in M.Ornstein, *The Role of Scientific Societies in the Seventeenth Century*, New York 1975, p102.

40. T. Sprat, *The History of the Royal Society of London, for the Improving of Natural Knowledge*, 1722, p57.

41. Ibid, p158.

42. Ibid, p310.

43. Ibid, p293.

44. On Prince Rupert's contribution to the mezzotint, see A. Griffiths, *The Print in Stuart Britain 1603–1689*, exhibition catalogue, The British Museum, London 1998, pp211–12.

45. M.Ornstein, *The Role of Scientific Societies in the Seventeenth Century*, New York 1975, pp198–209.

46. W. Badcock, *A new Touchstone for Gold and Silver Ware*, 2nd edition, 1679.

47. J.Webster, *Metallographia or An History of Metals*, London 1671; J.Stalker, G. Parker, *A Treatise on Japanning and Varnishing*, London 1688; P.Shaw, *Chemical Lectures, publickly read in London*, London 1733; P. Shaw, *A new Method of Chemistry*,2nd edition, London 1741.

48. N. Goodison, *Ormolu: The work of Matthew Boulton*, London 1974, p69, n40.

49. J.Harris, Lexicon Technicum: or, an Universal English Dictionary of Arts and Sciences, London 1704; E.Chambers, Cyclopaedia: or, an Universal Dictionary of Arts and Sciences, London 1728, 2 vols.

with a direct impact on the goldsmith's *Techné* and consequently style. In Europe during the first few decades of the eighteenth century, these complex intellectual changes significantly affected the technical cross-currents between French and English silversmiths by fuelling each other and propelling their art towards new frontiers. An analysis of some of the techniques used in the manufacturing of silver of this period, such as lost wax casting, illustrates how centuries-old processes achieved new levels of ease and dexterity as they continually evolved. Above all they integrated and merged with other techniques in unprecedented ways.

We see this, for example, in the two wine coolers, now in the Louvre, by Thomas Germain, who by 1727 had freed his forms from the restraints and limitations dictated by traditional techniques. Hitherto the bodies of vessels such as wine coolers, would usually have been raised by hammer, followed by repoussé decoration or applied casting. Due to the enormous advancements achieved in the art of lost-wax casting, Germain was able to conceive the entire object as a work of sculpture cast in silver. Previously this approach had usually been reserved for smaller objects, such as casters or figure candlesticks, whose size allowed for a relatively thin casting. The now lost silver furniture at Versailles was a notable exception. Germain overcame these difficulties by reducing the thickness of the silver, first casting the wine coolers in three small pieces and then assembling them by soldering. This method was increasingly used for larger and larger objects and allowed the artist unprecedented freedom of forms.[50]

3 *Tureen, cover, liner and stand, Thomas Germain, Paris 1733/34; from the Penthièvre-Orléans service. (Sotheby's)*

Casting from life specimens was also re-introduced. The sophistication of casting skills, modelling, and mould-making was such that in a combined group of castings it is often impossible to distinguish between those cast from moulds of nature and those modelled by the silversmith's hands. Often applied cast details and embossing were mixed and overlapped with such dexterity that they are virtually indistinguishable.

This combination of technical sophistication, unprecedented in the history of silver, is evident in Germain's tureens from the Penthièvre-Orléans service of 1733/34.[**3**] Expanding the innovative methods used in his wine coolers, Germain again chose the lost-wax method to cast the body of the vessel into sections. Given the larger size and shape, however, he divided their bodies in four. There were several dozen cast pieces involved in the assembling of each tureen. For example, the four boar feet supporting the body of the tureens were each cast in three separate parts. He chose to cast the stands with splashing waves in four sections rather than emboss them from a single sheet. From the crack at the seam where the sections of the waves were joined together we can detect how the soldering of these parts was accomplished.[**3a**] The drawing [**3b**] demonstrates how the

3a *Detail of the underside of the stand, showing a crack that occurred where the sections were originally soldered together. The nuts are later additions to hold the armorials. The two small pin-like circles are the cut-off remnants of the original wires that held the cast sections together during the soldering operation (as seen in 3b).*

3b *The top section of the drawing illustrates how the separate cast sections were held together with this silver wires during the soldering operation. The small pieces of solder to be melted are depicted in position. Even after the soldering, filing and polishing (bottom drawing), on close scrutiny the small circles from the cut-off wire are still discernable.*

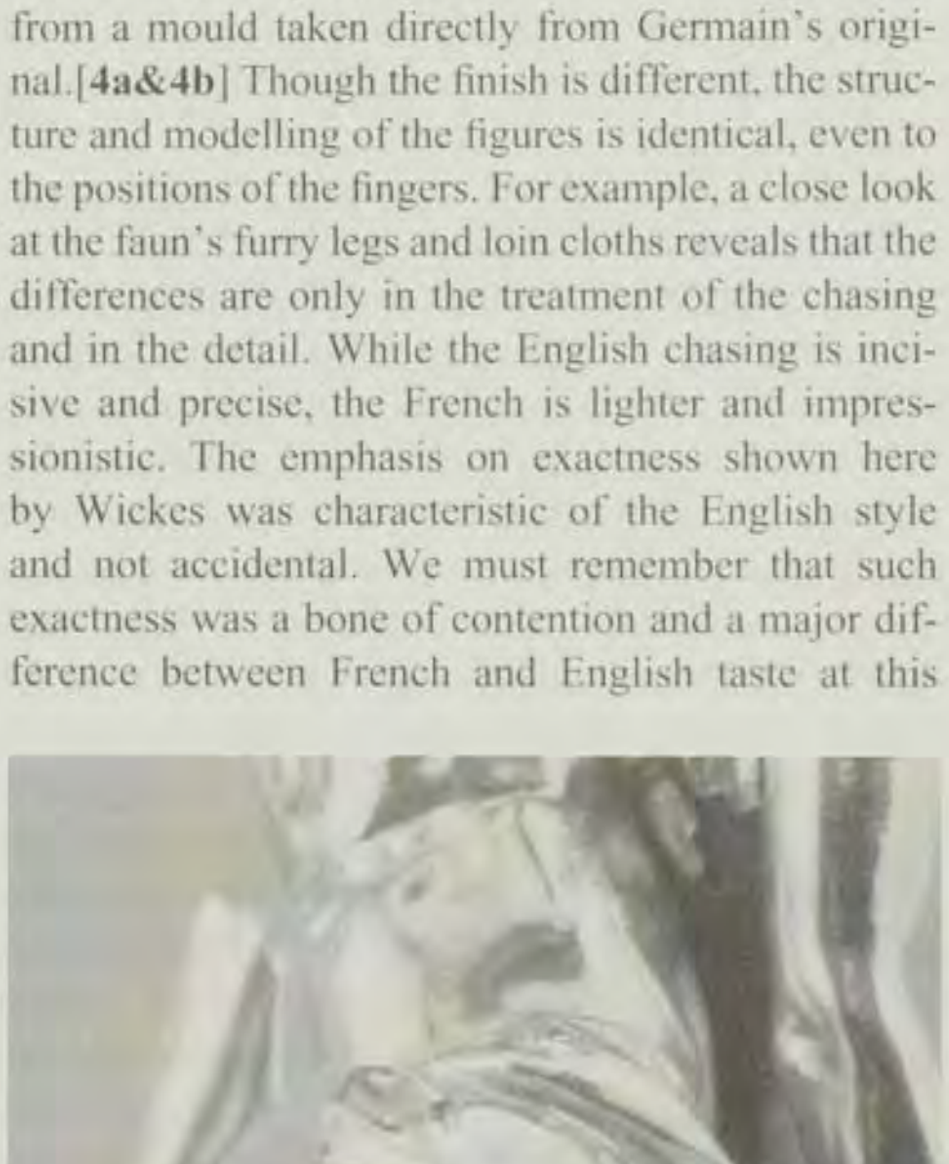
50. For a more in-depth discussion with illustrations on the use of the lost wax process for large vessels, see U.Vitali, 'Meissonnier's Goldsmith Persona' *in The Thyssen Meissonnier Tureen*, Sotheby's New York, 13 May 1998, pp70–87.

separate parts were prevented from moving or opening during the difficult soldering operation over the burning coals by tying them together with thick silver wires and adding small pieces of solder over the joints and around the wires. Once the solder fused and filled all the gaps the excess solder and wires were filed smooth. It is only under close magnification that today we can detect the corresponding circles on each side of the joints attesting to the use of this method.[**3a**]

A more traditional use of the lost-wax casting process of this period can be seen in Germain's candelabra of 1732/33 [**4**] and its English replica, made a decade later by George Wickes for the Earl of Kildare. Some scholars have argued that the English version was modelled by a London sculptor and inspired by a hypothetical book of drawings of Germain's work, pointing to the usual St Martin's Lane gang.[51] A detailed comparison of two satyrs demonstrates beyond a doubt that Wickes' figures are from a mould taken directly from Germain's original.[**4a&4b**] Though the finish is different, the structure and modelling of the figures is identical, even to the positions of the fingers. For example, a close look at the faun's furry legs and loin cloths reveals that the differences are only in the treatment of the chasing and in the detail. While the English chasing is incisive and precise, the French is lighter and impressionistic. The emphasis on exactness shown here by Wickes was characteristic of the English style and not accidental. We must remember that such exactness was a bone of contention and a major difference between French and English taste at this

51. On this theory, see E. Barr, 'The French Heritage', in *Royal French Silver*, Sotheby's New York, 13 November 1996, pp93–4.

4 *Three-light candelabrum, Thomas Germain and François-Thomas Germain, Paris 1732/33 and 1756/57, for King Jose I of Portugal.*



4a *Detail of satyr from the candelabrum, Thomas Germain, Paris 1732/33.*

4b *Detail of satyr from candelabrum, George Wickes, London 1744/45, for the Earl of Kildare. A comparison with 4a shows that the model is structurally identical and could only have derived from a mould taken from Germain's original. The treatment of the chasing is quite different, more detailed, incisive and less impressionistic than the French.*

5 *Cup and cover, Paul de Lamerie, London 1732/33. (Christie's)*

time.[52] In his famous *Letters on the English and French Nations*, Abbé le Blanc wrote with pungent sarcasm, '...seems as if the idea of the exact is the only one the Englishman has of the beautiful'. Even more venomous was his conclusion: 'Does not an over-scrupulous exactitude cool the genius? The exact is a near neighbour to the stiff'.[53] The preference for, and prolific use of, lost-wax casting remained a favourite method of expression for the French goldsmith for years to come, with Meissonier's Kingston tureens as perhaps one of the highest surviving achievements.[54]

An example of how quickly reliance upon these processes had reached the London stage is seen in the aesthetic accomplishments of the two-handled cup with Paul de Lamerie's marks (1732/33).[55][**5**] Though the body and cover of the cup were raised, every facet of its decoration, to the smallest fruit or scroll, was cast in lost-wax and applied, rather than executed in repoussé. During the 1730s improvements in the use of these techniques continued and reached a new plateau in the next generation of London cups. For example Lamerie's cup of 1742/43, now in the Sterling and Francine Clark Art Institute, is one of several that are very similar.[56] [**6a-d**] The skills now achieved in combining lost-wax casting and embossing were so exceptional and well conceived that the several dozen pieces soldered on these cups are impossible to detect. We should take notice that some are as small as snail curly-cues on the ends of the scrolls or the ubiquitous clusters of grapes. It is only with a careful examination of the interior that we can detect their construction. The remaining traces of riveted pins reveal their use to hold the cast decorations in place during the soldering operation.[**6b&6d**] As in France, the rampant utilisation of the lost-wax process and related techniques discussed above, allowed the goldsmith working in England to reach higher levels of self-expression as he embraced the new styles. Their accomplishments are manifested in such renowned works as Kandler's Jerningham

52. For the argument on exactness in English art, see Abbé le Blanc, *Letters on the English and French Nations*, London 1747, vol I, p33–50.

53. Ibid, p50.

54. On the Meissonnier tureen casting methods, see U.Vitali, 1998, pp82–85.

55. For more detailed information on this cup, see Christie's New York, 17 October 1996.

56. For locations and references on the cups, see B. Carver Wees, *English, Irish, & Scottish Silver at the Sterling and Francine Clarck Art Institute*, New York 1997, cat no28. I am grateful to Beth Carver Wees, curator of decorative Arts at the Clark Art Institute for her comments and graciously allowing me to examine and photograph this work.

6a *Cup and cover, Paul de Lamerie, London 1742/43, detail of the body. (Sterling and Francine Clark Art Institute, Williamstown)*

6b *Reverse of [6a], illustrating the great skills reached in combining several techniques. The missing back reliefs of the reclining putto and of some of the decoration show they were cast in lost wax separately then applied, and later completed by repoussé. Riveted pins held the casting in position during the difficult soldering operation. The pin shown above becomes a curl of the putto's hair on the outside of the cup.*

6c *Cup and cover, Paul de Lamerie, London 1742/43, detail of the base. (Sterling and Francine Clark Art Institute, Williamstown)*

6d *Reverse of [6c], showing the combination of several techniques. The pins held some of the small castings in place during the soldering operation, such as the flower's buds or the curly ends of the scrolls.*

cistern (1734/35) and candelabra (1738/39), and the Sprimont kettle from the Hermitage (1750/51).

Lastly, an object that follows exactly the Parisian *modus* of construction technically and aesthetically. The tureen marked Crespin 1740/41, now in the Toledo Museum, stands alone in the history of English silver.[7] In his essay on the Crespin-Sprimont relationship, Arthur Grimwade suggested Sprimont as its possible maker.[57] In 1998, continuing Grimwade's line of enquiry, a joint effort by the Victoria and Albert, Boston and Toledo museums created the opportunity for a hands-on comparative study in which I was privileged to participate. The pieces examined included the Crespin tureen, Sprimont's Ashburnham centrepiece (Victoria and Albert Museum), a Parker & Wakelin centrepiece, and other Sprimont works in the Boston Museum.[58] The study revealed that apart from the iconographical themes of the goat Amalthea and the horn of plenty which they share, the Ashburnham centrepiece and the tureen are radically different in technique, style and conception, making it highly improbable that they came from the same workshop, creator, or modeller.

While studying the Crespin tureen one marvels at the orchestration of the decorative elements.[59] For instance, the cleverness by which the two supporting young goats remain attached to the plateau by separating at the garlands around their necks when the tureen is lifted.[**7a**] In a brilliant solution to the stability of the object these garlands become the legs of the tureen and the animal forms beautifully convert into undulating, interlocking supporting elements.[**7b**] Technically Crespin's tureen falls totally within the parameters of the French tureens of the 1730s and 1740s. Like Germain's tureen, the body of Crespin's was also cast in lost-wax in several sections and then assembled.[**7c**] The interior reveals that the body was joined diagonally in order to follow the design and the goats' faces, shields and other details were all cast separately. As in Germain's work, the remnants of the silver wires used to tighten and hold the body together during the soldering operation are still visible. In typical French manner even some of the castings of the fruit were moulded directly from nature and then refinished.

57. A.Grimwade, 'Crespin or Sprimont? An unsolved problem of Rococo silver' in *Apollo*, XC 1969, pp126–28.

58. For images of these objects, see (ibid) Grimwade 1969. I would like to thank Ellenor Alcorn, Museum of Fine Arts Boston, Roger Berkowitz director of the Toledo Museum, Cliff Crane independent conservator, and Philippa Glanville then curator of metalwork at the Victoria and Albert Museum, for the opportunity of participating in this collaboration and for their comments and insights.

59. I would like to thank Roger Berkowitz director of the Toledo Museum for graciously allowing me to examine and photograph this work in his collection.

7 *Soup tureen and stand, Paul Crespin, London 1740/41. (Toledo Museum of Art)*

Conclusion

In this brief analysis it has been possible to introduce only a few of the dramatic changes brought about by experimental science that affected the goldsmith's *Technē* and style. Such complex aesthetic and technical cross-currents are difficult to isolate, identify, and quantify. As in most studies, more issues are raised than are answered, especially when it becomes apparent that some traditionally held art historical concepts and myths now demand reassessment. Such

an instance would, in my opinion, be the role of the Huguenots in the transfer of silversmithing technology between France and England, which needs to be re-evaluated and more methodically investigated. Even the contemporary and ever-critical Abbé Le Blanc recognised the great improvements made by the English in the arts, sciences and mechanical trades, including silversmithing. Most were a by-product of experimental science and totally independent of the Huguenots.[60]

With regard to the works in silver that have been discussed, it can safely be concluded that although they bear the marks of Lamerie or Crespin, they were the works of truly cosmopolitan artists embracing London's new international spirit. In some cases, given their methods of manufacturing, they were the works of single individuals in absolute control of their creations, from drawing and modelling to the making of waxes, casting, and chasing. This new breed of goldsmith/sculptor was formed mostly in the new Franco-Flemish, Italian or German tradition. By making London their hope and their home they revolutionised English silver by creating the first truly international style through which they introduced a new sculptural quality to their work.

The author spoke to the Society on this subject in March 1999. He also gave a talk on the chapel of St Ignatius in the Church of the Gesù during the Society's visit to Rome in October 1999.

7a-c *Details of the tureen [7]*
(top) Goats on the stand
(centre) Tureen removed from the stand
(bottom) Interior of the tureen. Still visible are the several cast sections that, because of the design, were joined diagonally and held together with twisted silver wires during the soldering operation.

60. See Abbé le Blanc, *Letters on the English and French Nations*, London 1747, p42.

The practice of Roman baroque silver sculpture

Jennifer Montagu

In discussing silver, it is normal to ascribe a piece to a single silversmith. But in doing so we are, consciously or unconsciously, overlooking the fact that all silversmiths ran workshops, with assistants of varying grades lending a hand to the construction of all but the simplest pieces. We may forget that quite often a silversmith will be working, at least in part, from a design furnished by another artist; this was certainly the case in eighteenth century Rome, at least in the sort of silver which particularly interests me: sculptural silver. So in the following pages I shall examine the ways in which such works were produced and the number of different people involved: those who provided the designs, those who made the models, and the various specialists who actually executed the silver images.[1]

1. What follows is based on my book, *Gold, Silver and Bronze*, New Haven/London 1996. This contains additional information and sources, footnotes will be given here only for material not included there.

Giovanni Giardini

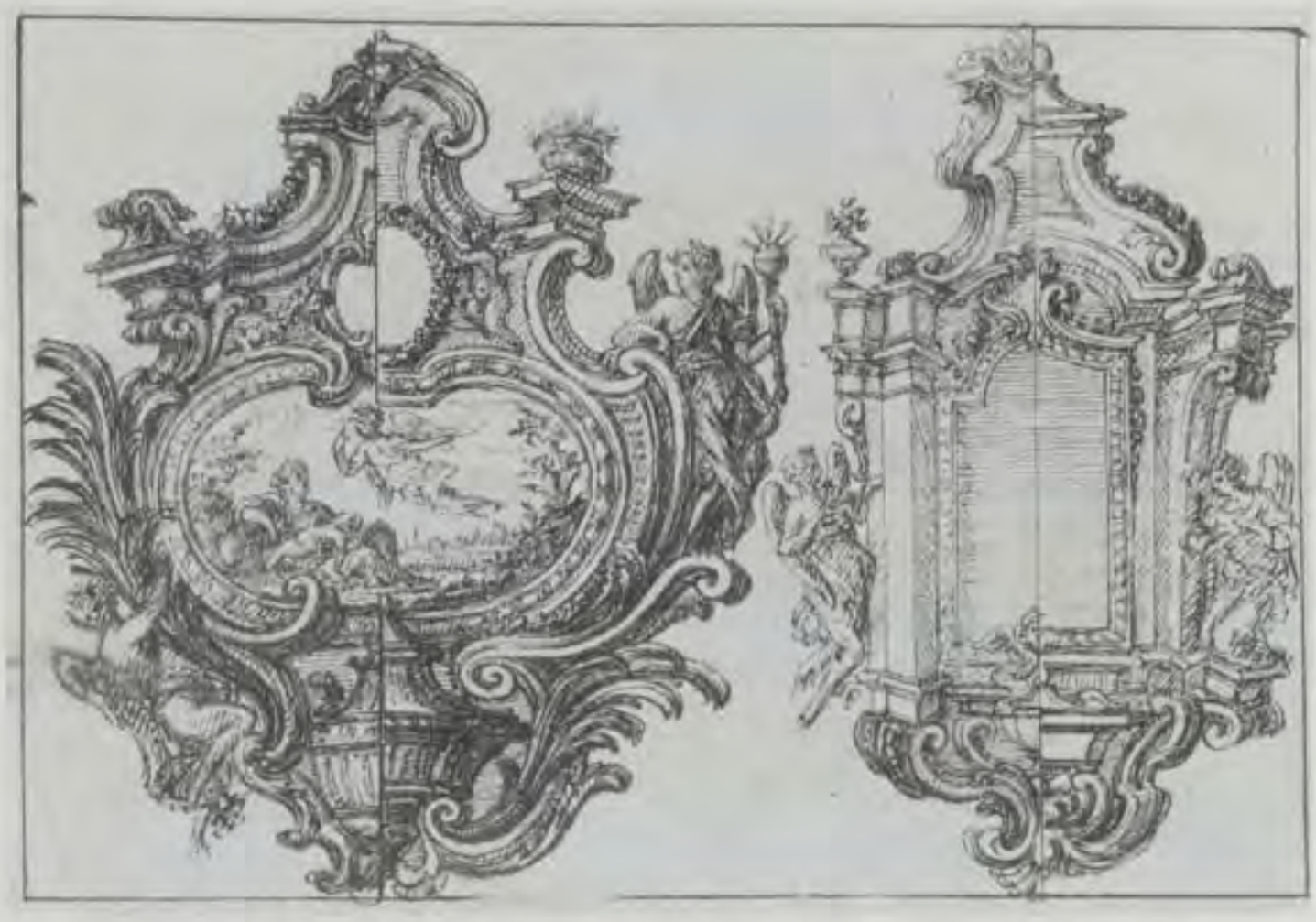
I should begin with the most famous silversmith of the Roman baroque, Giovanni Giardini (1646–1721). His fame is due less to his works, fine though those are, than to his publication of a pattern-book in 1714, the 'Disegni diversi…', or, as it was called in the second edition of 1750, 'Promptuarium artis agentariae…'. Giardini, like most Roman silversmiths, worked also in bronze (he held the titles of both Papal silversmith and founder of the Reverenda Camera Apostolica), and typical of such Roman works is the combination of gilt-bronze and silver, with the inclusion of semi-precious stone, as in the magnificent holy-water stoup [1] recently acquired by the Metropolitan Museum of Art in New York, which also exemplifies the strongly architectonic structure of his designs, with an ornamentation which is fully integrated and never appears as just an added embellishment.

This stoup corresponds to a document of 1702, describing the relief as representing 'St Mary of Egypt', and proving that it was made as a gift from Pope Clement XI to Giovanni Battista Borghese,

1 *Holy-water stoup, gilt-bronze, lapis lazuli and silver, Giovanni Giardini, 1702. (Metropolitan Museum of Art, Wrightsman Fund, 1995)*

2 *(right) Holy-water stoup, gilt-bronze, lapis lazuli and silver, Giovanni Giardini, 1709. (Residenz Museum, Munich, inv RK178(WAF)*

3 *Design for a lamp, Giovanni Giardini and Benedetto Luti. (Kupferstichkabinett, Berlin)*



4 *Design for holy-water stoups, Giovanni Giardini. (Kupferstichkabinett, Berlin)*

5 *Design for a finial, engraving by Maximilian Joseph Limpach after Giovanni Giardini.*

ambasciatore staordinario of Philip V of Spain.[2] It is very similar to another stoup, [**2**] which also serves as a reliquary, again a papal gift, documented to 1709, this time made for the Emperor and now in Munich.[3] There are no prints or drawings relating directly to either of these stoups, but the image on the right of a drawing by Giardini [**4**] shows many of the motifs used, including the 'little urn' for the holy water. A covered urn is also used in the sketch on the left of the sheet, which incorporates the curved top in the manner of Pietro da Cortona which is used on the Munich stoup.[4] As González-Palacios has observed, the central relief is copied from a painting by Benedetto Luti; indeed, it is not impossible that Luti painted the 'St Mary' for Giardini, since among the paintings listed in his inventory were a number by Benedetto Luti, including one of St Mary of Egypt. There was clearly a close relationship between the two artists, for of the sixteen paintings by named artists, ten were by Luti. Nor is it impossible that he may have supplied a drawing for the personifications on the Munich stoup, whose delicate swaying movement finds no counterpart in Giardini's own drawings.

Giardini's original drawings for his pattern-book survive in Berlin, but on two of these drawings, involving important figural elements, these have been added by another hand, and on one of them [**3**] there is an inscription 'questi 2 putti stati disegnati dal Pittor Benedetto Luti col quale il Giovan Giardini frequentava d[ett]a scuola in Roma'. Just what 'the said school' means I am not sure, but Luti seems to have instructed a number of artists (among them the medallist Ottone Hamerani), and quite possibly he ran a sort of school, where Giardini studied.

But if so, Giardini does not seem to have acquired complete mastery of the human figure. In his pattern-book are various designs of finials, such as were used on the backs of ceremonial chairs, and two correspond to his accounts for making such finials for the Pope's chairs in 1711 (three years before the publication of the book – so these are engravings after existing works), and both include payments he had made for the wax models. For one there is a payment for the model in wax, altered several times, but for another [**5**] it is clearly stated that the payment was made to the sculptor, while for another very similar finial of 1710, the payment was 'for models, and drawings, made and re-made for the above work'.

2. Alvar González-Palacios, 'Giovanni Giardini: new works and new documents', *Burlington Magazine*, CXXXVII 1995, pp367–76.

3. González-Palacios (op cit p369) says that Costantino Bulgari stated that the figures represent 'Justice' and 'Charity'; in fact he correctly identified the latter as 'Chastity' (C. Bulgari *Argentieri, gemmari e orafi d'Italia*, I, Rome 1958, p529); see Archivio Segreto Vaticano, Sacro Palazzo Apostolico Computisteria, vol 155 ff 4–7v.

4. The left side of this left-hand sketch was included in the book of engravings, with an image of *St John the Baptist* in the centre instead of the *Hagar and the Angel*.

6 *Plate, plaster cast, Ludovico Barchi, 1709. (Museo degli Argenti, Florence)*

7 *'Pope Leo X entering Florence', drawing, Filippo Luzi, 1709. (Uffizi, Florence)*

If one wanted further proof that he used sculptors to make models for his work, one could look at his inventory, which included a model by Angelo De'Rossi for an altar-frontal over a metre in length and over half a metre high, which must surely have been made for Giardini to cast. I do not know what church or chapel this was for, nor whether it was to be in silver or bronze, though silver seems more likely; it cannot have been that of Sta Marta, the only silver altar-frontal Giardini is known to have made, in collaboration with Matteo Ciucci, since that was paid for in 1684, before Angelo De'Rossi arrived in Rome.

One of the works these two silversmiths made for Carlo Barberini in 1681–82 was a silver and gilt-bronze urn to contain a 'corpo santo', sent to the King of Poland. For this clay and wax models were made by Giovanni Battista Vanelli, but this minor artisan cannot be held responsible for the design, and these models must have adorned a wooden structure. Although Vanelli is here referred to as both *scultore* and *intagliatore* (the usual word for a wood-carver: he is elsewhere usually described as an *intagliatore*), wood is not mentioned in his payments; yet this must be the urn, the wooden model for which was gilded by Ipolito Fortunati so that it could serve in a church at Subiaco.[5]

Giardini's pattern-book was just that: designs for the instruction of other artists. It includes images of works Giardini had already made, but others are, we must assume, designs he would have liked to make, for many bear the arms of Niccolò Maria Pallavicini (a picture of whom appears as a sort of frontispiece to the volume of drawings), yet there is no evidence, in Pallavicini's inventory or elsewhere, that he owned any such highly decorative pieces.[6] The book was, undoubtedly, used by other silversmiths, which means that it is hazardous to assume that any works which resemble one of the engravings must necessarily be by Giardini, and some may even be fakes.[7]

The Pallavicini dishes

Although we have seen Giardini using sculptors to make models of figures for him to cast, in the eighteenth century, unlike the seventeenth, sculptors did not usually design pieces of silverware and this was more likely to be done by a painter. This can be seen in the series of dishes, the so-called 'piatti di San Giovanni', given every year from 1680 to 1737 on the Feast of St John, by the Pallavicini family to the Grand Dukes of Tuscany, in accordance with the will of Cardinal Lazzaro Pallavicini.

These plates (all of which have been melted down but which are recorded in plaster casts in the Palazzo Pitti) were made by a number of different silversmiths from drawings by many different painters; but the longest partnership was between Ludovico Barchi and Filippo Luzi. It was Barchi who made the plate for 1709 [**6**] depicting Pope Leo X entering Florence,

and it follows a drawing (for the centre only) by Filippo Luzi [7].[8] The often highly elaborate and extremely pictorial reliefs on these plates were made direct from the drawings, with no sculptor employed to aid the transfer from two dimensions to two-and-a-half (which is far more complicated than a transfer into three dimensions). In fact in many of the documents Barchi is referred to as a 'sculptor', or a 'sculptor in silver', but there is no evidence that he, or any of the other makers of these dishes, had ever trained as a sculptor and, unlike some other silversmiths, none was a member of the Academy of St Luke.

As this plate shows, Barchi's work could be a little crude, with rather hard and angular modelling. But he can hardly be blamed for the weaknesses of this relief: the task of translating the design, with its organisation on a series of very close and interlocking planes, into low relief, is one that would defy any artist. It was difficult enough to model the Swiss guard at the right in three-quarter view, not to mention establishing his relationship with the pointing guard to the left of him. Barchi has succeeded well in sinking the view of Florence into the background (the dark line across the plate is not of his making), and the view of the Duomo and across the roof-tops into the distance is quite well handled, but establishing where the foreground and middle-ground figures stand in space has defeated him, and for this the blame must be placed on Luzi. This example demonstrates the difficulties that could arise when working from a drawing by an artist who evidently had too little understanding of the limitations of the silversmith's art.

Gagliardi, Ludovici, and the Portuguese

Silver statues were even less likely to survive than domestic silver or altar furniture, though one I wish to consider here was destroyed not by the cupidity of man, but by the forces of nature. If, when searching for silver in Rome or the Papal States, one comes repeatedly across the barrier of the Treaty of Tolentino of 1794, under which so much precious metal from private homes, churches and chapels was melted down to pay the indemnity to Napoleon, in Lisbon one is frustrated by the great earthquake of 1755. It was that which destroyed the Patriarcate and the rich silver which it contained, including the statue of the 'Virgin of the Immaculate Conception', modelled by Giovanni Battista Maini and cast in silver and gilded by Giuseppe Gagliardi. For this, unlike so much of the silver in the church, we have not only fairly full documentation, but a drawing [**8**] and also a model [**9**]. This, hidden away in an obscure chapel in the Cappuchin church in Rome, is described as stucco and generally dismissed as just another of the innumerable painted stucco Virgins which disfigure so many altars: but clearly it is a very different kettle of fish. I have not yet had the opportunity to examine it properly and decide whether it really is plaster, or

8 *'Immacolata', drawing, Giovanni Battista Maini, circa 1744. (Private collection)*

9 *'Immacolata', model, Giovanni Battista Maini. (Sta Maria della Concezione, Rome)*

5. Biblioteca Apostolica Vaticana, Archivio Barberini, Computisteria vol 197 pp170,307,372; vol 398 p99.

6. See Stella Rudolph, *Niccolò Maria Pallavicini. L'accesa al tempio della Virtù attraverso il mecenatismo*, Rome 1995, especially p202 note 267.

7. Bulgari reproduced a set of silver altar furniture set with malachite (op cit, p543). But, as González-Palacios has assured me, such extensive use of this stone first occurs in Italy much later than the time of Cardinal Francesco Barberini Jr, whose arms appear on the crucifix. Compared to the designs they follow, the candlesticks are clumsy and the proportions awkward.

8. Florence, Uffizi, inv 5801 S; see Ursula Fischer Pace, *Disegni del Seicento romano* [Gabinetto disegni e stampe degli Uffizi, LXXX], Florence 1997 cat 16, (who mistakenly associated it with the plate of 1713).

whether it might not be terracotta, nor to confirm the strong impression that the cherub-head has been stuck on where it does not really belong. But, whatever its precise status, it is closely related to the model which Maini must have made for the silver image sent to Lisbon at the request of King John V and under the direction of his architect Johan Friedrich Ludwig, known as Ludovici.

Ludovici sent pedantically detailed instructions as to the iconography, listing the images in Rome that Maini should follow and reminding him that the various cloths of the Virgin's garments should be carefully differentiated, but also, having himself been trained as a silversmith, making a number of technical demands. For example, he insisted that it should be cast in one piece, and advised that this should be done by using baskets to transfer the molten metal from several furnaces to the mould, so as to avoid the large cracks which so often appear in cast silver or bronze. In lost-wax casting, when the wax has been melted out and before the metal is poured in, the core has to be held within the mould by metal rods passing from the core into the mould; when the metal has cooled and the mould is broken these must be extracted, leaving holes in the sculpture. Ludovici proposed two solutions: silver screws could be inserted into these holes, a process which he said would create problems, either breaking the metal as they were screwed in, or in time falling out; alternatively, a ribbon of wax could be built up round the rods, which would be converted to silver in the casting process, and this excess metal then smoothed over the holes. Although Ludovici recognised that beaten metal sheets could be much thinner than cast metal, he absolutely prohibited such a method, while insisting that the silver be as thin as possible (for obvious economic reasons), though strong enough to stand without a wooden core or metal armature.

Instead of the baskets recommended by Ludovici, Gagliardi used ladles; I do not know what he did about filling the holes left by the rods but, despite Ludovici's instructions, it was not made in one piece, the head and hands being cast separately. Nonetheless, to mask this fact he did not hold them in place with the prominent screws one often finds left fully visible on bronze sculptures, but inserted the screws from the inside with infinite pains so that they could not be seen. Presumably the Virgin herself was light enough to satisfy his exigent Portuguese patrons, but the cherub at her feet, which was cast during Gagliardi's final illness, turned out to be too heavy, and had to be cast again by his son Leandro.

Ludovici's instructions survive in a letter in the National Archives in Lisbon, but Gagliardi's technique emerges from the voluminous depositions taken during a law-suit between his heirs and the Portuguese agent in Rome. I have propounded Montagu's law, that the more dishonest the patrons or negligent the artists, the happier are not only the lawyers, but also the art historians, because there will be a law-suit, which

10 *Candlestick, silver-gilt, Giuseppe Gagliardi, 1744–49. (Museu de São Roque, Lisbon)*

means not only lots of cash for the lawyers but also, with luck, lots of documents for the art historians. This law-suit concerned the valuation of the 'Immacolata', and a pair of vast silver-gilt candlesticks [**10**] which is still in the treasury of the church of St Roch in Lisbon (being built on a hill, St Roch survived the earthquake and the even more disastrous fire that followed it). It was normal that a valuation should be made by two experts, one acting for the patron and one for the artist (or they could appoint two each), with a third impartial expert called in if they could not agree; what happened in this case was that, after two previous valuations, a third had been made for the agent of the Portuguese crown, without anyone acting for Gagliardi. Moreover, another silversmith, Matteo Piroli, who had stated that the first valuation was too

high, eventually admitted that he had done so only because the agent had threatened to withold the payment for Piroli's own work if he did not.

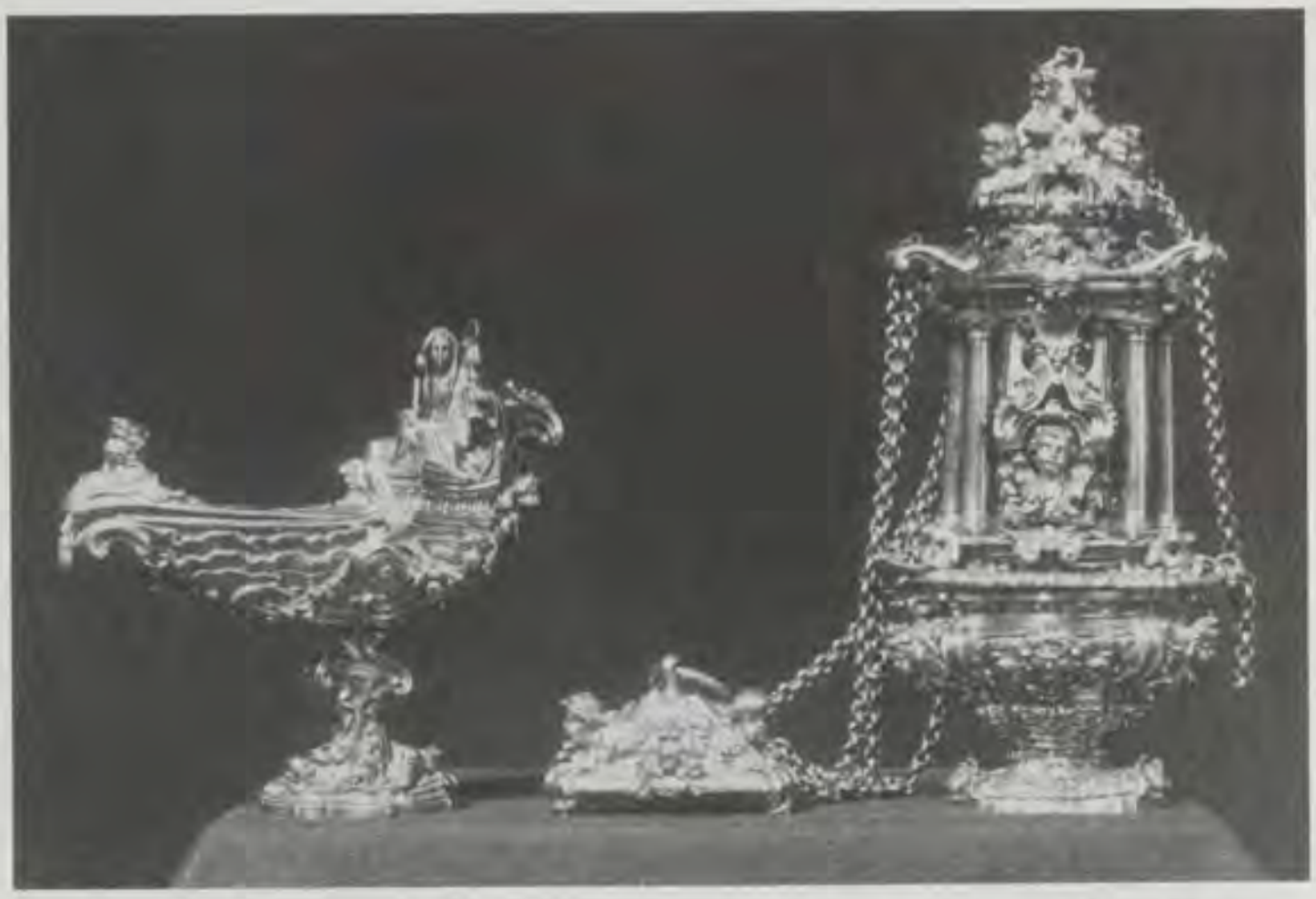
Workshop practices

Gagliardi's candlesticks were only part of the silver which had been ordered for a chapel in St Roch, and the depositions by the many silversmiths involved throw light on the making of many other pieces as well. This brings me to the last aspect of the practice of Roman baroque silver sculpture that I want to discuss: how it was actually produced in the silversmiths' shops. The silver itself also raises very complex questions concerning the designers and modellers employed, but that is an aspect I do not intend to go into here. However, I must first fill in a little necessary background. I have written so far of 'the agent'. In fact there were two agents acting for John V: the first was Manoel Pereira de Sampajo, a diplomat with a personal interest in art who, although he got a bit testy with Gagliardi who was demanding large sums of money and not yet producing anything, on the whole was sympathetic to the artists and their troubles. He was also genuinely anxious to obtain the highest quality, and prepared to pay for it – though this was the easier in that it was the king's money he was spending. But after Sampajo's death in 1759 the responsibility passed to the Jesuit Father Antonio Cabral, who appears to have been motivated by an understandable desire to get the outstanding work finished quickly, and the less savoury determination to pay the workmen as little as he thought he could get away with.

