

TREATMENT OF AN AMERICAN POLITICAL TINTYPE BADGE. CASE-STUDY

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ABSTRACT

The treatment of an American tintype badge is presented. The tintype bears the image of Abraham Lincoln on one side and his Vice-Presidential running-mate, Hannibal Hamlin, on the other. The tintype was in very poor physical condition and required stabilization through immediate conservation treatment. The combination of different materials used to fabricate the badge (a metal die, iron plate, collodion, asphaltum, and varnish), the small scale and limited resources in the conservation and historical photography literature on the process, provided challenges. The treatment required innovative treatment methods, the testing of new materials, and the development specialized tools.

This case study was presented as a joint paper at the 2009 PMG Winter meeting in Tucson Arizona. The first section of the presentation, not included here, was made by Ralph Wiegandt, Andrew W. Mellon Advanced Research Fellow at George Eastman House. Wiegandt broadly addressed the benefit of applying cross-disciplinary methodologies for adapting techniques used in other conservation specialties for the treatment of photographs. Karina Beeman presented this case-study as an example of this problem solving approach.

1. DESCRIPTION OF THE OBJECT

The object for treatment was a political badge - very often called a button - for the first president campaign of Abraham Lincoln in 1860 (Fig. 1). It is a round two-sided medalet with tintype photographs of presidential and vice-presidential candidates on each side. Two tintype images are encased in a solid brass frame, which is 25 mm in diameter. The verso of the frame is inscribed "Abraham Lincoln 1860" with "Hannibal Hamlin 1860" on the verso. On each side there are olive sprays with two leaf clusters on the bottom of frame. A hole for hanging is on the top of the frame. The portrait of Abraham Lincoln, used as a master copy for production of the badge, is a reproduction of the famous "Cooper Union Portrait," by Matthew Brady made on the morning of February 27, 1860. This was the first photograph made of Lincoln in New York City and one of the few full-length photographs of him before he became president. It is also famous as one of only a few images picturing Lincoln without a beard. Tintype badges are plentiful for the 1860 campaign and exist in numerous sets for all candidates – Lincoln, Douglas, Breckinridge and Bell. This particular badge is relatively common and listed as Sullivan/DeWitt AL-1860- 97 (Sullivan 1981).



Fig.1. Political double-sided badge, 1860, tintypes in brass frame, diameter 2 ½ cm. Before treatment.

2. TECHNOLOGY OF THE TINTYPE BADGE, TECHNIQUE AND MATERIALS

There are three key inventions that led to production of this badge and many other similar political badges. First, the invention of the tintype process which was patented in 1856 (Smith 1856). The patent illustrates “the obtaining of positive impressions upon a japanned surface previously prepared upon an iron or other metallic or mineral sheet or plate by means of collodion and a solution of a salt of silver.” The six basic steps involved in the tintype process were: coating, sensitizing, exposing, developing, fixing, washing the metallic plate and varnishing. Second, mass production of tintypes was made possible by Simon Wing’s invention of the multiple tube camera (Wing, 1860). Tintype pictures were produced by copying a master portrait with a multi-lens camera (lenses with the furthest angle from the master produced a slightly distorted image). As many as thirty-six tintypes could be taken on a single plate, and then cut apart. Third is the invention of D.F. Maltby of Waterbury, Connecticut, who conceived of the idea of preparing special medals with tintype portraits of the candidates in the 1860 campaign. The double-sided medalet was made by setting tintypes on each side of a brass frame (Fig. 2). From this period onward, mass produced political badges became essential ephemera of political campaigns.

