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Gut Reaction: The history, treatment and display techniques of gut garments at the Pitt Rivers Museum.

Introduction

The Pitt Rivers Museum is renowned for its traditional typological displays and the high density of objects on display. More than 20,000 objects are on permanent display with tens of thousands more in open storage within drawers under desktop cases. Many of the cases date from the Museum's opening in 1886 and are regarded as intrinsic to the museum. Although there is an ongoing program of updating and readjusting permanent displays, the high object density and issues surrounding the original cases can cause the process to be slow.

The Arctic clothing case is a permanent display in the Museum Court; it houses furs, skins and gut garments of Arctic provenance. Following a moth infestation in 2006 all the garments were removed and systematically frozen. It was decided not to return the gut garments to display until the case and mounts could be adjusted to better house these fragile pieces. A building project started in 2008 and saw the museum close to the public for 10 months; advantage was taken of this closure to work on the Arctic clothing case. This paper will concern the history, treatment, mount making and redisplay of two of the gut garments: a cloak with neck-cape and hip length parka.

History of the garments

The cloak with neck-cape (1886.1.871) was among a number of items collected from the Arctic and transferred from the Ashmolean Museum to the Pitt Rivers Museum in 1886. Collected by Fredrick W Beechey on the voyage of HMS Blossom to the Aleutian Islands (1825-28), the cloak's design shows a strong Russian influence and due to the quality of materials and manufacture, is thought to have had a ceremonial use. In contrast, the hip length gut parka (1925.11.3) is manufactured from more robust material using simpler techniques and would have been used daily as a protective layer against harsh weather conditions. It is believed the parka was collected by the trader and entrepreneur H.T Munn during one of his voyages in 1914 and 1920 to the Baffin Islands and it was accessioned to the museum in 1925.

Both items had been displayed in the arctic clothing case for a long period using unsuitable mounting methods. The cloak had been suspended using two small sprung clips attached directly to the collar. The clips were then pinned to the back wall of the case with the whole weight of the cloak hanging from these two points. The parka had simply been mounted using panel pins, hammered directly though the shoulders and right arm of the garment into the back wall of the case.

Manufacture

The main body of the cloak is made from horizontal strips of marine mammal intestine either seal or walrus. The intestine has been prepared in the traditional method, cleaned, inflated and dried (www.1). Once dry, strips of gut have been sewn together in a horizontal pattern using tiny sinew stitches that are almost invisible to the eye. The gut has an almost transparent grey appearance; on initial inspection it appears thin and brittle. In a number of places on the inside of the cloak the seams

have the remnants of decoration. These consist of small sections of red and green fibres possibly wool. These are visible only on the inside although they carry through the seam so may have originally continued as external decoration that is now lost.

The outer most band of the decorative border has a parchment like appearance, and is possibly made from bird skin. The decorative bands around the edges of the cloak are made of seal gullet; these have been dyed red and black (Turner 1976: 43) and are much thicker and less flexible than the intestine. There are remains of caribou hair detailing in a cross stitched pattern across the thin sections of seal gullet.

Figure 1 Detail of the cloaks decorative border. Illustrating dyed seals gullet, caribou hair cross-stitch and damaged outer most band of skin.

The parka is constructed using similar materials and methods to that of the cloak, however much simpler techniques are used. The gut is much thicker than that used for the cloak and is recorded in the museum accession record as originating from the Bearded Gray Seal (*Erignathus Barbatus*). Due to its thickness, the gut is more opaque, less flexible and is more undulating in appearance to that of the cloak. The parka is simple in design with little decoration other than alternating external and internal seams, a band of sealskin around the hem and shoulders, and a drawstring of sinew around the hood. The body is constructed from vertical strips of gut that splay at the base, possibly designed for kayaking. The seams are sewn with sinew using a simple running stitch.

Past treatment and condition

It is clear that the cloak has suffered from reoccurring pest problems along with the other pieces in the Arctic Clothing case, although accession records date much of the damage prior to 1836.

