SOLUTIONS -
THE INFLUENCE OF
LOCATIONS ON TREATMENTS

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SOLUTIONS – THE INFLUENCE OF LOCATIONS ON TREATMENTS

Post prints of the forum held at

The Museum of London

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Edited by Sarah Howard

UKIC
UNITED KINGDOM INSTITUTE FOR CONSERVATION OF HISTORIC AND ARTISTIC WORKS

TEXTILE section

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FOREWORD

"Solutions – the influence of locations on treatments", was the title of the forum organised by the UKIC Textile Section to coincide with the Section's 8th Annual General Meeting.

The forum aimed to look at practical solutions to constraints demanded by site, display, storage, loan conditions and transportation. Speakers, who represented museums, the National Trust and freelance textile conservation studios, emphasised practical and innovative approaches to some unusual and complex conservation problems. This publication includes the talks given by five of the speakers.

Particular thanks go to Frances Hartog for organising the forum and to the Museum of London for hosting the event. Thanks also go to Allison Chester for chairing the presentations and to the members of the textile section committee who helped to make the day run smoothly. Finally, thanks to Zenzie Tinker for her role in helping to proof read this publication.

Sarah Howard

'A ROOM WITH A VIEW – MUSEUM STYLE DISPLAYS IN HISTORIC HOUSES'

Ksynia Marko
Advisor for Textile Conservation
The National Trust

Hope over Adversity

Some fifty years ago, during World War II, a group of women interned in Singapore's Changi Jail set about making quilts. Three such quilts are known to have survived, two are held in the Australian War Memorial Museum in Canberra and one is owned by the Red Cross and is currently on display at the Sainsbury Centre, Norwich. The quilts represent an attempt at establishing identity, both individually and collectively, and as a means of communicating to the outside world, through the images embroidered onto them which continue to speak over time. The quilts are made from small, decorated squares of rice sacking, each square representative of a single person. This quiet, simple object holds within it the hopes and fears of its makers and symbolises the triumph of hope over adversity.

Some four hundred and thirty years ago, in 1569, Mary Stuart was placed under house arrest; she remained incarcerated for a further fifteen years. Her custodians were The Earl of Shrewsbury and his wife Elizabeth Talbot. Whilst Mary's conditions of internment were far removed from that of the women of Changi, her aspirations for freedom must surely have been the same and, like them, her identity, emotion and character are expressed in the embroidery that she left behind. This embroidery is both rich in materials and imagery, and incorporates telling mottoes such as, 'Sorrows pass and hope abides', which would have been meaningful to her sisters at Changi. Over three hundred pieces of embroidery were found in Mary's belongings at the time of her execution in 1587, at the age of forty-four. Sir Amyas Paulet reported that he had found, 'a box full of abominable trash, as beads of all sorts, pictures in silks of all sorts, with some Agnes Dei' and he was much grieved that he was not allowed to destroy them.

There are several published descriptions of Mary Stuart's embroideries, and contemporary inventories and letters hold evidence of their form and design. The inventory taken just before her death describes a remarkable number of uncut or unmounted embroideries that are similar to those surviving at Oxburgh. Those at Oxburgh are mounted onto panels of green silk velvet, further decorated with a scrolling pattern of silk and metal threads. There are three large panels and four smaller valances. The remains of a fourth panel are held at the Victoria and Albert Museum. Each of the hangings has a large, applied, rectangular centre-piece, framed in an outer border of brocade and an inner border of petit-point needlework. These in turn are surrounded by smaller octagonal, emblematic panels with accompanying words or mottoes and others of cruciform shape depicting a variety of animals, birds and fishes, all edged with raised and padded borders. There is much already published about the personal messages behind the emblems and it is this hidden language that conveys to us some of the character of the

maker, which makes these embroideries so unique. Up until as recently as 1923 it was thought that there remained only one known piece of signed work by Mary, that at Hardwick Hall. However, as many as thirty of the Oxburgh panels bear Mary's cipher or monogram - MR, MA or MAR - whilst others bear the initials ES of Elizabeth Shrewsbury. The pieces signed ES, or ET, appear chiefly on the two hangings known as 'Cavendish' and 'Shrewsbury', while those signed by Mary are concentrated on the largest piece, the 'Marian' hanging.

Past History

The embroideries have been at Oxburgh since 1761, when Sir Richard Bedingfeld's wife, Mary Browne, brought them from Cowdray House in Sussex, but although various theories have been put forward, there is no documentary evidence to say what had happened to them prior to this.

How were these hangings used? We do not know to what original use the embroideries were intended. We do know that Mary had worked similar hangings, embellished with emblems and mottoes, for a Bed of State as described by William Drummond in a letter to Ben Jonson in 1614. Whether or not the Oxburgh embroideries were mounted as such or as wall hangings, or in fact their present compilation was of a later date, is uncertain. A watercolour by Matilda Bedingfeld of c. 1850 shows them in use as bed hangings in the King's Room at Oxburgh. A photograph, published in the March 1909 edition of 'The Expert', shows them more clearly in the same room as one complete upper bed valance, two head curtains and a coverlet displayed on a carved oak bedstead dated 1675.

Oxburgh and its estate were sold in 1952, but members of the family were able to buy back the house and grounds, and gave it to The National Trust to ensure its future preservation. In 1953 the Oxburgh embroideries, including the fragments of a fourth hanging, were bought for £3,000 from Sir Edmund Bedingfeld by the National Art Collections Fund and presented to the Victoria and Albert Museum. The hangings were removed to the Museum for repair and for an exhibition and all, but the fragments were returned to Oxburgh in 1955 as a loan, where they remained on the bed. The largest of the three, the Marian hanging, was used as a coverlet, but was later removed and hung on the wall in the King's Room above the fireplace. This was the arrangement when, in the early 1970's, it was decided to carry out further conservation and to create an exhibition room within the house especially for their display.

Museum-Style Displays

At around this time the Victoria and Albert Museum had begun the conservation of the 18th century bed at Erdigg. This bed, the subject of extensive conservation undertaken by Sheila Landi, was finally re-erected in 1976 in a room at Erdigg, which became in effect, a showcase. Visitors view the bed through a glass wall. Since that time, other museum rooms, or dare I say zones (*for fear of sounding like something from the millenium dome),* have been created within historic houses in order to protect important and vulnerable objects. Other beds protected behind glass include the magnificent State Beds at Calke Abbey and Knole. There are in addition museum rooms devoted to textiles and upholstered furniture at Ham House, Knole and Hardwick Hall.

The special display of treasured items in country houses is not a modern museological phenomenon but rather part of an historical tradition. There are many examples of 17th, 18th and 19th century collections of curiosities held in locked cases and glass-fronted cabinets, to be admired by friends and visitors, but they were perhaps never as large and imposing as those necessary to house State Beds and embroidered hangings.

The creation of a museum-style display within a series of historic interiors inevitably gives rise to ethical and aesthetic debate between curators, conservators and administrators, and is often viewed as the last resort for preservation. The insertion of a glass wall can, for example, compromise the perceived integrity of a room, whilst glazed showcases can sit uncomfortably amongst objects on open display. The argument must be between the primacy of the object versus the primacy of location. On the one hand the location can influence what treatment an object might receive, but on the other hand the exceptionally significant and fragile object can dictate that it is the location which is adapted.

The location chosen for the display of the Oxburgh hangings was a small bedroom next to the King's Room, known as the Haunted Room. Visitors to the property approach this room up the West Staircase lined with 17th century embossed Spanish leather and hung with family pictures. They have already passed through a series of rooms, mainly 19th century in character, and ascend, as it were into an earlier era.

In 1973 the Victoria and Albert Museum, being the owners of the embroideries, undertook their conservation and preparation for re-display in the Haunted Room, and dictated the specification for showcases.

The black and white photographs which illustrate Francis de Zulueta's 1923 publication about the embroideries, show the silk velvet to have been in very poor condition at that time, with numerous horizontal splits across the surface. The details of the embroideries show loss of yarn, patched and holed canvas and lifting threads. As previously mentioned it would appear that repairs were undertaken in 1953/54, but there is no detailed written record. However a letter dated February 1973 from Donald King, then Keeper of Textiles at the Museum, states that, "Conservation work has now started and this has revealed that they *(the hangings)* are even more fragile than we feared. As a result we are convinced that they should no longer be displayed on a bed, even within a glass case, but should be framed individually behind glass and hung on the wall.... It is difficult for our conservation staff to decide on suitable backing and lining materials until it is known how the hangings are to be displayed."

The 1973 Museum treatment record describes the condition of the hangings before conservation as; 'Dirty, lining rotten. Extensively repaired – couched with green silk and velvet ground patched. Velvet splitting and dusting.' Treatment consisted of spraying a 2% solution of soluble nylon over the entire surface of each in an attempt to prevent the velvet pile from dusting off. Old linings were removed together with a green binding. Unfortunately the nature of both lining and binding is not described so we cannot ascertain any previous history for these elements. Some couching had perished and was

removed. Wide strips of washed and pressed calico were attached flat to the reverse side, along outer edges requiring support, and couching worked where necessary using a silk thread. Dyed Shantung silk was attached along the top edge of both the Cavendish and Shrewsbury hangings to make straight the cut crooked edges. Some of the couching here had to be cut to flatten the top edge and this was anchored using Cellophas B in a 2% solution. All three hangings were given new green cotton linings and the edges bound with a new woollen braid. Velcro was attached along the top edge for re-hanging.

The long valance was divided into four pieces, presumably for ease of display. It is assumed that seams were undone to allow this. One of the cruciform embroideries was detached and re-arranged at the end of one of the four pieces and the resulting exposed canvas was backed with green jap silk. Extensive couching was carried out, loose threads secured with Cellophas and the edges bound with the woollen braid.

A temporary arrangement was made to hang the embroideries at Oxburgh, behind sheets of acetate film, whilst the room and cases were made ready.

The 1973 correspondence from the Museum, setting out the specification for the cases, asked for; 'solid backboards covered with a thick cotton. Velcro for hanging, dust- but not humidity-proof frames, the glass being sealed on the inside with strips of paper, keeping dust out but allowing for a variation in moisture content.' The hangings were to be put into the frames on a dry day to avoid trapping excessive moisture inside. The lighting to be entirely artificial and the glass joined 'invisibly' without glazing bars. The cases to be inset into a false wall built within the chosen room, blocking out two windows and a fireplace and the strength of the walls, floor joists etc to be considered. Finally the letter states that, 'As the display of the textiles and appearance of the room will be so intimately related, the Department of Textiles and the National Trust should consider the plans jointly before the work is actually put in hand.' This intimate relationship between the room and the textiles remains pertinent.

