Conservation of a Cypriot vessel

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Provenance and materials

This incomplete Cypriot vessel, accession number 1987.0157, dates from the Early Bronze Age (2500–2000 BCE). Comprising the neck and upper body of an ear-lug pot, the vessel is a low-fired, pink buff clay body with a burnished red oxide slip.[1] It was excavated in 1937–1938 by Professor James R. Stewart of the University of Sydney, from the Vounous site, a series of underground burial chambers in the foothills of the Kyrenia Mountains in northern Cyprus. The vessel came into the Classics and Archaeology Collection in 1987, one of 240 artefacts purchased that year by the University of Melbourne from the Australian Institute of Archaeology.[2]

Condition

Although examination revealed degradation associated with the ceramic fabric and slip, the stability of the vessel was most at risk from the unintended effects of previous repairs. Chemical testing confirmed that white salt deposits distributed unevenly on its surface were calcium carbonate.[3] The slip was weakly adhered, powdering and in some areas displaying regular fine scratches characteristic of objects that have been brushed to remove burial soil. The fabric was soft and crumbly due to its low-fired nature.[4] Some fragments were poorly aligned, partly due to loss of original material from break edges.

Previous adhesive repairs

Fourier Transform Infrared (FTIR) analysis confirmed that the adhesive previously used for reconstruction was cellulose nitrate. This result is consistent with the historical and widespread use of cellulose nitrate for the repair of archaeological pottery.[5] The adhesive was severely discolored (an opaque dark yellow) and embrittled; failure of at least one join had resulted in loss of a fragment. Delamination at the break edges, caused by the adhesive pulling the ceramic fabric away from the main body as it degrades, was evident at the failed join. Chemical spot testing of the sellotape using diphenylamine was positive for cellulose nitrate.[6] The adhesive on the tape had yellowed, shrunk and embrittled. The tape had deposited adhesive accretions on the interior surface and caused extensive staining and delamination of the ceramic surface.

The conservation treatment

The tape was removed by solubilising the adhesive with acetone. Accretions were softened with acetone-dampened cotton wads placed directly onto the surface. The softened adhesive was removed with a scalpel and some staining was reduced. Salt deposits were mechanically removed with picking and brush-vacuuming.

Excess adhesive in the joins was also softened with acetone-dampened cotton swabs, then lifted using a scalpel and pulled from the break edges using tweezers. Removal of excess adhesive from the exterior of the join allowed greater access to the

Cyprus, Early Bronze Age (2500–2000 BCE), ear-lug pot (neck, rim and handles), pink buff clay body with a burnished red oxide slip, height: 33.0 cm. Accession no. 1987.0157, purchased from the Australian Institute of Archaeology, 1987, Classics and Archaeology Collection, Ian Potter Museum of Art, University of Melbourne.

Opposite, left: Front view, before treatment. All photography by Carmela Lonetti.

Opposite, right: Front view, after treatment.

Left: Interior view from below, before treatment.

Right: Interior view from below, after treatment.

interior of the join. Joins were loosened by applying acetone with a syringe and then gently pulling apart the fragments. This process caused some minimal damage to break edges, and some slip in areas surrounding break edges was dislodged.

The adhesive remaining on sherd edges was removed by applying acetone to the surface with a medium hard bristled brush, to soften and remove some of the adhesive from the pores. The softened adhesive was mechanically removed by scalpel and picking, but the highly porous nature of the ceramic meant that it was impossible to remove all the adhesive.

Consolidation of sherd edges with ten per cent weight/weight Rhom & Haas Paraloid® B-72 in acetone was undertaken to avoid the new adhesive from being sucked into the surrounding porous fabric, which would result in a weak bond.[7] This consolidant was applied with a small brush to within 2 mm of the sherd edge to avoid 'ghosting' on the extremely porous fabric.

The sherds were re-adhered using 40 per cent weight/weight Rhom & Haas Paraloid ®B-72 in acetone. The adhesive was delivered using a plastic syringe with a large-gauge needle to maximise working properties by reducing solvent evaporation and by providing good control of application.

Consolidation of whole sherds was considered unnecessary as the strength of the sherds appeared sufficient to withstand stresses at the joins and the vessel was to be returned to a controlled museum environment.[8] Further, although the slip is unstable, consolidation would stain the porous fabric and possibly produce gloss. A recommendation for minimal handling of the vessel will protect the delicate slip.

Ethical considerations

Removal of the degrading adhesive resulted in the loss of some original material and slight damage to the slip in some areas. The after treatment images illustrate the significant improvement to the aesthetic value of the object, in particular the reduction of adhesive staining. The benefit of the treatment—stabilisation of the object—outweighed the resulting minor damage and slight loss of original material.[9] Stabilisation of the object ensures its longevity and contributes to the preservation of the collection as a whole, which has been developed primarily as a teaching and research resource.[10]

Carmela Lonetti undertook this treatment as part of her Master of Arts (Cultural Materials Conservation) at the University of Melbourne, which she will complete by the end of 2009. She is presently employed by the Centre for Cultural Materials Conservation objects conservation laboratory.

Notes

1 Sally Salter, *A catalogue of Cypriot antiquities at the University of Melbourne and in the Ian Potter Museum of Art*, Melbourne: Macmillan Art Publishing, 2008, pp. 251 and 253.
2 Salter, *Cypriot antiquities*, p. 215.
3 Soluble salts more commonly associated with salt efflorescence are chloride, nitrates and phosphates (S. Buys and V. Oakley, *The conservation and restoration of ceramics*, Oxford and Boston: Butterworth-Heinemann, 1993, p. 24).
4 Cypriot Bronze Age vessels were baked in coal-heated pits reaching temperatures of probably less than 600°C, insufficient to oxidise all the elements in the clay and resulting in low-fired earthenware (Salter, *Cypriot antiquities*, p. 20.)
5 Early archaeological conservation manuals—such as H.J. Plenderleith, *The conservation of antiquities and works of art: Treatment, repair and restoration*, London: Oxford University Press, 1956 (2nd edition 1971)— recommended cellulose nitrate for the reconstruction and consolidation of archaeological ceramics. Such materials are no longer recommended, due to undesirable consequences such as those described here.
6 Nancy Odegaard, Scott Carroll and Werner S. Zimmit, *Material characterization tests for objects of art and archaeology*, London: Archetype Publications, 2000, p. 164.
7 Stephen P. Koob, 'The use of Paraloid B-72 as an adhesive: Its application for archaeological ceramics and other materials', *Studies in Conservation*, vol. 31, no. 1, February 1986, pp. 7–14.
8 Buys and Oakley, *The conservation and restoration of ceramics*, p. 102.
9 Barbara Applebaum, *Conservation treatment methodology*, Oxford: Butterworth-Heinemann, 2007, pp. 362–367.
10 Peter Yule, 'Classics, Cypriot and Middle Eastern Collections', in P. Yule and C. McAuliffe (eds), *Treasures: Highlights of the Cultural Collections of the University of Melbourne*, Melbourne: The Miegunyah Press, University of Melbourne Publishing, 2003, p. 17.