



YORK ARCHAEOLOGICAL TRUST

CONSERVATION LABORATORIES

## Burdale (BUR06)

Report on the Conservation of a bone comb for

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by

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4.7.2006

## **ABSTRACT:**

*This report describes the analysis phase investigative conservation of a bone comb from the site of Burdale.*

## **1. INTRODUCTION**

The bone comb was part of a group of objects collected during the excavation of the site of Burdale by the University of York. These objects were brought to the conservation lab for assessment on 28<sup>th</sup> June, 2006.

## **2. AIMS AND OBJECTIVES**

This report aims to meet the requirements of MAP2, Phase 4, Analysis, (English Heritage, 1991). The work carried out has been the investigative cleaning and repair of the object submitted. Following a brief assessment of the object it was authorised for immediate treatment. Once the artefact had been treated it would be packed appropriately for return to the client and for archive storage.

## **3. DESCRIPTION**

Double-sided composite comb made from bone. The comb is curved with intertwined ring and dot motif on the exterior of both side plates as well as vertical incised line decoration. There are six iron rivets in all, the shapes of the heads seem to be sub-rectangular. The comb has coarse teeth along the lower edge and finer teeth along the upper, curved edge, although here the teeth are offset and do not extend the full length of the comb. The remains of one possible end plate survives here. There are saw marks in the side plates indicating that the teeth of the comb were cut after the tooth plates were attached to the side plates. Very few of the more coarse teeth survive. Neither of the end plates survive.

The comb was in quite good condition, having been brought to the laboratory directly from site in its soil block without drying out. Although there were several breaks, both to the body of the comb and to the teeth, the comb was in good condition in terms of the stability of the bone itself. There was no significant cracking or warping. Upon excavation of the soil block it became evident that the teeth were being kept in situ by the soil around them, very few still attached to the tooth plates.

## **4. METHODOLOGY**

After initial digital photography, the comb was excavated from the soil block in which it had been transported, being careful to keep the bone damp using water on a soft brush. While excavating, any broken teeth or fragments were transferred to a tray of water, their relationship being kept as far as possible by laying them in the order in which they were removed. While still damp, the comb was cleaned of the majority of adhering soil using a soft brush and a wooden skewer.

After the initial cleaning the object was air dried over 24 hours, the rate of drying being controlled by covering with a plastic sheet. This drying method was successful with no cracking or warping detected upon inspection.

Once dry the different elements of the comb were cleaned of remaining soil as far as possible using 50/50 Industrial Methylated Spirits and reverse osmosis water on cotton wool swabs.

At this stage, with four of the rivets exposed by breaks, the iron was cleaned of corrosion using the air abrasive unit with 29 micron aluminium oxide powder. A very low setting was used to avoid damage to the bone of the side plates.

Once the rivets had been cleaned it was possible to adhere the larger broken sections of the comb. This was done using Paraloid B72 (methyl methacrylate co-polymer) supplied in a tube by HMG. At this point it was also necessary to consolidate several unstable areas especially some of the finer teeth. This was done using 10% Primal WS24 (acrylic colloidal dispersion) in reverse osmosis water applied with a pipette.

Once the larger pieces had been allowed to set it was possible to start adhering the broken teeth. This was done under magnification using Loctite™ super glue (cyanoacrylate) as it was necessary to achieve instant tack once the tooth touched the tooth-plate. All the teeth were adhered except for three which could not be located.

These have been packed in a separate bag. Finally, one loose end rivet and several smaller pieces were adhered, again using Paraloid B72 as above.

The comb was packaged in a crystal box supported by plastazote inserts.

Note: The soil from the soil block was wet sieved to collect any remaining pieces of the comb. No pieces were found within the soil.

## 5. IMAGES

Before treatment:



Object within soil block



Image showing tool marks on a tooth

After treatment (four views):



## **6. RECOMMENDATIONS**

The comb is stable but should be handled with care as the teeth are still very fragile. The comb should be kept stored in a stable atmosphere of 50-55% Relative Humidity, with maximum light levels of 150 Lux.

## **6. REFERENCES**

1. English Heritage, Management of Archaeological Projects, 1991.