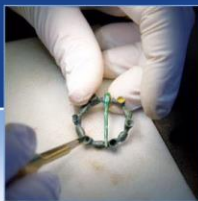


Shootinglee, Peeblesshire

A report on the daub and associated materials

AOC project no 27547

14th March 2024



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National Grid Reference (NGR): NT 3159 3140

AOC Project No: 27547

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Date of Report: 14/03/2024

Date	Version	Author	Approved	Date
14/03/2024	Creation v1	Dawn McLaren	CC	18/03/2024

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Abstract

Small quantities of possible daub and plaster were submitted for analysis and identification following excavations of a post-medieval peel house at Shootinglee, Peeblesshire.

The fragments were subject to visual examination with the aid of a low-powered binocular microscope allowing the material to be split into four broad classifications based on colour, density, texture and inclusions: 1) fragments of a possible fired clay object, 2) fragments of degraded iron object/iron corrosion product, 3) fragments of heat-affected and degraded stone and 4) amorphous fragments of degraded pine resin/forest sediment with abundant plant-matter inclusions. The latter material may well be modern contamination introduced into earlier stratified contexts as the result of modern root disturbance.

No daub or plaster was identified amongst this material.

Introduction

A total of 29 fragments of possible daub and plaster were submitted for analysis and identification following excavations of a post-medieval peel house at Shootinglee, Peeblesshire. The building, Building 2, was investigated between 2015-2017 by the Peeblesshire Archaeological Society across three trenches (Tr. 3-5) and has been identified as a peel house with a longitudinal byre and a second outbuilding. Construction is thought to date to the late 16th century/first half of the 17th century and six phases of activity were identified from the excavated remains of this structure spanning the late 16th century to modern day.

All the fragments of possible daub and plaster were hand-retrieved as registered finds during excavation, and all were recovered from Trench 3 relating to Building 2. The assemblage was found to be comprised of four main categories of material: fragments of fired clay perhaps deriving from a fractured and incomplete object, fragments of degraded iron object/iron corrosion product, fragments of heat-damaged stone, and amorphous fragments of degraded pine resin/forest sediment with abundant plant matter inclusions. No fragments of daub or plaster were identified.

Methodology

The fragments were subject to visual examination with the aid of a low-powered binocular microscope. Possible plant matter inclusions in the materials were examined by AOC's environmental specialist, Jackaline Robertson, and the descriptions given below incorporate her comments.

The finds were hand-retrieved in the field and assigned individual find numbers which are abbreviated below to 'F' followed by their individual number. Context numbers are expressed throughout the text in parenthesis (e.g., (001)). Finds were weighed using a Sartorius digital scale accurate to 0.1g and were measured using a carbon dial caliper accurate to 0.01mm. Abbreviations used throughout this document and the accompanying spreadsheet are: L length, W width, T thickness, H height, mm millimeter. Summary tables of the finds by area and context have been included as Appendix A with an expanded inventory presented as a separate Microsoft Excel spreadsheet.

The assemblage

The assemblage comprises 29 fragments of possible daub and plaster with a combined weight of 47.55g. These were collected by hand during the excavation from four contexts across the excavation area (contexts 001, 002, 003, 019) and assigned six small find numbers (12, 46, 150, 151, 159, 249).

Fired clay object fragment



Plate 1: Fragment of possible fired clay object (F12 A)

Find 12 consists of three fractured fragments of incompletely oxidised fired clay and a number of small crumbs all under 10mm in diameter. The largest of the three fragments (sub-numbered 'A') is the best preserved of the pieces. The other two fragments (sub-numbered 'B' and 'C') are undoubtedly part of the same item but no longer join together.

The largest piece (A) (see Plate 1) has a relatively smooth, convex, exterior surface and a concave interior suggesting an element of shaping. The fabric is a fine but loamy clay with frequent natural grits including small flecks of quartzite, possible feldspar and naturally sub-rounded pale ochre coloured material (possibly ironstone or iron pan or similar). It has been fired softly meaning that it has baked rather than been hard fired and is incompletely oxidised. The exterior surface and margin are a pale mid-brown grey; the core, interior margin and surface are dark brown.

The curvature of the inner surface of fragment (A) is pronounced on both the longitudinal and lateral axes and, taken with the even curvature of the outer surface, this suggests it is a fragment of a fired clay object rather than a piece of daub or lining, although formation against the surface of a rounded pebble cannot be ruled out. Because so little of the item survives, confident identification is not possible, but it could be a fragment of a thick-walled thumb pot, a hand-made weight, a tuyère or similar. Based on the curvature of the exterior surface an external diameter of around 50 to 60mm is indicated.

This find came from topsoil (001) in Trench 3-5.

Iron corrosion



Plate 2: Fragments of iron corrosion detached from surface of iron object (F150)

Find 151 (Plate 2) consists of three fragments of orange-brown ferrous oxide detached from the surface of a heavily corroded iron object. A thin film of iron can be seen in the broken cross-section of the two larger fragments. Not enough survives to allow close identification of the former object but the thin, flat or slightly lentoid profile of the surviving iron may well come from the edge of a nail head. These fragments were recovered from context (003), an occupation layer located at the centre of the north end of the building under context (019), relating to Phase 3.

