

Gems of Industrial Art for the Masses Pictorial multicolour underglaze printing at the Great Exhibition

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1. TJ&J Mayer pot lid, made for Crosse & Blackwell, with the Grand International Building of 1851. See page 30

If ever an invention were spurred on by the need for mass production, it was surely that of printing: and this has remained the constant driving force in all its subsequent developments, including the eventual perfection of single-colour transfer printing on ceramics. Although this subject has been fully explored by a number of writers¹, rarely has it been viewed in its broader context as a precursor to the very different world of popular underglaze colour printing in the early years of Queen Victoria's reign. This perfect marriage of hand and machine evolved as a by-product of the fertile years of the 1830s and 1840s, a period which witnessed major leaps in technology spanning both art and industry, and gathered pace when the goal of Prince Albert's and Henry Cole's Great Exhibition came into view. But to

see how far and how fast the art of printing on ceramics had progressed by this period, we must start at the beginning and briefly survey the transfer printing techniques that evolved after the time of John Brooks's first patent application from Birmingham in 1751 and John Sadler's application from Liverpool in 1756.

1. 'Glue Bat': The engraved plate was charged with an oily substance, wiped and the image applied to a sheet or 'bat' of flexible animal glue, which could then either be picked up and rolled onto the pot, or laid on a pad on the bench, where the pot was rolled over it, leaving behind the sticky image. This was then 'pounced' or sprinkled using a squeezed ball of clean linen dipped into finely ground enamel colour. The surplus was shaken or blown away and the pot fired at 700–800 °C to fuse the image to the glaze. Because of the risk of powdered pigment contaminating a biscuit body, this method was only suitable for printing overglaze.
2. 'Hot Press': The heated engraved plate was charged with a sticky mixture containing the colour, wiped clean, covered with transfer tissue and passed through a roller-press. The transfer paper was then peeled off, applied to the pot, rubbed well and washed off. This simple and reliable method was suitable for either underglaze or overglaze printing.
3. 'Pluck and Dust': This was a variant practised particularly by the Spode factory from about 1806, using an unheated plate charged with oil (slightly coloured with carbon to make the print visible). The plate was passed through the press to transfer a sticky image onto tissue, which was then applied to a glazed ceramic surface and 'plucked' off, leaving the remaining sticky image to be 'dusted' with powdered enamel colour, carefully cleaned and fired. Again, this method was suitable only for overglaze printing.
4. The 'Brolliet' or 'Mordant' method²: This was an early version of the 'hot press' method in use at Chelsea by Brolliet in 1758–59, whereby the heated engraved plate was charged with mordant (acting as a colour fixative). The plate and transfer paper were passed through the roller-press and the paper peeled away, leaving a sticky image on the paper, which was then dabbed with dry powdered pigment and applied to the pot in the usual way, rubbed and washed off. This method had the advantage of being equally suitable for application underglaze or overglaze.

Throughout the 18C, high-firing cobalt blue was the dominant fashion for printed tableware, the most notable advances being the introduction of underglaze printing on porcelain by Robert Hancock at Worcester in 1757 or 1758, and the technique finally being adapted to earthenware by Spode in 1783. This was only made possible by the recruitment of an experienced engraver, Thomas Lucas, from one of the major porcelain factories, Caughley. He brought with him the ability to produce underglaze Chinese-style patterns using a low-temperature firing to bind an oily cobalt transfer print onto a biscuit body: the 'hot press' technique (item 2. above). Biscuit earthenwares bearing raw transfer prints could now be dipped in lead glaze without risk of the volatile cobalt running in the glaze firing.

It was also the Spode factory that established the future direction of a major part of the Staffordshire potting industry. First they reproduced at least twenty-two *Nankin* blue and white patterns taken from Chinese originals, then expanded the range until, by about 1790, they appear to have been the first to create a pattern that met with universal approval: the ubiquitous *Willow* pattern. By this date, therefore, cheap Staffordshire earthenwares – at first shell-edged pearlwares painted in underglaze blue with Chinese-style patterns, later plain-edged wares with underglaze blue transfer – had effectively taken over the blue-and-white market, not only from obsolescent fragile delftware but also from the practically indestructible Chinese blue-and-white tableware which, after 1791, was no longer obtainable from the East India Company.

