

TREATMENT REPORT

Painting Conservators: Kristin deGhetaldi and Brian Baade
Painting Conservation Interns: Karissa Muratore and Amanda Kasman

REPORT OF ON-SITE RESTORATION TREATMENT MICARTA MURAL OF EAST COAST

(Documentation and Treatment carried out between February 16th and April 7th 2017)

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Lead Conservators:

Kristin deGhetaldi - Kristin de Ghetaldi is a painting conservator who graduated in 2008 with a Master of Science degree from the Winterthur/University of Delaware program in Conservation. After completing a three-year Andrew W. Mellon Fellowship in Painting Conservation at the National Gallery of Art, she enrolled in the Preservation Studies Program at the University of Delaware where she is currently focusing on employing novel analytical techniques to explore 15th-century Italian painting techniques. Working together alongside scientists, Kristin has been given the opportunity to use a variety of analytical techniques focusing on questions specifically relating to media analysis. She has also participated in internships and conservation positions at the J. Paul Getty Museum, the Rijksmuseum in Amsterdam, and the RISD Museum. Kristin earned a post-baccalaureate certificate in conservation (2004) at the Studio Art Centers International in Florence, Italy and a BA (2003) in Chemistry from Grinnell College. Most recently she has participated in the development of University of Delaware's Technical Art History Website, a two-year project sponsored by the Samuel H. Kress Foundation.

Brian Baade - Brian Baade obtained a BFA from the School of the Art Institute of Chicago before devoting his career to painting conservation. He attended the Winterthur/University of Delaware Program in Art Conservation as a member of the class of 2006. Brian majored in painting conservation with a focus on the identification and analysis of historic painting materials and techniques. He has worked at the Chateau Parentignat in Auvergne, France, in the Netherlands, at the Smithsonian American Art Museum, and at the Yale University Art Gallery. Since 2009, the Samuel H. Kress Foundation has awarded the University of Delaware several grants for Brian to create reconstructions of Kress paintings and to assist with the creation of a new Technical Art History Website. Brian also teaches courses on the materials and techniques of Western drawing, painting, color theory, and technical analysis of paintings.



Figure 1. Before and after images of the mural taken with a Canon EOS Rebel T2i and adjusted with Lightroom Software to correct for differences in ambient lighting.

Attribution: Aurion N. Proctor (New York artist)

Title: Micarta Mural (of East Coast)

Date: 1967

Technique: Oil (est.) on Paper mounted on Medium Density Overlay Board (est.) – Micarta Process

Dimensions: Approx. 8 ft by 24 ft (6 panels, each measuring 4 by 8 ft)

Summary of the Examination by the Lead Conservator:

During the examination session, a series of cleaning tests were performed on three out of the four panels in order to develop an appropriate methodology for the safe and effective removal of accumulated surface grime/residues and an aged/degraded synthetic (est.) varnish coating. Based on the outcome of the second cleaning test (an aqueous chelating solution

with an adjusted pH level), it is our assessment that the mural is currently covered with an imbibed layer of grime. At this time, we feel that the synthetic varnish is in fair condition with little to no signs of degradation; however, removal of the surface grime, staining, and accretions would greatly improve the overall aesthetic appearance of the mural. In addition, minor losses to the support could be detected throughout the composition along the outer edges of the individual panels. These losses should be consolidated, filled, and toned to match the surrounding imagery, color, and sheen. Finally, photo-documentation would be carried out before, during, and after treatment.

Summary of the Treatment Proposal:

Cleaning tests revealed that an aqueous solution containing a specific concentration of citrate (chelator) at the appropriate pH level proved the most effective at removing/reducing much of the imbibed surface grime and accretions.

- All sections of the mural will be photo-documented; upon completion of the treatment a written treatment report along with high-resolution digital photographs will be presented to the Delaware River & Bay Authority for their archival records.
- Surface grime/staining/accretions will be carefully removed/reduced using the aqueous solution described above. The cleaning procedure may need to be adapted for certain passages of the mural cycle as certain sections may have accumulated more surface grime than other areas.
- Minor cracks/holes will be filled with a stable, inert fill material.
- Evidence of old abrasion/damage along with cracks/holes in the support will be inpainted using stable, reversible conservation paints.

