Wet Cleaning Barkcloth: Some Options and Considerations

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"Frequent washing and exposure to the sun will eventually deprive the material of its stiffness and noisiness."
Rosalind Amelia Young, great-granddaughter of Bounty mutineer, John Adam.

1.Scope of investigation

This project, undertaken in 2017, explored the use of aqueous cleaning in the conservation of Pacific barkcloth (Tapa), primarily focusing on Polynesia. The investigation, which included a literature review, survey of current practice and practical experimentation considered:
1. Compatibility of aqueous treatments, 2. Practicalities of safely handling wet cloth, 3. Efficiency of drying methods, 4. Effects on adhesives, layers, beater marks and colourants.

2. Barkcloth samples

Two types of barkcloth were used in experimentation: 1. New plain cloth supplied by Black Pearl Designs, described by the supplier as Fijian tapa made from the inner bark of the mulberry tree using traditional tools, creamy-white in colour, with sheets pasted together to form longer lengths. 2. Patterned cloth of unknown age and origin, purchased from a private collector by the author. This cloth had been tailored and machined stitched to make a women's bodice.

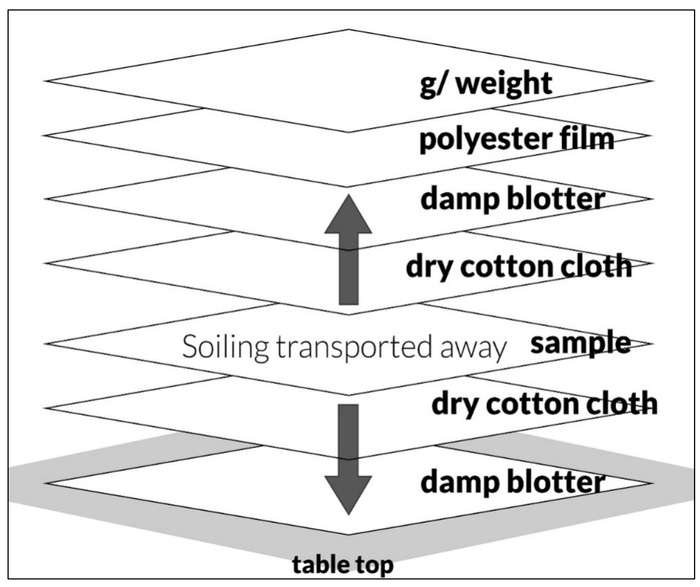
Left to right: New plain cloth, patterned cloth (obverse), patterned cloth (reverse).

3. Survey of practice

The survey achieved 17 responses from practitioners working in textiles, paper, organics, ethnography and objects conservation. 8/17 respondents were very familiar with treating barkcloth, with 7 having undertaken wet cleaning. Methods cited include: float washing on a grid or polyester support (Melinex® or Reemay®), using a tilted wash table, blotter washing, swabbing, and spot cleaning with the aid of vacuum suction. Three practical experiments were selected in response to the survey and literature review: Float washing on a support (1) and capillary washing in closed (2) and open systems (3).

4. Capillary washing

Using soft tap water only, 16 x (10cmx5cm) patterned tapa samples were tested using a closed-system blotter method, following the method described by a respondent to the questionnaire who had used it in practice.



Right: Diagram of closed-system blotter wash.

For comparison, an open blotter method was tested. With an open-system, moisture is applied to one side, transporting the soiling through to a blotter underneath. It is thought that by making the object wetter than the absorbent material, the capillary draw of the blotter will be more effective.1

1. Marc W Harnly, Cecile Mear and Janet E. Ruggles, "Washing," in *Paper Conservation Catalog: Seventh Edition* (Washington D.C.: American Institute for Conservation Book and Paper Group, 1990), 33.

5. Results: closed-system vs open-system

Closed-system: gentler, more controlled, slower rate of saturation, meaning the process can be adjusted by adding more or less blotting paper. Open-system - resulted in rapid saturation. Staining (or possibly colour transfer) found on blotting paper.

