



**Winterthur/University of Delaware
Program in Art Conservation
Conservation Report**

Accession #: 2001.0017.0037c

Object: [Postcard portrait of an unidentified man]

Object Date: 1910-1930

Artist/Author: Unknown

Materials: Silver gelatin developing-out print (DOP)

Owner: University of Delaware Museums: "The Baltimore Collection"

Permanent Location: UD Museums Collections

Reason for Treatment or Examination: Examined as part of the photograph block documentation project and aimed to add to the curatorial and conservation body of knowledge while performing stabilization treatment

Examined by: Julianna Ly, WUDPAC 2020

Consulted:

Debra Hess Norris, University of Delaware Chair and Professor of Photograph Conservation, Unidel
Henry Francis du Pont Chair, Director of the Winterthur/University of Delaware Program in Art Conservation

Julie McGee, University of Delaware Associate Professor of Africana Studies and Art History

Report Date: January 3, 2018



Fig. 1. (Left) Before treatment, front (Right) Before treatment, verso

DESCRIPTION

This silver gelatin developing-out post card portrait print is one of numerous found in Maryland and donated to the University of Delaware by Neil, Reba, and Jessica Porter in 2001. Referred to as “The Baltimore Collection,” the images span 19th-20th c. photographic techniques and depict unidentified sitters that appear to be of African American or Black descent.

The verso of the print has “POSTCARD” written largely along the verso PL edge with “Correspondence” written underneath on the left side and “Address” written on the right. Although the postcard is not divided with a line through the middle, as each side has a specific designation it is considered divided and therefore dates photographic postcard to post March 1907 (fig. 2).¹ The stamp box is surrounded by “AZO” written in two sets of parallel lines, perpendicular to each other to frame a stamp. The two triangles pointed upwards and the two pointed downwards date the post card to 1918-1930.



Fig. 2. (Left) Divided post card dating the print to 1918-1930 (Right) Detail of stamp box

The postcard depicts an African American man leaning against a door outside. He is wearing a two-piece suit, hat, and bowtie. The location and sitter is unidentified. In discussion with Dr. Julie McGee, University of Delaware Associate Professor of Africana Studies and Art History, what needs further investigation and research is the post card subject. This was most likely taken on a street camera which indicates that the location was particularly important to the sitter—so much so that the man did not go to a studio to have his photograph taken. The location does not have any specific distinguishing feature such as a house number or street name.

Technical information:

This work was identified as a silver gelatin developing-out due to its matte appearance and continuous tone when viewed under magnification. As the developing-out process results in filamentary silver particles on the surface, the silver image exhibits overall even fading, rather than just highlight fading which would occur in silver gelatin POP. The fibers are not visible and within areas of loss and abrasion the three-layered structure characteristic of silver gelatin images is evident: paper substrate, baryta layer, and the silver image layer.

¹ http://www.chicagopostcardmuseum.org/postcard_age.html

CONDITION

Paper Support

The paper support appears discolored overall with significant grime visible on both the recto and verso. The PR top corner and PL edge exhibit the most concentrated area of dirt, most likely from handling. There are two stained areas concentrated in the top and bottom margin which have stained through to the verso. In the top margin, orange-brown stains appear in two clusters; three centimeters from both the PR and PL top corners. In the bottom margin and slightly into the silver image area, there are four mold stains which are purple in appearance. These are located three centimeters in from the bottom PL corner. The mold does not appear to be active and was likely a result from previous contact with moisture. Previous moisture damage is also evident in a large fine line which extends 5 centimeters into the center from the top edge and across the entire width of the silver image. This mobilization and re-deposition of grime has left a noticeable difference in tone between the top quarter which appears darker than the bottom three quarters of the silver image.

Baryta Layer

Previous contact with moisture resulted in extreme swelling and dimensional changes in the paper support. Additionally, the gelatin layer and baryta layer (barium sulfate and gelatin), are extremely susceptible to moisture changes. As a result, there is severe delamination between the paper substrate and baryta layer and subsequently the baryta layer and the image. There is evidence of frilling and blistering along the edges and corners.

