



Reflections at Winterthur

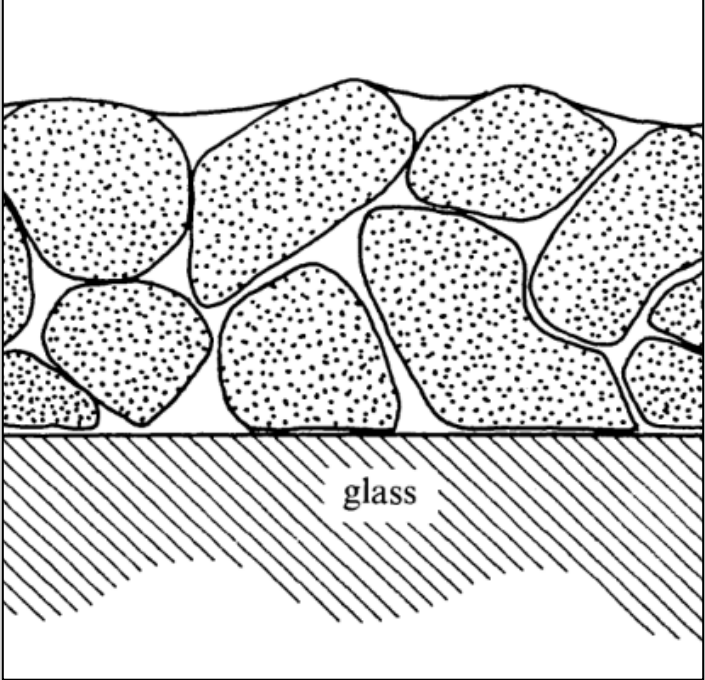
Challenges and solutions for tin mercury amalgam mirrors

