GeoArch

Report 2014/28

Assessment of pyrotechnological residues from Ballyaghagan, Co. Antrim

Dr Tim Young
28th November 2014

Assessment of pyrotechnological residues from Ballyaghagan, Co. Antrim

Dr T.P. Young

Abstract

This submitted material comprises approximately 0.5g of organic fuel residue recovered from a possible modern 'campfire'. It is not a metallurgical material. The lack of a clear structure tentatively suggests, but does not prove, that this residue derives from the combustion of coal or peat rather than wood.

Contents

Methods

All materials were examined visually with a low-powered binocular microscope where required. 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. The summary catalogue of examined material is given in Table 1.

Stratigraphic information quoted in this report is derived from Welsh (undated).

This project was commissioned by Sarah Gormley, of the Centre for Archaeological Fieldwork, Queen's University, Belfast.

Results

The residues were recovered from c119, described an illustrated as a campfire immediately below the modern turf (Welsh undated, 19, 21, plate 08), but not described in the DSR text. There is approximately 0.5g of fragments, comprising approximately 10 grains of between 1 and 5mm, together with a small quantity of finer material, probably derived by breakage.

The material is not a slag (an inorganic material that has been fully or partially molten), but is an organic residue, presumably remaining from incomplete combustion in the fire.

The material is black, vitreous in appearance, with an irregular fracture, some slightly browner veins and adhering superficial pale brown deposits. There is no clear visible coarse scale structure as is commonly seen, although not always, in charcoal.

Identification of burnt organic materials is notoriously difficult, with material such as this potentially being wood charcoal, peat charcoal or a mineral coal residue. The lack of a clear texture derived from its precursor. Together with the brown, irregular veins, suggests, but does not prove, the original material was not wood. An origin either as a peat or coal would appear more likely.

Evaluation of potential

Further investigation by electron microscope might assist with the identification, but may not be justifiable given the nature of the originating context. Direct comparison with samples of residues from burnt local peat and lignite might be a more profitable way forward if required.

Reference

Welsh, H.. (*undated)*. Excavation at Ballyaghagan Cashel, Ballyaghagan, County Antrim, AE11/110. Unpublished Report: Centre for Archaeological Fieldwork Data Structure Report No. 078, Queen's University Belfast.

GeoArch

geoarchaeological, archaeometallurgical & geophysical investigations

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

Office: 029 20881431
Mobile: 07802 413704

E-Mail: Tim.Young@GeoArch.co.uk
Web: www.GeoArch.co.uk