CONSERVATION CENTER

for Art & Historic Artifacts

Meet Sandrine Blais, NEA Conservation Fellow

CONSERVATION CENTER FOR ART & HISTORIC ARTIFACTS

In a typical year:

- Preservation Services specialists complete over 50 survey projects.
- Approximately 60 CCAHA-sponsored workshops, conferences, webinars, and training sessions are presented.
- The Digital Imaging Services staff digitizes thousands of pages of fragile archival documents, books, and photographs.
- Conservators assess and treat more than 6,000 individual artifacts, from over 400 clients.
- Housing & Framing Services house approx. 75% of the artifacts treated (folder, sleeve, box, mat and frame, or sealed package).

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LEAD WHITE CONVERSION ON AN ANNIBALE CARRACCI DRAWING

January 2024

BEFORE TREATMENT CONDITION

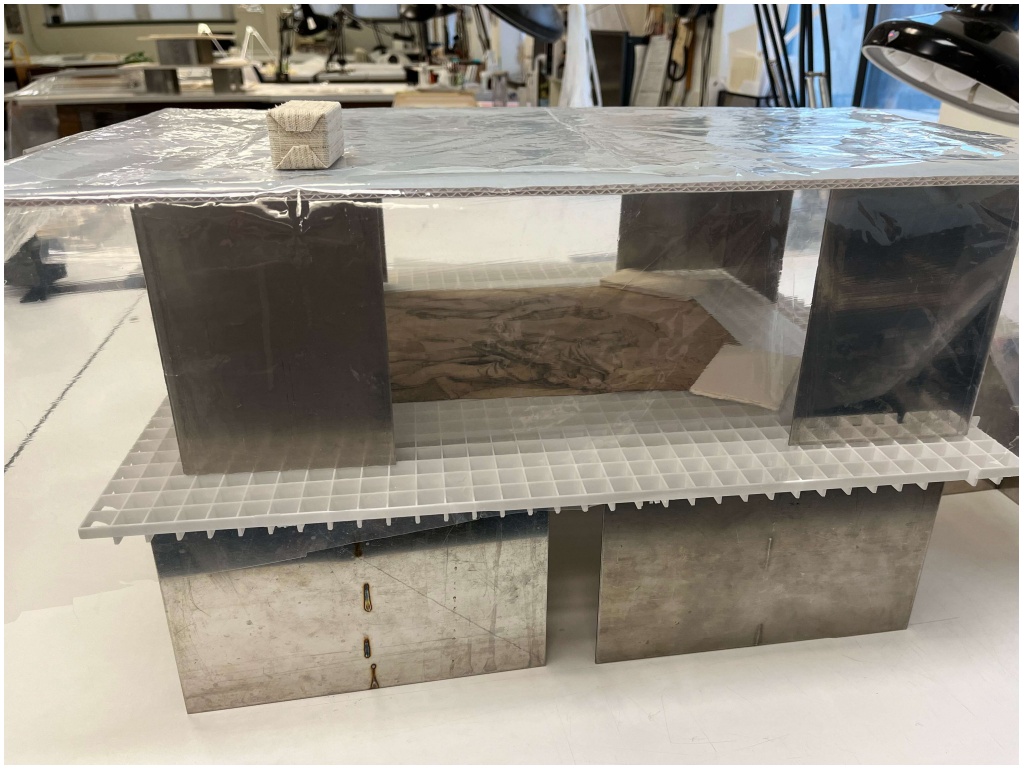
Before Treatment, Normal Light, Recto
Documentation slide from 1991

Before Treatment, Normal Light, Recto
Photo Credit: CCAHA

Apollo with a Nymph (Eurydice), c. 1600, by Annibale Carracci, Arkansas Museum of Art, pen and brown ink with white lead heightening, 13 ¼ x 9 ¾ inches