Once details had been agreed there followed difficulties surrounding structural work to the building, waiting for materials to arrive causing delays, of bringing large pieces of glass up to the first floor, of obtaining the fabric for the walls and boards, of having to redo one board as the chosen hessian had been mistakenly glued to the face preventing the valances from being attached by sewing as planned. Then finally after all was installed on 6th November 1974, Trust staff spent many hours trying out lighting methods! (Much of this to prove only too familiar to the team who repeated the exercise in 1998!)

Preparation for the new display

Nearly seven years later, in 1981, RH readings in the room were recorded as being 'frighteningly high' but, perhaps more importantly, a death watch beetle had been seen in one of the cases. The construction of the cases however was such, that the hangings could not be accessed without dismantling the whole frame, the lower edge of which had been encased by the skirting board. There was much reluctance on the part of the Museum and the Trust to create any disturbance to the hangings at this stage, and the situation continued to be monitored. Eventually in 1993 further insect finds, including

carpet beetle, were reported, recommendations were made by the Museum and the wheels put in motion for opening the cases and reviewing the method of display. Meetings were held between Museum and Trust staff and options for display were discussed. These included returning the hangings to the bed in the King's Room and creating a glass case around the bed. As bed hangings the detail and language of the embroidery would be hard to read and the condition of the cloth would not be best served by draping as curtains or used as a coverlet. In addition concern was expressed that a glass structure would disturb the architectural character of the King's Room. Other factors would include the necessity for blackout at the windows, compromising the visibility of other objects in the room. The corollary of this was that the architectural integrity of the Haunted Room had already been compromised by the earlier installation. It was decided, therefore, to see what lay behind the hessian clad walls of the existing display room in order to create a new environment.

The showcases were dismantled in July 1997. The join in the glass was cut and the sheets broken into smaller pieces in order to remove them from the house. It was obviously essential that the glass was handled with care and accuracy, to avoid damage to the textiles. Each hanging was then removed and rolled onto soft rolls of polyester wadding and acid free tissue and wrapped in cambric for transport to the Textile Conservation Studio at Blickling Hall. Wadding rolls were used so as not to put weight and pressure onto the fragile pile and raised and padded surfaces. In addition it was easy to negotiate the stairs with a light, flexible parcel. The valances were packed flat, one on top of the other, interleaved with tissue and wadding.

The removal of some of the lining boards to which the hessian had been glued, allowed an investigation of what lay beneath. It had been hoped that an intact 19th century wallpaper finish might be revealed which could serve as the backdrop for the display, but this proved not to be the case. An extraordinary sequence of seven wallpapers, each fragmentary and damaged beyond repair, was found. On the west wall a pattern of embossed leather was revealed by mould stains, which must have accumulated behind the leather when it was in position. There had also been leather on the east wall and both these walls had had textile nailed to them at some stage. The Regional Archaeologist was able to closely examine the original medieval wall surfaces, a rare opportunity at Oxburgh because all other rooms are lined with important wallpapers or panelling. The hessian-covered boards had been pinned directly to the original walls to form a sort of dry lining. The room was found to be close to its medieval form, even as far as its relationship with the adjoining King's Room which is entered from a flight of steps. In the outside, or north wall, an 18th century sash window to the right of the fireplace had clearly been blocked up and a Gothic quatrefoil ventilator inserted and the alcove created used as a cupboard. The exact date of this work, 1831, was revealed by a newspaper glued to its inner face. It was across this north wall that a false wall had been built in 1973, blocking in the fireplace which had been plastered over and creating another alcove cupboard in front of a second window. Unfortunately this false wall had created 'dead' spaces within the room, spaces attractive to insects which had ready access through the ventilator and window. These spaces were impossible to access for cleaning. The alcove created in 1831 lay hidden, as it were, behind the first glazed frame in which the insect debris had been observed. This had held the Cavendish hanging.

After much consideration it was decided that it would be prudent to leave the false wall lining in place. Having established that it was not of a stud construction and that it did not hide an intact decorative scheme of historic interest, there would be little conservation or aesthetic advantage in removing it. In addition the original floorboards had been removed and replaced with closely butted sheets of chipboard.

If the current room materials were to be retained for the new display there could be a problem with out-gassing and this needed investigation. Floor materials were chipboard covered with a crumbling latex backed, natural fibre matting whilst the false walls were constructed from Sundeala board with adhered hessian. Of particular concern was possible damage to the metal threads used in the hangings. Passive dositubes were used to detect formaldehyde and acetic acid in the room. These were positioned in the four corners of the room, at chest height, and a fifth detector was placed in the centre of the floor. The dositubes were left for 9 hours and a further 15 hours and readings taken. Attempts were made to use a Draeger gas detector pump but the pump, (and possibly the users) were faulty!

A synopsis of the results is given below:

Acetic/Formic acid: Between 0.125 and 0.3 ppm prior to the new installation, with highest concentrations in the centre of the floor and in the corner behind the concealed cupboard.

Formaldehyde: No emissions could be detected after 9 hours and after 24 hours concentrations measured 0.04 to 0.1ppm.

The conclusion was that concentrations were very small but it is known that even small amounts, as low as 0.2ppb can cause problems for some materials and, in preparing the room for display, steps were taken to reduce these emissions. At this stage in planning a radical alternative to the previous display philosophy was proposed: that the visitor would stand within what was effectively a three-sided glass case or 'people box', and that the embroideries would be housed within the room space itself attached to sloping boards supported on large, anodised aluminium easels. With the introduction of jib doors in the north wall enabling access to the 'dead' spaces for cleaning, the room environment and the hangings themselves would be easier to inspect, maintain and monitor. At the same time that important 'intimate relationship' between the room and the textile would also be achieved.

Let us look at the room environment. Since 1979 house staff had taken spot readings with a whirling hygrometer and latterly with an electronic hygrometer. Prior to the installation of an oil filled radiator plus hair humidistat in 1982, the readings could fluctuate between 48% to 95% RH over any given six month period – the mean being about 65%RH. After the introduction of the radiator, conditions appeared to stabilise with only a few peaks/troughs above 65% and below 50%. (Unfortunately, for reasons already described, it was not possible to monitor the conditions inside individual display cases).

It was agreed, at a meeting in October 1997, that the new display would have its environment controlled using a dessicant dehumidifier and electronic humidistat. In the

event the project overspent and the capital cost of purchasing this equipment was not immediately feasible. An oil-filled radiator has been used until sufficient funds become available and a review of the data gathered between 26 June 1998 and 8 January 1999, indicates that conditions are relatively stable i.e. within the 50% to 65%RH parameter. A Humbug, or humidity bug, is due to be installed in the room for year round monitoring.

Conservation

Whilst in the showcases all three hangings displayed inherent stresses due to their weight and construction. The weight of the embroidered panels on the Shrewsbury hanging had contributed to a generally cockled appearance and the centre and side panels of velvet were bowing, resulting in the lower half becoming badly distorted. A distinct centre fold line was visible, but this could also be seen in early photographs. Likewise the Cavendish displayed distortions within the central panel, causing cockling of the velvet around it. The Marian was less distorted but had a tendency to bow towards the centre. It was agreed that by displaying them on sloping boards some of these stresses would be alleviated, but an examination was necessary to ascertain whether the previous repairs were a contributing factor.

The silk velvet ground of each hanging was made up of several pieces seamed together, some being small patches, each exhibiting a different pile quality in a variety of shades of green. For example within each hanging was found pieces of velvet with deep soft pile, as well as pieces with complete pile loss and damaged ground. The colour of the exposed weft threads also varied from a blue green to a yellow green, indicating the use of different batches of cloth. The velvet is decorated with applied cording between the embroidered panels, and there are also a few examples of metal embroidery with spangles in the form of small motifs, which may have been scattered overall judging from the impressions left in the velvet.

After removal of the cotton linings it could be seen that the velvet ground was backed with a variety of linens through which the embroidered panels were sewn, but not the corded decoration. Generations of stitched repairs had been worked through to the linen. There was a certain degree of tension in the linen behind some of the embroidered panels and part of the glazed linen had to be cut away from behind one of the hexagonal panels on the Shrewsbury hanging. This was replaced with a new linen patch. The repairs worked in 1973 could also be assessed and although the weight of the calico appeared somewhat unsympathetic it was felt that this was not adding to the distortions.

It became obvious that the wool braid trimming had provided food for carpet beetle larvae. A live one was found underneath the lining of the Cavendish hanging, and there were exit holes through the lining. However neither the Marian hanging or the valances were affected, these being furthest away from the suspected source of the problem i.e. the alcoves behind the false north wall. The woollen braid was removed from all the hangings.

Due to the layers of previous repairs the overall structure of the hangings was in fact sound and it was not thought necessary to add further support, but rather to undertake

several minor repairs to elements that were lifting. The outer raw edges, revealed on the removal of the braid, were left as such and simply protected with a binding of dyed conservation net which is largely unobtrusive. Conservation net was also applied over the weak silk damask borders surrounding the central panels of both the Cavendish and Shrewsbury hangings, where previous couching had failed.

The hangings were lined with cream cotton sateen allowing extra fullness in the fabric, both horizontally and vertically, as previous linings had proved to be too tight. Velcro was sewn to cotton webbing tape and stitched to the top and also down the sides of each hanging. Conservation took a total of 314 hours of work.

Preparation of display boards

Seven Aerolam boards were prepared which were to form the backboards for display. The size of the boards was first dictated by the size of the hangings and then by the means of access to the room. This meant that the Cavendish and Shrewsbury hangings had two boards each and the Marian three boards. All the boards were of the same height for uniformity but with variations in the width. The boards were prepared individually in the studio and then joined together on site.The sharp cut edges of the boards were first softened by the application of Tyvec tape. Wide cotton tape was then adhered to the reverse side using Araldite 2005, an adhesive recommended for use with Aerolam. This process had to be well planned and organised and done at some speed before the Araldite set. The cotton tape became the means by which the cotton bumph layer and final layer of display fabric were attached to the boards by sewing. Attention to detail in order to provide a neat finish was observed throughout the preparation. This was regarded as much part of the conservation process as treating the actual objects. The boards were then prepared for joining together. Short lengths of hooked velcro were adhered horizontally to the Aerolam on the reverse, at intervals down the requisite edge of each board. The boards were joined via the velcro, laid flat and the hangings placed on them in order to ascertain the correct position for the velcro.

Hooked velcro was first sewn to the front face of each board to correspond with the top edge of each hanging. The boards were placed upright and the velcro positioned to correspond with the side edges of each hanging. It was essential to first test the display in the studio and plan the procedure for re hanging on site, knowing the limitations of access and space within the room.

