



**University of Delaware  
Program in Art Conservation**

**Conservation Report**

**Accession #:** 2001.048

**Object:** Child's white dress with embroidery

**Object Date:** 1890-1899

**Artist/Author:** Unknown

**Materials:**

**Fiber(s)** Cotton

**Structure(s)** Plain weave fabric used for entire garment. 3 horizontal pleats on skirt and sleeves. Running stitch on all seams. Eyelet, cartwheel eyelet embroidery and satin stitch decoration on skirt, yoke, and sleeves.

**Owner:** University of Delaware Historic Costume and Textile Collection

**Reason for Treatment or Examination:**

This garment is being treated as part of the ARTC-464 Documentation and Treatment Report project because it has visual and minor physical damages.

**Examined by:** Vivien Barnett

**Consulted:** Laura Mina

**Report Date:** 5/14/18

**Description: (include fibers, structures, construction, applied decoration)**

The dress is made of cotton with a plain weave structure. This is supported through microscopy of a fiber from a seam on the first pleat of the skirt on the proper right interior of the waist of the garment (**Fig 1**). It is handmade due to the lack of uniformity of the stitches on the interior of the seams of the pleats, the sleeves, and the hem. The extensive embroidery was also handmade using a pattern. The dress closes in the back with 3 Mother of Pearl buttons with the opening starting at the collar and ending below the waistline.

The flat measurements of the dress include:

- Height: 20 in
- Skirt Width: 25 in (taken from hem of skirt)
- Collar: 5 in across
- Waist: 12 in across
- Sleeve Length: 8.5 in

There is applied embroidery on the collar, bodice, cuffs, skirt and hem. The

embroidery consists of a floral pattern, using eyelet embroidery around small decorative holes in the skirt fabric. The hem of the skirt is scalloped with a satin stitch at the edges. The leaves of the floral decoration are made with a herringbone stitch and running stitch. A ruffled band of fabric separates the bodice and the skirt, with 3 horizontal pleats on the skirt separating the plain, gathered upper section of the skirt from the decorative bottom section. There are 3 similar decorative pleats above the cuffs of the sleeves, and 4 sets of 3 vertical pleats forming a pattern with the embroidery on the front of the bodice.



**Historical Context:** This dress is characteristic of children's dress in the 1890's; a time when children were dressed in a way that reflects childhood and play rather than pre-adulthood. Rather than being elaborately colored and layered, this high-necked dress has a loose, skirt which reflects the leisure and playfulness of children. During this time period, both young boys and girls wore white cotton dresses, so this dress could have belonged to either.<sup>1</sup> The thinness of the material leads me to believe that there would have been other layers to go under the garment. A bonnet or possibly a belt would have been worn to complete the outfit, which was also characteristic to infant's and children's clothing of this time period.

The three horizontal pleats on the skirt were most likely functional; they were historically used as a way to extend the skirt to accommodate a growing child. The pleats on the sleeves and bodice were purely decorative. Because of the level of embroidery and decorative elements present on this garment, it is likely that it would have been worn by a young child during the day, as simpler, less ornate gowns would have been worn at night.<sup>2</sup>

**Condition:** The object is in fair to good condition. The structure is stable and able to be handled, but has many signs of visual and some signs of minor physical damages. The damages distract from the overall appearance of the garment, but do not seriously affect the overall stability of the textile.

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<sup>1</sup> Schimpky, David. *Children's Clothing of the 1800's*. 14.

<sup>2</sup> Macphail, Anna. *The Well-Dressed Child: Children's Clothing 1820-1940*. 45.

**Visual Damage (Fig 2):**

1. Amorphous red-brown stains on front and back of skirt, ranging from 0.5-5 in
2. Large areas of yellow discoloration on the bottom corners of skirt, front and back, and the back of the collar.
3. Possible foxing or fly specks on front and back of skirt.



**Physical Damage (Fig 3):**

1. Small tear in the concave area between two of the scallops on the hem in the front.
2. Loose threads on the scalloped edges of the hem and sleeve cuffs.
3. Creasing of skirt and sleeves.
4. Small hole measuring 0.5 in behind middle button on closure.
5. Small hole measuring 0.5 on the proper front of the garment.