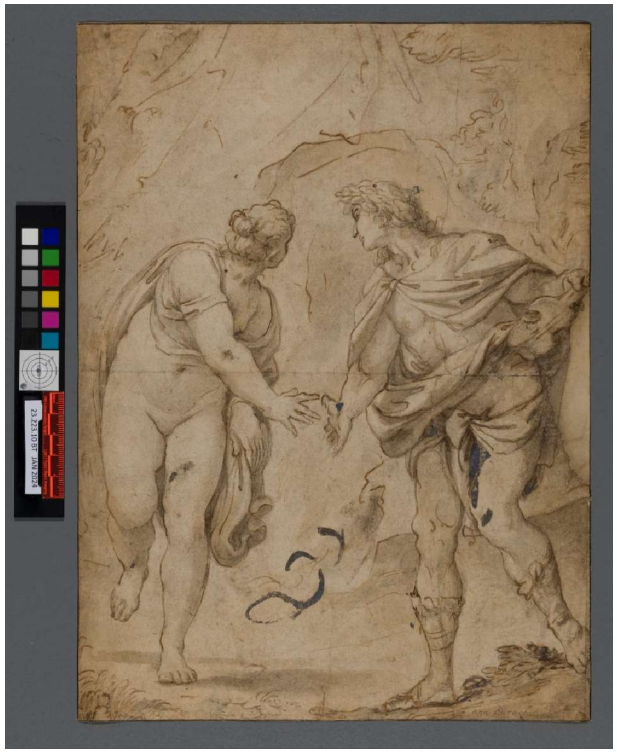
TREATMENT STEPS

- Converted the blackened lead white using a stereomicroscope:
  - Local application of 1% hydrogen peroxide
  - Local application of 2% hydrogen peroxide
  - 1% hydrogen peroxide in 2% methylcellulose
- Aired out the treated object for a week to allow residual peroxide to decompose and evaporate



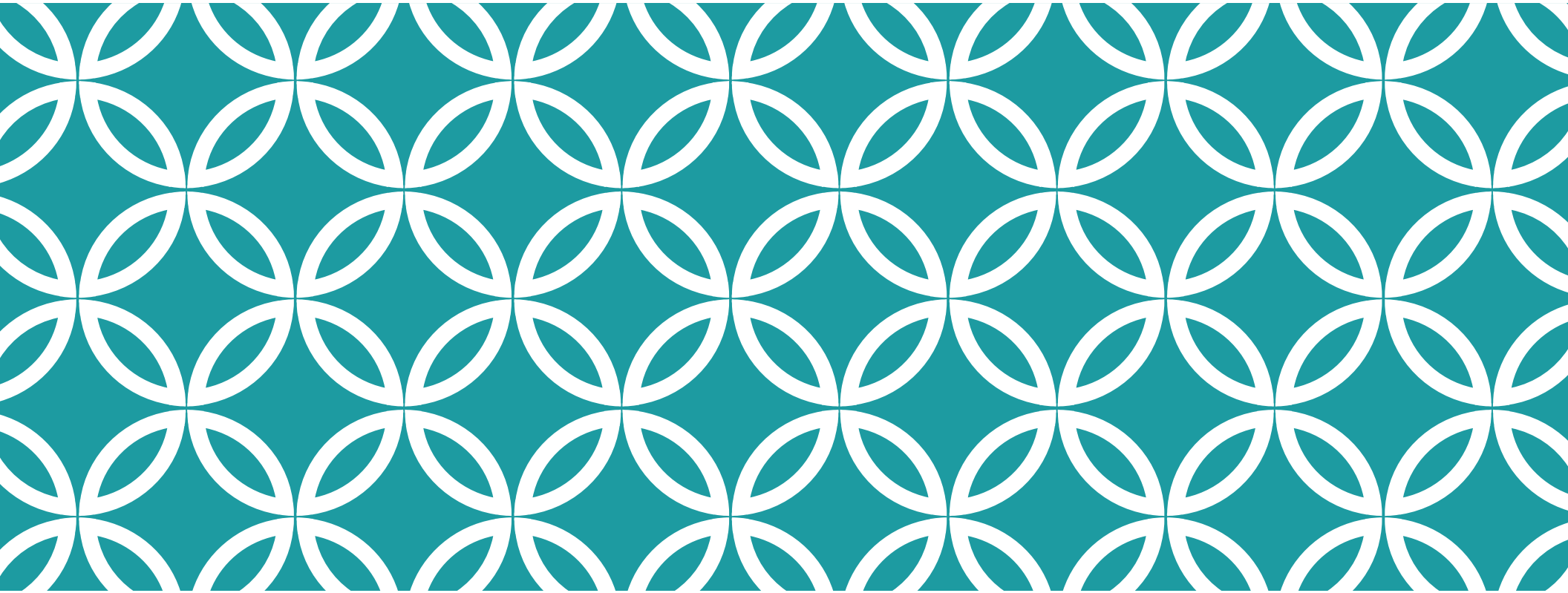
Apollo with a Nymph airing out after being treated with hydrogen peroxide

