

The Glass Print

ABSTRACT

Glass prints were popular from the late seventeenth century to the early nineteenth century. They were produced by first adhering a mezzotint print face down to a sheet of glass with varnish. Then the back or verso of the print was abraded all over to a very thin layer. The altered support was then painted in from behind with watercolor or oil paint. The painterly appearance of the print led to a fascinating form of decorative art, which novices and master artisans alike practiced in England and America. This paper will review the history and technique of the glass print as well as its conservation.

INTRODUCTION

The mezzotint, meaning “halftone” in Italian (*mezza tinta*), was first created in the seventeenth century as a new printing technique. The technique, which was called “mezzo-tinto” when it was first introduced (Salaman 1910), produces silky light and dark tones that gave the intaglio print a dynamic painterly appearance. The glass print gave further expression of the mezzotint in a curious form. This paper will briefly discuss the history and development of the glass print (sometimes referred to as the reverse-glass print), and a conservation case study review of an eighteenth century glass print.

To begin the discussion of glass prints one must be specific, for in fact there are several types of so called “pictures on glass.” One is the direct painting on glass version, in which oil paint ground in shellac, varnish, or linseed oil is applied directly on glass. They were influenced by the glass paintings of the Orient, which were first known in the West in the fourteenth century. These paintings were popular in America, especially among the Pennsylvania

Dutch from the early 1800s to the 1850s. Another version of the glass painting is one that incorporates a silhouette that uses watercolor on paper as a background. Modern versions of reverse glass paintings from commercial and independent artists continue to exist to this day. The pictures were hand-colored or screen printed on the reverse side of a sheet of fine glass, which was either flat or convex, in the form of a silhouette (*Glass Encyclopedia* 2002). And last, but not least, there is the glass print version of pictures on glass that sprang from the development of the mezzotint.

THE MEZZOTINT: *LA MANIÈRE ANGLAISE*

The basic mezzotint process involves covering a copper plate with straight horizontal, vertical, and angled lines of very small burred indentations or dots, which would result as a black background when printed. The printer develops a design by carefully scraping away the burrs and reducing the depth of the dots in the composition to produce positive or light areas when they are inked and printed. Therefore, mezzotinting differs from other intaglio printing processes because the printer works from black to white rather than white to black.

Early on roulettes or “engines” were used for this purpose of marking the plate with burred lines. The roulette was composed of a long wooden pole to which was attached a small metal wheel with teeth, which turned on its axis. Later during the sixteenth century the Dutch mezzotinter Abraham Blooteling (1640-1690) invented the rocker, which quickly replaced the roulette. The rocker is a large piece of curved steel metal about two inches or so across with fine teeth. A handled pole is attached to its pole for ease of use.

The mezzotint process allowed the printer to produce a depth of tonality that no other intaglio printing technique could achieve. The technique’s forte was the extremely deep rich blacks and very subtle middle tones, which were developed by the hands of master mezzotinters. Cyril

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Davenport (1903) observes in his book *Mezzotints* that many large eighteenth-century mezzotints incorporated etching extensively and the rocker or roulette were used only for touching up. He felt that the engravers probably found it difficult to use mezzotinting for fine, definite lines such as in the representation of figures. Mezzotint printers also often employed a mixture of etching and engraving in their designs. Mezzotint plates also wore down quickly after the first twenty-five or so prints were produced. Later, prints would not have the same crisp impression as the earlier ones. Of course the durability of the plate depended upon its hardness.

Many historians credit Ludwig von Siegen (1609-1680) of Germany with the invention of the mezzotint in the seventeenth century. His earliest work was a portrait entitled *Amelia Elizabeth* that was produced in 1642. Amelia Elizabeth was his long-time patron and benefactor. Working from copper plates Von Siegen experimented extensively as he developed techniques to produce tones working from dark to light using his additive process and the roulette that he was the first to adopt for use in printmaking. The roulette had been used for a very long time previously in other craft type activities such as leather working, bookbinding, fresco painting, and by metal-smiths (Wax 1990).