Gelatin Binder and Image Layer

The dark brown/black previously retouched dots on the eyes have not shifted in tone suggesting that the photograph was once much darker and most likely a black-and-white image (fig. 3). This demonstrates the severe fading and discoloration that has occurred which is most likely a result of chromophores developing within the organic gelatin binder layer from proximity to acidic materials and pollutants. In the presence of sulfur, the silver particles can react and make silver sulfide becoming smaller in particle size and “react with sulfur [to] produce dramatic changes in the color and density of the silver image” (Weaver, p.10). As a result, the highlights are not as bright and the overall image does not have a strong contrast in tone.



Fig. 3. (Left) Detail of previous restoration and inpainting of the eyes which now appear too dark for the current faded warm tone of the silver image (Right) Detail of losses and scratches to the silver image

As a result of the extensive water damage, about 50% of the image suffers from silver image loss and/or baryta loss due to both mechanical abrasion and scratches (fig. 4). Upon closer examination under the microscope, what previously appeared as numerous losses showed significant areas of active flaking and blind cleavage. Examining and handling the photograph was solely done housed in an archival sleeve as removing the photograph resulted in small losses from lifted flakes on the surface of the silver image.

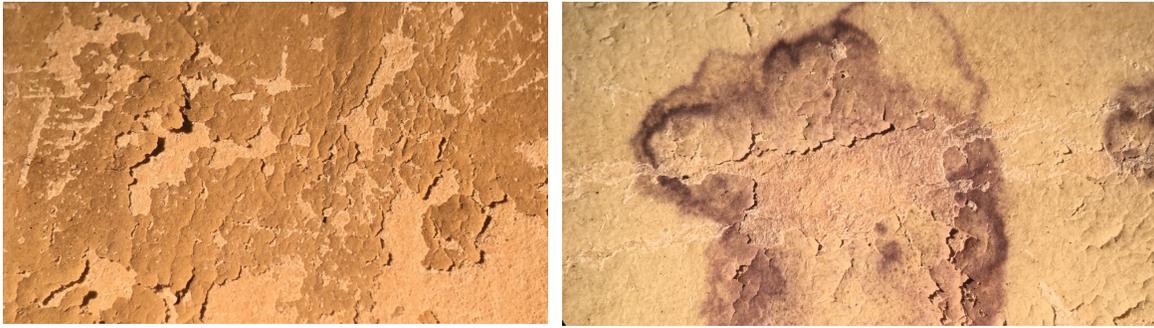


Fig. 4. (Left) Photomicrograph of delamination within the silver image layer and loss of baryta exposing the paper substrate (Right) Detail of mold area

Mechanical Damage

The photograph appears to have been creased and/or folded in two places—the first, the top PL corner, and the bottom PL corner. This is evidenced by a slightly raised ridge with losses to the image and exposing the baryta and paper substrate along those areas.

CONDITION DIAGRAM



Fig. 5. Condition diagram of the recto, before treatment

- | | |
|---|---|
|  Discoloration due to material off-set, uneven/localized discoloration and/or staining, acidic migration, and tide lines |  Mold/mold damage |
|  Mechanical damage to primary or secondary support resulting in tears, folds, creases, and other planar distortions |  Damage to image, it's binder, and/or lacquer due to loss, abrasion, flaking, cracking, crazing, and planar distortion |
|  Silver image deterioration such as localized fading, mirroring, and yellowing |  Tape or adhesive residue |
|  Accretions and localized surface dirt |  Complete loss of primary and secondary supports, binder, and image |
| |  Iron corrosion |

