

CONSERVATION TREATMENT RECORD

Lab number: 8136
 Brief description: Copper Alloy Brooch
 Name of owner: Thwing Excavation
 Owner's number: T06 38, 41

Name of student: Anne Turner Gunnison
 Date allocated: 13.12.2007
 Date completed: 15.06.2007

Material type: Copper Alloy and Enamel

Dimensions: Approximately 76.5 mm long, 25.8 mm at widest,

Weight before 31.41 grams after

Technology

The brooch itself consists of three main functional parts: the pin, the bow/body/catch, and the headloop. It appears that the "spring" part of pin has been wrapped around the straight part of the head loop. This straight piece also passes through a decorated loop on the body/bow of the brooch. This holds the piece together. Instead of a spring function as would be expected in a safety pin, a hinge is created for the pin. Striations on the wire that comprises the pin suggest that the wire was drawn. The head loop and bow/body/catch and decorative elements were likely cast.

On the exterior surface towards the top of the bow is a raised circular head stud for decoration. The stud is comprised of approximately 16 raised bands with empty fields between the bands. In these fields is evidence of enamel decoration. The areas to be enameled were either cut or cast in the metal, in which the enamel would be "applied as a moistened powder mixed with an organic binder" or "a slab of glass" that was cut, softened, and pressed into shape." (Bayley & Butcher 2004, 46)

Bayley, J. and Butcher, S. *Roman Brooches in Britain: A Technological and Typological Study based on the Richborough Collection*. London: The Society of Antiquaries of London, 2004.

Condition

Before Treatment

The brooch was in good condition and appears relatively stable. The brooch is covered with corrosion product, both cuprite and malachite. It has approximately three layers of corrosion. At the lowest level is a dark red corrosion (cuprite). On top of this is a lighter green, with a darker green layer on top (malachite.)

While some areas of surface were readily seen, the brown dirt layer, especially that in the stud and hinge areas obscured surface detail and evidence of manufacturing techniques. Some small areas of the dirt, namely the thin layers on the surface of the bow/body areas, came off relatively readily with handling. The enamel in some areas on the stud seems stable, but the red enamel bits are more fragile and are not adhered the metallic surface well. One piece has fallen off and been retained in a sample bottle. There is a potential for further loss. Although the malachite surface seemed stable, there are areas where surface layer corrosion has been lost to expose underlying corrosion area. Some areas appear slightly more friable than others do. Overall, the piece had a stable patina.

After Treatment::

The brooch is still in good condition. The dirt has been removed so most of the surfaces of the brooch have been revealed. The surfaces are generally stable with a stable patina. Some edges areas, however, are more friable and fragile. Some areas include the tip of the pin, the edges of the bow, and the edges of the decorative circular foot. While, the loose enamel areas have been stabilised there is still potential for loss and damage.

Significance

This object was found near Thwing in East York during a trench excavation in 2006. The trench excavation was used to investigate the "building that was uncovered during a geophysical survey in 2005 (Ferraby, Johnson, & Millett, 2006). The survey suggested that there were at least two areas associated with the settlement. One of these has activity related to Roman presence. This brooch, from context ID 38, area code 38, might be form the Roman inhabitation period. According to the site report, the excavated area was of a domestic nature.

This safety-pin type brooch, also referred to as a fibula, or bow-brooch, is very similar in form to British Roman-era brooches that are described as "headstud brooches." (Bayley & Butcher 2004, Johns 1996) The headstud group is usually dated pre- and early Flavian period, AD 69-96. They are named headstud for the "eponymous raised stud near the top of the bow." (Bayley & Butcher 2004, 164) "Other features are more variable: they can be sprung or hinged, there is usually one loop on the head but it can be loose or cast in one with the brooch, and various patterns of decoration occur, often including the use of enamel." (Bayley & Butcher 2004, 164).

Roman brooches had a utilitarian use as clothes fasteners, but their "decorative potential was fully appreciated and exploited." (Johns 1996, 147) They were in use in Britain before the arrival of the Romans, and continued to be used even after the Roman occupation was over. Fibulae were "able to take in a fairly substantial fold of fabric..." and "display the decoration on the bow to best advantage if they are enclosing a thick pleat of material." (Johns 1996, 148) On the headstud pieces, the headloops would have "served as a purpose-made attachment for the chain or cord joining a pair." (Johns 1996 160)

Bayley, J. and Butcher, S. *Roman Brooches in Britain: A Technological and Typological Study based on the Richborough Collection*. London: The Society of Antiquaries of London, 2004.

