

## Organic Object Treatment Report

<b>Site Name: Vauxhall</b>	<b>Context: Box "E"</b>	
<b>Conservator: S. Goel</b>	<b>Date: 06/05/21</b>	<b>Lab no: 3667</b>
<b>Object: Shoe</b>	<b>Material: Leather</b>	

### Description:

This shoe sole was found at Vauxhall in London. It is most likely vegetable tanned cow, sheep, or goat hide, as other leather does not survive well in wet burial conditions (Volken, 2001). However, no analysis was undertaken in order to confirm this due to time constraints.

The leather shoe sole is made up of four pieces. The largest, main piece of leather is 20 centimetres by 7 centimetres at its longest points. Smaller piece (A) is 5.6 centimetres by 5.2 centimetres, smaller piece (B) measures 3.6 centimetres by 7.7 centimetres, and piece (C) is 3 centimetres by 4.4 centimetres. Pieces (A) and (B) cleanly fit with the larger body of the leather piece (fig. 1). The main piece demonstrates a series of iron tacks that keep layers of leather on the sole of the shoe together. Several of these tacks protrude through the entire thickness of the object.

### Condition:

The leather has absorbed large amounts of water vapour from its burial atmosphere, leaving it waterlogged and increasing the thickness and area of the pieces (Thomson, 2006). However, it is not fragile or severely friable. The surface demonstrates soiling and concretion, as do areas in between layers of leather. The iron tacks demonstrate light corrosion but are not heavily concreted. There is light iron staining surrounding some of the tacks.

### Conservation Treatment:

The treatment of the leather aimed to stabilise the piece, as it is missing a percentage of its original tannins (Volken, 2001). Furthermore, the high water content also leaves the leather at risk for further deterioration after its removal from its burial environment (ibid). Water should be removed from the structure of the leather which will help it to not shrink, cross-link, or stiffen in the future, as well as limit the possibility of fungal growth whilst in storage (Thomson, 2006). Soiling should also be removed from the object.

First, the leather was cleaned using tap water. A net frame was placed over the sink in order to keep loose pieces of leather from falling into the sink, and a thin stream of water from the faucet was used in order to keep the object moist. The leather was then brushed using a soft brush in order to remove dirt. A dust mask was worn during this process in order to protect the conservator against mould spores (Thomson, 2006). During the cleaning process, pieces (A) and (B) were dislodged from the main body of the leather, as they were only in place due to the soiling. These pieces were retained and treated with the larger object.

After the majority of soiling was removed from the leather, it was placed in a net bag with a Tyvek tag and placed in 20% polyethylene glycol (PEG) 400 in deionised water. PEG 400 is a water-soluble polyether with a small molecular size that allows it to penetrate materials and replace water molecules within their structure (Salmonsens et al., 1996). The leather was left in this solution for two weeks.

Following this, the leather was frozen for three days in between two pieces of cardboard in order to keep it flat (fig. 2), during this transfer, piece (C) was found to have detached. The leather was then freeze-dried for around 30 hours in order to remove any excess water.

Finally, the leather was mechanically cleaned after it had dried using a bamboo skewer and soft brushes. This removed all remaining loose dirt and allowed for the removal of dirt from the seams of the piece. Some staining and concretion from the iron tacks was also removed at this time.

#### Storage Recommendations:

The leather should be kept in a pierced polyethene bag with a stiff Plastazote support, wrapped in acid-free tissue in order to limit abrasion on the leather. Placing this into a larger box will further protect the leather from deterioration from light and dust.

#### Environmental Recommendations

Temperature should remain between 18-20°C (CCI, 2017), with humidity parameters of 40-60% RH, though with minimal fluctuation in any 24-hour period (NPS). This will limit risks of mould growth and embrittlement from humidity extremes (Thomson, 2006; CCI, 2017). The leather should be exposed to a minimal amount of direct light (Dirksen, 1997). Leather can be subjected to a maximum of 150 lux, with an ultraviolet light content of less than 75  $\mu\text{W}/1\text{m}$  (CCI, 2017). An integrated pest management plan should be in place in order to prevent risk of infestation (Angus et al., 2006).

#### Handlign Recommendations:

Leather should be handled with gloves or with clean hands in order to limit the introduction of dirt, oil, etc. to the surface.