Prince Rupert, son of Fredrick V of Bohemia, secretly learned mezzotinting from Von Seigen. He made many improvements in the mezzotint process and he experimented for a number of years trying various grounds and tools. Somewhat because of Prince Rupert's ancestral connection with the English (his mother was Elizabeth, elder sister of Charles I of England), Prince Rupert was falsely given credit for having invented the mezzotint process by John Evelyn, an English writer and enthusiastic supporter of Prince Rupert. Evelyn referred to the technique as "a new manner of Chalcography." Rupert's early works included combinations of etching and engraving with the some attempt at scraping. But it seems that his work was somewhat crude and lacked the polish and richness that succeeding mezzotinters would produce.

England soon became the center of activity for the mezzotint process, which lead to the technique being sometimes referred to as the *manière Anglaise* or the English manner (Wax 1990). Many printers from the European continent came to England to establish themselves and to escape the economic and military upheavals taking place across the land. John Smith (1652-1743) is recognized as the first true English master of the mezzotint (Whitman 1898). He was a major influence in style and technique to many students who studied under him and who went on to fame in their own right. Smith, as other mezzotinters, used subjects drawn from paintings. Painters often encouraged the use of mezzotint to reproduce their works because of the ability of the mezzotint to produce continuous tones

that did not rely on line work. The works of Sir Joshua Reynolds (1723-1792) was widely used by mezzotinters. Mezzotints were also made after the works of artists such as Hoppner, Lawrence, Romney, and Gainsborough. Though it was expensive, English mezzotinters often preferred French papers made in the Auvergne region because of their very high quality and whiteness while Dutch papers were used for more modest prints (Clayton 1997).

MEZZOTINT UNDER GLASS

The glass print was created by gluing a mezzotint face down to a sheet of crown glass then reducing the back of the print down to a tissue-thin layer. Additional coats of mastic varnish were thought to have been applied to give the print a brilliant transparent affect (Loewenthal 1931). The print was then in-painted from behind with watercolor or oil paint. It has been theorized that the first glass prints were made with mezzotints by John Smith at the end of the seventeenth century. In his book, *The Story of Old English Glass Pictures*, the author H. G. Clarke (1928) reasons that Smith is the most likely candidate. Clarke concludes that the practice of gluing mezzotints to glass and in-painting them as early as 1700 coincides with Smith's 1723 instructional publication about painting prints, which is entitled *The Art of Painting in Oyl...*

The glass print appears to have become very popular during the eighteenth century. There also seems to be very little definitive information on why these prints were produced. H. G. Clarke surmises that contemporary minds of the period felt that prints were deficient if they were not colored, which led to early mezzotinters in-painting their engravings. My impression or theory is that glass prints were for all intent and purposes a novelty. It seems interesting to me that glass prints became popular at the same time other manifestations of printed artwork were developing. In particular, the peepshow had caught the imagination of print artists, as perspective views and later protean prints were finding their niche to fascinate onlookers with the transitional effects of light (Stanley 1997). Indeed, advertisers of the period seem to refer to such an occurrence. For instance, the book *The Arts and Crafts in New England, 1704-1775* by George Dow (1967), mentions an advertisement that notes a *camera obscura* among other articles being sold. The mention of a *camera obscura* is key because that was a method by which people viewed peepshow-type prints such as perspective views.

The subject matter of glass prints, as with mezzotints, often gravitated toward portraiture, which involved the nobility, very attractive upper class women, national and local heroes, and various people that were generally held in high esteem. But some also represented active life styles of the common folk as well as images of the rich and famous.

THE GLASS PRINT TRADE

Glass prints could be bought from a print seller or one could make his or her own. Print sellers both in London and in the British colonies of America avidly announced the sale of their goods, which included glass prints, to attract customers. Print sellers in England and in its American colonies could make a tidy profit by selling mezzotints and glass prints. The January 17, 1757, issue of the *Boston Gazette* mentions a delivery from London of "...A great Variety of new fashioned Looking Glasses, and Sconces, and also a Variety of Metzitento Pictures, painted on Glass, . . ." (Dow 1967). Print sellers often imported mezzotints for the express purpose of making glass prints (Wax 1990).

