# Caring for Costume and Textiles: How to preserve your historic and vintage textiles for the future.

**Guidelines based on a training session organised and hosted by Walsall Museum, and lead by independent textile conservator, Katharine Barker BA BSc AMA ACR**

**With case studies based on the conservation of a naval ensign and 1840s dress, undertaken by Katharine Barker for Walsall Museum.**

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# 1. Case Study : Two textiles, two sets of conservation problems.

## The Ensign.

Left, the Ensign at Walsall Museum, still in its display case.
Above, in the conservator's workshop, after removal from the display case, but still on the mounting board.

**Description.**
This Ensign was flown on the HMS Caledon, on which John Henry Carless VC, a Walsall man, died in 1917. It is made from light weight coloured wool fabrics and has one edge bound with a strong cotton, with eyelets fitted and rope attached, for hanging.

**Condition.**
On first inspection, the Ensign was mounted in a box frame, carefully arranged in a series of folds to fit and stitched to a hessian covered mounting board. After removal from the frame and board, it was possible to assess its condition. The folding, over a long period of time, had caused firm creases and different degrees of soiling and discolouration according to exposure. There were many old stains and marks, the end was badly frayed, there was one hole and a very conspicuous repair, where the edge of a blue area had been torn.

**What we can learn from the condition of the Ensign.**
It is often tempting to fold away or partially cover a textile, which is on display, to cut down on the space needed, or to hide a damaged area. Sometimes a textile, which is mounted on a board, has a window cut in the board to allow the back to be seen or simply to cut down on the weight of the board. In all the above cases, the risk to the textile is the same: the degree of exposure to light, air and soiling varies from one part of the textile to another and so different areas will fade at different rates and discolour differently. This will only become apparent when the textile is redisplayed in the future. Obviously, if the environment is clean and the light levels are low, the risks are greatly reduced. Textiles should only be put on "permanent" display when there is no alternative, such as in a stately home, where they are an essential feature of the house.

The old stains, marks, damage and repairs provide a dilemma for the curator or collector. Should they be removed or are they part of the history of the textile, telling their own story? Some repairs are so disfiguring that they prevent an object from being properly appreciated, others are damaging in themselves, having been carelessly worked. Marks, soiling and staining often cannot be removed, even though they may be damaging. In some instances the preservation of the stain may be as important as the preservation of the textile.

## The Dress.

Left, detail of the dress before removal of the late 19th century trimmings.

**Description.**
This dress was worn at the wedding of Mary Harrison to Thomas Hutton at St Peter's Church, Walsall in 1848. It is made from a greenish-grey silk damask, with a pattern of fine stripes and narcissi. It has a full skirt, gathered onto a closely fitted bodice and short, tight fitting sleeves. The neckline is wide and the waistline forms a "V" at the front. It fastens at the back with hooks and eyes and is fully lined.

**Condition.**
The dress has been altered, probably in the late 19th century, for fancy dress. This included enlarging the bodice by letting in side panels, shaping the neck edge by introducing darts and reducing the width of the sleeves. The alterations were then disguised by applying grey Petersham ribbon around the waist and gathered and draped grey net about the neckline.

At some point, ribbon loops were applied to the inside waist edge of the skirt and used for hanging. This has resulted in damage to the waist seam.

The dress fabric is marked and discoloured in several places, particularly down the front and it is soiled around the hem. There is some slight crushing.

**What we can learn from the condition of the dress.**
Many historic garments in museum collections have been altered to some extent. Clothes and fabric were much more expensive in the past than they are now, so garments were altered to fit changing figures and fashions. Subsequent generations would use the generous quantities of fabric in full skirts to make up new garments or alter and adapt for fancy dress and theatrical purposes. The task of the collector or curator today is to decide what is important about the garment. Should it be returned to its original style? Are the alterations part of the story of the garment? Is it possible to turn back the clock?