‘... From which the down or feathers has been either purposely removed or else accidentally destroyed by insects, probably the latter, as the whole cloak has been greatly damaged by the moth… Altogether it is a very beautiful specimen of Indian skill, though it is much inferior to what it was originally’ (Petch 2000: 335)

Anecdotal reports suggested the likelihood that both pieces had been treated historically with ASAK 520S Bavon, a leather lubricant used widely in the museum in the past.
Retrieving historic treatment records can be problematic. Conservation treatment card-based records date back to the 1970s, however there is no reference to the treatment of these objects in these records. Prior to this, annual reports have been kept since the Museum opened in 1884 and can sometimes shed light on the historic display and treatment of the collection. An abstract from ‘The Museums Annual Report 1941’ talks of the treatment used on the gut garments and furs within the Arctic collection;

‘Among notable labours of restoration has been Mr. Walter’s work on
Eskimo garments of walrus and seal intestine collected by the historic expeditions of the early 19th century. These beautiful transparent costumes were hard as boards and breaking up, and fur was falling from the rest of our Eskimo and Siberian clothing. He treated the lot with medicinal paraffin brushed lightly into the skin, and they became supple and easily mended, and no more fur falls out.’ (Penniman 1941: 3)

This treatment, along with poor storage conditions, had resulted in the cloak being ripped, discoloured, friable, greatly misshapen and inflexible. The pest activity resulted in a number of holes throughout the body of the cloak, large amounts of frass within folds and the loss of the vast majority of decoration. The cloak did however remain stable enough for handling.

Figure 2: The cloaks neck-cape prior to treatment

The parka showed similar damage with numerous tears and holes in the gut. After many years pinned to the back wall of the display case, the parka was very misshapen and flat. Frass was evident under the sealskin decoration around the shoulders. The gut itself was very brittle, with numerous tears and holes throughout the body and

hood as a result of poor handling and storage. The tears in the gut were up to 30cm long and had previously been secured with a modern cotton thread tacked across the break. However these repairs did little to stabilise the damage, and were in fact causing more damage where the thread had torn further holes in the gut. The parka also had a fair amount of powdery black museum dirt on the surface, almost obscuring numerous areas of blood staining (figure 3) on the left arm, thought to be evidence of previous use.

Figure 3: Undulating surface of the parka with detail of bloodstain on the left sleeve

Treatment

The aim of the treatment was to return the garments to display in a physically stable condition. The treatment needed to address the following main issues:

1. Removal of surface residues, debris and acquired 'museum dirt'.
2. Provision of support for areas of instability along seams and tears in the main sections of the gut.
3. Provision of support for the friable misshapen outer section of the borders of the cloak.
4. Removal of a failing old museum era repairs
5. Reshaping of large folds and creases caused by unsympathetic display and storage.
6. Redisplay and mount making.

The original plan was to treat both garments with the same treatment rational. However, as the initial testing of materials was in progress it became clear that each garment would require a unique treatment approach. The materials discussed in the following sections were tested on both garments to establish the most suitable both structurally and visually.

1. Surface cleaning - materials tested

The following materials were tested for the removal of surface residues:

50:50 IMS (Industrial Methylated Spirits) and distilled water
IMS
Saliva wetted cotton wool swabs
Vulcanised rubber sponge (chemical smoke sponge)
White Spirit (which was used to test for the presence of ASAK 520S (Bavon)

Tests were carried out to identify whether these garments had been previously treated with Bavon by testing for solubility in white spirit. If Bavon was present we expected to see a change in surface finish or residue on the swab. Neither occurred, therefore these tests proved inconclusive.

2. Support materials tested

A number of materials were tested to use as support for the holes and tears in the gut. The materials tested were based on those recommended in literature, and their availability, these included:

Lamb, cow and pig intestine - sausage skins
Goldbeater's skin - a parchment made from the outer membrane of calf's intestine
Synthetic sausage skin
Japanese tissue

The pig intestine was obtained from the local butchers, and had already undergone some processing to remove internal and external membranes. The intestine was processed further in the lab by being washed under running water for several minutes. A knot was then tied in one end, the intestine inflated and tied off at the other end. This inflated tube was then left to dry under the moving air of the fume hood. The tube could then be cut open along its length to provide long strips suitable for bridging tears.

Figure :4 The lab prepared pig intestine

The synthetic sausage skin was found to be inappropriate due to its inability to suitably conform to the shape of the natural gut of the garments.
Numerous articles suggest the use of Japanese tissue; however we found that it was not possible to provide a suitable support whilst maintaining the translucency of the cloak.

