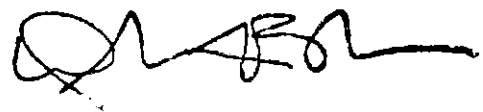
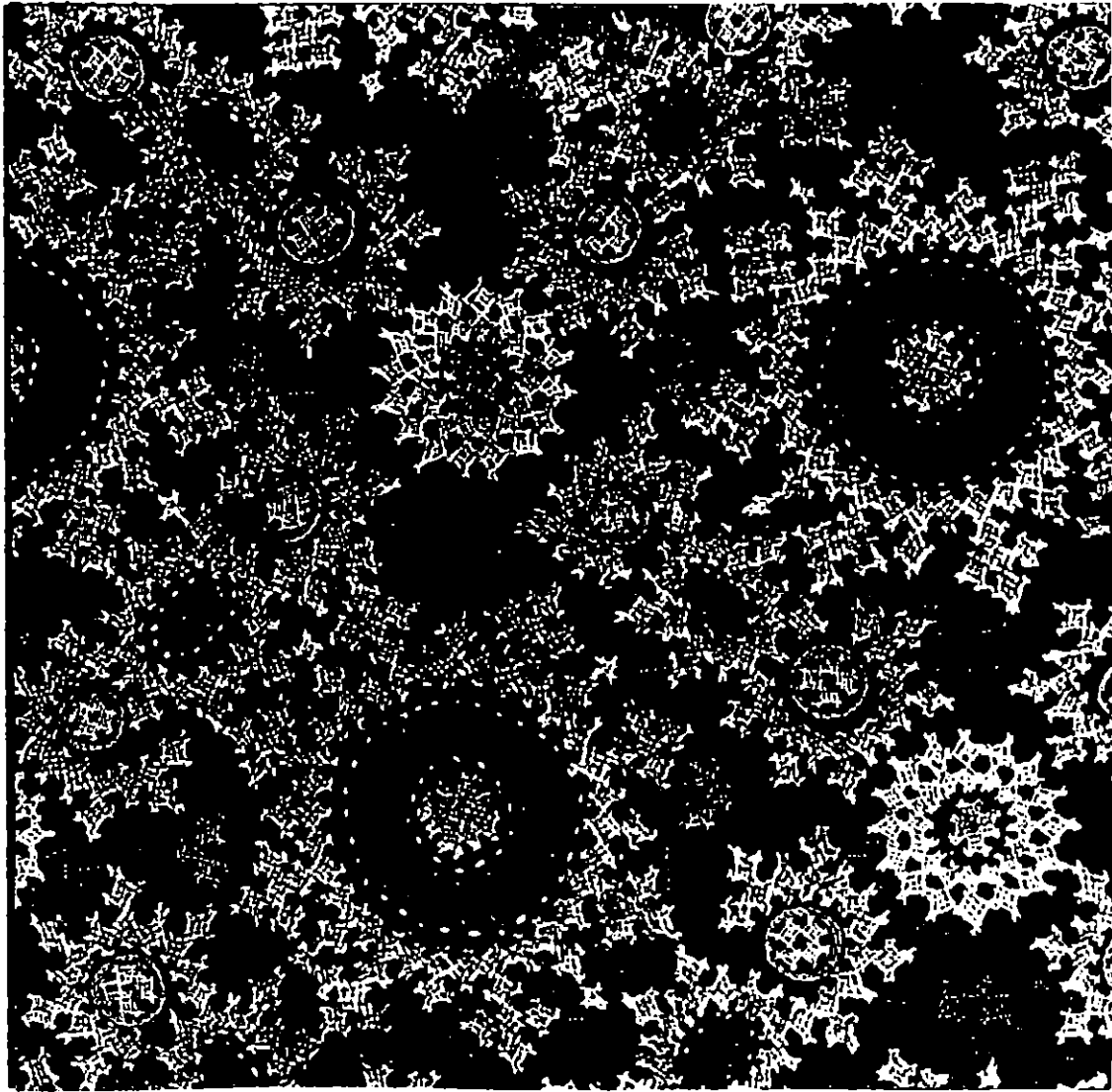


**TCN**



**TEXTILE  
CONSERVATION  
NEWSLETTER**



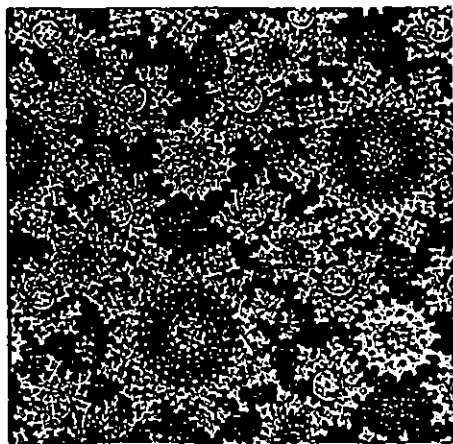
*Number 20*

*SPRING 1991*

Recycled Paper



**TCN**  
**TEXTILE**  
**CONSERVATION**  
**NEWSLETTER**



Number 20

SPRING 1991

## **F**rom the Editors

TCN 20, Spring 91 comes to you with the Spring Supplementary and the Index 89-90. It includes an interesting history of deodorants and antiperspirants and their effects on clothing, archaeological textile finds in Labrador, treatments of two dresses, an overview of the conservation project of the First Ladies' gowns, as well as display supports and storage for oversized textiles.

The Index 89-90 covers Issues 16-19, Spring 89 - Fall 90, and is attached to the end of the issue. The Spring Supplementary is "The Effect of Substrate Variation on Colorimetry Readings" by Leslie K. Redman of the Canadian Museum of Civilization.

This research was carried out as part of the requirements for the Masters in Conservation Program at Queen's University in Kingston, Ontario.

Some subscribers have expressed their concern that they are missing issues when, in fact, the issue in question may not have gone to print yet. There are always things that are beyond our control that delay publication. However, delays are being caused by reasons that, hopefully, we can manage. The submission deadlines have been moved up to give extra preparation time for word processing and printing. Please send your submissions for the fall issue in September 1 and for the spring February 1. We hope that this will help us get TCN out on time. Another factor that delays printing is lack of articles. Unfortunately, we cannot publish an issue if we do not have enough articles to make it worthwhile.



"Mum" is the word for men too.  
 Men know that being well-dressed means more than just well-dressed. They are just as alive to the importance of using "Mum" to prevent the unpleasant odor of perspiration as women are.

**Two Other Essentials:** You must try "Amoury" Toilet. Oh, no, not just another Toilet—"Amoury" is really a Powder Perfume. The subtle, exotic fragrance of "Amoury" lasts all day and evening. 25¢ everywhere or sent postpaid. And to remove unseasoned, unfashionable hair from the underarms, neck, face and limbs—Evana's Depilatory is the safe, quick, dairy way. Complete outfit—enough to last for months. 75¢ at stores. Or from us postpaid.

Mum Mfg. Co., 1193 Chestnut St., Philadelphia



Vogue July 15, 1925

## DEODORANTS AND ANTIPERSPIRANTS

### A LITTLE HISTORY

Being a textile conservator sometimes gives rise to peculiar musing - like what exactly is the relationship between perspiration/deodorants/antiperspirants and fabric? How long have these products been around? What were/are they made of? Can I expect to find little mounds of fibre on the floor of a storage cabinet one day and great gaping holes where garment underarms used to be?

Although working with a collection that includes a great number of post 1900 garments predisposes me to these musings I feel that this is an area of concern for all textile conservators and my purpose in writing this paper is to share the information I have gathered and generate interest in the subject.

After searching conservation literature without results I wrote to thirteen major cosmetic/toiletry companies begging for information on the history of deodorants/antiperspirants. Two companies, Alberto Culver and Chesebrough-Ponds (Canada) Inc., responded. Both companies sent xerox copies of information and references for further information. The Johnson & Johnson Company also responded, by telephone, to say they were unable to help. Historical information about these products is contained within cosmetic/toiletry, pharmaceutical and medical literature and the International Fabricare Institute in Maryland has done extensive research on the effects of modern products on fabric.

Man's first attempts to control and/or mask body odour probably took the form of bathing in a convenient stream or lake. We know that both the ancient Greeks and Romans indulged in frequent baths. Perfumed oils and other odoriferous materials were probably the first "products" used to favourably alter body odour.

The generally accepted idea that body odour is undesirable is interesting in itself.

The migration of people to metropolitan areas, the population explosion, and the influence of advertising have all helped increase the desire to change normal body odour into something which is more accepted by our society. It should be remembered though, that the odour of a freshly washed, healthy body is not unpleasant; it is the favourable or unfavourable associations with this condition which have influenced the public's attitude.

As personal hygiene developed to its present degree of sophistication, specialized products to control odour, particularly in the axillary or underarm areas, were developed. Deodorant products have been on the U.S. market for a relatively long time, MUM was introduced in 1888. The first nationally advertised product was Odo-Ro-No which began magazine advertising in 1914. This early advertising stressed keeping dresses "clean and dainty". In 1919, Odo-Ro-No introduced the concept that body odour was "offensive, shocking" in their advertising. Pursuit of this trend is at least partly responsible for current attitudes.

The human skin is provided with two types of sweat glands, eccrine and apocrine. The eccrine glands are distributed over the entire body surface. Their primary function is to secrete water for evaporative cooling of the body. The stimulus to secrete is thermal which originates environmentally or from an internal stress such as fever. The eccrine gland secretions are primarily distilled

water and a small amount of sodium chloride, and probably contribute little to body odour per se.

The apocrine sweat glands are not nearly as widely distributed on the body surface but because of the nature of their secretions are much more involved in the development of body odour. The apocrine gland locations roughly parallel those of hair distribution on the body, the greater number being located in the axillae, pubic, mammary and anal regions. These glands are larger than eccrine glands and empty into the upper portion of the hair follicle right below the surface of the skin. Although present at birth, the apocrine glands do not become functional until puberty and decline in activity with old age.

Analysis of apocrine sweat reveals that it contains protein, reducing sugars, ferric ions and ammonia. At the time of secretion apocrine sweat is odourless and sterile. After contact with bacteria on the skin and in the air, it decomposes and develops the characteristic odour which is held to be offensive.

The apocrine glands are stimulated via the adrenergic autonomic fibres. The gland secretes at a slow rate, apparently without nervous stimulation. During periods of stress or emotional excitement however, the gland will empty its preformed secretion on the skin via the hair shaft.

Fresh perspiration is acidic (pH 4.5), but changes to alkaline (7.0+), upon contact

with bacteria. Differences in pH can occur due to personal variations in diet and physical and psychological conditions. These factors also affect the odour of perspiration.

Upon aeration perspiration precipitates on fabric as a white residue forming white salt rings. The accumulation of these salts stiffens fabric resulting in rigid fibres which can break during flexing of the fabric. Perspiration, being water-based, can affect all water-soluble dyes, sizings and finishes.

In order to control perspiration it is necessary either to check the flow or to eliminate its odour, or both. Antiperspirants are products which use astringent salts (aluminum, zirconium or zinc salts) to reduce the flow of perspiration as well as to reduce the bacterial flora of the skin. They swell and coagulate protein in the skin, thus reducing the pores through which perspiration is discharged. Because they alter a body function, the active ingredients are considered drugs in both the United States and Canada.

Many ingredients were used in the early products before the usefulness of aluminum salts was discovered. It is believed that the first products were essentially zinc oxide ointments. Later products included alum, boric acid, salicylic acid, tannic acid, zinc sulfate, and even 1% solutions of formaldehyde. The original aluminum chloride preparations contained ferric chloride and free hydrochloric acid as contaminants. These

products were very acidic and could rot fabric.

In the 1940's a "new" generation of antiperspirant actives were developed which are still used today. It was found that a less acidic complex salt of aluminum - aluminum chlorohydroxide - could be substituted for aluminum chloride. These ingredients are less acidic with a parallel level of diminished fabric degradation. Antiperspirants usually have a low pH (below 4.0). Deodorant products contain antibacterial agents. The use of sodium bicarbonate (baking soda) as deodorant has been known for generations. Sodium bicarbonate is an acid salt which can act chemically as either a mild alkali or a mild acid. Underarm odours are largely caused by volatile acidic compounds which are absorbed by baking soda and form odourless salts. Before World War II cresols were the most popular bacteriostatics. However, their objectionable odour limited their application. Antibacterial agents reported in the literature include quaternary ammonium compounds such as benzethoniumchloride (di-isobutyl phenoxyethoxy-ethyl dimethylbenzyl ammonium chloride monohydrate), cationic compounds such as chlorohexidine acetate, hexane acetate and triclosan. Deodorants usually have a neutral pH. They are classified as cosmetics in both Canada and the United States.

There are several types of damage to fabric that result from the use of

deodorants and/or antiperspirants. The more acidic a product is the greater the degree of hydrocellulose damage resulting in strength loss on cellulose based fabrics. Damage is also caused by an overuse of a product and /or improper removal in the cleaning process. This leads to the formation of a stiff cake of residue which may be impossible to remove completely.

Staining/discoloration occurs when the fabric contains perspiration residue combined with deodorant/antiperspirant buildup. As these chemicals remain on the fabric they begin to turn yellow or brown in colour, noticeable on white and beige garments. On darker coloured fabrics it appears as a white, chalky buildup or residue. This discoloration tends to "wick out" on the underarm area each time the garment is cleaned or worn. Discolorations will occur on almost any type of fabric. The heat of cleaning accelerates the staining and causes it to become set. Colored fabrics can show a variety of colour changes depending on the type of dye used and/or the pH of the perspiration or the product. Although it is possible to remove relatively fresh residues, older stains may be permanent.

According to the sources I consulted, active deterioration due to antiperspirants/deodorants is short term as these products are themselves decomposed by moisture or evaporate as a part of their functionality. If the garment has been cleaned, the acid residue from antiperspirants will have been removed and should not present a problem. In answer to my original

question, I probably will not find little mounds of fibre on storage cabinet floors. The full extent of damage will have occurred early in the life of the garment.

