

GeoArch

Report 2011/24

Evaluation of archaeometallurgical
residues from Jamestown Stepside
[11E085]

Evaluation of archaeometallurgical residues from Jamestown Stepside [11E085]

Dr T.P. Young

Abstract

The submitted material comprised two small fragments of highly bloated material, probably originally small rock fragments. Such materials are common residues from the burning of coal, but the current material lacks some of the characteristics of coal clinker and may just be burnt stone. The material does not necessarily derive from a metallurgical hearth – such slags may be created from rocks of appropriate compositions even within domestic hearths.

Methods

All materials were examined visually with a low-powered binocular microscope. As an evaluation, the materials were not subjected to any high-magnification optical inspection, not to any form of instrumental analysis. The identifications of materials in this report are therefore necessarily limited and must be regarded as provisional.

This project was undertaken for Irish Archaeological Consultancy.

Results

The submitted material (11E085:116:1-2, 4.7g) comprises two small fragments of highly bloated partially vitrified material, that might be classed as fuel ash slag.

The material shows a foliation towards one surface of both pieces, with the degree of vesicularity increasing away from that surface. Close to the foliated surface there is a pale, probably siliceous, dense material, but away from the surface body of the material is expanded by a high degree of vesicularity. The material varies from green to mid-grey (the most common) to reddish brown in colour, with the surface of the larger vesicles being a brownish maroon.

Interpretation

Material of this general sort may have a variety of origins – and the term fuel ash slag, commonly applied to these highly bloated materials, is often not particularly appropriate.

Given the good foliation and the siliceous layering towards one side of the pieces, they are probably highly fired rock fragments, rather than being ceramic, soil or plant/ wood ash. Such materials may be produced during the burning of coal (from the vitrification of shale layers within the coal; in which case the material would be known as clinker), but in this case the laminated material does not look like coal shale, and an accidental high temperature firing of some other sort of foliated organic or carbonate-rich rock is probably more likely.

If the material were from coal-burning, then a post-medieval age would be likely, but since a more general origin in the firing of a rock fragment is preferred, then there is no implication for age.

Small rock fragments frequently enter hearths of various sorts and may reach the temperatures required to produce this degree of bloating and vitrification. Although a reasonably high temperature is required, this does not necessarily imply a metallurgical hearth – and with an appropriate rock composition, this degree of bloating can be created in a domestic hearth.

Evaluation of potential

The material has no confirmed metallurgical significance, and no further investigation is recommended.

GeoArch



geoarchaeological, archaeometallurgical & geophysical investigations

Unit 6,
Western Industrial Estate,
Caerphilly,
CF83 1BQ

Office:
Mobile:
E-Mail:
Web:

029 20881431
07802 413704
Tim.Young@GeoArch.co.uk
www.GeoArch.co.uk