Preparation of the Haunted Room

The Sundaela board lining of the room was stripped of the Hessian, patched and made good. The floor joists had been strengthened to take the weight of the 'people box' and the matting removed, the chipboard flooring re-laid and covered with a dark brown linoleum, hard wearing and easy to clean. The ceiling and skirting boards were redecorated, but the existing lighting could not be removed until the last moment. The quatrefoil ventilator was covered with a fine, nylon, silk screen material as an inhibitor to insect access and the 'dead' spaces thoroughly cleaned.

As a precaution against out-gassing the walls were lined with Moistop. The walls had to be marked and measured to establish a vertical line for each length of Moistop, a difficult and time consuming endeavour as the surface was so uneven, but it was important to obtain as smooth a finish as possible. Each length overlaid the last and was attached with double-sided archival tape. In the end one was working in what felt like a saucepan!

The display fabric had been chosen from several samples of a type known to have been tested at the British Museum. Enough fabric was prepared, seamed and applied to each wall in turn. It was stapled to each wall around the edges. Seams were kept vertical by use of a plumb line. The jib doors were also covered in fabric. The edges were finished and the staples hidden by the attachment of a similarly coloured cotton braid. This was attached with fine red gimp pins at approximately 10cm intervals.

The colour of the fabric had been selected in the room using one of the valances and a fibre-optic kit; fibre optics having been chosen for the new display. The light source would be positioned around the top of the 'people box' and placed between the object and the glass and would not be seen by the viewer. There would be no external lighting. The previous showcases had been lit from the ceiling by 40w bulbs in large, track-mounted fittings. These were aesthetically intrusive and the rather inadequate yellow light distorted the colours of the embroidery, as well as creating reflections in the glass so that the viewer looked at themselves rather than the textiles! The fibre optic lighting was aimed at correcting all these faults and to providing the proper level of conservation lighting. Readings have shown that no area exceeds 50 lux and in fact falls between 30 and 40 lux.

The final installation of the 'people box', and erection of the easels on site was not without difficulty, but eventually all was ready to receive the boards and hangings which were installed on the 8th May 1998. The installation was relatively quick and simple and proved the worth of thorough pre-planning. It took three people one day to achieve, with further time being spent on adjusting the lighting. The time needed for lighting should never be under- estimated, as it is the critical final touch in making a cohesive display, and in establishing the intimate relationship of viewer to object and object to room. It should encourage us to take a closer look.

Conclusion

One of the mottoes on the Marian hanging reads, *Ne Nimium Crede Colori*, ' Trust not overmuch in appearance'. To regard the work of the women of Changi simply as a quilt or as an attempt at therapy, or entertainment, or of passing the time would be to deny the human spirit. The power of the Changi quilt, and that of the Oxburgh hangings, is in the fundamental message they convey, that of the subliminal recognition and understanding of mortality. Surely one of the driving forces behind the activity of conservation.

Acknowledgements
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Materials and Suppliers

'People Box' Display Easels Fibre Optics	Click Systems Limited (Contact: Sandy Webster) 5 Tanners Drive Blakelands Milton Keynes MK14 5BU Tel. 01908 617788
Aerolam F Board (New name: Hexelite 620) Araldite 2005	B & K Resins Ashgrove Estate Ashgrove Road, Bromley, Kent BR1 4TH Tel. 0181 315 1200
Moistop 622 for walls	Protective Packaging Dane Road Industrial Estate, Dane Road, Sale, Cheshire M33 7BH Tel. 0161 976 2006

Fabric for walls and boards (Marati 22/72)	Carter Green 1 Knockhundred Row, Midhurst, West Sussex GU29 9DQ Tel. 01730 817723
Braid trimming for walls (Perth Braid colour 4)	Henry Newbery & Co. Ltd. 18 Newman Street, London, W1P 4AB Tel. 0171 636 5970
Cotton Domette Grade F1 Cream	F R Street Frederick House, Hurricane Way, Wickford Business Park, Wickford, Essex, SS11 8YB Tel. 01268 766 677
Tyvec tape	Preservation Equipment Limited Shelfanger, Diss, Norfolk, IP22 2DG Tel. 01379 651527
Cotton webbing-tape	William Tolson Limited Fazeley, Tamworth, Staffordshire B78 3QB Tel. 01827 285 500
Humbug (humidity bug)	A free-standing RH/T datalogger about the size of a credit card which runs the Hanwell programme. Produces graphs when data downloaded onto computer. Hanwell Instruments Limited The Old Stables, 85 Barrack Road, Exeter, Devon EX2 5AB
Dimplex Radiator	Oil filled radiator with anti tilt device and wheels on front axle for ease of movement. Edmundson Electrical Limited Dettingen Way, Blenheim Industrial Park Bury St. Edmunds, Suffolk IP33 3TU

general public which was thought revolutionary at the time. The third section 'An Encyclopaedia of Treasures' focused on great European treasures. This was followed by 'The engagement with the Orient' which concentrated on 'politics of empire, colonialism and racism as it affected decision making at the V&A'. The fifth section, 'The idea of Englishness' scrutinised National Heritage as perceived at the turn of this century and at the importance of acquiring major British art works. Finally, 'Collecting the 20th century' addressed the collection of contemporary art that has yet to be tested by the passage of time.

The Exhibition

To make this exhibition financially viable, a number of venues were necessary. However, five were the most that could be covered by Federal Indemnity. It opened in Baltimore on 12 October 1997 and then travelled to Boston, Toronto, Houston and San Francisco. At each venue it was to be on display for three months. The cases, text panels and risers all travelled with the objects but each museum had their own designers to create the overall appearance, including advertising. However, there was not much leeway available with regard to the order of display. Certain objects had to be seen in relation to others. Available space was therefore the determining factor on how an object was displayed but not necessarily the method, which in all but a few cases was set prior to travel.

The textiles, which formed part of the exhibition, were diverse due to the nature of each section. From a total of 200 catalogue entries there were only thirty-eight textiles and textile-related objects, including such items as an Indian Sari purchased at the Great Exhibition, a Spitalfields dress fabric of 1708 and a pair of Vivienne Westwood's twelve inch platform shoes. Of these thirty-eight, thirteen were framed, the portrait of Queen Victoria in her original frame will be talked about later but from the other twelve all but one were in new frames with Perspex glazing. Five of these framed textiles were already seasoned travellers; they had only recently been conserved and framed before being sent on loan to Japan. They stayed in these frames for 'A Grand Design'. Of the remaining textiles ten were free hanging, although three had Perspex frames attached to the walls to contain them. The final fifteen were free-standing objects, including five upholstered chairs, a table carpet, a fur radio, five pairs of shoes and two items of costume.

Many considerations had to be thought through before the textiles could travel, as the risks involved were numerous. The fact that there were a total of six locations did not necessarily mean that the textiles were treated any differently than for one venue. Questions asked were; if invasive conservation was required, was there time available? How would they be displayed, how would this affect the packing and could they travel on their own display mounts? How would they be handled and who would handle them? This was particularly important since a textile conservator would not always be present.

Right from the beginning of the project, other colleagues and I expressed concerns regarding various aspects of the display. Working with a Fine Art museum such as Baltimore, where works of art usually go unglazed and objects are on open display proved to be interesting. It appeared they intended some of the V&A's textiles to be uncased. This type of display was considered unsuitable and indeed there were instances

within the V&A where it had been seen to cause damage. Our concerns were usually overruled which makes one question whether this is the way conservation will go in the future. Is this right? The V&A has, theoretically, high standards for loan display and conditions but many of the methods finally chosen were as much of a compromise than an idealised solution. Fifteen textiles were finally put on open display, but whether it was the location or packing/travelling considerations that influenced treatment, we will see with the following examples.

The Costume

Catalogue number 106 was a Chinese Imperial Dragon Robe (Long pao) from the Qing Dynasty, the robe itself was dated from the 18th to 19th century. Originally collected by Bernard Vuilleumier, a Swiss banker in the 1930's the V&A acquired it in 1948 upon his death. Although it was not known whether any Chinese ruler ever wore it, the yellow colour and the symbolism give it a supposed Imperial connection. Constructed from Chinese tapestry weave of silk and gilt paper threads it had a lining of tabby woven silk. The stand it was displayed on was inherited by the V&A from 'The Great Japan Exhibition' held at the Royal Academy in 1981. Originally designed to display Japanese kimono, this type of stand had been copied and used often in the V&A for garments that are basically a 'T' shape. The stand is made of metal and therefore quite heavy, so it was awkward to transport unless dismantled.

The robe was itself in excellent condition but due to its construction, there was inherent weakness in the outer fabric (Kesi). In contrast the lining was still remarkably strong and actually acted as a support for the outer layer. To add extra 'body' to the robe when it was on display, an under robe of heavyweight Vylene with three-dimensional cuffs was constructed. The main body sections had to be constructed from one complete piece of Vylene, otherwise sufficient support would not be given. Although Vylene has failed an adapted BS 903 test[1], it was used for this display with an isolating layer of silk. The robe was not cased with other metal objects that the Vylene may affect but was on open display. It was stipulated that there should be dust filters fitted to the air conditioning and a barrier keeping visitors a minimum of a metre away from the display. All three components, the stand, the inner support and the robe were packed for transport separately. Throughout the exhibition the robe caused the most problems in handling. It was possible that 'Courier Notes' provided expressed the fragility too strongly, so non-textile conservators found it difficult to handle with ease. In retrospect, and in light of what has been learned from the next costume, should it have been transported on its stand?

The final catalogue entry for the exhibition was an evening dress by Christian Lacroix. It was the most recent acquisition represented. Given by Lacroix shortly after its appearance on the Paris catwalk of autumn 1996, it formed part of his 'Eighteenth Century Haute Couture Collection'. The dress fitted very tightly around the upper body, with a separate right sleeve and a hoop in the hem. It was constructed from chiné-printed silk taffeta and lace which was embroidered with sequins, pastes and beads. A decorative 'mosaic' of mirror and paste was attached to the left hip. Described by Lacroix as 'slightly dishevelled' he said that 'nothing seems to be held in place, the fabric is wrapped, it pirouettes around obstinately asymmetrical necklines'.

Although the dress was relatively new compared to other textiles in the exhibition it was no less fragile and indeed had sustained minor damage on the catwalk. What kind of mannequin to display the costume on was unfortunately a curatorial decision - a quintessentially 'English Beauty' was thought to be the most suitable. 'Clare' an Adel Rootstein mannequin from the 'Girlfriends' range was chosen to encompass this ideal. The hair was to be brunette but suitably 'bouffant' to give the impression of 'big hair', the catwalk headdress was not acquired with the dress. Make-up was to be subtle. She had no accessories, which at the Houston venue was commented on, Houstonian ladies would have loved to see a few gemstones! However at the Baltimore Museum of Fine Arts they took Lacroix's quote seriously, the mannequin was fitted with a motorised spigot so she rotated in the display case! Fortunately the motor did not work at any of the other venues.