Development of the glue-bat process (item 1. above) took a rather different path. Suitable only for onglaze decoration, it was first used in the mid-1750s by the intemperate John Brooks on enamels, delftware tiles and white salt-glazed stoneware plates, in a venture at Battersea financed by Sir Theodore Janssen. From 1756 it was successfully employed by John Sadler for printing delftware tiles, and after 1763 for embellishing Wedgwood's creamware. Proving ideal for printing on both earthenwares and porcelains, the process kept pace with the current fashions for heroes of the Seven Years War, figures from the political and theatrical worlds, and later the popular caricatures of Napoleon and Wellington. As an example of its versatility, the creamware jugs made at the Herculaneum Pottery, many intended for export to America, were covered in a large and disparate range of glue-bat prints. But where the glue-bat method reached its peak was in small work, such as enamel snuff boxes, and in reproducing those tiny oval stipple-engraved vignettes that became so fashionable around 1800, often echoing the sentimental oval engravings of Angelica Kauffman and Bartolozzi. This popular genre may be seen to include those tiny Romantic views of country houses and ruins which adorned writing paper and every page of pocket calendars throughout the first half of the 19C. The taste for miniature art was also to be served by Mauchline Ware – tiny turned sycamore pictorial souvenirs with black oval prints – which became hugely popular after their showing at the Great Exhibition, when souvenirs were needed for the many holiday resorts made accessible by the rapidly expanding railway system.

For the more fashionable porcelains in the early years of the 19C, delicate stipple engravings, particularly domestic scenes borrowed from Adam Buck, were bat-printed with great subtlety in black, iron red, pale purple or even gold by New Hall and the makers of new snow-white bone china such as Spode, Minton, Miles Mason and Machin, particularly for their 'Bute'-shaped teawares with capacious bowls. When the high fashion passed, bat-printed vignettes continued on cheaper pottery such as commemorative wares and children's plates, particularly in the potteries of the North East, often using slightly coarser woodcut prints such as those of Thomas Bewick and frequently combined with yellow-bodied wares or silver (that is, platinum) and 'copper' (that is, gold) lustrewares, until it gradually fell out of use. The limitations of its small scale, the skill required to apply it accurately and its inherent unsuitability for underglaze printing finally outweighed the advantages of its flexibility in use, and the economic advantages of minimal wear on the unheated copper plate and the practice of boiling up glue bats for reuse.

As Robert Copeland has said, 'In short, bat-printing was a craft process, while transfer printing was an industrial one'. An account of a visit to the printing shop at the Herculaneum Pottery, published in the *Liverpool Albion*, 9 July 1827³, perfectly describes the two processes being carried on together at this late date: one for underglaze blue transfer-printed tableware and the other for black overglaze-printed hollowware such as mugs and jugs.

After the mid-18C, there was clearly an appetite for more colour in the publishing and art world. For example, the first hand-coloured print appeared to great acclaim in the *Gentleman's Magazine* for October 1753, with twenty-three coloured plates produced the following year. The *Oxford Magazine* included satirical and political engravings, subjects also taken up by Sadler at Liverpool, fuelled by the popular craze for prints at this period. By about 1780, popular line-engravings were given variations in tone by the addition of lightly punched stippling, adding much to their artistic pretensions. Besides the great variety of popular hand-coloured prints, from around 1800 coloured reverse-prints on glass, usually with naive topical or allegorical subjects and supplied with rather basic frames, provided inexpensive ornaments for the modest home. By a patent of 1781 the engraver Harry Baker⁴ had introduced images composed of three layers of glass, each with different coloured parts of the same print: an ingenious process, but one ill-suited to mass production.