Storage of historic dresses creates many problems. They tend to slip off or become damaged by modern coat hangers, which are usually the wrong shape. A popular solution has been to stitch loops of cotton tape inside the dress to provide extra hanging points, but frequently these become stress points and damage results. Where space permits, it is best to store historic garments in acid free boxes, but these do need to be large enough. This dress was extremely well packed in acid free tissue and in a good quality box, but the box was not long enough to allow the skirt to lie flat and possibly not quite deep enough, resulting in slight crushing.

The dress is marked, discoloured and soiled. The brown marking probably results from splashes and spills, which occurred in use. These spills were probably invisible at the time, but, over the years both the fabric and the dyes have deteriorated due to the substances left on them. It is always important to put textiles away in a clean condition as soiling results in fibre and dye breakdown and can attract insect pests.

## The Conservation Work.

**The Ensign.**
The Ensign was removed from the old box frame and then transported to the conservator's workshop. On arrival it was examined and photographed. It was found to be held to the mounting board with stitching and a series of small nails. The stitching, attaching it to the hessian board covering was cut through, the nails extracted and the ensign released.

The Ensign was found to be dusty and was surface cleaned using vacuum suction and a specially shaped soft brush, working through a net screen. No attempt was made to remove stains or other marks as these were regarded as part of the history of the object.

Because the Ensign had been fixed in a series of folds for a long period of time, there were a series of firm creases running from top to bottom. These were eased out by steaming.

A large hole in the cream wool was secured by sandwiching between two layers of fine nylon net, previously dyed to match the ensign using Ciba-Geigy "Lanaset" dyestuffs. The net was held in place by stitching with Gutermann's polyester A302 threads.

The unsightly repair on the edge of one of the blue sections of the Ensign, was unpicked. The entire section was supported on a piece of strong, heavy weight black net. The edge of the net was turned over the badly frayed blue edge to protect it. This protected and strengthened edge was then stitched to the adjacent white area. A302 threads were used, as above.

Several of the eyelets set in the cotton edging had torn partly away. Stitching was worked using a strong polyester thread, to hold them in place.

The ensign was required to be prepared for occasional display. As most of the weight was in the left hand cotton edging, this was to be regarded as the top for display purposes. Usually, when textiles are to be free hanging, a full sleeve is stitched to the back of the top edge, allowing a pole to be threaded through, or "Velcro" is stitched on. Because there was little space to work sufficient stitching through the cotton and the wool fabric was thought to be too fine to hold a sleeve or "Velcro", a series of natural linen tabs were stitched over the cotton edging. These supported the heavy cord, contained within the cotton, left most of the edging visible and, given the light weight of the wool, provided sufficient support for short term display.

**The Dress.**
Following discussion with the Museum's textiles specialist, the net drapery around the neck and the Petersham ribbon trimmings were removed from the dress, after cutting through the stitching which held them in place. The machine stitching, holding darts in the neckline was also cut through and unpicked.

The waist seam was found to have failed where tape loops, for hanging, had been attached to the top edge of the skirt. The cartridge pleating had also come undone. Using Gutermann's polyester A302 threads, the pleating was re-worked and the waist seam re-stitched.

Removal of the Petersham ribbon at the waist had necessitated removal of a hook and eye fastening. These were replaced. A302 threads were used, as above.

The dress was surface cleaned using a soft brush to remove any loose dust and then with a paper towel pad, moistened with deionised water. Finally the skirt area of the dress was steamed gently to reduce creasing.

## Recommendations for Storage and Display.

All textiles should be stored and displayed in clean, dry conditions. Light levels should be as low as is practicable for display, and storage should be in complete darkness. Storage and display materials (boxes, tissue, display fabrics etc,) should be acid free or inert. Textiles should not be crushed, crumpled or put under strain. All displays should be regarded as temporary, unless very carefully controlled conditions can be provided. Textiles on display and in store should be checked regularly to make sure that problems are not developing, in particular insect infestations

**The Ensign.**

The Ensign is made largely of wool and is, therefore, vulnerable to moth and carpet beetle damage. It should be inspected regularly and surface cleaned, using vacuum suction, before putting away after a period on display. It should be displayed hanging from the linen tabs provided and stored rolled on a suitable roller, interleaved with acid free tissue.