William Donnelly & Dr. Rosie Grayburn

Overview



Source: University of Michigan Library



Source: Per Hadsund, 1993



Visual identification



Drips in seamed glasses



Sparkle Patterning



Crackle Patterning

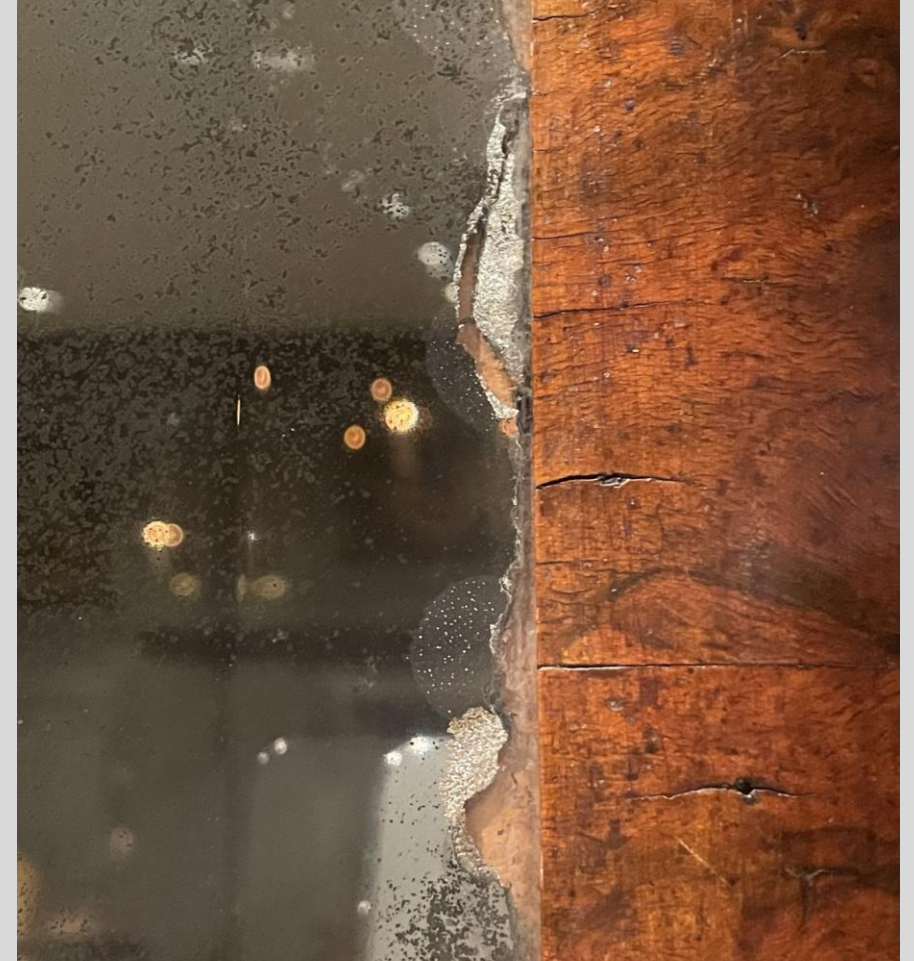
Visual identification



Cleaving



Delamination



Loss of Reflective Surface

pXRF analysis



X-ray Fluorescence Study in 2018 by Winterthur's Scientific Research and Analysis Lab (SRAL)

- 180 mirrors are suspected of containing tin/mercury amalgam (Sn lines)

Benefits

- Fast and (mostly) portable


Challenges

- Leaded glass
- Access to mirrored surface
- Access to objects
- Nuances in data
- Potential for elevated Mercury vapor in storage areas where groups of mirrors are located

Analyzing a mirror in the Tappahanock Room with pXRF (2018)

Communication

Object Move Report

Object ID: 1966.0692	Title:	
Object Name: Looking glass or mirror	Creator:	
Other Name:	Creation Place: Europe, United Kingdom, England	

Materials: Mahogany veneer; Pine; Glass
Height: 30.50 **Width:** 13.81 **Length:** **Depth:** 1.10 **Diameter:**



SPECIAL INSTRUCTIONS:
Handling: Analysis suggests this object may contain mercury. Gloves should be used for handling and the object should be transported in display position, e.g. hanging
Mounts/Support:
Movement Notes: Mercury analysis

Move Requested By: Rosie Grayburn **Move Purpose:** Examine **Move Deadline:**

Location FROM: Research Building - 3rd Floor - Frame Storage - GG Front
Location TO: Research Building - 3rd Floor - Analysis Lab

Move Date: **Mover(s):**

RETURN LOCATION:
 Previous Location: **Object Record IRN:**

31912 39980

Return Date: **Return Mover(s):**

Object ID: 1966.0692
Object Name: Looking glass or mirror
To: Research Building - 3rd Floor - Analysis Lab
Notes: Mercury analysis

