

TECHNICAL STUDY DAY IV – METALWORK & FURNITURE 22nd May 1999

The repair and care of metalwork on furniture by Norbert Gutowski

Norbert began his lecture by examining the technical functions and performance of metalware such as hinges, knobs and handles, locks and keys, castors and protective devices. He evaluated their decorative appeal in terms of ingenuity and application of artistic skills.

Historic development

Early strapwork fulfils many tasks; it holds boards together, provides hinges for doors, protection for surfaces and locks for security. Many of the decorative motifs are taken from nature, but many also reflect symbolism, myth, beliefs and superstitions. Improved techniques, pride in craftsmanship, protection for the item, fashion and the architecture of the period all played a part in metalware design. On some pieces metalware can form a very considerable part of the surface decoration, as with the Boulle work of brass and tortoiseshell on Louis XIV furniture.

Production

The metalwork skills and techniques employed by the blacksmith producing one item at a time was rapidly replaced in the late 17th and early 18th centuries by battery work utilising

castings, sheet metal and wire, in order to produce accurate and speedy repetition of patterns. Within the European foundry, a typical team of skilled specialists would include a designer, model carver, finishers, polishers and gilders. The diversity of materials used through the centuries would inevitably reflect geographical factors relating to the availability of particular raw materials, technological ability to produce alloys such as bronze, pewter and brass, and the skill of craftsmen.

Care of Metalware

Most metals absorb molecules of oxygen, producing an oxide film on the surface. Pollutants such as chloride salts and hydrogen sulphide, cause metal surfaces to corrode, as for example, in the case of the rusting of iron. Ideally metalware should be kept where it is possible to monitor the environment, humidity, and temperature to provide relatively stable conditions. The National Trust Manual of Housekeeping's advice is to clean metalwork only two or three times a year. Dusting is abrasive, therefore flick dust from the surface with a soft brush then apply a coat of microcrystalline Renaissance wax. Don't polish or eventually the decoration will wear off. Brasswork should be allowed to tone down with the fading or darkening of the wood surrounding it; equally the patina must never be removed. Brass should be waxed at the same time as the piece of furniture. He advised against the use of brass cleaner since it will leave a residue which is difficult to remove; brass solvents will eventually cause stress cracks in the metal. Brass mounts, if practical, can occasionally be removed, cleaned, rinsed to remove traces of ammonia, then dried. The mounts may be treated for corrosion or oxidization before remounting. Gilded, silver-gilt, and electroplated surfaces are best left alone.

Handle all metalware as little as possible. Oils from our hands attract dust, and the acids in sweat will tarnish surfaces. Professional metal conservators may use these methods of cleaning:

- an ammonia-free mixture of rottenstone and linseed oil, effective but mild in influence
- immersion of metal in a paraffin bath as a moisture repellent
- the use of Ethylene Diamine Tetra Acetic Acid (EDTA)
- ultrasonic cleaning as an alternative and ultimate method.

Component repairs

The function of all castors is to make a piece mobile, therefore many suffer wear; equally, continuous use causes damage to hinges, handles, locks and keys. Norbert Gutowski, with the help of an extensive range of slides, showed details of the stages of repairing and restoring various furniture metalware. Missing parts can now be reproduced by a process of depositing copper in a metal treated silicone mould, which is connected to a transformer, made conductive, and suspended in a copper sulphate and sulphuric acid solution. A perfect copper 'grown' copy of the original is produced, except for its weight. Colour matching of repairs can be achieved with chemicals, or by the traditional methods of using coloured waxes or shellac sealant

Roger G. Passmore.

Antique Locks by Tony Berry

The next lecture was by Tony Berry of Manchester who gave us a fascinating insight into his research (aided by an RFS bursary) on Antique Locks.

Supported with excellent slides and descriptive models, the audience was treated to a history of locks in a nutshell. Mr Berry explained to us that the first known lock 'The Oldest Known Lock' of 2000 BC, had been found in Egypt and had a huge wooden key which was used to lift pins enabling a bolt to be moved. It was then explained to us that the locks found in the 14th and 15th centuries, of the Iron Chest type made by blacksmiths, were the next to be developed.