3. Adhesives tested
A number of adhesives were tested based on recommendations in the literature. Tests were carried out in conjunction with the support materials, our criteria being that they too provide adequate strength and flexibility. Reversibility and ease of use were also important considerations. The adhesives tested were as follows:

Klucel G® (Hydroxypropyl cellulose) 5% w/v in distilled water
Klucel G® 5% w/v in IMS
Wheat starch paste (Wills 1995: 20)
Paraloid® B72 (ethyl methacrylate (70%) and methyl acrylate (30%) copolymer)
5%: 2.5% Klucel G® w/v in IMS
10% w/v Arrowroot and Sodium Alginate paste in Distilled water (Wills 1995: 20)

Treatment of the cloak
1. Surface cleaning
Following initial removal of surface detritus and frass with a soft brush and gentle vacuum, the cloak responded well to wet cleaning with 50:50 IMS and distilled water applied with lightly dampened cotton wool swabs. This method allowed for increased flexibility of the gut. The process lifted more ingrained surface dirt and frass from the body of the cloak and from within the folds and creases. The increased flexibility assisted in the cleaning process and enabled the application of soft weights to reshape the larger creases. During the cleaning process care was taken to avoid contact with any remaining decorative details and the borders were also avoided. There was no change in surface appearance and no adverse effects from the cleaning process, however swabbing an object of this size did take a number of hours.

2. Support material
For repairing tears in the seal gut, pig intestine was found to be a very suitable material, conforming to the contours of the gut well and supplying adequate support for the garment. The prepared intestine was wound round a dowel for storage and cut into strips as needed. The material was also thin enough not to show up through the very thin gut of the cloak.

3. Repair of the cloaks skin border
Due to the condition and appearance of the cloaks skin border, pig intestine was not found to be a suitable material for support. The border was in poor condition with large areas of loss and any remaining skin was structurally weakened from insect attack. Both 10% Arrowroot and Sodium Alginate paste and Wheat Starch paste were tested with Japanese tissue (different grades were tested for visual and physical compatibility) and Spider tissue (handmade Tengucho 5 gram Japanese Kozo, PEL) .

The support material required workability, strength and movement. Both tissues were tinted using powder pigments in an acrylic binder prior to testing.
The best results were found with Japanese tissue (Paper Nao K-37) adhered with wheat starch paste. The adhesive has a good working time and also holds the substrates together whilst curing. Although physically and aesthetically the border is much improved the whole strip of tissue can be seen through the border. This is only really visible when looking closely at the object. This method is highly reversible and therefore was considered the most appropriate.

4. Adhesives

Although intestine has a natural hydrophobic tendency the moisture content within the 10% Arrowroot and Sodium Alginate paste was the most compatible adhesive in relation to the cloak. The water-based properties increased the workability of the intestine and therefore manipulation of shape. Any excess adhesive could be removed manually from the intestine once dry. It is important to note that the adhesive was first applied to the back edges of the tear allowing for some reshaping of the gut. The pig intestine strip was then applied to the area covered by the adhesive. If adhesive was first applied to the pig intestine strip, the water in the adhesive made it impossible to work with, especially on large areas of damage.

5. Humidification

Although partial reshaping was carried out as the cloaks surface was cleaned the more severe creases required additional humidification. Due to its size the cloak was humidified locally using a SympaTex® (breathable membrane), blotting paper and Melinex® sandwich technique (www.2.). When the humidification sandwich was removed the gut remained flexible, and soft weights were added at this stage to manipulate the body and borders back into a more relaxed position.

Treatment of the parka

1. Surface cleaning

The surface of the parka was cleaned using smoke sponge, which gave satisfactory results. However, due to the undulating stiff nature of the material, specifically near seams, swabs of 50:50 IMS and distilled water were used.

2. Removal of old repairs

Most of the tears to the parka had been previously repaired by simply tacking a thread to roughly secure the break edges. Microscopic examination of the thread used revealed a cellulosic fibre, probably cotton based. Although cotton thread would have been available at the time of acquisition, the poor quality of the repair given the utilitarian use of the garment strongly suggested these were not indigenous. Also, as previously mentioned, these repairs were causing more damage to the gut where in a number of cases the stitches had pulled through, tearing the gut. The decision was therefore made to simply cut away the thread and support these areas with a suitable support material.

3. Support material

As with the cloak, tears were supported with strips of pig intestine, cut with a 1cm overlap on each side of the tear. Although transparency of the support material was less important in this instance, it was found that this material was the most capable of conforming to the highly contoured surface of the gut. The other materials tested, especially the synthetic sausage skin, retained some of their original shape, resulting in a poor repair compared to that of the pig intestine.

4. Adhesives

The old cotton repairs were cut free, and the two sides of the tear brought together with a strip of pig intestine adhered with 5% Klucel G® in water. As with the cloak, the water based adhesive provided some localized humidification of the gut, allowing the tear edges to be brought back into alignment before the application of prepared pig intestine patches. The patches were cut to 2cm wide and 2cm longer than the tear to be supported.