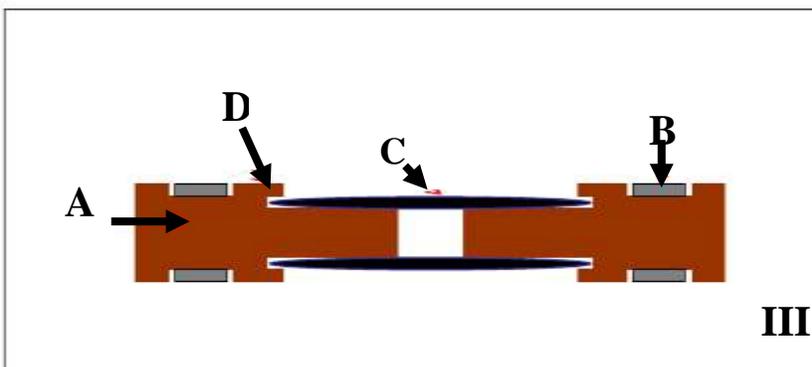
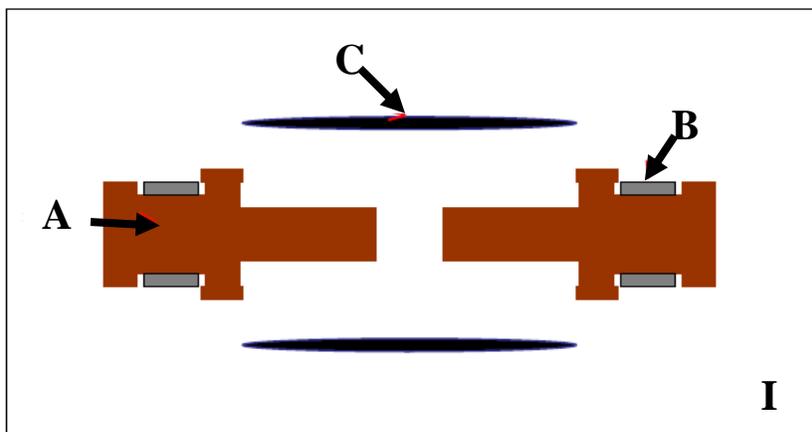
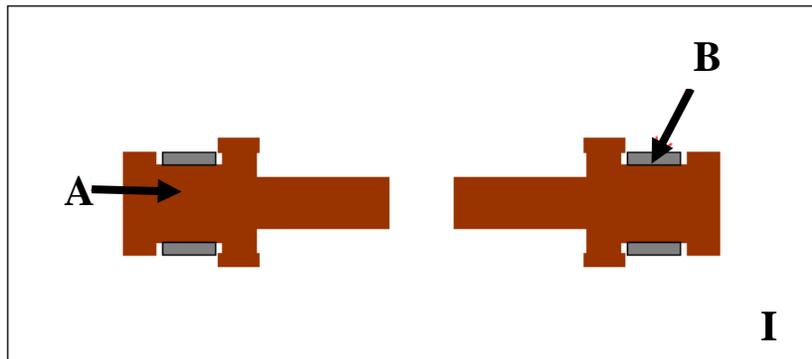


Fig.2. Scheme for making a tintype badge as described in a patent paper:

I. The sheet of metal, die-cut with a matrix by stamping press; A – solid metal; B – decorative rim with text.

II. A photographic picture placed on each side of a frame; A – solid metal; B – decorative rim with text; C – tintype images.

III. The rim is pressed down to secure the photographs A – solid metal; B – decorative rim with text; C – tintype images; D – securing rim.

IV. The badge is small, the diameter of a frame is 2 ½ cm.

When tintypes were pressed inside the frame, they obtained a slightly domed shape and an unsupported hollow space was introduced inside the frame of medalet.

Normally the campaign medals were made in the same dimension as coins. The medals were struck from dies, precisely as in coin manufacture. The traditional displaying technique was to make a hole in the top of the frame, through which a ribbon was run and attached to the wearer's coat or waistcoat. Also badges might have variations allowing for different manner of portrayal: such as a pin-back, shank-back and hinge ring.

3. CONSERVATION ISSUES AND NEEDS: COMMON AND UNIQUE;

The badge had many of the typical preservation issues associated with tintypes. There was soiling, dust, and accretions overall, especially on the perimeter of each tintype (side). The collodion binder on both tintypes - the portrait of Abraham Lincoln and the portrait of Hannibal Hamlin - was cracking. The Lincoln tintype was the most severely damaged and unstable. It had two losses of the collodion binder. In addition, the collodion on the Lincoln side had numerous, significant, cracks, with loose particles lying on the surface. The electrostatic nature of iron support made manipulations during treatment difficult, since with any slight touch caused the fragments of cracked collodion to move. The iron support was visible in areas of loss and corrosion was visible under magnification. The side with the portrait of Hamlin was significantly more stable with less cracking and no insecurities.