Amateurs and professional artists alike produced glass prints, though amateur works have been described as crude. The novice could learn how to make glass prints through the instructional resources that were available at the time. Glass print making classes were publicized in local newspapers of the period such as this one:

Mr. Peter Pelham gives notice to all Gentlemen and Ladies in Town and Country, That at the House of Philip Dumerisque Esq. In Summer street (next to his own Dwelling house) Young Gentlemen and Ladies may be Taught Dancing, Writing, Reading, painting upon glass, in all sorts of needle work."—*Boston Gazette*, Feb. 6, 1738 (Dow 1967).

An early work by John Stalker (1688) suggests in no uncertain terms that painting on glass was by natural selection an activity more suited for women.

H. G. Clarke's book recounts detailed passages from William Salmon's 1700 publication *Polygraphice: or the Art of Drawing, Engraving, Etching, Limning, Painting, Varnishing, Japaning, Gilding, etc.* Salmon's book gives a very forthright instruction on how to make glass prints. The instruction covers everything from preparing the prints and adhering them to the glass to choosing colors for in-painting.

For instance, Salmon writes that there are five steps for preparing a mezzotint and adhering it to glass. The steps involve: swelling the paper fiber in warm water; applying carefully Venice turpentine (or varnish) to the glass; removing excess water from the paper support and laying it on the glass, being careful to remove air bubbles; then thinning the support by carefully rolling off paper fiber with the fingers and allowing it to dry. Hence, the following from Salmon:

I. *TO prepare the Prints, whether Mezzotinto or Engraved.* Steep your Prints flat-ways in warm Water 4 or 5 hours, or more if the Paper is thick; then with a thin pliable Knife spread

Venice Turpentine thin and even over the Glass; and with your Fingers dab it all over, that it may appear rough.

II. *afterwards take the Print out of the Water*, lay it on a clean Napkin very smooth, and with another Napkin press every part of it light to suck and drink up the Water.

III. *This done, lay the Print on the Glass by degrees*, beginning at one end, stroaking outwards that part which is just fastening to the Glass, that no Wind or Water may lye between it and the Print, and which you must be always careful to stroak out.

IV. *Then wet the back side of the Print, and with a bit of Spunge or your Finger rub it lightly over*, to rowl off the Paper by degrees; but carefully avoid rubbing it into holes, especially in the Lights which are most tender.

V. *When you have peeled it so long, till the Print appears transparent on the backside*, let it dry for 2 hours; after which Varnish it over with *Mastich*.

Varnish (in cap. 4. fect. I5.) or *Turpentine Varnish* (in cap. 4. fect. I4) 4 or 5 times, or so often till you may see clearly thro' it, and after 24 hours you may work or paint on it. (Clarke 1928)

Salmon also gives guidance for use of appropriate colors, such as that section which describes how to paint a face:

XVIII. Glaze and touch the deep Shadows thinly with Lake, brown Pink and Varnish; and the white Speck and black Ball of the Eye, as the Print shall direct you: also the round white Ball of a convenient color. Make the Lips of a fine Red with Carmine or red Lake: the dark side of the Face shadow with Vermilion, yellow Pink and white. (Clarke 1928)

He goes on to describe how to paint other parts of the face by mixing various pigments to achieve the proper skins, but also leaving much to the artist's subjective eye to judge.

Print sellers and merchants sold the materials such as pigments, mezzotints, frames, and crown glass for making glass prints (Dow 1967). Crown glass is a finer quality of glass that was invented in France in 1330. It was later imported to England and then began being produced in London in the seventeenth century. Crown glass is more transparent than the more common and much less expensive cylinder glass because its hand-blown production technique allows for nothing to come in contact with it while its being produced. Cylinder glass (or broad glass) on the other hand is dull because during manufacture it comes in contact with an annealing table (*The Conservation Glossary* 2002).

