

CONSERVATION TREATMENT RECORD

Lab number: 8781

Brief description: Roman brooch

Name of owner: Tim Shadla-Hall

Owner's number: 505902 470954 NCL-B3C543

Name of student: Francesca Guiducci

Date allocated: 14/12/2011

Date completed: 23/03/2012

Material type

Copper alloy (brass: 89% copper, 5% zinc, 2% tin)

Dimensions 5cm (height), 2.7cm (width)

Weight before 15g

after 14.9g



Figure 1 Lab. N. 8781. After treatment.

Technology

According to pXRF analysis, the metal is a brass alloy: 89% copper, 5% zinc and 2% tin.

The object is likely to have been cast: it has a regular shape, rounded edges, and most brooches from the Flavian period are cast (Bayley and Butcher 2004, 211). For casting the metal is molten in a crucible and poured into a mould of fired clay.

The pin is separated from the brooch, and it is likely that it was wrought.

Two-piece Colchester brooches have the classical separate sprung pin (Fig.): the chord is threaded through a hole in a lug behind the brooch head, and an axial bar through the coils of the spring passes through the second hole, in this case a hook.

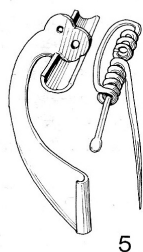


Figure 2 Method of pin attachment (Bayley, J. And Butcher, S., 2004. Roman Brooches in Britain. London: The Society of Antiquaries of London, fig. 20).

The enamel partially conserved is likely to have been manufactured by placing glass powder on the metal and heating the object until the glass fuses. The glass composition needs to allow melting at a temperature lower than the melting point of the metal. An alternative technique is to have slices of glass block cut and held in position with an adhesive.

Pre-treatment condition

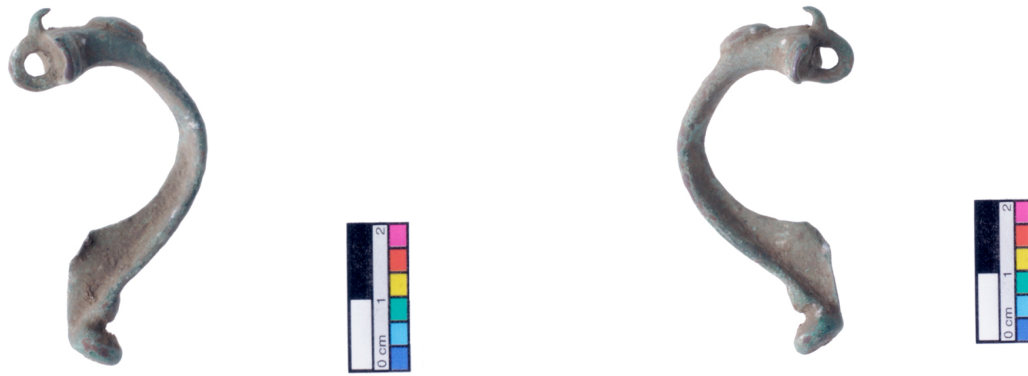


Figure 3 Lab N. 8781. Before treatment. Front and back.

Structural integrity:

- The pin is detached and missing;
- The edge of the catchplate appears irregular and slightly distorted, it is possible that a part of it is detached and missing.
- The body of the brooch appears sound, and the X-ray examination has shown no sign of cracks.

Surface disfiguration:

- The entire body of the object was covered by a layer of loose soiling.

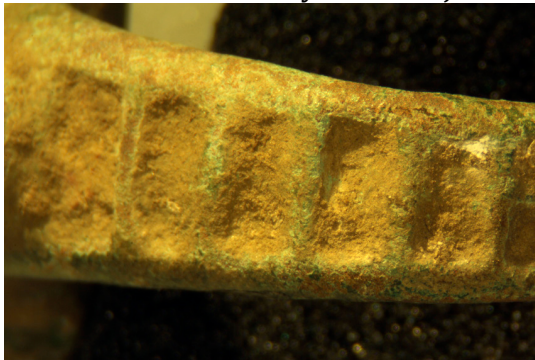


Figure 4 Lab. N. 8781 Soil is banked up in the engravings.

Surface stability:

The surface of the object was quite smooth and regular, without pits. It was covered by different layers of corrosion:

- A thin and regular light green patina; it is powdery and comes off easily.
- Spots of a harder, dark green corrosion product, possibly malachite, in areas where the superficial patina has come off.
- Spots of a red-brown corrosion product, possibly cuprite, underneath the malachite layer.