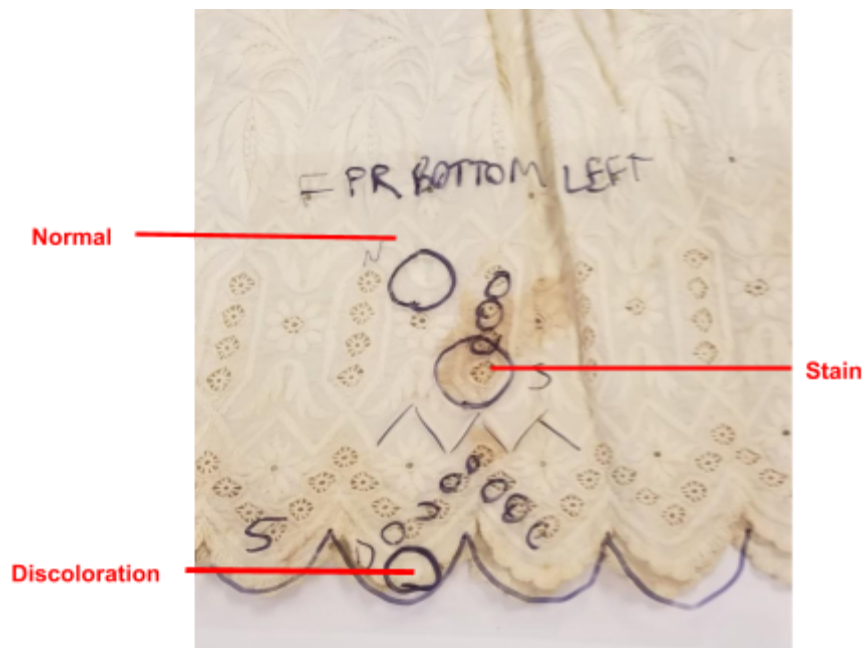


**Colorimetry:** A template was made on mylar to plot the measurement sites. The three test sites are all found on the proper right bottom corner on the front of the garment, and they are

comprised of a relatively undamaged area of the dress, labeled normal, a stain, and a discolored area. The colorimetry measurements the sites are labeled in the image, and the values of each site are listed in the table below.

#### Colorimetry Values: Before Treatment

	Normal	Discolored	Stain
L	84.16	79.40	65.08
a	-1.14	-0.33	+4.48
b	+11.22	+12.91	+19.7



**Purpose of treatment:** This treatment is taking place as an educational endeavor for the ARTC-464 class in textile conservation. The treatment will reduce the red-brown staining on the bodice and skirt of the dress, the yellow discoloration and creasing on the skirt and sleeves.

**Treatment Proposal:** The dress will require both mechanical and wet cleaning. First, the dress will be brushed or lightly vacuumed to remove as much surface dirt as possible. Then the dress will be wet cleaned to further remove dirt embedded in the fibers, and to reduce the discoloration of the fabric. The goal of this treatment is to clean the garment to reduce any harmful unoriginal materials and products of degradation which may have been added to it over the years.

**Treatment Report:** The first step of the treatment was mechanical cleaning using a vacuum in order to remove as much surface dirt as possible. The rheostat of the vacuum was not functional, so I placed a screen over the dress and held the vacuum at an angle to regulate the suction strength. There were no visible changes to the appearance after mechanical cleaning.

The accession tag had been removed prior to the aqueous treatment, and it was reattached on the interior of the proper left sleeve, on the seam of the bottom-most decorative pleat, using a self-couching loop stitch.

The wet cleaning portion of the treatment began with a 30 minute soak bath in deionized water, with an initial pH of 6. The dress was initially hydrophobic, possibly due to a surface finish or oil-based stains, but after some agitating it became saturated with water. After being removed from the soak bath, a sample of the water was taken. The bath was slightly yellow and had a final pH of 5.5, and the rest of it was disposed of.

Next, the object was washed with a 1% Orvus and 0.5% Citric Acid solution in deionized water (5g Orvus, 2.5g Citric Acid in 500mL water). The surfactant and chelator solution with an initial pH of 7 was added to the garment over the course of 30 minutes using sponges to form the foam that would remove dirt and other materials embedded in the fibers. The garment was flipped to its back after 15 minutes. At the end of the wash bath, the foam made by the solution was carefully removed by scooping it off of the garment with our hands. A sample of the bath was taken (**Fig. 4**), which appeared brown, and had a pH of 7.

The garment was then rinsed with deionized water six times over the course of an hour to remove all of the remaining surfactant and chelator solution. The pH of the first and last rinse baths was approximately 6.5.