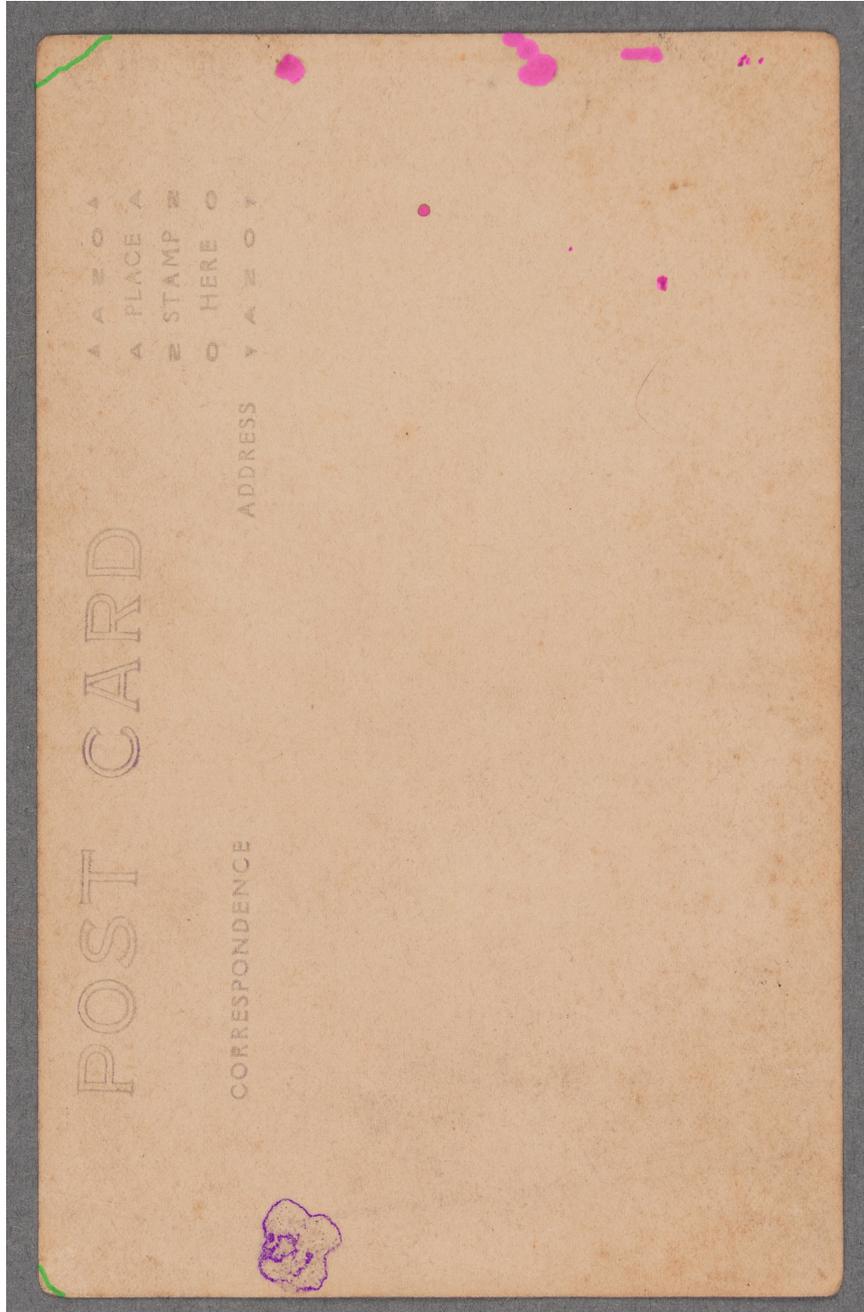


Fig. 6. Condition diagram of the verso, before treatment

- | | | | |
|---|---|---|---|
|  | Discoloration due to material off-set, uneven/localized discoloration and/or staining, acidic migration, and tide lines |  | Mold/mold damage |
|  | Mechanical damage to primary or secondary support resulting in tears, folds, creases, and other planar distortions |  | Damage to image, it's binder, and/or lacquer due to loss, abrasion, flaking, cracking, crazing, and planar distortion |
|  | Silver image deterioration such as localized fading, mirroring, and yellowing |  | Tape or adhesive residue |
|  | Accretions and localized surface dirt |  | Complete loss of primary and secondary supports, binder, and image |
| | |  | Iron corrosion |

TESTING & TREATMENT PROPOSAL

As 50% of the photograph is exhibiting active flaking and blind cleavage, through consultation with Amber Kehoe, WUDPAC 2019 photograph conservation major, it was recommended to test an ultrasonic mister to consolidate the photograph overall. Although this would successfully stabilize the media, the main concern with using an overall consolidation system is if the adhesive will dramatically change the sheen of the photograph.