This type of lock was not fully secure and it was common to have several locks on one chest. During the 16th/17th and subsequent centuries many refinements were made.

Details of the workings of further developments such as the 'Back Spring Lock', 'The Spring Lever Lock', 'Barron Double Action', 'Brammah Lock', 'Turners Flush Fitting Bolt Lock' and the 'Chubb' detector lock of 1818 were then all described in entertaining and superbly illustrated detail.

The audience was greatly amused by Mr. Berry's description of the 'Great Lock Controversy of 1851' where a challenge had been set to Brammah to the effect that a locksmith - a Mr. Hobbs - was sure that he could pick the lock in 30 days on the condition that no interference was made to Mr. Hobbs. The lock was undone after just 3 days and a huge fuss ensued with accusations of cheating and foul play. Chubb invited Hobbs to pick his lock, the offer of which the latter declined, rather shrouding the affair in mystery. Both Chubb and Brammah fiercely complained and no doubt aided by the publicity, Mr. Hobbs started his own business in locksmithing and safe making.

In all, a fascinating insight into the history and development of locks which was made even more interesting by the engaging and lively delivery of the speaker.

Kay Livesey

18th Century Metalwork on Gillow Furniture

Susan Stuart presented a case study on sources and uses of brass fittings for furniture manufactured and marketed by the Gillows of Lancaster. The surviving correspondence confirms that their main suppliers of metalwork were located in the Midlands and included Messrs Heath of Birmingham; William Clark and James Hewitt of Wolverhampton; Hurst and Glover and Whittington of Warrington, and William Walsh & Co. of Liverpool. From the late 17th century Lancaster ironmongers such as William Stout were accustomed to make annual buying trips to metal working centres such as Birmingham and Sheffield; and from the 1750s, members of the Gillow family also made similar expeditions to Birmingham, often en route to London.

Manufacturers' catalogues are referred to in the correspondence as 'cards' citing catalogue numbers as references - in 1759 these references included the productions of Holden & Steers of Liverpool. In 1779, Gillow requested samples from Chorley & Leach, Ashton, Warrington with details of sizes and prices of screws so that they could order supplies accurately. The most consistent supplier of brass handles was James Hewitt

and in January 1760 he sent handles to a pattern which Richard Gillow had drawn in a letter. Such good plain brass handles cost 4s 6d a dozen and Hewitt supplied six dozen on this occasion. In turn, Hewitt paid annual visits to Gillow's wareroom to show his new designs. In 1769 Hewitt made adjustable brass legs for billiard tables to Richard Gillow's design. Patenting was difficult and Gillow wrote that Hewitt 'ought not to make any of them for anyone else'. But in practice once the manufacturer had the design, they could sell it on. However, Gillow's own partners were equally guilty of this practice and copied inventions by others.

After Hewitt's death, William Horton of Wolverhampton supplied Gillow with metal furniture mounts and locks. He was responsible for the spring lock in the centre of the library table with its characteristic revolving top; an invention attributed to Gillow and dating from at least 1766.

Castors were often inconsistent in quality. In 1762 Gillow complained to Hewitt that because the screw holes were larger than usual, the screw heads protruded and prevented the castor from moving round. Handles were sometimes badly cast and Gillow complained that 3 or 4 examples in any dozen did not have holes in the plates to receive the handle. In 1772 several billiard table handles were not fit for use.

Deliveries were erratic and slow. It took a whole month to receive goods sent from Wolverhampton to Lancaster. The London Stage Coach provided the fastest means of transporting goods to and from the metropolis. Lancaster cabinet makers who had settled in London, and family members such as James and Thomas Gillow acted as go-betweens and obtained London metal wares for the Lancaster firm before the Oxford Street shop opened in 1770. These included quadrant hinges for fall-front secretaires, brass-wired panels for library bookcases, brass stringing for inlay and hoops for cisterns and plate buckets. Sketches for quadrant hinges also occur in the Gillow's correspondence with Townsend and Longire, Birmingham.