Once the dress was removed from its final rinse bath, it was lightly dried on a towel. It was then stuffed with nylon net and dried with two blow dryers using cool air. Some wrinkles and creases persisted even after drying.

In addition to the cleaning of the garment, an archival hanger was made for its proper storage. Images and information on the construction of the hanger can be found in **Appendix 4**.

**Treatment Assessment:** Overall, this treatment was a success. The stains and discoloration, while still visible, were reduced. As evidenced by the sample taken from the wash bath, dirt was definitely removed from the garment (**Fig. 4**). Some of the creases were also reduced, especially in the middle and proper left of the skirt. The large crease on the proper right of the skirt was softened but still noticeable. More shape was given to the dress, as can be seen in the picture below, especially in the skirt and sleeves. While the collar stood straight up before the treatment, it was realized after treatment that it is meant to lay flat because the top button was sewn on top of the collar, so it was returned to its original placement. The colorimetry measurement listed in the table below were not in line with the visual evidence. This is especially noticeable in the L row, which states that the dress was darker after treatment, despite it visually appearing lighter. This measurement could be inaccurate due to user error, and is not on its own indicative of the success of the treatment.





**BEFORE TREATMENT: FRONT**

**AFTER TREATMENT: FRONT**



**BEFORE TREATMENT: BACK**

**AFTER TREATMENT: BACK**

**Colorimetry Values: After Treatment**

	Normal	Discoloration	Stain
L	81.59	76.17	64.05
a	-0.74	-0.94	+4.64
b	+7.03	+9.12	+16.97

**Colorimetry Values: Change**

	Normal $\Delta$	Discoloration $\Delta$	Stain $\Delta$
L	-2.57	-3.23	-1.03
a	0.4	-0.61	0.16
b	-4.19	-3.79	-2.73

**Student:** Vivien Barnett

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**Date:** 5/14/18

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**Conservator:** Laura Mina

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**Date:** 5/14/18

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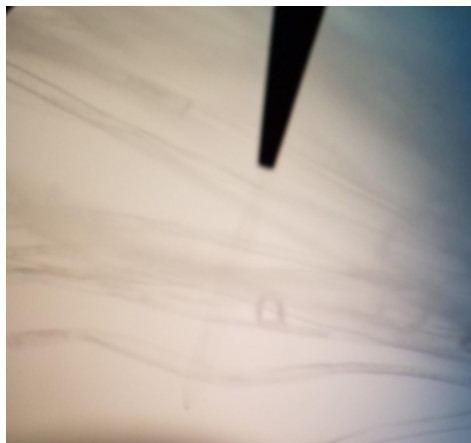
**Curator:**

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**Date:**

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## Appendix 1: Supplementary Images



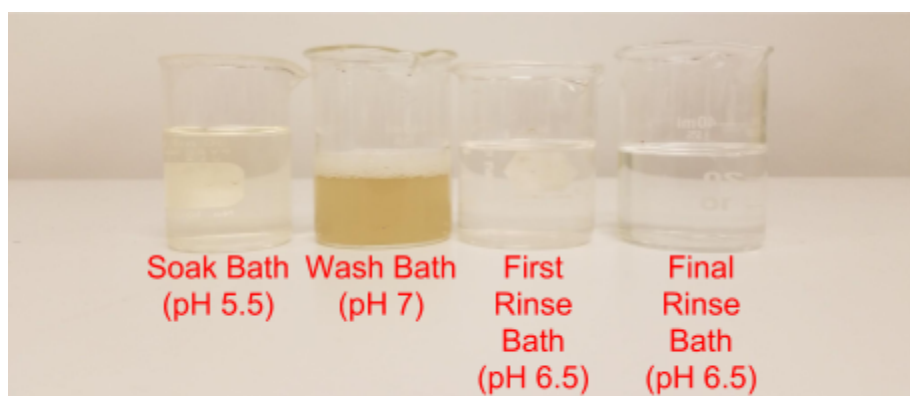
**Fig 1:** Microscopy of cotton fibers from inside waist of garment. (200x magnification)