I was not surprised to find that different silversmiths would work from the same design or even model. The most striking case of this is the censer and incense-boat [**11**] which were originally made by Antonio Gigli but, when Benedict XIV blessed the silver before it was sent to Portugal, these were given to him and duly passed to the cathedral in Bologna, while replicas were made by Giuseppe Gagliardi's son, Leandro [**12**]. Gagliardi's incense-boat would normally be judged a fine piece of work, but when it is compared to Gigli's original one can see that it lacks not only the finesse of detail (compare the treatment of the waves on this 'boat', or the flourish behind the figure of 'Faith'), but also the liveliness and brio of Gigli's work.

Considering that thirty candlesticks were required for the exposition of the Host, it is not surprising to learn that several different silversmiths were employed, all following the same basic model, though in different sizes. The far more elaborate altar-candlesticks were designed, or in any case modelled, by Angelo Spinazzi, but only two were made by him. The others were made by a pair of different silversmiths who complained that they had been forced to pay the enormous sum of 1,000 scudi to Spinazzi for the models and moulds, but the moulds were of no use since they were old and the wire and nails holding the core had corroded, so that they had to re-make the moulds from the models. From this it would seem that Spinazzi had already prepared them for casting and all that should have been required was to pour the metal in and then complete the finishing work. Needless to say, they were talking of the basic structure, for the personifications seated within the three niches of the triangular bases differ in each of them and were clearly modelled by more than one hand.

It is (at least to me) more surprising that one of the silversmiths working on the simpler candlesticks for the exposition of the Host, Lorenzo Pozzi, had finished two of his four early in 1750, but all were taken from him by Cabral with the promise that they would be returned; this was done only two months before the ship was due to leave and he said he could not complete them in time, whereupon they were passed to Filippo Tofani who, even with the aid of another



11 *Incense boat and censer, silver-gilt, Antonio Gigli, between 1744 and 1749. (Treasury of S. Pietro, Bologna)*

12 *Incense boat, silver-gilt, Leandro Gagliardi, 1749–50. (Museu de São Roque, Lisbon)*

9. John Winter, 'Further drawings from Valadier's workshop – the silver designs of Giovanni Bettati', *Apollo* CXXXIII, 1991, pp320–22.

silversmith, in fact took seven months to finish them. Tofani is a well-known silversmith and founder, so we may assume he made a competent job of it, but that was not the case with the reliquaries to be made by Leandro Gagliardi together with his brother Filippo. They were persuaded to pass some parts of these to the temporarily unemployed Tofani, but the results were so unsatisfactory that they had to be destroyed and entirely re-worked in the house of another silversmith so that Tofani's disgrace would not become public knowledge.

We learn something of the conditions in a silversmith's workshop when it is explained that Gagliardi's heirs cannot produce the original model of his great candlesticks because several pieces had been knocked off by the workmen brushing past it in the confined space, and the wax had been further damaged by the intense heat from the braziers which were kept burning continuously. The moulds of the larger sections were too cumbersome to be kept in the workshop and had been left out in the courtyard where naturally they had perished, and other smaller parts of the mould had been broken and thrown away.

We learn also that it was customary to weigh silver not only when it was completed but also before it was assembled, which is understandable as most would be held together by iron rods passing up inside. There was no way of distinguishing the weight of the gilding from that of the silver below, so that was normally calculated by the number of gold *zecchini* used. Gilding would be done several times: the 'Virgin of the Immaculate Conception' should have been gilded seven times, but that was not possible because of the pressure of time and also the shortage of gold, so that it was done only three times, with so much partial re-gilding that it came to almost a fourth time. The great candlesticks were not given so many coats of gold and, although many people were prepared to praise their gilding, it has not worn well. I have already mentioned the need to make the casting as light as possible; since silver (and also bronze) is valued by weight, it is good to learn that allowance was made in such valuations for exceptional thinness, so that the workman did not lose out by his skill; it was also apparently normal to value a large work at a higher rate than a small one.

Although it was reasonable to demand that a single figure like the 'Virgin of the Immaculate Conception' be cast in one piece (even if it were not practical to do so), that would not apply to something like these two candlesticks, which consist of 296 pieces. The advantages are obvious: if a piece came out badly it could be scrapped and re-cast; this happened with many of the pieces of the candlesticks, due to the haste with which they were made – but it tends to happen anyway. Also, if the patron wanted changes made in the design (as also happened here) this could be done relatively easily. Above all, it enabled an army of workmen to be employed on different bits of it at the same time. And, indeed, an army of workmen was employed by Giuseppe Gagliardi.

Giuseppe Gagliardi

Here something should be said about this remarkable silversmith, who was not even a member of the guild. While many Roman silversmiths of this period were also bronze-founders, Gagliardi was an exception because his profession was that of a brass-worker – probably less a matter of personal choice than the result of taking over his father's brass-working shop. Although a lot of the brass-work produced was highly elaborate, it was seldom strictly speaking sculptural, and Giuseppe had started life studying sculpture. Apparently it was not until his early twenties that his father's ill-health compelled him to take up the family profession, where he continued to produce brass for the Pope, among others. In 1742 he obtained a licence to work in silver, but the guild still attempted to prevent him stamping his work. Obviously, Gagliardi was in charge of the making of these candlesticks and one of the most skilled of the workmen, Giacomo Francisi, who was responsible for much of the working of the final surface, stated that

> I never chiselled a single piece until the said Signor Gagliardi had first approved the surface, and he wanted me first to make several specimens, from which he would choose that which he preferred, and that one I would accordingly execute.

When one examines the candlesticks [**13**] this care, and the sheer variety of the surfaces, is splendidly apparent not only in the very precise chiselling but in the hammered surfaces of the beautifully modelled large putti, the punched striations and delicate engraving of the vestments of the Church Fathers, or the punching of the Atlantes's drapery, and within the mouldings. They are, in fact, veritable thesauruses of the different types of punching and chiselling that might be used on silver.

Many of those who worked in Gagliardi's shop (and in those of the other metalworkers who had also been done down by Cabral) signed the depositions, and it is interesting to note that several of them never joined the guild. Some were inscribed as *lavoranti* [workmen], but never achieved the status of master; others are known to us only through these documents and never entered the books of the guild. Some, such as Giacomo Francisi, began working under the Giardoni brothers who, although they practised as silversmiths, were better known as bronze-founders, and it was in that capacity that they worked for Lisbon. Bulgari apparently believed that the Giardoni got down to their task before Gagliardi, and therefore before he needed to employ so many workmen, but the dates are unclear and certainly Francisi claimed to have worked for Gagliardi since 1743; his main expertise was in chiselling, so it is not impossible that he worked for both men simultaneously. It may be that such men were in Carlo Giardoni's mind when he testified that, because of the haste with which the great candlesticks were made, Gagliardi had to call on many specialists, and that he knew how expensive

that was. Another who worked for both masters was Giovanni Bettati, who became a fully fledged silversmith but is now better known for the number of drawings for elaborate silverware that have been convincingly ascribed to him.[9] Some worked for Gagliardi and also others of the silversmiths involved in the extensive provision of silver for the chapel in St Roch; they did so not as indentured apprentices but as *giovani* (as they called themselves), that is, as assistants who might be principally employed by one silversmith but who were presumably free to take employment elsewhere for varying periods of time.

Others involved were freelance workers. This applied to the gilders but also to the mould-maker Filippo Filiberti, who described himself as *publice formatore*. It was he who made many of the moulds for the great candlesticks, and he was also the man called in to re-make the moulds for the smaller candlesticks when those of Spinazzi were found to be unusable.

Yet all of them insisted on Giuseppe Gagliardi's entire responsibility for the work – that being one of the matters under dispute in the case. Certainly I should not want to disagree, but I do think it is necessary to remember that, however firm his ultimate control, much of the work was done by others.

In the case of the 'Virgin of the Immaculate Conception' the model was supplied by Maini. In the case of the two great candlesticks the matter is far more complicated and there is room for dispute, even if one is firmly signed 'Josephus Gagliardus romanus inventor fundit et fecit'; it is known that some of the changes from the original model, changes which I believe include the 'Fathers of the Church' in the niches of the base, were again modelled by Maini.

13 *Detail of the candlestick shown in [10], Giuseppe Gagliardi. (Museu de São Roque, Lisbon)*

Conclusion

We have seen Giardini combining his own designs with reliefs taken from the paintings of others, Barchi working from a drawing by Luzi, and Gagliardi working from models by the sculptor Maini. There were many different ways of making sculptural silver and there was room for the many forms of collaboration between the silversmith and those who provided the designs or the models, just as between the *principale* (as the head of a workshop was called) and those who worked under him. Are we therefore justified in stating that these works were 'by' Giardini, Barchi or Gagliardi? Of course we are; but I happen to be more interested in the complicated relationships between the numerous men actually involved in producing these marvellous works of art.

The author spoke to the Society on this subject in June 1999.

Glossary of terms relating to base metal and plated wares

Brass Alloy of copper and zinc. The colour is affected by the quantity of zinc (10% red bronze, 15% golden, 20–40% yellow).

Britannia metal Pewter alloy containing antimony, made in the late eighteenth and nineteenth century.

British plate Nickel alloy (German silver) originally plated by the old process of uniting the metals by heat.

Bronze Alloy of copper and tin (5-30%).

Close plate An item made of iron or steel coated with silver foil. An intervening layer of tin acts as solder.

EPBM [electroplated Britannia metal] An object made from Britannia metal, coated with silver by means of electrolysis.

EPNS [electroplated nickel silver]. An object made from base metal, usually a nickel alloy, is coated with pure silver by means of electrolysis.

EPGS [electroplated German silver].

Electrum Native alloy of gold and silver (25-40%). It is pale yellowish-white in colour.

French plate Silver foil applied to a base metal, with the aid of heat and a burnisher.

German silver Nickel alloy typically 55-65% copper, 15-25% nickel, 15-25% zinc.

Gilding metal A type of brass.

Herrengrund Vessels, usually cups, made of copper ore in the region of Herrengrund, in Hungary.

Mazak Twentieth century zinc alloy used mainly for die-casting, includes aluminium, copper and (sometimes) magnesium.

Nevada silver Alloy of copper, nickel and zinc, the American equivalent of German silver or nickel silver; it was similarly used as a base for electroplating. It contains no silver despite its name. Used until the 1890s.

Nickel silver Brass alloyed with nickel, it contains no silver. The basis for electroplating.

Paktong. Alloy produced in China, 40–50% copper, 5-15% nickel, 35-45% zinc, 1–2% iron, with traces of other elements such as tin and lead. From 'pai-tung' meaning white copper.

Pewter Alloy of tin with copper, bismuth and (sometimes) lead.

Pinchbeck Brass with low zinc content, named after Christopher Pinchbeck, a watchmaker.

Plate Historically a term used in inventories, accounts, etc and by writers when referring to silver. Today it has become confused with items made from non-precious alloys listed in this glossary – see 'plated wares' below.

Plated wares Term used to embrace various wares made of base metal covered (on one or both sides) with gold or silver, using a variety of techniques.

Prince's metal Alloy named after Prince Rupert.

Roberts plate Copper, plated with German silver and then Sterling silver. Patented 1830 it was eclipsed by British plate.

Sheffield plate Base metal, usually copper, with silver of thin gauge fused on one or both sides. The object is then made from this mix of materials.

Spelter The term is usually used relating to statuettes made of a zinc alloy. It was also a solder for copper and brass.[1]

Stainless steel Iron alloyed with chromium (18%) and nickel (8–10%).

Tinplate Wares made of iron or steel with a coating of tin.

Trade names for nickel silver were numerous, including Albata, Alpacca, Argentan, Berlin silver.

Tutenag. The name for Chinese zinc, confused in the eighteenth century with paktong and thus often mentioned in old records.

1. Kenneth Quickenden has produced a quotation from a letter from Matthew Boulton (22 April 1769, letter book D p18): 'ye scarcity and advance of price of tutenage (or spelter or tin) is very alarming'. KQ writes: Boulton seems confused, because if tutenage = tin it can't also = zinc.

Recommended further reading:

Lucy Trench (ed), *Materials & Techniques in the Decorative Arts, an illustrated dictionary*. John Murray, London 2000. ISBN 0-7195-5722 4.

J.Fleming and H.Honour, *The Penguin Dictionary of Decorative Arts*, 1977.

See also a select bibliography on p152.

The early development of the plated trade

Gordon Crosskey

Thomas Boulsover

On 13 September 1788 the local newspaper the *Sheffield Register* ran the following obituary:

> Died. At Whiteley Wood, near this place, on Tuesday, Mr.Thomas Bolsover, aged 84. This gentleman was the first inventor of Plated Metal; which – like many other curious arts – was discovered by accident. About the year 1750 (at which time he kept a cutler's retail shop in Sheffield) Mr.Bolsover was employed to repair a knife haft which was composed of silver and copper; and having effected the job, the cementing of the two metals immediately struck him with the practicability of manufacturing plated articles, and he presently commenced a manufacture of plated snuff boxes and buttons. Consequently from Mr.Bolsover's accidental acquirement, the beneficial and extensive trade of plated goods had its origin. He has been most justly esteemed one of the most ingenious mechanics this place can boast – and his memory is much respected.[1]

This obituary is almost certainly the source of the story, frequently repeated, that Boulsover made his discovery whilst mending the handle of a knife. Whether apocryphal or not, the story doesn't make clear exactly what it was that Boulsover did discover. Any worker in silver or copper will have known that silver and copper could be hard soldered together. Furthermore, hard solder is simply a low grade silver, ie silver alloyed with a certain quantity of brass (itself an alloy of copper and zinc, or spelter as it was generally called in the eighteenth century), and it was known that *decreasing* the quantity of brass *increases* not only the quality or grade of the solder but also its melting temperature. Therefore in all probability such workers must have known that it was perfectly feasible to hard solder two pieces of copper together simply using standard silver – in other words a hard solder where the brass content has been reduced to zero – provided that sufficient heat was applied. This knowledge would have been of little or no practical use to working silversmiths or copper braziers because the temperature necessary for such soldering was simply too high. Therefore an explanation of Boulsover's 'accidental acquirement' is more likely to concern the discovery that silver and copper so fused could be worked as one metal. Nevertheless it required a considerable leap of the imagination to conceive of fusing a copper ingot with a much thinner layer of silver and rolling it out into a plated sheet, and Boulsover's genius lay in realising a commercial application of the process.

Although Boulsover could not have known it, the actual temperature at which fusion occurs is approximately 780°C – well below the melting point of either metal in the pure state.[2] Fortunately for him, no accurate measurement of temperature was necessary as the whole process was carried out, then as now, entirely empirically. One remaining firm in the UK, Samuel Taylor & Co, still produces fused plate, although the sheets are no longer used to fashion domestic holloware but mostly contacts for the electrical industry.[3] I visited the firm in the late 1980s and saw the whole plating process and was particularly struck by how closely it conformed to the description given by Robert Michael Hirst in his manuscript written in 1832.[4] Unfortunately I have not discovered any detailed eighteenth century accounts of the plating process – even Boulton's notebooks etc, which are so full of details on gilding, inlaying of tortoiseshell, and even French plating, say nothing on the subject of plating by fusion. Two accounts survive in the Sheffield Archives, that by Hirst and one by Charles Dixon[5] again in manuscript, dated 1847. Both men had worked in the plated trade during the late eighteenth and early nineteenth centuries. Hirst with Tudor & Leader, and Dixon with Ashforth, Ellis & Co. However the earliest and most detailed descrip-

Archival References

Sheffield (Shoreham Street)

ACM	Arundel Castle Manuscripts
BR	Bradbury Records
FC	Fairbank Collection
MD	Miscellaneous Documents
OR	Oborne Records
PC	Parker Collection
SIR	Staveley Ironworks Records
SSC	Sheffield Smelting Company
Wh.M	Wharncliffe Muniments
WWM	Wentworth Woodhouse Muniments
YWD	Younge Wilson Deeds
Wilson	Archives courtesy of Wilsons and Co (Sharrow)
SAO	Sheffield Assay Office Archives

Wakefield

WYAS RD	West Yorkshire Archive Service Registry of Deeds

Birmingham (B'ham Central Library, archives division, Chamberlain Square)

MBP	Matthew Boulton Papers

1. Sheffield Reference Library eighteenth century newspapers. Boulsover's name was frequently mis-spelt (omitting the u) in eighteenth century documents.

2. Known technically as the eutectic point, it corresponds to the minimum melting temperature for an alloy of silver and copper (ie silver alloyed with approximately 28% by weight of copper).

3. Fused plate is much more durable than electroplate. Until recent years one use of these fused plate contacts has been in telephone exchanges.

4. BR299. Robert Michael Hirst (1770–1835) was a nephew of Henry Tudor and a beneficiary under the terms of Tudor's will.

5. MD3624, *Reminiscences of Charles Dixon*. Dixon's account is very anecdotal and the information he gives regarding the early history of the plated trade cannot be relied upon.

See glossary of terms relating to plated wares on page 26

tion is that given in *The Cyclopaedia* by Abraham Rees dated about 1814.[6] Although a comprehensive account of the plating process is outside the scope of this article, it is worth mentioning that that given in Rees is some six closely printed pages in length and covers not only the casting, plating and rolling of the ingots but also the production of plated wire.

Regarding the date of Boulsover's discovery, that given in his obituary (above) is certainly too late by several years. Probably the most reliable date is that quoted by his great-grandson Samuel Mitchell in a letter to the *Sheffield Mercury* in September 1840[7] in regard to the origins of the plated trade, which states:

> The credit of the discovery, as well as the commencement of a manufacture so important to this town, belongs to Mr. Thomas Boulsover. It was in 1742 that he conceived the idea of uniting and rolling out the two metals of silver and copper in the manner now practised, and he immediately put his invention to beneficial use. It is true, that he at first confined his attention to buttons, and the mountings of knives; to snuff boxes, and other small articles...

Fortunately there is strong supporting evidence for this date (or within a year or two of it) and it comes from two very different sources. The first of these – and it might seem an unlikely source – concerns the minutes of the parliamentary committee meetings held early in 1773 at the time of the bill to establish assay offices at Birmingham and Sheffield.[8] Two people who appeared before that committee and whose evidence directly bears on the matter were Gilbert Dixon and William Abdy. Dixon was a prominent Sheffield attorney and had been engaged by the Sheffield manufacturers to represent their interests in the petition.[9] Abdy, although he had originally been born in Sheffield and apprenticed to the cutlery trade there – he was made free of the Cutlers' Company in 1747 – had for many years been established as a 'Silversmith, Plater and Plate worker of the City of London'.[10] Part of the evidence given by both Dixon and Abdy refers back over a period of some thirty years prior to 1773, ie to the early 1740s. The committee's questions and Dixon's answers ran thus:

> How long have you known the town of Sheffield?
> 40 years and upwards.
> Do you know the Persons who have signed the petition?
> Yes-
> Do they work solid Silver or are they in the Plated way?
> Both-
> How many hands work in the Silver Way in Sheffield?
> In both Businesses 468.
> Are any of those persons employed only in the solid way?
> Both ways – not to be distinguished one from the other
> Do you know when the workers were fewer than at Present?
> Not a 20th Part 30 years ago – only employed in the knife handle way.[11]

Abdy's evidence is both revealing and surprising:-

> Do you know the Town of Sheffield?
> Yes – was born there and served my time there.
> What Business in the Solid Silver way was carried on in Sheffield or the Neighbourhood thereof before you quitted it?
> I think there were four Houses it is about 24 years ago since I left Sheffield.
> What kind of Silver Wares did they manufacture there at that time –
> Nothing but Slight Silver Knife Handles -
> What appellation were those four Houses known by in Sheffield?
> They were called Cutlers and were free of that Corporation as I was myself...
> Why did you leave Sheffield?
> Because I could not live there.
> What do you mean you could not live there?
> During the time of my Apprenticeship my Master committed a Fraud upon the Publick – which Fraud was, he Plated the Knives hafts and sold them for Silver – the Consequence of which was a general Stagnation of Trade in that Business.
> Do you mean a discovery of that Fraud caused that Stagnation?
> Yes
> How was that discovered
> Was discovered in Leipsich in Germany[12]

Both Dixon's and Abdy's evidence make it clear that at the time of Boulsover's discovery there were a number of cutlers engaged in making cutlery with silver handles – of course the four houses that Abdy suggests might have involved multiple partnerships.[13] Further, Abdy's statements indicate that around the time he completed his indentures (1747) at least one other person, his master John Osborne,[14] had acquired the technical knowledge to plate. Osborne would have been at perfect liberty to do so as Boulsover never patented the process.[15] It is also interesting to note that the 'Fraud upon the Publick' was discovered in Leipzig, which almost certainly means that samples of Osborne's cutlery no doubt along with other items of Sheffield cutlery and hardware had been taken out to the Leipzig fair – the Jubilate fair held in April – one of the most important of the annual Continental trade fairs.[16] By the mid-1740s a number of the large Sheffield factoring companies such as the Broadbents and Roebucks were trading directly with the Continent through the port of Hull without having to operate through London intermediaries.[17]

The other source that indicates Boulsover began his plating operations in the early 1740s comes from the records of the Staveley Iron Works.[18] These show that within six months of the completion of his apprenticeship in November 1726 and being made free of the Cutlers' Company, he was purchasing quantities of steel from the Attercliffe forge.[19] This indicates that he never worked as a journeyman, but rather set himself up as a master cutler (or 'little mester' in Sheffield dialect). His name continues to appear in the Staveley records throughout the 1730s and early 1740s as buying steel, about two hundredweight at a time, but disappears in 1746.[20] This would strongly suggest that by this date he had given up manufacturing cutlery himself and was concentrating on the plating busi-

6. *The Cyclopaedia; or Universal Dictionary of Arts, Sciences and Literature* by Abraham Rees was published in parts between 1802 and 1820 – the section covering the plated industry was published around 1814.

7. Sheffield Archives. Mitchell's letter had been in response to an article stating that Joseph Hancock had been the inventor of fused plate.

8. MBP270 Assay Office Box 1. These are the complete hand-written minutes of the parliamentary committee meetings and contain much valuable information not included in the subsequently printed Parliamentary Report.

9. Gilbert Dixon (died 1777) was clerk to both the Cutlers' Company and the Don Navigation Company, and subsequently to the Sheffield Assay Office from its inception in July 1773. His father and brothers were proprietors of the Whittington glassworks in Derbyshire, who were major suppliers of glassware to the Sheffield plate trade.

10. William Abdy (1726-90), born in Sheffield and apprenticed in 1739 to the cutlery trade for eight years. He left Sheffield around 1749 and went to London and worked as a silver cutler. According to Arthur Grimwade (*London Goldsmiths 1697–1837*) he first entered his mark as a smallworker in June 1763. He had been producing plated ware, probably mostly candlesticks, from the late 1760s and is the only known (so far) London manufacturer of domestic plated ware. He clearly had a sizeable plated department because in April 1776 John Seale (manager of the Soho Manufactory) wrote to Matthew Boulton (in London) encouraging him to recruit "a plated silversmith or two from Abdys; for it is now a good trade & we are overstocked with orders it is a pity to loose them & they cannot be done without more hands...from real Silversmiths (such as we have) Good Lord deliver us:" (MBP337 John Seale item 23).

11. MBP270.

12. MBP270.

13. Many of the larger cutlery firms were in the form of multiple partnerships, frequently without formal partnership indentures.

14. John Osborne was master cutler in 1734; his son Charles was apprenticed to Joseph Hancock in 1753.

1 *Five early plated buttons engraved with hunting scenes after James Seymour, probably circa 1750.*

2 *Engraving from which the design of the top two buttons in [1] is taken.*

ness, but continued to sell cutlery on a retail basis. There can be no doubt that what he was making in plated metal at this time were hafts for knives and forks. Silver cutlers (eg those four houses Abdy mentions) were the elite of the trade. But by buying in blades and forks from other firms[21] and fitting his own plated hafts, which when new and pristine had all the outward appearance of solid silver, Boulsover must have created a product that was highly marketable and competitive on price. These plated hafts would have been made in exactly the same way as those in silver, ie by die stamping them in two halves which were then joined and held together with wires while the seam was hard soldered.[22]

It is tempting to conjecture that Boulsover began his production of plated buttons in response to the 'Stagnation of trade'.[23] Button making was a considerable trade in Sheffield in the eighteenth century,[24] though never to the extent that it was in Birmingham, and Boulsover will have been familiar with neighbouring firms in the town engaged in that activity. Therefore a diversification into plated button manufacture seems a very natural move. It is impossible to say exactly when this began, but it was probably around the mid 1740s. A rare and very early example of eighteenth century plated buttons is the set of five shown in fig[**1**]. They are hunting buttons engraved with scenes taken from prints after James Seymour:[25] fig[**2**] shows the original print depicted by the top two buttons. They are in the form of flat single plated circular discs, and apart from the engraving must have been cheap to produce as no costs were incurred in sinking dies.

In late 1749 Boulsover went into partnership with Joseph Broadbent,[26] and together they took over the lease of a cutler's wheel on the River Don and converted it to a tilting mill for drawing steel.[27] Broadbent was a wealthy quaker, a proprietor of the Staveley Iron Works, and a Sheffield factor on a very large scale and maintained a London warehouse.[28] This of course may have provided Boulsover with a direct outlet for his plated wares, retail or wholesale, in the capital city. It is impossible to know whether Boulsover's scale of operations was ever large enough to justify employing travellers. Hirst states that John Hoyland[29] had been his traveller, but this seems very doubtful. Hoyland, who was himself to establish a substantial plated manufactory in the early 1760s, was another member of that entrepreneurial quaker community in Sheffield[30] and had started out

15. Patents were expensive to secure, about £90 (to cover England and Wales), and required the patentee to disclose the nature of the process. Huntsman likewise never patented his process for making crucible steel.

16. The principal trade fairs were Brunswick, Frankfurt, Hannover, and Leipzig. They attracted trade buyers from all over Europe, Russia and the Levant.

17. The River Dun Navigation Act of 1739 (13 Geo.2 c.11) whereby the Don was made navigable to Tinsley within four miles of Sheffield created enormous advantages for the town's international trade.

18. This was a consortium of South Yorkshire ironmasters and included the large Attercliffe forges and the Rotherham slitting mill. The Staveley records comprise twenty-nine massive parchment bound ledgers running from 1690 to 1766.

19. SIR21 p99.

20. SIR25.

21. Surviving examples of cutlery with early plated pistol-grip handles are extremely rare.

22. These wires sometimes damaged the handles. In October 1769 the London silversmith Dru Drury wrote to one of his Sheffield suppliers of cutlery, Rowbotham & Sykes, complaining 'I observe numbers of the Hafts...are much marked with y^e^ Wire with w^ch^ they are bound when they are mitered for sodering'. Dru Drury Archives, Entomology Library, Natural History Museum, London.

23. See Abdy's statement to the parliamentary committee quoted earlier.

24. There are many Sheffield button makers listed in the various eighteenth century church registers (eg under births, deaths and marriages). Some firms, particularly Holy, Newbould & Co became very large manufacturers of buttons with a huge export trade to Europe and America.

25. James Seymour (1702–52) specialised in painting typical hunting scenes. The engravings were printed and retailed by Robert Sayer, Fetter Lane, Fleet Street and date to the late 1740s. The print in [2] is entitled 'The Return from a Course, on Lambourn Downs, near Ashdown Park, a Hunting Seat of Lord Craven'.

26. ACM S378.

27. ACM S158.

28. WhM118/16. Broadbent refers to this warehouse in his letter to Edward Wortley dated 21 February 1750.

29. John Hoyland (1712–79) was in partnership with John Trevers Younge and William Middleton (and later Edmund Greaves) as manufacturers of buttons and plated wares and proprietors of the Cooper Wheel Rolling Mill on the River Sheaf from 1764. (ACM S379)

30. The quaker community in Sheffield played a prominent part in the commercial development of the town during the eighteenth century, and included the Broadbents and Haslehursts (both banking firms), Hoyland and his partners and several of the principal firms of cutlers such as the Tricketts.

3 *Seven boxes and an etui, all plated. Although fairly common in silver, plated etuis are extremely rare. The small folding knife belonging to the etui has plated scales.*

5 *Three plated boxes with the same design die-stamped on the base. The rectangular example is the base of the box shown bottom centre in [3].*

as a mercer,[31] therefore it seems unlikely that he would have ever worked as an employee. However, as a mercer and therefore dealing in silks and the finer quality textiles, he may well have retailed Boulsover's plated buttons, for instance, or acted as a distributor within the trade.

Conjecture aside, what can be stated with certainty is that by April 1752 Boulsover had acquired sufficient wealth to purchase the Whiteley Wood Hall estate for £1360 cash.[32] The estate, situated some four miles to the south west of Sheffield, comprised a fine country house together with an elegant stable-block,[33] two farms and a hundred acres of land. In 1755 Boulsover made some building alterations and had the entire house painted and engaged the Sheffield surveyor, William Fairbank,[34] to oversee this work. Fairbank's complete surveying notes survive detailing the colours chosen for each room, and they record that the house had a galleried dining room with three long windows and double doors leading into the

31. Hoyland's partner John Trevers Younge, who took over the plated manufactory following Hoyland's death in 1779, had also originally been a mercer.

32. WYAS RD B387 p129.

33. The stable-block still survives and is owned by the Sheffield Girl Guides Association; the house was demolished in 1956.

34. FC FB8 p101. The surviving plans and maps of the Sheffield surveyor William Fairbank (1730–1801), also a quaker, form a truly remarkable collection and include plans of several plating firms (eg Tudor & Leader, Thomas Law, John Hoyland, and the rolling mills of both Joseph Hancock and John Hoyland).

4 *Enamel box with plated mounts, the scene taken from an engraving by J.E. Nilson issued circa 1765.*

drawing room, and in the grounds were white painted Chinese pallisades.

Plated boxes

The obituary above and Mitchell's letter both mention Boulsover as having made plated snuff boxes. Joseph Hancock, who was largely responsible for the great expansion of the plated trade in the early 1760s, certainly made snuff boxes out of cannel coal,[35] and according to Hirst some of these had plated mounts.[36] Hancock also tried his hand at making lacquered paper boxes, and to this end he contracted one Jean Baptiste de Gourney of Paris[37] to come to Sheffield

> ...to instruct...in the making and applying in the best and Cheapest Manner the Copal and Amber Varnishes after the manner of Monsieur Martin the celebrated Varnisher of Paris Viz. the best Varnish in use for paper Snuffboxes...[38]

The whole enterprise was largely in response to a commission from the Marquess of Rockingham to have certain items of lacquer-ware reproduced by Hancock.[39] One other Sheffield firm involved in box manufacture was that of John Hoyland & Company. Fairbank's notes record the construction of their plated workshops in 1764 and list over thirty rooms including 'Plating Room...New Casting Shop...Silver Melting Room...Candlestick Garret...Box Garret... TortoiseShell Room...'.[40] The company's entry in Sketchley's 1774 trade directory for Sheffield reads, 'Hoyland John and Co. Platers, Refiners, Button and Box makers, Unionstreet.' Unfortunately, nowhere is it specifically stated that Hoyland & Co made plated *snuff* boxes, but it would seem likely that they did so. However, apart from producing iron and steel, Sheffield's manufactures had always centred on the edged tool and cutlery trades, and to a lesser extent button making. The toy trade had never been a significant part of its make up; the great centre for that trade of course was Birmingham and it is there one needs to look for the source of manufacture for the great majority of those examples of plated snuff and patch boxes that survive today.

Plated box production probably began in

Birmingham in the early 1750s. By the time plate duty was abolished and the dealers' licence introduced in 1758[41] it was a well established trade. The requirement that manufacturers and all retailers of items even merely containing gold and silver had to take out the 40s licence caused the Birmingham and Sheffield trades serious problems.[42] A joint petition was launched[43] and the parliamentary committee's report recorded in the *1759 House of Commons Journal* is especially interesting.[44] In it John Taylor,[45] representing the Birmingham petitioners, states:

> ...in a Snuff Box of 18s. Value from the Maker, the Silver is not worth 1½d. that they make many Articles, wherein the Silver is not worth more than 1 *per Cent*. of the Value of the Goods, but that in some Instances it is worth 5 *per Cent*. and though the Quantity of Gold or Silver used in ornamenting such Goods is so small, in Proportion to the Value of the Goods, yet the Sale of them depends upon the Neatness and Elegancy of the Ornaments.[46]

Taylor's statement of course refers to plated boxes, and his argument was that all retailers and even small shopkeepers selling such items had to take out the licence, and in consequence many had given up selling that type of merchandise, with damaging effects on the whole industry.

Plated boxes were made with a variety of different materials used for their tops including inlaid tortoiseshell, enamel, aventurine glass, agate, cannel coal, blue john, mother of pearl, wood, filigree (usually inset with an imitation moss agate), and of course those with elaborately chased or die struck tops in plated metal. Occasionally the contemporary prints from which the scenes are derived can be identified and this helps in dating, eg fig[**3** top left] shows Garrick and Miss Bellamy in the tomb scene from *Romeo and Juliet* taken from Ravenet's engraving of 1765,[47] while fig[**4**] is derived from Nilson's set of engravings *Caffé, Thé und Tobac* also issued around 1765.[48] The great majority of circular boxes have pull-off lids – those intended for patches having polished steel mirrors on the underside of the lid.[49] Rectangular boxes are very much rarer- they involved more work requiring a piano-type hinge for the lid and hard soldered joints at the four corners for both the box and lid as opposed to just one joint for circular examples.

With some exceptions, these boxes exhibit a remarkable uniformity of design and workmanship and even dimensions – it is often possible to exchange tops of different materials between boxes with a tolerable degree of fit. Also many boxes have plated bases with the same die stamped design.[50][**5**] This would suggest that plated box production was confined to a limited number of large manufacturers rather than spread around a multiplicity of small firms. Likely candidates are of course John Taylor – he had a very substantial manufactory employing over six hundred workers[51] making gilt buttons, enamels and a great variety of toys including snuff boxes. Gimblet and Vale were silversmiths who specialised in watchcases and would therefore have had skilled chasers amongst their workers – also John Gimblet Jr made gilt and tortoiseshell items.[52] John Bentley is another possibility – his trade card survives[53] listing snuff boxes amongst the items he made in a variety of materials including plated metal. I think it virtually certain that some plated boxes were produced at Soho. Boulton extended the range of plated articles made there, including toys, in the late 1760s – he had also started producing items in tortoiseshell from around 1767.[54] Further, the 1782 inventory under 'Warehouse No.17' lists

> 7lb, 1oz of stampt plated Metal in Parts for Boxes etc...13lb, 9oz of old Boxes, Tops, etc. in plated Metal...[55]

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35. A hard bituminous coal which can be carved, turned and polished. In the eighteenth century it was obtained from the Attercliffe coal mines near Sheffield.

36. BR299.

37. BR318/IX.

38. In 1764 de Gourney was contracted to come to Sheffield for three months to instruct Hancock and his two sons in the art of varnishing for which he was paid £100.

39. WWM R1/426. Hancock's letter of 2 June 1764 to Lord Rockingham's agent in London makes this clear.

40. FC FB28.

41. 31 Geo.2 c32. The Act technically came into force in July 1758 although passed the previous year.

42. Much plated ware in the form of buttons, buckles and toys generally was sold by hardware dealers and small country shops, retailers who objected to the imposition of the licence. John Taylor's evidence suggests that it was entirely up to the whim of Excise officers as to whether shop keepers selling plated and silvered articles had to buy the licence.

43. Birmingham's interests were represented by John Taylor and Samuel Garbett and Sheffield's by Ebenezer Roebuck.

44. House of Commons Journal 20 March 1759

45. John Taylor (1711–75) established the first large scale manufactory in Birmingham and was a commercial rival of Matthew Boulton. His firm mass produced buttons, buckles, and a great variety of toys and enamels. In 1765 he opened Birmingham's first bank in partnership with the wealthy quaker Sampson Lloyd. No archival records relating to his manufactory seem to have survived, however from references amongst the Boulton Papers it would seem that, apart from snuff boxes and other plated toys, Taylor did produce some larger items of plated ware, probably candlesticks.

46. 1½d is a slight exaggeration, but by assuming a modest plating strength of 10dwt and the box's interior gilded with around 5 grains of gold (per 12 inch diameter circle) it is possible to estimate a prime cost (excluding fashion) of around 3d per box. Boxes were therefore very profitable items.

47. Simon François Ravenet (born Paris 1706, died London 1774), artist and engraver.

48. Johann Esaias Nilson (1721–88), German engraver of Augsburg. Scenes from his series of prints 'Caffe, The und Tobac Zieretten' were reproduced on English ceramics and enamels.

49. Virtually all the mirrors are of polished steel – I have only seen one example where the mirror is glass.

50. The variety of die-stamped designs for bases is much more restricted than those for tops – frequently it is possible to find boxes with different materials used for the tops eg enamel, inlaid tortoiseshell or embossed plated metal, but showing the same die stamped design on their bases, as in [5].

51. 'Squire Taylor' as Boulton liked to refer to him, was highly successful in business and left a fortune of some £250,000 at his death in 1775.

52. On 6 February 1768 Boulton wrote to J.H. Ebbinghaus of Isserlohn, 'I am now making some new and pretty boxes Toothpick & Instrument cases of Tortoishell improved. I have also purchased Gimbletts Trade of Gilt Boxes ...' MBP135 Letter Book C.

53. MBP Letter Box B2.

54. MBP Letter Box W2. A letter to Boulton dated 18 October 1767 from John Millson (but catalogued as Willson) adds a postscript 'S' I hope your tortershell Bisness goes on with Suckses...'

55. MBP 125 Soho Inventory 1782.

Joseph Hancock and the expansion of the industry

In its early years the plated trade was restricted to the manufacture of hafts for cutlery, buttons, buckles, snuff boxes and a variety of other small toys. It was Joseph Hancock[56] who first began the production of items of domestic ware such as saucepans, candlesticks, salts, beakers, goblets etc.[57] He of course was a Sheffield cutler and, like Boulsover, had presumably also made plated handles before diversifying in this way. But certainly his pioneering efforts initiated the huge expansion of the industry that took place in the early 1760s. Early references to the commencement of Hancock's plated activities are notoriously vague. The most likely date is that quoted by John Aikin, who places it around 1758,[58] but it could well have been a year or two earlier. Horace Walpole's letter to George Montague in September 1760 has been quoted by several writers.[59] The relevant part states

> I passed through Sheffield...One man there has discovered the art of plating copper with silver – I bought a pair of candlesticks for two guineas, that are quite pretty.

However, rather more interestingly, during the autumn of 1759 Benjamin Franklin also passed through Sheffield and bought a set of three plated saucepans. The following February he wrote to his wife Deborah in Philadelphia saying

> ...I send you two Saucepans, plated inside with Silver instead of tinning. I bought them at Sheffield, because I thought they would please you;...I got three, but keep the smallest here to make my Watergruel, and send you the largest and middlemost.[60]

Surviving plated articles by Hancock are extremely rare;[61] fig[6] shows a pair of salts with Hancock's usual mark IH stamped on the bases, and fig[7] shows a large plated saucepan which has his other mark IOS[H] HANCOCK stamped on the handle socket.