Therefore, the following consolidants were tested and coated out on a silver gelatin DOP in the study collection which exhibited similar degradation and matte appearance:

- 5% Klucel® G, hydroxypropyl cellulose in ethanol²
- 5% Aquazol® 200 in isopropanol with 2% DI H₂O³
- 1% methylcellulose (Methocel) in DI H₂O
- 1% Tri-Funori in DI H₂O⁴



Fig. 7. (Left) Testing out different consolidation methods on a study collection silver gelatin DOP print. (Right) Area of loss that was used to test different consolidants

1% Methocel in DI H₂O was determined to be the best consolidant to use due to its compatibility with the gelatin binder and paper support, its low viscosity, and little to no change to the surface gloss upon drying. Both the 5% Klucel® G, hydroxypropyl cellulose in ethanol and 5% Aquazol® 200 in isopropanol with 2% DI H₂O were also tested and can be found in Table 1.

In consultation with paintings conservator, Matthew Cushman, it was suggested that the consolidation procedure should also be performed on a Mylar sheet as well in order to get an empirical sense of how much total consolidant was being applied to the surface.

² Klucel® G is a nonionic, water soluble, ether of cellulose which is often used as a thickener or sizing agent. It is soluble in “water below 38°C, ethanol, and acetone and insoluble in water above 45°C” (CAMEO).

³ Aquazol® 200 has a molecular weight of 200,000 and is a water soluble polyoxazoline compound. Aquazol is soluble in a variety of solvents including acetone, ethanol, methanol, and methylene chloride. It has a neutral pH and a glass transition temperature of 69-71°C.

⁴ TriFunori is a weak water-soluble agar adhesive.

Consolidant Tested	Surface gloss observations in active flaking areas	Surface gloss observations when brush applied on the surface
1% Methocel in DI H₂O	Appeared initially glossy but after drying and seeping into substrate did not appear glossy and no discoloration or tidelines visible	No visible change to the surface once dried
5% Klucel® G, hydroxypropyl cellulose in ethanol	Did not appear glossy upon drying and no discoloration or tidelines visible; however, the Klucel was much more viscous than the 1% Methocel and did not seem to flow as well	No visible change to the surface once dried
5% Aquazol® 200 in isopropanol with 2% DI H₂O	Slight darkening of the baryta layer- change in tone from stark white to an off-white	Extreme change in gloss and saturation
1% Tri-Funori in DI H₂O	Took much longer for the solution to be absorbed into the substrate. Once absorbed, the surface was not changed or darkened in appearance	Slight gloss change

Table 1. Consolidation tests and surface gloss results

The 1% Methocel solution was tested with a brush in a small discrete area on the photograph under high magnification to ensure that the percentage of methyl cellulose was strong enough to ensure proper and adequate adhesion.

Treatment Proposal:

1. Conduct pretreatment digital photography.
2. Surface clean the recto of the photograph in the top-most quarter which exhibits little to no active flaking with a cosmetic sponge.
3. Consolidate the photograph overall with 1% methylcellulose through an ultrasonic mister as at least 50% of the photograph is exhibiting active flaking and blind cleavage. If additional consolidation is necessary, feed adhesive in with a small brush.
4. Surface clean both the remainder of the recto and the verso with a cosmetic sponge and/or locally with Staedtler Mars PVC eraser crumbs overall in areas with extensive soiling working from the inside out to the edges.
5. Inpaint losses with watercolors on top of an isolating layer of methylcellulose to reintegrate the image.
6. Conduct after treatment digital photography.