While overglaze printed cream-coloured earthenwares could be easily and cheaply enhanced with bright enamel decoration – cobalt blue, antimony yellow, iron red, copper or cobalt/antimony green – early attempts to introduce more than one colour into the prints themselves were fraught with difficulty. Brolliet (item 4. above) had noted that, 'It is possible to apply the use of more than one colour in this method of painting or printing', without further explanation. Interestingly, an undated entry in Sadler's notebook also mentions, 'Printing different Colours on one Plate. Ink the plate with the proper Colours in the proper places... if there be any background that you do not want to appear take the Ink out with a pencil (*brush*)

and Spirit of Turpentine'. There is no evidence that this method was attempted except as an experiment, although the technique was later to be successfully adopted by Davenport. However, another pioneering method was used by Ralph Wedgwood at his Burslem works 1788–98, whereby the central print and rim were transfer printed underglaze in one colour while the inner border was printed in another colour from a different plate, enhanced with touches of bright enamel colour (2). This method proved to be premature since, like the contemporary once-fired stoneware generally known as Prattware, the standard range of oxide colours (apart from cobalt blue) would inevitably acquire an autumnal appearance when fired at glaze temperatures.



2. Plate, Ralph Wedgwood & Co Burslem 1790–98

Though the sombre colours of Ralph Wedgwood's tablewares suited terracotta-brown neoclassical figures, they would surely have been outmoded by changing tastes during the early 19C.

As for attempts to combine colour with bat-printing, some Vauxhall porcelains of the late 1750s are seen to have three colours pounced onto their raw sticky prints: but here again, it was an ingenious method incapable of either precision or refinement. Much better results, however, were achieved in the early 19C when the fashion for plain grey bat-prints on bone china was on the wane. Both New Hall⁵ and the Machin factory perfected a way to accurately wash parts of the unfired (but possibly hardened-on) print with pale translucent enamel colours such as green,

purple, yellow and turquoise, which made such good use of the stippled shading in the print that an illusion of full-colour painting was created (3).

Alongside the continuing popularity of dark blue printed patterns such as Willow in the early 19C, porcelain factories were producing extremely colourful hand-painted chinoiserie patterns for the tea and dining table, and it was surely these which inspired the use of the Japanese Imari-style decoration chosen by Turner's Patent of 1800 and its subsequent reincarnation in 1813 as CJ Mason's Patent Ironstone China, and Spode's Stone China.

Here, a simple transferred overall line engraving could be cheaply but elaborately enamelled and gilded, making a vibrant alternative to traditional monochrome tablewares. The only way to compete was to introduce underglaze colours, but there remained technical problems with the two vital components of this process: the transfer paper⁶, and more importantly, the colour itself.

Such was the demand in the late 18C for potters' tissue (known also as 'silk' or 'silver' paper) that in 1797 William Adams set up a mill at Cheddleton to supply his fellow Staffordshire potters using pulped textiles whose fibres were chopped by the rotating metal blades of the 'Hollander beater'. The aim was to combine several essential but conflicting qualities in a single type of tissue: a printing surface sealed with gum arabic (water-soluble resin) to accept the transfer without absorption, good translucency to enable accurate positioning, flexibility to fit non-flat surfaces without creasing, and just enough strength when wet to allow vigorous handling before being brushed with soft soap and washed away. A major step forward came with the building of a machine to manufacture a continuous length of paper, based on a 1798 French patent by Louis Nicolas Robert, but improved and patented in England in 1806 by long-established London stationers, the brothers Sealy and Henry Fourdrinier. Ruined by development costs, they were declared bankrupt in 1812, but by 1827 they had nonetheless re-established themselves at Ivy House Mill near Hanley in order to supply the local potters with their high quality but inexpensive mass-produced tissue. Although the patent was renewed in 1836, the firm was again bankrupt in 1854, when their mill was taken over by Thomas Brittain, who continued development of 'pottery tissue'. After they perfected their tough 'Duplex' paper in 1895, designed to withstand the rigours of the lithographic process, Brittain's tissue production was moved back in 1906 to its original birthplace at Cheddleton.

The second obstacle to developing underglaze colour printing was the lack of high-temperature colours, as demonstrated by the dull colours of Ralph Wedgwood's plates in the 1790s. The answer lay in another French discovery, the new element chromium – specifically so-called because of its ability to produce different colours – which was isolated from the mineral crocoite by the chemist Louis Vauquelin in 1797. As an intense orange in its natural state, after about 1810 it was used for the well-known chrome yellow artist's oil paint and, initially exploited by Alexandre Brongniart at the Sèvres factory in 1802⁷ to produce a green ground colour, its possibilities were further explored by the pioneering Spode factory. The result in 1822 was again a strong green colour produced from iron chromate, but oddly Spode's perfection of a bright chrome pink by adding tin oxide to iron chromate⁸ was only achieved in 1833. However, as early as 1823 several grades of pink containing 'chrome potash' and 'tin ash' were available from the colour-maker, enameller and potter Thomas Dudson of Shelton⁹, who is recorded as making Pink Landscape tea and coffee services in 1819. Chrome pink is also mentioned by Simeon Shaw in 1829 and by 1830 Thomas Mayer was exporting pink-printed wares to the Baltimore dealer Matthew Smith.