Both Franklin's saucepans and Walpole's candlesticks will have been of Hancock's manufacture – it was to be another two or three years before other firms came on the scene. The Fairbank records show that by 1764 the major part of Tudor, Sherburn & Leader's workshops and those of John Hoyland & Co had been constructed, including Tudor's horse-powered rolling mill.[62] The two water-powered rolling mills of both Hancock and Hoyland were also completed at this date.[63] Other Sheffield firms to set up substantial plated workshops in the early to mid-1760s were Thomas Law,[64] John Winter, Samuel Roberts Sr and Richard Morton – all silver cutlers. Boulton began his manufacture of plated ware around 1762 whilst still at the Snow Hill premises in Birmingham, prior to moving operations out to the Soho site around 1765, though it was confined to the production of candlesticks for the first few years.[65]

John Hoyland had been making buttons (presumably including plated examples) for some years prior to forming his partnership with Younge and Middleton to manufacture plated wares,[66] and the new premises were essentially an extension of the existing button workshops. The case with Tudor & Co. was very different. Of all the partners involved in the various early plating firms, only Henry Tudor and his subsequent partner Thomas Leader had been apprenticed and brought up within the London silver trade.[67] While in London, Tudor had worked as a chaser for Abraham Cook, goldsmith, in St Clement Danes. It was there of course that he met Leader who had been apprenticed to Cook.[68] Probably by 1757 Tudor had arrived in Sheffield for the following year he married Elizabeth Dodworth,[69] a niece of Boulsover's wife. Leader had certainly moved to Sheffield by 1763 as the partnership of Tudor, Sherburn & Leader was formed in May that year.[70] Sherburn had been trained as a surgeon,[71] but appears to have been a working partner in the firm and not to have followed a medical career. The term of the partnership was for forty-two years with an initial working capital of £3000. The firm was titled 'Henry Tudor and Company'[72] – Tudor was certainly *primus inter pares* – and it was to remain one of the principal plated manufactories for over thirty years.

The site on which Tudor & Co built its workshops together with the partners' living accommodation was initially leased from the Duke of Norfolk by Boulsover himself and sub-let to the company.[73] The reason for this is not at all clear. It is of course quite possible that Tudor had come from London to work for Boulsover either as a chaser or in some kind of managerial capacity. In any event by 1759 Boulsover was already constructing his water-powered steel rolling mill out at Whiteley Wood together with the workshops for his saw making activities,[74] and giving up his involvement in the plated trade. Therefore two years later when he took out the lease on the Tudor site there would have been no conflict of interest in assisting this burgeoning company. Of course Tudor was now related to the Boulsovers by marriage, so there may well have been personal as opposed to commercial reasons for the arrangement. It was not until 1767 that Sherburn took over the lease on behalf of the company.[75]

6 *Pair of salt cellars, Joseph Hancock circa 1760, 9.5cm (3¾in) diameter.*

56. Joseph Hancock (1711–91) master cutler 1763. Formed a partnership in 1769 with his two sons Joseph jr (died 1771) and William as manufacturers of silver and plated articles (PC 736); retired from business around 1771 but was appointed the first acting warden of the Sheffield Assay Office in July 1773 (along with John Rowbotham).

57. Hancock of course was producing plated articles until his retirement in 1771. However, unlike several other Sheffield plated manufacturers he never registered a silver mark at Goldsmiths Hall, although his son William did under the partnership of 'Hancock and Rowbotham'.

58. John Aikin, *A Description of the Country from thirty to forty miles around Manchester*, 1795.

59. These include Henry Newton Veitch as early as 1908 in his book *Sheffield Plate*.

60. *The Papers of Benjamin Franklin* vol 9, Yale Univiversity Press 1966

61. These are virtually all candlesticks and a few saucepans.

62. FC FB28.

63. FC FB26.

64. Thomas Law (1716–75) master cutler 1753. Like Abdy, Law had been apprenticed to John Osborne. John Winter, Samuel Roberts Sr, Matthew Fenton and Richard Creswick, Thomas Law Jr, all major producers of plated ware were all apprenticed to Thomas Law.

65. Several of Boulton's letters in the mid 1760s confirm this, eg MBP 134 Letter Book B letter to Woolley & Heming dated 19 January 1765 'Also our plate manufactory we have hitherto confined ourselves to the article of Candlesticks...'

John Read and the refining of plated waste

Apart from Thomas Leader, one other young man to arrive in Sheffield during the early 1760s was John Read, who set up a refining and smelting business and so provided a service essential to the rapidly expanding plated trade – that of recovering the silver from their waste products in the form of clippings, shop sweep and test bottoms.[76] His company, later to become the Sheffield Smelting Company, gradually supplanted London in the supply of silver to the Sheffield trade.[77] The earliest records for the various Sheffield plating firms do not appear to have survived, but those that do for the 1770s and early 1780s indicate that the London refiner Robert Albion Cox[78] dominated the supply of both silver and gold to Sheffield – that is supplies of both metals over and above what was recovered by Read and sold back to the trade. The large companies such as Tudor & Leader, Winter, Parsons & Hall, and Fenton, Creswick & Co maintained two accounts with Read in the form of a bill account, and a metal account – on the former they purchased silver or gold for cash or bills of exchange and on the latter purchases were paid for with plated waste.[79] As regards Soho, until 1772 Boulton seems to have been supplied by the Birmingham refiner Samuel Garbett.[80] Following Garbett's withdrawal from the refining business, Boulton too relied on Cox for supplies, and also Peter Floyer, who wrote in August 1772 soliciting Boulton's custom.[81] Boulton certainly obliged, but there may have been an ulterior motive in accepting Floyer's offer – within a few months the assay office bill would be pending against expected strong opposition from the London silver trade and Floyer happened to be Prime Warden of the Goldsmiths' Company!

The process of recovering the silver involved dissolving the waste metal in concentrated sulphuric acid – or *oil of vitriol* as it was termed. It was in fact the copper that went into solution in the form of copper sulphate (*roman vitriol*) leaving the silver as a sludge to be refined. Read of course made a profit selling the roman vitriol to the chemical industry. Boulton also sold quantities of it, derived from refining his own plated waste,[82] sometimes in large amounts; for instance in October 1773 he shipped a consignment of over three tons of the vitriol in nineteen casks to Amsterdam at a value of £170.[83] In the plating process neither metal was used in its pure state. The copper was alloyed with brass (itself an alloy of copper and zinc) – according to Hirst typical proportions were 17½lbs of copper to 3½lbs of brass. This was to give the metal strength as pure copper would be too soft. Probably the copper was plated usually with standard silver. Boulton, however, frequently used what he termed '6s silver',[84] especially for die stamped articles in solid silver, but in letters to customers he does refer to using this higher quality (ie *fine* silver) also for some plated wares.[85] Hirst, though writing in 1832, and in an annoyingly vague manner, simply states 'The Silver used in Plating is finer than standard'.

John Read's earliest surviving ledger[86] dates from 1771 and covers roughly a fourteen year period. It is a mine of information regarding the names of the various firms who sent plated waste in for refining, together with the dates and quantities. Read assayed each batch[87] and recorded the price he paid, from which it is easy to compute the strength of plating on any consignment of plated clippings sent. One illustration will suffice:

Morton & Co.Cr. 1772 Decbr 10th	
99lbs of single plated Mettle @ 5/-	24.15.0
59lbs of double d° d° @ 9/-	26.11.0
44lbs Tin plated Mettle @ 4/7	10. 1.8
49¾lbs of Thin plated single Mettle @ 3/9	9. 3.6½
28lbs of Rich plated single Mettle @ 9/-	12.12.0
35¾lbs of Thin plated Double Mettle @ 6/-	10.13.0[88]

By way of example, Read paid 9s per pound for 'Rich plated single Mettle' which represents a strength of plating of around 30dwt to the pound[89] – a very high quality. The strength of plating was normally expressed in terms of so many pennyweights of standard silver to the pound avoirdupois of copper – ie mixed units were used as the pennyweight is of course a Troy unit. Read's ledgers record consignments of plated waste from a very large number of firms including all those in Sheffield, Boulton & Fothergill[90] and most of the Birmingham plated button makers, and London manufacturers including William Abdy. By the 1780s Read was also supplying plated metal to firms in London, Edinburgh and Dublin.[91] Initially Read was plating the metal himself and sub-contracting the rolling, but had problems employing platers sufficiently skilled in the process.[92] So he abandoned this and resorted to buying in plated metal from John Lucas, his Birmingham agent.[93] The range in quality of the metal was very wide, from as low as 3dwt of silver to the pound of copper to as high

81. MBP Letter Box F1 item178.

82. Boulton was probably aided in his refining activities by his association with James Keir, industrial chemist and glass maker.

83. MBP 139 Letter Book F letter to Isaac Broadley 18 Oct. 1773.

84. MBP 137 Letter Book E In a letter to Parker & Wakelin dated 16 Nov.1771 Boulton says 'We have always used silver worth 6/– for light Stamped candlesticks as it is better to stamp.'

85. MBP 137 Letter Book E. In a letter to J.B.Rogler but for the attention of Count Orlow in Bath dated 28 December 1772, Boulton states 'The Count may be assured that the Silver that is made use of for our Plated Goods is pure Virgin Silver better than Standard, and will stand any Acid usually employed in Cookery...'

86. SSC1 The first entry is for 'M[r] Hancok & Son' dated 8June 1771 – the last entries are as late as 1788.

87. Usually each batch was assayed twice and the results averaged out.

88. SSC1.

89. Assuming standard silver at 5s6d per ounce (3.3d per dwt) and copper 9d per pound (ie around £90 per ton).

90. The Soho waste sent to Read was virtually all in the form of plated and gilt button clippings.

91. Considerable quantities of plated metal were supplied to his London agent Thomas Cowie, to the Edinburgh silversmiths Cunningham and Simpson, and to both William Aldridge and George and Ann Binns of Dublin. (see SSC 53)

92. See letter from Read to Cunningham and Simpson 25 June 1791 (SSC59).

93. See letter from Read to Lucas 29 Nov.1791 (SSC59).

66. See footnote 29.

67. PRO (Kew) Inland Revenue 1 Apprenticeship Books. Thomas Leader was apprenticed to the goldsmith Abraham Cook of St Clement Danes in 1749 (premium £5).

68. Hirst (see note 4) states that Tudor '..was apprenticed in London to the Craft of a Gold, and Silver Chaser.. Mr Leader served his time to a branch of the same business, the Watch-Case, Snuff-Box, and Instrument or Etwee-Case Maker of which Mr Tudor was the Chaser and embellisher.'

69. They were married on 6 June 1758 in the Parish Church of St Peter's (now Sheffield Cathedral).

70. YWD 1013, Partnership indenture.

71. PRO (Kew) Inland Revenue 1 Apprenticeship Books. Sherburn was apprenticed in 1749 to the Sheffield surgeon Mark Skelton.

72. Much surviving early Sheffield Plate was made by Tudor & Co and is often marked with a gothic HT, punched into the article three or four times.

73. ACM S158.

74. FC FB15.

75. ACM S158.

76. Test bottoms were the crucibles in which silver had been melted.

77. This was not until around 1780 onwards.

78. R.A.Cox of Little Britain, London was one of the principal refiners of silver and gold in London at this time.

79. SSC1 and other Read ledgers show this to be the case.

80. Garbett was in partnership with John Roebuck for a time as refiners and makers of acid. They were both involved in the Carron Ironworks in Scotland.

as 40dwt. The normal plating strength for candlesticks, always *the* staple product of the industry, varied between about 15dwt and 20dwt. For instance, in November 1775 William Abdy sent plated waste and Read records '106 lbs clips produced 88oz 10dwt silver at 5/11 £26-3-7½'.[94] This equates to a plating strength of over 16½dwt. In 1786 John Hodges, superintendent of the plated department at Soho, wrote to Boulton:

> the present quality of plated Metal for Candlesticks is 15dwt in the lb and the proportion is 24 Copper to 1 Silver in thickness...[95]

Dies and crucible steel

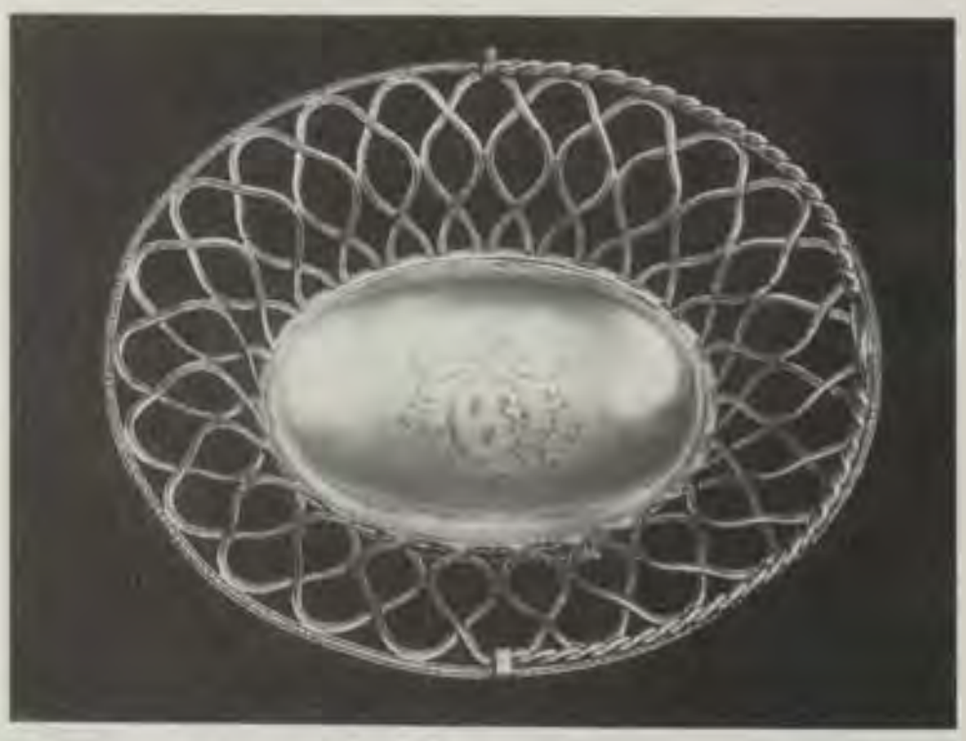
Regarding manufacturing techniques, it cannot be emphasised too strongly that the whole industry was highly dependent on the use of dies. Every article in Sheffield plate started out as a flat sheet, either single or double plated. Some articles, or at least certain parts, could be raised from the flat. But in general the *only* way to simulate those items which in silver would have been cast and hand chased was to use dies – of course a concomitant was an increase of efficiency in output over traditional silversmithing practices, but that was *not* the primary purpose in their use. The extraordinarily successful expansion of the trade from the mid-1760s was not merely dependent on dies but crucially on the use of crucible steel to make them. Benjamin Huntsman[96] had developed the production of cast steel in the 1740s, and although in fact Sheffield cutlers were slow to adopt its use, the very opposite was true of the emerging plated trade. Cast, or 'run steel' had an enormous advantage over blister steel[97] because of its very high degree of homogeneity and hardening properties. This allowed dies of the finest quality to be made both in terms of durability and sharpness of definition – so essential, particularly with the advent of the neo-classical style in the late 1760s, for producing the delicate and detailed ornamentation on candlesticks and other articles.

Huntsman initially monopolised the supply of cast steel, but by the mid-1770s other Sheffield firms were making it including Boulsover and John Love.[98] There are many instances recorded of Boulton purchasing cast steel from Huntsman in the various Boulton & Fothergill letter books etc, and also from Boulsover.[99] Cast steel was not only essential for the best dies but also for making the finishing rolls. The initial rolling or 'breaking down' of the ingot was performed using cast iron rolls, but in the final stages rolls of cast steel were used as they could be lapped to a mirror like finish. The production of rolls was a highly specialised trade – the rolls had to be accurately dressed and then lapped.[100] Huntsman supplied several sets of rolls to Boulton,[101] but it is likely that they were actually dressed and lapped by other specialist Sheffield firms.[102] Boulton also used large cast iron rolls the frames for which were supplied by the Coalbrookdale Company.[103] During the early years of the plated trade all rolling had to be carried out manually. It was not until 1764 that Joseph Hancock and also John Hoyland set up their water-powered rolling mills – that of Tudor, Sherburn & Leader was horse-powered.[104] The rolling for Boulton's plated department was carried out at his Hofford mill,[105] a few miles from Soho. Rolling was always performed cold, but the metal needed constant annealing as copper and silver work harden.[106]

Double plating

The assertion that plating on both sides of the ingot – or double plating – was unknown until the late 1760s derives undoubtedly from Charles Dixon's manuscript of 1847. It has been repeated by others, largely unquestioned. There is in fact no particular technical difficulty. The reason for the relatively late adoption of double plating has to do with constructional techniques related to changes in fashion. Until the late 1760s plated articles had to compete with their solid silver counterparts which were the heavy gauge

7 *Large saucepan, Joseph Hancock (his name stamped on the handle). Virtually all Sheffield Plate saucepans are single plated. Dixon's were still making them in the 1840s.*



8 *Wirework basket, late 1760s. The outer gadrooned rim and twisted handle are solid fused plated wire; the inner loops are made from single plated strips enfolding a solid brass-wire core. 32 × 28cm (12½ × 11in)*

94. SSC1.

95. Hodges to Boulton 22 February 1786, MBP 313 John Hodges.

96. Huntsman's technique for making crucible steel has been extensively researched by K.C.Barraclough, whose article 'Benjamin Huntsman 1704–1776' is published by Sheffield City Libraries.

97. Blister steel was made by the cementation process.

98. Like Boulsover, Huntsman never patented his invention. John Love, originally a mercer, was probably producing cast steel by the mid-1760s, and in 1783 set up a substantial plated manufactory with five partners.

99. MBP 140 Letter Book G. A number of orders for cast steel were given to Boulsover eg 21 November 1775 '...Please to send us....Two hund[d] w[t] of Steel roll[d], and ground fine the thickness when roll[d], as near as possible to a new halfpenny...'

100. ie accurately machined to a cylindrical shape and then polished to a mirror like finish.

101. eg letter from Boulton to Huntsman 9 August 1764 '...not being able to get to Sheffield high time to send bill deducting for rolls...' MBP 134 Letter Book B.

102. These included firms such as Thomas Darwin and John Gallimore.

103. MBP Letter Box G1 item301. Letter from Robert Gilpin of the Coalbrookdale Co. to Boulton and Fothergill 22 April 1769 '...the Model are receiv'd and we expect to have one or two cast from it in ten days...Our largest Stocks for Rolls is 18 In long in the body & 8¼ In dia'..'

104. Guildhall Library, Sun Insurance Records Ms11936 vol.147. By April 1766 the horse mill was specifically insured 'Horse Mill house Workshops Stable & Offices only adjoining... £400'.

105. Although there were a number of water powered rolling mills at Soho, it would seem that the rolls were small in size and rolled plated metal for the button department. For the plated department, where rolls of 24in width or more were needed, the rolling was carried out at the Hofford Mill site. There are particularly interesting references to the Hofford Mill in MBP 114 Journal 1776–78. The actual cost of rolling plated metal was around 15s per cwt. (see MBP 337 John Scale item 116

and cast items typical of late rococo fashion. It was therefore a question of *weight*. Plated articles not only had to look like their silver counterparts, they had to feel like them when picked up by a prospective purchaser. The so-called back-to-back technique, whereby two single plated sheets were soldered together was adopted precisely because it achieved that sense of weight – all back-to-back pieces are very heavy. It was not possible to use thick double-plated metal because heavy gauge metal cannot be adequately die stamped. In fact there are examples of double plating on very early items,[107] and cases of the back-to-back technique used up to the late 1770s.

9 *Soup tureen, unmarked probably Boulton & Fothergill circa 1775, 49.5cm (19½in) wide.*

Further developments

In 1760 the production of domestic plated ware would have been limited to the small range of articles of Joseph Hancock's manufacture. The great expansion of the plated trade which took place during the ensuing decade resulted in there being some eleven firms[108] by 1770 engaged in making an extraordinary variety of plated goods,[109] to such an extent that almost every article normally manufactured in silver was being fabricated in plated metal. In March 1773 the London goldsmith Richard Morson, in reply to a question from the parliamentary committee regarding what types of plated articles he had seen for sale, stated 'I saw almost every pattern that is made in Silver, in plated Work...'.[110] The invention of plated wire in the late 1760s not only added to the range of articles made but significantly affected manufacturing techniques. George Whateley's patent[111] of 1768 for making plated wire essentially involved fitting a silver sleeve over a solid copper cylinder and fusing them together in a furnace prior to drawing out into wire.[112] Another early method involved forming the wire from narrow flat strips of single plated metal the edges of which were bent round and seamed along the back, often enfolding a core of solid brass wire; fig[**8**] shows a very early wirework basket (probably dating to the late 1760s) exhibiting both types of plated wire. The solid fused plated wires of course could be run through strip dies to impart beaded or gadroon decoration etc, or drawn through a draw-plate with specially shaped holes to give the wires particular cross sectional designs, and these wires were added to articles both for strengthening purposes and as decorative features.[113]

Improvements in plating skills during the 1760s gradually allowed articles with larger surface areas, such as tea urns and large waiters etc, to be made relatively free from blemishes. The slightly discoloured patches frequently to be seen on early items of plated ware are not French plating repairs (as Bradbury suggests[114]) but hard solder repairs as stated by Hirst[115] – if looked at carefully these blemishes appear the colour of pale brass and are indistinguishable from the colour of the hard soldered seams.[116] Presumably these repairs were made during the rolling process, whereby if a blister started to develop it would have been scraped off and a dab of hard solder applied to the spot before rolling was continued. Apart from the difficulty of producing expansive areas free from blemishes, large trays and waiters were always very expensive items because the metal had to be specially plated and rolled.[117] For instance Joseph Wilson's[118] comprehensive price list of 1772 prices a circular 18in salver at 140s. In 1780 Boulton & Fothergill charged £13 for a large 30 × 18in oval tray.[119] Tea urns had probably been made from the mid-1760s, but certainly by around 1770 other grand and expensive

letter from Scale to Boulton 6 Jun. 1791)

106. To anneal, the metal was heated to a dull red heat (around 450°C) for about four hours.

107. eg on early candlestick nozzles the hoop (or cylindrical portion) is frequently double-plated while the top (or drip pan) of the nozzle is plated back-to-back.

108. Boulton & Fothergill (Birmingham), William Abdy (London), Ashforth, Ellis & Co, Fenton, Creswick & Co, Joseph Hancock & Sons, John Hoyland & Co, Thomas Law, Richard Morton, Samuel Roberts Sr, Tudor & Leader, John Winter (all of Sheffield).

109. ie items of domestic holloware.

110. MBP 270 Assay Office Box 1.

111. Patent No 905. Whateley was a Birmingham plater.

112. Whateley's method, which required the silver sleeve to be fused on to the copper cylinder, differed from the later method developed around the mid 1780s whereby the silver sleeve, when fitted over the copper core, was heated to a much lower temperature and then simply burnished on before being drawn out into wire, as mentioned in Rees's Cyclopaedia.

113. eg beaded or reeded wire was frequently used to both strengthen and decorate the rims of salts, baskets, jugs and coffee pots etc.

114. Frederick Bradbury, *History of Old Sheffield Plate*, 1912 reprinted 1968.

115. BR299. Hirst, in reference to the later method of repairing blisters by French-plating, states 'The old method of repairing these defects was, to cover them with a sufficient quantity of the hard or silver solder, used for uniting the seams together, but this method was very inferior to the modern one of french-plating with leaf silver, there being of necessity so much alloy in the solder, the difference in colour was very perceptible...'

116. Unfortunately, Hirst does not give a date as to when this later method of repair involving French-plating was generally adopted, but around 1790 would seem probable.

117. Large trays were made from individually prepared ingots that were extra heavily plated and rolled to a thick gauge. Curiously, whatever the size of tray, the ingots used were always of a long and narrow rectangular shape. Hirst states that a tray 30 × 24in needed an ingot 15 × 2½ × 1in. This necessitated the ingot being rolled in two directions mutually at right angles as the metal only expands in the direction of rolling – lateral expansion, even after several passes, is only a few per cent. (BR299)

118. For notes on Wilson's archives see Appendix. His price list details a whole range of waiters, the smallest being a 6in one at 18s and the largest the 18in example at 140s.

119. MBP 117 Day Book 1779–81, 29 April 1780 The purchaser, John Laugher, was evidently a trade buyer as Boulton allowed the usual 20% discount.

plated items such as tureens and wine coolers were being manufactured; for instance Parker & Wakelin's ledgers for 1771 record John Winter as supplying '4 Plated Ice Pails £16 Disc^{t} 48/- £13–13s-2d'.[120] Joseph Wilson's ledgers record that his manufactory supplied large and expensive items of plated ware; for example in May 1772 a consignment sent to the Dublin silversmith and retailer John Binns included '1 Chast Tureen...£12–12s'.[121] The following year Wilson sent a huge consignment of his plated ware together with items of Sheffield hardware to Baltimore valued at over £1350 which included some 6 'Kitchens' (tea urns) the finest of which was '1 Vase Duble plaitd Neatly Chast...£12–10s'.[122] Surviving examples of such early specimens are extremely rare, however fig[**9**] shows a fine plated tureen of around 1775.[123] By the late 1770s Soho was producing some very expensive items such as 'A plated Ladies Toilette....' which comprised a looking glass, a pair of candlesticks, a vase with brush, 2 square needle cushions and a variety of boxes at a total cost of £84.[124] The extensive plated dinner service costing just on £100 that Boulton & Fothergill supplied to 'His Excellency Monsieur Moussin Pouschkin',[125] which consisted of twenty-two dish covers of varying sizes and four salad dishes, included '2 plated oval Dish Covers 19 by 13 inches 157/6 £15-15'.[126]

Gilt plated ware

Gilded Sheffield plate[127] is rare and most probably was usually carried out by the manufacturers as a result of individual requests from private customers. However, Wilson's ledgers show that he at least did supply the trade with examples of gilt plated ware, eg in December 1772 a large consignment sent to the Dublin retailer Michael Welch included

> 2 p^{r} Cand^{ks} Midas Mask & Drapery Gilt 60/-...£6[128]

and amongst the consignment sent to Baltimore were

> 2 pr Cand^{s} Plaitd plain Pillar Midas foot Guilt upon the Head & Drapery @ 60/- ...£6–0–0

Also the 1772 inventory of the 'Plaitd Warehouse' includes

> 3 Vaus Coffepots Guilt Mounted 50/- ..£7–10–0

These of course were examples of parcel-gilt plated ware. Soho too made such articles. The nineteen lots described as 'Elegant Articles in *FILLAGREE*', which formed part of the catalogue of items consigned by Boulton to the fourth and last of the sales held by James Christie on his behalf (in May 1778),[129] included 'one pair plated *antique*[130] *candlesticks* with parts gilt in or moulu'.[131] The Wilson archives show that his manufactory also produced candlesticks in copper-gilt and the consignment sent to Welch in Dublin included

> 2 Pr. Cand^{ks} Vaus foott Gothic all Gilt 105/- £10–10–0

The inventory carried out that year (1772), under the heading 'In Gilding Shop', also lists

> 4 p^{r} Copper Cand^{ks} for gilding....£4–0–0

from which it is possible to make a rough estimate that each candlestick was gilded with just over 8dwt of gold.[132]

Conclusion

This article has sought to discuss some aspects of the plated trade concerning the first few decades of its development and to provide a brief background to its inventor, Thomas Boulsover. Within thirty years the trade expanded from Boulsover's early production of plated handles and buttons etc to a very sizeable industry producing an enormous range and quantity of plated articles both for home consumption and export.[133] The emergence of a manufacture of silverware in both Birmingham and Sheffield was probably an inevitable corollary. A number of Sheffield plating firms registered silver marks at Goldsmiths' Hall in the late 1760s[134] and supplied the London trade with silver articles, mostly candlesticks. This was particularly true of John Winter, whose entire output was virtually confined to candlesticks, many of which he supplied to John Carter and also Parker & Wakelin.[135] By the time the Sheffield assay office opened its doors for business in September 1773 there were two refineries in the town, that of Read and a second one set up by John Hoyland.[136] Evidence would strongly suggest that Hoyland had engaged Albion Cox[137] to superintend his refinery. Cox, who was appointed one of the original guardians of the assay office,[138] later emigrated to America and in 1794 was commissioned by Washington as the first assayer of the United States Mint in Philadelphia.[139]

The establishment of the Sheffield and Birmingham assay offices, which in a sense legitimised their silver production, can only have added to the extraordinary success already achieved by the plated trade. That success was largely due to the quality of the product and to competitive pricing. However, plated ware had a significant advantage over silverware in that it could be sold by hardware merchants and small country shops, for whom the dealers' licence was unnecessary, thus giving it a much broader retailing base.[140] Also, as Philippa Glanville has rightly pointed out,[141] the ultimate success of the industry could not have been achieved without the solid patronage of the aristocracy.[142] With this in mind, it is worth mentioning that the combined petitions of Goldsmiths' Hall and the London silver trade never had a realistic chance of defeating Birmingham and Sheffield's application for assay offices. Broadly speaking Sheffield had the Whig support and Birmingham that of independent members

120. Garrard Ledgers 8 (Victoria & Albert Museum, courtesy of Garrard's, now Asprey/Garrard). Although supplied by Winter, it is very likely that these ice pails were made by some other Sheffield plating firm as Winter's production was virtually all confined to candlesticks – the ice pails were sold on to John Luther Esq for £18.

121. Wilson's Irish ledgers record that he supplied his own plated goods (and some silver items) to a large number of silversmiths and retailers in Dublin, Cork, Waterford, Belfast, Newry, Drogheda, Dundalk, and Wexford.

122. At the same time (July 1773) Wilson sent an even larger consignment of plated ware of his own manufacture with some Sheffield hardware, totalling some £1390 in value, to Boston as part of his disastrous speculative venture with his American partner Edmund Quincy.

123. There is a very fine soup tureen with dolphin feet together with its matching stand made by Thomas Law Jr in 1777 in the Victoria & Albert Museum.

124. MBP 117. These were supplied on 31 December 1779 to AIX Yousef, one of Boulton's trade buyers with coded names.

125. Pouschkin was the Russian Minister in London.

126. MBP 117. This service had been ordered on 11 November 1779 and was finally dispatched 11 April 1780 to Thomas Heming for Pouschkin's collection. (MBP 313 John Hodges No.13 Hodges's letter to Boulton).

127. ie items of domestic ware where the mercurial gilding is applied to the exterior silver plated surfaces – not goblets etc the bowls of which were usually made of single plated metal with the inner copper surface gilded.

128. Wilson's Irish ledgers.

129. This was largely to dispose of unsold items of ormolu from stock. See Nicholas Goodison, *Ormolu: The work of Matthew Boulton*, London 1974.

130. 'Antique' in this sense meant by today's terminology, neo-classical.

131. Christie's London. Two copies of the original catalogue survive. A plated tureen was also included in the sale – neither lot sold.

and the incumbent North administration.[143] Lastly, unlike silver, plated ware was never subject to any form of duty.[144] Even in 1797, when Plate Duty was doubled to 1s and Goldsmiths' Hall tried to lobby Pitt to introduce a duty of 3d per ounce on plated ware, the plated trade emerged unscathed.[145]

Appendix

Joseph Wilson (1723–96) had been engaged in a number of commercial enterprises, which included the proprietorship of the large Wicker grinding wheel and the steel tilting mill at Lady's Bridge together with his partnership with Greaves & Woodhead as factors of Sheffield hardware, before founding the snuff-mill around 1763 that bears his name and is still in production today. He set up his plated manufactory in 1771, recruiting skilled workers from Hancock, Hoyland, Morton, and Boulton & Fothergill. Production only lasted until 1775 when Wilson went bankrupt, both as a result of fraud on the part of his American partner Edmund Quincy and the general trade difficulties caused by the worsening political situation in Massachusetts Bay at the time. His ledgers provide valuable information regarding the London, provincial, and Irish silversmiths and retailers that he supplied with plated goods of his own manufacture. His price list of 1772 is the earliest and most comprehensive that I have seen. A complete inventory of the manufactory taken in 1772 survives giving the names of the senior workmen in charge of each shop. Also the some £3000 worth of plated goods and hardware in America and the £1200 worth of plated goods (and a very small number of silver items) in Ireland that were on hand at the time of his bankruptcy are listed in extraordinary detail, item by item. His letters and ledgers also reveal that he manufactured candlesticks in a patent metal, gold in colour, that was supplied to him exclusively by the London hardware firm of Brasbridge and Slade.

The author spoke on the subject of Old Sheffield Plate at the Society's Annual General Meeting in October 1999.

132. Assuming a modest profit margin of 15% and gold at 84s per ounce.

133. Items of domestic plated ware such as candlesticks were being exported by the early 1760s, eg in June 1762 the Sheffield factors Oborne & Gunning exported four pairs of Hancock candlesticks to St Petersburg via their Hull shipping agent J. Horner (OR 3 p34). Also American newspapers from the mid 1760s confirm the importation of plated ware eg an advertisement in the *Boston Evening Post* for 19 August 1765 lists 'plated spoons & tea tongs' and another in the *Boston Gazette and Country Journal* for 26 October 1767 lists 'To BE SOLD in King St. Boston, A variety of valuable articles in household goods, viz. ...silver plated tea chests and silver equipages..' (WWM American papers)

134. These were Fenton & Creswick, Willliam Hancock, John Rowbotham, Henry Tudor, and John Winter. Two Sheffield silver cutlers John Hirst and Thomas Tyas also registered in London – Boulton & Fothergill registered in Chester.

135. Both Carter's evidence before the parliamentary committee at the time of the Assay Office Bill and Parker & Wakelin's ledgers confirm this. Winter's output was considerable – within the first eighteen months of the opening of the Sheffield assay office his manufactory produced over 2500 silver candlesticks of various sorts (SAO Plate Book 1773). At a conservative estimate he was probably producing between six and ten times that number in plated metal.

136. Clearly in response to the growing demand for silver. Hoyland had two refineries constructed at the site of his rolling mill in early 1773. Fairbank's surveys for both refineries survive (FC BB48).

137. Not to be confused with his older brother Robert Albion Cox (see note 77).

138. Cox was clearly a skilled refiner and, although he had been resident in Sheffield for only a short time, he was thought sufficiently highly of to be made a guardian of the assay office, a position he relinquished in 1774 when he returned to London.

139. Cox had a chequered career part of which involved a partnership franchise in America to mint the New Jersey coinage in the late 1780s. He died in December 1795, less than two years after taking up his post at the US Mint. (Evans, *Illustrated History of the United States Mint*, Philadelphia 1888).

140. Amendments to the 1757 legislation concerning the dealers' licence (32 Geo.2 c24), whereby sales of silver articles of less than 5dwt were not subject to the Act, meant that very many plated items were exempted and by extension larger plated ware too, as it was impossible to ascertain the silver content – unlike France, it was never necessary to state the strength of plating. Wilson's ledgers from the mid 1760s record that, on his snuff rounds, he supplied country shops with small amounts of plated ware, mostly of Law's manufacture And from 1772 he was supplying London hardware dealers and ironmongers, eg Jos. Prime, and Brasbridge & Slade, with his own plated ware.

141. Philippa Glanville, *Silver in England*, London 1987.

142. The ledgers of both Parker & Wakelin, and Boulton & Fothergill are of course crowded with names of the nobility making private purchases of plated items (particularly from the late 1760s onwards), some orders being surprisingly large. For example, in January 1778 the Irish peer the Earl of Inchiquin placed an order with Soho for plated ware which included waiters, coffee and tea pots, ice pails, candlesticks, bottle stands, a tea urn, sugar dishes, a large 2 handled cup, shells for oysters, an argyle, butter boats, a cheese toaster, a bread basket, a cruet frame, bottle stands, an inkstand, a dish ring, a 'plated Cup for Porter Can fashion like Cooper's work to hold a Quart of Porter' etc. (MBP Letter Box I item 13)

143. Sheffield had the support of Lord Rockingham and the Whig faction, and most importantly that of Sir George Savile (MP for Yorkshire) in the Commons. Boulton's support was led primarily by Thomas Gilbert (MP for Lichfield, whose election campaign Boulton had supported), who chaired thirteen of the twenty parliamentary committee meetings.

144. It suffered little in the way of restrictive legislation. Between 1773 and 1784 all marking of plated ware was prohibited – many early pieces (ie pre 1773) were marked, often with marks stamped three or four times, simulating hall marks when viewed at a distance. However, the 1784 Act (24 Geo. 3 c.20) allowed items to be marked again, in theory using one punch that had to incorporate the makers name and a device. Also the exportation of plated metal and all tools used in its manufacture were prohibited (except to Ireland) as part of the 1785 Act (25 Geo.3 c.67). In the 1780s plated ware does appear to have been subject to a customs duty on importation into Ireland that was based on the quantity of silver present on articles.

145. Recorded in Prideaux (ed), *Memorials of the Goldsmiths' Company*, 1897

Paktong

Keith Pinn

Paktong is an alloy of copper, zinc and nickel. The name derives from the Chinese 'pai-tung', meaning white copper. Essentially, though, it is brass with the addition of a small amount of nickel, so that it appears as a white or silver-coloured brass. This alloy was always a scarce commodity in the West; it was only available from China and never imported on a commercial scale.

Paktong was used in the eighteenth century to make domestic items, the grandest undoubtedly being chimney furniture. However its main use was in imitating silverwares, most commonly candlesticks, many of which are very similar to those produced by silversmiths. The production of paktong was never an exact science, so that there were variations in its composition, causing the different tints seen in the metal and differing properties.

The fascinating story of this oriental metal was first researched by Alfred Bonnin,[1] who attempted to clear up the confusion caused by the fact that in eighteenth century England two metals were known by the same name: the alloy we now call paktong was erroneously called tutenag.[2] Bonnin located two eighteenth century references to paktong, one from the artist Wright of Derby in 1773, which contains an obvious snipe at Sheffield plated wares.

> ...pillar candlesticks of tooth and egg, to be cleaned as silver...they are what they seem to be, which if I mistake not your temper, will be more pleasing to you than a refined outside with a base inside.

1. Alfred Bonnin, *Tutenag and Paktong*, Oxford 1924

2. Tutenag is the name for Chinese zinc but they were confused, probably because both were metallic substances from China. Paktong was also occasionally referred to as Chinese white copper or India metal, but in eighteenth century England it was never called paktong. This explains the apparently incorrect use of the word 'tutenag' when quoting from old records.

3. Some authors have speculated that candlesticks made with unusual construction techniques were produced in China for the western market; eg Dr Brian Gilmour and Eldon Worral, *Paktong. The trade in Chinese nickel brass to Europe*, British Museum Occasional Paper 109, 1993.

4. Nicholas Goodison, *Ormolu: The Work of Matthew Boulton*, London 1974.

5. Boulton & Watt papers, Assay Office collection, Birmingham Reference Library.

See glossary of terms relating to plated wares on page 26

1 *Paktong candlestick, French, mid-eighteenth century, showing foundry patches.*

2 *Paktong candlestick, English, circa 1735-50, constructed in parts screwed together.*

Mid-eighteenth century candlesticks

Candlesticks were the most common item to be made of paktong. However the craftsmen clearly had severe problems in the casting process. Many candlesticks have repairs to casting faults, known as foundry patches (sometimes as many as five or six). [**1**] The techniques involved in casting brass would have been familiar to workers in silver and brass, however nickel would have been a mystery to them and the higher zinc content of paktong would also have caused difficulties. It may be these unusual characteristics that persuaded the makers of some paktong candlesticks to evolve different construction techniques.[**2**] We can only guess at which trade was producing them.[3]

Many of the candlesticks made in the period 1750–65 are identical to those produced by the specialist London silversmiths such as the Cafe and Gould workshops. There is some evidence to suggest

that paktong was actually produced by one of them, but no proof. The nearly identical candlesticks in fig[3] differ in construction: the stem of the silver example is seamed but the paktong example is screwed. However the bases appear to have been cast from the same mould since, allowing for the different characteristics of the metal, they are identical. It would appear that the silver trade may have been involved in the production of paktong and possibly the finer brass candlesticks which would have been French-plated to resemble silver.