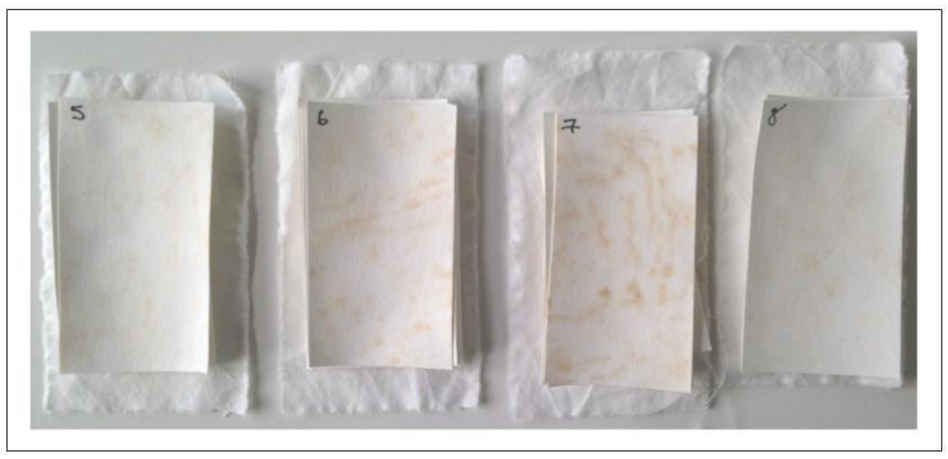
6. Float washing tests - plain barkcloth samples

Float washing differs from immersion washing in that the object sits on the surface and relies on surface tension to keep afloat. A support can also be used to ensure the object doesn't sink and reduces risk of mechanical damage. Samples of the new plain barkcloth were float washed on Reemay® sheets. For this experiment, more realistic sized samples (45x35cm) were used as the aim was to look at the practicalities of handling. In samples which were agitated, within 15 mins of wetting out, the adhesive had solubilised and layers had begun to separate. However, these had re-adhered firmly once completely dry.

Left: Detail of pasted layers, Right: Layers separated in wash bath.

7. Colour measurements: patterned barkcloth samples

To identify colour loss or alterations after treatment, reflectance value of patterned samples was measured before and after, using a portable spectrophotometer (Konica-Minolta CM-2600d). The lightness-darkness value (L*) was negative in almost every measurement, which could equate to colours darkening after wet cleaning. The largest change was -4.87. This result suggests a colour alteration instead of a loss. Visual examination: No change was apparent when comparing samples before and after treatment. Blotting paper and cotton cloths showed significant amounts of colour transfer and in some cases appeared similar to an imprint of the pattern.



Blotting paper after cleaning test showing colour transfer.

8. Colour sources

Simon Kooijman provides an extensive catalogue of local dye sources used in tapa making in his 1972 book Tapa in Polynesia. A summary of some of these colour sources is provided here:
Browns/reds - bark of bishop wood (*Bischofia javanica*), Candlenut tree (*Aleurites moluccana)*
Reds - Achiote (lipstick tree) fruit juice or seeds (*Bixa* orellana), red earth or red clay mixed with bishop wood (*Bischofia javanica*) or mixed with liquid from candlenut tree bark.
Yellows - root of *Noni* (*Morinda citrifolia*), root of *Ena*/ *Eka*/ *Kotoki* (*Curucuma viridiflora*), turmeric (*Curcuma longa*), (*'olena*).
Black - soot from burnt candlenut tree kernels (*Aleurites moluccana)* mixed with bishop wood, candlenut oil or kamani oil (*Calophyllum inophyllum*).

Considerations

Identifying the dye sources and understanding how these are potentially affected would certainly help to determine whether wet cleaning is a viable option. The example of water soluble adhesive found in the modern barkcloth has highlighted that contemporary tapa could raise similar conservation concern to historic pieces in museum collections. Careful handling of wet cloth however and using a support to avoid direct handling of edges did minimise the risk of lifting layers.

References Harnly, Marc W , Cecile Mear and Janet E. Ruggles, "Washing," in *Paper Conservation Catalog: Seventh Edition.* Washington D.C.: American Institute for Conservation Book and Paper Group, 1990, 33. Kooijman, Simon. Tapa in Polynesia. Honolulu: Bishop Museum Press, 1972 Kosek, Joanna M. "Washing Paper in Conservation," in *Paper and Water: A Guide for Conservators* ed. Gerhard Banik and Irene Bruckle. Oxford: Butterworth-Heinemann, 2011. Young, Rosalind Amelia. Mutiny of the Bounty and Story of Pitcairn Island, 1790-1894. Mountain View, Calif.: Pacific Press Publishing Assoc., 1894. Norton, Ruth E. "Conservation of Artifacts Made from Plant Material," in *The Conservation of Artifacts Made from Plant Materials* ed. Mary-Lou E. Florian, Dale Paul Kronkright, Ruth E. Norton, 83-138. Los Angeles, Calif: Getty Conservation Institute, 1990.