Mover(s): **Date:**

Object move report with
handling notes

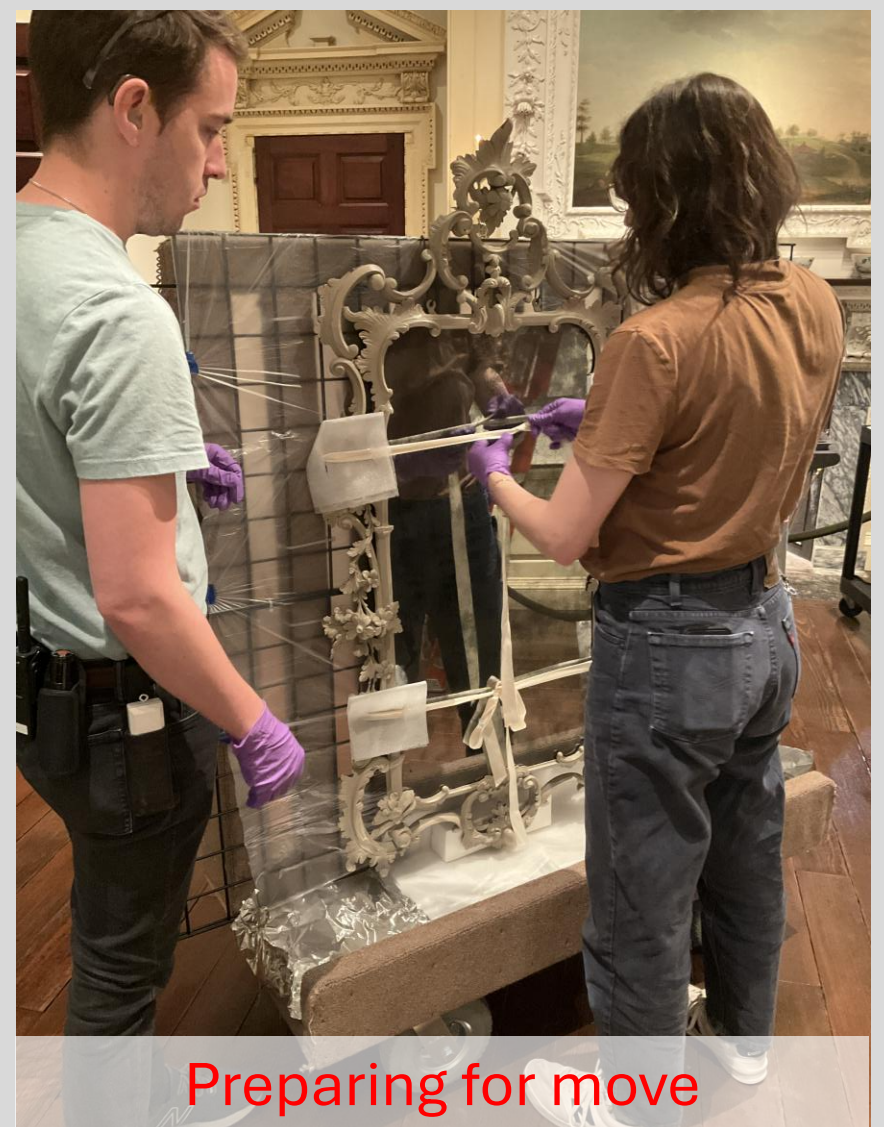
Special Instructions:

Analysis suggests this object may contain mercury. Gloves should be used for handling and the object should be transported in display position, e.g., hanging, as lying flat could activate mercury movement.