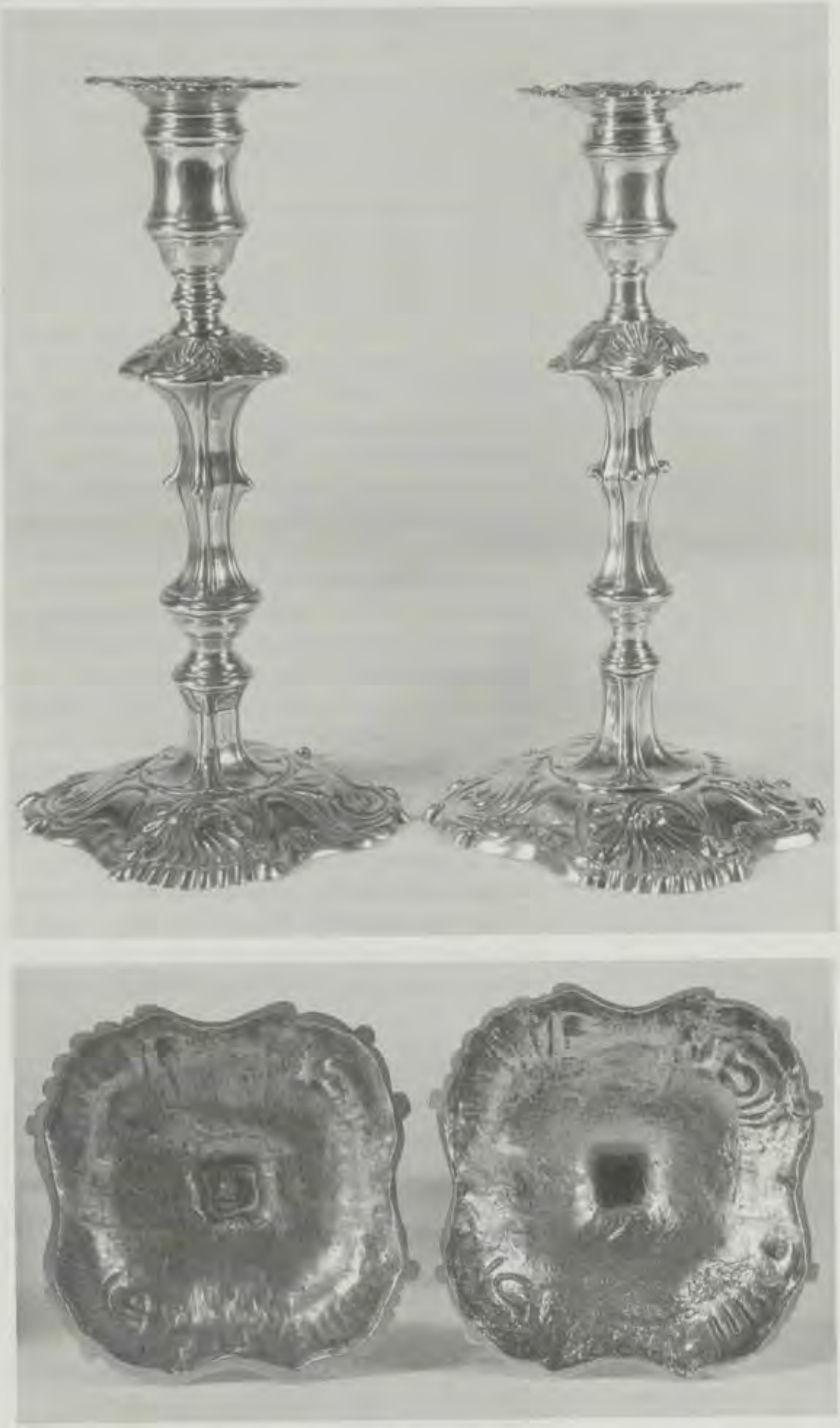
Matthew Boulton's manufactures

My own research began on noticing an appendix in Nicholas Goodison's book on Matthew Boulton.[4] Scrap 'teutinage', which by its context had to be the nickel alloy, was listed in an inventory taken at the Soho works in 1782. I then found two letters sent to Boulton in January 1766[5] by his London agent, John Motteux, who was negotiating with two East India Company captains to import 'white copper' from India. We cannot be sure whether Boulton received this metal but he and his colleagues in the Lunar Society[6] experimented with the alloy in the late 1760s.

> Mr Boulton has got a new metal which rivals silver both in lustre and whiteness and endures the air with as little tarnish. Captain Keir is endevouring to unravel this metal.[7]

James Watt wrote often to his friend and fellow 'lunatic' Dr William Small and in one letter asks if Small had found out the composition of tutenag. Small, together with Boulton and James Keir, was trying to discover the elements of this curious metal so that they could imitate it and, in his reply, requested Watt not to speak about the metal to anyone else. He was right to be cautious. Dr Joseph Black, who was also corresponding with Watt, mentioned in a letter that he was 'convinced that manganese is the substance with which Chinese white copper is whitened'. The nickel content went unrecognised until 1776 when a Swedish scientist, Gustav Engstrom, published his findings, but it was to be another twenty years or so before his analysis became widely known and accepted.

The earliest reference to Boulton producing any quantity of paktong wares at Soho is in January 1771, when he prices a pair of tutenag candlesticks between 25s and 4gns.[8] More than thirty letters in the company's letterbooks for 1771 and 1772 include reference to items made of tutenag. However such references almost disappear by the beginning of 1773 and it appears that Boulton had by this time reached the conclusion that fused or Sheffield plate was a better cheap substitute for silver, although he still believed tutenag was a worthwhile material. At about this time the silver trade seems to have lost interest in the Chinese alloy, in favour of Sheffield plate.



3a *Two candlesticks apparently from the same mould, left: paktong, right: silver, John Cafe, London 1753/54.*
3b *Bases of the candlesticks*

The candlestick in fig [4] appears to have been made by a manufacturer of Sheffield plate wares. It is constructed of rolled sheet metal that has been die-stamped to shape, soldered together and filled with pitch. One of Alfred Bonnin's few errors was to state that paktong was only ever cast and therefore these candlesticks have in the past been described as being made of some other metal. Analysis has proved that this pair is paktong. We now know, from Boulton's records, that paktong could be worked in this manner.

6. The Lunar Society met once a month, at full moon, at Soho House. The meetings were a forum for the exchange of new ideas in science, medicine and industry. Among those who attended were Joseph Priestley, Erasmus Darwin, Josiah Wedgwood, James Watt, William Herschel and Benjamin Franklin.

7. Erasmus Darwin to Josiah Wedgwood, June 1768.

8. This is closely comparable with Sheffield plate candlesticks, considerably more expensive than brass, but a fraction of the cost of cast silver.

9. G. Bernard Hughes, *Antique Sheffield Plate*, London 1970, describes British plate as fusion plated German silver, which has caused some confusion. Contemporary information that I have found indicates that it is not plated, simply burnished.

In 1772 Matthew Boulton experimented with making paktong buttons for a London retailer and wrote to say that the metal they had sent had been rolled in preparation for manufacture. These buttons were die-stamped to shape but the correspondence explains that the paktong supplied by the customer was too brittle and therefore difficult to work. Boulton produced buttons out of his own stock of paktong which was more ductile.

The nineteenth century

As paktong lost some of its earlier mystique and became easier to obtain, it began to be used by the Birmingham brass trade as their alternative to silver. Fine examples of neo-classical candlesticks were produced but by the early nineteenth century paktong candlesticks were simply mundane white metal versions of the rather dull forms that pervaded the brass trade at the time.

It took another half century of experimentation within the scientific and metallurgical world to achieve a successful imitation of the Chinese alloy. The Germans were the first to succeed on a commercial scale, hence the name German silver. The difficulty was that nickel could not be alloyed with the other components unless it was in pure form. Although a method of achieving this was discovered in 1804, the various processes required to produce viable quantities of the alloy were not perfected for another twenty years. The Chinese had access to different ores and manufactured the alloy in a long series of processes.

4 *Paktong candlestick, circa 1780. Constructed of rolled sheet metal, die stamped.*

By the 1830s cupro-nickel alloys very similar to paktong were being produced throughout Europe. In England several manufacturers produced their own variants of the alloy which were known by all manner of curious names. Trade names like Albata, Argentan, etc were used. One of the earlier names used was British plate, presumably in answer to the term German silver.[9] This alloy proved to be the ideal material for electroplate – the ubiquitous EPNS.

The majority of German silver produced circa 1830–50 is typical of its period and unlikely to be confused with eighteenth century paktong wares. However some items are accurate reproductions and were it not for the trademark stamped on them, one could easily be misled (beware of those whose marks have been removed). Unfortunately metallurgical analysis does not provide a cut-and-dried distinction between the two alloys.

5 *Advertisement of William Ryland, Birmingham, circa 1835. It makes a distinction between British plate and silver plated wares.*

This is a condensed version of a talk given to the Society in January 2000. The author's book 'Paktong, The Chinese alloy in Europe 1680–1820' was published in 1999.

Close plate

Martin Gubbins

For about a century prior to the discovery of electroplating in 1840, the silver trade had to contend with a serious rival which is now called Old Sheffield Plate or, simply Sheffield Plate. It is not so generally realised, however, that from about 1810 both the silver trade and Sheffield Plate had another challenger. This was close plate, which is the present-day term for articles made of iron or steel but coated with silver. The process of manufacture had been practised for many years but precise contemporary details are scanty or seem not to have survived.

In the eighteenth century various patents were taken out claiming to be improvements on the then current methods. One such patent by a London goldsmith, Richard Ellis, in 1779 was at a time when the craft of plating steel was being supplanted by Sheffield Plate.[1] This particular patent appears to be of interest since it is the only early record lighted upon, in this context, that employs the word 'close'. The term 'close plate', used for instance by Frederick Bradbury[2] must be of a coining later than the subject dealt with.

> Richard Ellis, City of London, Goldsmith, AD 1779, no1209.
>
> New-invented method or mode of plating Steel or Iron with gold or silver is made of the materials and performed as follows, that is to say:
>
> That part of the steel or iron next where the gold or silver is to be laid on to be rub'd with borax; the gold or silver to be fitted close. The different solders used for the above purpose are as follows:
>
> 1 ounce standard gold, 4dwts fine silver and 3dwts fine copper;
>
> 1 ounce fine silver and 2dwts spelter
>
> 1 ounce sterling silver and 12 grains copper, copper brass or spelter
>
> The solder laid on as suits the different works. The particular art in soldering depends on the care in firing it.

Although the material and its mode of manufacture placed limitations upon its use, the trade flourished for some thirty years.

In close plating a silver coating is soldered onto an article made of base metal. In Sheffield Plate the silver coating is itself fused to the base metal, which is copper. Close plating had been used for surface protection of small items made of iron or steel, but no extensive production started until 1807.

The process of close plating may be summarised as follows: the article to be treated, after careful preparation and, in particular, cleaning, is dipped into a solution of sal ammoniac and then into molten tin, the former acting as a flux to induce metallic union. Silver foil, cut to size, is laid over the tinned surface and pressed or hammered firmly into position. A hot iron is then passed all over the surface of the foil, so melting the solder beneath and fusing it to the silver. Considerable finishing is required, notably burnishing of the lapped edges of the foil. These junctions can often be seen on a close plated article.

Although certain non-ferrous alloys, such as a nickel alloy known as German silver, were used for close plating from the 1830s, the vast majority of articles were made of iron or steel.

There is a fundamental practical difference between Sheffield Plate and close plate. The former is, like silver, both malleable and ductile in the cold state. With the latter, on the other hand, the article has to be completely fashioned and only then can the silver coating be applied. A more subtle difference lies in the purity of silver employed for close plating. In the manufacture of Sheffield Plate, Sterling (or 92.5% fine silver) was used. The gauge of silver foil for close plating usually ranged from two thousandths of an inch down to under half of that. It was not technically possible at this time to roll Sterling silver to so thin a gauge, it being too hard and brittle, so fine silver, being more ductile than Sterling, was used for close plating. Thus, restrictions existed on the type of

1 Patent Office records. This is briefly referred to by H.N. Veitch, *Sheffield Plate*, London 1908, p215.

2. Frederick Bradbury, *History of Old Sheffield Plate*, 1912.

1 *Dessert fork, king's pattern.*

See glossary of terms relating to plated wares on page 26.

2 *Skewer showing parting of the edge seam and the resultant blistering.*

article which could be close plated, the governing factors being the simplicity of its contours and the accessibility of its surfaces. Some articles made in more than one piece were riveted together prior to plating. Experience also showed that the process was more satisfactory when confined to small articles.

Close plated hollow-ware was therefore not made and the majority of surviving examples of close plate come under the generic title of flatware. However, this left considerable scope for the close plate industry to imitate articles customarily made of silver. Among the more common survivors are spoons of many types, dessert knives and forks, fish slices, cheese scoops, sugar tongs, asparagus tongs, skewers, crumb scoops and candle snuffers.

Although it used to be quite common to see electroplated copper described as 'Old Sheffield Plate', the same false appellation was occasionally given to an article of close plate; such, in fact, was this writer's first innocent purchase! It is easy to recognise close plate, there being four features peculiar to it:

1. The base metal, if visible, is blackish or rusty
2. The silver coating is often disfigured by blistering
3. The article has a marked rigidity and heaviness
4. Makers' marks are almost always present

The first three features lead one to conclude that close plate was not a high quality, long-lasting ware; rather was it a cheap substitute for silver. Excessive heat could, of course, cause damage, but the main danger was from rust for, if any breach occurred in the coating, moisture might enter and corrosion ensue.

This vulnerability of close plate explains why the surface decoration that was applied to both silver and Sheffield Plate, is seldom found on close plate. Repoussé chasing or embossing were impossible owing to the hardness of the base metal, and engraving, even if very superficial, was risky. The only embellishment which the maker might safely apply was very shallow flat chasing (dependent on the gauge of silver) or simple stamped pattern decoration.

Despite the foregoing, flatware was often engraved with initials or crests.[3] This must have been done at the customer's behest rather than recommended by the maker, and there seems to be a touch of incongruity between an impecuniosity, which the purchase of close plate implies, and the slight pretentiousness of an engraved crest.

3 *Engraved crest on fiddle pattern flatware. The silver foil has peeled away at the engraving.*

Another form of decoration, piercing, which is common on most silver serving implements and, of course, on sifter spoons, was rather surprisingly also applied to their close plated equivalents. The holes were not plated through, the tinned surface constituting the sole protection. But, of course, the walls of such pierced holes did not suffer the wear to which the main surfaces of such articles were subjected. In the case of forks the inner sides of the tines were sometimes plated.

The fourth aid to the recognition of close plate is the presence of makers' marks, whereas on Sheffield Plate their absence is the normal. In 1773 an Act of Parliament establishing assay offices at Sheffield and Birmingham, included a provision forbidding the marking of base metal plated with silver with 'any letter or letters'. This was to counter the custom of some Sheffield Plate makers of applying marks which might be mistaken for silver hallmarks.

The Act, though curiously objecting to only two of the components of hallmarks, namely 'that part of the hallmark known as the date letter and the maker's mark', was modified in 1784. Manufacturers of plated ware might then stamp a surname (or name of firm) and 'some mark, figure or device' providing it did not resemble any mark used by any assay office. The name had to be in plain characters in a single punch. Such punches had to be submitted for registration at the Sheffield assay office, whose jurisdiction extended over a radius of one hundred miles and thus included Birmingham which was later to become the centre of the close plate industry.

This inclusion of Birmingham must have led to resentment amongst Birmingham's platers who had thus become subservient to the Sheffield assay office. After vainly protesting for some forty years, Birmingham eventually, in 1824, attempted to introduce a Bill before Parliament for the registration of the city's platers to be made in Birmingham. This Bill met with so much opposition that it was withdrawn, after which Birmingham platers ceased to register at Sheffield.

The Sheffield register, spanning the years from 1784 to 1836,[3] illustrates the marks of seventy-six Birmingham manufacturers, fifty-one from Sheffield and just one from London, but omits any indication whether a manufacturer was a maker of Sheffield Plate or close plate. In fact the latter process received no mention at all.

4 *Robert Silk's mark as registered in 1809, stamped four times.*

5 *Later version of Robert Silk's mark.*

3. B.W. Watson, *Old Silver Platers and their marks. Register of the Sheffield Assay Office*, 1908.

In the 1784 legislation the nature of the base metal is not specified though the object was to control the marking of silver-coated copper, ie Sheffield Plate. Consequently but fortuitously, the silver-coated steel trade came under the same law, and some of the marks registered at the Sheffield assay office of 'persons concerned in the Manufactory of Goods Plated with Silver' are precisely those found on close plated steel. It is this register that shows, in 1807, a sudden spurt of entries for Birmingham manufacturers who can be assumed to have been close platers. In fact, the magnitude of the close plate industry is suggested by the preponderance of such registrations thereafter, and by the quantity of close plate that survived despite its inherently short expectation of life. The early nineteenth century flowering of the trade is indicated by articles whose style can be approximately dated; this is particularly applicable to flatware where fiddle pattern is the usual and Old English pattern is very scarce.

The 1784 Act was not strictly enforced and some close plate manufacturers did not register their marks. After 1824 no further Birmingham entries occur, and the register ceased in 1836, apparently without statutory cause.

On close plated articles the maker's mark sometimes shows the surname in a script different from that in the register, though still complying with the requirement that it be in a single punch. The law did not decree that the name punch and the 'device' punch (if separate) should only be struck once. It is usual, in fact, to find when the name and device are in one punch, that it is struck three, four or five times, and when they are in separate punches for each to be struck at least twice. The suspicion seems therefore inescapable that the presence of a row of punch-marks, though not all different, was intended to simulate the normal row of hallmarks found on silver.

Another feature of the marks on close plate is that the name is sometimes split into sections or into individual letters. For instance, Robert Silk of Birmingham in 1809 registered his name, SILK, and device, a lyre, in a single punch, but his mark also occurs split into five individual punches.[**4 & 5**]

The above and many other deviations from standard marking appear to be associated with later productions. One punch, used by some makers, is PS denoting 'plated steel' – and not Paul Storr as was once long ago optimistically suggested by a dealer!

After the introduction of electroplating in 1840 the marking of all plated wares ceased to be regulated and with the exception of dessert services, the manufacture of close plated goods soon decreased. Thus the heyday of the close plate industry came to an end.

Should any reader's interest have been aroused, two purchases should be made. The frequently updated *Bradbury's book of Hallmarks* includes a list of 'Old Sheffield Plate marks and those struck on silver-plated steel cutlery described as "Close Plate"'. Of these latter marks some may occasionally be seen on articles other than cutlery. But the indispensable tool enabling the novice to distinguish articles plated on iron or steel is simply a tiny pocket magnet.

The basis of this article was first published in Antique Collecting, *in 1977, but it has been substantially re-written.*

From The Diary of Sylas Neville (1741–1840)[1]

1. Basil Cozens-Hardy, (ed), 1950.

2. 'After breakfast'

3. 'James Watt, the famous inventor.'

4. 'Papier maché.'

Tuesday, 30 October 1781

'Birmingham, where we got to breakfast – a very irregular town & to me by no means agreable – the old part is very mean – some large handsome new streets – but in my opinion somewhat disagreable in all. They boast only one square & that is the Church Yard. Dopo colazione[2] took a chaise & went to Soho, the name Mr Bolton has given his great manufactory, where every thing done at Birmingham may be seen in one house. That house however is larger than some towns.

Soho stands in a bottom between two banks, the furthest off a barren heath, the other was the same till Mr B. with great labour & expence converted it into garden & pleasure grounds. These are disposed prettily enough, Mr B. making his reservoir serve the double purpose of turning his various wheels &c & supplying him with fish & adding much to the beauty of his grounds. On one side of the Canal Mr B. has a sort of menagerie of different land & water fowl – an exceeding fine bold cockatoo.

Here at one view we have all the branches of the Birmingham manufactory – the finished goods are placed in a long shew room for the inspection of strangers. But they admit some things not of their manufacture, which is wrong, as persons naturally suppose every thing they see there made upon the spot – they say it is to make greater variety. There are 500 people of both sexes employed – before the war 1000. This is a confirmation of what we are told by our worthy governors & their tools that Birmingham & Sheffield are not in the least affected by the American troubles!

Saw the various operations of button making. It is really surprising how many persons are employed to make a single button – one makes one part, another another &c, not one of these could make a whole button – this, by the by, is a principal security against artificers being seduced into foreign countries. I saw the different operations in making plated goods, the laying the silver on the plates of copper ... the silversmiths shop, where they were chazing a turin for the Empress of Russia – I have seen more elegant forms however – the making of the new machine for copying writings, for which Mr Wats,[3] concerned with Mr Bolton, has a patent. Some of the cylenders for these machines are of wood, others of iron, but both turned with a lath.

I might mention other operations, but not being much of a mechanic shall pass them by.

This great manufactory is conducted with commendable regularity owing to this – that one principal workman is appointed master over five or six shops – he employs the people who work in them, pays them & carries the goods when finished to the owners. As I observed before, many girls of different ages employed, few of them pretty, except two, one very pretty girl in the burnishing shop, a sweet countenance, fine brown hair & delicate features, very pretty hands, which from the nature of the business were perfectly clean.

Returned to Birmingham & stopt at Clay's, a very singular manufactory of Baked paper,[4] as one may say, which when varnished & polished in a particular manner has all the appearance of the fine Wood Japan with the addition of figures after the antique particularly the Etruscan.'

This extract was kindly submitted by Timothy Kent.

Boulton & Fothergill's bullion supplies for assay silver

Kenneth Quickenden

This article is about the supply of bullion for the assay silver (ie silver which would require assaying and hallmarking) produced by Matthew Boulton and John Fothergill at their Soho Manufactory near Birmingham during their partnership, which ran from 1762 to 1782.[1] For assay purposes Boulton used Sterling silver which has to contain 11oz2dwt of fine silver in each troy pound so that no more than 18dwt is of alloy.[2] Bullion containing those proportions is also referred to as standard silver. Most of that was used at Soho for assay silver; however, a small proportion was used for small items[3] which were not required for assay.[4] Fine silver was also supplied to the firm in large quantities; while most of that is not of relevance to this article since it was either used for further small items[5] or as a surface layer on copper to produce Sheffield Plate,[6] small quantities were sometimes used at Soho to aid the manufacture of Sterling silver. This last was necessary because assay silver was sometimes made from old plate or dollars which often contained too little pure silver to reach the standard required for assay silver. Such a problem was not to be expected where the partners ordered Sterling silver from bullion dealers.

This article is primarily concerned with the financial implications of obtaining bullion supplies. To do that it is necessary to determine what proportions were derived from bullion dealers on the one hand and from customers and suppliers of old plate or dollars for re-fashioning on the other. The latter avoided the need to make large payments to bullion dealers and was therefore a very desirable source for bullion. Where supplies were required from dealers it was essential to obtain as much credit as possible; Boulton worked on a modest profit margin for plate and profitability would be undermined when there was a substantial period between payments for bullion and the receipt of payments from customers for finished articles, if, as was the case with Boulton & Fothergill, they worked on an overdraft.

For most of the partnership the partners had a 'bill account'.[7] The term was used by them to denote the difference between the bills accepted on their behalf by their bankers and the inadequate amounts the partners remitted to meet these bills.[8] By 1773 the deficit on their 'bill account' had reached over £10,000[9] and the partners once put the cost of supporting this at between 7½% and 10% (in interest and commission charges) on the total sum in advance.[10]

There were a number of reasons for the partners' financial problems. Substantial improvements to the Soho Manufactory in the 1760s, estimated at £2,000 in fact cost nearly £10,000.[11] The Manufactory was poorly managed.[12] In 1773 the partners reckoned they were owed £7,744-15s-3d.[13] In 1772 the trading losses for the previous few years were put at about £10,000.[14] Those losses derived mainly from the staples of the Manufactory – buttons, chains, buckles – which were usually made from non-precious metals and which from the mid-1760s were being supplemented by more ambitious items: Sheffield Plate, ormolu (large ornamental items eg clocks or vases,

Abbreviations for works cited in notes
Unless otherwise indicated references to manuscript sources are taken from the Matthew Boulton Papers in the Birmingham Reference Library

B&F	Boulton & Fothergill
Birmingham Plate Register	The Register of Plate and Silver Wares Assayed and Marked or Broke at the Birmingham Assay Office, August 31 1773–March 20 1792
BRL	Birmingham Reference Library
BWC	Boulton and Watt Collection, BRL
JF	John Fothergill, Boulton's partner
JH	John Hodges, a clerk at the Soho Manufactory
JS	John Scale, a manger at the Soho Manufactory
JW	John Wyatt, an agent in London
MB	Matthew Boulton
MBP	Matthew Bolton Papers

1. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, pp xii-xiv.

2. J. Paul de Castro, *The Law and Practice of Hall-Marking Gold and Silver Wares*, 2nd edition, London 1935, p8.

3. Sterling was supplied for some filigree (Ledger 1776–8, p52, 30 July 1776) and some buttons (Ledger 1776–8, p138, 15 June 1776).

4. By the Act of 12.Geo.11c.26(1738) certain articles were not required for assaying; these included a specified range including such items as jewellers work, thimbles and clasps; fine items which might have been damaged by the process of assaying or hallmarking, and any articles weighing less than 10dwt (de Castro, pp71–2).

5. eg some filigree items (Journal 1776–8, p88 30 April 1776) and some buttons (Journal 1776–8, p114 15 June 1776). Fine silver could be drawn out more thinly (than Sterling) for filigree and provided a whiter colour. (Information, Jeremy Weston)

6. That fine silver was used for Sheffield Plate is confirmed by Letter Book E, p685, B&F to J.B Rogler 28 December 1772. There is much evidence of the supply of fine silver for making Sheffield Plate (Journal 1778–81, p105, 6 March 1779). Fine silver provided a whiter colour and less firestain than Sterling. (Information, Jeremy Weston)

7. JF claimed that MB already had a 'bill account' when their partnership began (Fothergill, John (B&F) and Fothergill Family, item 155, JF to MB, 19 May 1773) but MB claimed that it originated a few years later (Boulton and Fothergill, 'Conclusions of the Narrative relative to the dispute between them' p13 [1782]).

8. J.E. Cule, *The Financial History of Matthew Boulton 1759–1800*, unpublished Master of commerce thesis, University of Birmingham 1935, pp11–12.

9. Cule, pp56–7.

10. Cule, p136.

11. B&F, 'Partnership with JF' [c1782].

12. Fothergill, John (B&F) and Fothergill Family, item 55, JF to MB, 19 May 1773.

13. Cule, p56.

14. Scale, John, Boulton and Scale (MB and Boulton Co) Scale Family, item 14, 'Proposals to B&F by JS' [1773].

involving at least in part the use of gilded bronze) and plate made of silver.[15] As production of the last built up Fothergill was filled with alarm, writing to Boulton on one occasion in 1773:

> I am sure it is impossible to support our Business any longer without enlarging the [bill account] especially if you continue to gett up plate orders, w^ch observe increase upon us[16]

At this time Boulton was particularly involved with planning the plate business and managed to obtain an assay office for Birmingham in 1773.[17] This signalled a determination to produce silver on a large scale. Fothergill was mindful of the high cost of Sterling: in 1773 the partners paid 5s6d,[18] or 5s7d per ounce[19] (and the price was later to rise in 1777 to 5s9½d[20] and in 1778 to 5s11½d[21]). To avoid tying up capital they avoided making plate for stock,[22] even though they did so for cheaper items like buttons.[23] Fothergill was firmer on the matter than his partner and was reluctant even to spend money on some patterns for plate. In 1773 Boulton, then in London, wrote to Fothergill:

> I must get a few specimens of Elegant Plate as we have many ...friends that ...will be disappointed if they see none.[24]

Fothergill replied:

> I am sorry [about] your mention of getting up specimens of elegant plate ...when our capital is insufficient to carry on our current Button Business w^ch if properly attended to would answer every purpose[25]

Though the partners normally used pattern cards for buttons[26] customers usually ordered plate from drawings.[27] Boulton & Fothergill normally refused to send plate on a sale or return basis,[28] though it was a concession they were willing to allow for cheaper items like chains or buttons.[29]

In 1773 Boulton's ambition to have a glittering display of plate at the Soho Manufactory's showroom, which was much visited by the wealthy and influential,[30] met with Fothergill's opposition on purely financial grounds.[31] Fothergill's view largely prevailed: the majority of the exhibits and purchases of ready-made items were for cheaper articles, non-silver items such as buttons,[32] sword-hilts[33] and Sheffield Plate.[34] When silver was sold there ready-made it was mainly small items such as buckles,[35] spoons[36] or pencil-cases[37]; larger silver items were rarely available though the odd candlestick,[38] tankard[39] or salt-cellar[40] was sold from time to time. Although in one sense the absence of very large pieces of plate did not matter – according to a clerk the majority of visitors only wished to buy inexpensive items[41] – the showroom necessarily lost impact. Most of the orders for plate from Soho's visitors had to be made and then sent on to customers at a later date.[42]

Sterling supplies from bullion dealers

While the partners could relatively easily determine to avoid making samples or exhibits as a way of avoiding further pressure on the 'bill account', it was much harder to avoid such a strain when silver had to be purchased from bullion dealers. Nevertheless, they worked out a plan whereby they delayed payments to bullion dealers while insisting that their customers paid rapidly.

They called plate a '... ready money article'.[43] For many other items Boulton permitted trade customers a long period of payment: a discount of 15% was allowed on gilt chains and buckles if paid within a six months,[44] plus a further discount of 5% was allowed if the bill was paid immediately.[45] The same applied to silver filigree[46] but trade customers for plate were normally required to pay within two months,[47] though occasionally this was extended to three,[48] but no discounts were available.[49] The public were treated with marginally more generosity: although they too were sometimes only allowed two months credit,[50] they were often given up to three months for plate.[51] Even

15. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, pp46–68.
16. Fothergill, John (B&F) and Fothergill Family, item 159 JF to MB, 24 May 1773.
17. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, pp65–70.
18. Letter Book F, p331, B&F to R A Cox, 30 September 1773.
19. Letter Book F, p259, B&F to R A Cox, 7 July 1773.
20. Journal, Soho B&F Journal 1776–78, p362, 10 July 1777.
21. Journal, Soho B&F Journal 1776–78, p492, 11 March 1778.
22. Letter Book B, p325, B&F to Benjamin Molineux, 28 February 1766.
23. Letter Book H, pp921–2, B&F to George Scott, 19 April 1779.
24. Fothergill, John (B&F) and Fothergill Family, item 139, MB to JF, 20 April 1773.
25. Fothergill, John (B&F) and Fothergill Family, item 141, JF to MB, 28 April, 1773.
26. Letter Book E, pp3–4, JW to Bustamante & Co, 3 January 1770.
27. Letter Book E, p535, B&F to Sir Harbord Harbord, 1 August 1772.
28. Letter Book E, p291, B&F to Henry Morris, 2 December 1771.
29. Letter Book G, pp172–3, B&F to Patrick Robertson [November 1774].
30. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, p72.
31. Fothergill, John (B&F) and Fothergill Family, item 141, JF to MB, 28 April 1773.
32. Fothergill, John (B& F) and Fothergill Family, item 147, JF to MB, 11 May 1773.
33. Letter Book G, p720, B&F to Peter Du Roveray, 17 October 1776.
34. Journal, Soho, B&F Journal 1776–8, p44, 28 February 1776.
35. Cash Book 1772–82, 20 October 1773.
36. Cash Book 1772–82, 12 July 1774.
37. Cash Book 1772–82, 19 September 1772.
38. Cash Book 1772–82, 18 November 1774 and 23 December 1774.
39. Cash Book 1772–82, 6 April 1775.
40. Cash Book 1772–82, 10 May 1774.
41. Hodges, John, item 19, JH to MB, 12 September 1780.
42. eg a coffee-pot for Lister Fletcher of Lichfield (Letter Book G, p39, B&F to Lister Fletcher, 24 June 1774) and two tureens for John Taylor of London (Letter Book I, pp30–1, B&F to John Taylor, 25 June 1777).
43. Letter Book G, pp378–9, B&F to Josiah Birch, 19 July 1775.
44. [MB] Notebook 7, 1771, p60.
45. Letter Book E, p277, B&F to Parker & Wakelin, 16 November 1771.
46. Day Book 1779–81, p22, 30 October 1779, order for Mr Tutin, Birmingham.
47. Letter Book F, pp515–6, [B&F] to Adams & Son, 2 July 1774.
48. Letter Book F, p404, B&F to J and W Walmsley, 11 February 1774.
49. Letter Book E, p49, B&F to Nathaniel Jefferys, 18 February 1771. Nor was a discount of 5% available for prompt payment (Letter Book G, p382, B&F to James Folliott, 25 July 1775).
50. Letter Book F, p618, B&F to J Scott, 23 November 1774.

so, this was on balance marginally less generous than the partners' usual position with the public who were regularly given three months to pay for other articles.[52]

The period that customers were permitted to make payment for plate was related to the length of credit given to the partners by their bullion dealers. Early in the partnership Boulton obtained silver from the Birmingham dealer Samuel Garbett who gave six weeks credit in 1763[53] but by 1772 this had increased to four months.[54] When Garbett withdrew, a Londoner, Peter Floyer, wished to replace him but at this point the partners took only small quantities from him.[55] Instead, the partners approached another refiner in the capital, Robert Albion Cox with a deal concerning credit, where:

> some indulgence in Time would be an inducing thing to us, that if he thought our draft @ 5 [months], paying interest for 2 [months] would be agreeable to you, it would be quite satisfactory to us & be quite decisive upon that Head ... If these terms are not convenient to you we shall nevertheless continue to do part of our Business with you, but if they are it will naturally turn the Bulk of the business into your Hands.[56]

The partners got what they wanted from Cox: from 1772 he supplied the bulk of their silver[57] and he normally allowed the partners three months credit.[58] In 1778 however Cox angered the partners by refusing to maintain those terms[59] and largely withheld supplies;[60] rather than bow to this pressure they went back to Floyer.[61] He supplied the major part of their needs[62] – though they obtained small quantities from other mainly London refiners[63] – to the end of the partnership. Floyer permitted either two or three months' credit.[64]

This credit was of the utmost importance to the partners: if pieces were made quickly and customers paid promptly, the partners would avoid paying interest on their 'bill account' for payments made by their bankers to the bullion dealers. The partners remarked to a customer in 1774 that if they allowed his credit '... to exceed this point [ie two or three months] we lose money by the interest on silver'.[65]

In some cases, the partners' plan worked perfectly well. In 1774 Alexander Johnston & Son of London was sent drawings of candlesticks to choose from on 20 September;[66] their response and production at Soho were both fast enough for two pairs to be sent to London early in October.[67] Similarly in 1773 Dr Wall, the Worcester porcelain manufacturer ordered cream-buckets on 2 April and these were completed early in the following month.[68] In neither of these cases is there anything to suggest that the customer delayed payment.

Nevertheless, in too many cases customers badly delayed payment. Captain Evans of Wolverhampton was sent silver spoons and buttons in May 1776;[69] despite two earlier reminders,[70] the partners had to demand payment in August 1778.[71] When his bill was paid is not known. Lord Gormanston received a pair of candlesticks worth £19-12s-6d in March 1775;[72] despite three reminders[73] the bill had not been paid in April 1777[74] and the partners instructed a lawyer to recover the debt.[75] In both of these cases the partners delivered acceptable goods on time; here they were suffering from the same haughty behaviour of customers which caused immense financial problems for other eighteenth century craftsmen.[76]

However, the partners were indirectly responsible for some late payments. In December 1777 Cornelius O'Callaghan of Shanbally near Clonmel in Ireland was sent a number of silver items including a cup and cover together worth £138-8s-0d.[77] The cup was delayed and exceeded the price limit O'Callaghan had set;[78] requests for payment were sent to him[79] and his bankers during 1778[80] but in March 1779 the partners had still only received £100 and were then making further enquiries about how to obtain the rest.[81] No further correspondence about this order survives.

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51. Letter Book F, p397. B&F to Sir Robert Murray Keith, 26 January 1774.
52. The Earl of Hertford was sent a reminder at the end of November 1772 to pay within one month for Sheffield Plate candlesticks sent early in October 1772 (Letter Book F, p102, B&F to the Earl of Hertford, 28 November 1772).
53. B&F Cash Book 1763 to 1765.
54. MB Diary 1772, 14 February 1772.
55. Box F1, item 178, Peter Floyer to B&F,24 August 1772. See Appendix A.
56. Letter Box F, p60, B&F to Robert Albion Cox, 26 September 1772.
57. Letter Book F, p60, B&F to Robert Albion Cox, 26 September 1772.
58. Letter Book F, pp520–1, B&F to Robert Albion Cox, 6 July 1774.
59. Letter Book H, pp436–8, B&F to Robert Albion Cox, 10 January 1778.
60. Fothergill, John (B&F) and Fothergill Family, item 179, JF to MB, 14 February 1778.
61. Fothergill, John (B&F) and Fothergill Family, item 176, JF to MB, 7 February 1778.
62. Letter Book H, p537, B&F to Floyer and Price, 25 April 1778.
63. See Appendix A.
64. Letter Book H, p706, B&F to Floyer and Price, 7 October 1778.
65. Letter Book F, p618, B&F to Mr Parrot, 23 November 1774.
66. Letter Book G, p134, AJ Cabrit to Alexander Johnston & Son, 20 September 1774.
67. Letter Book G, pp147–8, B&F to Alexander Johnston & Son, 1 October 1774.
68. BRL, BWC. Portions of a Letter Book, 1773, B&F to Dr Wall, 4 May 1773.
69. Letter Book G, p624, B&F to Captain Evans, 29 May 1776.
70. Letter Book H, p74, B&F to Captain Evans, 17 December 1776 and Letter Book H, p256, B&F to Bayley and Dyott, 28 June 1777.
71. Letter Book H, p669, B&F to Captain Evans, 19 August 1778.
72. Letter Book G, p273, JH to Mrs Hannah Piper, 28 February 1775.
73. Letter Book H, p4 [B&F] to Lord Gormonston, 18 September 1776; Letter Book H, pp114–5 [B&F] to Lord Gormanston, 25 January 1777 and Letter Book H, pp129–30 [B&F] to Lord Gormanston, 14 February 1777.
74. Letter Book H, pp178–9 [B & H] to Lord Gormanston, 2 April 1777.
75. Letter Book H, pp131–2, [B&F] to Samuel Brooke, 14 February 1777.
76. eg Pierre Gouthière (1732–1813 or 1814), a maker of bronzes worked for many patrons in France who were notoriously bad at paying bills (Svend Erikson, *Early Neo-classicism in France*. London 1974, pp188–9).
77. Letter Book I, p141, B&F to John Staples, 17 December 1777.
78. Letter Book I, p140, B&F to Cornelius O'Callaghan, 16 December 1777.
79. Letter Book H, pp421–2, B&F to Cornelius O'Callaghan, 30 December 1777.
80. Letter Book H, pp457–8, B&F To Samuel Brooke, 4 February 1778 and Letter Book H, p805, B&F, to Thomas Heartley & Son, 12 December 1778.
81. Letter Book H, p898, B&F to Travers Hartley & Son, 24 March 1779.

There were many instances of customers paying late after receiving poor service.[82]

Despite this the partners only rarely charged interest. In 1768 three candlesticks were supplied to the Royal Lodge, Ancient Order of Free Masonry[83] for £141-4s-0d[84] but only £50 had been paid by 1772.[85] In 1776 the partners demanded interest of 5% per annum on the outstanding £91-4s-0d.[86] The Lodge paid £50 in 1777[87] but a further £30 due to have been paid later that year was not paid then[88] and no further record about payment survives. On two other occasions the partners charged interest for late payments on plate and in each case the bill was paid in full.[89] The general reluctance to charge interest was marked but it probably had much to do with Boulton's reluctance to offend customers[90] and interest payment was an emotive issue.