BEFORE AND AFTER TREATMENT



Before Treatment, Normal Light, Recto
Photo Credit: CCAHA

After Treatment, Normal Light, Recto
Photo Credit: CCAHA



BLACKENED LEAD WHITE WORKSHOP

April 2025

DARKENED LEAD WHITE EXAMPLES FROM THE PHILADELPHIA MUSEUM OF ART (PMA)

Madonna and Child, possibly by Francesco Salviati, undated, no medium information, 1984-56-169

Ships in a Choppy Sea, by Thomas Chambers, c. 1834, graphite with white opaque watercolor heightening and touches of transparent glaze on beige wove paper, 2007-158-1

WORKSHOP

- Conversion of Blackened Lead White in Works on Paper
- April 4, 2025
- Philadelphia Museum of Art (PMA) & Conservation Center for Art and Historic Artifacts (CCAHA)
- 9:00 AM-5:00 PM
- 12 paper conservators

Philadelphia Museum of Art's Perelman Building
Photo Credit: Christina Taylor

Conservation Center for Art & Historic Artifacts (CCAHA)
Photo Credit: CCAHA

SAMPLE PREPARATION

- Lead white watercolor
  - Following Emily Muller's (2022, p.92) recipe:
  - Make a gum Arabic solution in deionized water
  - On a glass sheet, using a glass muller, grind equal parts lead white pigment with the prepared gum Arabic
- Darkening reaction
  - Based on Goltz et al. (2003, p.1394):
  - Place weigh boats with zinc sulfide and beakers with deionized water and a few drops of acetic acid in a plastic tray
  - Set an egg crate with the samples laid on top
  - Place the tray in a polyethylene bag, then seal it

Making lead white watercolor

Samples in the micro-environment

WORKSHOP STRUCTURE

- Morning session: Philadelphia Museum of Art (PMA)
  - Lecture: manufacture of lead white, sulfur sources, identification methods
  - Close looking at lead white examples in the PMA collection

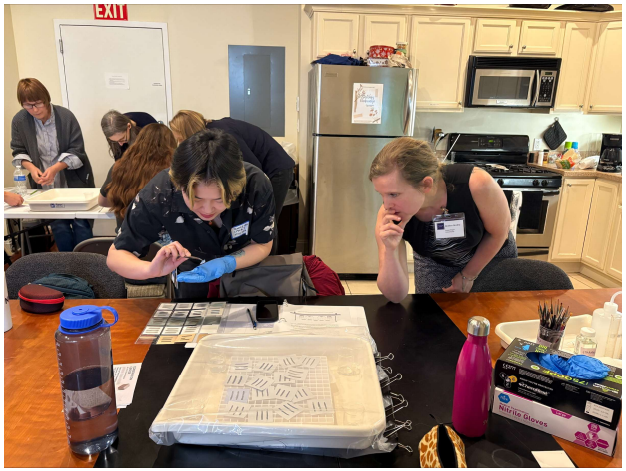
Presenting a lecture on the basics of lead white, its darkening process and conservation
Photo Credit: Heather Hendry

Objects from the Philadelphia Museum of Art Collection containing lead white paint
Photo Credit: Dria Lai

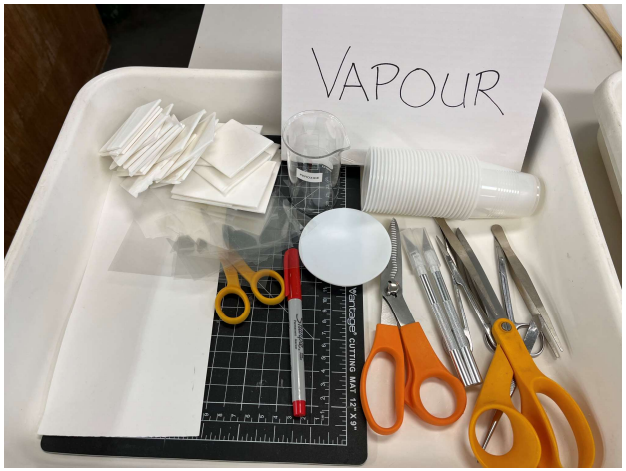
Group discussion about the Philadelphia Museum of Art collection examples, showing the group a before treatment photograph of one of the objects
Photo Credit: Dria Lai

WORKSHOP STRUCTURE

- Afternoon session: CCAHA
  - Lecture: conservation conversion process and factors to consider
  - Hands-on portion: Ethereal method, direct application, methylcellulose, agarose, vapor