**The Dress.**

The dress has a very wide neckline and will easily slip off a hanger. It also has a heavy skirt and vulnerable waist seam, which would be under strain, if hung. For these reasons, it is recommended that this dress should be stored in an acid free card box, padded with acid free tissue paper. The box should be long enough to allow the skirt to lie flat and deep enough to avoid crushing.

# 2. What is a Textile?

A textile is a material made up of different fibres.

## Fibre types.

| | | |
|---|---|---|
| Natural : | Animal | - Silk, wool and hairs. |
| | Vegetable | - Cotton, linen and other bast fibres, sisal and other leaf fibres |
| | Mineral | - Asbestos and metals |
| Man made : | Regenerated | - Rayon, acetates |
| | Synthetic | - Nylons, polyesters, acrylics. |

(Some other materials found with textiles :
Animal : leather, fur, insects, feathers, bone, horn, shells, casein, gelatine .....
Plant material : straw, wood, seeds, cork .....
Minerals : metals, mica, ceramics, jet, glass, paints, dyes, pigments .....
Plastics : pvc, acetates, rubber ..... )

## How are textiles made?

Structure affects strength, tendency to stretch and to tear and vulnerability to wear.

<u>From fibres to fabric :</u>

| | | | | | |
|---|---|---|---|---|---|
| Fibres | => | => | => | felted fabric | eg. felted wool. |
| | => | => | => | bonded fabric | eg. "Vilene" |
| Fibres | => | yarn | => | woven fabric | eg. plain, twill, satin |
| | | | => | interlocking loop fabric | eg. knitting, crochet |
| | | | => | braided fabric | eg. plaiting, cords |
| | | | => | twisted and knotted fabric | eg. lace, net, |

<u>From fabric to garment or furnishing ;</u>

| | |
|---|---|
| Cutting : | straight or on the cross |
| Shaping : | gathering, pleating, darts, gussets, inserts, forming/moulding, using stretch properties of the fabric construction or fibre. |
| Joining : | sewing, welding, gluing, stapling, pinning. |
| Fixings, fastenings, maintaining shape : | boning, belts, zips, buttons. |

# 3. How Textiles and Costume are Damaged.

## Light.

Light causes extensive damage. Light is energy, which promotes irreversible chemical change. This can result in colour change, weakness, disintegration. Some parts of the spectrum cause more damage than others. Ultra Violet light causes most damage and is invisible. UV measurements are a proportion of visible light. Light damage is cumulative.

We need light to see museum objects. The amount of light we need depends on what we are doing, the surroundings, if we have adapted to the light levels, the amount of reflection from the surface of the object and, of course, our age. Textiles which are not being looked at do not need to be lit! Keep stores in darkness and/or keep textiles in boxes or wardrobes. Cover textiles in workrooms when they are not being worked on.

**Working towards optimum light levels.**

- Keep light levels as low as possible and practical.
- Remember, natural light moves and changes, consider light at different times.
- Reduce total exposure time. Think in terms of lux/hours per annum and lifetime exposure of the object.
- Filter out all UV light.
- Allow people to adapt to low light levels.
- Design lighting and decorative schemes so that the benefits of acclimatisation are not lost and use blinds and sun curtains in rooms with natural light.

## Soiling and pollution.

Soiling and pollution in museums comes from a variety of sources, eg. traffic, industry, plant life, agriculture, museum visitors, museum activities, cleaning equipment and materials, building work.

Use of display cases protects against external pollutants, but no display case is perfect. The surroundings need to be kept clean too.