3. Sucrier with coloured bat-print, New Hall c1815

So it is certain that from the early 1820s a usable set of high-temperature colours – known to the potters as 'fancy colours'¹⁰ – were available: cobalt blue, and the three chrome colours of yellow, green and pink. These were shortly to be applied overglaze to cheap exports such as Sponge Ware using natural sponges to create rainbow patterns, or tiny cut sponges to make coloured patterns, a method invented in Staffordshire but adopted with great success by Scottish potteries in the 1840s. Similarly, white earthenwares with bright broad-brush floral decoration (once known by collectors as Gaudy Dutch) also proved highly popular for the export market from around 1830.

But as to how these contrasting colours were best employed underglaze in the manufacture of printed earthenwares there was no consensus, leaving each factory to devise its own solution. The progressive Spode factory is known to have produced two-colour, two copper-plate-printed wares from as early as 1824, and among the



4. Dish with *Kite Flying* pattern, marked E Wood & Sons c1830–40



5. Plate with *Suspension Bridges* pattern, Enoch Wood & Sons c1830–34

Enoch Wood wasters deposited under the foundations of the covered market in Burslem in 1835 were plates with two-colour floral borders and a bright central flower spray composed of three separate prints applied in the order blue, green and pink. A fragmentary cup with a multicoloured but poorly integrated landscape also shows that although the idea of superimposed prints to create colourful miniature scenes was established by 1835, it could not progress without some means of registering the individual transfers¹¹. The series of Enoch Wood plates printed with foliage, landscapes and figures in red and green (4,5), while attractive and technically accomplished, can never claim to be naturalistic in terms of colouring; but to eyes jaded by watery Chinese landscapes rendered in many shades of blue, they must have been a refreshing

novelty. It is perhaps not surprising that boldly contrasting pink and green printed decoration was still being made for export by J&MP Bell of Glasgow as late as the 1880s.

An alternative method was attempted by the Davenport factory around 1840 (6), harking back to a method mentioned in John Sadler's notebook: inking one plate with three colours, involving careful cleaning and inking *à la poupée* – that is, with linen dollies tightly bound with string, the bound tail end providing a handle, as described at the Herculaneum factory in 1829. No registration was required, it required only one plate, but it was only really successful at enhancing pale floating ethereal landscapes.

Another way to avoid aligning several transfer prints was to cover an entire dinner or dessert plate with a



6. Plate with *Rhenish Views* pattern, single plate inked with three colours, Davenport c1840



7. Plate with *Tumbledown Dick* pattern, bone china, Spode c1825–30

a water-soluble resist made with flour, known as 'ackey'. When this was dry, the overall background print was applied on top, after which the sheet of tissue and ackey could be washed away to leave the various prints exactly occupying their designated spaces. This system worked well for smart tableware such as Spode's *Tumbledown Dick* pattern (7) with its neat jigsaw effect whereas, by contrast, cheap earthenwares using overall line transfers crudely enamelled overglaze in vivid chrome colours, such as the jug of debased Hydra shape (8) made by Jones & Walley (operating 1835–45), merely produced an appearance of patchwork: a painting-by-numbers system, which perhaps suited the age and inexperience of the factory decorators.