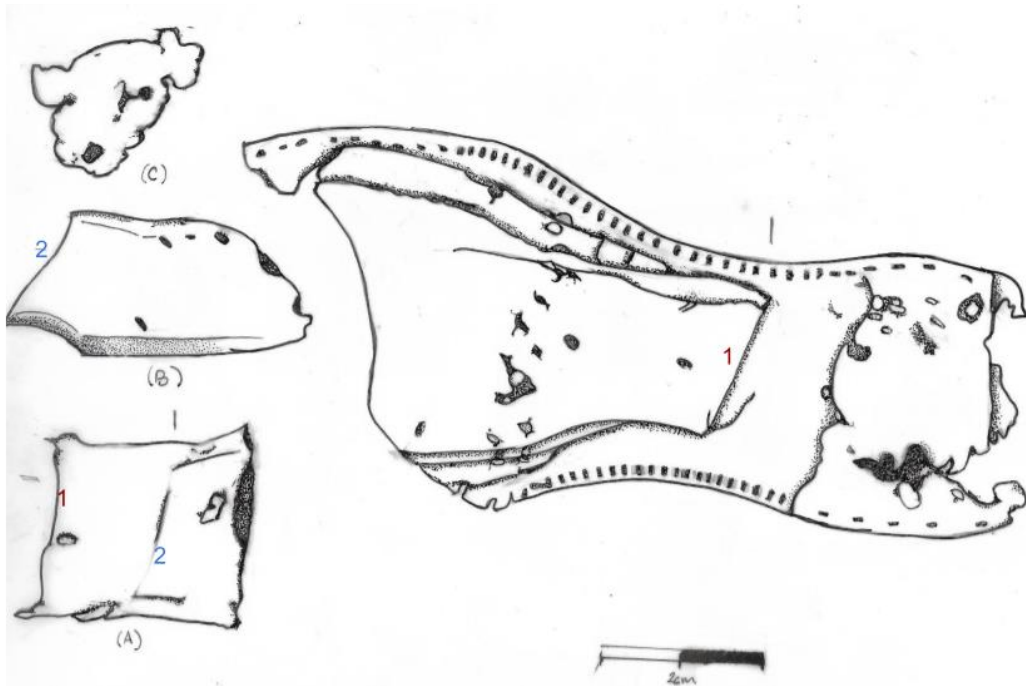


Figure 2: Annotated drawing of the inside of the shoe, demonstrating how pieces (A) and (B) fit with the main piece of leather. Piece A is attached in between layers of leather on the larger piece along edge 1, and piece (B) should be attached to piece (A) at edge 2 (drawn by author)



Figure 1: Image of cardboard layers that kept the leather flat during the freezing process (photo by author)

Before Treatment\*:

\*Unfortunately, the original before treatment photos of this leather did not save correctly on the camera SD card, below is a salvageable photo from a mobile phone



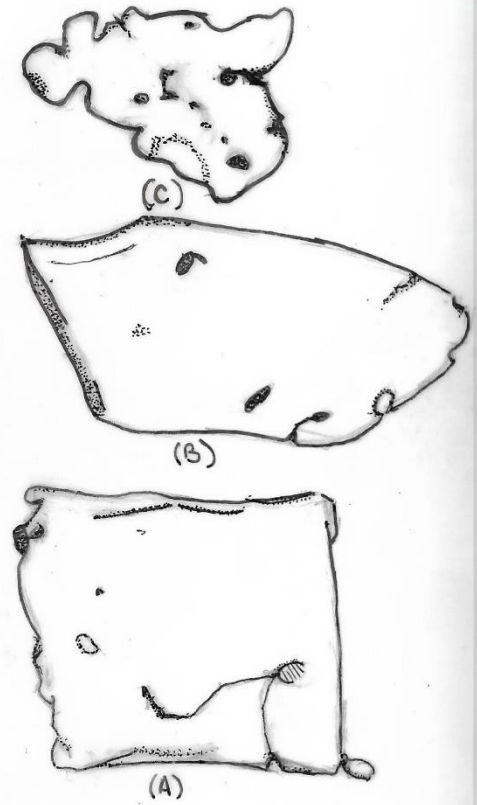
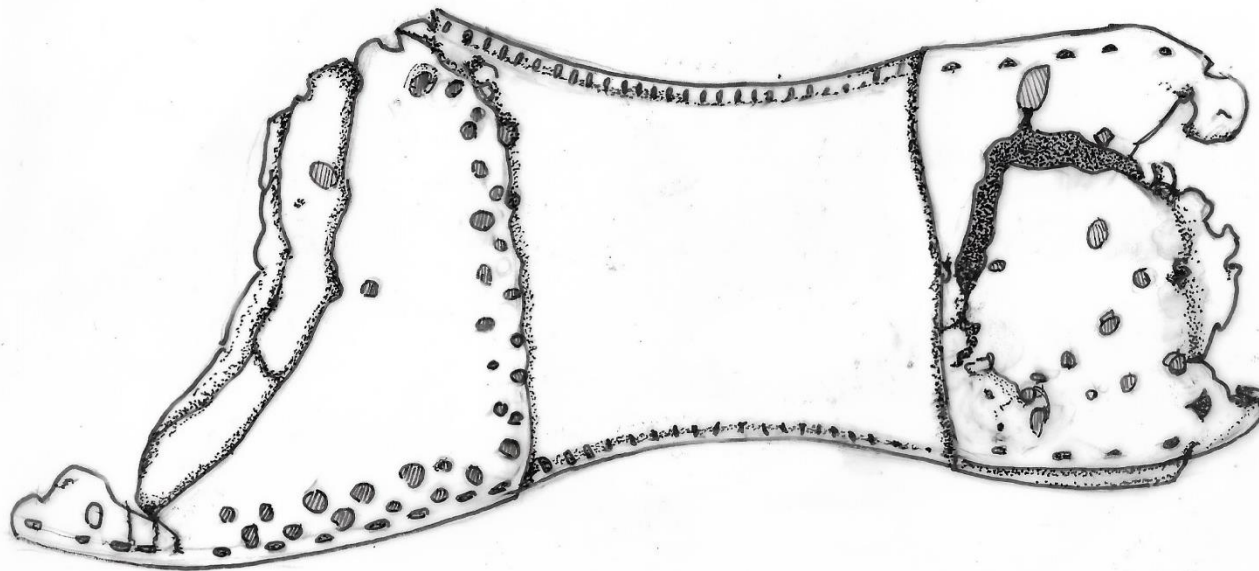