Timeline of Micarta Mural Treatment:

11/14/16 Day 1: Kristin deGhetaldi and Brian Baade examined the Micarta Mural, performed initial photo-documentation, and wrote the Treatment/Examination Proposal.

1/20/17 Day 2: Two interns were selected to assist in the treatment of the mural: art conservation undergraduate students from the University of Delaware, Karissa Muratore and Amanda Kasman. Treatment did not begin until the start of Spring semester.

2/16/17 Day 3: Full photo-documentation was completed and areas with damage were noted in a condensed condition report by Karissa Muratore and Amanda Kasman. The photographs taken highlighted the full mural, the individual panels, and detailed shots of severe grime accumulation and losses. ***For the remainder of this report, the 6 panels composing the mural will be referred to by the number assigned to them in the condensed condition report. The panels are numbered 1-6 from left to right. In this way, the panel with the Delaware River and Bay Authority seal is Panel 1.*** (The photo-documentation of the full mural required that tape be left on the floor of the conference room. This greatly simplified the task of aligning the tripod in precisely the same way on the first and last days of the initiative.

Thank you for your cooperation!)

2/23/17 Day 4: Karissa Muratore and Amanda Kasman, overseen by Kristin deGhetaldi, began to gently remove surface grime from the two left-most panels of the Micarta Mural, in accordance with the cleaning procedure laid out by deGhetaldi after the initial examination session. The aqueous chelating solution with an adjusted pH level was diluted in a 5:1 solution with distilled water. After cleaning an area with the chelating solution on hand-made cotton swabs, the area was gently rinsed with distilled water on more cotton swabs. Observations while cleaning are outlined below. Progress photographs were taken of the students working on partially and fully cleaned areas.

3/03/17 Day 5: Karissa Muratore and Amanda Kasman, overseen by Kristin deGhetaldi, completed surface cleaning on Panels 1 and 2 and began cleaning Panels 3 and 4. Progress was slowed by the arrival two camera crews: one was from UDaily, the other NBC 10 Philadelphia. The cleaning procedure was altered slightly from that used on the first day in an attempt to improve the efficiency of cleaning. The concentration of the citrate cleaning solution in distilled water was increased from 5:1 to 4:1. This did result in a marked increase in the cleaning solution's strength, while remaining mindful of the potential risks to the mural.

3/10/17 Day 6: Karissa Muratore and Amanda Kasman, overseen by Kristin deGhetaldi, completed surface cleaning on Panels 3 and 4 and began cleaning the last two panels. Panel 5 was completed before the end of the sixth day. Panel 6 remained to be finished on the last day of treatment.

3/17/17 Day 7: Karissa Muratore and Amanda Kasman, overseen by Kristin deGhetaldi, completed the final steps in the treatment. Cleaning of Panel 6 was completed, and the mural was checked for drips and other residues of cleaning. Then, losses were filled and toned. It was concluded that consolidation of the losses prior to filling was not needed because of the stability of the surrounding area. The fill material used was Modostuc, which was overfilled and then carved with a scalpel into the desired shape. The paints used to tone the fills were Golden PVAs with ethanol used as the solvent.

4/07/17 Day 8: Final photo-documentation was completed and the treatment report was drafted.

Overview of Mural Treatment:

In performing the treatment of the Micarta mural, Muratore and Kasman confirmed that the aqueous chelating solution with an adjusted pH level was effective at reducing surface grime on top of the synthetic varnish without altering the varnish or paint layer below. Working on adjacent panels, it was found that Muratore and Kasman could effectively clean approximately two panels per day. One would begin cleaning the top of one panel on a ladder while the other sat on pads and began cleaning from the bottom of the neighboring panel. Over the course of the cleaning, Muratore and Kasman made the following observations.