TREATMENT REPORT

Treatment began on Thursday, January 11, 2018. The photograph was first cleaned in stable areas with a dry cosmetic sponge avoiding areas of active flaking and lifting. A small amount of dirt was visible on the cosmetic sponge after cleaning, although most grime was left embedded into the surface (fig. 8). Due to the overall poor condition of the photograph, dry cleaning methods stopped and would be continued after the surface was consolidated.



Fig. 8. Detail of surface grime visible on cosmetic sponge after cleaning the top-portion of the photograph

The surface was then consolidated with an Ultra-NEB 99 by DEVILBISS. Tests were conducted first on a test photograph from the study collection. The 1% solution of methylcellulose in DI H₂O was too heavy to be lifted and nebulized through the ultrasonic mister. As a result, a 0.25% solution of methylcellulose in DI H₂O was used. Although it was able to be applied to the surface in a consistent way and there was no change visually to the surface gloss; the solution was not strong enough to hold flakes down even after three to four rounds of localized consolidation. It was decided that the best option would be to consolidate with the 1% solution of methylcellulose in DI H₂O with a brush under magnification. In areas of extreme friable under-bound silver gelatin media, ethanol was applied first to help break surface tension and allow the consolidant to flow underneath the flakes.



Fig. 9. Testing mist consolidation methods on a study collection photograph

Once all areas of active flaking and blind cleavage were set down and locally consolidated, the bottom-half of the photograph was able to be dry cleaned gently with a cosmetic sponge. All areas of loss then received an isolating layer of 1% solution of methylcellulose in DI H₂O prior to inpainting and reintegrating the image with watercolors.

The verso of the photograph was lightly cleaned with a cosmetic sponge. Treatment concluded on January 14, 2018.

PREVENTIVE RECOMMENDATIONS

Relative humidity is of most concern to deteriorated silver gelatin prints and should be maintained between 30-50% RH. Although “room temperature is acceptable, cool or cold is preferred when it is practical, and when humidity can be controlled under those conditions.”

The print should be stored in an archival, acid-free enclosure that allows visibility of both the recto and verso in order to minimize handling the print.



Fig. 10. (Left) Before treatment (Right) After treatment



Fig. 11. (Left) Before treatment, raking light (Right) After treatment, raking light



Fig. 12. (Left) Detail before inpainting (Right) Detail after inpainting

BIBLIOGRAPHY

CAMEO. Museum Fine Arts Boston. Accessed January 8, 2018. <http://cameo.mfa.org/wiki/>

Hummert, E. 2013. Stabilisation Treatments with Aerosols: Evaluation the Penetration Behaviour of Gelatine and Methylcellulose, In *Restaurator*, Volume 34, Pages 134-171.

Irving, J. 2018. Personal communication. Winterthur Associate Conservator and Winterthur Assistant Professor in Art Conservation. Winterthur Museum, Garden & Library, Winterthur, DE.

Lemmen, B. 2018. Personal communication. Affiliated Assistant Professor. Winterthur Museum, Garden & Library, Winterthur, DE.

McGee, J. 2018. Personal communication. University of Delaware Associate Professor of Africana Studies and Art History. Student Lab. Winterthur Museum, Garden, & Library, Wilmington, DE.

Norris, D. 2018. Personal communication. University of Delaware Chair and Professor of Photograph Conservation, Unidel Henry Francis du Pont Chair, Director of the Winterthur/University of Delaware Program in Art Conservation. Student Lab. Winterthur Museum, Garden, & Library, Wilmington, DE.

The Chicago Postcard Museum. 2001-2017. Accessed January 8, 2018.
http://www.chicagopostcardmuseum.org/postcard_age.html

Weaver, G. 2008. *A guide to fiber-based gelatin silver print condition and deterioration*. Rochester, NY: George Eastman House and Image Permanence Institute. esp. 8-17.