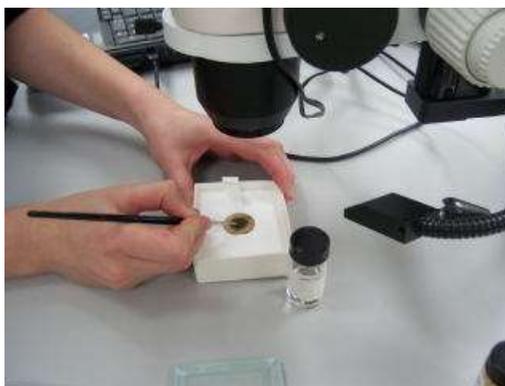


Fig. 3. During treatment: the badge is in custom made box; work is performed under the microscope.

The badge was in immediate need of stabilization to preserve the portrait of Lincoln. A restoration treatment was also needed to reduce the visual impact of the lost image. Long-term storage was another issue. A preservation enclosure was needed to safeguard and protect the object from further damage.

These are not unique needs for political badges and tintypes in general. Quite often they have cracking in the collodion that leads to image losses. Such damage diminishes and devalues the object. Left untreated, additional image loss will occur owing to the effects of advancing iron-based corrosion and through mishandling.

4. CHALLENGES

This small but complex object posed a number of challenges for conservation treatment.

- The combination of several different organic



Fig. 5. Heat spatula with original tip and custom-made micro tips (shaped copper wire).

and inorganic elements complicated the choice of materials to use for treatment, especially given the importance of treating tintypes with non-aqueous materials to prevent corrosion of the iron substrate.

- The small size of the badge and tintype image required specialized fine tools and precise applications, including housing and positioning set-ups to facilitate maneuvering and handling during treatment.
- The fact that the badge was a two-sided object, and needed to retain a presentable recto and verso following treatment.
- Lack of guiding information in the conservation literature and a lack of historical literature. In particular, published conservation experience on loss compensation and consolidation of tintypes is quite limited (Chen, 2000).

Ralph Wiegandt, Andrew W. Mellon Advanced Research Fellow at George Eastman House, who had previous experience as an objects conservator, was available to propose innovative treatment options and potential materials. This collaboration resulted in some new approaches and customized tools for the treatment of this Lincoln badge.

5. TREATMENT STEPS

Because the object was very fragile due to insecurities in the collodion and the diminutive scale, a custom box was created for safe handling, storage, and physical protection, (Fig. 3). The box was made from 4-ply acid-free board, which held a retaining cushion with a cavity cutout that secured the badge. The cushion was fabricated from Volara® Foam covered with inert, soft Teflon™ film, sold as Relic Wrap™. After the treatment a smaller box for storage was created, with the same cushion inside.

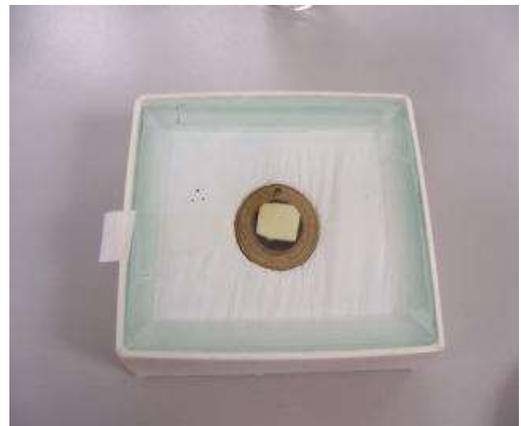


Fig. 4. System of light pressing after each consolidation cycle: the badge is in custom box weighted with a piece of glass silicone release paper and Mylar™, latex sponge and glass on