- ❖ Hand-made cotton swabs saturated in the aqueous chelating solution (enough to wet the surface without generating drips) were the primary tool used to reduce surface grime. The first swab passed over a given area appeared black with grime removed from the surface. This demonstrated that the chelator was immediately effective at separating the imbibed dirt from the aged surface of the synthetic varnish. After subsequent passes with the moistened swabs, the color of the used swabs slowly changed from black to pale gray. Consultation with deGhetaldi established that this reduced level of grime was acceptable, and the final rinse of the area with distilled water on cotton swabs would remove additional grime. In the areas of the mural that possessed a substantial layer of grime, cleaning typically required between 5 and 7 passes with the chelating solution; an additional 3 passes with distilled water was then needed in order to effectively clear the surface of any remaining potential residues. In areas that contained less grime, 3 to 4 passes with the chelating solution and 1 pass with water was found to be sufficient.

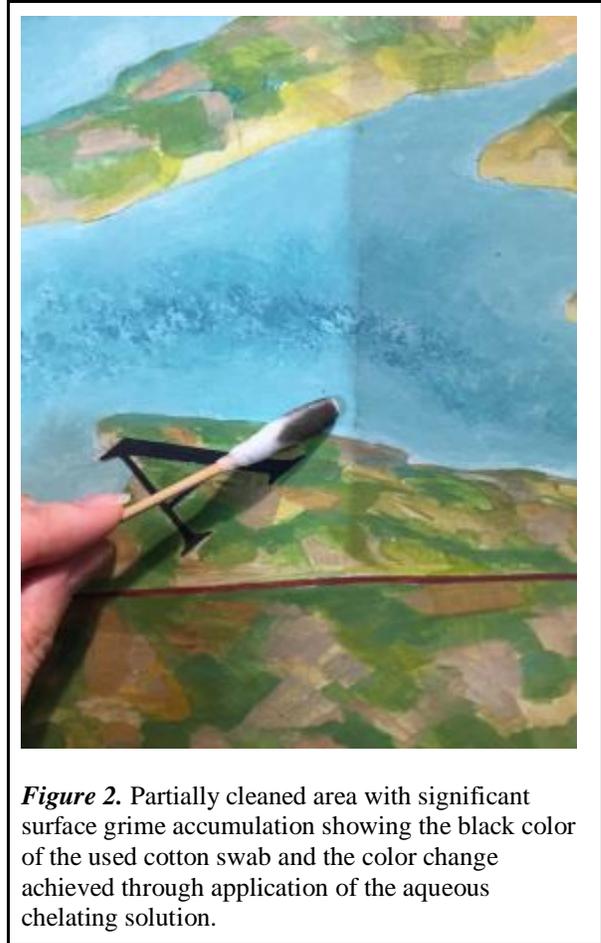


Figure 2. Partially cleaned area with significant surface grime accumulation showing the black color of the used cotton swab and the color change achieved through application of the aqueous chelating solution.

- ❖ On the second day of treatment the concentration of the chelator was increased from 5:1 to 4:1. This improved the effectiveness of the cleaning solution at removing surface grime, reducing the number of passes in the areas with the most grime from approximately 7 to 4.
- ❖ The top half portion of every panel had significantly heavier accumulation of grime than the bottom portion, with the exception of isolated accretions that appeared to have been deposited by hands of passersby. ***The greater concentration of grime on the top portion of the mural might be explained by the positioning of air ventilation where the mural had been originally installed/stored. Additional information regarding the location and manner in which the mural was stored would likely elucidate subsequent observations outlined below.***
- ❖ Not only did the top portion of the panel show greater accumulation of surface grime, but the level and/or tenacity of surface grime varied based on the color of the area being cleaned. Blue areas in both the sky and the water accumulated significantly less grime than landmasses painted in green and yellow. Because the distribution of the colors varies from panel to panel, it can be concluded that the paint application or the pigment itself had an effect on the severity of grime accumulation. This can possibly be explained by the texture imparted by either the hatched strokes used to paint the land masses or the size of pigment

particles. This difference in texture is also evident in the final varnish layer, which ultimately resulted in a rougher surface over sections corresponding to the location of the land masses and therefore accumulating more surface grime with respect to other sections of the mural.