Problems with interest payments also occurred when orders took a long time to execute. The partners purchased the 105oz-13dwt-12gr of silver required for Sir Robert Rich's silver-gilt epergne early in 1774. At this time Sterling silver cost 5s6½d per ounce – and the partners had to pay interest on the sum advanced by their bankers for the purchase of the bullion until Sir Robert paid off his account in January 1777. Rich was not guilty of late payment, which was made only one month after his bill was sent. However, in 1776 he thought the partners intended to make him pay interest but after angry pressure from their client they ruled out the possibility. Rich felt delays were due to inefficiency at Soho, but the partners also had reason to feel aggrieved since Rich required substantial alterations even though the piece had been faithfully executed from an agreed design by the architect James Wyatt.[91] Delays in manufacture were by no means uncommon at Soho.[92]

An issue surrounding silver supplies was Boulton's persistent claim that Goldsmiths' Hall in London sometimes passed silver which was below the legal standard. The matter had surfaced during negotiations to secure assay offices for Birmingham and Sheffield. London silversmiths, fearing for their futures, resisted efforts to set up these offices, arguing that provincial silversmiths could not be trusted to act within the law. In their defence, the merchants and manufacturers of Birmingham pointed out that Goldsmiths' Hall had often passed silver 2dwt below the required limit.[93] This was confirmed publicly by two London refiners[94] and upheld by a Parliamentary committee.[95] Moreover, John Scasebrick, assay master at Chester, where the partners sent silver for assaying prior to the foundation of the Birmingham office, testified that their silver had consistently been two or three dwt above standard.[96]

Following the foundation of the Birmingham assay office in 1773 (which the partners, like other Birmingham silversmiths at that time were now required to use),[97] the proper limit was adhered to and the partners reckoned this added ½d per ounce to the price they charged their customers for Sterling silver in comparison with their London rivals.[98] During the mid-1770s Boulton was determined to overcome the problem and in 1774 contacted J.A Wedderburn, the solicitor general, to press for a debate in Parliament.[99] Boulton also enlisted the support of Lord Dartmouth: in 1775 the latter got a spoon marked at Goldsmiths' Hall,[100] even though it was below the legal standard.[101] However, after 1776 Boulton dropped the matter; perhaps his resolve was weakened by the refusal of Sheffield's silversmiths to share the cost of pursuing the issue, even though they shared Boulton's sense of grievance.[102]

The partners were embarrassed by the difference between their own and London silversmiths' charges for bullion but Boulton nevertheless passed on that difference to his customers. In 1777, fearing that Mrs Montagu would find the price too high, the partners sent her copies of letters from their bullion dealer to prove how much they paid.[103] Boulton had to explain his difficulty to a number of customers who spotted the anomaly; although they generally accepted the position,[104] at least on one occasion it caused a heated dispute with a customer in Bristol which was only resolved when he was given an abatement of 8s6d on twelve sugar-basins.[105]

Apart from the awkward few weeks in 1778 when Cox withheld supplies at the end of his period of involvement with the partners, they managed to secure regular supplies of Sterling from bullion dealers. These supplies were invariably found to be of the required standard[106] when checked at the Birmingham assay office.[107] As Appendix A shows the volume supplied built up as the partners' silversmithing enterprise developed. Up to 1773 the amount supplied is very uncertain and between then and 1775 the known total is likely to be an underestimate. Subsequently documentation is fuller; the total reached 8,006oz-5dwt-0gr in the assay year 1775/76 and in the following year rose to 11,058oz-9dwt-0gr, the highest during the partnership.

Re-fashioning customers' plate

When planning the silver business Fothergill in particular hoped to minimise the partners' interest payments on bullion by finding customers who wanted to trade-in old silver, especially when Soho made services of plate. Fothergill pressed the point on Boulton on 4 February 1772 writing '... an order for a Service of Plate would I think be very acceptable provided we could have old silver to melt'[108] and repeated the point two days later.[109] The matter was particularly relevant to making services of plate because of the long period of manufacture.[110] Moreover, the prospects of finding customers willing to have their old plate re-fashioned was considerable given the consumer boom stimulated by rapid changes in fashion[111] and in particular the wish of

82. eg Paul Gieppi of Milan ordered silver articles in September 1778 (Letter Book I, p300, B&F to A&B Songa, 30 September 1778). B&F admitted they were responsible for delay (Letter Book I, p331, B&F to A&B Songa, 27 November 1778). The articles were sent late in November (Journal 1778–81, p51, 25 November 1778) and payment was only received in June 1779 (Letter Book H, p958, B&F, to A&B Songa, 22 May 1779). Nigel Gresley of Drakelow near Burton-upon-Trent received a cup in April 1777 priced £29-10s-4d (Journal 1776–8, p308, 16 April 1777). B&F admitted a delay in manufacture (Letter Book G, p898, B&F to Nigel B Gresley, 19 April 1777). In December 1777 the partners requested payment within a month (Letter Book H, p396 [B&F] to Nigel B Gresley [11 or 12] December 1777. When payment was received is not clear.

83. Box P1, item 89, George Patterson to MB, 1 September 1768.

84. Letter Book G, p633, B&F to William Matthews, 10 June 1776.

85. [MB] Notebook 8, 1772, p2.

86. Letter Book G, pp633–4, B&F To William Matthews, 10 June 1776.

87. Letter Book H, pp235–6, [B&F] to George Patterson, 7 June 1777.

88. Matthews and Barton Matthews, William, item32, Matthews and Barton to B&F, 30 December 1777.

89. In 1773 Sir Robert Murray Keith owed B&F, £268-19s-0d. (Walker Z Snr, 1, item 12, Inland Debts, 26 April 1773); £222-18s-0d of that was for six pairs of silver candlesticks and branches supplied in January 1773 (Letter Book F, p397 [B&F] to Sir Robert Murray Keith, 26 January 1774). In addition he was sent a coffee pot in May 1773 worth £30-0s-0d. (Letter Book F, p397, B&F to Sir Robert Murray Keith, 26 January 1774). A request for payment was ignored in September (Letter Book F, p312, B&F to Sir Robert Murray Keith, 4 September 1774). In January 1774 he was charged nine months' interest on the candlesticks and branches (which amounted to £8-7s-0d.) and six months' interest on the coffee pot (which came to 12s6d). The interest was calculated at 5% per annum (Letter Book F, p397, B&F to Sir Robert Murray Keith, 26 January 1774). Sir Robert sent payment in February 1774 (Letter

many to own domestic items in the Neo-classical style which was rapidly spreading following its introduction into England at the end of the 1750s.[112]

However, while the prospect of using old plate seemed enticing it was not without its disadvantages. The profits on manufacturing were usually less since it was generally accepted that in these circumstances silversmiths would lower their fashioning charges.[113] Although it is not clear that the partners always offered a concession,[114] they frequently reduced their charge by 2d per ounce when working on old plate.[115] This concession was offered to Lady Morton[116] who was offered (before the concession) fashioning charges on her service of plate varying from 5s per ounce for an epergne to 10d per ounce for plates.[117]

Old silver had to be tested for quality and this from 1773 the partners arranged at the Birmingham assay office. The cost was passed on to the customer[118] and they usually found that old plate was below the Sterling silver standard, perhaps because of the excessive use of solder (which was traditionally two parts of silver to one of brass)[119] or perhaps because of the use of sub-standard silver. In 1776 Sterling cost either 5s6d[120] or 5s7½d[121] per oz but silver supplied in that year by Lady Morton was valued at 5s5½d and by Dr Short of Lichfield at only 5s2½d.[122] The valuation could lead to heated exchanges with customers: in 1775 a London merchant was not pleased to discover that some of his was worth only 4s10½d per ounce and another lot just 4s0½d[123] at a time when standard silver cost 5s6½d.[124]

Although some services were made entirely of silver from bullion dealers[125] many did involve the use of old silver. Dr Gresley of Seal near Burton-upon-Trent provided 212oz of old silver, worth 5s6½d per ounce[126] which left him owing £49-11s-7d[127] from a total bill of £114-13s-5d.[128] Usually, however, the proportion of new silver had to be larger: John Turton of Sugnall Hall, near Stafford supplied 135oz11dwt worth 5s5d per ounce or £36-14s-3d in total;[129] this was set against a series of payments of £34-14s-6d,[130] £27-4s-1½d[131] and £3-18s-0d.[132] Sometimes the customers' provision was a small part of the overall requirement; although Mrs Montagu was credited with £74-6s-7d for 270oz6dwt of old silver[133] this was relatively small against charges of £802-6s-4d,[134] £73-19s-3d,[135] £23-2s-9d,[136] and £289-19s-3d.[137]

As Appendix B shows the total amount of old plate provided by customers was not large in comparison with the amount obtained from bullion dealers. The

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Book F, p432 [B&F] to Sir Robert Murray Keith, 16 March 1774). In 1776 Patrick Robertson of Edinburgh was charged as follows: 'To interest on Silver Goods [amounting to] £33-9s-1d from December 1774 to October 1775 which is 10 months. 3 months credit, leaves 7 months over at 5% [per] annum is £1-7s-11d but say £1-1s-0d. (letter Book G, p530, B&F to Patrick Robertson, 13 February 1776). There is nothing to suggest that this was not paid in full. On one occasion a customer paid interest which was not asked for: in November 1774 James Brazier of Bewdley was reminded to pay for two waiters worth £10 2s-0d. (Letter Book F, p619 [B&F] to James Brazier, 24 November 1774) which had been sent in August 1774 (Letter Book G, p86, B&F to James Brazier, 4 August 1774). Brazier sent £10-3s-6d. which included interest of 1s6d. (Letter Book F, p624 [B&F] to James Brazier, 28 November 1774).

90. Boulton M, Biograph. Memoir. Decease Funeral Prints Medals, item III James Watt 'Memorandum concerning Mr Boulton...17 September 1809.

91. Kenneth Quickenden, 'Boulton and Fothergill Silver: an Epergne Designed by James Wyatt', *Burlington Magazine*, vol CXXVIII no999, June 1986, pp417–21.

92. Scale, John. Boulton and Scale (M. B. and Boulton Co.) Scale Family, item 14 'Proposals to B&F by JS 1773.

93. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, p68.

94. *Observations Relative to the Standard of Wrought Plate, 1773*, quoted in Arthur Westood, *The Assay Office at Birmingham Part 1: its Foundation*, Birmingham 1936, pp23–4.

95. Letter Book G, pp434–5, B&F to R Conway, 8 October 1775.

96. *Report from the Committee Appointed to Enquire into the Manner of Conducting the Several Assay Offices in London, York, Exeter, Bristol, Chester, Norwich and Newcastle-upon-Tyne*, London, 1773.

97. Following the 1773 Act all silversmiths working within a twenty mile radius of Birmingham assay office were required to send assay silver there (J. Paul de Castro, *The Law and Practice of Hall-Marking Gold and Silver Wares*, 2nd edition, London 1935, pp251–63).

98. Letter Book G, pp434–5, B&F to R Conway, 8 October 1775.

99. Letter Book G, p201, B&F to B A Wedderburn, 19 December 1774.

100. Box D1, item 131, Lord Dartmouth to MB, 28 July 1775.

101. Box D1, item 166, MB to Lord Dartmouth, 30 July 1775.

102. Box G1, item 274, Thomas Gilbert to MB, 29 March 1776.

103. Letter Book G, pp830–1, B&F to Elizabeth Montagu, 15 February 1777.

104. eg Letter Book G, pp6–7, B&F to T Birch, 23 May 1774 and Letter Book G, pp434–5, B&F to R Conway, 8 October 1775.

105. Letter Book I, p652, B&F to John Wise, 26 October 1780.

106. Letter Book G, p645, JS to Robert Albion Cox, 24 June 1776.

107. Exceptionally 30oz of a 300oz consignment from Cox was found to be below standard (Letter Book G, p531, JS to Robert Albion Cox, 14 February 1776).

108. Fothergill, John (B&F) and Fothergill Family, item 159, JF to MB, 4 February 1772.

109. Fothergill, John (B&F) and Fothergill Family, item 84, JF to MB, 6 February 1772.

110. Letter Book G, pp830–1, B&F to Elizabeth Montagu, 15 February 1777.

111. Neil McKendrick, 'The Consumer Revolution of Eighteenth Century England' in Neil McKendrick, John Brewer and JH Plumb, *The Birth of a Consumer Society, the Commercialization of Eighteenth-century England*, London 1982, p9–11.

112. Nikolaus Pevsner and S. Lang, 'The Doric Revival' in Nikolaus Pevsner, *Studies in Art, Architecture and Design, vol 1, From Mannerism to Romanticism*, London 1968, p203.

113. Letter Book G, pp200–2, B&F to RA Wedderburn, 19 December 1774.

114. There is no evidence the concession was offered to Dr Gresley (Box G2, item 216, note regarding Dr Gresley's order, 30 August 1776) or John Turton (Letter Book G, p799, B&F to John Turton, 9 January 1777).

115. eg Mr Douglas of London (Letter Book G, pp550–1, JH to JW, 28 February 1776).

116. Letter Book G, p544, B&F to John Wyatt, 24 February 1776.

117. Letter Book G, pp492–3, B&F to William Matthews, 22 December 1775.

118. Dr Short of Lichfield was charged 10d for the testing of 48oz8dwt (Letter Book G, p782, B&F to Dr Short, 21 December 1776).

119. H.Wilson, *Silverwork and Jewellery*, London 1902, p88.

120. Journal 1776–8, p77, 19 April 1776.

121. Journal 1776–8, p138, 22 June 1776.

122. Journal 1776–8, p244, 31 December 1776.

123. Letter Book G, pp219–20, B&F to Samuel Friedeberg, 6 January 1775.

124. Letter Book F, p460, B&F to Robert Albion Cox, 21 April 1774.

125. A service of plate for the Earl of Malmesbury was made entirely of silver provided from a bullion dealer (Journal 1778–81, p1, 12 August 1778 and Fothergill, John (B&F) and Fothergill Family, item 233, JF to MB, 29 January 1780).

126. Box G2, item 216, 30 August 1776.

127. Letter Book G, pp744–5, B&F to Dr Gresley, 16 November 1776.

128. Box G2, item 216, 30 August 1776.

129. Letter Book G, p799, B&F to John Turton, 9 January 1777.

130. Letter Book G, pp173–4, B&F to John Turton, 9 November 1774.

131. Ledger 1776–8, p138, 21 May 1776.

132. Journal 1776–8, p269, 29 January 1777.

133. Ledger 1776–8, p292, 3 February 1778.

134. Ledger 1776–8, p214, 15 February 1777.

135. Ledger 1776–8, p230, 17 March 1777.

136. Letter Book G, p909, B&F to Mrs Montagu, 1 May 1777.

137. Letter Book H, p424, B&F to Mrs Montagu, 31 December 1777.

largest amount obtained in any one assay year was in 1776/77 when 1877oz-13dwt-0gr (plus a small unspecified further amount) was provided.

Dollars

Appendix C demonstrates that dollars provided a further source of silver supplies especially in the later years of the partnership. Where the origins of the dollars were specified they came either from Hungarian[138] or Spanish sources.[139] The dollars were less pure than Sterling: for example in May 1775 48oz-12dwt-0gr of Hungarian dollars were valued at 4s10½d per ounce[140] and in March 1775 further dollars weighing 34oz13dwt were valued at 5s2d per ounce at a time when sterling cost 5s4½d per ounce.[141] On one occasion 2oz15dwt of silver above the Sterling standard (valued at 5s11½d per ounce) was added to four dollars to make four salt-cellars.[142] On another occasion, however, a dollar was returned to a customer who wanted a punch ladle made from it; the tone of the letter suggests that the partners could not be bothered to carry out the customer's wishes though they argued that the quality of the silver was so low that it could not withstand hammering.[143] On the whole dollars were acquired to add to the firm's stock of silver and were not supplied by customers ordering plate.[144]

Conclusions

Appendices A, B and C, listing supplies from bullion dealers, customers and dollars respectively, show when taken together that supplies increased up to the mid-1770s but declined thereafter: this broadly corresponds with the changing amount of silver sent for assay, but the relationship between supplies and production varies in detail during the different periods of the partnership. Precise comparisons cannot be made between figures for supplies and the amount of silver sent for assay in earlier years since information is based upon correspondence which has not survived in its entirety. From 1773, however, virtually complete production figures[145] are to be found in the Birmingham Plate Register and from 1775 ledgers and journals provide full information about supplies. These sources show that in the following few years the supplies of Sterling silver and old plate combined were greater that the amount of silver assayed. For example in 1776/77 the partners had 11,831oz-3dwt-12gr assayed at the Birmingham office[146] but they purchased 11,058oz-9dwt-0gr of Sterling silver[147] and customers supplied over 1877oz13dwt.[148] The excess of supply over the production of assay silver was used to produce small items which were not assayed. During 1776/77 for example, small quantities of Sterling silver were supplied to outworkers: Thomas Mynd a buckle maker used 59oz,[149] and John Bentley, who made chains and boxes, received at least 75oz-8dwt-12gr (though with part of that, 10oz-1dwt-12gr, he made four boxes assayed under the names of Boulton & Fothergill).[150] At the Soho Manufactory, again during 1776/77, the filigree makers George and Thomas Caldecott received at least 38oz-18dwt-0gr[151] and small quantities were sent to another department 'Buttons Steel Chains and Hilts'.[152] To that limited evidence can only be added the production of a few silver items: a shuttle; two rims (for toothpick cases) and a further unspecified number of the same; a pair of filigree buckles and one filigree bougie box.[153] This list is clearly insufficient to absorb the excess of Sterling supplies over the amount of silver assayed (especially since they could have been made from fine silver[154]) but there are many references in the Matthew Boulton papers to 'silver' supplies to departments and outworkers which may well have been references to Sterling rather than fine silver[155] and equally there are innumerable references to sales of unspecified 'sundries' from departments known to have made a range of goods, including silver, which in many cases were probably made from Sterling.[156] The number of small silver articles listed above is therefore almost certainly less than the number actually sold, and they were probably in many cases produced from the Sterling supplies known to have been received by the firm.

In the last few years of the partnership the known supply of Sterling silver (or silver close to that standard) from bullion dealers, customers and dollars was substantially less than the amount assayed. In the last year of the partnership, 1781/82, the firm put 1174oz-17dwt-0gr through the assay office, Birmingham[157] but only 400oz of Sterling from dealers,[158] plus £24-12s-4d of old plate and a few other items were received.[159] The disparity between supply and use is even greater that these figures would suggest since some Sterling silver was still being used for non-assay items.[160] Moreover, there were a few silver pieces in stock at the end of the partnership; some were non-assay items[161] and may well have been made from Sterling and other larger items were almost certainly made of Sterling but may not yet have been assayed and hence did not appear in assay office figures.[162] How then can the apparent difference between the levels of production and supply be explained? A part of the answer probably lies in the excess of supply in 1779/80 of 3,254 dollars many of which were probably not used until subsequent years.[163] There was also a refining capacity at the Soho Manufactory from 1778,[164] when James Keir, a chemist, helped Boulton manage Soho. Even after Keir left in 1780[165] refining was carried on at the Manufactory.[166] Much of the refining was involved with fine silver from scraps of Sheffield Plate[167] but the silver department (which also made Sheffield Plate) was supplied with silver of an unspecified kind, which may have been Sterling produced from pure silver[168] and at least on one occa-

138. Cash Book, Soho, B&F, 1772–82, p1.

139. Early Accounts, 1751–1779, item 315, 1769.

140. Ledger 1775–8 and 1787–9, p3.

141. Letter Book G, p282, B&F to Walmsley and Hulme, 8 March 1775.

142. Ledger 1778–82, p351, 18 February 1782.

143. Letter Book G, p144, B&F to Adams & Son, Walsall, 30 September 1774.

144. A substantial number of dollars were supplied by John Bentley, who was in part an outworker for the partners in 1779 (Ledger 1778–82, p77, June-August 1779) and in 1774 a substantial number were brought into the firm by the accountant Zacchaeus Walker (1 Bundle Cash Accounts June 1769–July 1774, 5 August 1774).

145. A rare exception was the supply of two pairs of candlesticks to Patrick Robertson of Edinburgh in 1776 without the candlesticks being assayed at the Birmingham assay office (Letter Book G, p658, B&F to Patrick Robertson, 13 July 1776). See also text at note 150.

146. Birmingham Plate Register.

147. Appendix A.

148. Appendix B.

149. He received 67oz but returned 8oz unused. Kenneth Quickenden, 'Boulton & Fothergill's Silversmiths', *The Silver Society Journal*, vol 7 1995, p354.

150. Kenneth Quickenden, 'Boulton and Fothergill's Silversmiths', *The Silver Society Journal*, vol 7 1995, p348.

151. ibid, p350.

152. Ledger 1776–8, p238, 6 May, 3oz 3dwt and 26 May 1777, 38oz-16dwt-12gr.

153. Derived from MBP.

154. In 1776/77 George and Thomas Caldecott, filigree makers, received 161oz-8dwt-12gr of fine silver and 38oz-18dwt-0gr of Sterling (Quickenden 1995, p350).

155. eg 'silver' worth £6–15s-5gd supplied to John Bentley (Ledger 1776–8, p223, 1

sion the refining department charged the silver department for testing assay silver.[169]

Given the importance that Fothergill in particular had attached to obtaining old plate from customers for re-fashioning it is likely that there was disappointment at the relatively modest proportion of silver obtained from that source. In 1775/76 only approximately 6.5% of supplies derived from old plate[169] while in 1776/77 the corresponding figure was about 14%.[170] Only in one assay year, 1779/80, did supplies of old silver exceed supplies from bullion dealers; the former, augmented by 3254 dollars, was about 2.5 times greater than the latter but that exceptional year[171] occurred after a decision had been taken to run down plate manufacture.[172]

Generally, therefore, the partners were obliged to make substantial payments to bullion dealers. The financial consequences were exacerbated by the firm's worsening financial position. Between 1767 and 1777 the partners' trading losses on all their products came to £11,000[173] and debts owed to them in 1779 amounted to £7,000.[174] Those problems on top of those accumulated in earlier years caused the deficit on the 'bill account' to increase from £10,000 in 1773[175] to nearly £25,000 in 1777.[176] Those financial difficulties together, as we have seen, with too many customers paying late and modest fashioning charges[177] created a precarious position. As James Keir observed, the plate business 'was not profitable in consequence of the great value of the material, the loss of interest upon which was not compensated by the additional price put upon it for workmanship'.[178] Separate accounts were not made out for silver alone[179] but it is clear that this venture both suffered from, and significantly contributed to, the firm's financial weakness.

These problems led Boulton to pin his hopes for financial recovery on the steam-engine business for which he had entered a partnership in 1775[180] and which increasingly occupied much of his time.[181] The silver department concentrated increasingly on Sheffield Plate;[182] although the production of small silver items was maintained[183] the manufacture of assay silver continued to decline after Fothergill's death but in some degree Boulton did revive it towards the end of the eighteenth century.[184]

January 1777 to 12 June 1777) and £5-6s-0½d of 'silver' supplied to Thomas & George Caldecott (Quickenden 1995, p350).

156. eg under 'Silver Co' sundries sent Glover and Chamott £129-3s-1d (Journal 1776–8, p189, 1 October 1776).

157. Birmingham Plate Register.

158. Appendix A.

159. Appendices B and C.

160. In 1781–2 George and Thomas Caldecott, filigree makers received 31oz-18dwt-12gr of Sterling silver plus further Sterling worth £29-3s-8½d (Quickenden 1995, p350).

161. Examples listed in the Soho Inventory 1782 include buckles, buttons, a filigree cream-pail and handkerchief runners.

162. Soho Inventory 1782, lists 5½ pairs of salt-cellars, 1 candlestick, 1 sugar-basin, 4 punch-ladles, 7 sugar-tongs.

163. Appendix C.

164. Ledger 1778–82, p66, 17 August 1778.

165. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, p100–01.

166. Ledger 1778–82, p250, 1781.

167. 223oz2dwt fine silver supplied silver dept, 12 October 1778 and refining 31 December 1778 (Ledger 1778–82, p66).

168. eg Journal 1778–81, p278, 31 December 1779 for 38 meltings of silver to this date £1 18s 0d; Journal 1778–81, p555, 6 April 1781, refining at sundry times 97oz silver; Ledger 1778–82, p326, 16 October 1781 for refining 103oz silver.

169. Compare Appendix A and Appendix B. I have assumed that the £30-12s-10d of silver was valued at the then current rate of 5s9½d per oz (Journal Soho B&F Journal 1776–8, p362, 10 July 1777).

170. Compare Appendix A with B. I have assumed the silver was valued at 5s9½d per ounce (see note 169) and that half of the £12–16s-6d was of silver.

171. Compare Appendix A with B and C combined. By this date assay silver had gone up to 5s11d (Ledger 1778–82, p29, 2 May 1781).

172. Letter Book G, p823, B&F to Preston & Co, 8 February 1777.

173. J.E. Cule, *The Financial History of Matthew Boulton 1759–1800*, unpublished Master of commerce thesis, University of Birmingham 1935, pp74.

174. ibid, pp86–87.

175. ibid pp 56–57.

176. ibid p74.

177. Letter Book G, pp582–4, B&F to Sir Robert Rich, 25 March 1776.

178. James Keir, Memorandums for the Memoir of M Boulton, 3 December 1809 in Boulton M Biograph. Memoir. Decease. Funeral. Prints. Medals., item, 112, sheet 2.

179. Accounts were made up for the 'Silver Plated and Ormolu goods' department (Ledger 1776–8, p2, 1 January 1776).

180. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, p86.

181. Letter Book G, B&F to Sir Walter Blount, 18 January 1777.

182. Fothergill, John (B&F) and Fothergill Family, item 195, JF to MB, 10 May 1778.

183. Thomas and George Caldecott's supply of silver in 1781–2 was 171oz-14dwt-0gr fine silver, 31oz-18dwt-12gr Sterling silver and £29–3s-8½d Sterling silver. (Quickenden, op cit 1995, p350).

184. 263oz marked 1782/83 and 2345oz9dwt marked in 1789/90 (Birmingham Plate Register).

Notes to appendices on p52

185. Although the letter books contained copies of outgoing letters, copies were not made of all letters: eg a letter to the Reverend Mr Arden refers to an earlier letter sent on 9 September 1776 (Letter Book G, p707, B&F to Reverend Mr Arden, 28 September 1776), but there is not trace of the 9 September letter in the archive.

186. Ledger 1775–8 and 1787–9 and others (eg Ledger 1776–8 and Ledger 1778–82).

187. Birmingham Plate Register.

188. Letter Book B, p51, MB to Robert Albion Cox, 19 January 1765.

189. Journal 1778–82, p318, 13 March 1780.

190. Letter Book F, p60 B&F to Robert Albion Cox, 26 September 1772.

191. Fothergill, John (B&F) and Fothergill Family, item 179, JF to MB, 14 February 1778.

192. Box F1, item 179, Peter Floyer to B&F, 14 September 1772.

193. Letter Book H, p537, B&F to Floyer and Price, 25 April 1778.

194. Ledger 1778–82, p88, 8 September 1781.

195. Ledger 1776–78, p141, 19 October 1776.

196. Ledger 1776–78, p19, 17 April 1776.

197. Ledger 1775–78 and 1787–89, p68, 1 September 1778.

198. Journal 1778–81, p383, 26 July 1780.

199. Ledger 1775–78 and 1787–89, p5, 22July 1775.

200. H.W. Dickinson, *Matthew Boulton*, Cambridge 1937, p67.

201. From two sources: Cash Book 1763–65 and MB Diaries from 1766 to 1772.

202. Eg Cash Book 1763–65, 28 February 1764.

203. Letter Book E, p685, B&F to JB Rogler, 28 December 1772.

204. Nicholas Goodison, *Ormolu: the work of Matthew Boulton*, London 1974, p25.

205. See text.

206. Letter Book G, p797, B&F to Thomas Fletcher, 6 January 1777. Old silver supplied towards the cost of Sheffield Plate candlesticks.

207. See text.

208. See text.

Notes 185–208 are on p 51.

Appendices

The statistics in all the three appendices below are drawn from the Matthew Boulton Papers at the Birmingham Reference Library. Up to 1775 the figures given below are incomplete since they are based upon correspondence[185] which has only partly survived; from 1775, however, complete records of supplies are provided by a series of ledgers and journals.[186] Figures are arranged in assay years, which ran from early July to early July;[187] the advantage of doing this is that meaningful comparisons can be made with the volume of silver submitted to the Birmingham assay office in each assay year (see text).

Appendix A
Supplies of Sterling silver from bullion dealers

Boulton & Fothergill used a number of bullion dealers. Up to 1772 the bulk of their supplies came from Samuel Garbett, a Birmingham dealer[188] and to a smaller degree he also supplied silver later.[189] From 1772 most of the partners' silver was supplied by Robert Albion Cox, a London refiner,[190] but that connection came to an end early in 1778.[191] Floyer & Price (also of London) who had supplied small quantities early in the 1770s,[192] supplied most of the partner's requirements from 1778,[193] to the end of the latters' partnership.[194] They also received silver from time to time from other London refiners, Taylor & Lloyd,[195] Ward[196] and Player & Co,[197] as well as John Read of Sheffield.[198] On one occasion, in 1775, diet silver (ie samples scraped from articles to test the quality of the silver) was supplied by the assay office, Birmingham.[199]

In 1773 Garbett stated that Boulton & Fothergill bought '...several thousand pounds worth of silver from him in a year'.[200] This is at least partly confirmed by recorded payments made to Garbett; these were often noted by Boulton,[201] or recorded as being for the 'silver and gold account'[202] though in no case does a payment specify whether it was for gold, fine silver or standard silver. A large amount of fine silver was required for Sheffield Plate by 1764[203] and much gold was used for ormolu from about 1768.[204] The annual totals of payments to Garbett were as follows:

1762/63	£60-5s-2d
1763/64	£367-6s-6d
1764/65	£989-15s-4d
1765/66	£732-3s-0d
1766/67	£1,490-0s 0d
1767/68	£1,200-0s-0d
1768/69	£3,561-8s 6d
1769/70	£4,169-12s-4d
1770/71	£4,640-12s-6d
1771/72	£5,113-6s-4d
July-Oct 1772	£1,700-0s-0d

From the assay year 1772/73 the combined totals for Sterling silver provided by various bullion dealers were as follows:

1772/73	700oz-0dwt-0gr
1773/74	3,500oz-0dwt-0gr
1774/75	4,300oz-0dwt-0gr
1775/76	8,006oz-5dwt-0gr
1776/77	11,058oz-9dwt-0gr
1777/78	6,577oz-2dwt-0gr
1778/79	4,100oz-9dwt-12gr
1779/80	604oz-0dwt-0gr
1780/81	601oz-7dwt-0gr
1781/82	400oz-0dwt-0gr

Appendix B
Plate supplied by customers

For the most part old plate was provided by customers to be set against the cost of new plate and refashioned;[205] occasionally, however, customers supplied old plate to be set against the cost of new articles other than silver.[206] Old silver was normally lower in quality than Sterling;[207] in the figures below the total weight of old plate sent by all customers in each assay year had been used for calculation rather than the amount of Sterling silver contained within that total:

1760/61	26oz8dwt
1773/74	8oz14dwt
1774/55	527oz15dwt plus two dishes
1775/76	414oz15dwt plus £30-12s-10d of silver
1776/77	1,877oz13dwt plus £38-5s-8d of silver and £12–16s-6d of gold and silver
1777/78	562oz4dwt plus £27-0s-0d of silver
1778/79	431oz15dwt plus £20-0s-0d of silver
1779/80	197oz7dwt plus £30-12s-0d of silver plus one lot of unspecified silver
1780/81	151oz0dwt plus £28-2s-0d of silver plus one coffee pot and one pair of candlesticks.
1781/82	£24-12s-7d of silver plus seven spoons and one lot of unspecified silver.

Appendix C
The supply of dollars

The figures below list the total dollars or their weight of their value received in each assay year. Dollars were less pure than Sterling silver.[208] Where weights are give below these are for the total of silver provided rather than for the amount of Sterling silver contained within that total:

1768/69	584 oz6dwt
1773/74	61 dollars
1774/75	45 dollars plus £300-7s-6d of dollars plus 48oz4dwt
1778/79	£407-4s-1d of dollars plus 26oz12dwt
1779/80	3,254 dollars
1781/82	4 dollars

Of consuming cares:

attitudes to silver in the eighteenth century

Helen Clifford

Concepts of value centering on precious metals incorporate key ideas which can be used to unlock interpretations of society and culture, both past and present. For example, in the eighth century BC the Greek poet Hesiod encapsulated in words the long held belief that the history of man could be described in terms of a fall from an ideal golden age, declining through the ages of silver and bronze to that of iron. Hesiod perceived that it was man's duty to strive for a return to the pure from the base. This hierarchy of metals which depends on a particular metaphor of value, was not of course the only model of change. Another equally familiar paradigm in western culture inverts Hesiod's hierarchy, where base metal is seen to represent honesty and virtue, in contrast to the deceit and vice associated with the precious. In Shakespeare's *Merchant of Venice*, for example, the competition for Portia's hand in marriage centres on the suitor's choice of the right casket, gold, silver or lead?[1] That which has the greatest value, truth and honesty (and contains Portia's portrait) is hidden in the humblest base metal container, while those of silver and gold represent earthly vanities of false promise, deception and greed.

These two metaphorical models illustrate the paradoxical relationship between the base and the precious, and the economic and moral scale of values which they represent. They show that our appreciation of the intrinsic value of metal has long been associated with our understanding of the world and ourselves, and is part of an historical tradition that is still very much alive today. Objects made of precious metals, in particular, are currency in more than one sense of the word as they balance between the intrinsic (and readily convertible) worth of the material, and the appreciation of its decorative form in terms of its design and workmanship. Precious metalwork is therefore a complex medium of exchange, circulating not only wealth, but also ideas about moral and aesthetic worth. The relationship between intrinsic and aesthetic value has never been a stable one, but has shifted according to changing social, economic and cultural conditions which influence the way we approach the materials, in terms of both production and consumption.

There has been a broad argument put forward by economic historians, such as Richard Goldthwaite, and philosophers such as Georg Simmel, that cultures move from a hoarding mentality, where the value of precious metalwares is calculated by retrievable weight, to one that puts a greater value on unretrievable design and workmanship.[2] Goldthwaite persuasively argues that renaissance Italy, and particularly Florence, anticipated developments in seventeenth century England and Holland.[3] He tracks the changing meaning of the word 'masserizia' which at first alluded to 'savings', and then meant 'things'.[4] While the urban Italian élites moved away from the conspicuous hoarding mentality of the medieval noble in favour of an appreciation of artistic skill. In England the 'hoarding' model continued until the development of a court in the seventeenth century.[5] The Florentines, for all their incipient consumerism, did not convert large amounts of wealth into gold and silver treasures. They typically possessed modest amounts of silverware – mostly eating utensils.[6] An essential factor in the growth of this type of attitude to consumption was the evolution of sophisticated financial techniques from the fourteenth century. According to this model, the presence of a deposit banking system released consumers from investment purchasing and a hoarding mentality, allowing for the development of an increasingly complex relationship with objects, where their acquisition was inspired more by cultural values than the traditional ones of wealth and religious piety. A product came to be valued more for its craftsmanship, and as an indicator of taste, than for its intrinsic worth.

In England, from the later sixteenth and early seventeenth century, the credit market was changing into something closer to both the renaissance model and its modern form, where credit is secured on less tangible assets such as land or property. The shift from bullion to landed property evolved rapidly together with more sophisticated forms of credit, and a greater flow of currency resulted in the abandonment of the time-honoured method of paying taxes with old plate. The foundation of the Bank of England in 1694 was another crucial landmark in this transformation. Plate came to be valued more for its workmanship and at the same time had to compete with other materials such as glass, delftware and later china, which relied

1. Bassanio in Act III, Scene II, 'Look on beauty And you shall see 'tis purchas'd by the weight Which therein works a miracle in nature Making them lightest that wear most of it'.

2. See David Frisby (ed), *The Philosophy of Money, Georg Simmel*, London and New York 1990, a translation of the 2nd enlarged edition of *Philosophie des Geldes*, Berlin 1907.

3. Richard Goldthwaite, *Wealth and the Demand for Art in Italy 1300–1600*, Baltimore and London 1993, p251.

4. Goldthwaite, 1993, pp210–1.

5. Ibid, p241.

6. Ibid, p36.

on form and ornament rather than on retrievable value. Precious metalwares were thus at the centre of a shift in attitudes towards wealth, investment and value.

It was not until the mid-eighteenth century that this new 'system' had an apologist, the economist Adam Smith (1723–90). Smith argued that durables were worth more in their fashion than in the materials of their production. Smith asked whether opulence is better promoted by spending beyond needs, in the form of retainers, horses and dogs, or by spending on ornamental buildings and furniture, collections of books, pictures or statues and 'things more frivolous, jewels, baubles, ingenious trinkets of different kinds'.[7] Smith argued that the former kind of spending leaves nothing behind once the labour has been performed, whereas the latter embodies the labour in a durable product. Durables, because they are just so much embodied labour, can always be bartered for living labour at some future moment, or for the products to be consumed. Fresh labour in turn might be used to add to value, thereby increasing the stock of society, in other words, opulence.

The novelty of Smith's promotion of workmanship over materials is perhaps best illustrated in comparison with a defence of the older economic mentality supported by the French. The French minister Colbert believed that 'Everyone agrees that the might and greatness of a state are measured by the quantity of silver it possesses'.[8] Le Pottier de la Hestry, in the mid-eighteenth century explained further, that luxury goods without convertible intrinsic value:

> could only cater to [the people's] luxury and sensual indulgence and in no way enrich the Kingdom, because in the end these goods will be worn out through use. If on the other hand the balance was corrected by means of silver, which does not wear out with use, the silver would have to remain in the Kingdom and, increasing more and more every day, would make the state rich and powerful.[9]

The rather biased author of *The Present State of the Arts in England*, the Swiss André Rouquet, turned the tables and saw the particular attitude of the English to plate in rather a different light. He argued that it was the very fact that England was a commercial nation relying on new forms of investment and credit, that hindered both the scale and the artistic development of silverware in the first half of the eighteenth century:

> There is very little plate in England, in proportion to the apparent wealth of the Nation, consequently the number of goldsmiths capable of furnishing any remarkable pieces in this way, is but inconsiderable. There are few tables in that country served by plate, whether it be that their riches consist chiefly in credit or in paper, or whether from their being in better acquaintance than any other nation with the effect of this metal in commerce, they choose rather to apply it this way, than to lose the interest of it by employing too large a quantity in the decoration of their tables.[10]

Just over fifty five years later in 1818, the American envoy in London, Richard Rush, described a somewhat different relationship with plate, as he dined at Lord Hardwick's:

> Among the embellishments of the table this evening, were some beautiful ornaments in silver, from France. Although the French take the lead in many of the finer manufactures, I had supposed that English plate was preferred, from the more copious use of it in England leading to superior excellence in its manufacture. The French use more abundantly the sumptuous porcelain. The English import that, in all its variety and costliness; but French plate, it seems, is also imported. So it will always be with nations that are opulent. Tired even of their own forms of superiority they seek novelty from abroad.[11]

The discrimination between intrinsic and aesthetic value was, most importantly, not confined to politicians and academics. There is plenty of evidence to show that consumers were keenly aware of the dual nature of plate. In the past it was more common to value the weight over the workmanship, so clearly summed up in the much quoted complaint by Pepys of the high cost of fashion and its low re-sale value. A century later Horace Walpole's exasperation at the destruction of his silver dinner service at Customs, reveals a greater regard for the workmanship or, as he calls it the 'superficiality', than the weight or 'substance':

> Plate, of all earthly vanities is the most impossible. It is counterband in its metallic capacity, but totally so in its personal: and the officers of the Custom House not being philosophers enough to separate the substance from the superficies, brutally hammer both to pieces and return you only the intrinsic.[12]

The blue-stocking Mrs Wortley Montague in a letter to Lord Kames pursued the theme of workmanship versus materials a stage further:

> In every country where there is any degree of civilisation, the favourite objects of luxury and pride will be adorn'd with some cost and pains ... but as the value and reward of the manufacturer, who makes these decorations, depends on the fancy & caprice of a private Patron ... he depends much on the fineness and richness of the materials in which he works, gold, silver, silk & many other things have a standard value – the workman knows the price at which they will be purchased, but he does not know at what his intention will be estimated, ... the subject the artificer has chosen may displease, then the labour is lost.[13]

Just as Adam Smith provided an economic rationale for the rise in luxury consumer goods, so David Hume (1711–76), the Scottish philosopher, supplied a rationale for the appreciation of craftsmanship, inherent to his belief in the natural taste of a commercial society. He argued that such discrimination arose from the social process of increased exchange and competition between cultures.[14] Part of being 'refined', of being part of polite society meant appreciating the nuances of style, recognising novelties and using fashionable objects as part of a wider non-verbal language of gentility.