5. Humidification

Whilst localized humidification was successful in reshaping the cloak, this process was not compatible with the parka. The thickness of the gut meant that it was not possible to reshape one localized area without risking damage to the adjacent areas. Therefore a large simple humidity chamber was created using polythene sheeting and the parka was allowed to gradually hydrate at 70% RH for 3 days. Acid free tissue padding was then introduced and the parka manipulated to shape. Upon acclimatization to normal museum conditions, the parka was almost able to hold its new shape unsupported.

Figure 5: Humidification chamber for the parka

Mount Making

Samantha Gatley, a Conservation soft mount maker from the V&A, spent one week at the Museum working with the conservation team advising and making the soft mounts for the two gut garments and a number of other pieces for redisplay in the Arctic clothing case.

The cloak raised a number of issues, firstly the maximum depth of the case is 60cm, and the aim of the project was to display the cloak illustrating the full size as it would have been worn. The second issue was the mounting technique. The cloak would presumably have been worn on the shoulders with the neck fastened in some manner, however there is no fastener remaining. The design of the mount and materials used is illustrated in figure 6. The Technical Services Department designed a wall-mounted bracket that the Plastazote® support fits into, and the cloak is now suspended high up in the display case with smaller objects beneath.

Figure 6: This diagram illustrates the materials and design of the mount made for the cloak

Due to the straight-sleeved design of the parka, it was decided to mount the garment on a padded roller passed through the sleeves. The roller was fashioned from polyester wadding wrapped around a wooden dowel, and covered in calico. Although the gut was quite rigid, an additional internal support was made for the body using a full calico cotton inner lining, padded with polyester wadding and given structural support with Plastazote® strips incorporated into the seams of the calico. It was found that the hood fully supported itself. The parka was then mounted with the wooden dowel protruding slightly from each sleeve.

Figure :7 This diagram illustrates the materials and design of the mount made for the parka

Finished case

The new layout in the case allows for the most vulnerable items to be easily removable, the gut garments do not need to be disturbed in order to remove any other items in the case. The Conservation department was asked to write an information panel communicating to the public the work carried out by the Conservation team. This panel (figure 8) is the first of its type in the museum, although we have since been asked to write additional panels for others display cases as conservation projects are carried out.