❖ During the cleaning of panels 2,3,4, and 5 (each of which highlight a prominent American city), it was noted that the general region over landmarks accumulated more grime than the surrounding areas. This is likely due to passersby “sentimentally” touching these areas, inadvertently depositing food residues, hand oils, and other debris on the surface. (Washington D.C. was not found to exhibit this problem presumably because is near the very top of panel 2, and is therefore out of the line of sight and reach of most passersby.)

❖ In addition to a higher concentration of grime, a distinctly unique accretion appearing reddish-brown in color was found scattered on the bottom half of the mural. This substance adhered to the varnish surface and had a three-dimensional appearance (raised “blobs” measured as much as a ½ centimeter above the varnish layer). This particular accretion crumbled under applied pressure and was easily removed after the introduction of chelating solution. The chemical identity of this accretion was not determined.



Figure 3. Detail of a crumbly, reddish-brown accretion over Connecticut as seen prior to cleaning.

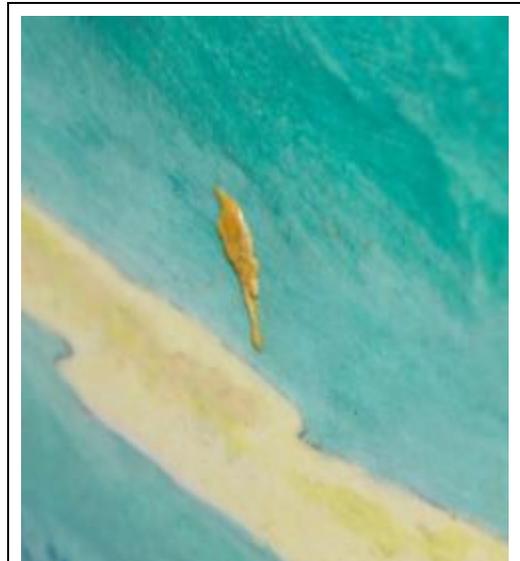


Figure 5. Detail near Long Island showing a raised reddish-brown accretion as seen prior to cleaning.



Figure 4. Detail of the mural representing Dover where a reddish-brown accretion in the shape of four finger prints was visible prior to cleaning. The finger prints are indicated with circles.

- ❖ In addition to surface grime and reddish-brown accretions, white-colored paint specks were present along the top of the mural. These dried paint deposits were on top of the varnish layer and also possessed a three-dimensional appearance. Some specks could be removed by applying pressure with a fingernail. Other specks necessitated the use of scalpels to carefully carve the paint down to the surface of the varnish. It is assumed that the paint specks were produced during the painting of a ceiling or nearby wall that was in proximity to the mural during/after its installation or reinstallation. All of the specks were effectively removed and none resulted in losses or damage to the varnish layer.



Figure 6. Detail of a paint speck on the surface of varnish being carefully removed with a scalpel during cleaning.

- ❖ In terms of the technique used by the artist, it was observed that the design was laid out in pencil on a paper substrate before the application of the paint layer and synthetic varnish. Using the pencil lines visible through the paint layer it was determined that there are several places where the positioning of roads was changed between the completion of the pencil sketch and the application of paint. This may be due to the fact that Proctor was informed of a more accurate cartographic positioning, or the change could have been more of a personal, aesthetic one. Additionally, it was discovered through close examination that the writing of “Cambridge” on the first panel was originally vertical.
- ❖ We theorize that the application of paint was not started until the paper substrate (with the completed pencil drawing already executed) was adhered to the plywood support. However, the sheer size of the panels may have prevented Proctor from arranging the pieces of the mural in their final orientation



Figure 7. Detail of the overpaint spanning Long Island on Panels 5 and 6. This image shows the area after cleaning and before being toned with PVA paints.

during the painting process. This is supported by the slight misalignment of several roads and geographic features bridging the panels. Further evidence that supports this theory is the subtle change of color tones in large areas of green and blue paint along the join between Panels 1 and 2.

