

Conservation challenges at the National Library of Scotland

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The National Library of Scotland's collection encompasses 15 million printed items, seven million manuscripts, two million maps, 25,000 newspaper and magazine titles and 32,000 films. The conservation team is responsible for the care of all these items, which includes making them accessible to readers now and in the future, preparing them for display in our internal exhibitions or on loan to other organisations and ensuring that they can be digitised safely without damage occurring. The scale of the collections makes this work hugely challenging, and our approach to collections care continues to evolve as we try to target our resources where they are needed most.

First, we ensure that our decision-making is underpinned by the use of empirical scientific knowledge and a risk-based approach. The conservation literature is extensive and can help us understand the causes and mechanisms of damage and deterioration that may affect our collections and the approaches that may stop or slow down this deterioration. Where appropriate we may also undertake research ourselves; for example, we conducted a series of experiments with a sprinkler simulation to evaluate our storage boxes and modify their designs.



Figure 1 Evaluation of the library's storage enclosures

A large proportion of our resources are directed towards preservation, which is also known as preventive conservation. We recognise that the vast majority of the library's collections will never pass across a conservator's workbench, but we can try to preserve them and avoid further deterioration by a variety of means that are described in various standards and guidance documents and include:

- We maintain our buildings in a good state of repair and provide stable environments for the storage and use of collections, with appropriate levels of temperature and relative humidity and minimal exposure to light.
- We have a policy and procedures in place to provide a high level of collections security and to prevent collections being accidentally misplaced.
- We ensure that our storage systems and furniture are adequate and we use storage enclosures such as boxes and folders, thus protecting the collections from many sources of damage including pollution and floodwater.

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- We ensure that our collections are handled and transported correctly, both by educating library staff and users and by providing appropriate equipment, such as book weights and wedges for use in the reading rooms, and padded carrying cases for items going on loan.
- We have appropriate emergency procedures in place to reduce the likelihood of disasters and to react appropriately if disasters do occur.

However, while focusing on preservation is clearly a sensible and cost-effective approach, it cannot improve the condition of items that are already damaged. A programme of conservation treatments is therefore required for items that are otherwise too fragile to be issued to readers or put on display, although with thousands of items clamouring for attention, treatments must be targeted carefully. Priority is given to items that are actively deteriorating, for example due to acid hydrolysis of poor quality paper, to heavily used items and to highly significant and often unique items.

To minimise treatment times and to avoid excessive levels of intervention, we say that treatments should be sufficient to make items 'fit for purpose' and no more. Clearly the 'purpose' driving the treatment is important; for example, aesthetics are more likely to be a consideration for items being put on exhibition than for items being prepared for digitisation. Some treatments – such as the application of hinges to strengthen the joints of books being digitised – take minutes, whereas others can take days, weeks or even months.

One of our biggest projects to date has been the conservation of the 'Chimney Map', which was begun in spring 2016 and completed almost a year later. The map acquired its colloquial name because when it was discovered during renovations at a house in Aberdeenshire it was originally thought to have come from inside a chimney.

The map was donated to the library in 2007, arriving as a filthy, crumpled ball which was only just identifiable as a map of the world, entitled *Nova Totius Terrarum Orbis Tabula*. The library's curators ascertained that it was printed in around 1690 by Gerald Valck, a renowned Dutch map maker, and that only two other copies are known to remain in existence. The map was so large that it had been made using eight printing plates to create eight paper sections, which were then stuck together onto a linen backing.



Figure 2 The map as it arrived at the library (image courtesy of Written in Film)

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When the donation was received, there were insufficient resources available even to consider the conservation of the map, so it was put into storage. However, it was not forgotten, and when the library received a private donation for conservation work in late 2015, it was decided to provide cover for one of the library's conservators for a week. This freed up some time to undertake preliminary investigations of the map. The results were reasonably positive, but the conservator cautioned that full treatment would be very time-consuming and might not achieve a great deal. During further discussions, it was argued that the rarity of the map and the potential for putting it on display justified allocating resources to it, and that the conservation should therefore be attempted. Furthermore, the story of the map and its discovery is fascinating and the conservation project clearly had the potential to generate considerable publicity for the library.