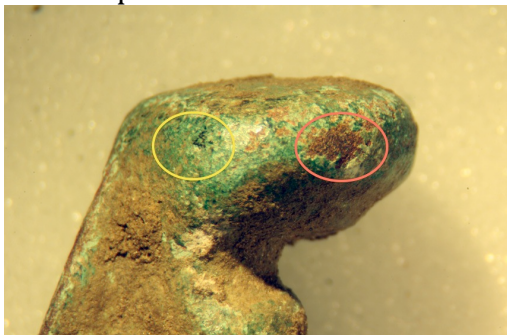


Figure 5 Lab. N. 8781. A red layer of cuprite (circled in red) is present underneath a dark green layer of malachite (circled in yellow).

- Few small dots of white, powdery corrosion were present on top of the superficial light green patina; they may be chalk residues, original from the burial environment.



Figure 6 Lab. N. 8781. White dots, probably chalk, were present on top of the light green patina.

Significance

The significance of the object has been assessed according to Russel, R., and Winkworth, K., 2009. *Significance 2.0 – a Guide to Assessing the Significance of Collections* (2nd ed.). Rundle Mall, Australia: Collections Council of Australia Ltd.

The object holds a historic value as an example of a two-piece Colchester (or Colchester-derivative) Roman brooch (Fig.1): it is a mainly British model of the mid 1st – 2nd century A.D. (Bayley and Butcher 2004, 156). The object is representative of its type, but with small variations, which is a characteristic of British manufacture in the 2nd century A.D. (Bayley and Butcher 2004, 206). The technology used is characteristic of the period as well: as most brooches, it is probably cast, and relief decorations are produced in the mould (Bayley and Butcher 2004, 156). However the lack of a certain provenance affects its value.

The aesthetic value is low: the brooch is simple, with a basic decoration; brooches from this period usually lack of the fine details of the earlier ones. However, the aesthetic value is enhanced by the good state of conservation of the surface details.

The object has a certain degree of research value: the typology and alloy composition are used to delineate trends in manufacturing technology, metal availability, centres of production and diffusion, fashion. This is enhanced by the existence of a developed field of studies of Roman brooches in Britain, which allows placing this object in a wider context (Bayley and Butcher 2004). However the lack of certain provenance and archaeological context heavily affects its research potential.

Examination

Optical microscopy examination, magnification x40, on the decoration surface, where fragments of enamel were likely to be present.

Tests / analysis

- X radiography: 20/01/2012
Two expositions: 90 seconds, 80 kV; 90 seconds, 100 Kv. The results are quite similar, the 90 seconds-100 kV is a little clearer.
The metal structure appears sound; no cracks are visible.
- pXRF analysis: 09/02/2012: mode “alloy”; Cu 89.6%, Zn 5.1%, Sn 2.2%, Fe 1.8%, Pb 0.4%, Ti 0.4%, Ag 0.2%.
See Appendix X for details of the results.

Justification for treatment

The object has been treated according to an archaeological conservation approach: no attempts have been made to improve its aesthetic appearance or to replace missing parts.

Soiling has been removed because it was obscuring the surface, preventive its appreciation and study.

Since it is an archaeological object, priority had been given to the possibility to study the object further in the future. For this reason after discovering enamel fragments it has not been coated, even though initially it had seemed appropriate considering that the object is going to be kept in an uncontrolled environment. Not applying the coating has been allowed by the sound and stable condition of the object and of its corrosion layers.

Cleaning

- Wet cleaning by cotton swabs with acetone, occasional use of wooden stick for breaking down bulky soiling deposits.
- Mechanical cleaning by scalpel for the decoration edges.



Figure 7 Lab. N. 8781. The decoration edges have been mechanically cleaned by scalpel to improve legibility. Before (left) and (right).

Stabilisation

N/A

Reconstruction / repair

N/A

Loss compensation

N/A

Other

N/A

Packaging

The aim of the packaging is to ensure the safe transportation of the object back to the owner. The packaging then may be returned. However the owner may be encouraged to keep the packaging as a permanent storage solution, which would guarantee good environmental condition for the object.

The object has been packed in a Stewart box. Silica gel in a pierced plastic bag has been placed on the bottom to keep a relative humidity as stable as possible within the packaging. A folded acid free tissue paper has been used to buffer impact stress occurring during transportation. Layers of Plastazote Polyethylene foam, cut in the shape of the object, pad the box and avoid movements. They have been wrapped in sheets of Tyvec fabric to avoid the direct contact between the object and the Plastazote Polyethylene foam. A cotton tape handle has been inserted in the top Plastazote Polyethylene foam layer to facilitate its lifting.

A label with the picture of the object and basic information has been applied on the top of the packaging to ease identification.

Condition after treatment

- The brooch is sound, and the X-ray examination has shown no sign of cracks.
- The pin is detached and missing;
- The edge of the catchplate appears irregular and slightly distorted, it is possible that a part of it is detached and missing.