- ❖ Paint that is applied over the final varnish layer (referred to here as overpaint) was found in four locations along a seam between two panels. These traces of overpaint may have been applied by Proctor himself and therefore were treated as original to the mural. These passages could have been done to correct slight misalignment in areas of the composition or to address damage incurred before or during the mural's initial installation. The Delaware River and Bay Authority may have some record of hiring Proctor to make these changes after the mural's installation. For this reason, the overpaint was avoided in cleaning in order to preserve it. Any losses sustained to the overpaint were toned with PVA paints. The four areas of preserved overpaint span the joins between Panels 3, 4, 5, and 6. Between Panels 3 and 4, overpaint is present at the horizon line and appears purple (see Figure 8). Another area of overpaint along the join of Panels 3 and 4 can be found along the west shoreline of the New Jersey peninsula and appears greyish-brown. Between Panels 5 and 6, there are two more areas of overpaint. The first (as noted on Panels 3 and 4) spans the horizon line and appears purple. The second area of overpaint is located along the west shoreline of Long Island and covers a section of road. It appears pale peach in the area representing land and black in the area representing road (see Figure 7). **These areas should be noted for future attempts at cleaning and conservation, because the original overpaint is highly water soluble and susceptible to being removed.**

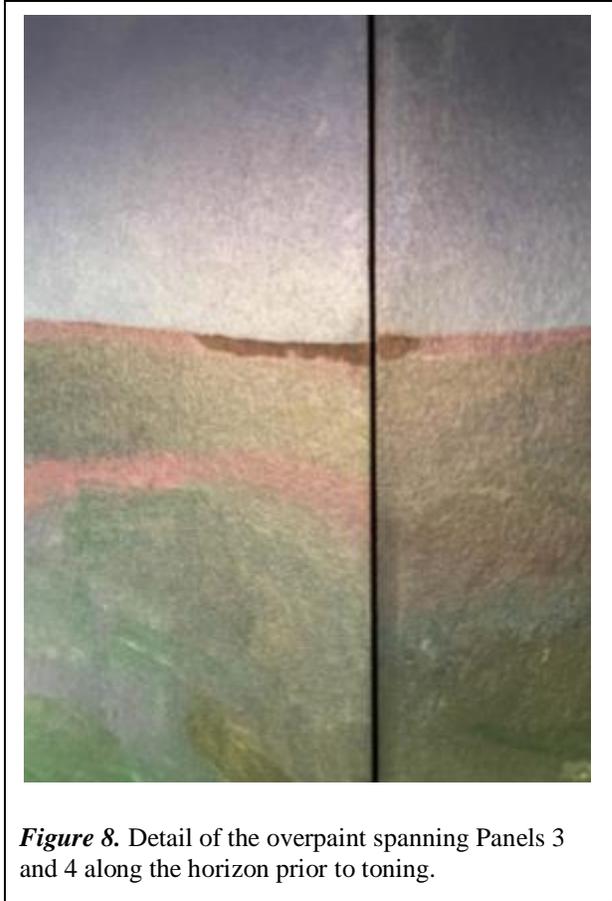


Figure 8. Detail of the overpaint spanning Panels 3 and 4 along the horizon prior to toning.

