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Evaluation of metallurgical residues
from Church Island, Lough Key,
Co. Roscommon

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Abstract

The assemblage comprised four pieces of dark, dense smithing slag, of which only two were found in a stratified context. The three larger pieces are all from moderately large smithing hearth cakes of a style common from Early Christian to Early Modern ages, but it is likely, although not certain, that this assemblage is of post-medieval date. The smithing hearth cake sizes are compatible with fairly heavy blacksmithing work or even of bloomsmithing.

Methods

All materials were examined visually with a low powered binocular microscope. Slag pieces were individually weighed, described and recorded to a database.

The conclusions reached in this report are therefore limited by the nature of the evaluation inspection. No chemical analysis or high-powered microscope work is attempted during an evaluation.

Results

The assemblage from Church Island comprises four pieces of slag: finds 9, 10, 11 and 16. All the pieces are of dense dark slag and show some evidence for rounding.

Find 9 (F4) is a small (22g) "T" shaped iron slag fragment, bearing small fragments of charcoal.

Find 10 (F4) is a small (212g) fragment from a moderately large smithing hearth cake (SHC). The surviving fragment is unlikely to represent more than 20% of the original SHC, implying an original weight of greater than 1kg. The piece shows a small area of smooth top and a base formed of tiny prills.

Find 11 (surface find near shore) is the majority small, dense compact SHC, 95 x 70 x 30mm and weighing 372g. The base of the cake is moderately smooth. The top of the cake is missing. The cake contains moderately large charcoal pieces. There is some evidence for flow of fluid slags around the proximal end. The specimen probably comprises about 80% of the original SHC, giving an original weight of approximately 465g, but in the absence of the original top certain estimation of this is not possible.

Find 16 (surface find) is a curved slab (125 x 90mm; 290g) of basal crust from a large SHC. The crust is microporously, reaches about 18mm in thickness and has broken edges with signs of flowage indicating the cake was broken during extraction from the hearth when hot. One small area of the edge of the piece appears not to be broken, suggesting the attitude of fragment, which would correspond to about 20% of the bowl of the shc. Whether the bowl had a slag fill, as is commonly the case, is not known, but it would suggest a minimum weight for the original SHC of 1400g.

Discussion

The four pieces are all slags produced during blacksmithing with charcoal fuel. Only one of the pieces is reasonably complete (Find 10; recovered from wall collapse rubble), and this represents a SHC of approximately 465g. The other two pieces are surface finds are small fragments of much larger cakes, probably in the 1-2kg range.

An iron-working technique and technology involving the production of large SHCs in charcoal fuelled forges was current in Ireland from Early Christian times, but in many areas appears to have persisted well into early modern times (although well-dated sites are extremely few). It was replaced by the production of much smaller SHCs (following hearth techniques prevalent over much of Britain and Europe) and also by the introduction of coke as fuel from the 19th century onwards. The closest parallels for the Church Island material are probably to be found in the assemblage from Ballykilmore, a post-medieval (17th- 18th century?) iron production and iron-working site in Co. Westmeath (Young 2006).

Certain distinction of blacksmithing and bloomsmithing (the working down of raw blooms to finished iron) slag cakes has not yet been established for this style of iron working, and the present assemblage, with cakes of 0.5-2kg, could represent either process.

The assemblage would, therefore, probably be medieval or younger, and a post-medieval date is likely.

References

YOUNG, T.P. 2006. Evaluation of archaeometallurgical residues from Ballykilmore 6, Co. Westmeath (A001:032). *GeoArch Report* 2005/15. 17pp

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