The V&A have in the past few years sent mounted costume on loan. The first time was to Japan as part of 'The Arts of the Indian Courts' exhibition in 1993, when three costumes travelled on Stockman dummies. Although originally viewed with scepticism, this method of transport has proved to be suitable in many cases.

A decision had to be made for 'Grand Design' whether to send this dress mounted on the mannequin or unmounted ready to dress at each venue. Unmounted would have obviously required more handling, the dress fitted very well on the mannequin and the asymmetrical zipper at the back could easily catch the lace when it was being done up. Packing a costume for transport that has many drapes and a hoop could be problematic and even with the most skilled packing would need quite a bit of attention at each venue. Previously, costume had only ever travelled on Stockman dummies or torsos, which have relatively stable bases. A mannequin such as 'Clare' who, once the glass base plate was removed, stood on tiptoes was obviously less stable. However, it was eventually decided to send her dressed. The two arms travelled separately as would the sleeve which had an inner 'arm shaped' support. Fully clothed mannequins are difficult and often precarious to move. Even with careful handling disasters can happen. When first packed to travel to America, the mannequin came apart at the waist whilst being lifted into the crate. A quick response and a hot glue gun rendered her secure. The dress and mannequin were protected in transit by a padded cape. To hold her in the crate, the glass plate on which she stood was removed and her feet sunk into Plastazoate. Her neck was supported with a wooden structure that gave her the appearance of a Chinese criminal. Although , she was rather awkward to remove from the crate and the padded cover caused some creasing of the lace on the fitted sleeve, very little handling of the costume was needed. It was, in retrospect I believe, the most suitable method for transport.

The question arising from the treatment of these two costumes was why were they treated differently, especially as each costume required similar amounts of handling to mount. Could they not therefore have both travelled on their display mounts? Was it just because one was a mannequin and the other a 'T' shaped stand? Was this a case for future policy making?

Queen Victoria and Others

As mentioned earlier the tapestry portrait of Queen Victoria was still contained within her original frame. It was woven in 1877 at the Royal Windsor Tapestry Manufactory and exhibited at the Paris Exhibition of 1878. The designer from Baltimore wished it to be unglazed and on open display. Larger tapestries are often displayed like this because they are considered more robust and due to their size are difficult to encase. The portrait, however, described as 'a very fine piece of weaving' was thought to be particularly vulnerable, especially to the accumulation of dust over five venues. However, these concerns were overruled and the portrait was displayed unglazed but still in her original frame. As part of the condition report, video footage was taken of the woven surface prior to travel, this was repeated at various venues to monitor any change in condition.

A problem encountered at some of the locations was the general lack of height for display. Each designer had detailed measurements for all objects in the exhibition. However there was particular cause for concern over those textiles unable to be displayed to their full height on the same plain. Provision was made for this when it occurred but the solutions were not necessarily the most suitable. Compromises had to be made and visually the textiles looked unattractive but did they suffer?

One of the textiles in question, the Fremlin Carpet appeared to have been displayed differently at each venue. Made in India in about 1640, it bore the Arms of William Fremlin an official of the East India Company. It had a wool pile with cotton warp and weft. Only one venue displayed it on the horizontal as it would originally have been viewed, in all others it was hung vertically by Velcro. The Fremlin was particularly large measuring 5 metres 74cm high by 2 metres 54cm wide. When hung the excess rested on an angled plinth or a wedge which was placed where the wall met the floor. The carpet was uneven in shape and to compensate, the top edge had to be raised on one side. Once in position it was difficult to re-adjust. When the carpet returns to the V&A it will unfortunately again be hung and with walls that are only four metres high about one metre will have to lay on a curved plinth.

The length of this paper has only made it possible to mention a few of the textiles in the exhibition.

Packing and Travelling

The V&A's packing department were responsible for all packing. Crates were constructed from wood with various layers of foam. Objects were wrapped in Acid-Free tissue and then placed within recesses cut either in the foam or Plastazoate. Framed textiles were wrapped in tissue and then polythene. Rolled textiles were wrapped in their own made to measure Tyvek covers and the rollers suspended in the crate from wood or Plastazoate 'clamps'. Some crates were packed with many layers of textiles, usually like was packed with like but a few crates were mixed.

Theoretically there were no restrictions on size of object with regard to travel. However crates needed to be of a suitable size to get into the venues, especially as objects had to be unpacked near to their final display location.

Two couriers from the BMA were present at each venue, a Registrar and Conservator. From the V&A an Exhibitions Officer and a Conservator were also sent for installation and de-installation. Only one textile conservator acted as a courier throughout the five venues, this was because the Museum of Fine Arts in Houston had none available. The textile components in the exhibition were also not seen to be a particular problem. Instructions issued had therefore to be clear and uncomplicated for museum staff who were not used to handling and mounting textiles. As a courier one had to be able to handle anything, whether it be an item of furniture or a fragile ceramic. Ideally however, a rolled textile needs someone trained in handling textiles for a smooth installation.

A Full Circle

'A Grand Design' was received in America to great acclaim, with well over half a million visitors viewing it throughout all five venues. The exhibition returns to the V&A in late 1999 to celebrate the centenary of Queen Victoria's re-naming of the South Kensington Museum. New display cases will be used, as it is more economical to build new ones because the shipping costs of returning the cases to the UK would be very high. Textiles will still be on open display. The V&A should be setting standards particularly where it would be possible and desirable to case certain objects but who has the final word on display? Pure location is not what needs to be looked at here but economics and politics.

1. Ford, D.J., 1994, *Materials Testing Report Number 94/39/DJF*, V&A Internal Report.

CONSERVATION TREATMENT OF 19TH CENTURY SILK DAMASK FIXED WALL COVERINGS AT BRODSWORTH HALL.

May Berkouwer and Crosby Stevens
Textile Conservators (Independent)

Introduction

Brodsworth Hall was built during the 1860's by Charles Sabine Augustus Thellusson. The Thellusson and Grant-Dalton family retained possession of the house for several generations and each added to its decoration and contents. Nonetheless the house slowly went into decline. When English Heritage took on the property in 1990 it was in a state of serious disrepair and a comprehensive programme of conservation was begun.

A conservation strategy for the house and contents was developed. The underlying philosophy was to conserve the house as it had survived into the 1990's and to preserve its many layers of history. The public would then be able to see some of the original splendour as well as later redecoration and eventual decline. Minimal intervention was preferred for treatment wherever possible.

In practice these principles had to be compromised in a number of ways, not least through conservation treatment itself. Even minimal treatments of cleaning and supporting to make safe altered the appearance of objects and changed the atmosphere of decay which was first encountered. In addition pragmatic factors forced adjustments in the arrangement of contents to create a visitor route safe for objects and visitors. Certain objects could not go on open display because of their poor condition and the lack of time or budget to make them sufficiently stable before opening. Other factors included the introduction of environmental control and safety equipment.

Here we will show how the underlying philosophy combined with the immediate conservation needs and practicalities influenced and shaped the treatment of one single object albeit a rather large one, namely the silk wall coverings of the largest room in the house, the Drawing Room.

To help illustrate some conservation points on the Drawing Room wall coverings, reference will be made to the yellow silk damask wall coverings in the South Hall which underwent a similar treatment.

The Conservation Programme

Brodsworth Hall was in very poor condition. The building structure needed a great deal of attention for the roof, chimneys, windows and outside stonework, as well as electrical re-wiring, heating, installation of environmental control measures, fire and burglar alarms. The contents had suffered from light, damp, wear and tear, and poor housekeeping and the resulting problems included insect infestations. The first step was to meticulously document all contents with inventory numbers, descriptions, photographs and records of location.

It was decided to remove all moveable contents from the house to a large off-site store to enable the structural work on the building to be carried out. Very large objects, like statues, which could not be moved were protected with hardboard boxes in their original positions. Structural work and dusty indoor works were thus carried out in an empty house. In situ conservation treatment of fireplaces, painted walls and ceilings were also programmed for when the house was empty, timed to follow works creating dust. The outside stonework was treated last while the re-dressing of the house was underway inside. At times deadlines slipped and incompatible tasks were carried out simultaneously, resulting in some inefficiencies. This was a consequence of the very tight programming of a complex set of tasks involving several teams of contractors.

Conservation treatment of individual objects was carried out by various conservation studios throughout.

The house was opened to the public in July 1995.

The Drawing Room Wall Coverings

Description - The Drawing Room at Brodsworth Hall is a large south-facing room made up of a large main room and a connecting smaller room, measuring in total 17.2 m long x 7.45 m wide.

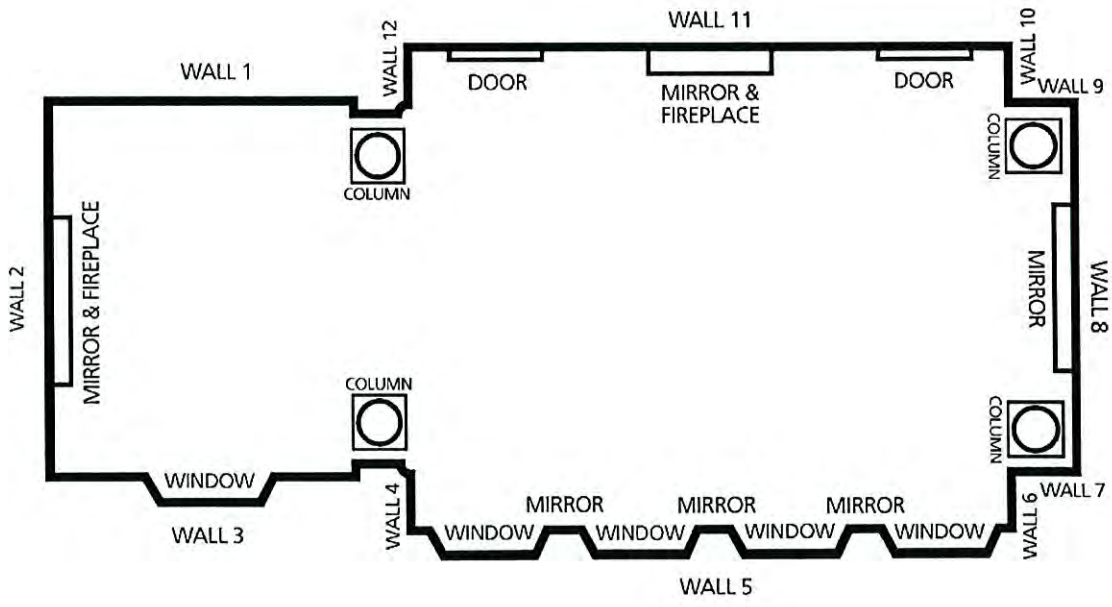

Diagram of Drawing Room (not to scale)

The walls retain their original red silk damask wall coverings installed during the 1860's by Lapworth & Sons. The red silk damask may have been a late alteration from the scheme originally planned: the bill sent in 1863 by Lapworth & Sons, the company that first furnished the house, mentions white watered wall paper for the Drawing Room.