The frame was also an important and integral element of the glass print and it was also often advertised for sale. The frames came in various styles and they were usually of high quality (figs. 1–2). Lavish frames that were made of the choicest woods were common for glass print since the



Fig. 1. *The Sleepy Congregation*, Corbet after Hogarth, [18th century], Princeton University Library, no accession number. A very beautiful and interesting glass print with a very lustrous gilded frame.



Fig. 2. *The Sleepy Congregation*. The verso of the frame has been left undisturbed. Newspapers were folded and stuffed between the glass print and a wooden back board that is held in place with large iron nails.

goal was trying to enhance the painterly characteristics of the object. Lush carving and gilding also adorned the frames.

THE PROBLEMATIC SIDE OF GLASS PRINTS

Glass prints are subject to very serious damage because of the manner in which they were produced and the materials that were used. The most common affliction that glass prints suffer from is the failure of the varnish layer, which can be a minor nuisance. This occurs when several small areas of the print are no longer in contact or adhered to the glass, resulting in air pockets. It is a much more serious problem in cases where there is a more substantial failure of the varnish layer, which results in very large areas of the print are no longer adhered to the glass. And of course, there are instances in which the glass breaks.

CONSERVATION CASE STUDY: HER ROYAL HIGHNESS PRINCESS AMELIA

This case study concerns a glass print by John Faber the Younger (1695-1756) and is entitled *Her Royal Highness Princess Amelia*, which is in the Graphic Arts Collection of

the Princeton University Library (fig. 3). No date appears on the print though its publication was probably around 1752. The print is a reproduction of a painting by Hans Hysing (1678-1753). Hans Hysing was a Swedish portrait painter. Many engravers and mezzotinters of the period used his works as studies. John Faber the Younger used other works by Hysing to create other mezzotints. Some involve several studies of Princess Caroline Elizabeth and another of Princess Amelia Sophia Eleanora. John Faber the Younger was the son of John Faber the Elder. They both arrived in England from Holland sometime between 1687 and 1695 (Wax 1990). John Faber the Elder opened a print shop in London and also did some engraving of portraits. His talent was considered adequate at best, but his son was shown to have the real talent and worked separately from his father. Faber was very prolific during his time and created more than five hundred plates after eighty-six painters, many of whom were the most important English artists of the period (Salaman 1910).

Princess Amelia, the subject of the print, is the second daughter of King George II of England. She was born in June 1711 and died in October of 1786. She is shown from head to waist with her head slightly turned to the right. Her face is youthful and very expressive with soft eyes. Her



Fig. 3. *Her Royal Highness Princess Amelia*, Faber after Hysing, [18th century], Princeton University Library, no accession number.

hair is ornamented with large pearls and she appears to be wrapped in an ermine cape around her shoulders. The print has been in-painted with a vibrant red and dark brown color for the clothing. It is difficult to discern the colors used in the hair and face other than the light red employed for the lips because of the brown staining and discoloration that is present. The print is strikingly similar to a print of the same title by John Faber the Younger about the same time. The latter print shows the same head, shoulders and garments of the Princess Amelia, but with a fuller view of the body down to the waist.

The glass portion of the object is 37 cm high by 26.5 cm wide by 2 mm thick. It has a slight green tinge and an uneven surface, which suggests that it is the original crown glass. The print, which covers the glass completely, is attached with an adhesive. The adhesive has a yellow-orange fluorescence under long wave ultraviolet illumination, suggests that it may be varnish. The paper support was reduced to a wafer-thin thickness. It is not known whether the mezzotinter applied the print to the glass and in-painted it. At some period in the late nineteenth century or early twentieth century a sheet of brown



Fig. 4. Brown kraft paper with a stamped label, "B. Altman & Co." B. Altman & Co. was a retail household goods store founded by Benjamin Altman in New York City, New York. The small original store moved to a much larger site on Sixth Avenue at Nineteenth Street in 1876 where it remained until 1906, when it moved again to an even larger site on Fifth Avenue between Thirty-fourth and Thirty-fifth Streets (B. Altman & Co. 1914, Introduction). Among the home furnishings and items that the store sold was artwork.

kraft paper was adhered around the edges of the verso of the print in, perhaps, an attempt to protect it (fig. 4). The frame did not appear to be the original frame, but a modern replacement.