Ferraby, R., Johnson, P., and Millett, M. *Fieldwork and Excavation near Thwing, East Yorks 2006*.

Johns, C. *The Jewellery of Roman Britain: Celtic and Classical Traditions*. London: UCL Press, 1996.

Examination

- The brooch was x-rayed to establish its form under the dirt layer as well as to determine whether there were any breaks and weak areas in the structure. Most successful of these were 100Kv at 60seconds. There did not appear to be any breaks in the metal. More x-rays concentrated on certain areas could provide more details about manufacture, including the potentially use of tinning
- The brooch was also examined under the light microscopes and the more high-powered SZ-PT Olympus microscope. The – was useful in determining and verifying the presence of the enamel.

Justification for Treatment

Professor Milton Millet, who is the contact for the Thwing excavation, stated that there are no plans for long-term display of the Thwing objects. They will probably end up at the local museum in Hull where they will be placed in "environmentally stable (to normal museum standards)" storage. They may be put on temporary museum display to show locals and will be subjected to limited handling for study. They will be studied for publication, so any information obtained about manufacture and technology, for instance, would be appreciated and included in the publication (Millet, M. pers. comm. 2007)

As a result, treatments removing surface dirt, stabilising enamel, and packaging in a microclimate, were performed in order that the object could be further understood and would be able to withstand future handling.

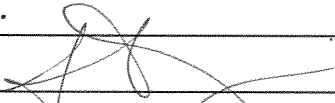
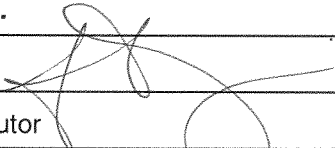
Cleaning

- The object was cleaned with cotton swabs on sticks with Industrial Methylated Spirits (IMS), and or with a scalpel at a very low angle. The scalpel was effective on its own in removing dirt from smooth surfaces. The IMS was useful in softening dirt namely dirt stuck to areas of the hinges. This dirt was generally removed with a stick that had been sharpened to a point. Sometime a pin was used to poke out dirt from hard to reach areas. Cleaning ceased when it was determined that dirt could not longer be removed without potential damage to the surface of the brooch,

Stabilisation

- Upon removing dirt from the area of the stud, the enamel was uncovered and some areas were friable and susceptible to loss. In these areas, a solution of 5% methyl methacrylate acrylic resin Paraloid B.72 in acetone was used to consolidate and stabilise the red enamel. This was used in two areas of enamel. Where enamel fell off, the piece was retained in a small sample bottle.

Reconstruction / repair

Loss compensation	
Other	
<p>Student evaluation of treatment</p> <p>On the whole, the treatment was successful. There were some areas on the edges that were difficult to clean and this student was disappointed with herself when some areas flaked off the edges. It was satisfying to have identified the enamel before inadvertently removing it as well as uncover various decorative and mechanical aspects of the brooch.</p>	
<p>Packaging</p> <p>-The brooch was placed in a polyethylene box and cushioned in a layer of polyethylene foam, Plastazote, in an area cut to the shape of the brooch. The pin of the brooch is held in place with two small slices of Plastazote as to mitigate movement of the pin and prevent damage. Silica gel, packed in polyethylene ^{grip} top bag with holes poked in them, was placed in the bottom of the box. A humidity indicator strip was also put in the side of the box. The original bag in which the brooch came to the lab was placed in the side of the box as well. The labelled sample jar containing enamel samples is placed within the box as well.</p> <p style="text-align: center;"><i>Desiccated</i></p>	
<p>Recommendations for Further Care</p> <ul style="list-style-type: none"> - The brooch should be handled gently and in such a way that the enamel is not compromised and the pin does not move in ways that may cause damage to it or the hinge. It is recommended that gloves be used for handling. The efficacy of the silica gel should be checked on occasion to make sure the microclimate is still providing a safe environment. The object should be kept at or below 30% RH to prevent further corrosion. 	
<p>Photography / other</p> <p>Drawings and Diagrams</p> <p>Before and After Treatment Digital Photos</p> <p>Before Treatment Slides</p> <p>After Treatment Slides.</p>	<p>Other documentation (analytical, portfolio report, etc)</p>
<p>Signature of student</p> 	<p>Date 15.06.2007</p>
<p>Signature of practical tutor</p> 	<p>Date</p>