To remove or correct staining the International Fabricare Institute recommends two steps: the first, to remove deodorant/antiperspirant residues and the second to remove perspiration staining. The first step includes flushing with steam and rewashing or drycleaning as appropriate, the second includes various local treatments including 3% hydrogen peroxide for protein fibres, chlorine for cellulose fibres and rewashing in hot, high alkaline baths. They also emphasize that successful treatment is directly related to the freshness of the staining. Drycleaners' spot removal primers contain various other removal methods.

As of this writing the only experimentation I have conducted has been to treat contemporary white garments (two silk and two polyester women's blouses) with a 3% hydrogen peroxide formula. Some lightening was noticeable after one treatment and the experiment was repeated with further noticeable lightening. The treatment was more effective on the polyester garments.

I can not in good faith recommend any particular treatment over another as all treatments are aggressive and may be inappropriate on historical garments. A decision to treat, and the extent of

treatment is dependant on the composition, age, and condition of a garment and further complicated by curatorial and conservation desires and ethics. We must consider each garment on its individual merits and continue to examine this problematic area which is as old as garments are themselves.

Helen Holt  
Textile Conservator  
Canadian War Museum  
Ottawa, Ontario

---

## **T**EXTILES, FIBERS, AND MATS RECOVERED FROM THE SAN JUAN

A small assemblage of textiles, fibers and mats was recovered during the excavation of a 16th-century Basque galleon in Red Bay, Labrador, presumed to be the wreck of the San Juan, which sank in 1565. The San Juan material consists primarily of minute fragments of both proteinaceous and cellulosic textiles. None of the textiles show any diagnostic features (seams, stitching, cut edges, etc.) to suggest wearing apparel and few can be positively associated with an original function. Furthermore, the wool textiles are so degraded that it is impossible to compare them with the wool garments recovered during the excavations of the 16th-century land burials from the at Red Bay (1).

Perhaps most noteworthy of the assemblage of woven material recovered during the underwater excavation are the plaited-grass fragments. That this material survived at all is remarkable since cellulosic material quickly deteriorates in damp environments. The anoxic site conditions obviously retarded the fungal and bacterial decomposition that generally attacks vegetable matter.

The mats are degraded and fragmented. Only the stems were used in these textiles, hence there are no seeds, flowers or other anatomical features present to permit positive identification of the grass-species. While the grasses are likely straw and reed, it is impossible to determine if this woven material was brought from Europe or made in Red Bay from local material. Either situation may have occurred since grass weaving is an ancient and universal craft. The debris associated with the mats contains wood chips, twigs, roots, balsam fir needles, sphagnum moss, charcoal fragments, and empty insect shells, all probably of local origin (2).

The largest of the woven mat fragments is approximately 56 centimeters wide and 34-36 centimeters long (figure 1.). This mat consisted of individual strips of plaited straw sewn together, edge to edge, with bast fiber thread (probably hemp) to create a larger structure. The strips are 12 to 56 centimeter tubes, double plaited with a 2/2 twill. Double-plaited material compromises two surfaces - one on top of the other and independent of one another except at the edges. This section of mat was found under a ship's timber, positively



associating it within the Basque context.

The other section of grass mat excavated is different in its construction and material. This specimen appears to be split reeds in bundles of 5-12 elements. The reed bundles were plaited with a basic 2/2 twill to create a rigid, single-layered structure. Like the straw mat, many of the elements are broken or abraded so there is no way of determining a beginning or end.

The two different materials, reed and straw, and two different methods of construction suggest the mats were used for possibly non-related purposes. One plausible use of the double-woven straw mat would be for sleeping. Double-woven mats would provide extra insulation on cold and damp floors or decks. While these straw mats might require more material and skill to make, they would certainly be more comfortable to rest upon than the simple twill reed mats given the extra layer that created a spongy surface.

The sleeping arrangements aboard ships sailing to New England in the first quarter of the 17th-century included narrow bunks, hammocks, pallets of straw, and mattresses of scotch ticking filled with wool placed on mats (3). Mats "to lye under 50 beds aboard shippe" are included in the manifest of stores sent to Massachusetts with Governor Endicott in 1628 (4). Furthermore, documentary evidence reveals that the regular sleeping quarters for the seamen and whaling crews at Red Bay was aboard ship, so it

should not be surprising to find remnants of sleeping mats during the excavation of this vessel (5).

But what of the flat, twill-woven reed matting? At least one known use of this twill-woven material was for insoles to insulate some of the 16th-century leather shoes worn at Red Bay since fragments of similar plaited material was found inserted in two of the 16th-century shoes excavated (6). This is probably a secondary use of the mat material, for the sections recovered are large and show no evidence of having been cut into insoles.

Rush (and straw) mats were economical floor cloths that provided insulation from the heat, cold, and damp. As with the double-plaited straw material discussed above, these modest mats may also have been used to raise sleeping pallets and mattresses off the floor. Perhaps large woven sections of mat served as screens to define areas or rooms. Also, this matting may have been attached to the inside of the ship's hull to protect stowed cargo.

The San Juan mats are a type of woven textile not frequently found in the archaeological record. Generally quick to perish, these artifacts attest the remarkable ability for cellulosic material to survive in certain aquatic environments. Despite the fact that the actual use of the mats may elude us, they are nonetheless important. They are evocative of life aboard ship and the multiple role that woven textiles played in the daily routine of a 16th-century whaling station.

## ENDNOTES

1. Elise Dubuc, "Costumes des gens de mer du XVI<sup>e</sup> siècle trouvé dans l'estuaire du Saint-Laurent: un bon exemple de hardes de marins au temps de la découverte du Nouveau Monde," in *Canadian Folklore Canadien*, vol. 10, 1-2, 1988, pp. 129-54.

2. Christopher Sergeant, "Identification of organic debris associated with straw mat artifact # 24MBQ8-1/82-2990," dossier on file, Conservation Division, Parks Service, Environment Canada, Ottawa, January 13, 1989

3. George Francis Dow, Every Day Life in the Massachusetts Bay Colony, Boston, The Society for the Preservation of New England Antiquities, 1935, pp. 6, 7, 8.

4. George Francis Dow, *op. cit.*, p. 6.

5. Michael Barkham, "Aspects of life aboard Spanish Basque ships during the 16th-century, with special reference to Terranova whaling voyages," Parks Canada Microfiche Report Series #75, Ottawa, 1981, p. 21.

6. Stephen Davis, "16th-Century Footwear from Red Bay," manuscript on file, Archaeology Division, Parks Service, Environment Canada, Ottawa, December 1989.

Stephen Davis  
Archaeology Division  
Canadian Parks Service  
Ottawa, Ontario

## FIGURES

1. a) Straw mat before conservation; the three strips of material placed side by side. b) weave pattern.