Some metal fittings were dictated by discerning patrons. In 1762 one patron requested particular lifting handles attached to the outside of a butler's tray which he had evidently seen elsewhere and Gillow endeavoured to meet the demand. Metal fittings were sometimes made of silver, particularly for presentation pieces such as knife boxes. Gillow also worked as undertakers and one supplier of brass coffin furniture was Robert Swaggings & Sons of Newark -on-Trent. Patterns described as 'angel', 'flower pot' and 'large gloria' were used for childrens' coffins.

From the mid-1770s Gillow embarked on a wider scale trade in brass furniture mounts, exporting them to Jamaica and importing rum in return which they sold on to some of the brass manufacturers in the Midlands. Their wine warehouse in Lancaster still stands. From the West Indies, consignments of export brass mounts may have gone to the North American mainland. Susan showed a piece by Alfred Moss, 1797, made in Virginia of American walnut, which had very similar brass mounts to those that Gillow were exporting. This was followed by a writing table of 1808 which had very elaborate handles for which printed designs could be seen in the V&A. Further study of the V&A's holdings of pattern books for brass furniture mounts should attempt to relate catalogue

numbers to references in contemporary correspondence.

All present agreed that Susan Stuart had provided groundbreaking insight into the trade and use of brass metalwork by Gillow and their contemporaries in the 18th century.

Tessa Murdoch

Paktong by Keith Pinn

Keith Pinn explained that paktong is an alloy of copper, zinc and nickel; effectively it is brass, to which the addition of a small amount of nickel gives a silver colour. In the 18th century paktong was only available in China, and even the name derives from the Chinese 'pai-tung' meaning white copper. Small quantities were imported into Europe in the 18th century and manufactured into various domestic objects in imitation of silverware. These consisted mainly of candlesticks, but occasionally also flintlock guns and even chimney furniture. Paktong firegrates, fenders and firetools were used in several interiors designed by Robert Adam, such as Saltram House and Osterley Park.



Fig. 2 Cutlery boxes with paktong mounts

Important research into the metal was undertaken by Alfred Bonnin in the early 20th century and published in his book *'Tutenag and Paktong'*. The alloy we now call paktong was, in the 18th, 19th and even until the mid 20th century, known as tutenag, which is actually Chinese zinc. Bonnin cleared up this confusion but was only able to find a couple of 18th century references to items made of paktong, and just one mention of its import from China. This lack of contemporary documentary evidence of its use in 18th century England seemed like a mystery. However Keith's research over the past fifteen years has uncovered major sources of contemporary information that opens up the story. A mention of scrap 'teutinage' at Matthew Boulton's Soho works in 1782 sent him off to study the company's records where he found many fascinating references to paktong; its probable importation in the private cargo of East India Company captains; its many uses; and correspondence between several Lunar Society members on their experiments into its manufacture. They were not successful in the latter as they did not recognise the nickel content. It was not until the 1820s that Western scientists finally managed to produce a similar alloy that quickly superseded the Chinese metal. It was known as 'German silver' or nickel silver, despite the fact that it contained no silver, and became the basis for EPNS wares

(electroplate on nickel silver). After about 1830 Western nickel alloy pieces were almost certainly made of the European metal.

He also found interesting references to paktong items in 18th century auction records. Paktong was used for handles and lockplates on much Chinese furniture, but only very occasionally in Europe. We saw some cutlery boxes with very rare paktong mounts (fig. 2) and we were able to study paktong candlesticks and the varied methods employed in their construction. It was a useful introduction to a little known metal.

C.G.P.

Cast Iron Fittings by David Kenrick

David Kenrick, sixth generation of the West Bromwich iron founders Archibald Kenrick & Sons, opened his very interesting talk by explaining to us that the firm was founded in 1791 and at its peak in the middle of the 19th century was the largest manufacturer of cast iron fittings in the country. He has never worked in the business, but the discovery of old catalogues prompted his research into the origins and history of the firm.

The Unitarian family situated in the Welsh Border country initially made buckles, but by the end of the 18th century these were being forced out of fashion with the introduction of shoe laces. The first Archibald Kenrick married in 1790, and with the help of his wife's dowry of £500 built the foundry on the banks of the Birmingham Canal to manufacture a range of cast iron goods. Technical changes in casting meant that many of these items were now cheaper than the copper and brass alternatives.