For the rest of this paper I want to explore how eighteenth century men and women qualitatively val-

7. Neil de Marchi, 'Adam Smith's accommodation of "altogether endless desires"', in M. Berg & H. Clifford, *Consumer Culture in Europe 1650–1850*, Manchester 1999, p19. See Jules Lubbock, *The Tyranny of Taste The Politics of Architecture and Design in Britain 1550–1960*, New Haven and London 1995, pp121–143 for an excellent and readable outline of Smith's economic thinking in relation to design and luxury.

8. Fernand Braudel, *The Wheels of Commerce, Civilization & Capitalism 15th-18th Century*, vol 2, New York 1979, p400.

9. Fernand Braudel, 1979, p424.

10. André Rouquet, *The Present State of the Arts in England*, London 1755, p87.

11. Richard Rush, *A Residence at the Court of London*, (1833), London 1987, p93.

12. W.S. Lewis (ed), *Letters of Horace Walpole*, New Haven 1982, vol.X p289.

13. Quoted in 'Exercising Taste: Luxury and the Education of the Senses An Anthology of Texts for the Winter Workshop', 26 February 1999, Warwick Eighteenth Century Centre, p319, from a manuscript letter 13 April 1767, letter from Elizabeth Montague to Henry Home, Lord Kames, see further Lord Kames, *Elements of Criticism*, 11th edn London 1840.

14. Jules Lubbock, *The Tyranny of Taste, The Politics of Architecture and Design in Britain 1550–1960*, New Haven and London 1995, p118. Referring to Hume's 'Of Refinement in the Arts', published in 1752.

ued their plate, through their own words via letters, diaries and household accounts. There is no shortage of material – the eighteenth-century perhaps more than any other was pre-occupied with the problems of luxury. Wrought silver, perhaps more than any other manufactured object symbolised luxury. It is not surprising then to find newspapers, novels, plays and poems pre-occupied with silver and gold. In plays and poetry writers aired a common concern about the modern dangers of moral disintegration, framed in terms of the pitfalls of artifice – and how important it was to be able to tell the base or false from the precious or pure.

There are many ways in which we could deal with the evidence, but I have chosen to organise the following survey by looking at a variety of points of social interaction: friendship and courtship, marriage, entertaining in company and death – occasions where observation on private lives was cause for comment by contemporaries. This can only give you a flavour of eighteenth century attitudes, but it is nonetheless revealing of a growing regard: sentimental, aesthetic and antiquarian for silver.

Friendship and courtship

It is clear that individuals bound themselves to each other through both large and small gifts they exchanged with each other. Silver gifts as symbols of friendship did not have to be expensive or even specially commissioned. Smollett's Lydia Melford, in his novel *Humphry Clinker*, sends her friend Laetitia Willis a souvenir from Bath:

> I send you two dozen of bath rings; six of the best which I desire you will keep for yourself, and distribute the rest among the young ladies, our common friends ... I don't know how you will approve the mottoes, some of them are not much to my own liking; but I was obliged to take such as I could find ready manufactured.[15]

Such trifles bought at goldsmiths and toyshops were a great temptation as Mary Jones's poem *Soliloquy on an Empty Purse* (1750) effectively conveys:

> No prudence could thy fate prorogue,
> Like wax the silver melted down,
> Touch but the brass, and lo! 'twas gone:
> And gold would never with thee stay.
> For gold had wings, and flew away ...
> Amidst temptations thick and strong:
> Catched by the eye, no more shall stop
> At Wildey's toys.or Pinchbeck's shop.[16]

Gifts of silver also helped consolidate family ties. Moving from fiction to fact, a letter from Madame du Deffan to her grandmother written in 1768 reveals both a surprising gift, and the impact of its receipt:

> how great was my surprise when a large bag from you was brought to me at my bed yesterday morning. I hasten to open it, put in my hand, and find some green peas ... and then a vase... that I quickly pull out: it is a [silver] chamber pot. But of such beauty and magnificence that my people say in unison that it ought to be used as a sauce boat. The chamber pot was on display the whole of yesterday evening and was admired by everyone. The peas ... were eaten till not one was left.[17]

The author Laurence Sterne's amorous attachment to the wife of an East India Company officer is clearly expressed through their exchange of presents. In the diary he kept of their relationship he expands on the theme of gifts, their receipt and meaning.

> I am to receive this week a forty Guinea-present of a gold Snuff Box, as fine as Paris can fabricate one with an Inscription on it, more valuable than the Box itself ... I say nothing of a gold Stock buccle [sic] and Buttons, tho' I rate them above rubies, because they were consecrated by the hand of Friendship.[18]

The snuff box appears again and again in eighteenth century literature and usually as a focus for a relationship, either budding or not. In Gay, Pope and Arbuthnot's burlesque play, *Three Hours After Marriage*, staged in 1717, the dessicated antiquarian Fossile is outraged when the object of his attentions gives away his gift.

> I presented you with a fine snuff box; you gave it to that coxcomb Underplot, and Underplot gave it to my wife. Judge of my Surprise.[19]

Marriage

In marriage, then as now, the problem was identifying the genuine from the artificial, potential spouses who were not what they seemed. Dorimant, the hero of George Etherege's *The Man of Mode*, first performed in 1676, talks of the problems of mistaking art for nature in woman kind:

> Love gilds us over and makes us show fine things to one another for a time, but soon the gold wears off, and then again the native brass appears.[20]

Lord Hervey (1696–1742) writing to his sister Mrs Digby, in 1735, considered the same theme in more detail just under fifty years later:

> We both think alike of the value of money, and the value of merit; but you imagine one may know the one as well before one marries as the other; whereas I think that in the fortune you may know to a farthing what your wife will be worth: and in her merit, as there is no touchstone for that ore but experience, you may marry pinchbeck for gold, wear it some time before you find out the cheat, and when you do find it out, be obliged to wear it on. Whilst all the world who see it at a distance only shall think you master of a most valuable treasure, which you, by more familiar acquaintance, shall know to be nothing but a shining stink, that might for ever have deceived you had you never touched it, but that the oftener and the longer you touch it, the more plainly and disagreeably manifests the cheat.[21]

In a similar vein Mary Noel wrote to a friend in 1778 about the affairs of the hard-hearted Curzon and Mrs Pole:

> if he were married to Mrs Pole _ their Hearts would be like two little Ruby hearts set together in an old fashion Ring, which are indeed red, but have very little resem-

15. Tobias Smollett, *The Expedition ofHumphry Clinker*, (1771) Oxford 1972, p58.

16. Roger Lonsdale (ed), *Eighteenth -Century Women Poets*, Oxford 1989, p162.

17. Norbert Elias, *The Civilising Process*, part I, *The History of Manners*, Oxford 1997, pp109–110.

18. Laurence Sterne, *The Journal to Eliza* (1775), London 1995, p125.

19. Simon Trussler, *Burlesque Plays of the Eighteenth Century*, Oxford 1969, p114.

20. Sir George Etherege, *The Man of Mode*, (ed), London 1979, p47, lines 185–6.

blance to real bleeding hearts either in colour or shape, but are very hard, & nothing but gold can fix them.[22]

Over twenty years earlier, in February 1754, the more humble general shopkeeper Thomas Turner (1729–93), reveals an old-fashioned respect for the more easily weighed intrinsic qualities of a partner than the outward glamour and possible artifice of fashion. He copied down in his diary an epigram by Prior from *The Sports of the Muses:*

When Loveless marry'd Lady Jenny,
Whose beauty was ye ready penny,
I chose her, says he, like old plate,
Not for the fashion, but ye weight.[23]

Gifts did not stop at marriage, and the affectionate exchange of silver gifts appears in many letters. In 1780 Judith Milbanke

Won a Raffle of 50 Shillings this morning, spent it in a little Silver Flask for Mil [banke]- to carry Brandy & water in when he shoots, got a kind look & a kind K-s for it & thought myself well paid.[24]

Marriage was intended for the creation of children, and it was common to present silver to celebrate their birth. This perhaps helped console the mother for her pains. When Daniel Defoe's heroine Roxana, emerges out of her confinement in child-bed she complains that she

seem'd like an old Piece of Plate that had been hoarded up some Years, and comes out tarnish'd and discolour'd; so I came out blown, and look'd like a cast off Mistress.

which of course, she was.[25]

Company

If friendship, courtship, marriage and birth were the primary private arenas for the presentation of silver, then eating and drinking provided the opportunity for the more public display of plate. As John Brewer has argued, for the eighteenth-century English

Politeness and refinement had little value unless they were shared; they had to be put on display to be shown to others.[26]

There was nowhere more opportune to do this than at the dinner and tea table. The preparation of food and its presentation at table provided almost unrivalled opportunities for the display of taste. One only has to look at eighteenth century cookery books, like that of William Verrell, to get a flavour. For his 'Gudgeons en Gratin, with Livers of Whitings', Verrell recommended that the sauce

is best where plate is used, and done over a chaffing-dish, that the sauce may stick to the bottom, and moistened afterwards with a little gravy; it takes its name from that, and an excellent sauce it is for such little matters, and, was I a gentleman, I would keep two or three silver dishes in my house, if it was for no other use but this.[27]

Services of silver were essential for the those who wanted to make an impression. Horace Walpole's friend Horatio Mann developed a strategy for the acquisition of his. He already had forks and spoons but, he said

I may go on so that by degrees I may creep into a service before I am aware of it ... every inch of lace I might put on coats I will turn into plates and sauceboats.

This refers to the common practice of recycling of gold and silver lace by burning it and recovering the metal.[28] The gastronome Brillat-Savarin looking back into the eighteenth century also noted that accompanying the increase in home entertaining, was the appearance of endless new pieces of equipment:

A wide variety of vessels, utensils and other accessories has been invented, so that foreigners coming to Paris find may objects on the table, the names of which they do not know and the purpose of which they often dare not ask.[29]

These new objects were just those that seemed to be slipping through the net of the assay offices. Small, light weight plate was seeing the greatest growth at this time. New consumer goods in silver were made of thin rolled sheet, some so thin that they exempted themselves from the hall marking regulations. In 1758 an investigation into the 'Better prevention of frauds and Abuses in Gold and Silver Wares' revealed various, 'new invented articles of small plate', which were evading assay. A new list of items and prices was published which included objects newly invented to satisfy consumer demand for the refinements of polite living, like cruet frames, argylls and bottle tickets and stands.[30]

As average incomes for the gentry rose and the nouveau riche appeared who could afford the trappings of aristocratic life, so it became even more important to encode these new objects with meanings – that is to create an elaborate code of manners which was used to discriminate those in the know, from those who were not. The tea table was one of the major growth areas of luxury production and consumption. As the Duc de Rochefoucauld observed on his visit to England in 1784, tea drinking provided 'the rich with an opportunity to display their magnificence in the matter of tea-pots, cups and so on'.[31] Tea pots, kettles, and urns, cups and canisters, cream boats, milk jugs, tea and mote spoons, sugar tongs and basins, and eventually complete boxed equipages were invented to furnish the tea table.

One of the hidden rules of taking tea, was to signal to the hostess when no more tea was required, by turning the tea spoon upside down in the saucer. Without this sign the cup was perpetually replenished. A cartoon by Cruikshank called 'A Tea party – or English Manners and French Politeness', illustrates the widely circulated story of the unfortunate Frenchman who suffered as a result of his ignorance.[1]

The famously obsessive tea drinker Dr Johnson, confirmed the superiority of English manners in his

21. Earl of Ilchester (ed), *Lord Hervey and His Friends 1726–38 Based on Letters from Holland House, Melbury and Ickworth*, London 1950, p233.

22. Malcolm Elwin, *The Noels and the Milbankes Their Letters for Twenty-Five Years 1767–1792*, London 1967 p112, July 1778 Mary Noel to Judith Milbanke.

23. I am grateful to Sarah Pennell for drawing my attention to this reference from Turner's manuscript diary, not in published editions.

24. Elwin, 1967, p162.

25. Jane Jack (ed), *Daniel Defoe, Roxana, The Fortunate Mistress*, (1724) Oxford 1981, p180.

26. John Brewer, *Pleasures of the Imagination English Culture in the Eighteenth Century*, London 1997, p107.

27. Ann Haly (ed), *William Verrall's Cookery Book*, (1759), Southover 1988, p113.

28. *Boswell's London Journal* 1762–1763, London 1952, p114, 28 December 1762 'This day I cast my eye on my old laced hat, which I saw would raise me a small supply. No sooner thought than done. Off it went with my sharp penknife. I carried it to a jewellers in Piccadilly and sold it for 6s6d., which was a cause of great joy to me'.

29. Jean-Anthelme Brillat-Savarin, (trans Anne Drayton), *The Philosopher in the Kitchen*, (1825), London 1970, pp264–5.

30. Sir Walter Sherburne Prideaux, *Memorials of the Goldsmiths' Company Being Gleanings from their Records Between the Years 1335 and 1815*, London 1896, pp265–7.

1 *'A Tea Party – or English Manners and French Politeness', Cruikshank, 1835.*

remarks that 'The french are an indelicate people' after his visit in 1775 to Madame [du Boccage's], 'a literary lady of rank' where to his horror:

> the footman took the sugar in his fingers and threw it into my coffee. I was going to put it aside; but hearing it was made on purpose for me I e'en tasted Tom's fingers. The same lady must needs make tea a l'Anglaise. The spout of the teapot did not pour freely; she bade the footman blow into it. France is worse than Scotland in everything except climate.[32]

It is fitting that the tea pot Johnson used at home, incidentally marked by the goldsmiths Parker & Wakelin, was engraved with the story of its salvation from the melting pot and is now in a private collection. The inscription reveals that:

> It was weighed out for sale under the inspection of Sir John Hawkins, at the very minute when they were in the next room closing the incision through which Mr Cruikshank had explored the ruinated machinery of its dead master's thorax, – so Bray the Silversmith, conveyed there in Sir John's carriage, thus hastily to buy the plate, informed its present possessor, Henry Constantine Nowell; by whom it was, for its celebrated services, on 1st of November 1788, rescued from the undiscriminating obliterations of the furnace.[33]

Lest we think that tea taking and its equipage is overexposed in these extracts, it is clear from household accounts and contemporary comment that it was seen as worth spending considerable sums upon. *The Female Spectator* of 1744 reported that a fashionable tea-table was more costly to maintain than two children and a nurse. For the very wealthy the purchase of plate was an identifiable and important part of kitting out a house. Sir Edward Knatchbull, in 1773 reviewed the expenses incurred in building his new house at Mersham-Le-Hatch. Out of a total of £20,526, £16,525 went on the building, £1,902 to Chippendale plus a further £592 for carpets, silks, bedding and china, £949 to Robert Adam, and £360 to the silversmith. In this case the silversmith was George Heming, and the silver included 'an elegant antique drapery vase' of 90oz costing £49.[34] Plate was not just an 'add on', but integral to idea of the fashionable interior. This did not just apply to the aristocracy. The diarist the Revd John Thomlinson observed that the aunt of a clergyman's family near Durham spent '£50 to furnish her drawing room, ie £20 for silver tea kettle, lamp and table'.[35] If the silverware comprised the grandest single decorative contribution to the room in this quite modest setting then it helps us re-value its importance in the domestic environment of the less than wealthy.

Death

The value of an item of silverware, as we have seen earlier often lay more in its physical presence as a memory of the person who had purchased it, than its material value. This personal and sentimental valuing of plate is no more evident than in the precise wording

31. Quoted in Peter Brown, *In Praise of Hot Liquors*, York 1995, p23.

32. Anon, 'Notes on Furniture: The Tea Equipage', *Apollo*, October 1956, pp124.

33. JT Smith, *Nollekens and His Times*, (1828), London 1986, pp86–7.

34. Kent Record Office, Knatchbull Papers, U951/A19/2.

35. J.C. Hodgson, 'The diary of the Rev John Thomlinson', *Surtees Society*, 118 (1910), pp64–167; quoted in Lorna Weatherill, *Consumer Behaviour and Material Culture in Britain 1660–1760*, London & New York 1988, p159.

of individual wills and accompanying codicils. For example on his death in 1756 Sir Edward Hulse left his daughter Elizabeth

> my Silver Tureen with two spoons belonging to it and my large Gilt cup & my large Silver Monteiffe commonly used at the Side Board.[36]

Sir Edward Knatchbull left to his two daughters [Elizabeth & Catherine] in 1789

> my late dearly beloved wife's silver coffee pot likewise a set of Dresden china which she won at a Raffle.[37]

Thomas Parker, the elder bachelor brother of the goldsmith John Parker, bequeathed in 1794 his 'best Silver Coffee pot and Lamp' to Miss Mary Taylor, 'as a small token of the great esteem I have many years retained for her'.[38]

From all the above examples it is clear that these purchasers of plate were keen that it should survive them. Lady Spencer went so far as to write to her spendthrift and debt-bound daughter Georgiana, Duchess of Devonshire in 1782

> I beg you will never part with the jewells. I have often told you they are no your own and should be looked upon as things only entrusted to your care – do not pass over this article without answering.[39]

Sir Roger Newdigate made it clear that all his household goods and plate should

> be left in the said house [that is Arbury Hall] and be held and enjoyed herewith as Heir Looms.[40]

This respect for silver and its close ties with individuals and sentiment, runs counter to the more common perception of plate being continually melted down with little regard for its form and design.

Identity

In the last section of this paper I want to draw together some of the ideas discussed above by exploring the theme of identity. As we have seen, the possession and display of plate was a particularly effective way of indicating status and identity. This worked at a national as well as an individual level. In the diary of his visit to England in 1782 the German traveller and anglophile von Archenholz observed that

> Nothing can be more superb than the silversmiths shops [in London]. In looking at the prodigious quantity of plate piled high and exposed there, one can only form a proper idea of the riches of a nation.[41]

Silver of course could be emblematic of religious identity. Angelica, a lady of independent fortune in Congreve's play *Love for Love*, first performed in 1695 upbraids Foresight a peevish old gentleman for jumping to conclusions. 'Nay', she says

> I'll declare how you prophesied popery was coming, only because the butler had mislaid some Apostle spoons, and thought they were lost. Away went religion and spoonmeat together.[42]

For the newly rich it was important to signal one's arrival in society. Defoe noted that

> We see the tradesmen of England, as they grow wealthy, coming every day to the Herald's Office, to search for the coats-of-arms of their ancestors, in order to paint them on their coaches, and engrave them upon their plate, embroider them on their furniture, or carve them upon the pediments of their new houses.[43]

The purchase of plate, or at the very least the re-engraving of it at inheritance was a common marker of independence.

If the possession of silver was integral to an individual's identity, and as a means of communication with others, then it was also important in constructing ideas about the past as well as the present. As John Culme has revealed there appears to have been a growing interest in silver by antiquarians from the 1770s, beginning with Walpole, although it was still rare, and he illustrates the amusing misunderstanding of a mid-seventeenth century scroll salt that was drawn upside down and reproduced in the *Gentleman's Magazine* supplement for 1797.[44] Walpole's letters, as John Culme remarks, are worth trawling. For example in a letter from Hiller to Walpole in May 1780 the author uses an inscription on a piece of silver at Greenwich Hospital to correct the assumed date of foundation, that is to before, or at least in 1616, 'as appears by an inscription on a piece of plate (which we call a loving cup) out of which, agreeable to ancient custom we drink ... to the pious memory of the Earl of Northampton, founder of this hospital'. James Woodforde the Norfolk parson noted in his diary in September 1777 a similar use of silver to interpet the past:

> Harry Dunnell found an old silver spoon this morn in levelling parts in the Pond to make it more even. It weighed one ounce and marked with M.E. and I apprehended it belonged formerly to the Family of Englands, one of which was Rector in 1575...[45]

In conclusion, it is worth remembering here Sophie von La Roche's comments on her visit to Jeffery's shop in 1786, where she was shown 'antique' plate. She observed that 'The added pleasure of comparing the work of previous generations with up-to-date' plate gave her the opportunity to 'construe and criticise' both 'the clients taste and artistic workmanship at different periods'.

The text of a talk given to the Society in March 2000.

36. Breamore Archives, Family 259, copy of the will of Sir Edward Hulse, 5 January 1756. With grateful thanks to Sir Edward Hulse for allowing me to consult these papers.

37. PRO PCC Prob 11/1186–599, proved 10 December 1789.

38. PCC PROB11/1246–326, 5 June 1794.

39. Amanda Forman, *Georgiana, Duchess of Devonshire*, London 1999, pp104–5.

40. Warwick Record Office, Newdigate Papers.

41. Brewer, 1997, p29.

42. Gamini Salgado (ed), *Three Restoration Comedies*, London 1968, p288.

43. Daniel Defoe, *The Complete English Tradesman*, (1726), Gloucester 1987, p216.

44. John Culme, *The Directory of Gold & Silversmiths Jewellers & Allied Traders 1838–1914*, Woodbridge 1987, vol.1, 'Attitudes fo Old Plate 1750–1900', ppxvi-xxxvi.

45. John Beresford (ed) *James Woodforde The Diary of a Country Parson 1758–1802*, Oxford 1979, p137.

Capital lying dead:

attitudes to silver in the nineteenth century

Ann Eatwell

Sweet girl ! you know three hundred pounds
Would prove a slender axis
For household wheels to run their rounds
In yearly rent and taxes.
You see, dear, that our home *must* be
Out West, about the squares. With good reception rooms – full three
And servants' flight of stairs.
You *must* have '*soirœes*' now and then
(Though I can't see *their* use);
And I *must* often have some men
To dinner – 'ä *la Russe*'.
I've asked my uncle for his aid;
Of course, he wont accord it;
And so our bliss must be delayed,
For means, love, wont afford it.'

The young man in this satirical poem by Eliza Cook, a popular poet and essayist of the 1840s and 1850s, regrets that he cannot afford to marry on only £300 a year. It will not pay for the type and location of home he desires nor the necessary expenditure of entertaining; the purchase of goods, especially silver, being an important consideration in the cost of entertaining at home. Although £300 was often quoted as the minimum necessary for the normal range of middle class expectations many, including teachers and government officials, earned much less. In 1834 Anthony Trollope started as a clerk in the General Post Office at a salary of £90 per annum.[2]

The place of silver in the fitting out of middle class London villas in the nineteenth century, given the restraining factor of slender means, was the subject of much advice in household management manuals and etiquette books of the period.[3] Silver remained a symbol of status and an aspiration for the middle classes throughout the century, but the challenge from cheaper silver substitutes such as electroplate and the less expensive ceramics and glass reduced its appeal for use in the home. Other factors such as the commercial trade's failure to introduce innovative designs, changing dining etiquette and even attitudes to investment, undermined silver use. In contrast, outside the home new markets were opening up for silver and its substitutes from the demands of travellers on boats and trains and guests in the smart new hotels. Initiatives such as specialist businesses lending to domestic clients allowed greater use of silver products for entertaining. The opportunities for selling small items in silver for personal use also grew. This article examines the evidence for the changing role of silver in the expanding middle class strata of society, drawing on the rich sources of contemporary reference, from novels to manuals of domestic management.

The early decades

By first looking at how silver was valued and used at the beginning of the nineteenth century, the later changes in middle class attitudes to plate can be thrown into sharp focus. At that time London was the largest city in the western world and the Napoleonic wars had made some of its citizens very rich. Both new and old money patronised the luxury trades: the cabinet makers, the coachbuilders and the goldsmiths. The 3rd Duke of Northumberland spent £160,000 on refurbishing his town house in the 1820s.[4] High inflation during the period did not affect the spending habits of the rich and silver, which kept its value and could be converted to cash, might have been perceived as one of the safest investments in uncertain times, increasing its popularity. Figures for the total weight of silver received for hallmarking at the London assay office between May 1809 and May 1811 show a record peak that was not surpassed for another eighty-five years.[5] From contemporary accounts we know that silver for the dining table and the sideboard was an important element in the conspicuous consumption of the time.

> The dining room was on the floor with the drawing rooms. As we entered it through a doorway surrounded by a hanging curtain that drew aside, the effect was beautiful. A profusion of light fell upon the cloth and as everything else was of silver, the dishes covered and the wines hidden in ranges of silver coolers, the whole had an aspect of pure white.[6]

Richard Rush, the American ambassador in London in 1818, was dazzled by the massive and splendid services of silver and silver-gilt in use in the grandest English houses. The wealthiest members of society could afford more than one service. Joseph Farington recorded in his diary of 1808:

> Robert Smirke. . . .spoke highly of Lord Lonsdale . . .His income is supposed to be from £80–100,000 a

1. 'Three Hundred Pounds a Year', Eliza Cook, quoted in J.F.C. Harrison, *Early Victorian Britain 1832–51*, London 1988, p113–4.

2. J.F.C. Harrison, *Early Victorian Britain 1832–51*, London 1988, p106–7.

3. For a useful guide to and listing of these see Dena Attar, *A Bibliography of Household Books Published in Britain 1800–1914*, London 1987.

4. See Celina Fox (ed), *London – World City 1800–1840*, London 1992, p26–27.

5. John Forbes, *Hallmark*, London 1999.

6. Richard Rush, *A Residency at the Court of London 1818*, London 1987, p33.

year but He has vast expenses. He has four establishments, one at Lowther, also at Whitehaven, Cottesmere in Rutlandshire and in London; and in each House a complete service of plate etc etc.[7]

The Prince Regent commissioned four dinner services, spending £111,351-8-1d on silver with the royal goldsmiths, Rundell, Bridge & Rundell between 1821 and 1830, and although his extravagance was criticised many aristocrats followed his lead, ordering a complete set of silver dinnerware or adding to their services piece by piece. The size of the services could be huge to allow for large scale entertaining. The Duke of Wellington's service for his embassy to Paris in 1814 contained 650 items. Nearly half the order by weight was filled by twelve dozen gadrooned table plates but there were also oval dishes, comports and covers, casseroles, four tureens and covers, sauce tureens, salvers, candelabra and a centrepiece at a total cost to the nation of £3,000. His gilt dessert service was a further £3,700.[8]

Silver filled the private palaces and dressed the state functions. Fashionable goldsmiths such as Philip Rundell became very wealthy, he left a fortune of £1,500,000 on his death in 1827. Only the richer members of the aristocracy and landed gentry could afford a complete silver dinner service in the early nineteenth century. However, during the London season those who wished to take part in society but had limited silver tableware could, and did, borrow silver from goldsmiths such as Rundell's and Garrard's. Sometimes the loans were large pieces such as wine coolers, epergnes, vases and covers and candelabra to make a more splendid statement on the table or buffet. In May 1810 the Spanish ambassador borrowed a number of grand display items, including an epergne, from Garrard's for £4-4s. The numerous pieces of gilt dessert cutlery that he also borrowed were typical of similar loans by Garrard's to clients wishing to supplement their silver for a very large dinner party. A gentleman called R.E.D. Grosvenor borrowed icepails, two waiters and a teapot every summer from 1812 to 1815.[9] While the upper classes could borrow in this way without criticism, the middle classes were condemned as snobs by some critics later in the century, if they borrowed for dining at home.

The attitude of society to those below the aristocracy and gentry who wished to acquire silver was also class conscious but admirably practical. Domestic management manuals, written to advise the young housewife, set out the minimum amount of silver needed for a respectable home and recommend that it was purchased piece by piece.

> Families who cannot afford plate, should economise till they can obtain at least four or five covered dishes, a sufficient quantity of forks, and two sauceboats of silver, made perfectly plain, for everyday use.[10]

Silver was still perceived as a very good investment and one that was open to everyone, with the proviso that each family should only possess that which accorded with their station. One manual even described the types of table layouts that could be achieved depending upon income:

> The style of tables may be called three-fold. The magnificent, gold and silver plate highly decorated, the elegant, rich china with ornamental plate, the simple, nankeen china, with no more ornament than is useful.[11]

The practical considerations of caring for silver were not forgotten:

> With a boy in buttons corner dishes are admissible; and with a footman corner dishes and dish covers, wine coolers etc; but it requires a butler and one or two footmen to have a regular service of plate... that is to keep it in order and use it every day... the service of plate must depend on the fortune.[12]

The purchase of silver was also seen as an economy as it was more durable than porcelain and pottery. It could not chip or break nor would the pattern rub away as easily as overglaze enamel colours or transfer printed designs on ceramics. In England there was a clear preference for the look of silver on the table until the mid-nineteenth century. The English diverged from their continental neighbours, especially the French, in this respect. Lady Morgan recalled a dinner at Baron Rothschild's villa in her diary of a visit to France in 1829–30:

> No burnished gold reflected the glaring sunset, no brilliant silver dazzled the eyes; porcelain, beyond the price of precious metals by its beauty and its fragility, every plate a picture, consorted with the general character of sumptuous simplicity which regained over the whole.[13]

The serving of food

One of the most serious threats to the use of silver in the home came from the gradual change to the method of serving dinner. The dinner party was the centrepiece of social entertaining in the nineteenth century, especially during the London season and was a serious test of character for guest and host alike.

> In an aristocratical country like England, not the Trial by Jury, but the dinner is the capital institution.[14]

The dinner party allowed the host to demonstrate wealth and status. Silver was as much a part of the visual display as the expensive and exotic foods on offer. Until the 1820s service *à la française*, where all the dishes for each course were placed on the table at the same time, was the fashionable method of serving dinner. Carème, an influential French cook who worked briefly for the Prince Regent noted that:

> In the years 1816 and 1817, I was in England with the Prince Regent and I was there gratified; for this truly royal table was served always in the French manner and the service of silver was so superb and elegant, that I was struck with wonder.[15]

The dishes for each of the two or three courses followed by dessert were laid out in a symmetrical pat-

7. Katherine Cave (ed), *The Diary of Joseph Farington*, Yale 1982.

8. Jewel Office records, LC 10/10 p77 stored at the Public Record Office

9. Gentleman's Ledgers, Garrard and Co archive, Archive of Art and Design, Blythe House.

10. *Domestic Economy and Cookery for Rich and Poor*, by a Lady, London 1827, p29.

11. *Domestic Economy and Cookery for Rich and Poor*, by a Lady, London 1827, p27.

12. *Social Etiquette, The Art of Cookery and Hints on Carving*, London 1860, p22.

13. From 'Lady Morgan's correspondence (1783–1859)' quoted in *The Art of Dining*, London 1852, p30.

14. R.W.Emerson, *English Traits*, 1856.

15. M. Carême, *French Cookery*, translated by William Hall, 1836, p76.

16. *Jane Welsh Carlyle, A new selection of her letters*, arranged by Trudy Bliss, London 1949. I am grateful to Edwina Ehrman for drawing my attention to this reference.

17. Tabitha Tickletooth, *The Dinner Question*, London 1860, p151.

18. *The Lady's Guide to the ordering of her household and the economy of the dinner table*, London 1856, p56.

19. A.V. Kirwan, *Host and Guest*, London 1864, p93.

20. *Social Etiquette, The Art of Cookery and Hints on Carving*, London 1860, p22.

2 *'Dividend day at the Bank of England', George Elgar Hicks, circa 1850. By kind permission of the Governor and Company of the Bank of England.*

the new service *à la russe* for many years. Mrs Beeton's household manuals were still giving menu suggestions for both methods of service in the 1880s.

Nevertheless, the days of massing silver on the table were numbered. A debate in the letter columns of *The Times* in 1859 may have helped to seal the fate of service *à la française*. Certainly it drew the public's attention to the matter. Benjamin Armstrong, vicar of East Dereham, Norfolk recorded in his diary on 1 March 1859:

> Had a dinner party on the sensible principle enunciated by some letter-writers to The Times, and called a la Russe. It consists in having fruit and flowers on the table, with wine etc, the abolition of side dishes, and only one dish at a time placed opposite the host. The plan worked very well, and the cook said that it was much easier for her.[21]

As English dinner tables and dining equipment reflected the change of service, silver lost ground to ceramics and glass. There was less use for silver cover dishes and meat plates. The table centrepieces were more varied than the old fashion for a silver epergne. On the whole, contemporary domestic manuals do not dismiss the use of family silver but point out the attractive alternatives in glass or ceramics dressed with fresh, silk or paper flowers. The advice of *The Habits of Good Society* (circa 1859) was more forthright:

> By this arrangement plate becomes a secondary matter, and indeed a display of massive silver is rather chilling, and always looks ostentatious.[22]

Silver did not leave the dining-room entirely. Cutlery in silver was thought to be essential for a well dressed table. Victorians with a limited budget were advised to concentrate their resources on forks, spoons and teawares. In addition, the complicated dining etiquette of the period encouraged the development of specific utensils in silver for eating particular foods. With the introduction of *à la russe*, dining became more formal and, apart from bread and some fruits, it became impolite to touch food directly. Specialist utensils were needed to eat food correctly. Sometimes the rules changed as the century progressed and vast numbers of etiquette books, often devoting whole chapters to the proper use of cutlery, enabled diners to keep abreast of new equipment and it's use. Fish eaters are a good example of these changes and the refinements which came to differentiate the manners and status of old and new money. Until the 1880s manuals recommended that fish be eaten using two forks or one fork and a piece of bread, favouring those who had inherited silver cutlery but not the new fish eaters. The newly rich, lacking inherited silver, bought the new fish eaters from the mid-century, but this innovative cutlery was not accepted in some social circles and has remained a subject for prejudice and social exclusion to this day.[23]

Competition: taste and investment

Silver was disappearing from other rooms eased out by new domestic equipment that was not made of plate. New light sources from oil and gas appliances, with fittings in brass, iron, ceramics and glass replaced silver candlesticks and candelabra in some rooms although the dining room was often lit by candlelight, which was felt to produce the best ambience for dining.

Silver held on to its pre-eminence in the serving of hot drinks in the drawing-room. A silver tea service, or at the very least a teapot, was preferred to ceramics and could be purchased in any number of styles. The Goldsmiths' and Silversmiths' Company offered twenty-eight different styles of tea services in their 1896 catalogue. A solid silver tea service of teapot, coffee pot, jug, bowl, kettle and stand and tray could cost £77-5s.

The introduction of German or nickel silver and the development of electroplating offered cheap, hard wearing and plentiful silver substitutes from the mid-nineteenth century and brought a wider choice of silver products within the budget of a larger section of society.

> If you find it inconvenient to purchase sterling silver plate your most economical plan, consistent with elegance of appearance, will be to purchase a few articles of German silver...In hardness and durability, it is much superior to sterling silver, and its price in some cases only about a tenth of what genuine plate would cost.[24]

The silver substitutes, particularly electroplate, challenged the supremacy of silver in the home. As Charles Eastlake wrote in *Hints on Household Taste* in 1868:

> The substitution of electro-plate for real silver is now so common in households where the latter would be regarded as a superfluous luxury, that the sternest advocate of true principles in art-manufacture would scarcely require an apology for its use. ...We must

21. *A Norfolk Diary. Passages from the Diary of the Reverend Benjamin Armstrong, Vicar of East Dereham 1850-1888*, London 1949, p65. I am grateful to Robin Emmerson for drawing this reference to my attention.

22. *The Habits of Good Society: A handbook of Etiquette for Ladies and Gentlemen*, London, about 1859, p309.

23. Comment in the *Daily Mail* (1998) "I take him to a French Restaurant in the posh bit of Battersea. ...We have dover sole while he gets depressed about the fish knives. "Another ghastly Victorian improvement. No decent home would have fish knives." "

24. *Cookery and Domestic Economy for Young Housewives*, Edinburgh 1845, p116.

> remember that in this, as in other departments of 'household taste', the intrinsic value of the material is of minor importance to the mode in which it is fashioned ...[25]

According to Eastlake the monetary value of the silver is no longer of any importance in comparison with the quality of it's design. In the past, silver had always needed to be made in the latest style but now the style has superseded the material. For the late Victorian interior, the correct fashion in a silver substitute is what is being advocated here. To quote from Eastlake again:

> ...so far as the interests of art are concerned it is better to possess a copper gilt flagon of a good design than a modern 'trophy cup' of twice its weight in gold.[26]

Apart from some improvements in small articles for the table such as salt cellars, mustard pots and cruet stands, Eastlake dismissed the products of the silver trade as 'pretentious vulgarities' and recommended his readers to buy old silver from the brokers of Hanway and Wardour Street. His opinion was in line with the nineteenth century trend of looking to the past for a style and whereas contemporary silversmiths ransacked history for ideas, Eastlake preferred the originals.

Although interest in historic silver was increasing, the number of consumers of art manufactures and antiques was small and does not explain the decline of manufactured silverware in the mid-nineteenth century. A comparison of the London assay office figures is revealing. In the early 1800s some 800,000oz of large and 400,000oz of small silver wares (excluding watchcases) were received on average each year. By the 1850s these figures had dropped to about 500,000oz and 250,000oz respectively. A significant increase in these figures did not occur until the 1890s.[27] No doubt the electroplating industry was growing at the expense of the silver trade. This growth along with changes in dining etiquette, lack of innovative design and competition from ceramics and glass[28] contributed to the decline of silver in the home but there may have been another equally significant factor.

Society's attitude to the investment value of silver changed and may have curtailed the middle class desire to own silver. Anthony Trollope, who was a keen observer of Victorian society, noted the change of attitude in his novel *The Last Chronicle of Barset* (1867):

> 'Why doesn't What's-his-name have real silver forks?' [old Mrs Van Siever asks Mr Musselboro, a guest at a terrible dinner party given by a nouveau riche.] 'What's the use?' responds Musselboro 'Everybody has these plated things now. What's the use of a lot of capital lying dead?'
>
> 'Everybody doesn't', Mrs Van Siever replies. 'I don't. You know as well as I do, Musselboro, that the appearance of the thing goes for a great deal. Capital isn't lying dead as long as people know that you've got it.'[29]

Despite Mrs Van Siever's opinion, here is the change from silver as a safe investment to capital lying dead. The new perception of silver can be graphically illustrated in the advice of two editions of a manual of domestic management which are twenty years apart. In *Cookery and Domestic Economy for Young Housewives*, the 1845 edition offers the following advice on acquiring silver:

> Whatever silver articles you require, buy them of a genuine kind, or of sterling silver plate, which always keeps its value, however old and worn it may become. Avoid all plated goods, for the plating is not long in wearing off, and then the article is valueless.[30]

However, in the 1862 edition the view of silver was very different and more equivocal.