The wall height covered with fabric measures 4.1 m from the skirting boards to the bottom of the ceiling cornice. The walls have a smooth plaster finish. They are covered with cotton bump interlining fabric tacked directly into the plaster, without battens along the edges. The silk damask is stretched over this and also tacked into the plaster. This slightly unusual application may have been a result of having prepared the walls for paper rather than fabric.

The silk damask is of medium weight and appears quite light for furnishing fabric. It has a floral pattern of bouquets in medallions and linking garlands with a repeat of approximately 720 mm. The original colour was a vibrant pink-red, almost magenta, matching the equally bright carpet although all the colours are now much faded where exposed to light. The dye used for the silk damask wall coverings was cochineal.

Gilt moulded wooden frames are installed over the silk damask with metal brackets screwed into the wall through the fabric. The edges are finished with matching gilt wooden fillets.

Condition - The wall coverings were in poor condition. There was a great deal of surface dust and black grime, particularly in the upper sections. There was much light damage as well as deterioration caused by airborne pollution from coal dust and smoke. In most areas the colour had severely faded to a much gentler red than the original. The fibres had deteriorated, leaving the fabric friable and splitting in many areas, with fragments breaking off. The lower sections in direct sunlight had suffered the most. There was mechanical damage in the lower sections particularly in vulnerable areas around light switches and fireplaces.

Damp walls and plaster had caused deterioration of the bump interlining and silk damask in places. Tacks holding the fabric and screws holding the gilt mouldings had corroded and caused bleaching and discoloration of the silk damask. In some places salt efflorescence from the damp plaster was bulging behind the silk.

Large areas were covered with cotton damask repair patches, probably installed in the 1970's. The patches were tucked under and held in place by the gilt fillets without stitching, and some were ill-fitting. Raw edges show in places. The patches conceal areas of silk damask in extremely poor condition.

Options for Conservation Treatment

Aim of conservation treatment - The Drawing Room is one of the more important Ground Floor Rooms and one that English Heritage wished to show in a more respectable condition. The wall coverings had to be made safe for open display and had to be presented in a way that followed the overall strategy of preserving rather than restoring.

The options for treatment - Three main conservation options were identified and are discussed below. Key issues were whether to retain or remove the repair patches, taking into account the weakness of the silk damask and the available budget.

Full conservation treatment - Full conservation treatment would have involved taking down the top silk layer of wall covering and probably the cotton bump layer as well for cleaning and support treatment. With this approach the repair patches could be either conserved for reinstatement or packed for storage. Given the large area of the wall space and the shattered condition of the damask this was not really a realistic option, even if there had been unlimited resources. It would have been necessary to separate the panels for handling. This would have been highly interventive and therefore undesirable within the ethos of minimal conservation guiding the treatments at Brodsworth Hall. The practical difficulties of the task would have created severe risks for the textiles particularly in the largest sections, both during taking down and during re-instatement. It is questionable whether the time and funding required would be well-spent as the conserved fabric would have inevitably remained very weak and could not be expected to remain stable indefinitely on open display.

Replacement - Replacement of the top layer of silk or of the silk and bump would have involved commissioning a replica fabric and storing the original for reference. This offered a solution that was long lasting. However it would have been prohibitively expensive and the use of a reproduction on such a large scale would have constituted a departure from the general philosophy to conserve what remained of the house. It might also have fundamentally altered the historic feel of the room. It was decided that it would be better to retain the original fabric for as long as its condition would allow.

In situ first aid treatment - Another option was to carry out the most essential work for slowing down degradation: surface cleaning, securing loose fragments and support with a conservation fabric. The older repair patches would remain in place to protect and hold the damaged silk behind them. The bump would not be treated. This option fitted well with the conservation philosophy of preserving all the layers of the history of the house and minimal intervention, and it was financially realistic. If in time a different approach were favoured then either full treatment or replacement could still be carried out. However there were also risks with this treatment option: the conservation procedures of cleaning and stabilising might involve a small amount of damage, and the silk might not remain stable for very long after treatment.

The choice of conservation treatment - It was decided to follow the strategy of in situ First Aid treatment for most of the walls. However unforeseen building work led to different choices for a few of the smaller panels. Two short walls (numbered 4 and 6), at right angles to the south-facing windows, were in poor and damp condition; the plaster was damaged and in need of repair which could not be carried out without removing the coverings. Once taken down they could not be re-instated without proper treatment. It was decided to give these two panels full conservation treatment and not to reposition the cotton repair patches afterwards. Full conservation of this relatively small area had the added advantage of allowing us to assess the effectiveness of such treatment with a view to possible future treatments on other panels in the room.

The south wall with windows (numbered 5) is long but only had small amounts of silk damask above and to the sides of the windows. The silk damask was made up of many narrow strips, apparently off-cuts, tacked directly onto the wall without cotton bump behind. The silk was in very poor condition and excessively soiled although less faded than other areas as it was not in direct daylight. Building works had to be carried out in this area and so we decided to remove these fragments too. The pieces were stored for reference and the area was later covered with a dyed plain-weave fabric. For this wall it was considered acceptable to use a simple fabric in a suitable colour rather than attempt to replicate the damask. The space is quite small and mostly obscured by window pelmets, mirrors and gilt fillets and ornaments. A variety of maintenance tasks will have to be carried out in this area in the future and a vulnerable fabric would be problematic.

So in this one room the practical circumstances led us to adapt our philosophy into three different solutions with a possibility of moving on into yet another in the future.

Conservation Treatment

Before any work was undertaken full documentation was completed to record all the gilt wooden elements and the silk damask panel locations and their condition.Trials were carried out to discover whether our intended methods would work and some adjustments were made at this point.

Gilt fillets, mirror frames and ornate gilt mouldings were removed where necessary by furniture conservators from the Tankerdale Workshop.

Taking down wall coverings - The coverings from the three smaller walls were taken down in February 1992 as follows.

Two short walls 4 and 6 - The silk damask was covered with protective nylon net to create a sandwich and this was secured with minimal stitching to the cotton bump fabric.

The tacks along the edges were lifted where possible. In some areas the silk fibres were so deteriorated that the fabric came loose almost of its own accord. Where the tacks were corroded or still secure in the plaster it was safer to cut the fabric around the tacks with a scalpel. The fabric was released from the lower edge upwards.

Once the covering was ready to be taken down, a scaffolding unit was positioned. With two people at the top, two on the middle level and two or three on the ground, the wall covering was lowered onto the floor. On the reverse side a considerable amount of soiling was found to have penetrated through the cracks in the plaster. On wall 4, salt efflorescence had formed on the plaster surface and had caused bulging of the fabric; this had been caused by corroded water pipes in the wall behind.

The wall coverings were sent to the Textile Conservation Studios at Hampton Court Palace for a full conservation treatment of wet cleaning, adhesive support and a nylon net overlay.

Wall 5 - The coverings of wall 5 were made up of many pieces of silk damask attached directly onto the plaster. Fortunately they were not as friable as the other sections. The coverings were divided into manageable sections at joins. The fabric was cut around the tacks for release.

The sections were lifted down, documented, vacuum cleaned and packed for storage in acid free tissue and acid-free card boxes.

Protection during building works - Whilst all the moveable contents at Brodsworth Hall were removed for the duration of the building works, the wall coverings stayed in situ. Treatment of the wall coverings was programmed to take place after building works and wall painting conservation had been completed. Protection was needed until then and was put in place during March - June 1992.

It was decided to install waxed down-proof cambric dust covers. Much thought went into devising a method of attaching the dust covers. At one point we thought we might be able to use existing nails on the top edges of the ceiling cornices which appeared to have been positioned for exactly that purpose. However this would cover up part of the cornices and the wall paintings conservators needed access to these. We decided to remove the gilt fillets along the top and bottom of the silk to give us space to attach the dust covers; the gilt frames remained in place. This also allowed for the furniture conservators to carry out some essential treatment on the fillets.

At this point the silk coverings were given a brief surface vacuum clean using soft brushing to remove thick layers of dust found mainly in the upper sections. The silk was very fragile and caution was needed to avoid breaking up the fabric or removing the surface wefts of the damask.

Severely damaged areas were given a temporary nylon net cover to secure the fragments. These were held by the gilt fillets and minimal stitching to the cotton bump fabric. In the South Hall the silk damask was even more friable. Here the temporary nylon patches were secured with stitches through little polyfelt tabs to relieve strain on the silk.

We had intended to fix the dust covers by stapling into the plaster. This did not work because the plaster had hardened too much with age. In the end we had wooden battens installed along the top edges where the gilt fillets had been, screwed into the wall at intervals. Onto this strips of hooked Velcro were stapled. Dust covers were made to measure with looped Velcro along the top edge. Polyester wadding cushions were attached at the top to raise the dust covers and reduce the strain of their weight on the gilt moulded frames on the wall.

The covers were installed with a generous overlap of at least 150 mm on the joins. The joins were closed with brass safety pins. In awkward areas and around pillars various improvisations with cotton tapes, polyfoam wedges etc. were used to secure the dust covers.

In situ First Aid Conservation treatment - In situ work of wall coverings in the Drawing Room started in earnest in August 1994 and was completed during the Autumn. Work was carried out by two conservators working together. May Berkouwer worked on the project almost throughout, assisted at different times by Sarah Foskett, Clare Stoughton-Harris and Crosby Stevens.

Two mobile scaffolding units, Hoover Dustettes vacuum cleaners and a number of lighting units were used. Building and safety regulations required the lighting to operate on 110V, but the dustettes needed 240V, and all needed safe transformers and extension leads. The logistics of managing scaffolding alongside miles of electric cables shared with other teams of workers were challenging and certainly added to the working time in a way that had not been anticipated.

The silk damask was vacuum cleaned with the Hoover Dustettes and light brushing to lift surface dust. Again care was taken not to brush too harshly or to prolong treatment too much as this caused excessive loss of fibres.

Large quantities of nylon net were dyed in three colours to match the different shades in the silk damask caused by fading. Split and fragmented areas were protected with nylon net. The boundaries of these areas were defined by how the net could be secured safely and unobtrusively. We could not stitch through open areas of fabric because it was too friable and stitching caused further damage. The nylon net edges were tucked under the gilt fillets by approximately 30 mm. The net was then secured by stitching closely along the edge of the gilt frames and fillets where the fabric was slightly stronger, using curved needles and cotton thread. The stitching went into the cotton bump fabric behind to give some hold without straining the silk damask too much. Some stitching was also possible in the holes and splits of the silk. However we avoided stitching too close to the fabric as movement of the fabric occurred with changes in relative humidity levels and close stitching might damage the silk.