2. Fragment of reed mat.

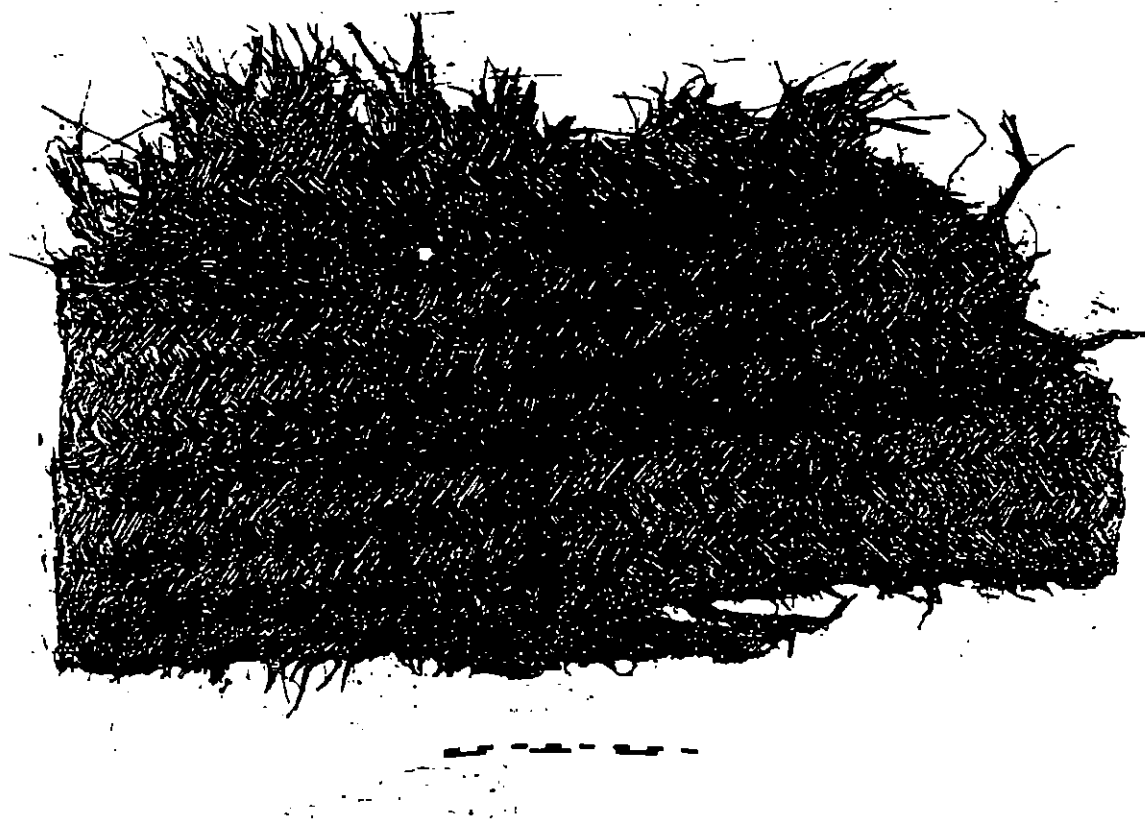


Figure 1a

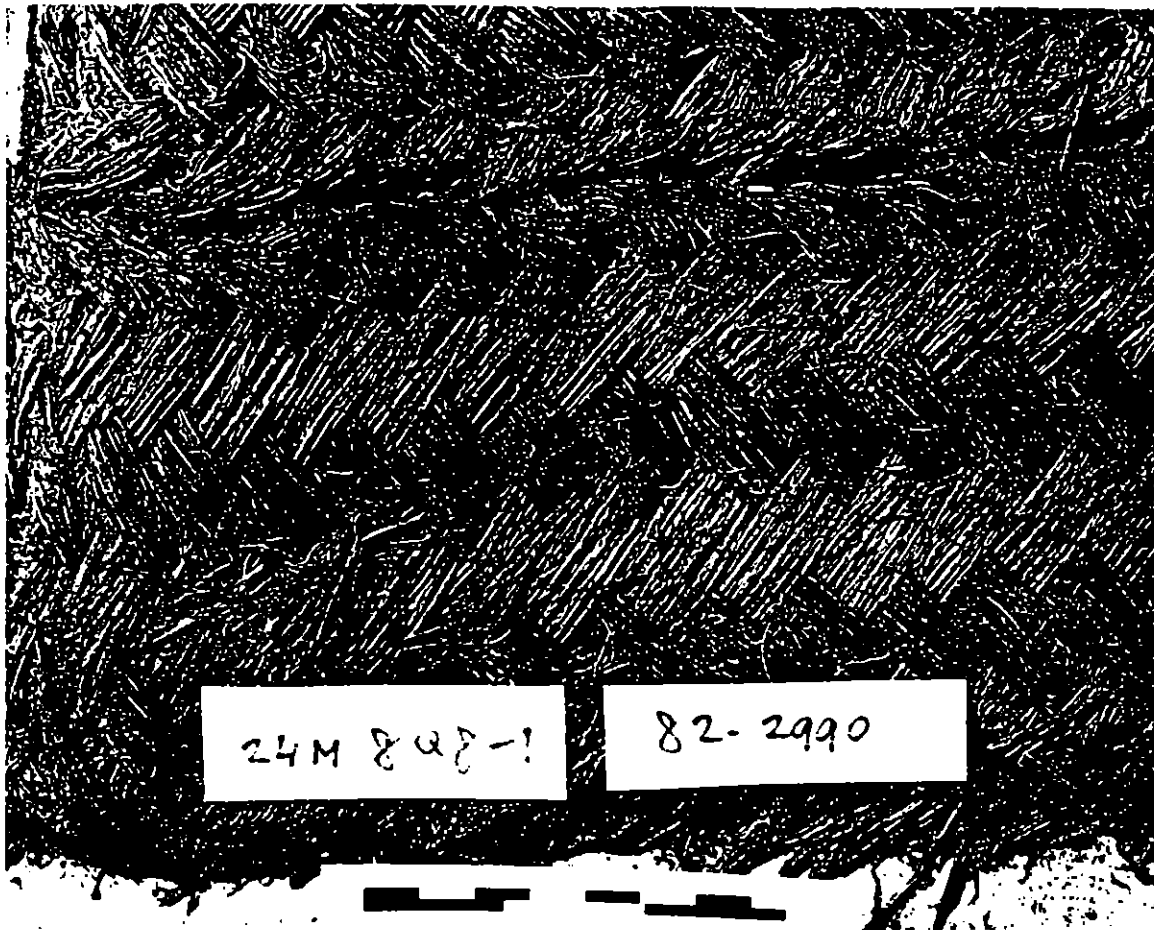


Figure 1b

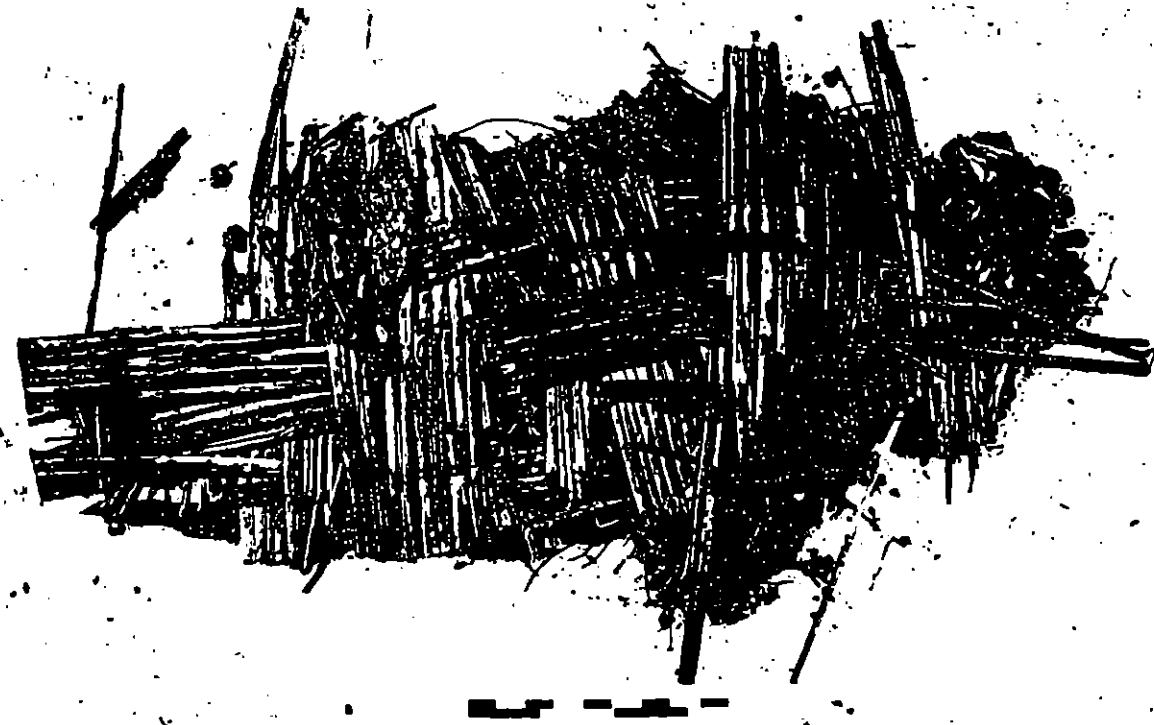


Figure 2

## THE CONSERVATION OF A BEADED DRESS

A beaded silk dress from the MacBride Museum, Whitehorse, Yukon is currently undergoing treatment at the Canadian Conservation Institute. The dress dates from around 1912 and was reputed to have been made in Paris. The owner of the dress, Martha Louise Black, was an adventurous American who left behind a comfortable life in Chicago, Illinois to venture to the Yukon. In 1898 she made her first trip to the Canadian north crossing the treacherous Chilkoot Pass to manage a sawmill in Dawson City. It was there that she met and married George Black, a Yukon lawyer. Mr. Black served as the Commissioner of the Yukon before becoming a member of the Canadian Parliament and later the Speaker of the House of Commons. Martha Louise Black, herself, ran for Parliament in 1935 and became Canada's second female member of Parliament at the age of 70. During her husband's years as Commissioner of the Yukon the Blacks received many guests at Government House. It was at one of their many functions that Martha Black wore the wonderful, beaded, silk dress now being conserved at the CCI.

The ivory coloured dress is made of a lightweight silk and is ornamented with silver coloured beads and ivory embroidery. The bodice, with elbow length sleeves cut in one with the bodice, overlaps at the centre front and centre back creating a V-shape. A triangular

shaped inset completes the neck area. The bodice is lined with silk satin. The dress has a raised waistline with a loosely gathered skirt and a diagonally cut hemline. The skirt is unlined. A self-fabric sash is attached at the waist. The dress has a centre back closing.

The dress is heavily beaded and embroidered on the bodice front and back and skirt edge. The diagonally shaped hem is finished with a fringe of beads. Beads and metal wire decorate the triangular-shaped insets of the bodice. There are four different types of beads, the majority being made of glass with a silver foil on the inside. Ivory coloured silk embroidery decorates the dress. The beadwork on the dress was most likely done by machine using a Cornely sewing machine which was most popular, at this time, for attaching beads. The beads would have been pre-strung and attached to the silk fabric prior to being made into a dress. The pattern of the beadwork would have been traced onto the fabric and followed using the Cornely machine. Faint green pattern lines can be seen in some areas of the dress where the line of the beads fall. The silk embroidery was also most likely done by machine using a zig zag stitch.

Martha Black's dress was in fair condition when it was received at CCI. The silk fabric was fragile due to the weight of the beaded and embroidered surface ornamentation. Overall, the dress had a dull gray appearance. Numerous stains were found throughout the dress; the

most prominent stains being found in the underarm areas of the bodice. A number of holes and tears were also found in the dress. The bodice lining had several deteriorated areas in the underarm areas. There were many beads loose throughout the dress, some were missing. The majority of the beads are badly discoloured. The decorative embroidery was pulled and discoloured in a number of places. Previous repairs had been done on the dress.

Treatment on Martha Black's dress began with mechanical surface cleaning. The costume was vacuumed, front and back, using a screen and a low level of suction; great care was taken in the area of the beads where a mini-vac was used. Tests were then carried out on the beads to see if they would be safe to wet clean. The various beads were tested in water and water with a 0.5% solution of the anionic detergent, Can Pac 65. There was found to be no change in the beads in terms of their size or colour. It was determined that the beads were stable and that the dress could be wet cleaned. The metal wire on the bodice insets was also tested and found to be stable for wet cleaning. The dress was then prepared for wet cleaning. The long bugle beads were loose throughout the dress. They were secured following the original line of the stitching. The silk embroidery floss was secured for wet cleaning with temporary couching stitches.

After many hours of securing beads and embroidery floss the dress was ready to

be wet cleaned. After much consideration it was decided, due to its weight, to clean the dress supported on a screen and folded. This approach proved to be most successful as it did not put undue stress on the costume. After the final rinse the dress was transferred to a table where it was slowly and carefully unfolded and allowed to dry flat.

Treatment of the satin bodice lining followed the wet cleaning process. There were a number of holes and tears in both front underarm areas. A lightweight, ivory coloured silk, overlaid with a matching silk organza was used to back the deteriorated areas. The combination of the two fabrics was found to be ideal in terms of colour and weight. The backing patches were inserted through the deteriorated areas, as there was no access from the inside, and aligned and secured using couching stitches.

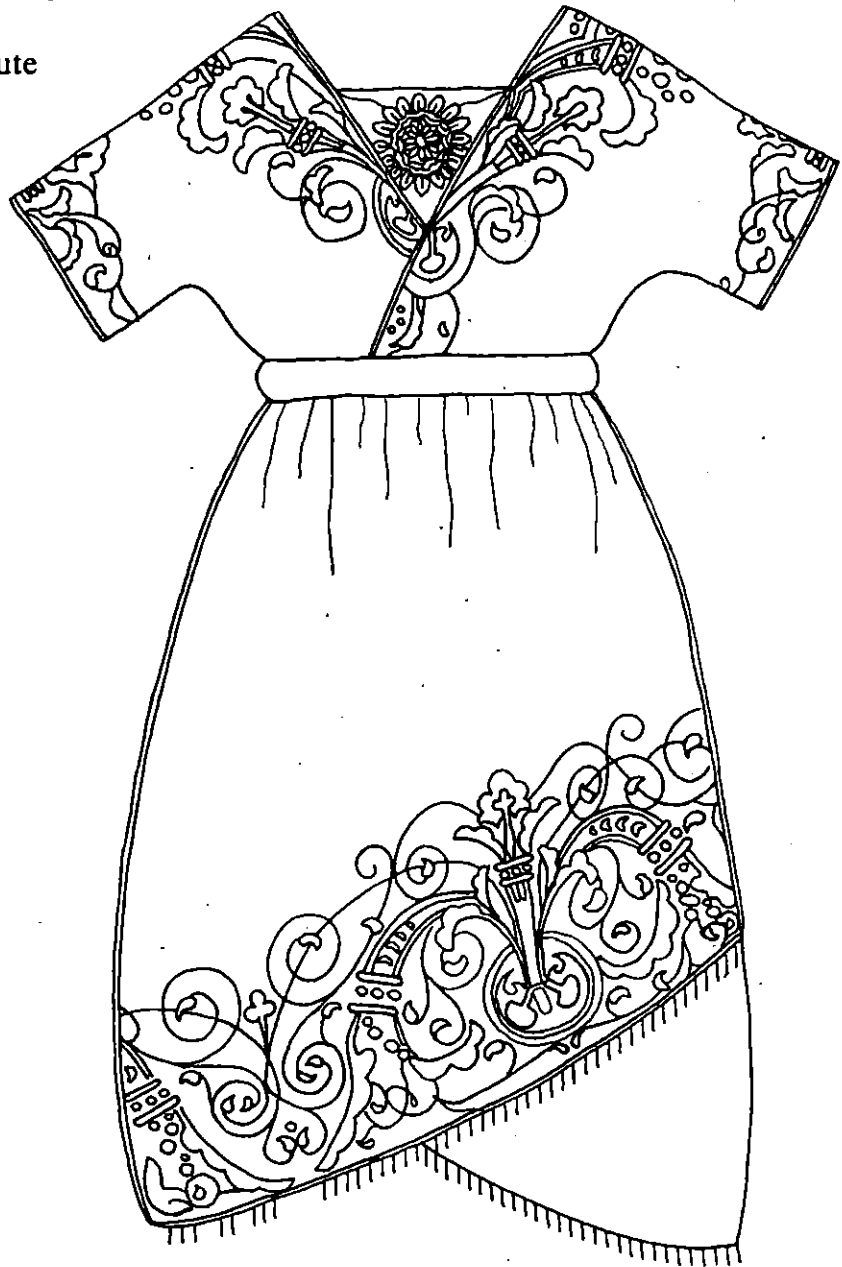
Conservation continues on Martha Black's dress. Once the treatment on the bodice is complete the skirt is to be lined with stabiltex and secured following the line of the beads. The silk embroidery floss will then be straightened and secured where necessary. Finally, a lining will be made for the skirt. The conservation of Martha Louise Black's beaded dress has proven to be an interesting project. A distinct feature of the treatment has been learning how to deal with beads. When planning the treatment of a beaded artefact it is important to consider the amount of time that is required to secure such ornamentation.

---

**Bibliography**

Black, Martha Louise. Martha Black.  
Edmonds, Washington: Alaska  
Northwest Publishing Co., 1980.

Janet L. Wagner  
Conservation Fellowship Programme,  
Textile Laboratory  
Canadian Conservation Institute



# OVERVIEW OF THE CONSERVATION PROJECT FOR THE FIRST LADIES COLLECTION

The First Ladies Hall at the National Museum of American History at the Smithsonian Institution was closed in the Fall of 1987. The museum had decided to reassess its use of the collection and to support an extensive conservation effort for the gowns. The exhibition had opened in 1914 and some of the gowns had been on exhibit for the entire 73 years.

A costume conservator, Polly Willman, was hired in July 1988 and has supervised the conservation project of the First Ladies Collection. Because many gowns would be worked on simultaneously -- not just one gown from start to finish -- the following outline was developed to manage the flow of information:

## I. USER HISTORY

- A. First Lady
- B. Other Owners and Donor (if different from First Lady)
- C. Production Information
  - 1. General Information
  - 2. Fabric designer / manufacturer
  - 3. Garment Designer / Manufacturer
- D. Contemporary Photographs of First Lady

## II. S.I. HISTORY (pre-1987)

- A. Catalog Description/Accession

Records

- B. Display History
- C. Conservation Treatments / Analytical Reports
- D. Other

## III. S.I. HISTORY (1987 On) - RESEARCH/OBSERVATIONS

- A. Spring 1987 Conservation Survey by Hutchins, Kolata, & Willman
- B. Fall 1987 Survey of "Back-Up Collection" by Willman
- C. Observations When Undressing Mannequins
- D. Condition Report
- E. Fabric Identification (fibers, weave, dyes, finishes, non-textile components)
- F. Garment Construction/Alterations
- G. Other

## IV. S.I. HISTORY (1987 on) -- HANDS- ON TREATMENT

- A. Undressing/Rehousing
- B. Cleaning
- C. Stabilization
- D. Redressing/Display
- E. Storage
- F. Recommendations for Future Treatments

## V. APPENDICES

- A. Genealogy
- B. Bibliography

This outline was also the basis for data entry on the lab computer -- each item in the outline corresponds to a document name; each first lady corresponds to a

file name; each gown corresponds to a sub-file name. For example, "document name: III-E and path name: \wp\sackson\67902" is the record for the fiber analysis for the Sarah Yorke Jackson wedding dress, accession number 67902. This has enabled us to easily "file" information as it comes in (usually in bits and pieces) as well as retrieve any item to analyze and answer questions.

The First Ladies Collection is curated by the Division of Political History. The emphasis of their research has been on the persona, not the object. It was, therefore, necessary for this conservation project, to first establish a complete history about the object before conservation treatments could be conducted. Parts I and II in the outline attempt to complete this history of each gown. Our research the curators, knowledge about the gown and can help clarify questions about provenance. We viewed the gown as our primary source; "paper sources" are treated as secondary sources. Often we found conflicts in attributions and had to resolve the differences. Family attributions were most suspect, especially when many years had elapsed between the first lady's time and the date of the donation.

Part III on the outline establishes the complete PHYSICAL identity of the gown, based on observations and analysis of both the individual elements AND the gown as a whole. Because the collection was exhibited for 73 years and had become so closely associated with the Museum's identity, documenting the

manner in which the gowns were dressed was a special category for our project (see III-C). We documented the dressing as a record of the history of display in the museum. We also recorded the materials the mannequins were made of, the presence/absence of underpinnings, and the correctness/incorrectness of fit for later evaluation in correlation with any damages we observed.