To the extent possible, accretions were carefully removed with a fine sable brush № 000. Following cleaning, the badge had an urgent need for consolidation. As described, the Lincoln portrait was severely damaged. It had numerous loose particles of collodion. Most of the damage threatened the image of Lincoln. The cracks and loose flakes of collodion were consolidated with 5% solution of Paraloid B-72 in toluene. The percentage of the adhesive was determined through trial and error - a lower percentage was too thin and did not achieve consolidation, a higher percentage was too thick and did not flow efficiently. Precautions were made due to the toxic nature of the solvent, and work was carried out under a solvent exhaust unit. Adhesive was carefully applied on the area of losses and cracking with fine sable brush №000. Brushes from Windsor & Newton series 7 were found to be the best for small scale work, due to the finest hair and most precise tip within the group of tested brushes. Overcoming the impact of electrostatic charges, held by the iron plate, proved challenging. Loose flakes of collodion and varnish easily “jumped” with any slight touch of the brush hairs making precise

placement impossible. To move fragments into proper place, a sharpened wooden stick was used; thus eliminating effect of static electricity. Three applications of consolidant were required. Any adhesive residue was removed mechanically with a sharpened wood stick. After complete consolidation of the Lincoln side, the tintype on the other side of badge (Hannibal Hamlin) was consolidated in the same way. All procedures were performed under the microscope.

Following consolidation, the surface of the tintype was not totally flat. Consolidated fragments formed a somewhat faceted shape. To minimize this complication, the consolidated areas were placed under minimal weight after each cycle of consolidation. Only light pressure was used: silicon-release Mylar (dimensioned to the diameter of the tintype), overlain by a piece of latex sponge to fill the space, and compressed by a piece of glass (0.5 mm thickness) placed on top (Fig. 4). The area of loss was covered with a thin layer of B-72 solution to create an isolating layer for the subsequent fill material and to prevent further development of corrosion.

Following the consolidation of the loose collodion particles, the object was again surface cleaned. Both sides of the tintype and accretions near the rim of the frame were cleaned with saliva applied by cotton swabs. Cleaned areas were rinsed with distilled water applied with cotton swabs.

Compensation of losses followed cleaning. The method of compensation was proposed by Wiegandt. A mixture of Cosmolloid 80H microcrystalline wax and Arkon P-90 resin, colored with fine dry pigments was used as a fill material. To prepare this mixture, the wax and resin were warmed on a hot plate until uniform and transparent. The proportion of the wax-resin mixture was adjusted as required with more wax creating a softer fill material. The author tried 1: 1 (wax to resin proportioned by weight), and 1:2 (wax to resin), but eventually used the 1:1 mix. For convenience, the mixture was poured into a silicone mold to cool and harden into sticks though any shape was possible. The wax-resin mixture was then heated with a spatula, at approximately 60°C, and mixed with dry pigments on a ceramic palette.

The colored mixture was applied to the loss with the hot spatula and a customized metal tip. Setting the spatula to a temperature of 50°C was found to be ideal for the application of the wax and pigment mixture. The spatula was a Micro Matic™ Electronic Waxer. Custom micro tips, made of copper wire, were shaped and wrapped around the point of a spatula (Fig. 5). A pointed tip was used for applying the mixture, a flat tip was used for polishing (Fig. 6 and 7). All work was performed under the stereomicroscope due to the small size of the losses. The fill was built up gradually, dot by dot. The fill was flattened and evened with the edges of the loss using the heated spatula. The fill was covered using silicone release Mylar™. The Mylar™ was not removed from the working area immediately allowing the fill to cool. Adjustments were made with the spatula set to a maximum temperature of 40°C to insure entire fill would not melt. Additional adjustments were made by burnishing with a small bone spatula through silicon release, Mylar™. Heptane, applied with a fine brush, was used to make minor corrections to the fill. Application of heptane was done under a solvent exhaust unit, due to the hazard of the solvent. Excess fill material was removed with an application of aliphatic solvents (petroleum benzine or VMP Naptha). The naptha had no effect on the collodion or B-72 consolidant, which

proved essential especially since it was necessary to redo the fill many times to achieve the best outcome.



Fig. 6. Application of wax-resin mixture. 6.5X



Fig. 7. Flattening of the wax-resin fill with a heated spatula and custom tip made of copper wire. 6.5 X

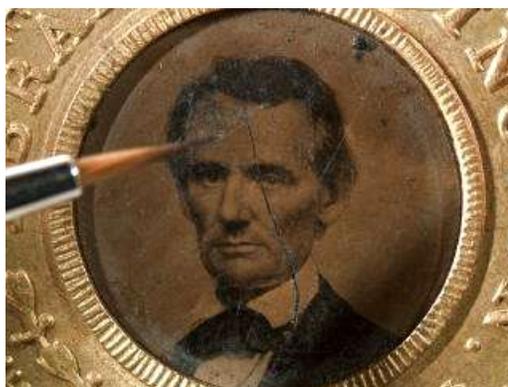


Fig.8. Retouching of the forehead area with dry pigments in Heptane and a Windsor & Newton series 7 sable brush № 000

The losses to the portrait were retouched using heptane as the carrier for dry pigments (Fig.8). Pigment application was achieved with no appreciable build up in thickness. However, the pigment did not have sufficient covering power for the darkest areas, which appeared gray rather than deep black. In these cases, the black pigment was mixed with some wax to achieve a better match of color and saturation.