The fashion for overall continuous prints became more economically viable after 1831 when WW Potts patented his Steam Cylindrical Printing Apparatus, adapted from a calico printing machine and used to good effect during the



9. Dessert dish, bone china, Machin & Potts c1833–40

repetitive background pattern from a single sheet transfer, the fussy design of which reflected the huge popularity in the 1830s–40s of the five-colour shawls woven at Paisley and their cheap printed cotton imitations. In order to break up the background with, say, highlighted floral sprays printed in different colours from separate transfers, a clever process was devised to allow the pattern to be interspersed with precisely placed blank areas. Neither the wax traditionally used in resist lustre decoration, nor the cut paper 'reserve' blanking panels traditionally laid onto delftware with powdered blue or manganese decoration (or onto porcelains washed or dipped with rich cobalt to produce 'mazarine' and gold) would work with underglaze transfer prints. So from the early 1820s the ingenious Spode factory printed the highlights first, then carefully masked them with



8. Jug enamelled overglaze, Jones & Walley 1835–45

partnership of Machin & Potts at Burslem (operating 1833–42). The engraved cylinders that printed transfer papers could produce either prints shaped to fit specific pieces of tableware, or continuous patterned paper (on rolls produced by the Fourdrinier paper mill) that could be roughly cut to suit each individual piece, like the Machin & Potts dessert dish (9) with any ragged edges masked by gilding. The inherent limitations of the machine, however, were soon discovered when the factory tried and failed to add different colours to their roller-printed transfers.

As for exploiting the new range of high-temperature colours for underglaze multicolour pictorial decoration, which included the

unforgiving hard lines of architecture and figures, a method of accurately registering several superimposed transfers was essential. The first definite example of such a system is to be found on the dessert plates made by that major exporter William Smith & Co of Stockton-on-Tees, with prints in five colours depicting various Baronial Halls from a series registered by Knight Elkin & Co on 15 August 1844 (10). Visible on these circular vignettes are registration dots at 3 o'clock and 9 o'clock as well as the signature 'Toft & Austin Sc.', a partnership dissolved on 25 February 1845, thus securely dating the supply of these copper plates to William Smith's pottery as 1844–45. Jesse Austin, a key figure in the development of colour printing, was said by his daughter to have been apprenticed as an engraver to Davenport 1822–27 and subsequently employed by the factory for a further ten years, but during that period his work seems to have been indistinguishable from that of the many competent artists and engravers working in the pottery industry. Perhaps by taking the talented and more experienced artist and engraver Alphonsus Toft as partner, he was attempting to launch and give credibility to a proposed 'new' method of multicolour printing – which actually had well-established precedents.



10. Detail of W Smith & Co plate with Toft & Austin print c1844–45

In fact, the principles of Jesse Austin's system may be traced right back to the invention in 1796 of lithography by Alois Senefelder of Bavaria, who originally intended it for the reproduction of sheet music but by 1818 had realised its potential for full-colour printing. It was, however, a Franco-German living in Paris, Godfroy Engelman, who developed chromolithography using multiple stone 'plates', introducing it in London and eventually obtaining an English patent in 1837. In simple terms, lithography is neither an intaglio (engraved plate) nor a relief (wood block) method, and is reliant on the basic mutual repulsion of water and oil for inking a waxy image drawn freehand upon the flat limestone. With the subtlety of tone obtainable from using as many as twenty-four stone plates, inked with different colours and accurately aligned with spikes through holes at the corners of the paper and the stones, the process was much loved by French Romantic artists; but in England it was applied to more mundane subjects such as botanical illustration, and it was in this field that it was taken up in 1824 by talented wood engraver George Baxter.

Baxter, a perfectionist who never made money himself but launched the careers of several apprentices, has achieved iconic status among collectors. In the 1820s, dissatisfied with the lack of precision in printing from stone, he invented a new method of oil colour printing which combined intaglio and relief printing using hard-wearing engraved steel plates and up to twenty-four relief wood blocks (or zinc or copper, etched to print in relief), borrowing the spike registration system from chromolithography. The engraved steel 'key plate' was printed first, followed by a numbered succession of wood blocks, the relief parts of which were each inked with a different oil colour, sometimes finished with hand-colouring. Sufficiently different from both lithography and from the method used by his contemporary William Savage, who used only woodblocks, Baxter was granted a patent in 1835 for 'Improvements in Producing Coloured Steel Plate, Copper Plate and other Impressions', renewed in 1849 for a further five years. And although he was no businessman, after 1849 he did license others to use his technique, such as his former apprentices Gregory, Reynolds and Collins, who were prolific producers of book illustration using seven woodblocks and a wood key-plate. In 1848 Reynolds and Collins patented¹² an important method of block-printing coloured geometric designs onto a single

transfer paper that was then applied to tiles. This patent, along with Alfred Reynolds himself, passed the following year to the Minton factory, which then had the capability to produce Pugin-designed tiles for the Houses of Parliament and Great Exhibition.