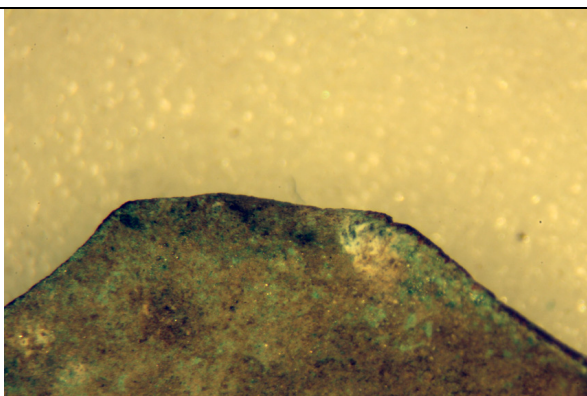


Figure 8 Lab. N. 8781. The catchplate edge is irregular and perhaps fractured.

The surface of the object is smooth and regular, without pits. There is no active corrosion going on. It is covered by different layers of stable corrosion:

- A layer of red-brown corrosion product, possibly cuprite, covers most of the surface.
- A thin and regular light green patina is conserved in some areas, especially grooves and hollows.
- Few spots of a dark green corrosion product, possibly malachite, are present on top of the cuprite layer.



Figure 9 Lab. N. 8781. After cleaning. Three different corrosion products are present on the surface: light green patina (circled in red), dark green corrosion, possibly malachite (circled in yellow) and red-brown corrosion underneath, possibly cuprite (circled in blue).

Fragments of enamel are conserved in few cells of the bow decoration.

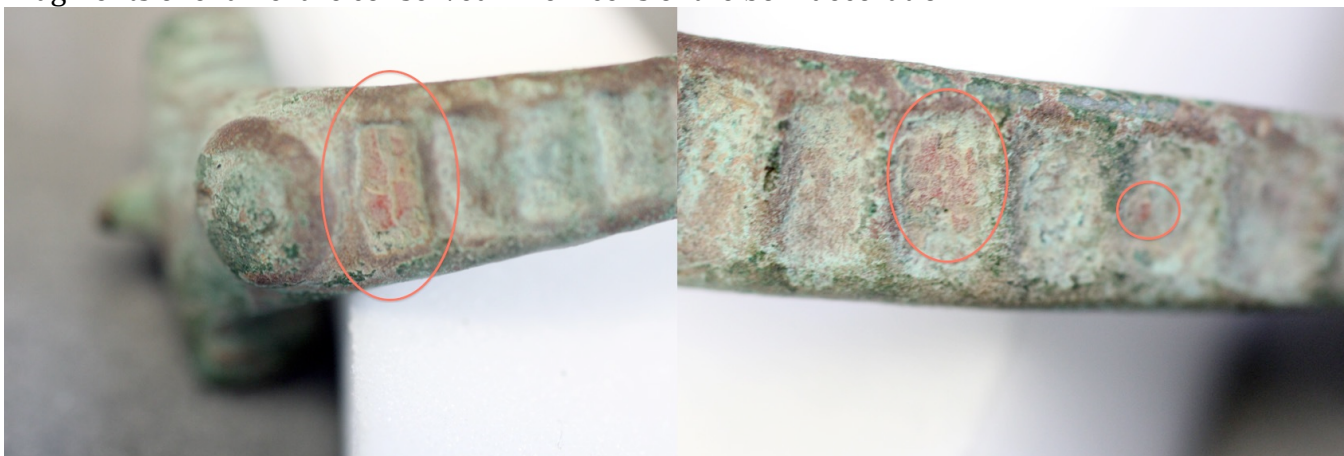


Figure 10 Lab. N. 8781. Fragments of enamel have been identified in three areas on the decorated bow.

Student evaluation of treatment

Overall the treatment has been successful: the object is sound, stable and there is no active corrosion.

Cleaning has been successful in revealing preserved enamel fragments.

The necessity to preserve enamel evidence for further analysis has prevented from coating the

object. Even though it makes the object more exposed to further deterioration, I am glad that no coating will be applied, since it would have altered the surface visual appearance and texture. In general the conservation has been straightforward and has not posed any particular issue. Care has been necessary when cleaning the decoration areas, because of the high chance of having enamel fragments preserved.

Recommendations for further care

The object is sound and stable, with no active corrosion: it should be relatively safe also in an uncontrolled environment.

However, handling with bare hands should be minimised as much as possible, to avoid chloride contamination. If possible the object should be kept in a tight-fitting container, to avoid dust and pollutants (especially nitrogen oxides, sulphur oxides and sulphur hydroxides) that may cause further corrosion.

Case materials producing volatile organic acids should be avoided.

Relative humidity should be kept as low as possible, ideally under 45%.

Photography / other illustrations

Colour slide/digital/ print

Other documentation (analytical, object report, etc)

- X-radiography plates.
- pXRF analysis results.

Student signature

Date

Staff signature

Date