> A change of opinion has lately taken place respecting plate. Formerly most persons aspired to have as much genuine plate as possible, it always kept its value and remained as a kind of heirloom. Now, from the rise of robbery, and the excessive trouble of keeping plate, not to say the loss of interest of money, it is found preferable to have only a few genuine silver articles, and others plated or nickel or electrotyped. We would recommend families to have only table forks, spoons and teapots in silver, and to be satisfied with other articles plated, which can be procured at a moderate expense, and quite as well as if they were silver.[31]

Silver began to be seen as a liability. It was hard to keep clean, particularly as servant numbers fell in smaller households and there was an increasing threat from theft. As early as 1849, *The Tablet* reported that electroplate was replacing silver:

> Old families are turning their plate into this new security and some of the noblest names are among the patrons.[32]

Silver was no longer perceived as a safe and necessary investment. In addition, although silver kept its value and could be converted to cash when needed, the money tied up in plate did not earn interest, unlike money invested through the Stock Exchange or in government stocks. As Trollope's character had said, money tied up in silver was money lying dead and losing interest. Many Victorians surviving on small annuities were accomplished investors and heavy speculation in stocks and shares such as railway stocks, may have encouraged a more adventurous use of capital which in the past had been tied up in silver. The more stable economy of the mid-nineteenth century enabled even less adventurous investors to gain a real return of 3% from the safe havens of Bank of England stocks known as 'the funds'.[33] Charles Dickens caricatured the small time speculator in shares in *Our Mutual Friend*:

> He goes, in a condescending amateurish way, into the City, attends meetings of Directors, and has to do with traffic in Shares. As is well known to the wise in their generation, traffic in Shares is the one thing to have to do with in this world. Have no antecedents, no established character, no cultivation, no ideas, no manners; have Shares.[34]

25. Charles Eastlake, *Hints on Household Taste*, London 1868, (Dover publications, 1986 p288).

26. As above, p289.

27. John Forbes, *Hallmark*, London 1999, p265–6.

28. Lack of innovative design and the competition from ceramics and glass are not factors which will be re-evaluated in this article. For the best overall summary of silver of the period, see John Culme, *Nineteenth Century Silver*, London 1977.

29. Quoted in Asa Briggs, *Victorian Things*, London 1988, p19–20.

30. *Cookery and Domestic Economy for Young Housewives*, Edinburgh 1845, p116.

31. *Cookery and Domestic Economy for Young Housewives*, Edinburgh 1862, p120.

32. Quoted in Shirley Bury, *Victorian Electroplate*, Middlesex 1971, p41.

33. I am grateful to John Keyworth of the Bank of England Museum and Alex Werner of the Museum of London for their advice on the investment climate of mid-Victorian England.

34. Charles Dickens, *Our Mutual Friend*, 1864–5, chapter 10. See Books on Line [internet].

tern on the table. The arrangement of the rectangular, circular, oval and triangular silver dishes around a central plateau gave a rich effect. The addition of an epergne and candelabra completed the magnificent display. It was very much an opportunity to show off the family silver or, for the newly wealthy, to advertise their rise in society through the size, weight and splendour of their table silver. In the new style of service the food was served individually to each guest by a servant. Jane Carlyle describes dining *à la russe* with the novelist Charles Dickens in 1849:

> The dinner was served up in the new fashion – not placed on the table – but handed round – only the dessert on the table and quantities of artificial flowers.[16]

In England and in France there was a reluctance to abandon service *à la française* because it enabled diners to see for themselves the choice of foods and dinners were less interrupted by the ministrations of servants. The author of *The Dinner Question* published in 1860 noted that:

> To see our dinner in its integrity, in all its parts, is an English comfort we still cling to.[17]

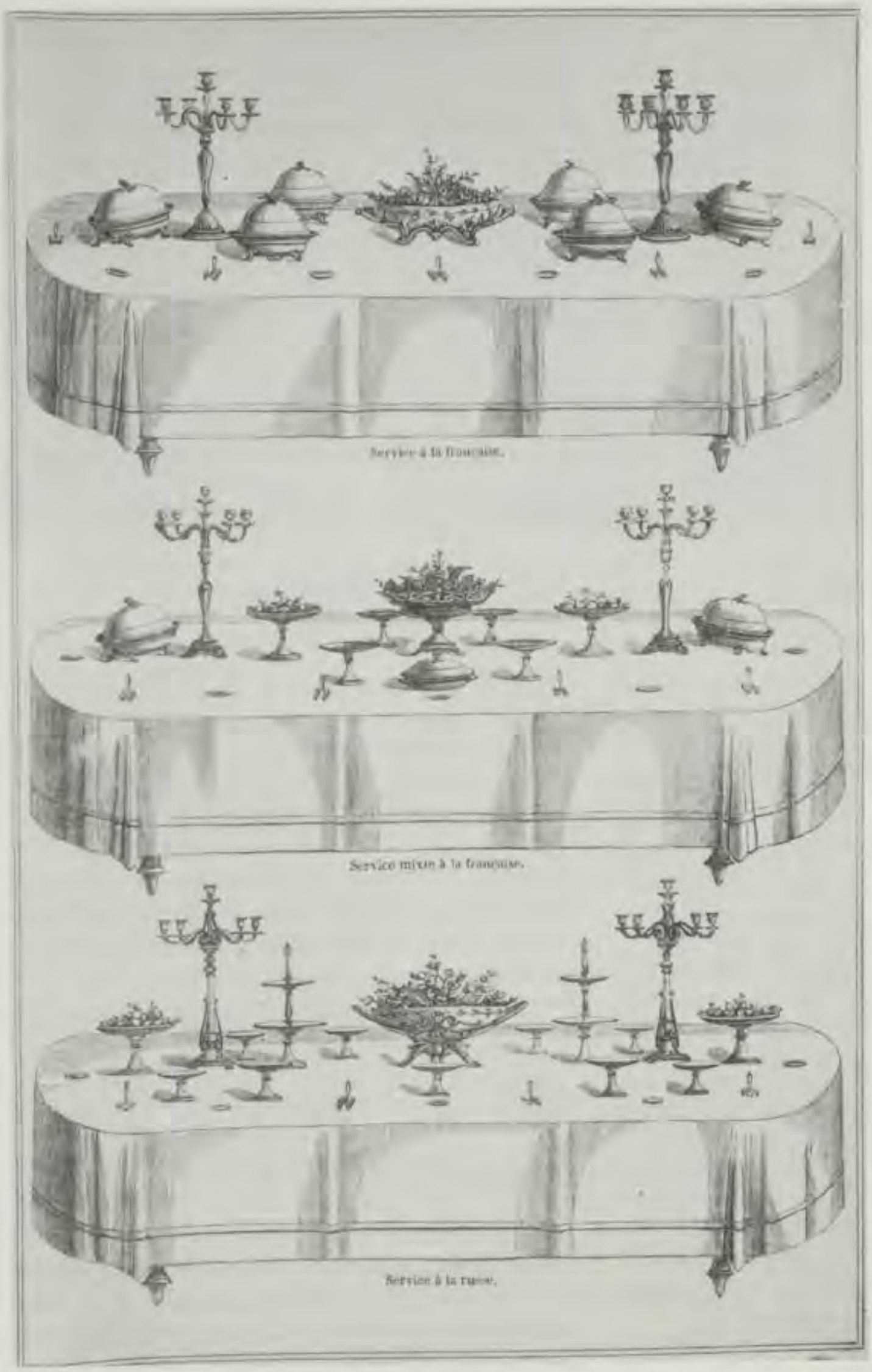
By the 1860s this was beginning to change, even on middle class tables and service *à la russe* was becoming more common. The difficulties of the old style of dining were described by household manuals. Guests were restricted in their choice of dishes to those close to where they sat unless they could persuade a fellow guest to pass food to them. *The Lady's Guide* to the ordering of her household and the economy of the dinner table of 1856 observed:

> The table groaned under soups and huge turbots, to be replaced by haunches of mutton and boiled turkeys; while, from the very beginning, flanks and corner dishes stood in close array as if for the very purpose of getting cold, with all the shortcomings of one's cook staring one full in the face for almost a weary hour.[18]

However, as late as 1864 A.V. Kirwan, the author of *Host and Guest*, a book advising on dinners and dinner giving, was dismayed by the new style of service. One of his misgivings referred directly to silver:

> ...costly services of gold and silver plate which nearly every good family in England possesses, are not displayed under the new fashion.[19]

It is worth remembering that it was at this date (1864–5) that Dickens was writing about the wealthy Podsnaps in *Our Mutual Friend* and describing a table groaning with the heaviest, most ornate silver. From his description the reader learns that Mr and Mrs Podsnap inherited money, though not taste. He may have been implying that they inherited this heavy plate and, if not, that they were still buying for the old style of service which would have explained the large show of silver. The passage can be read to suggest that Dickens was ridiculing a use of wealth which society was beginning to perceive as ostentatious and old fashioned. In contrast, some household manuals written in the middle of the century appear to support the Podsnap's preference.



1 *Table layouts for three services: à la Française (top), à la Russe (bottom), with a mixture of the two shown in the middle layout. 'Catalogue of the Christofle Manufacturers, 1862, musée Bouilhet-Christofle.*

> Presuming upon the existence of the means we should suggest as necessary; a plated soup tureen (silver, we think is extravagant, because its only wear is in the cleaning); six silver (meat) dishes, six plated covers; or as we should call them 'entrée' dishes; one dozen silver plates, one dozen soup plates; two dozen table spoons; six salt-cellars and spoons; two gravy spoons; one soup ladle; four sauce ladles;one fish slice, or knife and fork; two sugar lifters; one pair of asparagus tongs; a pair of sugar tongs; three silver waiters, two small and one large; coffee and tea pots; sugar basin; milk pot, tea kettle and lamp or tea urn; four candle sticks with branches; two or three bedroom candlesticks; four ice pails; and six decanter stands. With this service, handsome dinners may be given to twelve persons.[20]

Of course, service *à la française* did not go out of fashion all at once and appears to have co-existed with

3 *A dining car on the Great Northern Railway, the first regular service on the pullman 'Prince of Wales'. Illustrated London News, 1879.*

New markets

If silver was in less demand for the home it was finding new markets in the public arena. The fledgling travel industry with its ships, trains, hotels and restaurants, required durable but elegant furnishings. Silver products, principally electroplate, supplied the new businesses. By the 1880s the cabin class passenger on shipping lines such as P&O, plying from England to India and Australia, lived in a style close to that of the grandest hotels ashore. Silver, or its substitutes, on the ship's tables, in the dining cars of trains and in the expensively furnished hotels created the necessary luxurious effect. The Midland Grand Hotel at London St Pancras, designed by the architect George Gilbert Scott, opened in 1873 with top quality fittings: Worcester ceramics, Ostler glass and Elkington plate. Examining the Elkington pattern books confirms that although some designs were specific to the client, many more were interchangeable except for the addition of the company logo. Quality of design could be high and Christopher Dresser's influence has been noted in railway plate.[35]

Another initiative which brought silver and silver products back into the home, if only on a temporary basis, was the hiring of dining equipment for weddings, dinner parties and 'at homes'. For those who could never afford to buy silver or even electroplate, or needed to add to what they had, the alternative was to borrow. This became a common practice in Victorian England. Aristocratic clients had always been able to take advantage of this service from high class silversmiths but by the 1850s greater availability of silver products enabled catering and specialist firms to lend plated and silver goods more widely. In 1849, silver tea services were hired out at 15s a set and silver forks at 2s6d per dozen by Messrs Purssell, bakers and confectioners, for dinners, wedding breakfasts and ball suppers. Plated epergnes, candlesticks, dishes and cutlery could be hired at moderate rates. Social commentators accepted hired silver for special functions outside the home, but hiring for dinner parties was roundly condemned. William Thackeray in his *Book of Snobs* identified 'dinner-giving snobs' who borrowed 'twopenny-halfpenny Birmingham plate' to replace the willow pattern crockery.[36]

Another growth area for silver came in the opportunities for selling small items in silver for personal use. From 1890, duty was no longer payable on silver and small items became even more affordable. Advertisements in newspapers and ladies' magazines stressed the cheapness and enormous variety of silver for 'artistic and useful presents'. *The Lady's Realm* for 1896–7 advised:

> Our hints to those who wish to buy would not be complete without a few words on the charm that lies in silver presents; and here we do not mean electro, but the fair and pure ore itself, worked up in some dainty form which nowadays may be purchased for a mere song.[37]

In the Goldsmiths' and Silversmiths' Company catalogue of 1896, thirty pages were devoted to the huge choice of small silver items. Designs sought to expand the market through novel forms and fashionable decoration. From the practical point of view, the metal was durable and adaptable to a number of uses, often performing a similar role to the plastics of today. Small silver products were essential on the dressing table or desk, to assist with dressing, as a part of daily clothing, and as personal accessories to carry stamps, coins, visiting cards, train tickets, cigarettes, matches, perfume and spectacles. Large quantities of watchcases made in England and imported from Switzerland introduced a wide section of late Victorian society to silver ownership. The London assay office records show the growth of silver usage. In 1891, 800,000 small silverwares and watchcases were sent for assay but by 1900 the numbers had tripled to 2,800,000, reaching 4.5million annually by 1910.[38]

This article has examined some of the hitherto unexplored attitudes of Victorian society which lay behind changes to silver usage, particularly changing dining service and etiquette, investment habits and the opening up of new markets for silver products. Silver remained a status symbol in every social circle but the acceptance of an appearance of silver, using mainly electroplate, and the hiring of silver goods, was widely practised by all classes at the end of the century. It was no longer seen as practical, for a number of reasons, nor necessary, to own very much Sterling silver. However, the statistics and the survival rates of small silver show that although silver had left the dining tables of Victorian England it had reached almost every pocket in the land.

The text of a talk given to the Society in March 2000 in tandem with the preceding article.

35. A cruet stand in the newly opened galleries 'Silver 1800–2000' in the Victoria and Albert Museum by Elkington's for a railway steamer company, is similar to designs supplied by Dresser to the manufacturers.

36. *Messrs Purssell, Biscuit Bakers... of Cornhill*, London 1849. This resumé and catalogue gives a detailed account of costs for hiring tablewares in metal, silver, ceramics and glass. See also William Thackeray, *The Book of Snobs*, London 1879, p79.

37. *The Lady's Realm*, vol 1 November 1896–April 1897

38. John Forbes, *Hallmark*, London 1999, p266.

The first 'castle tops'

a short examination of some Birmingham topographical souvenirs and their makers 1825–38

Peter Cameron

The toymen of Birmingham prospered through their readiness to adapt mechanical methods to manufacturing, through sound business practice and through a steadily expanding market. They produced precious (or apparently precious) articles of high quality with an economy of craft and material.

All this has been stated before of course, but still remarkably little is known of the toymen themselves or the detail of their success – of the interrelationships between the gold and silver toymen and the myriad other skilled craft businesses which operated in the same vicinity, of the techniques of their manufacturing and the chains of production from principal manufacturers to out-workers and through wholesalers to retailers. This may in part be explained by a simple lack of primary archival source material – for the firms were small, often family, concerns and partnerships were formed and dissolved within short periods of time. It may in part be that the importance of Boulton, both a large worker and a toyman, has led to a justified concentration of interest upon his firm. Perhaps, however, it may also be explained by a residual disdain for the 'Brummagem' qualities that made the small toymen successful.

Whilst two recent works by Jennifer Tann and Sheena Mason have provided some further understanding of the Birmingham gold and silversmiths' trade, there is as yet no biographical dictionary of makers equivalent to the works of Grimwade and Culme in London.[1] The most detailed studies so far of the output of the Birmingham toymen and small workers remain Eric Delieb's pioneering *Silver Boxes*, and the catalogues for the 1973 bicentenary exhibition and for the 1982 loan exhibition.[2]

The toymen produced a very wide range of merchandise (see the goods advertised for sale by Taylor & Perry below) and this article examines only one small part of it: silver souvenirs incorporating topographical views produced from the mid-1820s onwards in the form not only of boxes – that is to say card cases, snuffboxes and vinaigrettes or 'scent boxes'- but of thimbles, pincushions, tape-measures, baskets, notebooks, caddy spoons, paper-knives, etc. Nevertheless, these pieces exemplify all the toymakers' products: made with measured skill, always to a price, the finest are little masterpieces which draw the eye in to a tiny three-dimensional scene. Sometimes the views are fashioned in relief, either hand chased, or die-struck, if necessary cropped to size, and perhaps finished with hand chasing or engraving; and sometimes they are entirely engraved, often, after 1840, with an engine-turned background.

The span of years 1825 to 1838 has been chosen largely for simplicity and practicality. Undoubtedly topographical thimbles, for example, were produced before 1825 in Birmingham but they bear no hallmark and cannot be precisely dated; and those articles engraved with a topographical scene which do bear an earlier hallmark cannot be proven to be part of a series but may instead have been 'one off' commissions. After 1838 so many new views were introduced that a study of them would be too large a task for the confines of a journal.

Just as Delieb included short genealogies/biographies of some the best known silver smallworkers at the back of his *Silver Boxes*, so it has been thought necessary to include, in the second half of this article, summary information about the lives and careers of those silversmiths referred to in the course of it. An attempt has been made to correlate entries in the makers' mark registries with information from other sources, particularly the Birmingham trades directories.

The toymen will have been keenly aware that a thriving trade in topographical souvenirs already existed in a variety of other media. Although the production of enamelled boxes in Bilston and elsewhere had ended by the mid-1820s, Tunbridge-ware manufacturers still found a ready market. Numbers of work-boxes and other articles were made with views of Brighton, Margate, Cheltenham, Bath and other resorts. At first these views were prints pasted on to the wood, but, from the 1820s, they were depicted in wooden mosaic. The Scottish souvenir woodware industry, already well-established in the 1820s, was producing topographical boxes by the mid-1830s. In

1. Jennifer Tann, *The Birmingham Assay Office 1773–1993*, Birmingham 1993; Sheena Mason, *Jewellery Making in Birmingham 1750–1995*, London 1998; Arthur Grimwade, *London Goldsmiths 1697–1837*, London 1976, 3rd edn 1990; John Culme, *The Directory of Gold & Silversmiths, 1838–1914*, Woodbridge 1987.

2. Eric Delieb, *Silver Boxes*, London 1968; *Birmingham Gold and Silver 1773–1973*, exhib cat, City Museum and Art Gallery Birmingham 1973, in particular section B 'The Toymen'; *Matthew Boulton and the Toymakers: silver from the Birmingham Assay Office*, exhib cat, Goldsmiths' Hall London 1982, in particular pp45–92 covering the toy trade.

ceramics, porcelain factories in Derby, Worcester and elsewhere, manufactured articles with high quality coloured scenes. Potters, too, had mastered techniques of transferring prints to the surface of their wares and a host of topographical views appeared.[3] Of other media, glass and painted tin, for example, too little is known to provide a clear history of their origins but it seems likely that most – like the glass panelled needle books and glass paperweights with coloured transfer views of a multitude of scenes – began in the late 1840s. Moreover, the Birmingham toymen themselves often used materials other than silver: mother-of-pearl panels were carved or engraved and set into silver or tortoiseshell boxes, and sometimes scenes (depicted in silver) were cut out and inlaid into tortoiseshell.

All these industries were dependent upon printed views, whether bound together in topographical books or published individually, for their source material. A burgeoning print industry supplied a market freshly enthusiastic for the beauties of British scenery and architecture depicted in a natural and informal manner. Although, in the early years covered by this article, Birmingham's toymen produced a comparatively small range of views, those they selected carefully targeted contemporary taste. The immense popularity of Sir Walter Scott, whose works, rooted in eighteenth century notions of the picturesque, did much to enhance historic awareness, thus determined the selection of views of his home (Abbotsford), his burial place (Dryburgh Abbey) and of the scene of one of his most successful novels (Kenilworth Castle). Another chosen view, Newstead Abbey, had been the family home of Scott's friend Byron, perhaps the most heroic and exciting of the romantic poets. Windsor Castle, newly modernised in the gothic manner, and Warwick Castle, were respectively the most romantic seat of the British monarchs and the most complete and evocative seat of medieval barony. A deepening fascination with the qualities of British landscape and with Britain's ancient buildings was allied to an interest in the seats of British power: the homes of the monarch, of government, both central and local, of the greatest aristocrats, and of learning – the great universities and schools. Birmingham's toymen, competing amongst themselves and with manufacturers in other media, sought to illustrate these linked interests in their wares.

1 *Royal Pavilion, Brighton, John Bruce 'Select views', circa 1830. (Courtesy Brighton & Hove Libraries)*

The views

These are presented in a rough chronological order according to the dates at which they have been noted as first appearing.[4] It should be remembered that the Birmingham date letters (before 1975) changed on 1 July each year, so that each date letter was struck for six months of two calendar years. Three maker's marks appear most frequently in the survey: those of Willmore/Willmore Yapp & Co, of Taylor & Perry, and of Nathaniel Mills. Some smaller makers produced their own views – Edwin Jones and Francis Clark, for example. Others may have made occasional use of the dies belonging to another firm – thus we note a vinaigrette of 1839/40 marked by Edward Smith but with a view identical to that currently used by Nathaniel Mills. Given that little is known of the structure of the toy-making trade, it cannot be stated with any certainty that a particular firm made or did not make a particular piece: although it would seem highly probable that a large wholesaler like Ledsam, Vale & Wheeler made use of smaller specialists to manufacture many of the articles which bear their mark. The degree of uniformity resulting from mechanisation and the (presumed) use of specialists has, however, been over-emphasised. Delieb was not quite accurate in stating that

> mechanisation would explain the 'sameness' or uniformity of so many box-lid subjects, where the self-same scene appears on every box ; thus, a shallow relief of one of the commonest subjects – Abbotsford House...will have the same Gothic turrets, chimneys, flag-tower and gardens as almost every other box enriched with this theme. A few specimens might bear some additional details such as the Gothic-arched wall, looking South-West, or trees to the left, but overall, the subject was faithfully copied by various makers.

Delieb correctly pointed to the practice of one maker copying the scenes of another ('the age-old story of the piracy of one man's work by others'[5]) but in fact the toymakers who produced topographical silver

2 *Vinaigrette, John Lawrence & Co, Birmingham 1829/30, Royal Pavilion, Brighton.*

3. See Edward H & Eva R.Pinto, *Tunbridge and Scottish Souvenire Woodware*, London 1970; A.W.Coysh and R.K.Henrywood, *The Dictionary of Blue and White Printed pottery 1780–1880*, vols I & II, Woodbridge 1982.

4. Any information has been gathered from pieces actually observed in the market-place or in collections over a period of years. Catalogue descriptions alone have not been used as a source of information, for the Birmingham date letter cycle 1824–48 is often misread: 1837 being mistaken for 1827, for instance.

3 *St Peter's Church, Brighton, John Bruce, 'Select views', circa 1830. (Courtesy Brighton & Hove Libraries)*

made use of specific views with specific distinctions. There are no instances of Nathaniel Mills making use of a view identical to that used by Taylor & Perry: the view may be very similar, it may be an imitation of the other firm's view, but it is always distinct in its detail. From a scrutiny of such distinctions, perhaps at times a matter of differential minutiae, it is to be hoped that some insights emerge.

One inescapable conclusion from the detailed examination of views presented below is that the most famous of the 'castle top' making firms, Nathaniel Mills, was usually not the initiator of a particular view but the imitator. Furthermore, whereas the finest views produced after 1840 were invariably marked by Nathaniel Mills, the quality of the views produced by Mills in the period upon which this article focuses was generally inferior to that of Taylor & Perry and Willmore.

4 *Pincushion, unmarked, St Peter's Church and statue of George IV.*

Brighton

The Royal Pavilion

John Nash's transformation of the Prince Regent's Brighton home was begun in 1815 and completed in 1822. George IV paid his last visit to Brighton in March 1827. He died in June 1830.

St Peter's Church

The church was built between 1824 and 1828, to a design by Sir Charles Barry.

Statue of George IV

Sir Francis Legatt Chantrey's statue of George IV was erected in 1828 in the Old Steine, near the Pavilion. It was moved near the north gate of the Pavilion in 1922.

Robert Mitchell

Two caddy spoons of shovel form have been recorded with die-struck views of Brighton Pavilion across the bowl of the scoop and again across the back. Both examples are marked for 1825/26. The die appears identical to that used on thimbles. In common with most Brighton souvenirs, the Pavilion is viewed from the east. The smaller domes are characterised by pinnacles of fleur-de-lys form which differentiate the die from that of John Lawrence and Horatio Powell [below].[5]

John Lawrence & Co / Horatio Powell

John Lawrence & Co and Horatio Powell seem to have made use of a single die with three Brighton views: the Pavilion viewed from the east, St Peter's Church and the statue of George IV. John Lawrence & Co produced narrow rectangular vinaigrettes (3 × 1.5cm) of simple reeded form with low relief views of either the Pavilion [**2**] or St Peter's Church. All the vinaigrettes so far noted are hallmarked for 1829/30. A number of unmarked pincushions of basket form have all three views around the sides.[**4**] A single tape-measure has been noted bearing the maker's mark only of Horatio Powell (entered 1831) which, struck from the same die as the pincushions and vinaigrettes, has views of St Peter's Church and the statue of George IV.

The views of the Pavilion and St Peter's Church are taken from prints first published by John Bruce circa 1824,[7] at which date it was projected that the church of St. Peter should be completed with a spire.[**1&3**] The spire was never built and, for later editions (after 1830), Bruce adapted his engraver's plate by removing the spire. Lawrence and Powell's die was therefore taken from an early edition of the work. The image of the statue of George IV is taken from an acquatint by Bruce of circa 1829.[8]

Abbotsford

Scott purchased the farm land on which he was to build Abbotsford in 1811. It lay on the bank of the Tweed near an old ford and had once belonged to the monks of Melrose – hence the name Abbotsford. With William Atkinson as architect, Scott pulled down the old farmhouse in 1822 and began a new home. He was first able to move into part of it in 1824. He died in the dining room at Abbotsford on 21 September 1832. A west wing was added to the house in the 1850s by Hope Scott.

Abbotsford from across the Tweed

Scott was fond of this view of the house from the Galashiels road on the far side of the Tweed and used to show it to his guests. To the right of the house can be seen a smaller building closer to the river which might be assumed to be a boathouse but which was in fact the stables.

Joseph Willmore

Snuffboxes by Joseph Willmore have been noted

5. Eric Delieb, *Silver Boxes*, London 1968, p82.

6. An example is well illustrated in John Norie, *Caddy Spoons, an illustrated supplement*, 1998 (ISBN 0 9534222 0 8). A second example appeared in Bonham's London, 3 September 1999 lot 31.

7. John Bruce, *Select Views of Brighton, Drawn and Engraved by Mr. Bruce*, Published by the Artist, Brighton.

8. John and Jill Ford, *Images of Brighton*, 1981 (ISBN 0906964032). This work contains an illustration of Bruce's early print of St Peter's church (no1205), which shows the projected spire. Unfortunately, it has not proved possible to trace the early edition of Bruce's Select Views from which it was taken, though the authors believe the work to be in the possession of Brighton Local Studies Library.

5 *Abbotsford, engraved by Edward Finden, publ 1829.*

6 *Snuffbox, J.Willmore, Birmingham 1832/33, Abbotsford.*

9. 'Abbotsford , Residence of Sir Walter Scott, Bart', published by Charles Tilt, 56 Fleet Street, London 1829.

from 1832/33.[**6**] These boxes (8cm wide) have scenes in relief which are apparently hand-chased and are unusual in having a title 'Abbotsford ' engraved in the lower left-hand corner of the scene. Willmore continued to use the scene on (untitled) aide-memoires (8x5cm) until at least 1836, with Dryburgh Abbey in relief on the reverse. Almost certainly the source used by Willmore was a print drawn by Richard Westall, engraved by Edward Finden and published in 1829." [**5**]

Taylor & Perry

Vinaigrettes (3.8 to 4cm wide) with this scene in relief, using either the same source print or copied from Willmore boxes, were produced by Taylor & Perry from 1834/35 to 1840/41. An aide-memoire of 1834/35 has the scene on the obverse with an unknown view on the reverse – depicting a monument and water with a swan swimming in the foreground and a house, perhaps ruined, against hills and setting (or rising) sun in the background. No source has been found for this view but it probably alludes to Scott's death.[7]

7 *Aide-memoire, Taylor & Perry, Birmingham 1834/35, unidentified scene.*

Nathaniel Mills

One 1834/35 vinaigrette (4.1cm wide) by Mills has this relief view of Abbotsford. It is based upon the same source but the relief is poorly executed and the house is difficult to identify.

Abbotsford from the south court front **[8]**

This is a very common view and is invariably die-struck.

Taylor & Perry

The view is first seen on card cases and vinaigrettes marked for 1835/36. No examples have been recorded later than 1836/37. A single small-sized die was used: the card cases are usually 9.5cm in height but have the same sized view as the vinaigrettes which vary between 4.3 and 4.5 cm in width. Taylor & Perry's die shows a gothic arch between the right-hand wall of the house and the flag-pole tower (which was actually an apple store).[**10**] To the right of the entrance porch, a bay, which in its lower portion contains a spiral staircase, rises to the full height of the house. A band of moulding on this bay below the ground floor window readily distinguishes the Taylor & Perry die from that used by Nathaniel Mills (and Edward Smith). A Francis Clark vinaigrette of 1836/37 with the 'Taylor & Perry' die-struck view has been noted.

Nathaniel Mills

Mills' output of silver with this view was larger than that of any other maker. Card cases and vinaigrettes appear in great numbers from 1836/37 to 1838/39.[**9**] A bon-bon basket of 1838/39 has Abbotsford and three other die-struck scenes around its sides, with Windsor in the centre. Mills' view lacks a band of moulding on the spiral staircase bay to the right of the entrance porch and has a brick wall, rather than a gothic arch, between the right of the house and the flag-pole tower. A path running down from the right-hand tower of the house, clearly visible on Taylor & Perry boxes, is less well defined in this Mills relief.

A second-state die appears from 1839/40 to 1845/46 which has a wider wall to the right of the house with a peach(?) tree trained on it and a crisper path running down from the right hand tower of the house. Edward Smith snuffboxes and vinaigrettes of

8 *Abbotsford, engraved by T.Barber, publ circa 1835.*

9 *Vinaigrette, Nathaniel Mills, Birmingham 1838/39, Abbotsford.*

10 *Card case, Taylor & Perry, Birmingham 1835/36, Abbotsford.*

11 *Card case, unmarked electrotype, Abbotsford.*

1839/40 and 1840/41 have the second-state 'Nathaniel Mills' view which has also been recorded on a single Willmore, Yapp & Co vinaigrette of 1844/45.

The front of Abbotsford viewed from the east court

The south front of the house is seen from the east court showing the curtain wall, pierced with gothic windows, between south and east courts.

Joseph Willmore / Gervase Wheeler

An 1836/37 snuff box with Joseph Willmore's mark struck over that of another has a crudely depicted prospect in relief of the house as seen from the east court. The curtain wall windows appear narrow and ill-formed. There is a conifer tree on the right between the house and the flag-pole tower and another deciduous tree to the left of the view. An almost identical view has been noted on a snuffbox marked by Gervase Wheeler in the same year.

By 1838 a sharper, die-struck, view with pointed gothic arches on the curtain wall was introduced. The earliest examples (card cases, snuffboxes and vinaigrettes), in the years 1838/39 to 1840/41 are usually marked by Gervase Wheeler, sometimes overstriking another maker. Some vinaigrettes of 1838/39 are by Thomas Shaw. On snuffboxes and card cases the die can be seen to incorporate trees to the left and right of the house and small shrubbery in the centre foreground. A basket of 1843/44 by John Tongue, in the Birmingham assay office collection, includes this die-struck view with four others, the central view being Scott's memorial.

Thereafter, a third version of the view appears die-struck on card cases and vinaigrettes marked by Willmore (until at least 1844/45) and on a number of (unmarked) electroplated card cases.[**11**] This version copies 'Abbotsford: the Seat of Sir Walter Scott Bart.', (an engraving by W.H. Lizars first published by Lizars in Edinburgh in 1832), and has more rounded arches to the curtain wall and only small trees and shrubs visible in the east court foreground with a peacock perched on a garden roller in the centre.[10] The card cases, both silver and electroplate, have another view on the reverse – either Windsor Castle or St Paul's Cathedral.

Nathaniel Mills

One rare vinaigrette[11] by Nathaniel Mills marked for 1836/37 has a view of Abbotsford from the east court in the manner of Joseph Willmore/ Gervase Wheeler in that year but the view is distinct in a number of small details: for example, the right-hand conifer tree almost completely obscures the flag tower.

Dryburgh Abbey

A ruined abbey beside the river Tweed between Melrose and Kelso, it is smaller than the nearby abbeys at Jedburgh, Kelso and Melrose. The abbey was established by the Premonstratensian Order in 1150. Scott was buried here on 26 September 1832 beside some of his ancestors and with his wife, who had pre-deceased him in 1826.

The abbey ruins viewed from the west

Joseph Willmore

Between 1833/34 and 1835/36, Willmore manufactured snuffboxes with a chased relief view of Dryburgh Abbey which, in series with the snuffboxes he produced with views of Abbotsford, are engraved with the title 'Dryburgh Abbey' in the lower left-hand

12 *Vinaigrette, Gervase Wheeler, Birmingham 1837/38, possibly Dryburgh Abbey.*

10. Print in the possession of Elizabeth Strong of McNaughtons' Bookshop, Edinburgh. For Lizars see: Elizabeth Strong, exhib cat, March 1989.

11. Phillips London, 19 November 2000 lot 132.

13 *Dryburgh Abbey, wood engraving, J.Jackson.*

14 *Aide memoire, J.Willmore, Yapp & Co, Birmingham 1836/37, Dryburgh Abbey.*

15 *Vinaigrette, Nathaniel Mills, Birmingham 1834/35, Dryburgh Abbey.*

corner. They are slightly smaller than the Abbotsford snuffboxes, being 7cm wide. A vinaigrette of 1834/35 and aide-memoires of 1834/35 and 1836/37 have the same relief but are untitled.[**14**] The aide-memoires usually have a view of Abbotsford from across the Tweed on the obverse. The original source for this view has not been traced with any certainty but was probably a wood engraving by J. Jackson.[12] [**13**]

Nathaniel Mills

A vinaigrette of 1834/35 has been noted with a clumsily executed relief of the above view, obviously based upon the same source print.[**15**]

A view which is perhaps of Dryburgh Abbey

Gervase Wheeler

A vinaigrette of 1837/38 marked by Gervase Wheeler has been recorded with a relief view that may be intended to represent Dryburgh Abbey but which cannot yet be identified with any certainty.[**12**]

Windsor Castle

Windsor Castle was the most popular of all the views depicted.

Windsor Castle from its north-western aspect viewed across the River Thames

Joseph Willmore / Edwin Jones

A single vinaigrette of 1835/36 marked by Willmore and a number of vinaigrettes of 1836/37 and 1837/38 marked by Edwin Jones have been noted with a view of Windsor Castle from the west across the Thames. The die-struck relief is curiously stylised, bearing more resemblance to early eighteenth century prints of the castle than contemporary ones. No source print has yet been found.[**16**]

Taylor & Perry

In 1836/37 Taylor & Perry introduced their own die-struck view of the castle from the west. The scene was used principally as the obverse side of card cases and aide-memoires with either Warwick or Kenilworth Castle on the reverse and appears occasionally on vinaigrettes, but has not been recorded on snuffboxes. In the right-hand foreground of the scene a man sits, perhaps on a barrel, under a deciduous tree.[**17**] The round tower, upon which a flag flies, dominates the central background with the west end of the King's Chapel in front. The prospect is apparently from an indeterminate spot to the west of the Curfew Tower but the representation, although unmistakably that of Windsor Castle, is far from accurate. The source print has not been identified. Taylor & Perry continued to use the die until at least 1841/42.

The East Terrace

A view of the Castle from the east towards the new gardens created for George IV and the new terrace built by Jeffry Wyatville as part of the re-built and re-sited Royal Apartments, largely completed by 1828.

Nathaniel Mills

Mills used a die-struck relief view of the east terrace from 1836/37 until about 1843/44.[13] It appears on snuffboxes, card cases, cheroot cases, baskets and vinaigrettes with Mills's mark and on a group of electroplate snuffboxes with pseudo hallmarks and maker's mark 'WP'. It has also been seen on a vinaigrette of 1837/38 marked by Thomas Lawrence. The full die, used on card and cheroot cases, baskets and snuffboxes, includes part of the garden wall pierced with gothic windows on the right-hand side and is embellished with trees to either side of the castle – an invention of the silversmith which serves both to widen the view to fit these larger boxes and to make it more picturesque.[**19**] The interpretation is rather crude but the scene derives from a lithograph by W & J.O. Clerk, published in 1835.[14] [**20**]

Mills & Sons introduced a much more faithful copy of the source print in the late 1840s which shows in the foreground two garden urns and a fountain playing in the garden's pool.[**21**]

Gervase Wheeler

The die-struck reliefs on card cases and vinaigrettes marked by Gervase Wheeler for 1838/39 to 1840/41 are virtually indistinguishable from those of Mills. Only small details betray that a different die has been used. For example, the Chester Tower, a narrow tower to the immediate right of the central oriel window on the east front, has only two of its corner turrets shown on Wheeler's relief but three are visible on Mill's version.

John Tongue in the mid-1840s and Wheeler and Cronin in the early 1850s created narrow die-struck views of the east front for the tops of purse-form vinaigrettes.

12. A version is included in *Old England: A Pictorial Museum of Regal, Ecclesiastical, Municipal, Baronial and Popular Antiquities*, vol 2, 1854, p189.

13. Howard Ricketts, *Objects of Vertu*, London 1971, p85 illustrates a gold snuffbox, Nathaniel Mills 1835/36, 8.2cm (3sin) wide. This has not been seen by the author and is earlier than any seen by him.

14. W&JO Clerk, 202, High Holborn: 'Windsor Castle from East Terrace', published in 1835 by Pewtress and Ackerman, lithographers. See Lord Fairhaven collection, Anglesey Abbey, Bunt catalogue. Photographic neg ref: AA/PR/44.7.

16 *Vinaigrette, Edwin Jones, Birmingham 1836/37, Windsor Castle*

17 *Card case, Taylor & Perry, Birmingham 1839/40, Windsor Castle.*

18 *Vinaigrette, Francis Clark, Birmingham 1841/42, Windsor Castle with Queen Victoria on horseback in the foreground.*

19 *Card case, Nathaniel Mills, Birmingham 1839/40, Windsor Castle.*

20 *Windsor Castle, lithograph, W&J.O.Clark, publ 1835. (Courtesy the National Trust, from the collection of Lord Fairhaven, Anglesey Abbey)*

21 *Cheroot case, Nathaniel Mills & Sons, Birmingham 1848/49, Windsor Castle.*

Francis Clark

A group of vinaigrettes by Francis Clark from the years 1838/39 to 1841/42 have a very low relief die-struck view of the east terrace with fountain playing in the garden and urns to the foreground and a disproportionately small lady on horse-back in front, intended to represent Queen Victoria.[**18**] Other makers produced views in the 1840s of Holyrood Palace and Balmoral with a similar figure of the queen on horseback. No source print has been found for this precise view and it is likely that the figure was the toy-maker's invention – an amalgamation perhaps of the Pewtress and Ackermann print and a lithograph by an unknown engraver after J. Bouvier.[15]

The die-struck clouds are distinctive in Clark's relief and may be compared with the very similar cloud effects in his relief of Kenilworth Castle. [see below]

Newstead Abbey

Newstead was never actually an abbey but a priory of Austin canons. After the dissolution of the monasteries it was bought by the Byron family from Henry VIII. The poet, 6th Lord Byron, inherited it in 1798, when aged ten, but sold it in 1817 to his friend Colonel Wildman, who restored it from a ruinous state. The house was sold by Wildman's widow in 1859.

The west front of Newstead

Taylor & Perry

Taylor & Perry introduced a die-struck view of the west front of Newstead in 1835/36, utilising it on their whole range of topographical souvenirs including card cases, snuffboxes, vinaigrettes and aide-memoires until at least 1839/40. They used as their source a lithograph by Day & Haghe.[16] [**22**]The die closely copies the lithograph both in the detail of the house and of the lake in the foreground.[**23**] Different sizes of die were evidently available – for some vinaigrettes have a cropped view which shows little or none of the foreground whilst others of the same size reveal much more.