Movement



Movement cart protections

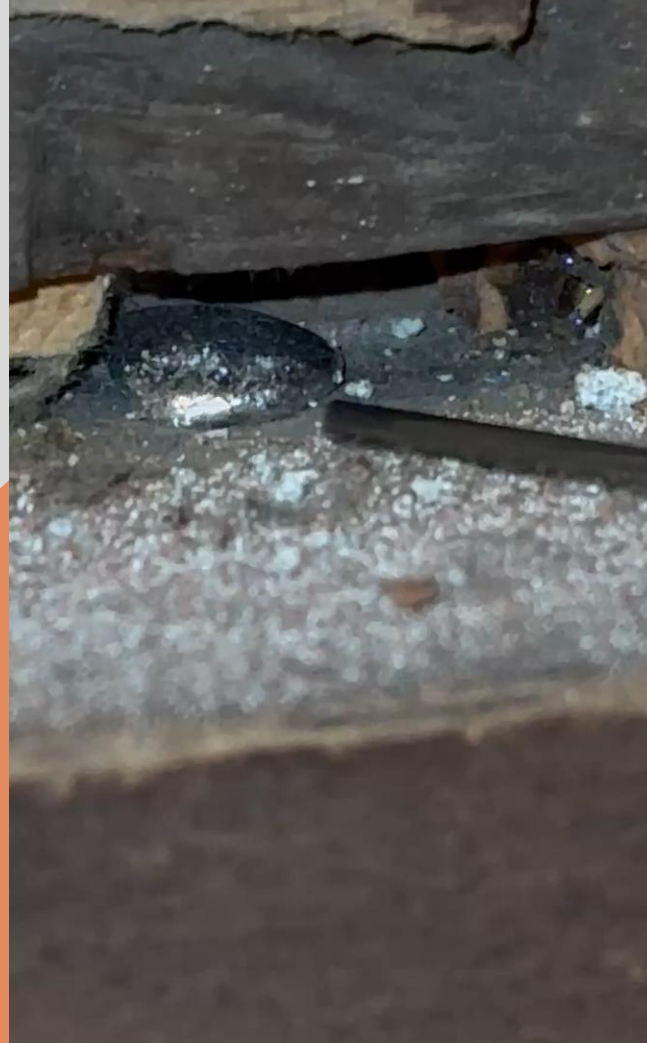


Preparing for move

Remediation and chem waste disposal



Vintage Lab Safety Kit



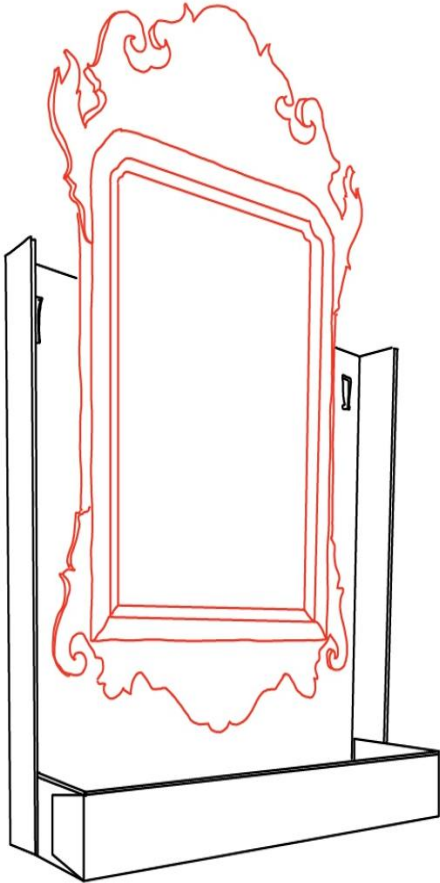
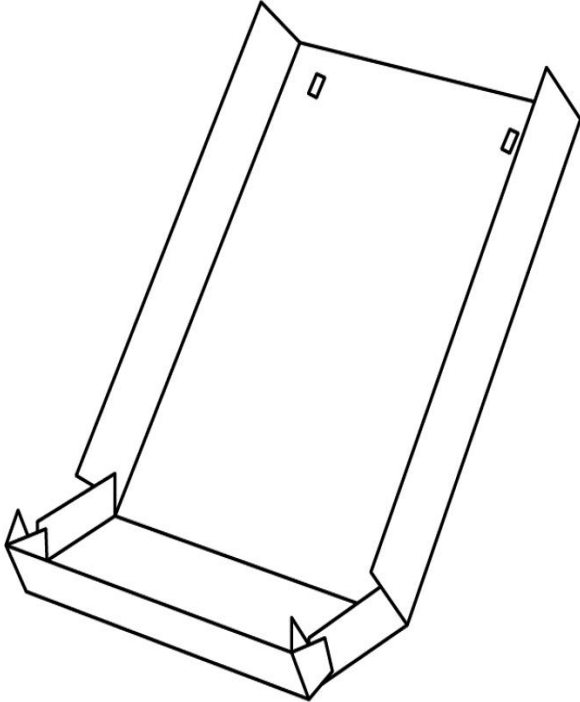
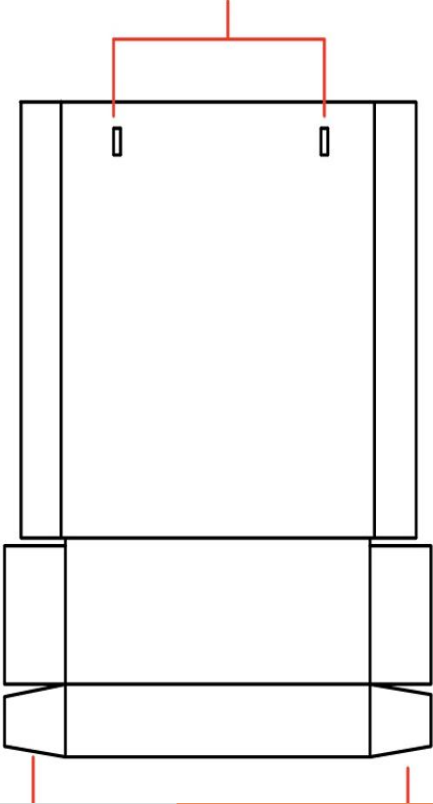
Mercury Retrieval