**Fig 2:** Close-up examples of the stains and fly specks present on the garment.




**Fig 3:** Close-up images of physical damages.



**Fig 4:** Samples of water from each bath used during wet cleaning.



## Appendix 2: Condition Survey

Textile Condition Survey				
Accession #	2001.048			
Description	White Child's Dress w/ embroidery, 1890-1899			
Report by	Vivien Barnett	Date	2.12.18	
<b>Condition Assessment</b>				
Excellent Good <i>structure</i> Fair <i>visual</i> Poor	<b>Visual condition</b> Multiple creases, <del>stains</del> , multiple large + small red-brown stains on front + back of garment. (torso + skirt), yellowing/discoloration at edges.			
Culturally significant damage?	<b>Structural condition</b> material feels thin			
	Flattened and creased (especially in skirt + sleeves) but structurally sound, no physical/structural damage, some loose threads on bottom fringe.			
<b>Conservation Assessment</b>				
None	<b>Mechanical Cleaning</b>			
Low (4 or less hours)	Brush + vacuum			
Moderate (7 - 35 hours)	<b>Crease Reduction</b>			
High (more than 40 hours)	Definitely needed, can be smoothed during the drying period of wet cleaning.			
No interventive at this time				
Mount or display notes	<b>Structural support (stitch or adhesive)</b>			
Maybe add a light stuffing layer to keep garment from flattening, may be too thin or fragile to place on mannequin? Store flat?	X			
	<b>Stain Reduction (aqueous or solvent) (immersion or localized)</b>			
	Aqueous immersion, <del>cloth</del> fabric is discolored w/ many large stains all over garment, spot treated afterward if stains persist.			
	<b>Visual Compensation</b>			
X				
<b>Urgency Assessment</b>				
Stable	Fragile	Inherent Vice	Unstable	Urgently unstable
No serious structural damage, but material is thin and somewhat fragile, garment should be handled with care.				

### Appendix 3: Aqueous Cleaning Treatment Form

Aqueous Cleaning Treatment			
Accession number	2001.048	Date	4.23.18
Description	Child's white dress w/ embroidery	Name	Vivien Barnett
Pre-treatment stabilization			
None			
Soak bath			
Type of water	DI WATER	Total time	2:15 - 2:45 (30 min)
Initial pH	6	Final pH	6.5
Wash bath			
Type of water	DI WATER	Total time	2:47 - 3:20
Surfactant	Orvus	Quantity	1% (5g)
Chelator	Citric Acid	Quantity	.5% (2.5g)
Initial pH	7	Final pH	7
Rinse baths			
Type of water	DI WATER	Total time	3:20 - 4:10
Initial pH	6.5	Final pH	6
Drying			
The skirt + sleeves were stuffed with nylon net to give shape and volume to areas susceptible to creasing. They were dried with two hair dryers on cool			
Observations			
During the soak bath, the water turned slightly yellow, but the most dirt was removed during the wash bath. The Orvus generated a lot of foam, so 6 rinse baths were needed to remove all surfactant from the garment.			

HTT 1  
6 baths

## **Appendix 4: Hanger Instructions**

1. Start with a wire hanger and bend the ends inward until the hanger is the desired length. The ends of the hanger can be cut, or can simply be placed in an ethafoam block to keep them in place. The hanger should go about an inch past the shoulder seams on each side of the garment, and the slope of the wire should match the natural slope of the shoulders and sleeves.
2. Wrap cotton batting around the wire of the hanger, except for the hook. The cotton batting should be applied evenly, and can be wrapped with string to secure it in place. Extra batting can be added to the shoulder area to achieve the shape required for the garment.
3. A stockinette sleeve can be placed over the batting to further hold it in place and to even out the surface. A hole should be cut in the center of the sleeve for the hook. The ends can be folded and sewn. At this point the garment can be placed on the hanger to ensure that it is the correct size.
4. Cut two sheets of muslin about an inch larger than your hanger on each side, matching the slope of the wire hanger. The fabric can be wrapped around the bottom of the hook and sewn shut. Fold the first sheet over the back and sew onto the stockinette using a whip stitch. Then, do the same for the front side, with the seam on the back. Then, the sides can be folded and sewn with a whip stitch.
5. The accession number can be written a piece of cotton twill tape with a Micron pen and then sewn onto the back of the object under the hook.



Archival Hanger: Front



Archival Hanger: Back



Garment on Hanger: Front

## Works Cited

MacPhail, Anna. *The Well-Dressed Child: Children's Clothing 1820-1940*. Atglen, PA: Schiffer, 1999.

Schimpky, David, and Bobbie Kalman. *Children's Clothing of the 1800s*. Historic Communities. New York: Crabtree, 1995.