Part IV records the hands-on treatments - - treatments we undertake ONLY after we feel we know the object's identity and understand its needs well enough to choose the appropriate conservation treatment. Because this is a collection of association, not of fashion history, maintaining all evidence of the association is critical. This is especially true when assessing the reversibility of alterations. We need not only to determine if the alteration is reversible, but IF the alteration has a first lady association, in which case the alteration would be left intact.

In the appendices, Part V, recording the genealogy helps us assess the validity of information based on the relationships as well as track the ownership of the gown through the family. The bibliography keeps track of which sources have been searched and of what value each source was.

In addition to this outline, we developed several forms so the information COMMON to each gown could be recorded in a systematic and uniform manner. These forms include a photo



log, a fiber analysis form, a stitching thread analysis form, a garment construction form and a condition report form. The condition report form organizes the observations first by whether it refers to the bodice or the skirt; second, by whether it is the inside or the outside of the garment; third by category of damage -- (1) damage to the fabric (tears, holes, abrasions, etc.), (2) damage to the garment (broken stitching, missing trims, etc.) and (3) aesthetic damage (stains, discolorations, etc.). The nature of the damage is recorded in one column and the location (vertical and horizontal placement) is recorded in an adjacent column. The types of damages were separated into these three categories because they tend to correlate with a category of treatment (stabilization vs cleaning). This organization in the condition report helps us better identify the overall needs of the object and select the appropriate treatment(s).

The project is nearly three years along now and it has been a real team effort. There is a full-time conservator and a full-time technician assigned to the project, as well as several interns. Our colleagues at the Conservation Analytical Lab have also contributed their expertise. In particular, Mary Becker, a doctoral candidate in the Material Science and Conservation Program at John Hopkins University, has used the First Ladies Collection as the sample base for her research on silk degradation. She has provided us with Scanning Electron Microscope photographs and X-ray Diffraction analysis from silk fabric

samples we took from raw edges in the seam allowances, wherever available.

The new First Ladies hall will open in April 1992. The exhibition will focus on the role of the first lady and how each individual choose to perform in that role, using many objects other than costumes. The gowns will be shown in a separate gown gallery -- purely as costume objects, not as personages. The labels will focus on any special features of the gown itself - the fabric, its designer/dressmaker, and/or the occasion at which it was worn. Only a selection of gowns will be shown -- not a complete set for every first lady. This will enable us to control exhibition exposure and rotate the gowns when needed. Also, several costumes that have never been displayed before will be on exhibit. Thus, the conservation project has undertaken not only to treat existing damage, but to institute preventive measures to insure the continued, but protected use of the collection in the museum.

Polly Willman  
Costume Conservator  
National Museum of American History  
Smithsonian Institution  
Washington, D.C.  
20560

Editors' Note:

Polly Willman has designed five forms that record information on photography, fibre analysis, stitching identification, garment construction and condition report for the above project. For more information contact Polly Willman.

## BLEACHING A WHITE SILK EMBROIDERED COTTON DRESS

A long white cotton dress, c. 1900 was brought to the conservation lab at the Provincial Museum of Alberta to be prepared for exhibit. The fabric consisted of fine cotton singles yarn in a plain weave with a count of 63x65(128). The silk machine-made embroidery was most extensive on the bodice and attached peplum, with a deep band of embroidery around the skirt starting several centimeters above the hem. The silk yarns were two ply.

The fabric of the dress, did not appear to be degraded. There were several small holes scattered throughout the garment, but some of these were clearly the result of insect damage, as cocoon remnants still adhered to several of them. The type of insect responsible was not determined.

The dress was only slightly soiled, with most of the dirt being concentrated on the hem edge. Stains were scattered over the entire garment. With the exception of one darker brown stain on the skirt back, they were patches of mottled light yellow or pink. Possibly, these stains had transferred from another textile or object as the staining was more prominent on the surface of gathers rather than in the folds. The nature of the stains was not determined, but they did not fluoresce under UV light.

It was decided to wash the dress in order to both clean it and to see if the stains could be diminished by the process. This

was done using Orvus WA Paste anionic detergent and deionized water. The garment appeared cleaner and the silk embroidery was more lustrous. However, the stains were still noticeably present.

Bleaching processes that have been used on silk were then investigated. In the manufacturing industry, before silk is dyed, it is often bleached using hydrogen peroxide (4). Burgess (1), and other authors state that  $H_2O_2$  is a gentle and practically non-degradative bleach for cellulose. There are several different  $H_2O_2$  bleach recipes available. Landi (2), cites a case study (number 4) where stabilized  $H_2O_2$ , which is acidic, was used successfully on 17th C. linen pillow cases embroidered with silk. In order for the bleach to be activated, it had to be brought to an alkaline pH level. Concern is shown by Landi for the potential damage that can be caused by the high pH value of most  $H_2O_2$  bleach baths. Severely alkaline conditions quickly cause silk degradation and so Landi added just a few drops of ammonia to the stabilized  $H_2O_2$  to activate it and to keep the pH as low as possible. However, no definite pH level can be established and maintained by this method.

In an article in Vol. 13 of the *IIC-CG Journal*, Burgess gives a recipe for a buffered  $H_2O_2$  bleach. Buffering stock solutions are used to attain either pH 8, 9, or 10 bleach baths. It was decided to use a bath with pH 8 as this would do the least amount of damage to the silk. Three per cent  $H_2O_2$  was used in the bath giving the highest concentration

recommended for a fabric in good condition. As pH goes down, so does bleaching efficiency (1). As long as the pH was 8 to protect the silk, safe and better bleaching results could be hoped for with a 3 %  $H_2O_2$  concentration.

The bleaching bath was made up of hydrogen peroxide, magnesium sulphate and sodium metasilicate ( $Na_2SiO_3$ ). Sodium phosphate was used as the buffer. The bleaching liquid was adjusted to the pH 8 level by the dropwise addition of dilute acetic acid (1).

Before bleaching the dress, several metal fasteners were covered with mylar which was sewn in place. The metal fasteners were not perceived as causing potential damage to the fabric, but as a precaution, they were isolated by this method. During bleaching, only a very small amount of the liquid came into contact with the fasteners and as predicted, no damage was done.

The dress was submerged in the bleaching bath for 1 hour, 20 minutes. Precise directions were not available for submersion times and as no perceptible change appeared to be occurring, it was decided to leave the dress for this period of time. During the bleaching process, the dress was manipulated gently to ensure that the colloidal precipitate of magnesium hydroxide and magnesium silicate was kept suspended. The precipitate aids in minimizing the decomposition of the  $H_2O_2$  (1).

On removal from the bath, the dress was

rinsed for several minutes with a soft spray and then given four more rinse baths in deionized water. The harmless precipitate (1), was difficult to remove. Following rinsing, the dress was gently pressed with cotton towels and dried on a table with the aid of a fan. It was padded out lightly with nylon tulle.

After drying, the whole garment was visibly whiter. The silk had attained a lustre that allowed the embroidery to be quite noticeable, while the pink and yellow stains, though still present, were considerably diminished. The dark brown stain on the back of the skirt showed the most dramatic change of all, becoming quite faint.

Though the dress was greatly improved, the stains still showed slightly. A subsequent bleaching was decided against, as according to Burgess, a second oxidizing bleach would submit the cotton to more hazard than a stronger initial bleach. Cellulose becomes more sensitive to damage because of the residue of oxidation products present from the initial bleach (1). Borohydride, a reducing bleach safe for cellulose, could have been tried, but the results of such a bleach on silk were unknown to us.

The bleaching procedure used on this dress was successful, but as there was no initial familiarity with this technique, it was time consuming to administer. Nevertheless, results were good. It would be instructive to check on the condition of the silk embroidery in several years.

## References

1. Burgess, H.D.(1988). Practical considerations for conservation bleaching. *Journal of the International Institute for Conservation - Canadian Group*, 13, 11-26.
2. Fuhr, S. (1990). Dual bleaching of a lace shawl. *Textile Conservation Newsletter*, 18: 9-10.
3. Landi, S. (1985). *The Textile Conservator's Manual*. London: Butterworth & Co.
4. Leene, J.E. (1972). *Textile Conservation*. London: Butterworth & Co.
5. Otterburn M.S.(1977). The chemical reactivity of silk. In R.S. Asquith (Ed.), *Chemistry of Natural Protein Fibers*. New York: Plenum Press.

Joan Marshall  
Doreen Rockliffe  
Provincial Museum of Alberta  
Edmonton, Alberta

---

## SUPPORT FOR CHURCH VESTMENTS

In the summer of 1990, the Prince Edward Island Museum, in conjunction with the provincial Department of Tourism, prepared an exhibition telling the story of the Irish settlers in the

province. Because there are few genuinely Irish historical artifacts in P.E.I. the exhibition showed an alarming tendency of becoming very documentary in its format. To counteract this, the exhibit planners decided to introduce two interiors which could recreate aspects of the life of the Irish and take advantage of significant artifacts in the provincial collection. The first room was a cottage interior which showed furniture, household objects, clothing and bed clothes typical of the early settlers. The second, keeping in mind both the role that the Catholic Church played in the lives of these people, and the traditional attitudes displayed at wakes and funerals, was the interior of a chapel set up ready for the Requiem or funeral Mass.

The province has a good collection of church and altar furnishings from the latter part of the Nineteenth Century and an altar was set up with the objects necessary for the Liturgy of the Dead. A few objects lacking in the provincial collection were borrowed from a private collection.

It was decided that mannequins showing the very fine examples of Nineteenth Century black vestments should be displayed in the recreated sanctuary. They would be wearing a cope, a dalmatic and a chasuble. It was also decided to include a suitable coffin shape draped with a black pall. This lugubrious detail, which most people would have steered away from, complimented photos of dead Irishmen in their coffins which were displayed nearby as part of a component

exploring the folklore of the Irish way of dying.

At this point the writer, who was responsible for this section of the exhibition, contacted Eva Burnham at the Canadian Conservation Institute in Ottawa. Advice was sought on a couple of points, most particularly on the subject of mannequin construction and design. The curatorial team had felt that some kind of abstract mannequin would be best under the circumstances since there was no money for a more realistic portrait-like interpretation. The bottom part of the mannequin needed no articulation beyond a stable base since it was to be covered with the alb which goes down to the floor anyway. The torsos themselves did not require elaborate shaping since they were to be covered with all the various garments that the liturgy at that time required. The heads were the most critical elements of all since the team did not want their design to intrude too strongly on the whole arrangement.

Eva suggested that the bases should consist of Sona tubes with a 14 inch diameter into which the torso could be fitted.

The torsos were constructed by stacking roughly shaped three inch thick slabs of Ethafoam and welding them together with a heat gun. Ethafoam is quite wonderful to work with as it can be shaped and trimmed quite easily with a sharp knife. It was possible to sculpt the shapes required to support the heavy vestments with no difficulty at all. The whole

layered construction was finally covered with quilt batting and a small black T-shirt pulled over the joined layers of Ethafoam and the result was excellent (Figure 1). It was possible to insert this torso into the Sona tube by squeezing the tube into an oval and sliding the base of the torso down into it. No further fasteners were necessary.

Arms were made of coat hanger wire padded with quilt batting and covered with stocking material. These were attached to shoulders with velcro and positioned to show the alb sleeves and provide support for the maniple.

The torso, base and arm sections of these display forms were easy to construct and quick to assemble because none of the components was to be visible in any way. However it was another matter with the heads for the mannequins.

Wanting to give a certain timelessness to the figures wearing these vestments, it was decided by the design team that this could best be accomplished by making the heads as featureless as possible. Styrofoam heads were purchased - the kind that one sees in various store displays - and drastic surgery was performed. The features were smoothed down leaving only a hint of face and were covered with quilt batting and pale grey-brown pantyhose. There were a few problems with making the batting look seamless - stitching showed through the pantyhose - but this was solved by carefully teasing the joins with a needle.

With a simple dowel pushed into the styrofoam head and into the torso it was an easy matter to disguise the rather crude join by arranging the amice high up on the neck. This was supported by the drawstring on the neck of the alb and was further supported by the stole. The general effect was more than satisfactory.

The fact that we were displaying this kind of costume which consists of basically large shapeless forms, made it possible for us to get away with minimum mannequin shaping and articulation. In spite of its

simple solution, however, the general effect was quite convincing and the vestments were displayed with every opportunity to make them look well while keeping in mind the support required for safety.

#### Reginald Porter

{Reginald Porter is a heritage consultant who lives in Charlottetown, Prince Edward Island}

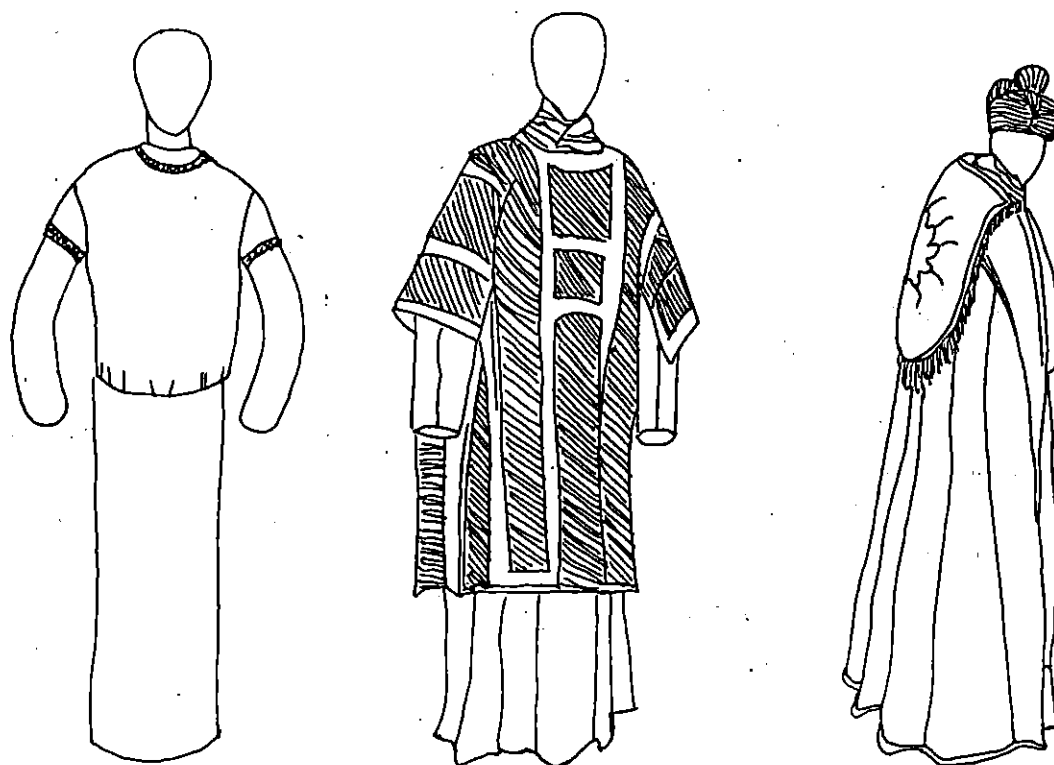


Figure 1

## CONSTRUCTING OVERSIZED TEXTILE STORAGE TRAYS AND BOXES

Oversized textiles such as vestments, banners and flags pose difficult storage problems in museums. Textiles are optimally stored flat with minimal folds. Normal storage drawers are too small for large items. Cabinetry, built to suit, can only be justified for large and valuable collections. Custom boxes on trays are the only alternative for many museums.