Participants trying hands-on conversion treatment of blackened lead white on prepared samples
Photo Credit: Gabrielle Roth



Tray with prepared tools for the vapor station

Participants trying hands-on conversion treatment of blackened lead white on prepared samples
Photo Credit: Gabrielle Roth

FOXING REDUCTION OF AN ANDY WARHOL LITHOGRAPH

2023-2024

BEFORE TREATMENT

- Extensive foxing spots
- Yellow-brown discoloration
- Edges more discolored, brittle, creased due to the small backing board size
- Small edge tears and losses
- Spot test results:
  - Red, magenta inks water-sensitive
  - Peach, teal inks stable in deionized water and 1% sodium citrate

Liz #2, by Andy Warhol, c. 1966, privately owned, lithographic inks on wove paper, 23 1/8 x 23 ¼ inches

Before Treatment, Recto, Normal Light
Photo Credit: CCAHA

TREATMENT STEPS

- Surface cleaning
- Stain reduction of the foxing
  - Suction table
  - Agarose gels
  - Suction platen
- Mending using toned mulberry paper and wheat starch paste
- Humidification and flattening
- Inpainting with pastel crayons

Publicity photo of Elizabeth Taylor, taken for her 1960 film "Butterfield 8", inspiration for Andy Warhol's print
Photo Credit: Unknown Photographer

STAIN REDUCTION: SUCTION TABLE

- Masked the water-sensitive red and magenta inks using mylar
- Sprayed 1% sodium citrate on the face area, brushed on 1% directly on the foxing spots
- Not enough draw from the suction

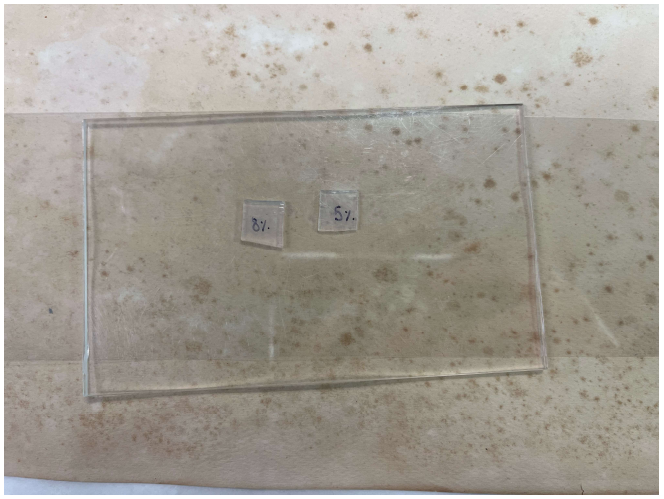
Stain reduction on the suction table, spray application
Photo Credit: Benjamin Iluzada

Stain reduction on the suction table, brush application
Video Credit: Benjamin Iluzada

STAIN REDUCTION: AGAROSE GELS

- Agarose gels between 4-8% concentration, soaked overnight in 1% sodium citrate
- Unsuccessful: too wet, created tidelines, hard to control

Agarose gels soaked in sodium citrate



Placing the agarose gel on the verso instead

Tidelines resulting from the gels

STAIN REDUCTION: SUCTION PLATEN

- Placed face up on the suction platen, then used a paintbrush to paint 1% sodium citrate directly on the foxed areas
- Rinsed with calcium bicarbonate
- Tried a higher sodium citrate concentration, but it affected the media, resulting in a grayish tone
- Successful but very slow