Much could be said about Baxter and lithography¹³, but suffice it to say that the much-respected but impecunious Baxter was compelled to sell his stock in 1860, was declared bankrupt in 1865, and died in 1867 after colliding with a horse omnibus. The possibilities for lithography as applied to ceramics – reproducing Old Masters – did create a brief stir in the late 1830s¹⁴ but the process itself was soon drastically simplified and adopted by the newspaper industry as a method of cheap reproduction. However, the unique tonal possibilities offered by colour lithography were rediscovered in the 1880s for reproducing not only fine art and posters such as those of Toulouse Lautrec, but also ceramic decoration. Baxter himself had experimented with combining lithographic printing with photography in its early days¹⁵, a logical pairing which was finally perfected around 1900 under the name 'Autochrome'.

To return to Jesse Austin and the 1840s, it was he who recognised the advantages of Baxter's patented system, combining intaglio and relief printing, which he then modified both to suit his needs and to avoid infringing the patent¹⁶. In short, the whole basic design was stipple-engraved onto a copper plate (the key plate), then three or four matching copper plates were etched to provide relief areas to be inked with a different colour. Each plate bore matching dots at either side, visible through the wet transfer tissue to enable accurate positioning of the superimposed transfers, which were strictly applied in the order blue, yellow, pink and green, followed by the key plate inked in black or brown. The advantages of hand-engraving and punch-stippling the key plate, rather than using shallow linear acid-etching, were threefold: firstly the sharpness and immediacy of the burin in the hand gave the finished print an air of freshness; secondly the depth of the impression made into the soft copper plate, either punched with the point or scored and cross-hatched, could convey a wide range of light and darkness to the finished print; and thirdly the V-shaped grooves and punch marks on the heated plate were better at holding and releasing the ink onto the transfer tissue. The disadvantages of rapid wear on the soft copper were partly overcome as early as the 1850s by electroplating with steel in the form of low-carbon iron¹⁷.

Whereas Baxter had printed his steel key plate first, Austin did so last, thus hiding any discrepancies of colour registration with a black outline. For small-scale work this method was highly effective, and although each printed colour had to be hardened on before the next was applied, it was well suited to the production line. Jesse Austin, having tested and proved this with his Toft & Austin prints, then moved in c1846 to become head of the engraving shop at Messrs F&R Pratt of Fenton, which had recently been granted a royal appointment to Prince Albert; they were actively engaged in finding cheap ways to mass produce pot lids. Felix Edwards Pratt was granted a patent on 31 December 1847¹⁸ for using two 'gauges' to create the profile of pot lids on the wheel (rather than on the lathe) shortly after rival potter John Ridgway of Cauldon had obtained, on 21 October 1847¹⁹, a patent for improvements in manufacturing 'paste' or 'patch boxes', 'pomatum and other pots' also on the potter's wheel, as well as a method of forming the lidded pots using dies and a screw-press to extrude the clay. Consistency in manufacture was also an essential quality for containers of perishable goods, where the seal between lid and base needed to be airtight before the paper label was glued around the waist. It was the successful combining of these machine-produced lids with Jesse Austin's multiplate printing system, using the hot press technique and the palette of high-temperature colours, that resulted in possibly the very first multicoloured pictorial pot lid (**11**); decorated tentatively in only three colours with Polar Bears rather aptly copied from a Baxter print, similar lids are known to have been ordered by a pharmacy in Blackfriars as early as 1846. Another much more colourful F&R Pratt lid with *Grace Before Meals*, depicting a poor family after *The Farmer's Grace* by Jan Steen, is known to have the date 1847, plausibly the date of its manufacture.