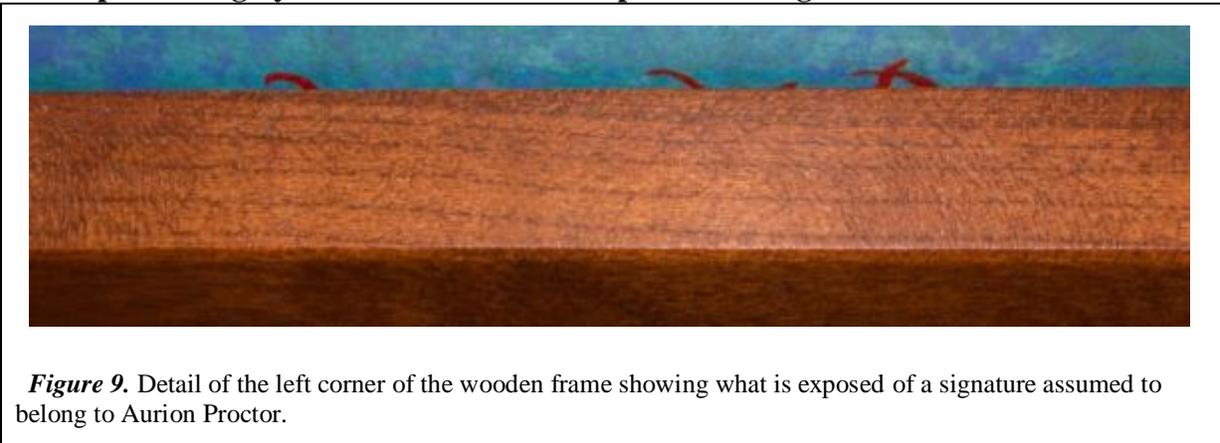


Figure 9. Detail of the left corner of the wooden frame showing what is exposed of a signature assumed to belong to Aurion Proctor.

- ❖ Unfortunately, no new surprises left by Proctor, such as houses in the hills or figures behind tiny windows, were found during the cleaning process. The only new development of note is the covering of what we assume is Proctor's signature, done in red paint in the lower left corner, by the frame. **Not only does this indicate that an authenticating area of original material is obstructed from view, but it suggests that at least an inch of painted area along the bottom of the panel could not be cleaned during our treatment.** Perhaps a future initiative could involve removing the wooden frame around the sides to allow for a full cleaning. Potential consequences of leaving the mural and especially the region behind the frame to be cleaned at an unspecified future date includes unequal degradation of the exposed and unexposed areas. Light damage or the embedding of dirt into the surface of the varnish layer could cause future discrepancies in color.
- ❖ Losses that required filling were located primarily along the edges of the panels. It can be assumed that this damage occurred during the installation, deinstallation, or reinstallation process. All of these losses were successfully filled and inpainted; however, one loss in the lower left corner appears to have been caused by a nail or screw penetrating the panel from the verso resulting in the formation of a circular, raised paint "flake" that partially exposes the underlying paper and plywood substrate. After consultation with deGhetaldi, it was decided that filling the hole would not create the desired effect and risked worsening the separation of the flake from the rest of the panel. Instead the loss was toned and noted here for potential future treatments. At the time of this treatment the area appeared relatively stable.