Many new ways of using cast iron were found. In 1815 following a visit to France where he found it impossible to get a decent cup of tea, the first coffee mill with a cast iron spindle was patented. The beginning of the 19th century saw a huge growth in the business with its product range mainly allied to architectural ironware which included many famous patterns. The Kenrick Lion door knocker is still to be seen on the door of 10 Downing Street, and the business was also responsible for the invention of the sash window pulleys used at Buckingham Palace and Apsley House. Many designs of letterboxes were manufactured after 1842, when it was no longer necessary to place a letter directly into the hand of the recipient.

As with many artefacts, the design of items in cast iron tended to reflect the changes in fashion from the Renaissance to the French influence of Louis Phillipe and later to Victorian gothic. Considering the technique involved pouring molten iron into green sand, a remarkable amount of detail could be achieved. The items produced were however priced by weight, and plain could be more expensive than ornate. Smaller items as used in furniture fittings were therefore relatively inexpensive.

With the aid of illustrations from facsimiles of original catalogues, David Kenrick demonstrated the range of goods manufactured and sold by the business. Items included several Gothic designs of latches, screws, church and chapel door furniture, strapwork, bell pushes and pulls, 22 varieties of knobs and 12 sorts of cast iron numbers. Boot scrapers were most necessary before the introduction of proper pavements, and all of those in Eaton Square were supplied by Kenricks. In all there was an enormous range and choice of ironmongery.

Despite the introduction of the unique Shepherd's castor in recent years Kenrick's finally closed in 1990.

R. Castro

Open Discussion

After a short tea-break, the day wound up with a general discussion around topics introduced by Peter Hall, Robert Byles, Michael Legg and Roderick Butler.

Peter Hall has been an active locksmith for 50 years and is now running his own business dealing in antique locks. He has built up an impressively wide range of old locks and keys from which to meet his objective of being able to match any part as it would have been on the original piece. He made a strong plea never to try forcing a near-fit key in a lock. He can usually find a good enough fit of the appropriate period and design from pieces of his own collection with relatively little further work. On Bramah locks his advice was to seek properly skilled help. The Master Locksmiths' Association will advise on where to find their nearest member.

Robert Byles has been making a comparative study of English and American handles. American pierced plates are very rare. His illustrations showed how contemporary plates from furniture made on both sides of the Atlantic, blank and pierced, had precisely matching outlines. The evidence so far suggests that American cabinet makers imported shaped blanks from England.

Michael Legg started with a teaser – a large pair of wrought iron tweezers supplied by Gabriel Olive. T-shaped, the arms across the top with concave section and closing to form a narrow cylindrical tube; the long flat spring handle tapered to a point at the bottom. From Radstock in Wiltshire, it was apparently a taper holder used by local miners (there was no gas in the Wiltshire coalfield!). Michael then produced a plain 18th century medium sized wooden box in burr walnut which was too fine to sacrifice as a breaker. Furthermore, in view of the genuine 18th century round headed steel screws holding the lock in place, it has been retained to show students an example in situ.

Reminding us how rare it is in real life to find exact examples of designs from books and catalogues, Michael produced a fine mahogany cheval fire screen with brass mounts on the scroll feet from Bock's catalogue of c.1810, identical to an example in the V&A catalogue of Bock of Birmingham. He showed a set of brass coathangers (surplice pins) from Ratcliffe's catalogue of 1834, also illustrated in Loudon's book *Cottage, Farm and Villa Architecture* of 1840.

Roderick Butler showed an impressive variety of metalwork pieces from his workshop collections. Spanning a wide time spectrum, these were mounted on boards to allow close inspection. Examples included round-headed screws of the early 18th century, castors, bed bolts and key, bellow nozzles, table catches, handles and escutcheons. He pointed out that many designs for drawer handles had had much longer production runs than is often appreciated today.

Finally, the ever-practical Michael Legg showed us how old hand-made nails had a bevel to one side of the shaft – explaining why they never pierced the drawer sides when driven in from the bottom (c.f. horse shoe nails).

In conclusion, our thanks for the valuable contributions made by the various speakers and the considerable effort from Christopher Claxton Stevens in organising this event.