CONDITION OF THE OBJECT

The object is in a very poor state. The paper is severely stained and discolored from the deteriorating varnish (fig. 5). Dark brown stains are present over much of the support. The object is a wreck aesthetically and physically. The support also has a very puzzling green tinge or cast, which I thought was not necessarily due to the glass. Gene Hall, associate professor of chemistry at Rutgers University in New Brunswick, New Jersey, conducted energy dispersive x-ray fluorescence (EDXRF) spectroscopy using an



Fig. 5. A close-up view of a badly stained area, which is typical of most of the print.

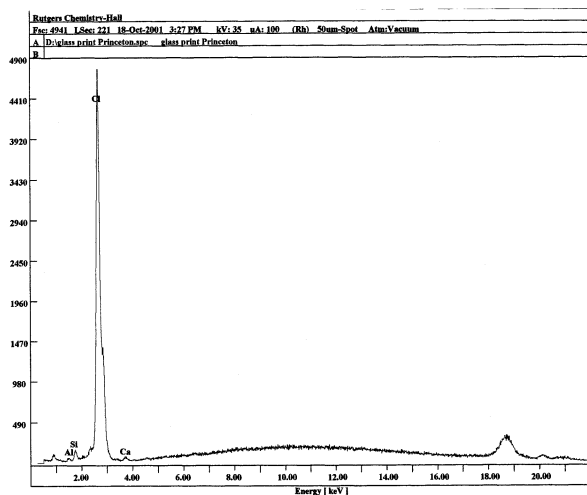


Fig. 6. EDXRF spectrum showing the presence of chlorine in the paper sample.



Fig. 7. Raking light photography shows clearly the where the varnish layer has failed and left air pockets between the surfaces of the paper support and the glass.

Eagle II Micro-EDXRF (Rh tube) instrument on a sample of the support. He found that the sample contained chlorine (fig. 6). The source of the chlorine is unknown.

In further describing the condition of the object, a small fragment of the framer's backing (upper left corner, verso) had broken off. The fragment had adhered to it a small portion of the support as well. The varnish has failed, leaving large portions of the print unattached to the glass (fig. 7). The paper support has become extremely embrittled by the presence of the varnish. The paper support is very susceptible to crumbling if disturbed. The glass is intact and appears to have suffered no damage.

DISCUSSION OF TREATMENTS: PROBLEMS AND CONCLUSIONS

Trying to conserve an object that is chock full of problems is a situation which many conservators can relate to. It's one of those disaster cases where you take the object out of your drawer once in a while, look at it, cringe and put it back. That's what I have been doing in this case for almost four years. One must not feel frantic or suffer an anxiety attack. But, neither does one want to take the "Rambo" approach to shoot first and ask questions later. Sober thought and a pragmatic approach are needed in

these cases. The extreme thinness of paper support and its severely deteriorated state makes it ever so fragile to handle. The support has partially delaminated from the glass over a wide area creating a wide range of small and very large pockets. To complicate matters the support also appears to have high ridges or tenting with cracks that are found within the pockets. In addition the support is severely stained and discolored.

What does one do? Can the staining and discoloration be reduced safely? Can the delaminated support be reset safely? Does one try to lift the whole support off in order to treat it? I don't know. A bold approach to treating the object would be to remove the support from the glass and reduce the staining and discoloration via a careful washing technique. Then repair the support and reattach it to the glass. The risk of losing the object is very high given its condition, if the treatment was attempted. I'm still very reluctant to attempt any sort of conservation at the moment after having thought about the problem for a very long time. For now the object is being safely stored in a padded box and resides on a shelf in a sturdy safe. I will continue to ponder and cringe and hopefully come find an appropriate solution in the near future.

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TED STANLEY

Special Collections Paper Conservator
Princeton University Library
Princeton, New Jersey
tedstan@princeton.edu