Nathaniel Mills

Mills' version of this view, which appears from 1836/37 and was still in use in 1845/46 was a looser interpretation of the same source.[**24**] The abbey, as illustrated in both the lithograph and the 'Taylor & Perry' die, has, on the three bays of the central section of the house, windows with six lights, whereas

15. 'Her Most Gracious Majesty Victoria 1st of Great Britain and Ireland as she appeared on her favourite Arabian charger in the Royal Park of Windsor on the 28th Septr. 1837.'

16. Entitled 'Newstead Abbey, The Seat of the late Lord Byron, now the property and residence of Lieut. Col. Thomas Wildman...', drawn by M. Webster, and published by Alfred Barber of Nottingham in June 1834.

22 *Newstead Abbey, lithograph, publ Alfred Barber 1834.*

24 *Vinaigrette, Nathaniel Mills, Birmingham 1836/37, Newstead Abbey.*

in the Mills view the windows have only four lights. The 'clock-face' on the right-hand tower, in the lithograph and in the Taylor & Perry version, can be seen to have a lozenge-shaped surround, which Mills omitted. The lake's edge nearest the abbey is, in Mills' view, rather more curved than Taylor & Perry's and the swans on the lake are in different positions.

Mills used the view on card cases, vinaigrettes, snuffboxes and baskets. Mills card cases, in common with those marked by Taylor & Perry, have a die-struck view of Abbotsford on the other side. A single vinaigrette of 1836/37, marked by Willmore, Yapp & Co, has been recorded with a 'Mills' view of the abbey.

Warwick Castle

This picturesque stronghold, re-built and developed by successive and pugnacious Beauchamp Earls of Warwick in the fourteenth and fifteenth centuries, is

23 *Card case, Taylor & Perry, Birmingham 1835/36, Newstead Abbey.*

dominated by two enormous towers of continental inspiration in its outer walls – Guy's Tower [128 feet high] and Caesar's Tower [147 feet].

Warwick Castle viewed from across the River Avon

A view of the castle apartments from a spot near the new bridge with Guy's and Caesars Towers visible on the right. This most popular choice of view amongst nineteenth century artists was illustrated in a great many prints.

Taylor & Perry

Taylor & Perry introduced a die-struck view of the castle as viewed across the river in 1836/37. It has been seen on vinaigrettes and card cases (which have either

25 *Vinaigrette, Taylor & Perry, Birmingham 1838/39, Warwick Castle.*

26 *Card case, Nathaniel Mills, Birmingham 1839/40, Warwick Castle.*

27 *Warwick Castle, engraved by W.Radclyffe, publ 1823.*

Kenilworth or Windsor on the other side), and on a single mug of 1839/40 but not, as yet, on snuffboxes.[**25**] No example has been recorded later than 1839/40. The full die shows the top of Caesar's tower above trees on the right of the apartments and a glimpse of Guy's tower beyond. At the foot of the castle in the centre of the view is a small arch, the remnant of an ancient bridge, and in the nearer foreground are two men in a small boat, the man on the right rowing, the other, facing the oarsman, and leaning forwards holding a fishing net. Of a number of prints which feature similar views, the probable source is a drawing by P. Dewint, engraved by W. Radclyffe, and first published by W. & T. Radclyffe in March 1823.[**27**]

Nathaniel Mills

Mills appears to have used his die-struck version of the scene from 1838/39 and to have continued it until 1843/44. He struck it on his whole range of souvenirs articles: including card and cheroot cases, snuff boxes, vinaigrettes and baskets. The aspect is slightly different from Taylor & Perry's, being from a more eastern angle. A little more of Guy's Tower is visible and it is topped by a flag, fluttering in a westerly direction. No boats can be seen on the river. The towers along the castle wall appear to stand out more strongly than in Taylor & Perry's version and the horizontal lines of lintels and buttressing more clearly. Cropped in size to fit vinaigrettes, the view retains it's perspective better than that of Taylor & Perry. No source print has been identified.[**26**]

Kenilworth Castle

The remnants of one of England's strongest castles which proved impregnable in a siege of 1266. Famously, it was the home of Robert Dudley, Earl of Leicester from 1563, a gift from Queen Elizabeth.

The Great Hall or John o'Gaunt's Hall

John o' Gaunt, for whom Kenilworth was a favourite home, built a banqueting hall which compared in grandeur to Westminster Hall.

Edwin Jones

Jones manufactured a small group of vinaigrettes with a low relief die-struck view of Gaunt's Hall. They are invariably marked for 1836/37.[**30**] The view may be from a drawing by John Coney.[17]

The Norman Keep

Francis Clark

From 1836/37 to 1841/42, Francis Clark made vinaigrettes die-struck with a view of the Norman Keep of the castle.[**28**] In the background can be seen die-struck clouds against a sky formed from horizontal lines [see his view of Windsor Castle, **18**]. No certain source has been found for this view of the keep, sometimes called Caesar's Tower in contemporary prints.

A romanticised view of the Elizabethan Kenilworth

A view of Kenilworth Castle, as it might have looked, at the time of Robert Dudley, Earl of Leicester's, ownership, when the castle was extensively modernised, and when Queen Elizabeth was lavishly entertained there. Scott's novel was set in this period, and tells of the tragic death of Dudley's wife, Amy Robsart. A seventeenth century fresco painting in the castle, now lost, which illustrated it intact after Dudley's improvements, was copied by numerous artists and engravers. Some nineteenth century artists, inspired by Scott and tales of the revels at the castle, then elaborated upon the view to show the castle and grounds in full splendour peopled with pseudo-Elizabethan characters. One such painting (by J. Rawson Walker, issued as a lithograph by John Brandard) [**32**] was adapted by Taylor & Perry and Mills to form their souvenir view of Kenilworth.[18]

There has been much confusion between this romanticised view of Kenilworth Castle and views of Warwick because of the heraldic bears in the foreground of the Kenilworth view. In fact, they are meant to signify the ownership of Robert Dudley. Members of the Dudley family came, briefly, to own both Warwick and Kenilworth Castles. Through their descent from Margaret Beauchamp they inherited the famous Beauchamp bear crest of the Earls of Warwick.

Nathaniel Mills

Mills was apparently the first to introduce a relief based on Brandard's lithograph, omitting a tree in the centre foreground which obstructs the view of the castle. The die shows the central courtyard wall as having six windows on it's first storey with four arched windows visible at the back of the courtyard. The die was struck from 1836/37 until at least 1843/44 on snuffboxes, card and cheroot cases, vinaigrettes and baskets. The full view has a right-facing heraldic bear on a plinth in the left-hand foreground.[**34**] One vinaigrette of 1837/38, marked by Francis Clark, has the 'Mills' view of Kenilworth. Mills card cases with this view have either Windsor or Abbotsford on the other side.

A basket of 1843/44, marked by John Tongue, incorporates the 'Mills' view of Kenilworth.

Taylor & Perry

Taylor & Perry copied Brandard's lithograph more closely than Nathaniel Mills. Die-struck reliefs appear from 1838/39 on card cases, baskets and occa-

28 *Vinaigrette, Francis Clark, Birmingham 1841/42, Kenilworth Castle*

17. Engraved by William Tombleson, first published by Longman & Co, London, May 1823.

18. The lithograph of J.Rawson Walker's painting is inscribed: 'Kenilworth Castle in the Reign of Queen Elizabeth, is with permission most respectfully dedicated to the Right Honourable the Earl of Clarendon, the Proprietor of Kenilworth Castle. The Picture is in the possession of Henry Jephson of Leamington Esq, MD. The Scene Represents the Time when Queen Elizabeth Visited the Earl of Leicester at the Celebrated Entertainments in 1575. Vide Sir Walter Scott, Kenilworth, Volume 3, Chapter 9.' This lithograph was published by C.Elson, 12 Lower Union Parade, Leamington.

29 *Great hall, Kenilworth Castle, engraved by W. Tombelson, publ 1823. (Courtesy Warwickshire County Record Office)*

30 *Vinaigrette, Edwin Jones, Birmingham 1836/37, Kenilworth Castle.*

31 *Card case, Nathaniel Mills, Birmingham, 1836/37, Kenilworth Castle.*

32 *Kenilworth Castle, lithograph, publ C.Elson, circa 1836. (Courtesy Warwickshire County Record Office)*

33 *Sweetmeat basket, Taylor & Perry, Birmingham 1845/46, Kenilworth Castle.*

34 *Snuffbox, Nathaniel Mills, Birmingham 1836/37, Kenilworth Castle.*

sionally on vinaigrettes (no snuffboxes have been seen) until 1845/46. Card cases have Warwick Castle on the reverse. The die, omitting the foreground tree of the lithograph, shows three windows on the first floor of the central courtyard wall with six arched windows visible at the back of the courtyard. Both left and right-facing bear statues are visible in the full version of Taylor & Perry's die.[**33**]

A western prospect of the ruined castle

Nathaniel Mills

From 1838/39 Mills produced a die-struck relief of the western side of the ruined castle on card cases (with Warwick Castle on the obverse), and on vinaigrettes.[**31**] Trees and shrubbery envelop the decaying buildings with the remains of an outer wall just visible in the centre ground. No source has been found for the scene, which is a variant of one commonly depicted in prints of the period. No example has been found later than 1839/40.

Willmore / Yapp

A crudely executed die-struck relief of the same scene is found on card cases and baskets of 1845/6 marked by Yapp & Woodward. The card cases have a view of the gateway of Windsor Castle on the obverse.

Tintern Abbey

A large Cistercian monastery founded in a valley beside the River Wye in 1131 and substantially rebuilt at the end of the thirteenth and beginning of the fourteenth centuries. The richest of all the Welsh monasteries, its ruins inspired Wordsworth; but William Gilpin, in his *An essay upon prints: containing remarks upon the principles of picturesque beauty*, first published in 1768, declared that on the contrary

35 *Tintern Abbey from the new road, publ by T.Bedford circa 1825.*

'a number of gable-ends hurt the eye with their regularity; and disgust by the vulgarity of their shape'. Until a road was built in the early nineteenth century the ruins were accessible only by water.[**35**]

Edwin Jones

Vinaigrettes by Jones, all marked for 1836/37, have a poorly executed relief view of Tintern Abbey seen from the New Road. No other maker appears to have attempted this view until Nathaniel Mills in the mid-1840s (a vinaigrette with a very fine high relief view of the abbey hallmarked for 1845/46). The abbey formed a very popular subject for print-makers – the National Museum of Wales' catalogue lists seventy-nine published between 1730 and 1850 – and no certain source has been found for Jones's vinaigrettes.[**36**]

36 *Vinaigrette, Edwin Jones, Birmingham 1836/37, Tintern Abbey*

37 *Card case, Taylor & Perry, Birmingham 1836/37, St John's College, Cambridge*

Cambridge University

Taylor & Perry

A card case of 1836/37 and an aide-memoire of 1838/39 of identical size (8.2x5cm) with identical finely engraved views of St John's College gateway on one side [**37**] and 'Tree Court' (Second Court), Christ's College on the other would suggest that Taylor & Perry produced a series of Cambridge University souvenir views. The aide-memoire's views are titled. Each scene is a close copy of engraved views in J.& H.S. Storer's *Illustrations of the University of Cambridge* published in 1829. No other examples have been noted in this period, however.

Oxford University

Whilst there is a strong probability that souvenir views of Oxford were produced prior to 1838, the only example found so far is a snuffbox in the collection of the Birmingham assay office with an engraved view of University College, marked by William Postans & George Tye in 1823/24. This piece may perhaps have been a special commission.

The makers

In order to provide a more complete picture of the toymaking firms cited above, their histories are explored over a longer period than strictly necessary to this article. The following is a summary of information about the firms cited in the text. It remedies some inaccuracies published elsewhere but is by no means complete.

Abbreviations

Culme: John Culme, *The Directory of Gold and Silversmiths 1838–1914*, Woodbridge 1987.
Grimwade: Arthur Grimwade, *London Goldsmiths 1697–1837*, London 1978, 1990.
Aris: *Aris's Gazette*
Holden: *Holden's Triennial Directory*
Pigot: *Pigot's Directory of Birmingham*
Post Office: *Birmingham Post Office Directory*
Pye: *Pye's Birmingham Directory*
White: *White's Warwickshire Directory* and *White's Birmingham Directory*
Wrightson: *Wrightson's Birmingham Directory*

Francis Clark (1799–1853) *Grimwade* no673.

Second son of Thomas Clark of Birmingham (1767–1847).[1] FC married Caroline, daughter of Thomas Wright Hill and sister of Sir Rowland Hill (of penny postage fame). He was active in local politics, a member of the committee elected in 1838 to lobby for the incorporation of Birmingham and a member, with his brother, Thomas Jr, of the Birmingham Mechanics Institute.[2]

1811: Mark registered in Birmingham (William Lea & Co, Newhall Street).[3]

1815–1825: Partnership of 'Lea & Clark, silversmiths, Newhall St'. (*Wrightson*)
1822 and 1824 (26.5): Lea & Clark marks entered Birmingham assay office.
1826 onwards: No further mention of the partnership in directories.
1826 (12.7): Entered two maker's marks at Birmingham assay office as 'late Lea and Clark' and giving his address as Newhall Street. These marks re-entered 30.8.1826.
1826 (26.12): Entered two marks at the London assay office as a plateworker, giving his address as 52 Lionel Street, Birmingham.[4] Whilst regular entries appear in the assay office weekly registers of plate sent for assay, no mention appears of FC in Birmingham directories.[5] It would seem probable, therefore, given the Lionel Street address from which he operated in this period, that he was working as a partner in, or in association with, his father's firm of Thomas Clark & Co (at this period listed in Birmingham directories as 'jewellers, silversmiths and gilt toy makers'). His elder brother, Thomas Jr was probably also involved in his father's business but had in addition a business at 55 Lionel Street, next door to his father, manufacturing 'metallic hothouses'. A younger brother, Edmund John (1802–42), was a barrister.[6]
1835: Elected an assay office guardian.
1840 (2.12): Entered a fresh maker's mark in Birmingham. Address: Lionel Street. From the mid-1840s listed in Birmingham directories as 'Francis Clark, Iron and steel wire etc, manufacturer and jeweller; h. Hazlewood Ho, Hagley Road.' He had contemplated the purchase of a wire-drawing mill in a letter to Rowland Hill in 1838. He continued to send regular quantities of silver to the assay office, the last sent in January 1850.
1850: Left Birmingham for Australia.
1853 (11.7): 'Francis Clark of Adelaide, late of Birmingham, died at the residence of John Wilkins, Esq. MD, Williamstown, Victoria, aged 54,' (on 6.3.1853[7]).

1. Thomas Clark, a non-conformist, had combined running a school on his properties in Lionel Street with the manufacture of fireworks until, in 1803, he invented a machine for winding cotton and gave up the school to concentrate on manufacturing: 'Thomas Clark, Toy maker, fancy silk and hairworker, wholesale dealer in sewing cotton, brace-webbing etc, Lionel Street' (*Wrightson* 1812). He handed over the school to his friend Thomas Wright Hill who soon moved it to Hazelgrove and ran it with great success.

2. Birmingham Central Library, Hist.K/S 520452. For Francis Clark's letter to Sir Rowland Hill see B.L. Add.Mss.31,978 f.113.

3. William Lea, a warden of the assay office, died 1844. For an account of his efforts on behalf of the assay office see Jennifer Tann, *The Birmingham Assay Office 1773–1993*, Birmingham 1993, p101.

4. Grimwade no673; see also p716.

5. Birmingham Central Library, archives, Birmingham assay office records: weekly registers of silver and gold sent for assay. These registers are a valuable primary source which would repay closer attention.

6. Glasgow University, Lincoln's Inn.

7. *Aris*. PCC Wills.Prob.11. 1854. Reel 2198 f.733.

Edwin Jones
1834 (18.6 and 13.8): Maker's mark entered, address: 83 Caroline Street.[8]
1834 (26.6): First assayed silver at the Birmingham assay office.
1837 (19.7): Last record of silver assayed. He normally assayed 12oz of silver each week; maximum amount 22oz. In a sample week, on 7 June 1837 when Jones sent 12oz for assay, Willmore sent 99oz, Taylor & Perry 51oz, Nathaniel Mills 51oz, and Francis Clark 39oz.

8. The address given by Edwin Jones when he entered his marks was a property occupied from circa 1831 by a William Jones, 'Jeweller and Maker of Dead Gold Ornaments' (*Wrightson*). This firm is listed in directories until 1852/53. Prior to that a William Jones, jeweller, was at 25 Gt Hampton Street, at first (circa 1812) in a partnership: 'Jones and Sharp'. William Jones died 1.12.1847 aged 64. A youngest son, George, died 10.1.1837 aged 22 (*Aris*). The 1841 census records a wife Julia aged 60, and daughters Eliza 30 , Ellen 30, and Mary Ann 25. The relationship with Edwin Jones remains uncertain.

Lawrence & Co
1809/11: 'Lawrence & Co, silversmiths and pocket book lock manufacturers, Newhall Street' (*Holden*).
1813 (April): Two maker's marks – 'JL' and 'L&Co' for John Lawrence & Co, entered Birmingham.
1813: Appointed assay office guardian.
1818: 'John Lawrence, silversmith, Frederick St., Harper's Hill' (*Wrighston*)
1829: In Charlotte Street (*Pigot*)
1829/30 In Mount Street (*Wrightson*)
1830 (8.10): Patented 'An Improvement of Saddles and Girths, by an Apparatus applied to either of them', with William Rudder, Esq, of 'Ege' in Gloucestershire.[9]
1831: 'Silversmith and Silver Pencil Case, Toothpick, Thimble, Snuffer and Scent Box Maker, Mount Street'.(*Wrightson*)
1834 (9.7): Last record of silver assayed by JL in the weekly registers of the Birmingham assay office
1834 (16.7): Thomas Lawrence mark entered as 'late John Lawrence'.[10] On the same day is the first record of silver assayed by Thomas Lawrence. JL remained active as an assay office guardian, however, until his death circa 1855
1835: 'Thomas Lawrence Snuffbox makers and Silversmith in Charlotte Street' (*Pigot*)
1838 (18.7): No record of silver assayed by TL after this date.
1840 (circa): TL moved from Charlotte Street.
1846/7: A 'Thomas Lawrence & Co, Jewellers and Gold Pencil Case Makers', appears in directories and then:
1849: 'Thomas Lawrence & Co., Jewellers, Bordesley Rolling Mills, h. 32, Greenway Ter'. Thereafter, no further references appear.

9. Patent 1830 GB 5980.
10. He was almost certainly the Thomas Lawrence (born 29 December 1777, died 18 November 1854) who was buried at the Old Meeting House, Birmingham, with his wife Margaretta Sophia.

Ledsam, Vale & Wheeler
Gervase Wheeler (1787–1840) *Grimwade* p362. George and Mary Wheeler *Culme* nos6717, 6718, 6693, 6694, 6719, 6722
Probably connected with the Wheeler family who held the manor of Hartlebury, Worcs in the seventeenth and eighteenth century. Gervase Wheeler was a prosperous businessman who lived and worked mainly in London. A partner in the firm of Ledsam & Vale (John Vale, Joseph Ledsam, Frederick Joseph Ledsam) from about 1813, he ran their London outlet at 28 Bartlett's Buildings, Holborn.[11] On 22 July 1813 he married Mary Donald, St Martin's Birmingham. The executors of his will were Joseph Frederick Ledsam of Birmingham (an assay office guardian from 1832 until his death circa 1863), John Hoxpa Ledsam, surgeon, of Birmingham and Edward Tilsley Moore, merchant, of Birmingham.[12]

1801/3: Rudder, Ledsam & Co mark entered Birmingham.
1808: Rudder, Ledsam & Vale mark entered Birmingham.
1809: 'Rudder, Ledsam & Vale, jewellers and goldsmiths, Edmund Street'; 'Rudder & Ledsam, Steel Button & Watch Chain Manufacturers, Edmund Street' (*Holden*)
1813–1819: Partnership became Ledsam, Vale, Ledsam & Wheeler, manufacturers of 'Jewellery, Gold, Silver and Gilt Articles'.

1818 (30.9): New Ledsam & Vale mark entered in Birmingham. Address: Newhall St.
1819 (11.5): Gervase Wheeler registered a gold worker's mark at the London assay office.[13]
1820–1840: Partnership re-named Ledsam, Vale & Wheeler.
1825 (7.12): Two new Birmingham marks for Ledsam, Vale & Wheeler. Another mark entered 17.2.1830.
1829/30: 'Ledsam, Vale and Wheeler, Manufacturers of Jewellery, Gold, Silver, gilt and black fancy articles etc' at 59 Newhall Street (*Wrightson*).
1831: After June 1831 the company no longer assayed regular quantities of silver preferring, presumably, to buy in other makers' work.
1832 (circa): Death of John Vale. Vale was an assay office guardian from 1823 and in 1824 a delegate to London to lobby for the right to assay gold in Birmingham.
1831 (6.7): Gervase Wheeler mark registered in Birmingham with additional marks entered 4.3.1835 and 9.11.1835.
1835: 'Gervase Wheeler, 30 St. Paul's Square, Jeweller and Silversmith' (*Pigot*).
1840 (9.11): GW registered a design for a propelling pencil in the form of a rifle.
1840 (3.12): Death of GW.[14] Address: Bartlett's Buildings, London and Elm Villa, Finchley.
1842 (7.9): Wheeler & Cronin partnership mark entered Birmingham.
1842 (2.11): Mary Wheeler 'late Gervase Wheeler' and James Bartholomew Cronin mark entered. Address: 30 St Paul's Square.
1845: 'Mary Wheeler and Bartholomew Cronin, Jewellers and Gilt toy manufacturers, 30 St. Paul's Square, Birmingham and 28 Bartlett's Buildings, London' (*Post Office*).
1846: James Bartholomew Cronin, Sarah Wheeler and George Wheeler mark entered Birmingham.
1851 (1.3 and 14.12): George and Mary Wheeler entered marks at Goldsmiths' Hall, London as gold workers.[15] They exhibited at the Great Exhibition: 'Jewellery and trinkets of gold, silver, agate, precious stones, and pearls, consisting of brooches, bracelets, chains, earrings, lockets, watch protectors, thimbles, pencils, keys and seals, charms, paper knives, cigar cases, snuffboxes. Specimens showing the progress of a gold bracelet from the pure metal to the complete article'.[16]
1852 (11.3): Gervase Wheeler (son of Gervase Sr) entered a Birmingham mark. Address: Bartlett's Buildings, London.
1856–63: George Wheeler & Co. 'Wholesale Manufacturing Goldsmiths and Jewellers, also Small Silver Wares, best real jet jewellery, and gilt and steel trinkets. 28 Bartlett's Buildings' (*Post Office*).
1856 (3.1): George Wheeler and Mary Wheeler entered Birmingham marks. Address: Bartlett's Buildings.
1856 (21.4): George Wheeler 'of Bartlett's Buildings', entered a Birmingham mark on his own.
1856 (8.5): George Wheeler entered a group of London marks.[17]
1863: 'Geo. Wheeler and Co. (now Butler & Hutchinson) 26, 27, 28 Bartlett's Buildings'(*Post Office*). Soon after this date much of Bartlett's Buildings was pulled down to allow the building of the new Holborn Viaduct.

11. Westminster Record Office Acc.69/95. Bartlett's Buildings, built in the late seventeenth century, was just off Holborn Circus and adjacent to Thavies Inn. Both were popular locations for wholesalers of jewellery, silver smallwork, instruments etc. See also GLRO 0/203/14, a lease to Mary Wheeler and James Bartholomew Cronin of 28 Bartlett's Buildings for twenty-one years at £44 half-yearly, dated 24 June 1856. For an earlier lease to a London silversmith of 29 Bartlett's Buildings see GLRO.BRO/685/1/8, a lease by Robert Hinde Esq to Mr Aaron Lestourgeon, factor, of Leigh Street, Red Lion Square, dated 4 October 1788. A good genealogical account of Aaron Lestourgeon is in the Cotton MSS, Society of Genealogists, London.
12. Five surviving daughters at his death. One son, Gervase, christened 26 April 1827, Old Church, Saint Pancras, London. Two brothers George and Edward.
13. Grimwade p362.
14. PCC Wills. Prob 11 Middx. Feb 155,1841.
15. 1 March (Culme nos6717 and 6718) and 14 December (Culme nos6693 and 6694).
16. Culme quoting the *Official Catalogue*, class 23, no91.
17. Culme nos6719 and 6722.

Robert Mitchell (1781–1838) *Grimwade* no3453
Apprenticed to Samuel Pemberton.
1812 (May): Robert Mitchell & Co mark entered Birmingham. Address: Snow Hill.
1812: Further marks in partnership with Thomas Pemberton (1775–1830) – 'Samuel Pemberton, son and Mitchell.'
1813 (21.7): London mark entered by Thomas Pemberton and Robert Mitchell as smallworkers, by power of attorney signed by Pemberton for both. Address : Snow Hill, Birmingham.[18]
1815–1838: Assay office guardian.
1816 (18.12): Another partnership mark ('for watch cases etc') with Thomas Pemberton, Birmingham.
1818: 'Pemberton, Samuel, Son and Mitchell, jewellers silversmiths & watch and time-piece makers, Snow Hill' and 'Pemberton, Mitchell & Allport, Merchants, Snowhill' (*Wrightson*).
1821 (28.2): S.Pemberton & Son entered independent marks.
1821 (23.5): RM entered his own independent marks 'late Pemberton, son and Mitchell.' Address: St Paul's Square, Birmingham.
1822 (27.3): 'Removed to Bishopsgate Street'.
1824: One of the delegates to London to lobby for the right to assay gold in Birmingham.
1833: 'Robert Mitchell, Jeweller and Silversmith, 56, Howard Street' (*Wrightson*).
1835: 'Robert Mitchell and Co, Silversmiths, 24, Frederick Street' (*Wrightson*).
1838 (12.5): Died at 22 Regent Place. His son Edward of 217 New John Street West, Birmingham, present at the death.

18. Grimwade no1859.

Nathaniel Mills
The history of this firm requires re-writing. Nathaniel Mills, the silversmith, son of Nathaniel Mills Sr, a jeweller, was born in 1784 and died in 1843.[19] He should not be confused with Nathaniel Mills, the highly successful merchant who also lived in Birmingham and was born in 1811 and died in 1873, leaving an estate of approximately £30,000. It is possible that Nathaniel Mills, the silversmith, was related to Nathaniel Mills, the merchant, but there is no reason to associate the latter with the silversmithing trade.

A history of the firm should therefore be as follows:
Nathaniel Mills Sr, a jeweller, dubbed Nathaniel Mills (i) by Delieb, founded the firm in the late eighteenth century.
1803: Marks entered by Nathaniel Mills and Langston in the assay office register, giving Northwood Street as their address. This was probably Nathaniel Mills (ii) and partner. Nathaniel Mills (i) had previously been recorded as a jeweller at 2 Northwood Street (*Pye* 1797).
1825 (11.5) and 1827 (2.5): fresh marks entered at the assay office. Address: 49 Caroline Street, then from 11.7.1825 9 Howard Street, the firm's workshop address.

1829: 'N. Mills, Silver Snuffbox and Scent Box makers, 74 Caroline Street' (*Pigot*).
1830 (31.3) and 1836 (24.2): New marks entered at the assay office.
1836 (13.4): Firm moved from 49 to 42 Caroline Street.
1840 (11.1): Nathaniel Mills Sr died aged 94.[20]
1841 onwards: The firm appears in trade directories as 'N. Mills & Son, Caroline Street'. The 1841 census records Nathaniel Mills of Caroline Street, silversmith, aged 58.[21]
1845: The firm appears in trade directories as 'N. Mills & Sons.'
1843 (2.8): Nathaniel Mills(ii) died. The family continued to live at and operate from 42 Caroline Street: Nathaniel's sons ran the business and retained the 'NM' maker's mark.
1850: Thomas had probably moved out of the family home by this time. 'Thomas Mills, silversmith, h.32, Albion Street' (*White*). The 1851 census notes as living at 42 Caroline Street: Maria Mills, widow, now aged 67; her son William, town councillor and silversmith, aged 47; daughters Elizabeth and Maria, aged 44 and 36 respectively; and the grandson Nathaniel, 16.
1854 (30.1): The firm, now listed in directories as 'Mills and Owen', entered fresh marks at the assay office. Address: 72 Northwood Street. A 'Mrs Maria Mills' is at 104 Vyse Street.
1855 (16.8): Marks re-entered. Address:11½ Howard Street. The firm is listed in directories as 'William Mills, silversmith and jeweller, 11½ Howard Street, h.58, Buckingham Street'.

19. Nathaniel Mills was christened on 19 March 1784 at St Phillip's, Birmingham, son of Nathaniel and Elizabeth Mills. His sister, Catherine, still a spinster at the time of their father's death in 1840, was christened at the same time.
20. His will was probated at Lichfield on 6 May 1840.
21. With his wife Maria, 58. The marriage probably took place at Edgbaston on 23 January 1804, where a Nathaniel Mills married Maria Allen. Their children were christened at St Phillip's, Birmingham: William 16.4.1804, Elizabeth 21.4.1806, James Gorden 13.6.1808, Nathaniel 23.3.1810, Ann 31.3.1812, Maria 2.1.1815, Thomas 23.1.1817. The 1841 census records: Thomas, a silversmith, aged 25; John 17 an apprentice engraver; Elizabeth 35; Maria 27; Catherine 23; Sarah Mills (perhaps not a daughter but a kinswoman) aged 21; and a grandson Nathaniel 7. An eldest son, William, then lived at 18 Albion Street.

Postans & Tye
1819 (15.9): Mark entered for William Postans and George Tye. Address: Fleet Street, Birmingham.
1826 (13.12): Mark entered for George Tye and James Kilner, 'late Postans and Tye', Snow Hill.
1830 (24.2): Mark entered by George Tye on his own. Address: Caroline Street.

Horatio Powell
One mark entered Birmingham Assay Office 12/1/1831.Address : 83, Smallbrook Street. Assay Office Registers record Horatio Powell as having assayed only two very small quantities of silver amounting to a total of 24ozs.13dwt. in January 1831.

Thomas Shaw (late John Shaw)
John Shaw: marks entered Birmingham before1801. Further marks 1803–7 (and October 1820).
1812: 'John Shaw, Silver snuff and scent box and nutmeg grater maker, Caroline Street' (*Wrightson*).
1817 (20.3): Death of John Shaw, 'Silversmith of Caroline Street.'
1818: 'Thomas Shaw, silversmith', Caroline St (*Wrightson*).
1822 (3.6): Thomas Shaw marks entered, 'late John Shaw', when at Caroline Street. Another mark entered 5 July 1824.
1826 (15.3): Marks re-entered.
1829/30: 'Thomas Shaw manufacturers of silver scent and snuff boxes etc' at 75, Caroline Street (*Wrightson*).
1835: 'Thomas Shaw, Snuffbox and scent box makers, 74 Caroline Street' (*Pigot*).
1839: Thomas Shaw at 74 Caroline Street (*Wrightson*).
1845 (19.11): Death of Thomas Shaw, aged 63 (*Aris*).

Edward Smith
1825 (Jan): Mark entered Birmingham: John Edward Clark and Edward Smith.
1826 (31.5): John Edward Clark and Edward Smith entered independent marks 'late Clarke and Smith'. Address: 25 Cox Street.
1827 (March): Moved to Howard Street.
1840 (9.9): Marks re-entered.
1842: 'Edward Smith, silversmith and snuffbox manufacturer' at 51 Howard Street (*Pigot*).
1851 census: Edward Smith, aged 57, living at 51 Howard Street with his wife. Esthel 54, a niece Eliza Blackhurst 13, and a servant Catherine Delany 33.
1858: 'Ed. Smith, 51 Howard St' (*Birmingham*).
1864: 'Edward Smith Silver snuffbox manufacturer, 50g Howard Street, Constitution Hill' (*Post Office*). The directories have no further references to the firm after this date.

Taylor & Perry
Joseph Taylor (1767–1827), entered two marks in Birmingham prior to 1800.
1813: assay office guardian (until his death). Two further marks entered.
1818 (circa): Joseph Taylor's sister Dorothy married John Perry Jr.
1818–1827. The firm became a partnership: 'Taylors & Perry' (Joseph Taylor, John Taylor, John Perry). The 'IT' maker's mark was retained.
1818: 'Taylors and Perry, gold and silversmiths, jewellers, tortoiseshell and ivory box- makers, & cut glass manufacturer, Newhall St' (*Wrightson*). [see Appendix]
1827 (July): Death of Joseph Taylor. John Perry and his brother, Charles, are appointed, with Joseph's brother John, executors of his will.
1829 (July): Partnership mark of Taylor & Perry entered in Birmingham assay office register.
1831: 'Taylor and Perry, Gilt toy manufacturers, 8 Newhall Street' (*Wrightson*).
1832 (11.4): Further mark entered. The new firm retained Joseph Taylor's London showroom in Bouverie Street and moved its premises in Birmingham to 71 Newhall Street.
1838: John Perry elected assay office guardian. Continued until death circa 1864.
1842: Death of John Taylor.[22] He had been elected an assay office guardian in 1832.
1849: Last listing, 'Taylor and Perry, Silversmiths and manufacturers of all kinds of fancy goods, 71, Newhall Street' (*White*).

22. PCC wills. Prob 11. 1842 Warwick. July 508, reel 1966.

John Tongue
1831 (4.7): Mark entered at Birmingham. Address : 24 Summer Row.
1835: 'John Tongue Snuff box and Scent box makers, 24 Summer Row.' (*Pigot*)
1838 (24.1): Moved to 78 Parade.
1844 (July) July 1846 (July): Marks re-entered.
1854 (20.4): Moved to 5 Howard Street.
1860 (circa): The firm, now 'John Tongue and Sons', moved to 189 Warstone Lane.
1863 (March): Marks re-entered.
1865: Last record of the firm (*Post Office*).

Joseph Willmore, Yapp & Co. *Grimwade* no1859, *Culme* nos10324, 10325, 10581. The business was founded by JW's grandfather, Thomas Willmore (died 1816) in partnership with James Alston, Colemore

Row. By 1802 Thomas Willmore had a wholesale outlet at 18 Thavies Inn, London.
1804 (circa): JW's first Birmingham mark entered. Address: Bread Street.
1805 (21.2): JW entered two small-worker's marks at Goldsmiths' Hall, London.[23]
1808: Appointed an assay office guardian. London addresses: 'Thomas Willmore, Wholesale Birmingham warehouse, 18 Thavies Inn'; 'Willmore & sons, silversmiths and japanners, 14, Bouverie Street'; 'Willmores and Wilkes, patent-snuffer makers, 14, Bouverie Street' (*Holden*).
1823: JW moved to 11 Thavies Inn, Holborn.
1827: 'Joseph Willmore, Birmingham and Sheffield warehouse' at the above address (*Pigot*).
1832 (4.7): Another mark entered in Birmingham.
1834 (5.11) and 1835 (16.8): Nine 'JW' marks entered in partnership with John Yapp and John Woodward.
1840: The Willmore/Yapp & Co partnership entered two further London marks, also 'JW'.[24]
1841 census: John Yapp, aged 45, silversmith, in Camden Street, Birmingham, with a wife, Mary An[n], aged 35.
1844 (31.12): Retirement of JW from the partnership. The date of JW's death remains uncertain.[25]
1845 (24.5): Yapp & Woodward registered their first independent mark using the 13 Bread Street address. A plateworker's mark was entered in London on 17.6.1846.[26]
1845: John Yapp elected an assay office guardian and remained so until his death.
1847 (24.1): Death of John Woodward, aged 47. John Yapp continued the business in partnership with John Richard Chinn as John Yapp & Co.[27]
1854 (25.12): The partnership between Yapp and Chinn was dissolved. John Yapp continued in business on his own.[28] Yapp & Co is last recorded in directories for London and Birmingham in 1855. 'John Yapp & Co, silversmiths, fancy goods, pencil case and snuff box mfrs, 13 Bread St, h.173 Camden St' (*Post Office*).

23. Grimwade no1859.
24. Culme nos10324, 10325.
25. Information about the retirement taken from Culme: his source *London Gazette* 1845, p1027. Delieb confuses Joseph Willmore, silversmith, with Joseph Wilmore, of Summer Lane, glass button manufacturer.
26. Culme no10581.
27. Culme.
28. Culme: *London Gazette* 1855, p1435.

Conclusion: a grandiose project

The material presented here has been accumulated in pursuit of a more grandiose project namely, to provide a comprehensive survey of views on silver souvenir wares – 'castle tops' – and their makers in the period 1825–1880. 'The subject appears to be inexhaustible', so wrote Coysh and Henrywood of their survey of patterns on blue-and-white pottery. Although this survey is concerned only with topographical scenes, the Birmingham toymen were no less indefatigable than the potters of Stoke-on-Trent, with the result that the variety of views to be logged and identified seems endless. Furthermore, to be comprehensive, such a work would need to include the products of other parts of the country, especially the high quality engraved boxes made in Edinburgh and a small number of boxes from London. To that ambitious end, this article is intended not simply to be an indication of work in progress but also to act as a 'toe in the water' to test the warmth of enthusiasm for such a project.

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Appendix

TAYLORS AND PERRY
1818 MADE AT THIS
MANUFACTORY

GOLD
Watch Chains
Ditto Keys
Seals
Lockets
Brooches
Pins
Finger Rings
Ear Rings
Bracelets
Neck Chains
Tooth-picks
Pencil Cases
Thimbles
All kinds of Jewellery in
Pearls and
coloured Stones
BLACK ORNAMENTS.
Brooches and Pins
Lockets and Ear Rings
Rings and Bracelets
Necklaces and Beads
Buckles and Clasps
IVORY, TORTOISE-SHELL,
AND AMBER
Snuff Boxes
Tooth-pick Cases
Instrument Cases
Tongue Scrapers
Segar Cases
Spectacles
SILVER
Snuff Boxes
Scent Boxes
Patch Boxes
Pencil Cases
Tooth-picks and Cases
Thimbles
Ditto, with Cushions
Ditto, with Bottles
Ditto, with Yard Measure and
Bottle
Butter Knives
Cheese Knives and Scoops
Desert Knives and Forks
Fruit Knives
Oyster Knives
Fish Knives
Sugar Scoops
Caddee Scoops and Shells
Salt Spoons
Mustard Spoons
Buckles
Buttons and Studs
Shirt Buckles
Scissors and Sheaths
Bell Corals and Garnishers
Boatswains Calls
Watch Chains, Seals and Keys
Watch Pendants and Buttons
Tobacco Stoppers
Segar and Pipe Tubes
Toddy Ladles
Punch Ladles
Cream Ladles
Funnells
Nutmeg Graters
Decanter Lables and Corks
Instrument Cases
Bottle Cases
Corkscrews
Smelling Bottles
Muffineers
Spectacles and Eye-glasses
Tooth Brushes
Tongue Scrapers
Tooth Instrument Cases
Bodkins
Etwees
Inkstands and Pens
Combs
Buckles, Clasps, and Brooches
Fillagree Ornaments
Caps for Sticks, Whips, &c.
Purses, Springs, and Runners,
and
Articles in Morocco, mounted
GLASS
Trinket Bottles
Smelling Bottles
Muffineers
Ink and Sand Glasses
Dram Bottles
GILT
Watch Chains
Ditto Keys
Seals
Lockets
Brooches and Pins
Rings
Bracelets
Neck Chains
Buckles and Clasps
Buttons and Studs
Watch Pendants
Combs
Purses, Springs, and Runners
Beads
Fillagree Ornaments
Mounted Silk and Hair Chains
Steel Purses and Springs