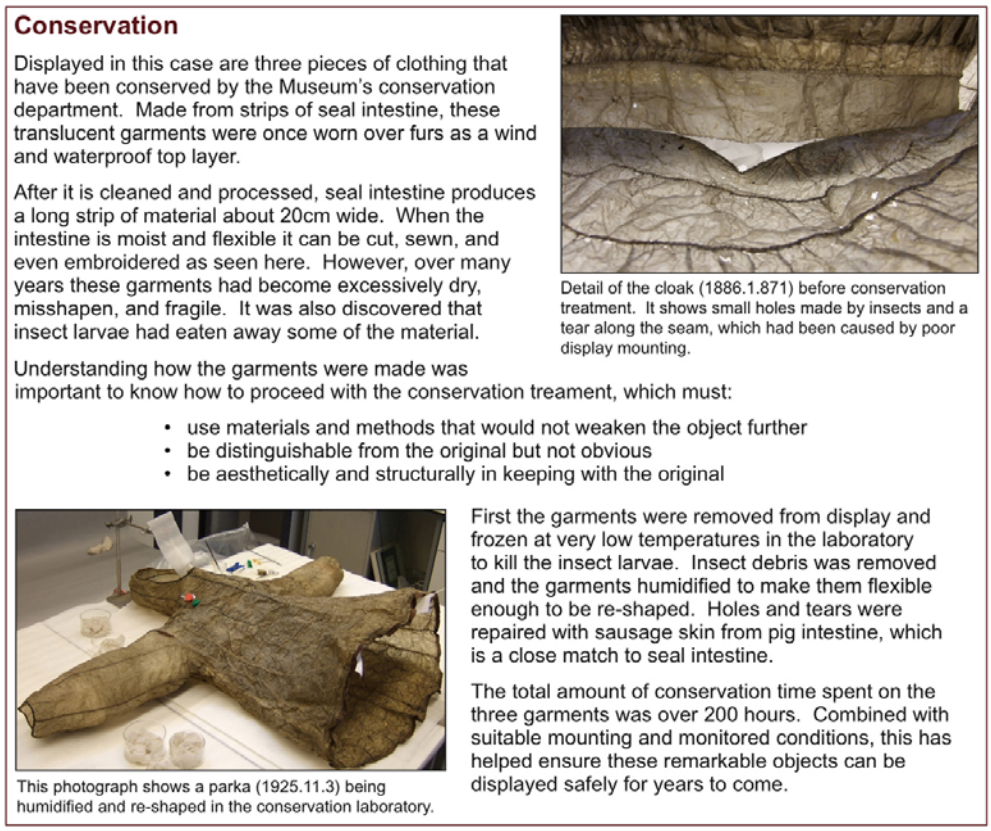

Figure 8: Conservation information panel now on display alongside the gut garments in the Arctic case

Conclusion

Although literature indicated a number of materials and methods used more commonly in the treatment and repair of gut garments, after testing, it was surprising how differently the two garments reacted to these treatments. It is also noted that during this project it became clear that although the garments appear brittle and fragile to touch as Matz (2007) stated, 'don't be "afraid" of this material; it is tougher than it appears. The crinkly, translucent and light qualities disguise a quite durable membrane'.

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Abstract
This paper describes the conservation treatment of two sea mammal gut garments in the collection of the Pitt Rivers Museum. The garments are, a cloak with cape neck from the Aleutian Islands and a waist length coat originating from Baffin Island.
The two items had been on display together for a long period using outdated and unsympathetic mounting methods. Due to repeated pest infestation the items were removed from display. As a result of mounting methods used the garments were misshapen, had numerous tears and holes to the gut and showed evidence of various inappropriate past conservation treatments as well as pest damage.

An opportunity arose during the temporary closure of the museum in 2008 to conserve these garments, the initial intention being to devise a combined treatment plan. However, further investigation revealed distinct variations in the physical characteristics of the two garments, requiring an independent treatment approach to each object. This paper will document the cleaning, repair methods, re-shaping and mounting of the garments, along with the ethical and practical considerations that arose whilst undertaking this project.

Biographies
Kate Jackson
Kate graduated from studies in photography and fine art; she then went on to study a BSc in Archaeological Conservation at Cardiff University. During her studies she wrote on the care and conservation of ethnographic collections in British museums. Since graduating in 2007 she has worked on the collections exhibited in the Egyptian galleries at Bristol Museum and now works as Conservator at the Pitt Rivers Museum, Oxford. Kate also sits on Icon's Ethnography Group committee as secretary.

Andrew Hughes
Andrew graduated from the Lincoln University postgraduate Conservation Program in 2007 having previously worked for some years in the pharmaceutical industry. After gaining an MA in the Conservation of Historic objects, he enrolled onto the HLF funded ICON internship program spending 11 months at the Pitt Rivers Museum Oxford, specializing in ethnographic conservation and collections care. Andrew is now working as an objects conservator at the Royal Albert Memorial Museum in Exeter.

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Materials and suppliers

Calico, Polyester wadding

Whaleys (Bradford) Ltd – or WBL
Harris Court
Great Horton
Bradford
West Yorkshire
BD74EQ
Tel: 01274 576718
E-mail: www.whaleys-bradford.ltd.uk

Blotting paper, Melinex, Smoke sponge, Spider tissue, SympaTex, Wheat starch paste, Goldbeaters Skin

Preservation Equipment Limited
Vinces Road
Diss
Norfolk
IP22 4HQ
Tel: 01379 647400
E-mail: www.preservationequipment.com

Plastazote

Polyformes Ltd.
Cherry Court Way
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Tel: 01525 852444
E-mail: www.polyformes.co.uk

Japanese Tissue

Conservation By Design
Timecare Works
5 Singer Way
Woburn Road Industrial Estate
Kempston
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Tel: 01234 846300
E-mail: info@conservation-by-design.co.uk

Klucel G, Paraloid

Conservation Resources
Unit 2, Ashville Way
Off Watlington Road
Cowley
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OX4 6TU
Tel: 01865 747755
E-mail: ConservArts@aol.com

Cow, lamb and pig intestine

M Feller Son and daughter
Organic Butchers
54-55 The Oxford Covered Market
Oxford
OX1 3DY
Tel: 01865 251164
E-mail: mfeller.co.uk

Sodium Alginate

VWR International Limited
Hunter Boulevard
Magna Park
Lutterworth
Leicestershire
LE17 4XN
England
Tel: 0800 223344
E-mail: services@uk.vwr.com

Rigilene

Local haberdashery

Arrowroot

Available from any Supermarket