Stain reduction on the suction platen

BEFORE AND AFTER TREATMENT

Before Treatment, Recto, Normal Light
Photo Credit: CCAHA

After Treatment, Recto, Normal Light
Photo Credit: CCAHA

MENDING A LARGE JAPANESE SCREEN

April 2025

BEFORE TREATMENT

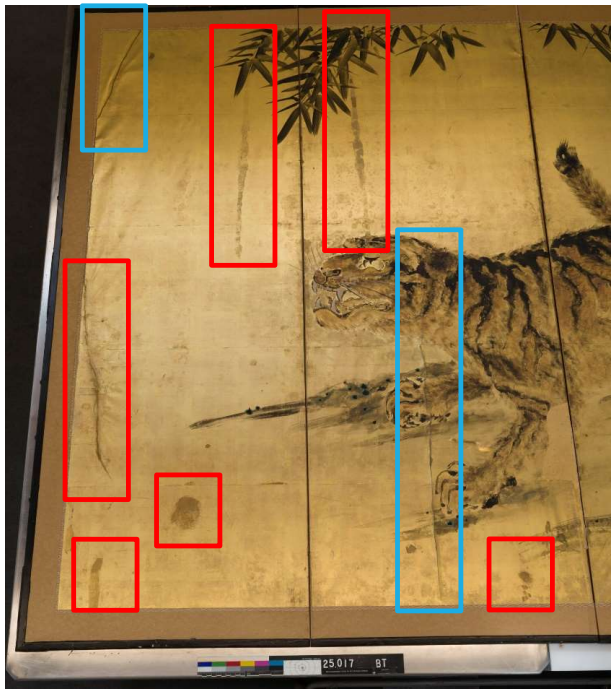
- Tears, cracks and punctures
  - 33-inch-long vertical split
  - 8-inch vertical split
  - Two 8-inch cracks
  - Many ½ to 2-inch cracks and punctures throughout
- Old repairs and overpaint
  - Many secure but overpainted with mismatched darker gold
  - Edges glued to underlying paper layers causing cockling from tension

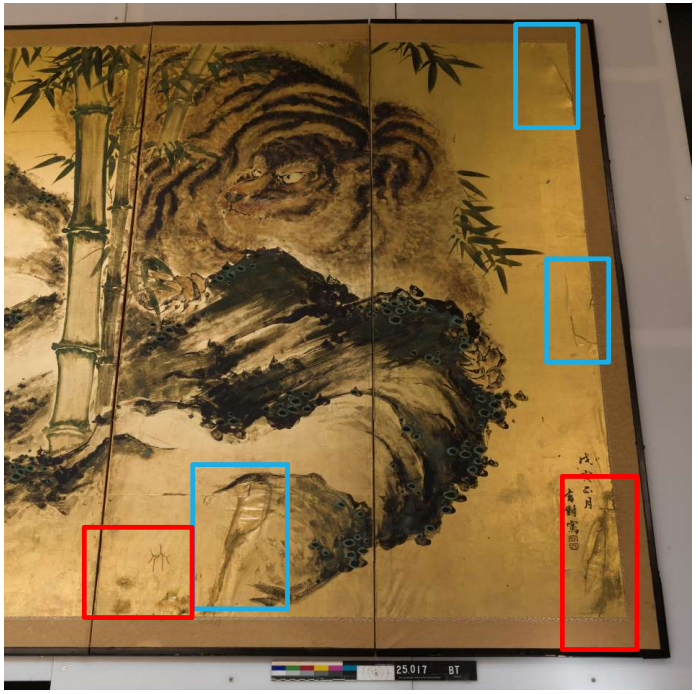
6-panel Japanese screen (Two Tigers), by Watanabe Gentai (or studio of), 1818, privately owned, watercolor on gold background, traditional mulberry paper screen panels with mulberry paper hinges, approx. 5 ½ x 10 feet (total)

Before Treatment

BEFORE TREATMENT

Tears
Previous overpaint



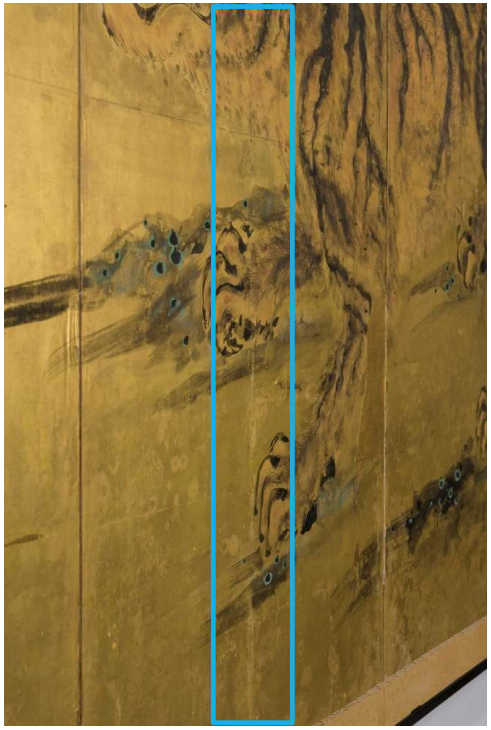


Before Treatment, Recto, Normal Light
Photo Credit: CCAHA

MENDING

Heather Hendry & Juliet Baines. 2018. “A Local Mending Technique for Japanese Screens”. *Journal of Paper Conservation*, 19:3, 115-117.