11. Pot lids with different versions of *Polar Bears*, c1846

The prolific Jesse Austin, responsible for 128 surviving watercolour pot lid designs used on a total of 360 known pot lids, as well as a further twenty-eight unused designs – none of which, however, are thought to have been Austin's original work – has always been idolised by pot lid historians²⁰, but only recently subjected to serious objective assessment¹⁰. Whatever his shortcomings as a creative artist, it cannot be denied that he displayed genius in joining one of the leading makers of printed wares at exactly the right time; and in correctly calculating what the market wanted, or could be seduced into wanting, by introducing a wide range of appealing collectable little gems, some of which would eventually acquire the status of framed art objects in their own right. Yet compared with the high-minded George Baxter's stated purpose of providing exquisite but affordable colour prints in order to 'increase, not merely the happiness, but the morals and good conduct in society of the working people', it is probably fair to say that Jesse Austin's workmanlike lids for potted meat, fish paste and bear's grease, though sometimes carrying a moral message, were primarily intended to generate money for their makers and for the grocers and pharmacies they supplied.

By the time that the Grand International Building for the *Exhibition of Art and Industry* opened in Hyde Park (opposite and parallel to Knightsbridge Barracks) on 1 May 1851, Pratt, Mayer and Baxter were well prepared. Joseph Paxton's magnificent cast-iron and glass Crystal Palace was celebrated by Baxter's miniature panoramic view as well as sixty of his oil-coloured Gems on sale inside the building; F&R Pratt & Co of Fenton were awarded an honourable mention with their display of 'A variety of box covers, and pairs of ornamental vases, in the same style. The subjects are executed under the glaze by the ordinary process of "bisque" printing, each colour is produced from a separate engraving, and "transfer" requires to be carefully registered', no doubt including a lid with their own different view of the Crystal Palace. Henry Cole paid Pratt and his decorator Austin the highest compliment by selecting a bread platter²¹, despite reservations about its subject matter, for the collections at Marlborough House, which were later to form the basis of the South Kensington Museum. Thomas, John and Joseph Mayer of Dale Hall Pottery were awarded a Silver Medal for 'Various Designs for meat pots, printed in colours under the glaze', also producing a lid (1) showing the building, after a design registered by Crosse & Blackwell on 23 October 1850. With an audience of six million visitors to the Exhibition, the genre of colour-printed pot lids and their associated highly decorated dessert and toilet wares, whose decoration was designed to tell a story, was now fully launched into its best decade. The pot lids of Pratt and Mayer, basically disposable containers but smart enough to be presented on any dining or dressing table, truly embodied the Victorian ideal of art and industry working in harmony.

Postscript

The series of subsequent international exhibitions inspired by the Crystal Palace of 1851 continued to attract attention from Pratt, Mayer and Ridgway. Pratt produced a lid depicting the loss-making *Dublin Industrial Exhibition* that opened on 12 May 1853 (12), while the Mayer factory produced a lid and Baxter was awarded a medal for his Gems at the New York exhibition (13), which opened on 14 July 1853, only to be destroyed by fire on 5 October. A rather half-hearted lid (14), thought to be by John Ridgway of Cauldon Pottery, commemorated the 1862 *International Exhibition* which, postponed for a year by the death of Prince Albert, was tainted by its reputation as 'the ugliest building in London'. It was duly demolished to provide a site for Alfred Waterhouse's Natural History Museum of 1881, along what is now the Cromwell Road. The exhibition jury noted a mysterious method used by Livesley, Powell & Co for 'printed earthenware decorated by a foreign patent, by which at one transfer, various colours as well as gold are printed on the ware... at a much reduced cost'. Pratt continued to exhibit toilet ware at the 1855 *Universal Exhibition* in Paris, without however producing any souvenir pot lids, though the factory continued to mark these events with lids for *L'Exposition Universelle 1867* in Paris, the Paris Exhibition of 1878, the Philadelphia Exhibition of 1876, and as a last offering, a drab grey-brown, almost photographic, view of the Administration Building of the *Chicago World's Fair* in 1893. As if to confirm that the pot lid was now extinct and was about to enter the world of antique collecting, the first exhibition of lids took place at Blackpool in 1897.