**Why are airborne particles a problem?**
Small particles permeate textiles, larger ones are susceptible to gravity and descend onto museum objects when the air is still.
Airborne particle may be acidic, they may act as catalysts, attract moisture, be abrasive or, if organic, attract insect. In practical terms this may mean staining, loss of colour, mould, weakening and break up of fibres, insect pest infestation.

Cleaning textiles is beneficial but also damages them to some degree. Dirty textiles are unpleasant, look uncared for and create an inappropriate impression. Keep textiles clean:

- Keep them covered or in display cases wherever possible.
- If you can't isolate the objects, isolate the visitors, eg plastic overshoes.
- Try and limit dust and dirt entering the museum or confine it to the entrance hall.
- Are routine cleaning methods simply re-distributing dust?
- Be dust and pollutant aware.

## Visitors.

Textiles are made to be touched, stroked, handled, sat on, walked on etc.! Poor positioning of an object can cause regular, unintentional handling and contact. Vandalism may be a problem in some museums. Abrasion leads to worn surfaces and loose threads, then to tears and finally large holes. Soiling and acids in skin contribute to disintegration.

**Solutions:**

- Barriers and screens.
- Careful positioning of objects and arrangement of visitor routes.
- Alert attendants.
- Fabric samples to feel.
- Visitor education.
- Keeping the objects in good condition.

## Pests.

Insects, pests and vermin chew at and eat textiles and leave behind debris and soiling. Damage can be highly destructive and irreversible. The main insect pests are carpet beetle (woolly bear), webbing clothes moth and case bearing clothes moth, which all attack wool, fur and feathers. Other insects and spiders leave soiling and debris, some of which will, in turn attract other pests. Mice will tear up textiles for nesting materials and soil them.

Obtain specialist information and advice and learn to recognise the signs of pest infestation. Good housekeeping and a clean and tidy museum, combined with an integrated pest management programme are the solutions to this potential problem.

## Damp, dryness and changing humidity.

Very high humidity or damp may cause moulds, stains, weakness, colour running, distortion. Is the location suitable for the display of textiles?

Excess heat and dryness also causes problems. Heat can speed up chemical reactions, deterioration. It lowers humidity levels and dryness causes embrittlement and cracking. Lighting in display cases can generate heat. Convection currents above heaters carry dust.

The greatest concern for textiles is extremes. Many historic houses have a target band of 50 – 65% RH. Purpose built museums can aim for a constant 55%. A well maintained building is the basic requirement. Monitor the environment, analyse the results and act upon them. Museums need to be at comfortable temperatures for people, although lower temperatures would be beneficial to objects. Avoid hot spots and extremes and beware of solar gain. An ideal in historic houses is a maximum of 15C (59F).

## Stresses and strains on objects.

Museum objects, like everything else, are subject to gravity. Continuous pulling causes seams to break, fabric to tear, general weakening due to fibres breaking, distortion and creasing. Garments on hangers and on display are vulnerable, some more than others.

Prevent problems by giving museum textiles adequate support. Take into consideration the construction of the textile and the strength of the fabric. Support needs to be evenly spread and sufficient to take the weight of the garment. On display, some textiles may need to be shown flat. Note that displaying an object only slightly off vertical achieves very little in terms of extra support.

## Inappropriate materials.

Some materials, which may be used in the construction and fitting of display cases, mounting boards, costume dummies or store furnishings may give off acidic or harmful gases. When concentrated in an enclosed area, damage may be done to textiles. Silver thread embroidery is particularly vulnerable.

Avoid this type of damage by:

- Using approved "archive quality" materials,
- Isolating potentially damaging materials
- Avoiding direct contact between potentially damaging materials and the textile

- Allowing new materials to age, off-gas, before use
- Avoiding encasing the object with a suspect material
- Making use of carbon activated products to absorb gases
- Washing fabrics, to be used as dust covers, display board coverings, before use.

