HARPERS FERRY CENTER | Treatment Report

Date
5/31/2024

Conservator
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Park
HAFE

Park Contact
Mike Hosking, Museum Curator

Artifact
Black Waxed Canvas Haversack

Registration Number
15589.0011

Catalog Number
HAFE 4290

Artifact Year
1864

Dimension
H: in **W:** in **D:** in

Observations and Description After Treatment

Black oilcloth M1864 double bag knapsack (based on comparable media) with two compartments. The upper compartment comprises of a square compartment with four half-round flaps. The upper and proper left (PL) flaps have leather straps attached to the canvas using black, coated thread and copper alloy buckles. The bottom and proper right (PR) leather straps are attached to the canvas similarly and demonstrate holes for adjustment. On the outside of this compartment are three smaller leather and iron alloy buckles. Two larger straps, one with an iron alloy buckle and one with a copper alloy hook are sewn on this side as well, possibly to attach the leather shoulder straps.

The lower compartment has a singular canvas flap for access, with white leather strips attached with copper alloy rivets to the canvas. On the exterior of this compartment, three leather straps with adjustment holes are stitched to the exterior of this compartment, corresponding with the three buckles on the opposite compartment. The bottom canvas on this compartment has been folded to allow the buckles to attach properly. The fold at the center of the pack demonstrates four leather straps stitched to the surface on both the interior and the exterior, there are two flaps made of canvas that fold over to further protect the contents of the bag.

Leather shoulder and waist straps are stitched to the exterior of the upper compartment, this consists of two wide (5cm) straps attached to two sets of thinner straps with copper alloy rivets, which allow for radial movement of the thinner straps. Each set of straps demonstrates one with adjustable holes and a copper alloy J hook which can be detached. One of the straps on the PR side has an iron alloy buckle attached to a piece of leather with a triangular copper alloy attachment. On the PL side, one of the straps demonstrates holes to attach it to the buckle sewn on the opposite compartment.
During the treatment, white leather ties on the interior were found to be damaged.

Condition After Treatment

Object is relatively stable, canvas is at risk for further tears in the future. Metal is stable.

Treatment Performed

The goal of this treatment was to stabilize the object and prevent further deterioration while improving overall visual quality.

Completed photographic documentation with digital DSLR camera.

Lightly surface cleaned with a soft bristle brush and a HEPA-filtered vacuum with nozzle covering to remove surface debris and reduce surface soiling.

Stabilized areas of friable canvas and leather with Cellugel (hydroxypropylcellulose in isopropanol).

Reduced surface soiling and salt efflorescence on canvas and leather surfaces with ethanol and cotton swabs.

Repaired canvas tears with Japanese paper, Lascaux 498V and 360V, 3:1(an acrylic emulsion), and low heat spatula. Toned substrate with QoR watercolors.

Reduced copper stearate corrosion product on the brass and copper elements using mechanical methods and cotton swabs dampened with ethanol.

White leather ties on interior of knapsack were stabilized using Japanese paper and Lascaux 498V and 360V, 3:1(an acrylic emulsion).

Surfaces of white leather that had been stained by copper stearate were toned using dry powder pigments in order to limit aesthetic disruption.

Coated copper and brass elements with Paraloid B48N in acetone, a protective acrylic resin.

Mechanically reduced corrosion on ferrous elements with a stiff brush and glass bristle brush.

Chemically surface cleaned ferrous elements with mineral spirits.

Coated the ferrous and cupric elements with Paraloid B48N in acetone, a protective acrylic resin.

Removed previous catalog number using cotton swabs dampened with acetone. Reapplied a new catalog label using current best practices - printed paper label on archival paper and applied using acrylic resin Paraloid B72 in acetone.

Fabricated internal support pillows for both the upper and lower storage compartments.

Treatment Analysis

X-ray fluorescence (XRF) spectra were collected using a Bruker Tracer 5i handheld energy dispersive X-ray spectrometer that was held in place on specific locations on the object. The excitation source was a Rhodium (Rh) target X-ray tube, operated on the “Metal Alloys 2” setting: 15 keV, 11.35 uA, 12 seconds, no filter. The X-ray beam interacts with the sample at approximately a 3mm circle. X-ray signals were detected using a proprietary 20mm2 silicon drift detector (SDD) with a resolution of <140 eV @ 250,000 cps Mn Ka. Spectral interpretation was performed by the instrument in this standard setting.

Results of XRF:

Canvas Coating: Unknown (59.29% Pb, 31.21% Fe, 6.72% Ru)
Large Buckles: Iron (99.17% Fe)
Rivets on canvas: Copper alloy/brass (97.57% Cu, 1.65% Zn, 0.43% Pb)
“J” Hook: Copper alloy/brass (62.35% Cu, 35.35% Zn)

*Percentages are listed to display the qualitative ratio of elemental components within a material at a specific test site, rather than represent exact quantitative values for the object as a whole.

Rationale

Object was unstable and at risk of further damage due to a history of variable environments. It was deemed necessary to stabilize areas of canvas and leather, as well as build internal supports in order to ensure longevity of the object for the possibility of future display/research.

Recommendations for Subsequent Care

Caution whilst handling. Wear nitrile or laxtex gloves when handling metal elements.

Before Treatment Images

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hafe_4290_bt_3.jpg

hafe_4290_bt_2.jpg

hafe_4290_bt_4.jpg

Before Treatment Images

hafe_4290_bt_5.jpg

hafe_4290_bt_7.jpg

hafe_4290_bt_6.jpg

hafe_4290_bt_8.jpg

Before Treatment Images

hafe_4290_bt_9.jpg

After Treatment

hafe_4290_at_1

hafe_4290_at_2

hafe_4290_at_3

hafe_4290_at_4

After Treatment

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After Treatment

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hafe_4290_at_12

After Treatment

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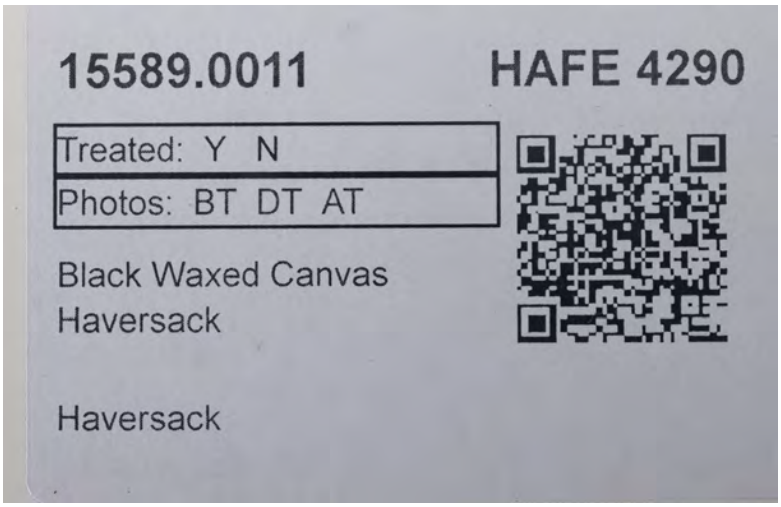
hafe_4290_at_14



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