Before Treatment
33-inch-long tear
Photo Credit: CCAHA



After Treatment
33-inch-long tear
Photo Credit: CCAHA

Before Treatment
Tear on the right edge
Photo Credit: CCAHA

After Treatment
Tear on the right edge
Photo Credit: CCAHA

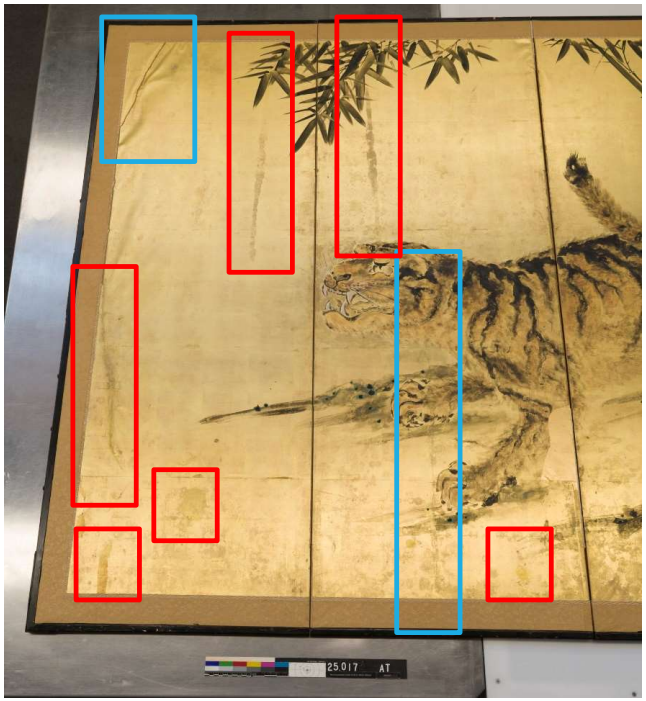
INPAINTING

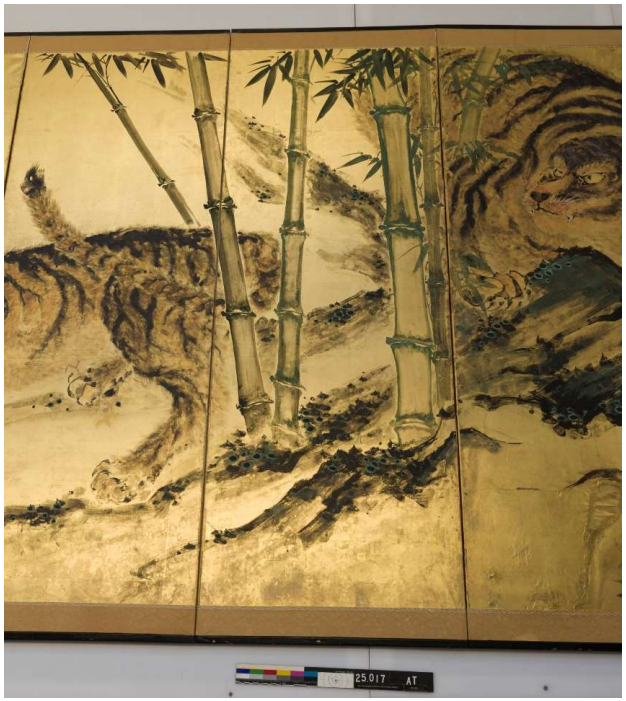
Kremer gold palette for retouching, used for inpainting the Japanese screen

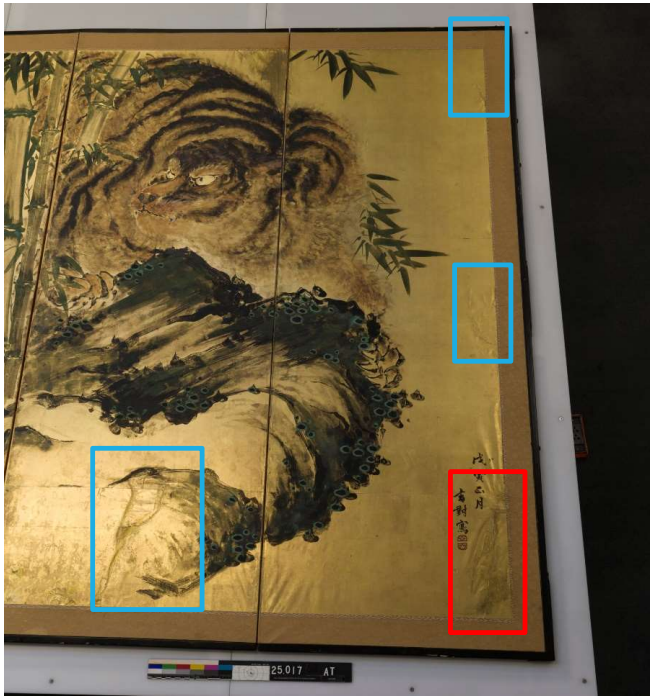
Sandrine Blais and Heather Hendry inpainting using watercolors
Photo Credit: Jessica Silverman