# 4. Caring for textiles.

This section explores the **handling, storage, mounting and display of flat textiles and costume.**

## Handling textiles and costume.

Hands are highly sensitive precision tools. They can recognise fabric types, strength, soiling, finishes etc. after the briefest touch. They can grip firmly or hold something with the gentlest pressure, altering this as needs change. They are a valuable asset, use them when appropriate.

Hands and handling of textiles cause damage by:

- Transferring dirt and grease to the object.
- Causing strain by pulling, dragging or lifting without support.
- Causing other items to catch on the textile and tear it.

Avoid handling textiles by:

- Providing information such as labels, drawings, photographs.
- Keep textiles on supports. Hold the support, not the textile.
- Use transparent materials, where appropriate so you can look without touching.

When it is essential to touch:

- Wash hands regularly, rinse well and do not use hand creams.
- Wear white cotton gloves especially if you need hand cream or have sweaty hands, but are the gloves clean, are you reducing your manual dexterity, can you still do the job properly?
- Remove any jewellery which may catch.

Wash your hands when you finish work. Some textiles may contain harmful chemicals. Many museum textiles are dirty, don't carry dirty from one task to the next.

Work surfaces should be clean, smooth, tidy and with nothing that will catch.
If you need to make notes, use pencil. Propelling pencils are helpful.

## Packing and storage.

**Materials.**
Suitable materials for use with museum textiles :
Acid free tissue, acid free card, unbleached washed calico, Tyvek, washed downproof cottons, polyester wadding, bubble wrap, nylon net, unbleached

cotton tape, Correx, Melinex or Mylar (polyester film), Moistop barrier film, Plastazote, Aerolam etc.

Unsuitable materials :
Coloured tissue paper, 'ordinary' card, polythene dust sheets, newspaper, foam rubber, wire coat hangers, grocery/shoe boxes, original fan/hat boxes, pins, most unprotected or unsealed wood, flame proofed textiles, felt etc..

**Packing objects in a box.**

- Line the box with tissue.
- Interleave objects with tissue.
- Pad folds.
- Do not overfill boxes.
- Use boxes of sufficient size to limit the number of folds.
- Do not use very large boxes for very small objects, they slip and get lost.
- Where appropriate, pack empty spaces to stop objects from moving.

**Rolling textiles for storage.**

- Make sure that the roller is longer than the textile is wide.
- Isolate the roller with Melinex and cover with tissue.
- Roll the textile, usually face out and with any pile pointing outwards and interleaved with tissue.
- Use tissue or other suitable material to compensate for any irregularities in the textile.
- Cover the roll with Melinex/Tyvek/calico/downproof cotton. Tie or fasten firmly but not tightly. Label.

**Hanging textiles.**
Buy suitably shaped hangers, which give good basic support and have long hooks to protect high collars. Cut down hangers slightly, if necessary. Cover with polyester wadding to build up the right shape. Cover with calico or Tyvek. Many skirts can be hung or supported on hangers built up to form 'hips'. Do not use or sew in loops of tape. These concentrate all the weight onto a few small points.
Trousers can be hung on the horizontal bar of a hanger, provided it is wide enough and it is well padded. Do not use clip type hangers of the type used in shops as these will leave marks.
Make covers for garments from washed unbleached calico, Tyvek or downproof cotton. Put labels on the outside. Alternatively, or in addition, depending on circumstances, make covers for entire dress rails.
Square cut garments (eg kimono) can be stored on a padded or wide diameter pole, suitably insulated.

**Fans, umbrellas and difficult textiles.**
Look at the object. What are its weak points? What might happen to it? What is its construction and shape?

Umbrellas must be stored upright, or fully supported along their length, otherwise the sticks bend.
Fans are not flat. They have a complex shape and need full support.

**Flat storage for very fragile textiles.**
A permanent tray removes the need for handling and gives full support. Plans chests provide very large, shallow drawers. Textiles can be mounted in various ways by conservators.

## Displaying textiles.

**Assessing objects for display**
Is the item of sufficiently good conservation condition to go on display? A conservator would advise. Many conservators have lengthy waiting lists. If you will need conservation work doing, please think about this well in advance.