The ideal container should be sturdy yet light, stable and inert, affordable and practical in construction. Wood is not suitable because it is heavy, requires machinery skills and takes extra time to construct and takes extra time to seal and finish to acceptable standards. Stable paper products are rare and costly in large sizes and not strong enough. Standard 4 mm. Coroplast® meets some of the requirements but is not strong and rigid enough for large sizes.

A new product by Matra Plast meets all the museum requirements. The product's trade name is Hi-core®. It has the same profile as Coroplast but its walls are much thicker. Its stiffness is also due to the type of plastic used. Hi-core® is made of polycarbonate which is extremely tough for its weight. Polycarbonate is also artifact - friendly because it is inert.

Hi-Core® can be cut with the same OLFA brand utility knife used for coroplast. Hand cutting Hi-Core is however more difficult. It requires three or four passes

along the flutes and four or five passes to cut through across the flutes. Power tools such as bandsaws and tablesaws are practical when multiple pieces are required. Use a regular angle block plane to remove the burr left by power tools.

Practice hand cutting along and across the flutes on a scrap piece until you feel comfortable with the knife. A great sense of accomplishment will replace the fear of the sharp knife if the following simple rules are followed:

- \* Always use a very sharp knife. Snap off the dull blade if it is not sharp when starting a new job.

- \* Always scribe the first line. A scribe cut is a lightweight cut which accurately follows the markings along the straight edge. It is very difficult and dangerous to apply heavy pressure to a knife which is not in a pre-set cut. Either the knife will veer off track or the straight edge will move. Or worse!

- \* Cut the sheet on a surface which will not ruin the knife blade. Making large trays might be best done on a protected floor. Hi-Core will not develop knee marks as Coroplast does.

The pattern and technique as illustrated produce a very simple and effective tray. Adding a slightly larger tray over the top creates a lidded box. All the cuts are done on one side only and measurements are extremely simple. The resultant container corners are securely fastened

with single, commonly available, plated Robertson screws. The screws are easily inserted and they will not corrode.

The finished containers have built-in handles along their bottom edges. There are many other attributes outlined in the information available from the supplier. Of special note is the oversize width available in the 8 and 10mm sheet thicknesses available. Oversize means that the sheets are made 72 or 80 inches wide.

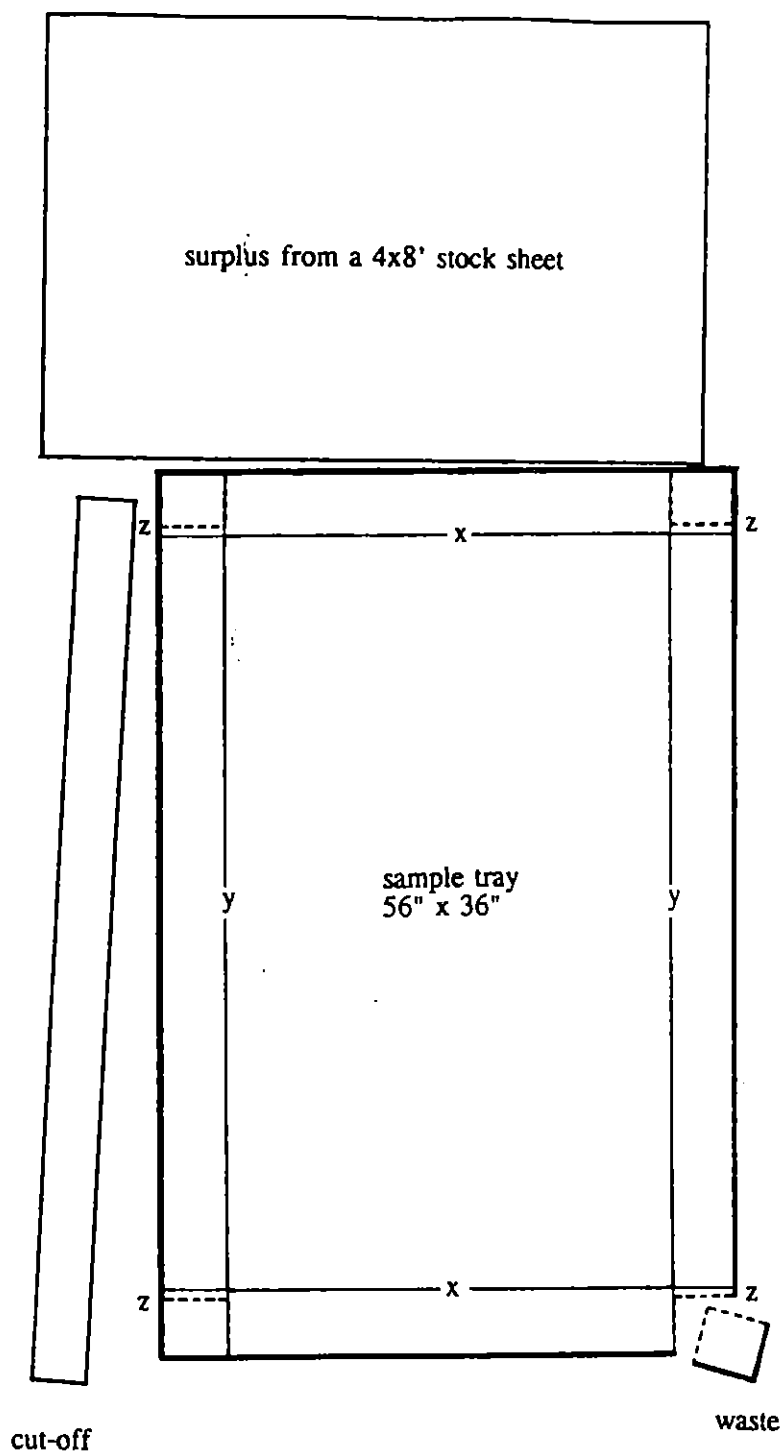
The cost of Hi-Core<sup>®</sup> is close to that of plywood but its many attributes make it a first choice for museum use. There are many other potential uses for this material. Enjoy discovering them for yourself.

Hi Core Polycarbonate sheets and information are available from Matra Plast Inc., 420 Notre Dame, P.O. Box 600 Berthierville, Quebec, J0K 1A0

Tel: (514) 836-7071  
Fax: (514) 836-2315

Carl Schlichting  
Ethnology Conservator  
Canadian Conservation Institute Ottawa,  
Ontario





### Cutting and Fabrication Instructions

1. Add two times the tray side wall height to the length and width of the intended tray. The tray wall height must be based on flute widths. For example the walls can be  $2+1/2$ ,  $3+1/2$ ,  $4+1/2$ , etc. flutes high. Cut out the over-all size out of a 4x8 sheet.
2. Cut the upper skin between two flutes of lines Y. (See figure A )
3. Scribe lines X all the way across both ends.
4. Cut 3/4 way through the sheet on lines X up to where X intersects with Y. (See figure B )
5. Measure one sheet thickness over from the scribed lines X in the side wall areas (marked Z in the diagram). Cut through the sheet along Z and the other dotted line on the diagram.
6. Turn over the sheet and bend up the corners. (See figure C )
7. Anneal the corners with a propane torch. (See figure D )
8. Fasten the top of each corner with a screw. (See figure E )

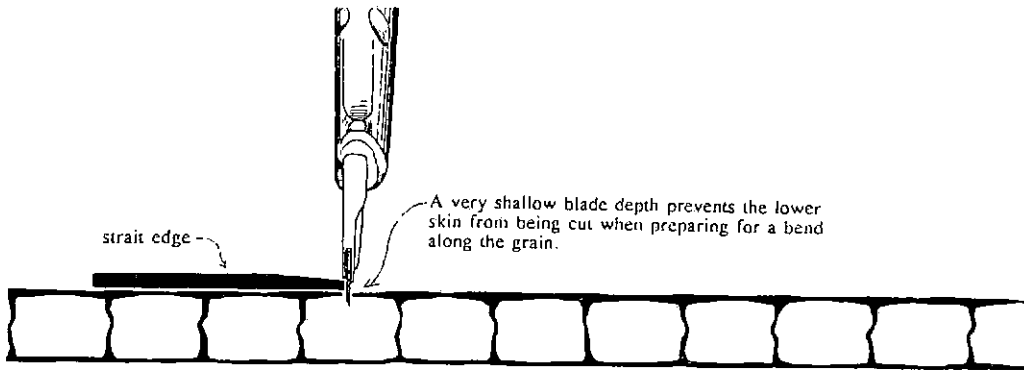
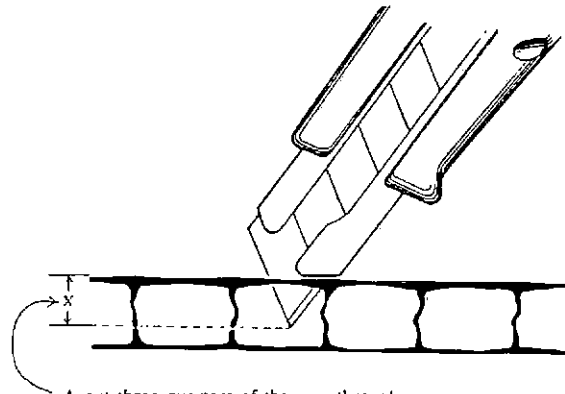
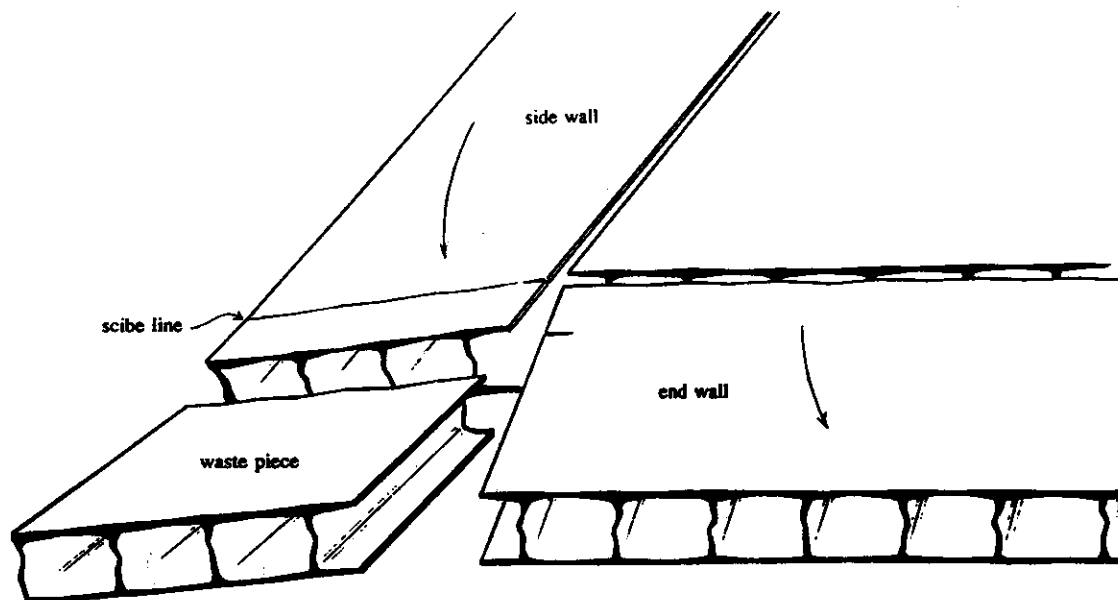


Figure A

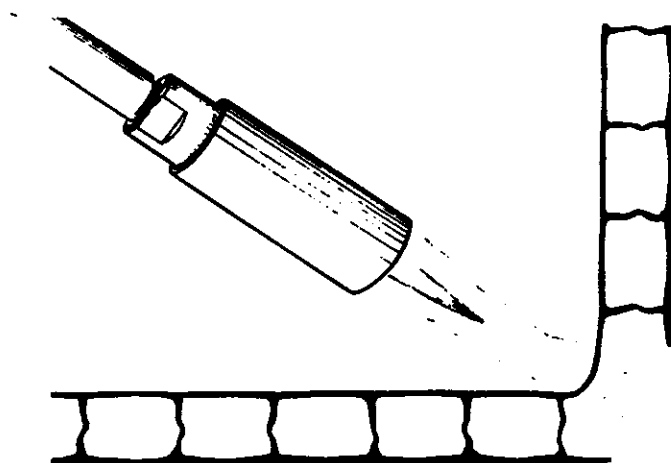


A cut three-quarters of the way through is required to bend a corner across the grain or flutes. Scribe first along a strait edge then cut passes until the blade reaches the pre-set depth. Keep the blade perpendicular to the sheet.

