

Conserving the Wentworth family papers – developing a practical treatment process

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INTRODUCTION

The State Library of New South Wales (SLNSW) holds three collections of the Wentworth family papers, including the correspondence of D'Arcy Wentworth, William Charles Wentworth and Sarah Wentworth. The most significant collection consists of 17 volumes that vary in size and thickness. In 2013 a condition survey of the collection was conducted and it was recommended for priority treatment by the Collection Care branch.

The collection consists of mainly letters and correspondence written in iron gall ink which have been guarded into volumes using poor quality paper. In some cases, brittle and fragile manuscripts have been lined or 'encapsulated' with silk or paper. These items have deteriorated extensively and are now extremely discoloured. In addition, many letters have acidic paper repairs obscuring text. Since 2013 the Collection Care branch has been treating these volumes, removing folios from guards and old repairs and linings from the supports, and treating the iron gall ink media to prevent further degradation.

This poster looks at the development over the past few years of a conservation treatment tree to inform our treatment of iron gall ink media. Our approach has changed as we have incorporated the use of readily available commercial equipment (Sodastream®) to assist our production of a deacidification wash. Staff members contributed new knowledge of the use of rigid and viscose gels and we have used the excellent resource of the Iron Gall Ink website to produce our solutions and treatment resources.



Wentworth family papers bound in volumes before treatment

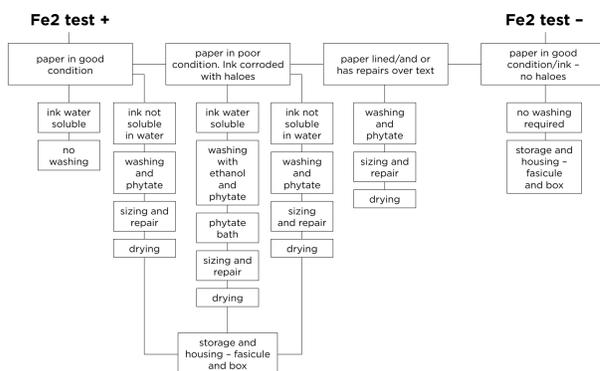
CONSERVATION TREATMENT TREE

State Library conservators use a treatment tree when initially scoping items with iron gall ink media for treatment. This is based on the Library of Congress treatment tree (*Book and Paper Group Annual*, 27 (2008) Albro et al 129-165)

We look at the condition of the media and support. When devising a treatment approach for the Wentworth papers we have noted any previous repairs or linings and if we need to use any moisture for their removal. We note whether the repairs are obscuring text or likely to degrade the support. This informs an 'all or nothing' approach. We also test for the presence of free iron (II) ions using bathophenanthroline indicator paper.

If an item requires aqueous treatment on areas with iron gall ink, either locally or overall to remove a repair or lining, this is followed by washing and deacidification. If aqueous treatment is restricted to ink free areas, then washing and deacidification are not performed.

CONSERVATION TREATMENT WORKFLOW



USE OF SODASTREAM®

The SLNSW purchased a Sodastream® in 2016 to produce carbonated water for our deacidification baths. Previously we have used bottled carbonated water for small volume deacidification wash baths. However, considering the condition and the amount of folios that required washing, we decided to purchase a Sodastream® to produce carbonated water more efficiently. The Sodastream® has several benefits in its use. It is readily available at department stores and inexpensive. We have found that it is also easy to use and the gas canisters can be exchanged at numerous retail outlets.



Using a Sodastream® to make carbonated water

Carbonated water

WASHING AND TREATMENT PROCEDURES

Previously we have not always used a deacidification bath for treating iron gall ink, but with the acquisition of the Sodastream®, we can now more readily produce carbonated water for calcium bicarbonate solutions. We have now changed the wash procedure to include this deacidification bath. We have also added a wash with the complexing agent calcium phytate and use a combined sizing and repair step with gelatine and pre-prepared Japanese tissue strips.

The treatment steps we now follow fall in line with the recommended 'all or nothing' approach for the treatment of iron gall ink.