The final treatment step was an application of an overall coating. A spray application of PVA resins (AYAA and AYAC) was used to modify the gloss and protect the wax-resin fill. A 10% mixture of AYAA and AYAC resins in ethanol and toluene (1:1 by weight) was prepared. Ten drops of cellulose acetate was added to 15 ml of this mixture in order to modify the gloss. After several experiments it was found that airbrush application in 5-6 layers provided an even overall finish with the desired semi-gloss.

6. EVALUATION OF TREATMENT

Though a composite object with some unique properties, a badge in metal medalet, the treatment method developed for this object can be applied to any tintype. The treatment provided successful physical consolidation and compensation for image loss. The severe loss to the Lincoln portrait is not visible with naked eye (Fig. 9). Based on the level of control and relative ease of application, the use of the wax-resin mixture may be a promising material for other types of photographs. Consisting of Cosmolloid 80H microcrystalline wax and Arkon P-90 resin, the mixture is easily reversed and can be quickly manipulated for work on a wide range of surfaces. Depending on the wax to resin ratio, the fill could be modified to be softer, more flexible or harder. While this property seemed to have little impact on such a small fill, softer and harder versions of wax mixture probably would be useful for other objects. Despite the custom made tips for the heated spatula, working on such a small scale proved demanding indicating a need to develop new tools for photograph conservators to make effective micro manipulations under the microscope.



Fig. 9. Badge after treatment

7. FURTHER DEVELOPMENT

As a prelude to the treatment outlined in this paper, many experiments were made on reference tintypes from a study collection. During this work, it was soon realized that the methods described here are not universally successful. In particular, some losses did not have sufficient depth to accept the wax-resin fill. There is also a need for an inpainting medium that would be thin but have exceptional covering power, be safe for use with collodion and iron, be adjustable to match surface sheen and be reversible. The fill material was also tested on some damaged ambrotypes following consolidation with Paraloid B-72. Results were quite promising, but further research is needed. Taking into account the limited publications on the issues encountered during treatment, there is hope this article will promote further studies.

MATERIALS AND TOOLS

Acryloid (Paraloid®) B72
Copolymer of ethyl methacrylate and methyl acrylate
Rohm and Haas Company Philadelphia , Pennsylvania
(Available at Talas)

Cosmolloid 80H microcrystalline wax
Astor Petrochemicals Ltd
(Available at Talas)

Talas
330 Morgan Ave. Brooklyn, NY 11211
Phone: 212-219-0770
Fax: 212-219-0735
<http://talasonline.com>

Arkon P-90 resin
Arakawa Chemicals Industries, Chicago, Illinois
<http://www.arakawa-usa.com>

Various dry pigments
Kremer Pigments Inc.
247 West 29th Street New York, NY 10001
Phone (212) 219-2394
Fax (212) 219-2395
<http://www.kremerpigments.com/>

Winsor & Newton brushes
11 Constitution Avenue
Piscataway New Jersey 08854
Telephone: 800-445-4278
Fax: 732-562-0941
<http://www.winsornewton.com/>

Micro Matic™ Electronic Waxer
Kerr Corporation
Customer Service: 800-537-7123
www.kerrlab.com

Relic Wrap™
Plastomer Technologies
10633 W. Little York, Bldg3 Suite 300,
Houston, TX 77041
<http://www.plastomertech.com/relicwrap.htm>

Volara® Foam
Sekisui Voltek
<http://www.sekisuivoltek.com/>
Available at MASTERPAK™
145 East 57th Street
New York, NY 10022
Telephone: 1 (800) 922-5522
Fax: 1 (212) 586-6961

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