

UCL INSTITUTE OF ARCHAEOLOGY - CONSERVATION FOR ARCHAEOLOGY AND  
MUSEUMS

CONSERVATION TREATMENT RECORD

Lab number: 8142  
Brief description: Cu Alloy Pin  
Name of owner: Martin Millet, Thwing Excavation  
Owner's number: T05/16, 171

Name of student: Nyssa Mildwaters  
Date allocated: 13<sup>th</sup> December 2006  
Date completed: 16<sup>th</sup> March 2007

**Material type** - Copper alloy pin of indeterminate composition, though exhibiting the characteristic green malachite corrosion layer.

**Dimensions** - The object measures 75.3 mm in length and 2.1 mm in width, and weighing 2.47g before treatment and 2.46g after treatment. The pin has a diamond shaped cross section, which is clearly visible at flat end of the pin, where if other examples of copper alloy pins are taken in account, there would once have been a decorative end of some sort now apparently lost. The opposing end tapers only slightly to a relatively dull point.

**Technology** - As to the method of manufacture it is possible that the pin was cast and that some relatively limited finishing was applied to the surface as evident in the presence of tool marks along the pins surface.

**Condition** -

**Before treatment** - The only problem currently relating to this object was the present of an extremely limited amount of soil adhered to the pins surface (Figures 1 and 2), the presence of which may help to promote active corrosion (Scott, 2002). Though there was no evidence currently visible of any form of active corrosion indeed there was an apparently totally uniform malachite corrosion layer present which was taken to represent the desired conservation surface of this particular object.

**After Treatment** - The pin was cleaned of limited surface dirt revealing that the malachite layer previously mentioned is indeed continuous across the entire surface of the object and that there is no currently active corrosion present (Figures 3 and 4). The pin is in an excellent stable condition.

Scott, D. 2002. Copper and Bronze in Art: Corrosion, Colorants and Conservation. Getty Conservation Institute. Los Angeles.

### **Significance -**

The pin was recovered during field survey and excavations conducted by Cambridge University's faculty of classics at Thwing, East Yorkshire, more specifically the object was recovered from the final resistivity square 2004 (Ferraby et al. 2006). The site as a whole was initially identified after the discovery of a concentration of roman pottery was recovered after ploughing. Small exploratory excavations and a geophysical survey were conducted during 2004-2005, which revealed the presence of a pre-historic ladder settlement and a well-preserved stone structure. A further four weeks of excavation were conducted in 2005 concentrating upon the stone structure, in addition to which a more extensive magnetometer survey of the ladder settlement was undertaken.

The results of the fieldwork and excavations conducted to date suggest that site is of considerable significance as firstly the ladder settlement shows distinct areas of use across a range of periods, for example one area comprises a series of round houses believed to be Iron Age in date, another enclosure shows less intense activity perhaps used for farming or cultivation, with the final distinct enclosure containing the stone structure excavated and demonstrating evidence of extensive roman activity with a possible Iron Age precursor. The high quality of the geophysical results obtained from the survey allows conclusions to be drawn regarding the development of farming practices and land use in the immediate vicinity of the excavated stone structure. Secondly the stone structure is significant in its own right as it is extremely well preserved, with walls and indeed a considerable amount of decorated wall plaster found in situ, further more within the south pavilion contained well preserved midden deposits including animal bones, oyster and welk shells, fish bones, and a variety of seeds belonging to cereal crops as well as pottery suggesting a third or fourth century date. Thus the quality of the excavated material has the potential to allow archaeologists to develop a clear understanding of the use of the rooms and also of rubbish disposal patterns within the structure.

Given that the pin in question was recovered during field survey rather than excavation and thus lacks context within the archaeological record its archaeological significance is relatively limited, outside that of having been recovered from a site of archaeological significance. Nor are pins particularly rare finds indeed they have been recovered from sites across the UK, additionally given the apparently broken nature of this particular pin, the head of the pin appears to have broken off, there is no decorative or even tentative dating information can be gained from this object. However given that the pin has been recovered and sent for conservation the object clearly hold some significance for the archaeologist even if only aesthetic or even curiosity value.

#### References:

Ferraby, R et al. 2006. Fieldwork and Excavations near Thwing, East Yorks 2006. Cambridge University Faculty of Classics.

### **Examination -**

The pin was examined using of low power binocular microscope and x-radiography. X-rays of the pin revealed it to be made of a solid length of metal in robust condition with only a thin layer of corrosion products present.

### **Tests / analysis -**

A small test area of the pins surface was test cleaned using IMS (Industrial Methylated Spirits) and a scalpel, confirming that the soil visible upon the pins was relatively loosely adhered to the pins surface and could be removed with relative ease.

**Justification for Treatment -**

In response to email communications with professor Martin Millet regarding conservation and future use, it was clear that conservation work was to be undertaken prior to the pins handling and study for publication. After which time the pin will be placed in museum storage at a museum local to Thwing, most probably at Hull. However there were not plans for long term display of any kind, though some form of temporary display was a possibility in order to show the general public the results of the excavations. The objects recovered during excavation will only receive limited handling, for example during study. As such Professor Millet had no direct requests regarding the exact extent of conservation to take place.