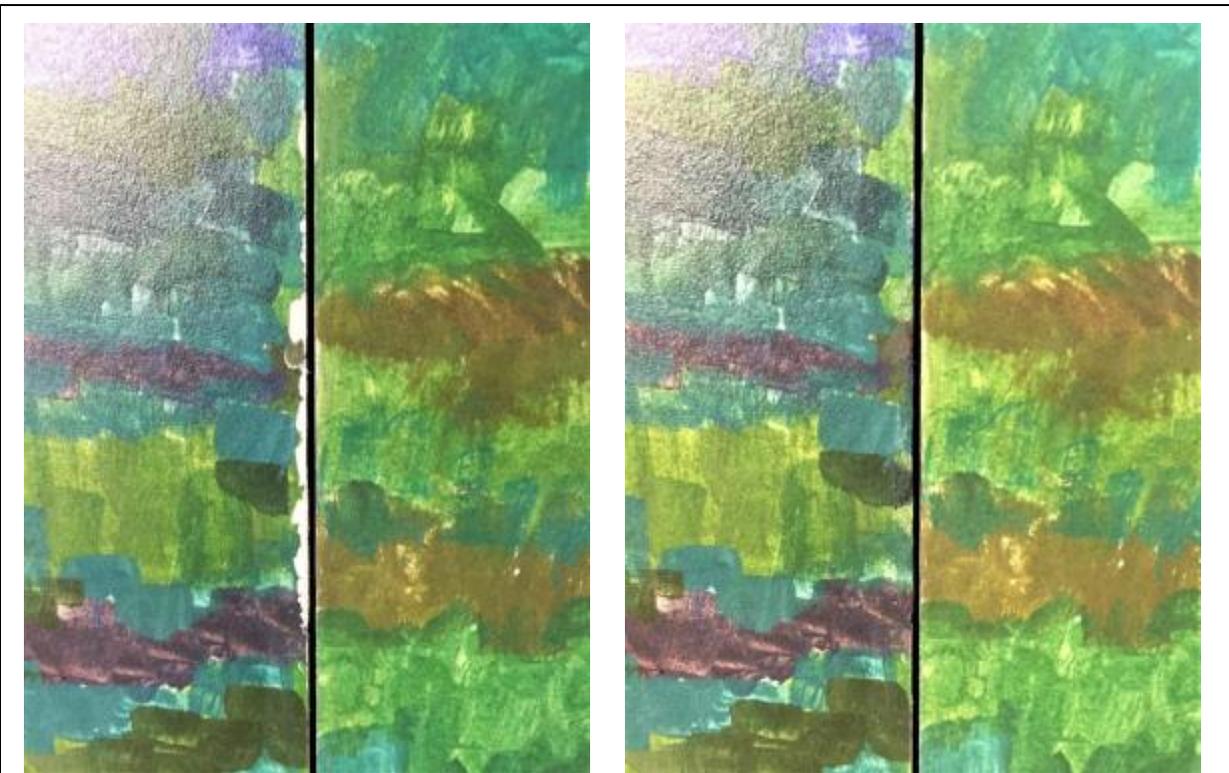


Figure 10. Detail of the join between Panels 3 and 4 with fills (on the left) and after being toned (on the right).

Considerations for Future Display and Treatment:

Do not attempt to clean the surface with any proprietary cleaning products. If necessary, gently rinse with distilled water, being **very mindful** of the three areas with overpaint identified above (see point 10 above).

A 45 - 55% Relative Humidity and 68 - 72° Fahrenheit is usually suggested as an ideal environment for paintings. However, due to the unique materials of this mural it could probably stand slight more extreme temperature/relative humidity ranges, making sure to avoid significant fluctuations. Since this painting is installed in an environmentally controlled building, the temperature and humidity should be relatively easy to monitor and maintain.

Be aware that the mural is exposed to a large amount of light from different sources. There is natural light from the front doors and skylights in addition to artificial light from the room's recessed lighting. Natural light is high in ultraviolet radiation, which causes irreversible weakening and fading in many materials. The three forms of artificial lighting, incandescent, fluorescent, and LED all produce different levels of heat, ultraviolet, and infrared radiation. Low levels of all these radiations are recommended, which is an obvious challenge for this space. Below is the Northeast Documentation Conservation Center's reference to understanding and managing lighting in a museum setting, however it may be helpful for you when considering the management of your own lighting situation. At the minimum, we would suggest finding out if the current glass is UV filtered, and if it is not applying UV blocking films. Due to the micarta process, we are unable to predict when and how this mural may begin to fade in the future. If fading does occur, be aware that the current wood frame will be preventing light exposure in the areas it is covering. This has the potential to cause irreversible color discrepancies between the mural's edges and center.

References:

- AIC Wiki Contributors. last modified on 5/5/2016. "Environmental Guidelines." American Institute for Conservation of Historic and Artistic Work. http://www.conservation-wiki.com/wiki/Environmental_Guidelines. Accessed 4/7/2017.
- Conn, Donia. "The Environment: 2.4 Protection from Light Damage." Northeast Document Conservation Center. <https://www.nedcc.org/free-resources/preservation-leaflets/2.-the-environment/2.4-protection-from-light-damage>. Accessed 4/7/2017.