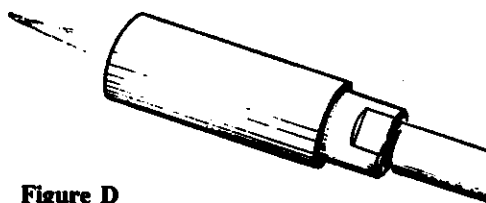
Figure B



**Figure C** A view of the cutting side just as the bends are about to be made. Once the cuts are made the sheet can be turned over and the bends made and annealed.



Anneal the bends from both sides. The plastic is annealed when the light shaded bruise disappears and the bend is no longer under tension. Over-heating will cause transparent patches. Keep the torch moving at a steady speed. Once cool the plastic is set in the bent shape.



**Figure D**

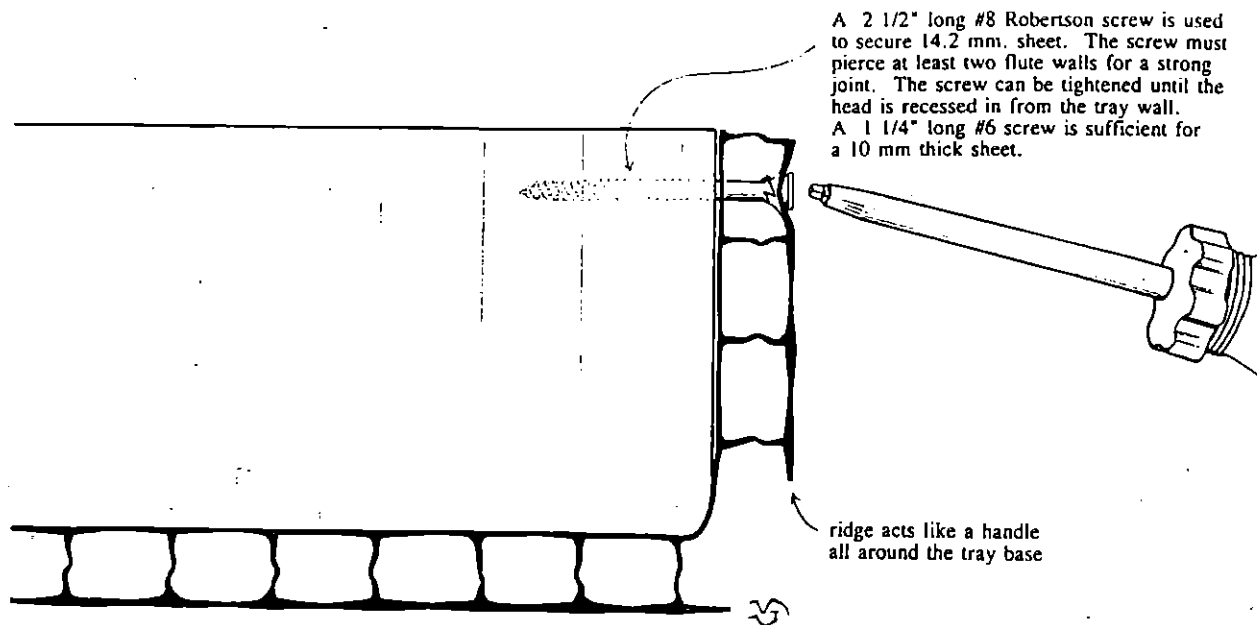


Figure E

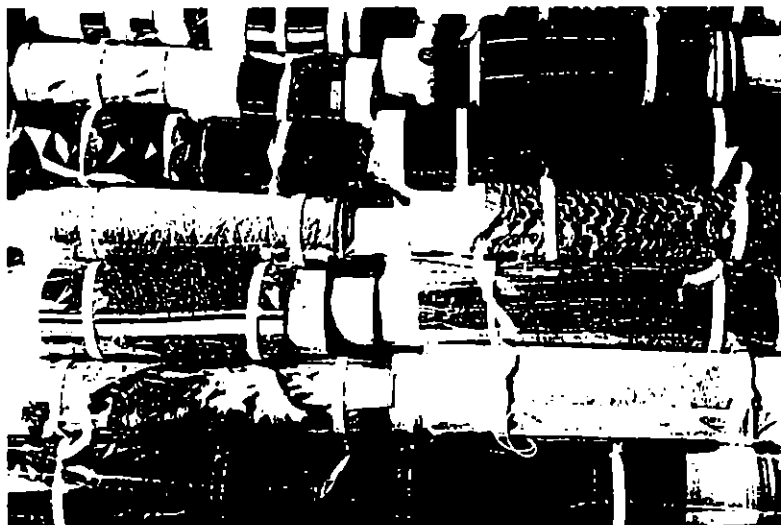
## HAPPY RECYCLING

What a laugh! Ask you friends to save inner rolls from aluminum foil, plastic wrap, gift wrap, paper towels, and that other regularly used household paper product, and see what kind of a reaction you get! When the giggles die down, however and you convince your friends that you're serious, you'll find that you have an inexhaustible source of rolls for a narrow textiles such as ribbons, sashes and scarves.

I have found that the following method is easy, and produces an attractive result. Cut a sheet of Mylar about 3 to 4 inches wider than the roll and long enough to go around the roll about twice: center the roll on the sheet, allowing about 1 1/2 to 2 inches at either end. Roll up and tuck the excess ends into the core. Repeat this procedure with acid-free tissue. You have now converted a household throw-away into a Museum conservation device!

When rolling the textile, I lay a strip of acid-free tissue (cut about the width of the textile) on a flat surface, put the textile on top, and roll them together around the core evenly, gently and with as little tension as possible. Cutting the tissue shorter than the textile leaves space for the textile to show its pattern and colour in the last turn around the core. A final piece of Mylar, cut to the width of the roll, and wrapped about it, secured with 1/4 inch tape finishes the product. (Do not tuck in this last Mylar sheet; the textile should breathe).

Long fringe is always a problem. At the starting (inner) end of the textile, it can be sheathed in a fold of acid-free tissue: at the "display" end, it can be similarly sheathed and folded back in to the textile so that the fringe is protected and more of the textile is visible.



Ideally, the final touch is a tag with critical details such as length, fringe length, etc. so that the textile can rest in its new recycled home with a minimum of disturbance.

Elizabeth Sifton  
Dept. of Costume and Textiles  
Co-ordinator, McCord Move  
McCord Museum of Canadian History  
Montreal, Quebec

---

## TRAVEL NOTES FROM SOUTHEAST ASIA AND JAPAN

Southeast Asia is fascinating for textile enthusiasts; the traditions of basket and textile weaving permeate the society. A walk through any Southeast Asian market is an adventure, and to see the multiple uses of the woven materials is staggering. Cloth and plaited grasses provide shelter, clothing, containers for food preparation and packaging, and are a vital source of income through sales to tourists. Though textiles are used in the same ways in Malaysia and Indonesia, the decorative motifs and constructional techniques are often quite distinct.

The state of Kelantan in the North-East of Malaysia is a particularly rich area for Malaysian culture. In the coastal town Kota Bahru, small cottage industries still weave intricate gold thread brocaded silk or cotton (songhet) and produce batik cloth (1).

Songhet is a weaving technique utilizing supplementary weft patterning and metallic thread. By extension, the term also refers to the fabrics created. Originally songhets were worn as sashes and shoulder cloths by Malaysian men on special occasions. Apparently over the past decades, few women had the time or skills to create these decorative cloths. Fearing eventual loss of a national treasure, concerned individuals in Malaysia are encouraging songhet weaving and training. Songhet cloth is now produced for use as a couture textile as well as for traditional ceremonial wear. The Malaysian fashion industry will secure the production and technology of this complex woven cloth for future generations.

In Kota Bahru, I also watched the production of a type of wax resist textile: silk or polyester scarfs and wall hangings painted with floral, abstract, or seascape motifs. The designs for these items are traced directly onto the cloth by the shop designer or assistant using the canting instrument which leaves a wax outline. The pattern is then dyed - but the process does not involve a separate dye-bath for each colour. Similar to a "paint-by-number", the dyers deftly fill the areas within the waxed outlines using a separate brush for each colour, finishing the "canvas" in one step.

The traditional methods of resist dyeing using separate dye baths are employed in the production of colourful sarong cloths and yardage material. While certainly manufactured for local appeal, the

colourful and abstract batik cloths are also popular in North America. In Malacca (in southern Malaysia), I learned from one batik designer that the colours and designs change annually, if not seasonally, and are

easily recognizable as such to the delight or frustration of local fashion victims. In the small remote village of Tengannan in the southeast of Bali, Indonesia, women weave intricately patterned cotton sases on back strap looms. The weaving technique, double ikat, is known locally as gringsing (2). The design is achieved by calculating the design on both the warp and weft threads prior to setting up the loom. The lengths of cloth, generally approximately 24 cm wide, may be sewn together to create wider wraps, shawls and sarongs. Gringsing cloth was traditionally reserved for wear during special occasions such as birth, wedding, and death celebrations. The production of gringsing no longer exists beyond the gates of Tengannan, and to say that this is a world treasure is not an exaggeration.

After seeing the exhibit "Revolution of Fashion: 1715-1785" at Fashion Institute of Technology - a display of some of the men's and women's French fashion belonging to the **Kyoto Costume Institute** - I was determined to visit the Institute to study their collection of 18th-century footwear. Since the Institute has limited space and staff to manage the collection, they require visitors to write for an appointment - a courtesy we all can appreciate. Applications should be directed to Ms. Akiko Fukai, Chief Curator of Costume (3).

Kyoto Costume Institute (KCI) was established in July, 1977. The collection and staff are financially supported by the Wacoal Corporation, a manufacturer and wholesaler of ladies' underwear for the past 45 years and now also manufacturing interior textiles, deluxe automobiles, and food. The Institute is located on one floor of the Wacoal headquarters situated in a prefecture of Kyoto a ten minute ride by commuter train from the city station.

Upon arrival, I was greeted by Ms. Atsuko Miyoshi, KCI restorer. After introductions and tea, I was given a tour of the collection and storage facility. The office area for the curators and conservators is a large room bathed in natural light. The work room for textile and costume conservation is also illuminated by a wall of windows providing ample natural light supplemented by overhead fixtures. Soothing classical and traditional instrumental music is piped through the sound system; a very pleasant work environment.

There are three humidity controlled storage rooms for the collection. Unfortunately, one storage room is located above the corporation's smoking room, and the odour of stale cigarette smoke was apparent. The garments are on padded hangers and arranged chronologically by type in upright metal storage cabinets. Muslin curtains and horizontal blinds conceal each cabinet similar to storage cabinets in the Costume Institute in New York. Footwear, hats, accessories and some flat textiles are

placed in spacious drawers permitting easy viewing and access.

Atsuko informed me that, regarding methods of cleaning, they have adopted F.I.T.'s technique for cotton and linen. They do not use chemical dry cleaning, except for special circumstances. Also, they have a consultant in Kyoto who specializes in dyeing kimonos to refer to when necessary. No photography is allowed, but sketching is permitted. The Institute also has their fine publications for view and sale.

## ENDNOTES

(1) The new definitive source for Southeastern textiles is Textiles of Southeast Asia: Tradition, Trade and Transformation by Robyn Maxwell, Oxford University Press Australia, 1990.

(2) There are several books and articles on gringsing. The process is described in Robyn Maxwell's book and in the

anthropological study Clothing, Ritual and Society in Tenganan Peringsingan (Bali) by Urs Rameyer (translation by Eil Walliser-Schwarzbart), Sonderabdruck aus den Verhandlungen der Naturforschenden Gesellschaft in Basel, Band 95, 1984. Also, for information on the village and how to get there, look at "Bali's dyed gringsing cloth, a 7-year wonder" in New York Times, vol. 139, section 5, col. 1, p. XX12(N, L), May 20, 1990.

(3) Kyoto Costume Institute: 29, Kisshoin Nakajima-cho, Minami-ku, Kyoto, 601, Japan.



Stephen Davis  
Archaeology Division  
Canadian Parks Service  
Ottawa, Ontario



# NEWS FROM ROYAL B.C. MUSEUM

## Collections Move

The insulation in the Curatorial Tower, home of the RBCM collections, contains asbestos. As the binder holding the insulation is breaking down, it has become a health hazard. To remove the asbestos and replace the insulation, all the collections must be moved. Pilot projects were explored last spring and summer, testing methods of moving various parts of the collections. Throughout the fall and winter the first three floors of the fourteen floor tower were vacated. The Botanical Collections were moved off-site and the Conservation Section moved into a corner of the Aquatic Zoology Department. Using those areas as a "swing space", two floors at a time will be relocated, while their areas are cleaned.

To make the most of the money and effort required to pack the collections for moving, wherever possible, containers are being designed and fabricated with permanent storage in mind. Artifacts, while protected, should be accessible without being handled.

They must be able to withstand short term, violent movement such as transport by commercial movers, or earthquake shocks. The Conservators' mandate is to assess the state of the collections, stabilize artifacts to ensure they can be moved, recommend packaging materials and techniques, and oversee the packing. Life

as textile conservator has certainly changed. No dyeing and careful couching these days. Our time is spent poring over warehouse supply catalogues, counting, measuring and calculating acres of coroplast and ethafoam.

A complete inventory is being done and bar codes assigned to each packing unit. A computer programme, the Collection Move Management System (CMMS) has been designed to keep track of all artifacts as they are moved. This too, should reduce wear and tear on the artifacts as the records become more informative and accessible. Improvements can already be seen in the collection of hanging clothing. A cube of ethafoam has been slipped over the shank of each hanger. On the cube is posted the accession number (and the bar code sticker). These are much more readily seen than the tiny labels sewn in shoulder seams.