AFTER TREATMENT

Tears
Previous overpaint







Before Treatment, Recto, Normal Light
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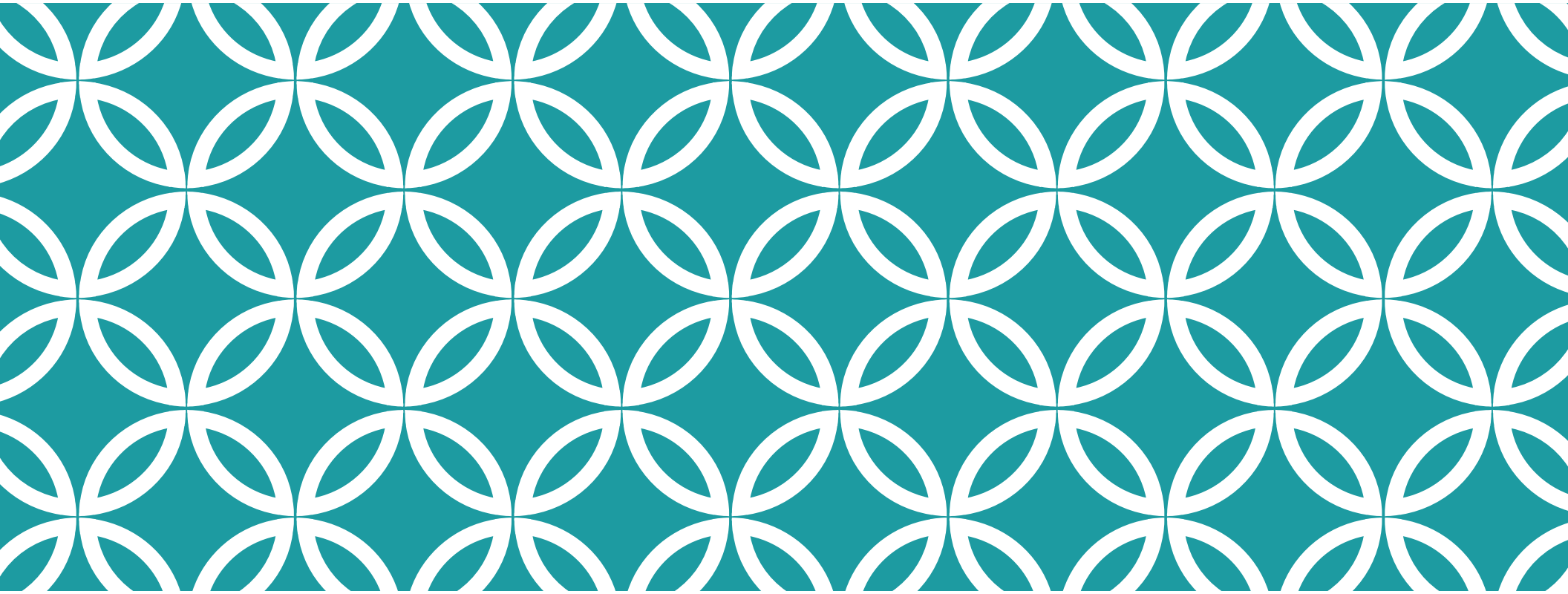
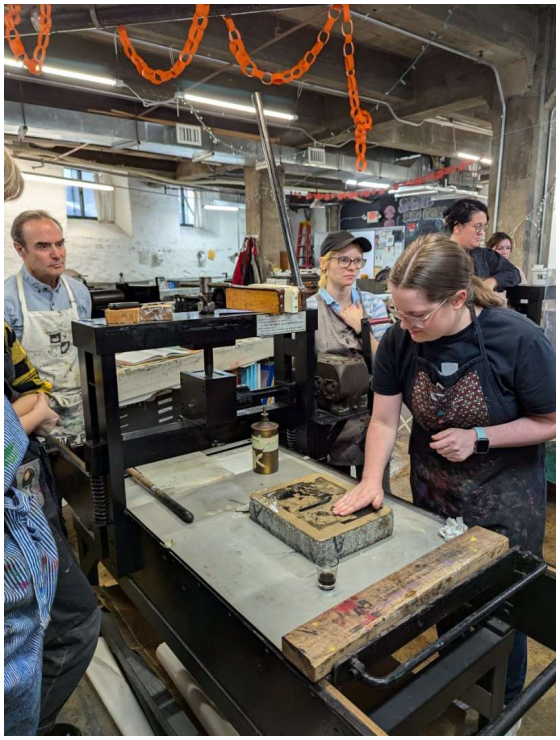