Bulging salt efflorescence and crumbling plaster had to be removed from behind certain sections. In these areas the silk damask and interlining were released from the lower edge and the gilt frame lifted away a little. Loose material was brushed out. Fortunately the plaster was otherwise in a stable condition

In certain areas only the lower parts of a panel needed protection and we decided to leave the stronger areas uncovered. However we could not stitch along the horizontal edge of the nylon net across the silk damask, nor could we leave it open as it stretched too much and would sag. This created a practical problem. After much experimentation by Crosby Stevens we developed a method of running threads along the top edge of the net only which could then be pulled taut to hold it up. First we tried transparent nylon threads but these were found to stretch too much. We then used Gutermann Skala thread stitching in three lines approximately 15 mm apart. The ends of the Skala were secured by stitching alongside the edges of the gilt frames into the stronger silk and the bump.

In the South Hall where stitching into the silk damask was problematic anywhere the method was refined by Clare Stoughton-Harris. Here we managed to tuck the ends of the Skala thread under the gilt fillets by using thin Melinex strips to send the thread through underneath them. The Skala threads were then secured by tying around the gilt frames. The result was barely visible and worked satisfactorily.

Changes in relative humidity cause the silk damask to expand and contract, which results in sagging and tightening of the fabric. Even though environmental controls are now in place and conditions are reasonably stable, we considered this a strong reason for keeping the stitching in holes between fragments to a minimum.

The treatment subtly improved the general appearance of the room and removed some of the feeling of dilapidation, but the overall impression is nonetheless of minimal intervention.

Replacement fabric on Wall 5 - A chintz furnishing fabric was chosen to replace the silk put into store, selected for its colour and weight. It was used with its reverse side showing to avoid the sheen.

The wall was covered with new cotton bump interlining fabric over which the new fabric was stretched. Tacks and staples were used for installation.

Re-instatement of panels on Walls 4 and 6 - The silk damask panels for these walls had been conserved at the Textile Conservation Studios. We re-hung these fragile sections using Velcro fastener. Re-instatement was carried out in November 1994.

Walls 4 and 6 themselves were treated by the appropriate specialists, the cracks filled and areas re-plastered. New wooden battens were embedded into the plaster for re-hanging of the panels with Velcro. Wooden plugs were positioned in awkward corners where battens were unsuitable and for the repositioning of gilt fillets. This work caused a slight alteration to the shape of the wall.

The walls were covered with new cotton bump interlining fabric stapled into the new wooden battens; tacks were used in shaped areas either into the wooden plugs or into plaster. For the top and lower edges 50 mm wide Velcro, along the vertical edges 30 mm wide Velcro was used. Strips of the hooked side were stapled onto the wooden battens.

For re-hanging we adapted a method used at Hampton Court Palace as follows. The conserved panel was laid out on a board covered with smooth Melinex which would allow it to slide. The piece was lined up in front of the intended wall in such a way that it would slide underneath the scaffold between the legs. The front of the scaffold was covered with Tyvek to prevent abrasion of the panel. The top edge of the panel was then attached to a loose batten with Velcro. The batten was gently hoisted up with cords while sliding the panel underneath the scaffold towards the wall and upwards without touching the scaffold.

Once hoisted into position the panel was transferred to the Velcro on the walls. The fastening was adjusted along all edges until the correct position and tension were achieved.

The gilt fillets were re-instated by the Tankerdale Workshop furniture conservators. Some adjustment was necessary to allow for the additional thickness of extra layers of bump and Velcro.

Environmental Control and Housekeeping

Environmental control methods have been put in place and will help preserve the wall coverings for as long as possible. Light levels are kept low during the open season. The relative humidity is under controlled by temperature regulation. There is a good programme of conservation cleaning and the wall coverings are being monitored. During the closed winter season the house is 'put to bed' in a similar way to National Trust houses. The wall coverings remain uncovered because of the practical difficulties of moving scaffolding around the room and the problem of securing dust covers. The rooms are mostly in darkness during the closed season.

Acknowledgements

We would like to acknowledge the role of Caroline Carr-Whitworth, Regional Curator, in leading the project, and the English Heritage house staff at Brodsworth Hall, in particular George Newton, for unfailing practical support.

Suppliers Information

Brass Safety Pins, 1", No. 42241	Central Trimmings Ltd., 59 Knowsley Street, Manchester M8 8JF Tel. 0161-834 1485.
Cotton Bump Interlining ST72	F.R. Street, Frederick House, Hurricane Way, Wickford Business Park, Wickford, Essex, SS11 8YB 01268 766677
Downproof Cotton Cambric	Whaleys (Bradford) Ltd., Harris Court, Great Horton, Bradford, West Yorkshire, BD7 4EQ 01274 576718
Conservation Nylon Net	Dukeries Textile & Fancy Goods Ltd., Fearfield Buildings, 4 Broadway (off Stoney Street) Lace Market, Nottingham NG1 1PR 0115 950 7488

Gutermann Cotton Thread	John Lewis and MacCulloch & Wallis, London
Gutermann Skala Polyester Thread	Guetermann Ltd., Wadsworth Road, Greenford, Middlesex, UB6 7JS
Velcro	Selectus Ltd, Biddulph, Stoke-on-Trent, ST8 7RH

References

Berkouwer, M. and Church, D. March 1993. **Textiles at Brodsworth Hall**. English Heritage Conservation Bulletin 19, 12-14

Ed. Kate Jeffrey. 1995. **Brodsworth Hall**. English Heritage.

STARTING FROM SCRATCH – HAMPSHIRE'S NEW MUSEUM OF LIVING HISTORY

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It is rare in the present day to be involved with a project where the concept and building of a purpose designed museum is underway. Starting such a project may seem a dream - provision of a beautiful, purpose-built, environmentally controlled building to house objects from all the different collections belonging to a museum. This paper details one approach to such a dream - the thought processes, planning and implementation that Hampshire County Council Museums Service has undertaken with the building of "Milestones" a home for Hampshire's living history. It will also offer an appraisal of the project to date.

This conference addressed the way in which the treatment of objects have been influenced by the environment in which they have been stored or displayed. This paper will look at things from the other end – how the needs of objects affect the building and environment in which they will be displayed.

Background to Hampshire County Council Museums Service
Hampshire County Council Museums Service administers 17 museums and historic sites in the county. It's headquarters, where the collections are based and cared for, is at Winchester. The collections represent the archaeology, history, art and environment of Hampshire and are displayed in the various museums. There is a team of 6 conservators, only one dealing with textiles. The costume and textiles collection is primarily composed of costume from the 18th to 20th centuries.

The concept of Milestones
Up until now, the transport and technology collections, which reflect the industries of Hampshire, have not been on display because none of the sites in the service are large enough or suitable to house them. The need for a museum that could display them in a permanent setting as well as allow an opportunity to show more of the social history collections, has been an issue for some 30 years. The Museum Service during that time has not been able to fund a project to build a museum needed on such a scale alone, so it has been seeking grants to make the possibility take place. The whole project has been sparked into life now because in 1996 the Service successfully made a bid to the Heritage Lottery Fund for £5.75 million. Other additional support has come from sponsorship and a partnership between Hampshire County Council and Basingstoke and Deane Borough Council, who offered a site for the museum. The whole project will cost in the region of £10 million once completed.

The site
The site for the building is at Basingstoke, which coincidentally is near the old site of the Thornycroft Factory Works, one of the most influential vehicle manufacturers of Hampshire. The factory was demolished in the mid 1980's but will be represented in the museum. Milestones is located in the West Ham Leisure Park next to existing leisure facilities such as a multi-screen cinema, restaurants and bowling club. Building work began in 1998; the hand over date of the building to the Museums Service is autumn 1999, and it is due to open to the public in the summer 2000.

The location of the museum is on a small hill on the outskirts of Basingstoke. This lead to a decision to incorporate the hill as a feature, but at the same time it will not visually affect the appearance of the area, which is noted for its park-like landscape. Consequently, the architects designed a building sunk into the chalk hillside, with an arched roof over the top. There are 2 advantages of the building being under ground in this way; firstly, it reduces the affects of vibration as it is also sited very close to a major railway line, and secondly, it helps towards a consistent temperature inside.

The building
The building provides 5,700 square metres of exhibitions space, which to put into perspective, is larger than an international football pitch. It also includes a shop and café, as well as an education room, a library and resource room, offices and kitchen facilities.

The exhibition space has been designed to allow a network of realistic nineteenth and twentieth century street scenes and discovery areas in order to tell the story of how people's lives in Hampshire were affected by developments in transport and technology locally. As a result, the objects will be displayed in the context in which they were made or used. The buildings will be faced with authentic building materials and will give the impression of housing over 60 different shops, workshops and houses. It is estimated that it will attract between 85 – 100,000 people a year.

The whole project except for the building work, has been undertaken within Hampshire County Council. HCC architects designed the building, and the Museum Service staff has designed the layout. Much time has been spent researching and providing a safe environment for the many different material types of the hundreds of objects that will be displayed in it. This paper will look at each phase a stage at a time, from how the environment of Basingstoke and the site was assessed, how the general environment of the interior has been planned, and how the objects will be displayed.

The environment of the Basingstoke area and the site
The building has been constructed on an east/west axis with glazed ends facing east and west. It receives the sun in the morning and evening. Visitors will enter the building via the west end.

Apart from visiting many different museums, reviewing the latest environmental monitoring equipment available, assessing the standards for different types of collections set by the Museums ad Galleries Commission, the Milestones team also visited some

commercial warehouses, such as Cadbury's chocolate store near Oxford, where humidity and temperature control are paramount. Meteorological data collected for Basingstoke over the past ten years was studied to gain a picture of the pattern of weather for the area so that its potential impact on the building and its interior could be understood and predicted.

When faced with the control of the environment in a building on the scale of Milestones, and the fact that the space inside is not divided up, the project planners in HCCMS did much research. Faced with potential large running costs of a building of this size, the need to provide the right environment for both visitors and collections (the requirement of good environmental control is part of the conditions of lottery funding), standards needed to be set early on. The architects were made aware of these standards and they designed the building with the close control of light, relative humidity, temperature and pollutants as an important part of their brief.

Although the building is dug into the ground, the potential problem of damp has been dealt with by providing the building with a damp-proof outer membrane. The basic structure is concrete and is built in layers. Between the first layer that lies next to the chalk ground, is a rubber membrane resembling an egg carton in structure. This allows water to pass behind it and drain away at the bottom. Next to that is a vapour barrier membrane, then plasterboard.