New containers have been designed to house difficult artifacts such as fans and boots. The placement of artifacts in flat storage and hanging storage is being reviewed and new padded hangers and padded clamping skirt hangers are being constructed in a sheltered workshop.

## Staff

Lisa Bengston continues as an indispensable full-time contractor, working mainly with the History collections. Kjerstin Mackie, who once worked as a volunteer intern in the department before going on to study and eventually teach at

the Textile Conservation Centre, Hampton Court, joined the section in January to share the job with Colleen Wilson who returned from maternity leave in January. Cindy Cripps, a student at the University of Victoria, volunteers with the department once a week. Shannon Elliot and Kerri Ward, both of whom studied in the University of Alberta Clothing and Textiles programme, are working as contractors with the History collections. The Textile Take-over is gaining momentum.

Colleen Willson  
Royal British Columbia Museum  
Victoria, British Columbia

## BOOK REVIEWS

### Norwegian Immigrant Clothing and Textiles.

Edited by Catherine C. Cole.  
Occasional Paper - no.1. 1990 113 pp., 58  
ill. Price \$13.00 ISBN 0-9694539-0-6  
Prairie Costume Society, Box 57, Sub Post  
Office 11, Edmonton, Alberta, T6G 2E0

In May 1987 an interesting gathering took place in Edmonton. Canadian and American researchers came together with a Norwegian costume expert to discuss what information exists concerning the clothing worn in North America by Norwegian immigrants and to what extent the textile making skills of the homeland were utilized. It is not easy to gather the

necessary funds for a publication and to expend the energy necessary to turn the passing excitement of a one day seminar into a permanent contribution but, with this small book, that has been accomplished. Within its slender 113 pages there are five important essays concerning a so-far almost ignored subject. There is nothing directly connected with textile conservation but the essays provide easy and informative reading for anyone with an interest in textile and costume history and as the texts are well supported by footnotes and a long list of suggestions for further reading, the earnest student will find the way open to a rich area of research.

The scene is set in the introduction by David Goa, Curator of Folk Life at the Provincial Museum of Alberta and himself of Norwegian descent. He gives facts concerning areas and dates of settlement, but, more importantly, the reasons behind the decision to emigrate are brought into clear focus.

The second essay Tradition and Transition: Norwegian Costume from Norway to the United States 1840 -1880 is by the well-known authority, Aagot Noss curator of folk costume at the Norsk Folkemuseum, Oslo. She provides an interesting body of information and the quotations from letters written home to Norway are fascinating. The third essay Immigrant Handweaving in the Upper Midwest by Dr. Carol Colburn deals with Norwegian contributions as part of the general textile making development as the midwest opened up to settlement. (While the other two essays deal with Canadian

scene). The Tradition in Alberta: A Case Study of Valhalla Centre by Heather Prince is concerned with textile and costume use in a 20th-century Norwegian Lutheran community in north western Alberta and Barbara Schweger's article The Farvolden Collection of Norwegian Costumes and Textiles describes in considerable detail material now in the Provincial Museum of Alberta, Edmonton, which was brought to Canada by one family from the Telemark region of Norway.

This is an excellent and interesting publication and one that deserves a wide distribution.

Dorothy Burnham  
Ottawa, Ontario

### **Needlework Fabric Information and Samples**

Needlework Fabric Information and Samples, 2nd edition, published in 1989 by the Yukon Guild of Needlearts, is a 119 page reference book (in loose leaf format) designed especially for needleworkers. It covers the basics of handling materials, gives guidelines on the best combinations of needle, fabric, and thread and offers suggestions for ease of stitching. "Being in a remote northern location, information is not always available such as in an extensive library. It was found that having to search through hundreds of magazines and books for

information on a particular fabric, was time consuming and left less time to the actual stitching."

The bulk of the work presents definitions and samples of fabrics used in needlework - terms both past and present. It includes a list of references of mostly needlework magazines, and a few major modern needlework references and secondary historical references that are available to the average North American needleworker. The definitions sometimes include information on the origin of the fabric or term. Generally, the definitions do not include the technical information that is available in textile science references such as Fairchild's Dictionary of Textiles, however, most definitions include thread count, fibre content, number of colours available and the width.

Samples are of commercially available fabrics and the definitions often use or include commercial or trade names. It is an excellent source for the needleworker or for those wanting to know the types and names of textiles on the market. Where available, the supplier or manufacturer is mentioned but there are no addresses.

Each copy sold has a registration number which entitles the owner to updates which are available for a nominal fee. Needlework Fabric Information and Samples costs \$25 Canadian plus \$5 postage and handling and can be ordered from:

Yukon Guild of Needlearts  
Box 5441  
Whitehorse, Yukon  
Y1A 5H4  
Canada

Please allow 6 to 8 weeks for order processing.

Ruth K. Mills  
Interpretation Branch  
Canadian Parks Service  
Ottawa, Ontario

## EXHIBITIONS

Canada

....And Wedding Bells Ring.  
Dugald Costume Museum  
Dugald, Manitoba  
from April 1991

Coming out of the Closet  
Adult Clothing from 1850- 1950  
Cape Breton Centre for Heritage and Science  
Sydney, Nova Scotia  
currently on exhibit

Eastern European Folk Costumes  
Museum for Textiles  
Toronto, Ontario  
until July 1991

In the Steps of our Ancestors  
The Old Fort, St. Helen's Island  
Montreal, Quebec  
until September 2, 1991

Panache: Two Hundred Years of Fashionable Women  
Vancouver Museum  
Vancouver, British Columbia  
until August 31, 1991

UNITED STATES

The Master Touch of LeSage: Embroidery for the French Fashion  
Los Angeles County Museum  
Los Angeles, California  
until July 14, 1991

Beadwork and Ikat Textiles from from Borneo  
Lowie Museum of Anthropology  
University of California  
Berkeley, California  
until August 1991

Fabled Cloths of Minangkabau  
Santa Barbara Museum of Art  
Santa Barbara, California  
until December 8, 1991

Sleepwear: A Bedtime Story  
Detroit Historical Museum  
Detroit, Michigan  
until December 1991

"Boston à la Mode"  
Fashionable Dress 1760's - 1960's  
Museum of Fine Arts  
Boston, Massachusetts  
until July 28, 1991

"My Best Wearing Apparel": Maine  
Women and Fashion, 1800-1840  
York Institute Museum  
Saco, Maine  
until September 6, 1991

Broadway! 125 Years of the American  
Musical  
Museum of the City of New York  
New York  
until July 13, 1991

Mamluck and Ottoman Carpets  
The Textile Museum  
Washington, DC  
until January 5, 1991

Step Forward, Step Back:  
Three Centuries of American Footwear  
Fashion  
Sharf Gallery  
Essex Institute  
Salem, Massachusetts  
until December 1991

## EUROPE

Textiles from Bali  
Museum fur Volkerkunde  
Basel, Switzerland  
until February, 1992

Religious Fabrics from St. Servatius  
Maastricht  
Abegg-Stiftung  
Riggisberg, Switzerland  
until November 1, 1991

Tissus Coptes  
Musée d'Art et d'Histoire

Geneva, Switzerland  
until October 27, 1991

### Panache - An Historical Fashion Journey

A rustle of bustles, flurry of petticoats, and cluster of designer labels have taken over the Vancouver Museum. Panache, 200 Years of the Fashionable Woman, opened in November to show off the finest collection of historical garments ever assembled in Western Canada.

From rococo panniers to the modern Haida coats of native Vancouver designer Dorothy Grant, the exhibit--complete with original accessories--dates back to 1770 and zips forward to 1990. Closets and trunks from museums and private collections across Canada were raided to present a complete look at fashion lifestyles.

Ballgowns from such legendary fashion names as Charles Worth, Jean Patou, Christian Dior, and Cristobal Balenciaga dance around the main gallery. Outfits from Vancouver designers Evelyn Roth, Zonda Nellis, and Linda Frosch help show the upbeat look of the 1960s. All pieces are displayed on period mannequins, including reproduction porcelain figures and 1920s and 1930s wax forms.

The exhibition will run until August 31, 1991 at the Vancouver Museum, 1100 Chestnut Street, Vancouver, British Columbia.

---

The exhibition will run until August 31, 1991 at the Vancouver Museum, 1100 Chestnut Street, Vancouver, British Columbia.

Step Forward, Step Back: Three Centuries of American Footwear Fashion

Step Forward, Step Back: Three Centuries of American Footwear Fashion, a new exhibition in the Sharf gallery at the Essex Institute in Salem, Mass., opened on Wednesday, April 24 and is scheduled to run through December of 1991. The exhibition features over 200 examples of men's, women's and children's shoes and boots from the 1690's, many of which have never been exhibited before.

The exhibition traces the stylistic and technological development of footwear. It explores topics such as shoes as a medium of personal expression; shoes and their relationship to lifestyles and health issues; shoes as relics and mementoes of events and people from the past.

Styles are arranged in chronological order starting with contemporary footwear and progressing back to the late 17th century, encouraging visitors to make connections between reoccurring styles and issues which have faced shoe wearers throughout the centuries. Documentary materials such as prints, photographs, paintings, clothing, accessories, broadsides, advertising materials, shoe making tools

and equipment will present a historical and cultural context for the shoes on display.

Visitors can practice fastening a reproduction 19th century boot with a button hook and an 18th-century shoe with a metal buckle. Tactile panels will contrast the variety of materials available to 19th and 20th-century shoe manufacturers.

Throughout 1991, the Essex Institute will sponsor a series of events related to the exhibition. A special issue of the Essex Institute Historical Collections, a quarterly publication, focuses on topics related to shoes and the footwear industry.

Co-curators of the exhibition are Paula B. Richter, registrar at the Essex Institute, and Jeffrey A. Butterworth, shoe historian and theatre designer. Ms. Richter has worked with the Institute's shoe collection since 1988 and supervised a cataloguing and storage improvement project. Mr. Butterworth was the recipient of the 1989-90 Stella Blum Research Grant sponsored by the Costume Society of America which allowed him to visit museums and historical societies around the country to study shoe collections.

Hours: May 1 to November 30, Tuesday through Saturday, 10 a.m. to 5 p.m., Sundays and holidays 12 p.m. to 5 p.m. June 1 through October 31 also open Mondays 10 a.m. to 5 p.m. and Thursday evening until 9 p.m. For more information please call (508) 744-3390.

### "Sleepwear: A Bedtime Story"

DETROIT, Mich. ---From intimate apparel to street wear; from a place strictly for sleeping governed by strict morals to today's freer attitudes, the changes in bedroom styles and lifestyles during the past 100 years are the subject of the Detroit Historical Museum exhibition "Sleepwear: A Bedtime Story" opening on May 9 and continuing through 1991.

Perhaps one of the most dramatic revolutions to occur during the past 100 years has taken place in the bedroom. "Sleepwear: A Bedtime Story" features sleepwear from the Victorian era to present day -- and the changes in lifestyle and attitude relating to sleepwear and the bedroom which have occurred during that period.

"Strict morals and heating technology once dictated that sleepwear cover our bodies from head to toe -- and that the bedroom was a very intimate, personal space," said Vicky Kruckeberg, Chief Curator of Collections for the Detroit Historical Department and curator for the exhibition. "Today garments once considered intimate apparel are now worn as street wear. And the bedroom is used as an exercise room or home office in addition to being used as a sleeping space."

Sleepwear for men, women, and children covering more than 100 years are featured in the exhibition -- as well as items from the DHD's collection of furniture and household furnishings illustrating changes in the bedroom.

These pieces include everything from late 19<sup>th</sup> century plain cotton men's nightshirts which sold for as little as 45 cents to a contemporary men's designer robe and pajamas that retail for \$400; bedwarmers used in the 19<sup>th</sup> century to contemporary sofa beds; children's bedclothes; and, of course, women's sleepwear -- elaborate, antique negligees, contemporary bedclothes and some surprises.

Revolution in Bedroom Subject of DHM Sleepwear Exhibition  
Page Two

Several educational programs are also being offered in conjunction with the exhibition including a bedtime storytelling program; the movies "The Pajama Game" and "It Happened One Night," and a lecture on dream analysis. (Editor's note: See enclosed listing of educational programs for further details.)

The exhibition is co-sponsored by the Cadillac Motor Car Division of General Motors, Saks Fifth Avenue, the Detroit Free Press, the Detroit Historical Society (DHS), and The Fashion Group International-Detroit.

The exhibition will last through March, 1992.

## SUBMISSIONS

Please send all submissions in typed form or if possible produced on IBM compatible Workperfect 4.2, 5.0 or 5.1 on 5 1/4" or 3 1/2" disk. Submissions sent by electronic mail (FAX) are welcome but if there are any illustrations that accompany the article, they will not reproduce well. We would appreciate it if the illustrations could be sent by mail or courier if time is running out. For the best production of illustrations and clear black and white photographs, copy-ready artwork is required. Your disks will be returned but we cannot return the artwork. Articles can be as short as 1 page and as long as 6 or 7. Anything longer than that will be considered for publication as a Supplementary.





The **TEXTILE CONSERVATION NEWSLETTER** is published twice a year in the spring and fall. For a two year subscription:

North America 29.00 Cdn.  
 Outside North America 39.00 Cdn.

Back issues of Textile Conservation Newsletter and Supplementaries:

North America - 4.00 Cdn.  
 Outside North America - 5.50 Cdn.  
 postage and handling included.

We welcome submissions on:

Textile Conservation, History Technology, Analysis and information on upcoming courses, conferences and exhibitions. Submissions, address changes and correspondence should be addressed to:

Textile Conservation Newsletter, P.O. Box 4811, Station E. Ottawa, Ontario Canada K1S 5J1

Editors: Eva Burnham  
 Ruth K. Mills

Subscriptions: Eva Burnham

Treasurer: Ruth K. Mills

**Disclaimer**

Articles in the **TEXTILE CONSERVATION NEWSLETTER** are not intended as complete treatments of the subjects but rather notes published for the purpose of general interest. Affiliation with the **TEXTILE CONSERVATION NEWSLETTER** does not imply professional endorsement.

