

Out of the ashes: The conservation trials of the Clandon State Bed textiles

In April 2015 Clandon Park, in England, suffered a devastating fire. The fire service was able to retrieve many objects including parts of the Clandon Bed suite: 4 stools, the armchair and the curtains which had been conserved and were in a box under the bed. When the next day dawned, the tester and headboard of the state bed could be seen through one of the windows, covered in ash and debris but still standing. This early 18th century bed is regarded as one of the most lavish in England, with an elaborate tester hung with highly decorative polychrome silk and wool needlepoint embroidery, with a yellow and crimson silk scheme in the interior trimmed with rich silk crimson passementerie.



Although the bed had survived, it was marooned in a sea of debris for a year before the archaeological excavation could reach the State Bedroom. Finally, in 2016 conservators, working in full PPE (personal protective equipment) were able to uncover what remained of the room to retrieve and identify the surviving elements of the bed and clean them before being placed in storage. Lead contamination, from the roof and old pipework, was found to be high on the textile elements.

In 2019, discussions on the future conservation of the bed were started but it was not until 2021 that trials could be undertaken. The nine surviving valances were brought to the National Trust Textile Conservation Studio in Norfolk for assessment and cleaning trials.

Condition



- Loose debris and soiling
- Ingrained soiling
- High levels of lead contamination bound to fibres
- Extensive staining - corrosion, ash, plaster, dyebleed, etc.
- Large losses
- Missing passementerie and other elements



Testing



- Initial XRF testing to assess pre-treatment lead levels*:
- Testing of embroidery, satin, trimmings and linings
 - Varying results: 400 – 130,000 parts per million

Testing aims:

- Which cleaning techniques are possible?
- Can the lead contamination be reduced during cleaning?
- Can the textiles be made safe for re-display?
- Can a visual improvement be achieved that is similar to the undamaged bed curtains?

Cleaning trials



Dry cleaning:

- Vacuum cleaning - removed only loose debris and dust
- Dry sponge - made little difference to ingrained soiling

Solvent and spot cleaning:

- Swab cleaning with mild solvents and mixtures, i.e. IMS, Acetone, DI water
- Spot cleaning with Laponite poultice



Wet cleaning - gels:

- 4 Solutions tested—made up into 4% Agar gels:
 - 1g/l Dehypon LS54 Detergent (Det.)
 - Citric acid + 1M solution Sodium hydroxide + Det.
 - Citric acid + Diethylene Triamine Pentacetic Acid (chelator DTPA) + 1M solution Sodium hydroxide + Det.
 - 0.1M solution Citric acid + 0.1M solution Tri-sodium citrate + Det.
- Gels placed on different types of stains on satin, embroidery, braid and passementerie
- Gel with **Tri-sodium citrate** appears most successful on satin and embroidery, turning the gel orange



Wet cleaning:

Sample of satin and embroidery wet cleaned in Tri-sodium citrate solution
2 Embroidery fragments were tested using 2 methods:

1. Immersion clean in a bath
2. Suction clean on a suction



1. Immersion clean in a bath:

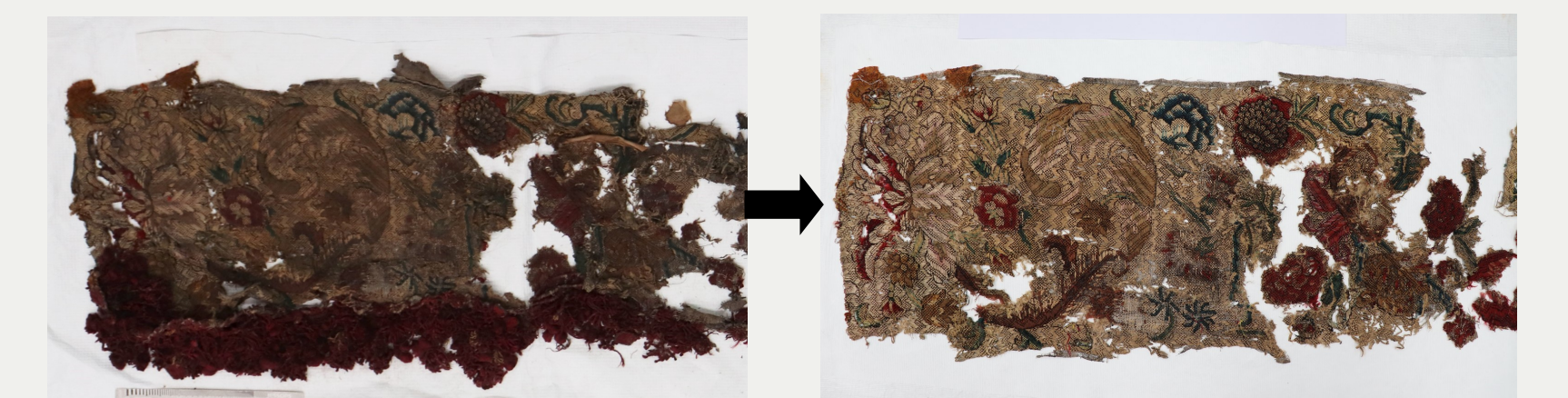
- Sandwiched between net
- 3 baths and several rinses
- Most soiling removed in 1st and 2nd wash bath
- Brighter result after wet cleaning, but still much soiling remains
- 49-84% reduction in lead levels



2. Suction clean on a suction table:

- Supported on a layer of net and partially covered with net on front
- 3 washes and several rinses
- Equal amounts of soiling removed in 1st and 2nd wash
- Brighter result after wet cleaning, but still much soiling remains
- 28-70% reduction in lead levels

Results



- Dry cleaning removes loose soiling and debris, but makes no significant difference in lead levels
- Wet cleaning removes ingrained soiling and reduces greyness
- Wet cleaning is necessary to reduce lead levels
- Wet cleaning in a bath appears to remove more lead, as particles can dislodge more easily when immersed
- With the lead levels still above acceptable levels after cleaning, alternative display methods will need to be considered, for example display in a glass case
- Current cleaning methods can not bring the embroidery back to its original appearance, meaning a visual difference will remain between undamaged curtains and fire-damaged elements



* XRF testing carried out by Paul Croft from Lincoln Conservation