The east and west ends of the building are glazed using an aluminium framed system which is double glazed. In between the 2 layers of glass of the windows are solar controlled blinds that react to high light levels. Lighting in the main exhibition area is achieved by a series of large spotlights in the ceiling. Lighting is set at 380 lux.

The general environment inside the building

The temperature and humidity of the general interior will be controlled by a high tech system. The public areas at the front of the building will be air conditioned and there will be under floor heating in the café. Full air conditioning in the main arena was not viable over such a large area because of efficiency and cost. Instead the humidity will be maintained by 3 large desiccant wheel dehumidifiers, supplied by Munters. These keep the relative humidity at 55% and are controlled by a computer that will use specially designed software. The building management software has been designed by Honeywell. The dehumidifiers draw ambient air through activated carbon filter blowing it into the arena. The air can also be rehumidified during periods of low ambient relative humidity. Air can also be re-cycled. The computer logs environmental details and will be checked daily by the site manager. In an emergency, the system will trigger an alarm that outside opening hours, will go straight to Honeywell. All 3 desiccants are controlled individually so that if one fails the other two will act as back ups. The software allows manual adjustment of internal conditions within certain small tolerances. Above these, it will not allow local adjustment and cannot be over-ridden. Temperature in the exhibition area will be achieved through piped heated or chilled water with dew point sensors around the perimeter to monitor levels.

The display of the objects

The objects will be displayed in 3 ways:-

Firstly, on open display in street scenes and some of the larger buildings. This will be confined to less sensitive objects such as the vehicles and machines. Secondly, by placing objects in shop displays, in cases which resemble shop fronts in the street scenes, and thirdly, by individual display cases in what will be called discovery or research areas behind the building facades. The general controlled environment in the exhibition area will enable those objects on open display to be placed in one large display case lit by the overall low lighting and by street lamps. The shop front type cases are made of pine, a low risk off-gasing wood, which will be painted. They will be glazed in with access from the back of the case. The individual cases will be free standing and the supplier is still to be finalised. No individual control will take place inside the cases because the outside environment should be as close to ideal as possible and it is hoped that buffering and control of the cases will not be necessary as a result. Lighting will be achieved internally using fibre optics enabling low lux levels as well as no increase of heat inside the case.

There is also one temporary exhibition room which will allow for even more of the reserve collections to be displayed. This will be ideal for the costume and textiles collection. The layout of the room will be flexible, but there will be some free standing cases suitable for costume. We are hoping to have an exhibition of home dressmaking in conjunction with the display of some of our collection of sewing machines.

We have a small collection of motoring costume that we hope to display in one of the discovery areas, which mostly dates to the early 20th century. These are generally in good condition and not composed of highly sensitive materials, such as rubber, which could need even more specialised display conditions, such as a low oxygen environment.
We are also going to have a shop front display in the style of an early 20th century milliner's shop.

Assessment of the project

It is too early in the project to give a full appraisal because the building is not finished yet and a lot of the plans are still just on paper. Despite much planning, it is only when things are up and running that all will become clear. As a conservator I am very pleased by the attention given to environmental considerations, and thank the initial team, particularly Alan Johnston (Project Manager for Milestones), for standing firm when architects and budget wanted to cut back on certain provisions. It is difficult with a project of this scale to keep lines of communication running smoothly – even though there are project co-ordinators, information can become confused. Money has to be a factor – environmental controls and measures cost. There have had to be cutbacks, which puts pressure on the project. Also, with such a high tech system in operation which relies on machinery, there is potential for malfunctions. The fact that all the work has been achieved internally is good in some respects because there is a greater element of overall control, but it puts pressure and strain on staff who are not solely committed to Milestones, and have to provide a core service to the other 17 museums and sites within the Service.

However, much has been achieved and as the opening date approaches, we'll know a little more and hopefully be a little wiser. It's a question of waiting and seeing!

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SOME OBSERVATIONS ON THE DISPLAY OF LARGE SCALE TAPESTRIES: PROJECT PLANNING, ATTRITION MANAGEMENT AND OBJECT LONGEVITY.

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This paper will look at a variety of installation and de-installation techniques for large scale tapestries devised for use within specific historic interiors at Hampton Court Palace. This will include observations on collection and display parameters including site preparation.

Some alternative approaches will be discussed and assessed for their feasibility and implementation considering a range of factors including personnel, display area infrastructure and equipment access. The above will be discussed within the broader context of attrition management and project planning. In conclusion an object management format will be proposed for implementation on future installation projects.

Introduction

Handling of large scale textiles is always problematic requiring detailed forward planning and a clear view of what the aim of the exercise is. Few textiles come larger than Western European tapestries and because of the associated history at Hampton Court Palace it houses some of the larger pieces in the country. Many of the fifty eight tapestries now at H.C.P. are the highest quality remnants from Henry VIII collection of approximately two thousand five hundred pieces. The majority of the tapestries that are now on display permanently would originally never have been encountered on a daily basis. With the deleterious effects of light understood empirically, tapestries of lesser quality would have rotated with similar counterparts and only occasionally would the very best of the collection have been displayed.[1] It was only at a later date that aesthetic considerations brought room contents into a more static format. In 1868 the Palace opened to the general public and remains so today attracting on average seven hundred and fifty thousand visitors over a three hundred and sixty four day year. It is clear from this illustration of visitor numbers along with associated environmental factors that there is potential for significant deterioration or attrition of the contents of the Palace and specifically the tapestries.

Attrition and Context

Attrition can be defined as any agent or action that may have a deteriorating effect on the tapestries on display over a period of time. For the longevity of the collection all elements of this process need to be actively managed. The methods employed to install and de-install tapestries have a significant role to play in this management process and have a substantial developmental history dating from 1982. [2]

There are several primary factors underlying the choice of hanging methods employed by the TCS for use within H.C.P.

- Tapestry Condition
- Site Access
- Site Infrastructure
- Personnel

Tapestry Condition

All tapestries to be moved are assessed for their condition to identify any specific problems that may affect the manner in which they are manoeuvred. There are some pieces in the collection that have the potential to be more problematic than others. As an example not all tapestries that require installation or de-installation have received full conservation and are therefore recognised as being particularly vulnerable to movement. With the average weight of a tapestry at 1 kilo per square metre it is essential to ensure that all tapestries are supported evenly and manoeuvred cautiously, avoiding sudden movement or disproportionate pulling in the direction of the weft. Although recent research has identified how robust, in conservation terms , the tapestry weave can be there are limits to its endurance.[3] There are certain elements that are disproportionately more susceptible to deterioration processes and therefore at heightened risk during movement. These are associated with the use of silk weft for a variety of design functions:

- Extensive use in top load bearing border especially when associated with long slits.
- Narrow spacer bands between border and picture space or border proper.
- Extensive use in the costume of principle figures.
- Detrimental effect of slit stitching at the interface between silk weft and wool weft.
- Contrasting use of metal thread sometimes in a Soumak weave with silk weft

Site Access

A major contributory factor to the hanging methods devised for use at HCP has been the physical negotiation of associated furnishings especially large three dimensional objects like throne canopies and state beds along with fixed objects on the periphery of the hanging site, for example carvings. Curatorial interpretation of room settings can require tapestries to be hung behind beds and canopies in a variety of ways and normally have to be negotiated in-situ.

Tapestries can be displayed centre to centre against a single wall providing an equal amount of tapestry on either side of the bed/canopy. Alternatively they may be offset with a small proportion of the tapestry required to fit behind the bed/canopy. Either of the above may require the tapestry to be displayed on more than one wall. To negotiate the ninety degree turn required for this display method the tapestry is hung from side to side gradually unwound from a supporting roller. This requires that account be taken of the head room directly above the fixing point for the top of the tapestry. Here a variety of mouldings are likely to be encountered that will have a direct bearing on free movement

of the roller carrying the tapestry. Alternatively, no moulding will be present and the display wall will run directly into the ceiling having the potential to restrict roller access more severely than mouldings alone.

Site Infrastructure

The historic interior does not at first sight provide a very user friendly environment for the manoeuvring and installation of textiles measuring up to fifty square metres. The majority of hanging methods documented as in use in other institutions utilise a hoist system of pulleys, battens and ropes. There are several reasons why this technique has not been utilised by the T.C.S., some of which may be broadly applicable to other collections based around historic interiors. Personal experience with a hoist system has shown that a large area around the object is required to enable the free movement of personnel during the lifting procedure. The area required will vary depending on the degree of sophistication of the pulley mechanism used, how the tapestry is prepared before lifting and at what height the tapestry will hang at. One of the aims of devising a hanging method for use within H.C.P. was for it to be as applicable to as many hanging sites as possible. Given the number and scale of furnishings to be negotiated in a high number of installation sites, the possibility of the successful widespread use of a hoist system was seen as unlikely on practical grounds. More fundamental perhaps are objections on aesthetic grounds surrounding the installation of the substantial pulley mechanisms and tracking required throughout the various interiors of the palace. Some evidence does exist for the use of a hoist and pulley system within certain interiors at H.C.P., for example the Queens State Apartments. However, this system was not used for the installation of tapestries but framed cartoons and could not be adapted for change of use on the grounds of curatorial authenticity.

A high proportion of installation sites in the historically later parts of the palace, for example the William III interiors, are constructed of wooden panelling fixed to and fabricated around a brick sub-structure. As such many installation sites would be required to undergo substantial strengthening work. This would be required to withstand the considerable forces exerted when raising the tapestry from the two or more fixing points employed by hoisting systems.

Personnel

Installation and de-installation of tapestries is a critical time in terms of potential damage caused by inappropriate handling. It is at this stage that apparently stable weave structure and sound slit stitching can be disrupted and broken by sudden pulling and wrenching motions. This is especially the case when handling unconserved tapestries. It is therefore crucially important that the hanging system used should be able to be comfortably operated by conservation personnel aware of the inherent problems of the procedure to be undertaken. The chosen hanging method should also foster a working environment that for no part of the operation relies on excessive force or strength. It is these factors that can exacerbate partially degraded areas or irreparably damage substantially weakened areas of the tapestry undergoing installation/de-installation.

Installation Overview
A summary of the above provides the criteria required for an installation system for use within the historic interiors at H.C.P. and are as follows:

- The system must be flexible enough to safely handle tapestries in a range of conditions from fully conserved pieces to those that have undergone either minimal or no conservation at all.
- Has to be able to install/de-install tapestries safely around a variety of state beds and throne canopies and associated site peripheral fixed objects.
- In executing the above any equipment and personnel must occupy a minimum working footprint.
- Any lifting equipment must be compatible with and operate safely within the existing aesthetic interpretation and infrastructure of the various interiors of H.C.P.
- Not to be an exclusive operation based on individual strength encouraging the use of non-conservation personnel but to have ease of use for all conservation staff geared towards a comfortable minimal risk working environment.