Deadlines for 1991/92 are: 1 Sept. and 1 Feb.

<b>TEXTILE CONSERVATION NEWSLETTER SUBSCRIPTION</b>	
<b>NAME:</b>	
<b>MAILING ADDRESS:</b>	
<b>SUBSCRIPTION TERM: 91/92</b>	
<b>INSTITUTIONAL SUBSCRIPTION:</b>	<b>PERSONAL SUBSCRIPTION:</b>
<b>BACK ISSUES (Please Specify):</b>	
<small>Please make cheque, money order or bank draft in Canadian Funds payable to: "Textile Conservation Newsletter". Mail to TCN, P.O. Box 4811, Station E, Ottawa, Ontario, Canada K1S 5J1</small>	

## TCN Index 89-90

### TEXTILE CONSERVATION NEWSLETTER ISSUES 16-19, Spring 1989 - Fall 1990

#### A

"A Make-over for Lady Blanche": 16:3-7  
"A Method of Treating an Insect-Damaged Uniform Coat with a Minimal Amount of Interference with Original Stitching": 16:22-24  
"A Non-profit Conservation Workshop": 16:27  
"An Unexpected Hazard in a Textile Storage Room": 18:16-17  
"Apropos de costumes": 17:6-8,10,11  
Adhesives: 16:4,7; 19:12  
removal: 16:3-4  
Alberta Conservators Association: 17:21  
Artifact, Native:  
Métis dog blanket: 19:8-10  
Arts, Crafts, and Theater Safety (ACTS): 19:19-21

#### B

"Battle of Britain Lace": 16:7-10  
Babin M.S., Angela: 19:21-22  
Beaudoin-Ross, Jacqueline: Supplementary 1990  
Beentjes, Annette: 16:14-17  
Bengston, Lisa: 19:12-14  
Bibliographies:  
"Dual Bleaching of a Lace Shawl": 18:9-11  
"Recent Trends in Costume and Textile Storage": Supplementary 1990:12-13  
"The Conservation of a Bag Wig, c.1820": 18:7-8  
"Treatment of an Extensively Corrosion Stained Uniform Jacket Using a Vacuum Suction Technique": 17:14-16  
"Upholstery Conservation Symposium": 18:21-22  
"Visible Storage at the Dugald Costume Museum": 16:22  
"Warning! Dichlorvos Resin Strip Fumigation": Supplementary 1989:9-10  
Biltmore House: 16:11-14  
Bleaching: 18:9-11  
Buell, Pam: 19:22-23  
Burl, Anna Rapp: 19:2-4  
Burnham, Eva: 16:22-24; Supplementary 1990:18:26  
Butterfield, Mary Ann: 18:23-24

#### C

"Conservation of a Métis Dog Blanket": 19:8-10  
"Corrugated Polypropylene Containers": 18:2-6  
Canadian Conservation Institute: 16:3-7,22-24,31 Supplementary 1990:18:9-11  
Canadian Museum of Civilization: 19:1,8-10  
news from: 17:16-18; 18:19; 19:11  
Canadian Parks Service:

Archaeology: 18:27  
Interpretation: 18:2-6,27; 19:23-24  
Ontario Region: 19:22-23  
Canadian War Museum: 16:7-10  
Cariou, Gail: 19:23-24  
Cathedral Church of St. John the Divine, The: 18:23  
Centre de conservation du Québec:  
news from/nouvelles de: 18:20  
Charles, Susan: 16:17-22  
Cleaning (see also: Treatment): 16:4  
lace: 16:7-10  
mechanical: 16:4; 18:12  
wet: 16:8-10,25-26  
Conferences, Courses, Lectures, Tours, Workshops:  
16:32-37; 17:26-28; 18:24-25,30-32;  
19:24-28  
reports:  
"Carpet Conservation Symposium":  
18:23  
"Costume Society of America":  
19:23-24  
"Joseph V. Columbus Tapestry  
Symposium": 17:24-25  
"Report on the Internship in Tapestry  
Conservation at St. John the Divine,  
New York": 16:31  
"The Textile Society of America":  
18:23-24  
"Upholstery Conservation  
Symposium": 18:21-22  
"Winter Institute 1990, Winterthur  
Museums and Gardens":  
19:22-23  
Conservation:  
philosophy: 17:12-14,24  
Costume:  
parasol: 16:25-26; 17:21-22  
shawl: 16:14-17  
trousers: 18:12-15  
wig: 18:7-8

#### D

"Dichlorvos Carcinogenicity Update": 19:21-22  
"Dual Bleaching of a Lace Shawl": 18:9-11  
Davis, Stephen: 18:27  
Dawson, Hilary, et al: 18:12-15  
Day, Colleen: 16:1-3  
Display:

doll clothing: 16:1-3  
dressingmannequin:17:9  
exhibit mount, oversize flat: 16:7-10  
mannequinagedu costume:17:7  
materials test list: 17:19  
visible storage: 16:17-22  
Degradation: "Warning! Dichlorvos Resin Strip Fumigator":  
Supplementary1989  
Detroit Historical Department: 17:2-6  
Documentation:  
shoes:17:12-14  
Doll:  
display:16:1-3  
treatment: 16:1-3;3-7  
Dugald Costume Museum: 16:17-22

## E

Emergency(see also Disaster):

mildew: 17:2-6

Equipment:

compactmobile storage:Supplementary 1990:14  
laboratory facilities: 16:11-12  
movablebridge: 16:12  
tapestry frames: 16:12  
vacuum system:17:16  
washing tanks: 16:11-12

Ewer, Patricia: 16:11-14

Exhibitions: 16:36;17:32;18:32;19:30

"Kashmir Shawl Exhibition at the Musée d'art et d'histoire in Geneva, Switzerland":16:14-17

"New Museum for Textiles Now Opened in Toronto": 17:30-31

"The Costume and Textile Gallery of the New Samuel European Galleries opens October 12, 1989, at Toronto's Royal Ontario Museum": 17:29-30

catalogues:16:17

reviews:

"Measure for Measure - Measuring Up": 18:26

## F

Fenn, Julia: 18:16-17;19:15-19

Fumigation:

damaged to textiles: 19:16-17

## G

Glenbow Museum:

news from the Textile Conservation Lab: 17:18-21

## H

"Happy Birthday, Fanny!": 16:1-3

"Health and Safety Considerations for Garment and Textile Conservators":18:18

Hammick, Sharon: Supplementary1989; 16:25-26

Health and Safety:

"Mildew, Collections and the Work Environment: An Attack of

Aspergillus Fumigatus:17:2-6  
"Warning! Dichlorvos Resin Strip Fumigation": Supplementary1989  
compactmobile storage: 18:16-17  
dichlorvos: 19:21-22  
equipment:17:4  
fumigation: 19:15-19  
phosphine(PhostoxIn<sup>TM</sup>): 19:15-19  
precautions:19:19-21  
publications:19:20-21  
survey: 18:18  
Vapona: Supplementary1989  
Henry Art Gallery: 19:4-7  
Historisches Museum Basel: 19:2-4  
Holt, Helen: 16:7-10  
Hughes, Julie: 17:16-18;18:19;19:1,11  
Hutchison, R. Bruce: 18:23

## I

Isabelle, André: 18:2-6

## J

Jaffe, Marlene: 18:27

Jakobiec, Anna: 18:19

Jakobiec, Wojciech: 16:31

## K

"Kashmir Shawl Exhibition at the Musée d'art et d'histoire in Geneva, Switzerland": 16:14-17

Kite, Marion: 18:7-8

Kruckeberg, Vicky: 17:2-6

## L

Lalonger, Louise: 18:20

Letter to Editors: 19:1

Lindholm, C.O.: 18:18

Little-Regusich: 18:20

Laboratory: 16:11-14

Lace: 16:7-10

## M

"Measure for Measure - Measuring Up": 18:26

"Mildew, Collections and the Work Environment: An Attack of Aspergillus Fumigatus":17:2-6

Musée d'art et d'histoire: 16:14-17

Mannequin:

bande de papier "Kraft": 17:6-7,10-11

Bendie: 16:17

dressingmannequin:17:9

doll: 16:1-2

paper tape: 17:8-11

mannequinagedu costume:17:7

sous-vêtements:17:7

undergarments:17:9

Mason, Janet: 16:3-7

Masson-Schoefer, Marie: 17:6-11

McCord Museum of Canadian History: Supplementary1990

Mills, Ruth: 18:26,27

Montgomery'sinn: 18:12-15

Mounting:

bear, for travelling exhibit: 19:13  
flags: 17:18  
oversize flat: 16:7-10,25  
pressure mount: 16:14-15  
shawl: 16:14-17  
stretcher: 16:7-9  
Mulhall, Jan: 17:18-21  
Musée Historique des Tissus de Lyon: 17:6-11  
about: 17:6,8  
Museum for Textiles:  
about: 17:30-31  
Myrholm, Karen: 17:21-22

## N

New Brunswick Museum: 16:1-3

## O

"On Costumes": 17:8-11

## P

"Precautions for Textile Conservators": 19:19-21

### Pests:

Nomit-anti-moth-paper: 16:15  
Provincial Museum of Alberta: 17:14-16  
Publications: 18:28-29; 19:20-21  
reviews:  
Textile Conservation and Research  
by Mechthild Flury-  
Lemberg: 16:28-31  
The ATN Guide to Structural  
Sewing: Terms and  
Techniques by Anne  
Morrell: 18:27

## Q

Queen's University:  
Art Conservation Program: 18:21-22  
about: 17:22-23

## R

"Recent Trends in Costume and Textile Storage":  
Supplementary 1990  
Raster, Barbara: 16:14-17  
Redman, Leslie: 19:8-10  
Research:  
fibre resource: 17:20  
shoes: 17:12-14  
trousers: 18:13-14  
Repairs:  
historic: 17:12-14  
Reproduction:  
pattern: 18:14-15  
undergarments (doll): 16:1-2  
Richards, Elizabeth: 17:24-25  
Rockliff, Doreen: 17:14-16  
Rossol, Monona: 19:19-20  
Royal British Columbia Museum: Supplementary 1989, 19:12-14  
news from: 16:25-26; 19:12-14  
Royal Ontario Museum: 18:16-17; 19:15-19

## S

"Shoe Conservation": 17:12-14  
"Shoe Storage Solutions": 19:4-7  
Schmedding, Brigitta: 16:28-31  
Simmons, R.J.: 18:18  
Sourakil, Judy Darlene: 19:4-7  
Splrydowicz, Krystia: 17:22-23; 18:21-22  
Storage:  
"Recent Trends in Costume and Textile Storage": Supplementary 1990  
"Warning! Dichlorvos Resin Strip Fumigation": Supplementary 1989  
compact mobile: Supplementary 1990: 5-8; 18:16-17  
containers: 18:2-6  
costume: 19:14  
Coroplast and Corex: 18:2-6  
facility, mildew problem: 17:2-6  
garment racks, moveable: 19:14  
hats: 19:12  
labels: 19:6  
safety: 18:16-17  
shoes: 17:12-14; 19:4-7  
visible: 16:17-22; Supplementary 1990: 3-4  
Stucky-Schäfer, Monica: 19:2-4  
Supplementaries:  
"Recent Trends in Costume and Textile Storage":  
Supplementary 1990  
"Warning! Dichlorvos Resin Strip Fumigation": Supplementary 1989  
Supplies: 18:28-30  
Au Ver a Sole hand cream: 17:32  
Coroplast and Corex: 18:2-6  
Gore-Tex<sup>®</sup>: 17:20  
mannequin hanger: 19:29  
Mini-vac: 17:16  
needles, extra-long: 16:23  
Passepoil: 16:23  
patterns for reproduction: 18:14-15  
Rigelene<sup>®</sup>: 17:21  
Rowenta Steamer: 17:20-21  
Swann, June: 17:12-14

## T

"Tame and Wild" (Zahm und Wild), Basel Tapestries  
of the 15th Century": 19:2-4  
"Tapestry Conservation Project - Biltmore House":  
16:11-14  
"Textile Fumigation with Phosphine": 19:15-19  
"The Conservation of a Bag Wig, c.1820": 18:7-8  
"Treatment of an Extensively Corrosion Stained Uniform  
Jacket Using a Vacuum Suction Technique": 17:14-16  
"Trousers Found in Montgomery's Inn": 18:12-15  
Tait, Elizabeth: 17:14-16  
Tapestry:  
Basel: 19:2-4  
philosophy: 17:24  
treatment procedures (Biltmore House):  
16:11-14  
Textile Conservation Group Newsletter: 18:23-24  
Textile Conservation Workshop Inc., The:  
about: 16:27  
Treatment:

doll: 16:1-3,3-7  
humidification: 17:20  
fringe: 19:9  
insect damage: 16:22-24  
Mandala: 17:20  
Métis dog blanket: 19:8-10  
parasol: 16:25-26; 17:21-22  
philosophy: 17:24  
shawl: 16:14-17  
stains: 17:14-16; 18:9-11  
tapestry: 16:11-14  
trousers: 18:12-15  
uniform: 16:22-24; 17:14-16  
vacuum treatment: 17:14-16  
warehouse facility: 17:2-6  
wig: 16:6-7; 18:7-8

**Toy:**

bear: 19:12

**U**

Uniform: 16:22-24; 17:14-16

University of Alberta:

Faculty of Home Economics:

news from: 17:21-22

Textile Conservation Service: 17:21

University of Cincinnati: 18:18

Victoria and Albert Museum: 18:7-8

**V**

"Visible Storage at the Dugald Costume Museum":  
16:17-22

**W**

"Warning! Dichlorvos Resin Strip Fumigation":  
Supplementary 1989

Weber-Fuhr, Susan: 18:9-11

Wig: 16:6-7

Wilson, Colleen: 16:25-26