12. Pot lid with Dublin Industrial Exhibition 1853, F&R Pratt



13. Pot lid with New York Exhibition 1853, Mayer



14. Pot lid with International Exhibition, London, 1862, probably Ridgway & Co

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8,12,13,14 Private Collection
11 formerly Mortimer Collection

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2. Dragesco, Bernard *English Ceramics in French Archives* 1993
3. British Museum, cited by Alan Smith, *The Illustrated Guide to Liverpool Herculaneum Pottery 1796–1840* London 1970 pp98–107
4. Simeon Shaw (1829) states that Harry Baker of Hanley, 'the first black printer, prior to Sadler & Green' used the glue-bat process when working for Baddeley c1770
5. In 1819 the New Hall Porcelain Co is recorded as subcontracting some of their bat-printed and enamelled teawares to Thomas Dudson. Such coloured prints are found both on New Hall hard-paste c1810 and also on the bone chinas introduced in 1812. See Dudson, Audrey *Dudson, A Family of Potters since 1800* 1985, pp38–39
6. Richards, Sarah 'Transfer printing and its paper in English manufactories (1780–1830)' *Les archives de l'invention: Ecrits, objets et images de l'activité inventive* Toulouse, Presses Universitaires du Midi, 2006
7. Préaud, Tamara, and Ostergard, Derek E *The Sèvres Porcelain Manufactory: Alexandre Brongniart and the Triumph of Art & Industry 1800–1847* Yale University Press 1997 p154. High-temperature colours would have been needed for the hard-paste made exclusively from 1802
8. Unknown to 18C delftware potters, the pinkish tinge found on some Lambeth wares was caused by the reaction of tin oxide in the glaze to traces of chromium in the clay body
9. Dudson, Audrey M, *Dudson, A Family of Potters since 1800* 1985 pp53–54
10. Halfpenny, Pat 'Beyond Blue: Printing in Fancy Colours' *Transferware Collectors Club* lecture May 13 2021
11. Halfpenny, Pat 'Multi-color printing on ceramics – its earlier than you think' *Transferware Collectors Club* Vol XVI No. 2 2015
12. Frederick William Michael Collins and Alfred Reynolds, engravers and printers, 'for improvements in the art of ornamenting china, earthenware, and glass', patent granted 14 March 1848
13. For example, Morris Martin, 'George Baxter and His Oil Color Prints. Painting by Printing' *Princeton University Library Chronicle* Vol 40 No. 2 (Winter 1979)
14. 'An Application of lithography to pottery has been effected by ML Legé, the proprietor of one of the largest lithographic establishments in Bordeaux. By means of this invention, for which a patent has been granted, common plates and dishes will bear copies of many of the great works of the first painters' (*Mechanics Magazine, Museum, Register, Journal and Gazette* Vol 31 1839). 'New use of lithography. Considerable sensation has been excited among the engravers in the Potteries over experiments that are now being made by a gentleman from London in transferring designs and patterns from lithographic prints to earthenware... the effect is really beautiful' (*Staffordshire Gazette*, as reported in *Fife Herald & Gazette* 15 October 1840)
15. It is worth noting here that Fox Talbot envisaged his invention of photography as a means of mass production rather than a technique for producing art
16. Halliday, Dr Richard "'Drayton Manor" Hand-Engraved Copper-Plates' *NCS Journal* Vol 35 2019. The V&A has acquired a Mayer pot and lid with 'The Bear Pit' and a set of three matching copper plates (C.37:1,2-2012 and C.10-12-2012)
17. According to Robert Copeland, in 1976 the Spode factory changed from nickel-steel plating their copper plates to the much harder chrome, which had been invented in 1926
18. Felix Edwards Pratt, Fenton, 'for Improvements in manufacturing articles... cylindrical... formed on the "throw-wheel" or "jigger"' Patent granted 31 December 1847
19. John Ridgway, Cauldon Place, for 'improvements in the manufacture of paste-boxes and other similar articles in china and earthenware, or other plastic materials, forming "paste" or "patch" boxes, "pomatum and other pots" on the jigger or throwing-wheel, and moulding pots in a screw press' Patent granted 21 October 1847
20. Including Williams-Wood, Cyril *Staffordshire Pot Lids and their Potters* 1972; Ball, A *The Price Guide to Pot-Lids and other Multicolour Prints on Ware* 1980; Mortimer, KV *Pot-Lids and other coloured printed Staffordshire wares* ACC 1988
21. *Christ rebuking the Pharisees* after Henry Warren, signed J Austin Sculp. and H Warren. Presented by HM Commissioners for the Exhibition of 1851, but accessioned by the V&A much later as C.629-1921