After Treatment:





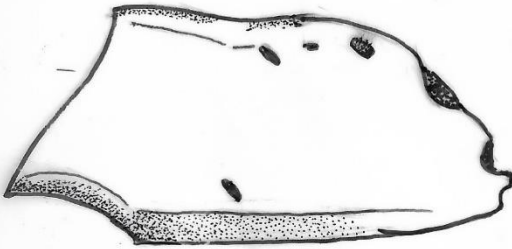
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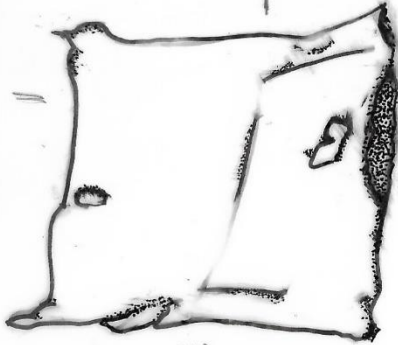




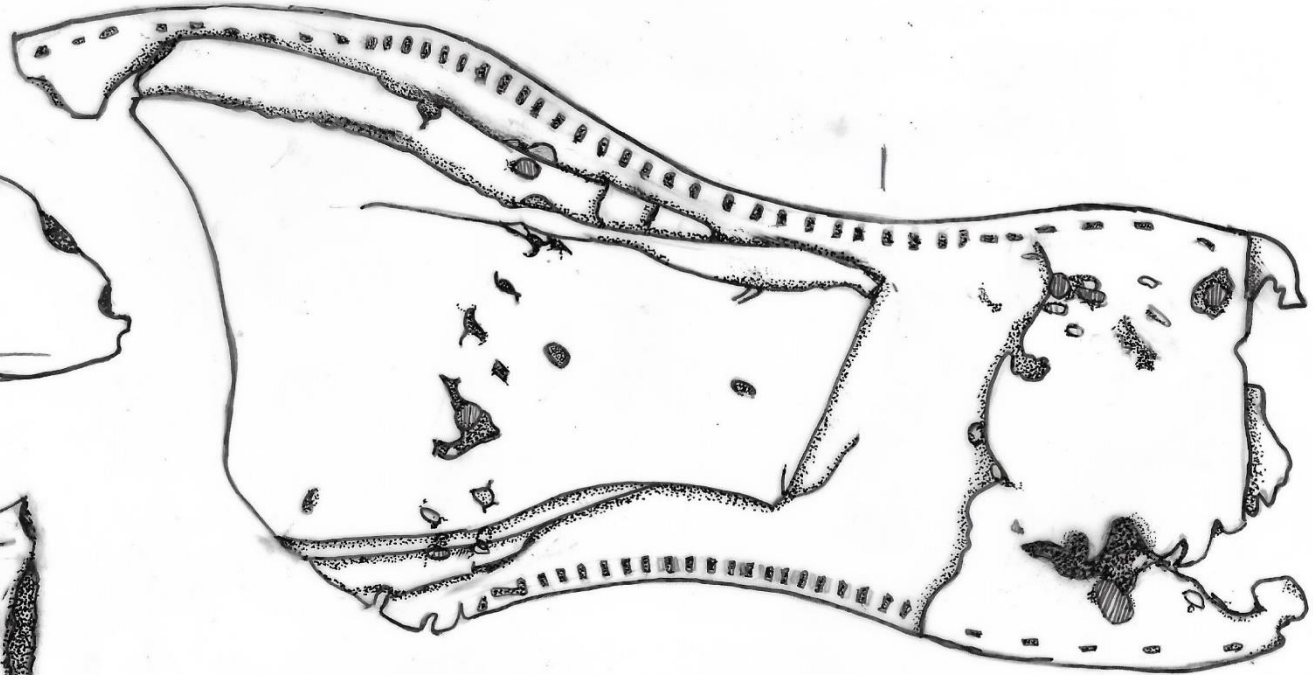
(C)



(B)



(A)



▨ = Iron Tack