The treatment was extremely challenging due to the fragmentary nature of the map. The first stage was to unfurl it – many large pieces separated from the main body during this process – and to remove surface dirt and debris using a squirrel-hair brush and a dental aspirator. The map was then examined properly and it was decided that the removal of the linen backing and subsequent relining were required in order to prevent further damage. It was proposed that the map should be separated back into its eight sections to facilitate the treatment, which seemed acceptable given that it was already splitting along the joins between the sections.

The separation of the sections was achieved using strips of gelatine gel, which were placed along the joins and weighted down to ensure good contact with the paper. This softened the old adhesive, allowing the edges of the sections to be lifted and the linen backing to be cut along the joins. Once separated the individual sections were supported on layers of blotter and placed in a humidifying chamber. This relaxed the paper, enabling the folds to be teased open and held in place with weighted pads. The flattened sections were then left to dry.



Figure 3 Humidification of the map (image courtesy of Written in Film)

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The next stage of the treatment was the application of a temporary facing, which would hold the loose pieces of the map in place when the backing was removed. Small squares of Japanese paper were stuck to the front of the map with methyl cellulose adhesive, and while the map was slightly damp it was turned over and the linen backing was removed using hand tools. The sections were then washed in turn in a heated sink, with gentle brushing away of the old adhesive and agitation of the water.

A large sheet of silicone release paper was pasted onto an upright light box, with two layers of thin tissue on top. After being washed, each section was blotter-dried and adhered to the tissue. The surface of the map was then sprayed with cold water, which dissolved the methyl cellulose and allowed the facing to be peeled off. Where necessary the more fragmentary areas were realigned using an image of the version owned by the Maritime Museum in Rotterdam for guidance. Once dry, the sections could be lifted off the light box by peeling away the silicone release paper.

The final stage of the treatment was to bring the sections together onto a single lining. Silicone release paper was again pasted onto the light box, and two layers of toned Japanese paper were built up, using small overlapping pieces. The sections of the map were then adhered to the lining, with the edges of the lining left protruding, which gave a convenient way of attaching the map to a backboard for display. No attempt was made to infill the missing areas; this would have made the treatment into a conjectural restoration, and in any case the losses were considered an important reminder of the map's fascinating history.



Figure 4 The map after treatment

The map was put on display in the library's entrance area in April 2017, and was subsequently lent to Castle Fraser in Aberdeenshire, which has links to the map's provenance.

The stories of how the map came to the Library and the amazing transformation that it has subsequently undergone were documented in three professional films. The first two showcase the history and conservation of the map (<https://www.youtube.com/watch?v=g6Bn3xBGfWY> and <https://www.youtube.com/watch?v=WxxJpAYhzpg>) and the third explores the discovery of

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the map (<https://www.youtube.com/watch?v=Tc0WhNWeWNw>) [all accessed 24 August 2017]. As had been expected, the project captured the public's imagination and there were countless articles in the press, in publications ranging from *The Scotsman* to *Maplines* to the *Skip Hire Magazine*(!); mentions on Twitter and Facebook pages with thousands of followers, such as @gettyhub and @ICCROM; radio interviews on news programmes and the *Janice Forsyth radio show*; and an appearance on television on the *BBC One Show*. The coverage extended as far afield as Japan, Australia and Russia, and the library's staff have given talks to a range of audiences and worked on a spin-off research project with students from the University of Edinburgh.



Figure 5 Filming the conservation work

The 'Chimney Map' was probably the most challenging project we have ever undertaken, and as such, the publicity it generated seems well deserved. It also serves as a reminder that conservation projects are potentially very newsworthy. Publicising our work can help to make the case for adequate resources, thereby equipping us to meet the challenges that will inevitably come our way in the future.

References

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