**Mounting textiles for display**

Making a costume dummy or form:
This type of display form will be influenced by the date of the textile, its condition, funds available, facilities and expertise and style of the display. For short term display, working within a limited budget, you will probably have to make do and improvise. These guidelines are aimed at this approach.

In general it is easier to start with a small rigid shape, eg an adolescent boy costume dummy or a simple home made wooden T-shape, then build up with padding and finally cover with a smooth fabric.

Getting started.
Make sure that a range of suitable materials are available and to hand. Ones you may like to choose from are :
To make the basic structure :

- A simple costume dummy
- MDF, wood – not in contact with the object, must be buffered
- Acid free card
- "Correx"
- "Plastazote"
- Chicken wire.

To isolate unsuitable materials:

- Melinex or Mylar (polyester film)
- Moistop barrier film (from Protective Packaging Ltd)
- Foil

To fill out the shape :

- Polyester wadding

- Bubble wrap
- Nylon net
- Acid free tissue

To hold things in place:

- Cotton tape
- Archival adhesive tape
- Two sided adhesive tape
- Masking tape – but not in contact with the object

To cover your shape :

- Calico
- Tyvek
- Silk or similar
- Tubular bandage

Study your object and make the basic shape:
What sort of support does it need and how much?
How big is it? Take some measurements. Look at bodies, what shape are they?
Start small and build up from there. Make up the basic shape and pad it out.
Make arms detachable or pad separately.

Finishing off:
Cover the finished shape with a smooth fabric so that the garment will slip on easily. Tuck coloured fabric into necklines etc. to match other display fabrics.

Some things to avoid:
Historic underwear, eg crinolines. These are museum objects and should not be used for long term support for other textiles.
Shop dummies are the wrong shape and size and generally look wrong.
Period shaped dummies are often the wrong size or proportions for most museum garments.

**Displaying flat textiles.**
Small flat textiles can simply lie flat, on a suitable surface. Any folds should be cushioned with tissue or wadding. For upright display, the textile should be mounted, by a conservator, on a suitable mounting board.

Large, flat textiles can also be mounted on boards, by a conservator, or displayed horizontal and part rolled, if necessary. Alternatively large textiles can be hung from "Velcro" or a sleeve. These need to be applied by a conservator.

# 5. Bibliography.

"Risk Assessment for Object Conservation" Jonathan Ashley-Smith, Butterworth Heinemann 1999.

*A wittily written and refreshing approach to the subject by the former head of conservation at the Victoria & Albert Museum. A scientific approach, but the vast majority is accessible to the non-scientist.*

"The National Trust Manual of Housekeeping" Butterworth Heinemann. 2006. *Practical advice, covering a wide range of object types, conservation principles and housekeeping. Aimed at those working in historic houses, but contains much of use to the museum curator.*

"Standards in the Museum Care of Costume and Textile Collections". Museums and Galleries Commission. 1998.

"An Illustrated Guide to the Care of Costume and Textile Collections" Jane Robinson and Tuula Pardoe, Museums and Galleries Commission. 2000.

"Integrated Pest Management" David Pinnegar and Peter Winsor, Museums and Galleries Commission. 1998.

"A Practical Guide to Costume Mounting" Lara Flecker, Butterworth Heinemann, 2007.

# 6. Suppliers.

**Conservators :**
www.conservationregister.com

Most suppliers of **conservation and museum materials** can be found in the Museum Services Directory, published annually by the Museums Association or online at www.museumsassociation.org/suppliers

**Fabric and Haberdashery** :

Whaleys, Harris Court, Great Horton, Bradford. BD7 4EQ
01274 576718

F R Street, Hurricane way, Wickford Business Park, Essex SS11 8YB
01268 766677

**Hangers :**

Russel, 438 Upper Brentwood Road, Gidea Park, Romford, RM2 6JE
01708 473111