WORKSHOPS ATTENDED

2024-2025

WORKSHOPS ATTENDED

Lift Grounds: Hands-on Etching Workshop, May 2024

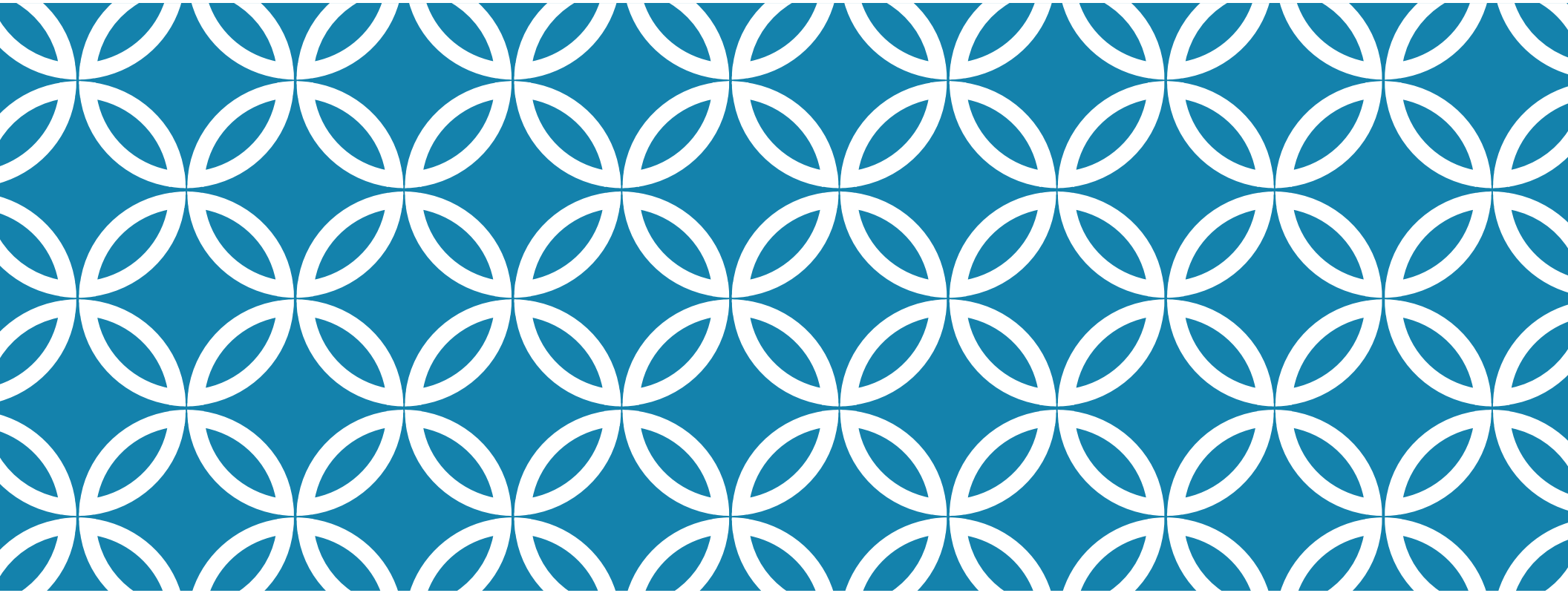


Lithography Workshop, October 2024

WORKSHOPS ATTENDED

Rigid Hydrogels Workshop,
November 2024

Nanocellulose Workshop,
May 2025



THANK YOU!
ANY QUESTIONS?

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