A typical treatment of iron gall ink now involves these steps:

1. humidification with deionised water using a dahlia sprayer
2. washing in deionised water bath (twice) on a rigid acrylic support
3. testing with iron gall ink test papers to see if all iron II ions have been removed in the wash baths
4. washing in calcium phytate bath



Washing in calcium phytate solution

Washing in calcium bicarbonate

5. washing out calcium phytate in deionised water bath
6. deacidification wash in calcium bicarbonate bath
7. pre-drying under felts and in between blotters to remove excess water



Pre-drying washed items

Sizing with gelatine

8. sizing with gelatine (1% w/v) in deionised water
9. repair with pre-torn Japanese tissue strips on a light box



Repairing losses and tears with prepared tissue strips

10. flattening and drying under weight.

USE OF IRON GALL INK WEBSITE AND PROCEDURES

The Iron Gall Ink website (<https://irongallink.org>) has been an invaluable reference for us and we have followed the treatment procedures detailed on the site. Using the 'all or none' law. 'Either do not apply any aqueous treatment at all, or apply the entire treatment. Treating "just a bit" bears the highest risk.', Birgit Reissland, Karin Scheper and Sabine Fleischer (2007).

We have followed the steps and recipes for our treatment solutions of:

- calcium bicarbonate
- calcium phytate
- gelatine for sizing and repair
- and the combined sizing and repair approach with the use of pre-prepared Japanese tissue strips.



Making calcium bicarbonate solution

Preparing calcium phytate

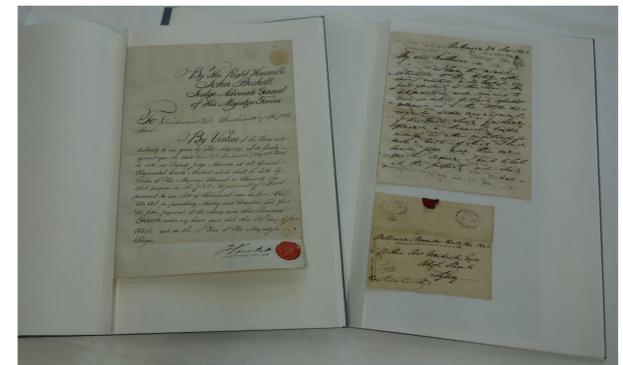
We have also incorporated new knowledge in our treatment approach. One of our Collection Care staff members attended a conservation course on the use of gels in paper, run by Richard Wolbers, and as a result we now use:

1. Laqua pH meter — a portable, easy to use method of measuring the pH of washing solutions; it can be used to monitor the changing pH of the bath throughout treatment
2. Laqua conductivity meter — gives an estimate of the ionic concentration of the baths and therefore indicates the movement of ionic material from the paper and into the wash bath

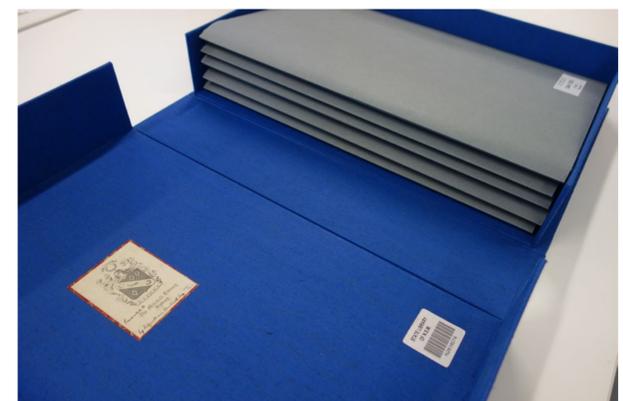


Measuring pH value of a wash bath with the Laqua meter

3. Xanthan and agarose gels — tested in the removal of old paper repairs
4. Measuring the efficacy of a wash — through measuring changes in dimensions using a polyester tracing of a manuscript sheet and noting dimensional changes; measuring pH and conductivity of letters before and after treatment (using the Lacqua pH and conductivity meters).



After treatment and fascicling



Fascicles in clamshell boxes

With the addition of inexpensive and readily available equipment and chemicals we have now improved our treatment approach for iron gall ink media. All these additions to our treatment approach and the findings from tests will inform other treatments at SLNSW in terms of resourcing and planning. This structured approach to the treatment of iron gall ink manuscripts will ensure a higher level of consistency in the treatment of our collections and a greater level of documentation of the decision-making process.

REFERENCES

- Albro et al, 'Developing Guidelines for Iron-Gall Ink Treatment at the Library of Congress', *Book and Paper Group Annual*, 27 (2008) pp 129-165
- Iron Gall Ink website <https://irongallink.org/>

ACKNOWLEDGMENTS

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