**Cleaning -**

The soil adhering to the surface of the pin was removed using the application of swabs of IMS, as the soil was relatively loosely adhered to the surface of the pin and indeed extremely limited in extent the use of a scalpel was not required.

**Stabilisation -**

Given the relatively robust nature of the pin and the absence of active corrosion, it was felt that no stabilisation was deemed necessary.

**Reconstruction / repair -**

Given the condition of the pin no reconstruction was required as part of the pins treatment.

**Loss compensation -**

Given the condition of the pin no loss compensation was required as part of the pins treatment.

**Other -**

Finally as the pin was likely to be handled, even though only in a limited manner given the lack of any surface decoration or a secure archaeological context, several coats of Paraloid B48N (acrylate co-polymer) 5% in Xylene were applied to coin to prevent further corrosion occurring and to provide some protection for the surface of the pin during handling. Paraloid B48N was chosen to coat the pin as it lacks the health and safety concerns associated with the use of and indeed the handling of object coated in BTA (Benzotriazole), an alternative option with regard to coating to pin, whilst providing an effective corrosion inhibitor and barrier layer.

**Student evaluation of treatment -**

The treatment appears to have been successful as all of the overlying soil has been removed confirming that there is no currently active corrosion present with no visible damage to the surface of the object. The coatings of 5% Paraloid B48N appears to have been relatively successful as the surface of the pin has been protected with minimal alterations to the objects colour and texture. Overall the requirements of the owner have been met by the treatment.

**Packaging -**

The pin has been packaged using a crystal box lined with layers of plastazote foam into which the pin has been recessed and an overlaying layer of acid free tissue paper. Additionally silica gel and a humidity strip has been placed within the crystal box and underneath the plastazote layer in order to maintain a consistent relative humidity within the packaging in order to help prevent any future corrosion occurring. Furthermore labels including an image of the pin, object information and suggested handling have been affixed to the crystal box for ease of identification and to prevent necessary handling.

**Recommendations for Further Care -**

The pin should be kept in relatively stable environmental conditions, at a temperature of approximately 20°C and a Relative Humidity of below 55% RH, though avoiding large or regular fluctuations is perhaps more important than keeping very tight environmental controls. The pin should continue to be stored in appropriate archival quality packaging, and kept dust free. When handled gloves should be worn.

Photography / other illustrations <b><i>Colour slide/digital/ print</i></b>  Digital images of the pin, before and after treatment attached. As are slide image of the pin before and after treatment.	Other documentation (analytical, portfolio report, etc)  X-rays of the pin are attached.
Signature of student <i>N. Mildwaters</i>	Date <i>23rd March 2007</i>
Signature of practical tutor	Date

Lab Number: 8142  
Cu Alloy Pin  
Before Treatment



Figure 1. Photograph showing view A of the pin before treatment.

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Cu Alloy Pin  
Before Treatment



Figure 2. Photograph showing view B of the pin before treatment.

Lab Number: 8142  
Cu Alloy Pin  
After Treatment

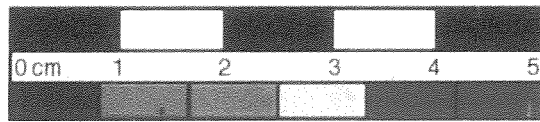
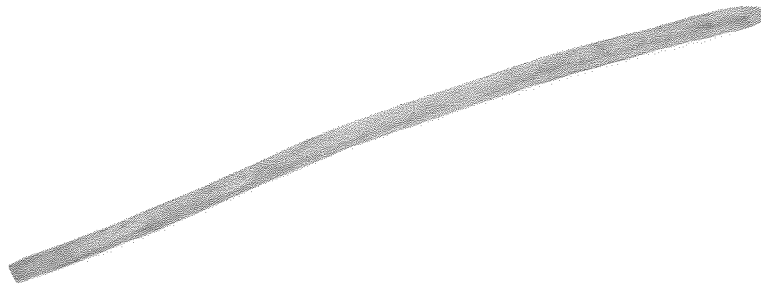


Figure 3. Photograph showing view A of the pin after treatment.

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After Treatment

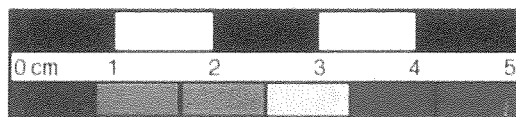
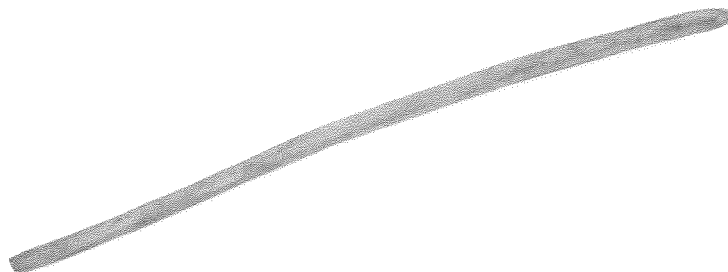


Figure 4. Photograph showing view B of the pin after treatment.