Equipment
As identified in the section above covering Site Access two forms of display are required for tapestries at H.C.P. The most commonly used is single wall display and for a minority of tapestries a multiple wall arrangement which is the more problematic of the two.

In order to safely install and de-install any of the tapestry collection in either of these hanging arrangements to the above criteria the following equipment list has evolved:

- A maximum of three aluminium scaffolding towers each measuring 75cms x 196 cms to a maximum platform height of 5 metres
- 11 cms diameter 3 mm thick P.V.C. Tubing.
- Webbing tape.
- Pneumatic staple gun.
- Stainless steel staples with no less than a 8 mm shoulder.
- Velcro ties.
- 5 cms hook Velcro.
- Plastic sheeting to cover any preparatory rolling space.
- Bubble wrap to form cylindrical support for 'soft rolled' tapestries at certain locations with particularly difficult access.

In addition to the above for multiple wall hang:

- Wheeled circular trolley.
- Polystyrene cylinder blocks.
- Adhesive Velcro.
- Prepared Velcro straps for temporary application to the upper edge of the tapestry/roller as support mechanism during installation.

Method for single wall hang

The installation site is assessed for the number of scaffolding towers required and any preparatory work to initiate access is undertaken. The scaffolding towers are positioned for use and any previously used Velcro is removed. Following this the hanging site is prepared with a variety of fabrics and /or barrier materials appropriate to the specific site. New Velcro is then applied at the required hanging height in two rows secured with staples. Depending on the date of the interior where the tapestry is being installed the staples will be attached to a batten secured to the original walls as in some areas of the tudor building or to panelling overrun in the interiors of a later date as for example the William III apartments or thirdly previously installed wooden frames. The battening , panelling or frame immediately below the lower Velcro strips is used to attach webbing tape with four or five rows of stainless steel staples that will be used to raise the prepared tapestry to its hanging height. Each tape is spaced approximately 100-120 cms apart and therefore giving a variable number of tapes depending on the width of the tapestry to be installed. The individual tapes are long enough to travel from the fixing point down to the floor and up to the expected standing height of the conservator on the top of the scaffolding. Each tape will have an excess of approximately two metres allowed to secure the tape to the top scaffolding pole. This will complete the preparation of the installation site.

The tapestry to be hung is brought from storage and unrolled face up in a suitably sized area covered in plastic sheeting. Clean P.V.C. tubing equal to the width of the tapestry is placed approximately twenty five centimetres in from the bottom edge of the piece. Alternatively, some installation sites do not allow the required lateral space to manoeuvre a tapestry on a rigid roller and are 'soft rolled' onto a pre-formed bubble wrap cylinder. This allows a small amount angled manoeuvrability to be undertaken safely. The tapestry is then slowly and gently, but as tightly as the lining fabric will allow, rolled face inwards along the weft. When rolled the tapestry is secured with Velcro ties. The scaffolding is moved out from the hanging wall to allow the tapestry to be placed in position on top of the webbing lifting tapes. The scaffolding towers are moved back into position as close to the installation wall as the diameter of the rolled tapestry will allow. At this stage all personnel involved in the operation are located for the lifting process. This will mean that there are an equal number of personnel to tapes positioned at the top of the scaffolding; a conservator at either side of the tapestry at ground level and one conservator to direct the installation procedure.

On clear instruction the tapes are untied from the top scaffolding pole and drawn up to take the weight of the tapestry but not to raise it from the floor. Once it is established that the tapes are bearing an equal weight the tapestry is gently and evenly raised guided in the initial stages by the two conservators at floor level. When the tapestry is raised to within sixty or seventy centimetres of the upper Velcro strip the tapes are tied off onto the most appropriate scaffold cross bar. Once secured the tapestry is lifted and adjusted to align the top edge to face the hanging wall. The ties are released and the tapestry is lifted by two personnel while the remainder unwind a sufficient amount of tapestry to be able to match the Velcro attached to the reverse of the tapestry with the strips mounted on the wall. The tapestry is lowered back into its holding position on the secured tapes.

Simultaneously the excess of tapestry is concertinaed onto the main body of the tapestry. When all personnel are ready the released section of the tapestry is raised and the hook and loop Velcro strips are matched ensuring firm and secure contact. The ties are released and the tapestry is, under instruction, slowly and evenly lowered. When the tapestry is fully unrolled it is assessed to see whether it is hanging as required and any adjustments are undertaken at this point. When any adjustments are complete the scaffolding personnel vacate their positions and the towers are withdrawn from the installation site. The webbing tape is then cut approximately forty centimetres from the bottom of the tapestry. The fixed section of the tapes remain behind the tapestry to facilitate any de-installation of the tapestry at a later date. This is achieved by securing an additional length of webbing tape to the section already in place and utilizing all of the above equipment, except the staple gun, in what is fundamentally a reverse operation of the above.

Method for multiple wall hang

There are two primary factors differentiating multiple wall installation from single wall installation. Firstly, as noted earlier the tapestry is unrolled and installed from side to side and secondly as a consequence of this the weight of the tapestry is concentrated in the vertical for the whole procedure. The above technique allows the weight of the tapestry to be supported evenly by the lifting tapes during installation. For the multiple wall technique the tapestry has to be supported around the installation roller and kept consistently at a ninety degree angle throughout the procedure. Any deviation from the vertical as the tapestry is unrolled will induce correcting forces straining susceptible areas and inducing deterioration.

The installation site is assessed and prepared in a similar way as for the single wall hang with the exception of the attachment of webbing tape lifting straps. The tapestry is removed from storage and rolled out face downwards onto a prepared area. Packing material of tissue paper interleaved with bubble wrap is then arranged on the reverse of the tapestry to stop the tapestry spiralling when rolled due to the differential in profile caused by the Velcro and webbing tape attached along the top edge. To ensure that the tapestry is guided around the installation site at a ninety degree angle to the floor a circular wheeled trolley with accompanying Polystyrene cylinders has been developed. When in use and upright the roller with the tapestry on sits over a central spigot and rests on the polystyrene which acts as a cushion for the total weight of the piece.

The available space at the installation site from the floor to the ceiling or moulding is noted. The longest P.V.C. roller available in the diameter and thickness required is six metres so any hanging site that is taller than this automatically has its total height raised by the addition of the required number of polystyrene cylinders from a minimum of one to a maximum of six. Conversely in an installation site of less than six metres the roller is reduced in length accordingly to allow for the use of at least one polystyrene block. The required length of roller is positioned on the rolled out tapestry with the amount of headroom available determining the degree of roller excess at the top of the tapestry. At a given point on the excess section of the roller adhesive Velcro is attached around its diameter. Prepared hook Velcro tabs measuring five by forty centimetres and machine

stitched to webbing tape are introduced and attached to the Velcro strips on the reverse of the tapestry at intervals of approximately sixty centimetres. These in turn are held by narrow Velcro strips secured to the adhesive Velcro around the diameter of the roller. For installations where little roller headroom is available the securing adhesive Velcro strip is attached on the inside of the roller and used in a similar way. The purpose of the Velcro tabs is that when the tapestry is raised and gradually unwound the tapestry does not slip progressively down the pole. This would require differential restraining action from personnel involved in the hanging process severely disrupting vulnerable areas of weave structure.

When rolling is complete the tapestry is given a protective cover and secured with Velcro straps. The required number of scaffolding towers are positioned ensuring that enough space has been allowed throughout the hanging site for access by the circular trolley. The tapestry is manoeuvred to the base of the scaffolding towers on the room side of the hanging site with the bottom of the tapestry facing away from the scaffolding. The aim of the following is to foot the trolley with the tapestry fitted over it and steadily raise both as one unit into an upright position. To achieve this three people are required at different heights on the end scaffolding tower. A number of personnel, approximately one person for every metre of tapestry, lift the tapestry while another person fits the trolley spigot into the roller. When completed the trolley is footed and the unit raised at an increasing angle as it is passed to the personnel on the scaffolding. When upright the tapestry is wheeled into position on the wall side of the scaffolding. The ties are released and the Velcro matched and secured as the tapestry is unwound removing the supporting Velcro tabs packing materials as the installation progresses. The empty roller is manoeuvred on the trolley to the room side of the scaffolding and lowered in a reversal of the process described above. Any adjustments are made to the hanging position after which the towers are vacated and the site cleared.

Discussion

Any installation/de-installation operation undertaken that involves large scale tapestries will always carry with it an element of risk. The task of the conservator is to design and evolve methods and equipment for installation that will reduce this risk while meeting the specific presentational requirements of historic interiors as defined by curatorial and conservation interpretation. Interrelated with the above is the continued development of conservation techniques in areas such as extent and intensity of couching and support material choice and application.

The two installation methods outlined above each have their problematic areas and each are resolved by a risk assessment appraisal. An example of this is the decision to role a tapestry face inwards along the weft for a single wall hang. It was indicated above that the installation of tapestries from side to side is more problematic and carries a higher potential risk than a flat wall hang. This is despite the fact that the tapestry is rolled the 'correct' way. With this in mind it was appraised that to carefully roll the tapestry face inwards along the weft presented a lower potential for deterioration to the tapestry and site peripheral objects than a rigid requirement to have the tapestry rolled face outward and along the warp. There are also associated advantages with rolling a tapestry in this

way. The lining of the tapestry acts as a cover during the lifting and lowering process and the face of the tapestry will not come into contact with the hanging wall as the tapestry is lowered.

In the broader context of project planning it is recognised that the less tapestries are installed/de-installed the less potential there is for severe stress induced weave structure fragmentation and fibre deterioration. To this end work is ongoing with other relevant departments of the palace to coordinate and anticipate as far as possible all general maintenance and enabling work required in and around tapestry hanging sites. As this work progresses it is anticipated that combined with the installation/de-installation techniques outlined above the longevity of the tapestries under current display parameters can be ensured.

Conclusion

This paper has outlined the parameters and evolving techniques for the safe installation of large scale tapestries at H.C.P. A variable for these techniques is the influence of location as to what equipment can be utilised and how far the infrastructure of the site can be altered to the advantage of the hanging process and the longevity of the tapestries.

Notes:

1. Campbell, T. 1995-1996. 'Tapestry Quality in Tudor England: Problems of Terminology' **Studies in the Decorative Arts**, 3, no.1, 29-50.
   Thurley, S. 1997. 'A Conflict of Interest? Conservation versus Historic Interpretation, a Curatorial View.' **Textiles in Trust**. The National Trust. 20-24.
2. Forthcoming paper by Lynsay Sheppard Head of Tapestry Conservation at the Textile Conservation Studios.
3. Howell, D, Bilson, T, Cooke, B. 1997. 'Mechanical Aspects of Lining Loose Hung Textiles' **Preprints from 'Fabric of an Exhibition'** Ottawa, 63-69.