Newer Mercury spill kit by PIG

Storage

Notches for hanging by s-hooks on hanging screens

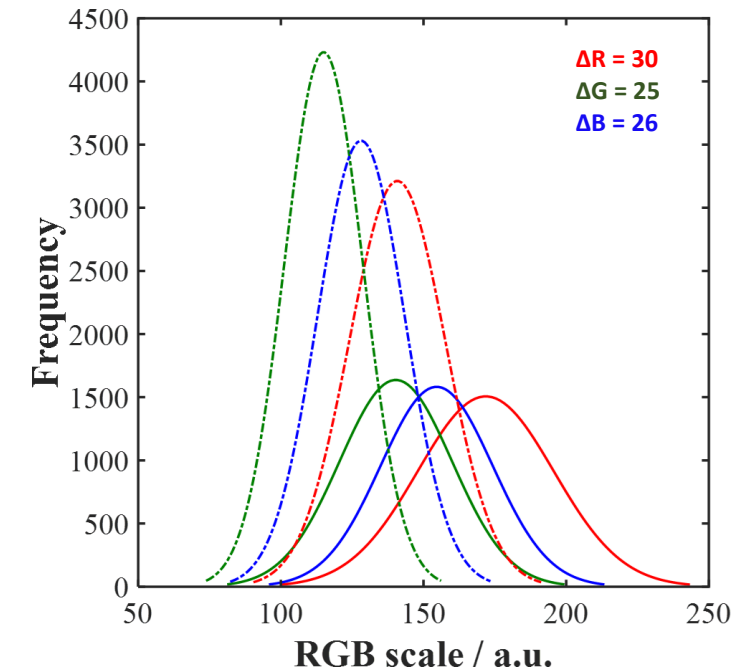
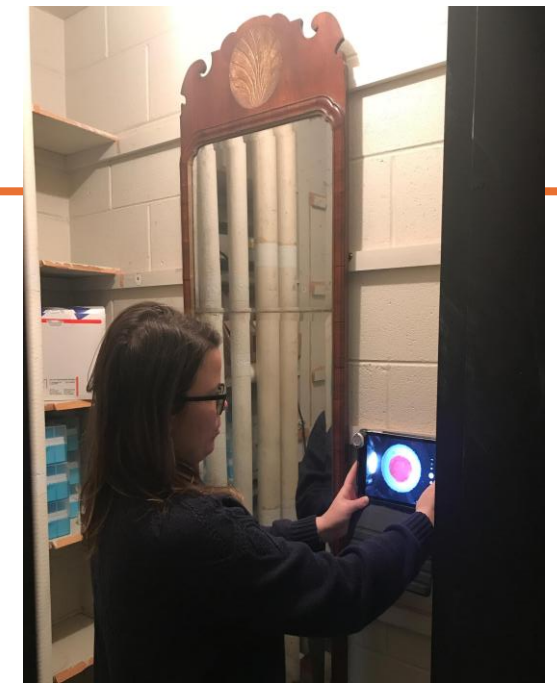
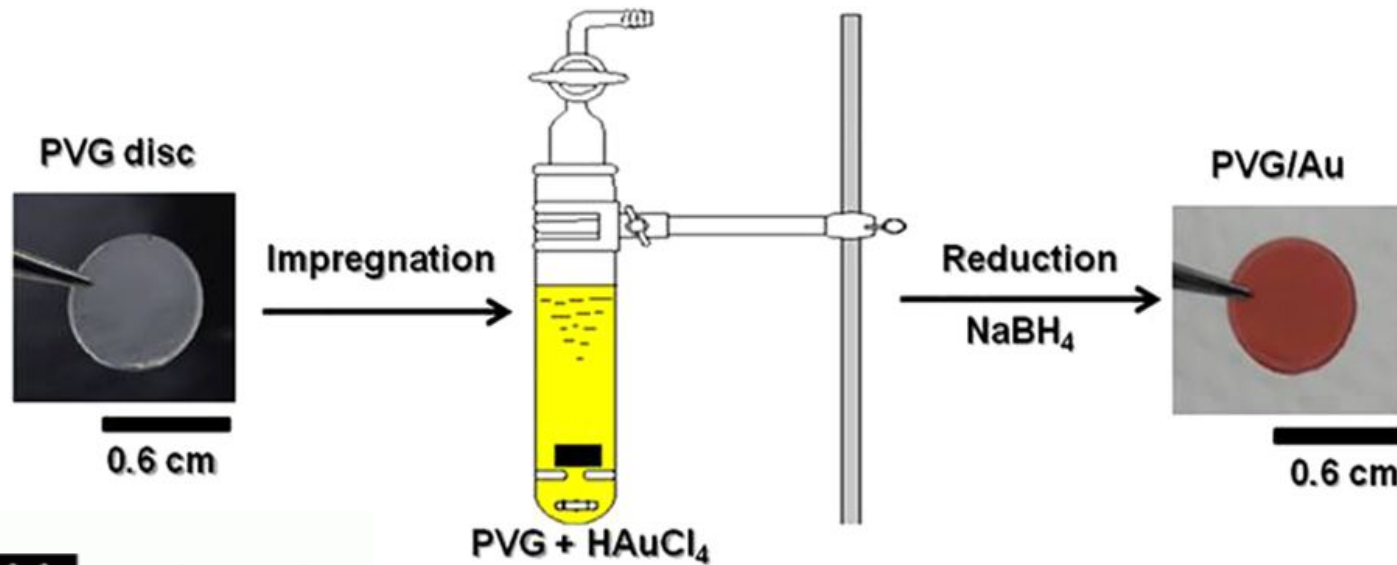
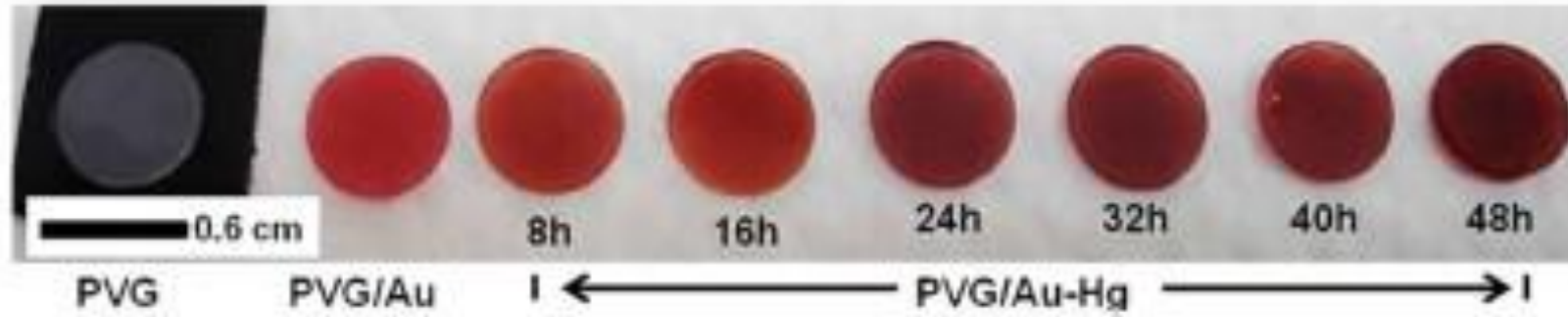


Storage Tray Diagram



Mirrors in Quarantine

Exposure monitoring



Exposure monitoring



Spot testing



Passive sensors



Thank You

- Dr. Joelle Wickens
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- Melissa King, WUDPAC 2020
- Marie Desrochers, WUDPAC 2021
- Dr. Brandon Calitree
- Dr. Alex Brolo
- Dr. Carlos Diego Lima de Albuquerque

Source: Wikipedia, Caravaggio, 'Narcissus' 1597-99

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MUSEUM, GARDEN & LIBRARY