Stone

Find 249 (Plate 3 and 4) is comprised of four angular and fractured fragments of a burnt and heat-cracked stone. The largest of the four fragments (sub-numbered 'A') has a portion of what appears to be a narrow

cylindrical notch surviving on one face, but no other original surfaces survive. The other three fragments (sub-numbered 'B') are undoubtedly part of the same stone but no longer join.



Plate 3: Fragment of fire-cracked stone with shallow notch (feature visible on the right) (F249A)



Plate 4: Fragments of angular fire-cracked stone (F249B)

Fragment (A), the largest of the fragments (Plate 3), is the only one to preserve any original surface features in the form of a partial smoothed concave surface on the break edge (surviving W 12mm, surviving H 23.5mm) which may represent the vestige of a perforation although no tool marks are visible. This facet could simply be a contact surface with a rounded clast of a denser mineral/lithology which has detached as the result of heat exposure, but geological identification of the lithology would be needed to confirm whether this is a possibility.

These fragments of stone came from tumble and soil (002) and earlier material deriving from the earlier (Phase 3) fire event, disturbed by modern conifer roots.

Pine resin/sediment conglomerate

Find 46 This find consists of four fragments. Due to differences in texture, shape and condition these have been sub-divided into two categories 'A' and 'B' and will be discussed separately below.



Plate 5: Fragments of degraded pine resin incorporating sediment, plant matter and insect burrows/rootlets (F46A)



Plate 6: Detail view of largest fragment of (F46A) showing degraded off-white loamy material, fine linear rootlet/insect burrows and occasional plant matter

Three sub-rounded fractured fragments (sub-numbered 'A'; Plate 5 and 6) consist of a very fine, off-white substance, possibly heavily degraded pine resin mixed with forest sediment, with frequent small (<1mm) white quartz flecks visible under magnification. This material appears natural and unsorted, with moderate to frequent (varies between pieces) organic inclusions consisting of degraded but well-preserved pine needles (average L c.7mm; average W2 mm) which are also relatively unsorted, plus frequent insect burrows and modern rootlets, visible in Plate 6. Residual soil within voids left by degraded organics and rootlets makes these look brown, but under magnification the rootlets appear to be straw coloured. No original surfaces survive, and the surfaces of each fragment are soft and friable.



Plate 7: Fragment (F46B) showing discoloured face with impressions from degraded and lost pine needles



Plate 8: Fragment (F46B) showing degraded off-white loamy material similar in consistency to (F46A)

Find 46B (Plate 7 and 8) consists of a flattened sub-rectangular fragment of very pale beige/off-white loamy sediment and/or degraded pine resin incorporating frequent natural flecks of quartzite (<1mm) and ironstone/pan (<1mm) and occasional flecks of possible pine resin (observed as angular flecks of semi-translucent green-yellow material under magnification). There are also occasional rootlet and insect burrows, but these are not as pronounced as those seen on F46A. Only one original surface survives; it is flat and smooth and appears darker in colour than the exposed 'core' material although this lacks any sign of sooting or visible residues, and its colour and condition may be the result of sun-baking or other form of exposure to heat. Three distinct short linear impressions (W 1.5mm) are present on the flat face potentially indicating where inclusions of pine needles have become detached.

The finds bag records that Find 46 was recovered from context (019), a floor surface relating to Phase 4 activity; however, the finds register notes the context of recovery as (011). It is unknown whether this material represents modern contamination from the forest floor, incorporated into an earlier deposit due to modern root disturbance, or is contemporary with Phase 4 activity.



Plate 9: Fragments of sediment incorporating pine resin and organics (F150)



Plate 10: Cross-section view of a fragment (F150) of sediment showing layering of sediment (bottom) and thin layer of yellow-green pine resin (top)



Plate 11: Amorphous fragment (F150) incorporating a mixture of sediment (right) and yellow-green pine resin (left)

Find 150 (Plate 9-11) consists of six small angular fragments of a loamy, possibly heat-affected, sediment incorporating patches of pine resin and organic inclusions. Under magnification, most of the fragments have a discontinuous layer of yellow-green translucent pine resin sitting on the surface of the earth/clay and are associated with patches of a white powdery residue as well as occasional charcoal and plant matter inclusions. The plant matter inclusions that are identifiable are fragments of pine needles. It was not possible to definitively identify the white powdery substance; however, it may be the remains of the decayed and oxidised surface of the resin (see Seyfullah *et al*/2018, fig.13F). There is no evidence that this material is anthropogenic in origin

The fragments were recovered from the final grey floor (019) in the eastern half of Trench 3. It is not certain whether these fragments represent modern intrusive contamination introduced into (019) as the result of modern tree root disturbance or residual heat-affected material deriving from the earlier burning event but the former seems likely.



Plate 12: Fragments of sediment, pine resin and plant matter (F159)



Plate 13: Cross-section view of a fragment (F159) of sediment showing amorphous mix of sediment, organic voids, degraded (white) resin and inclusions of yellow-green pine resin (left)



Plate 14: Amorphous fragment (F159) incorporating a mixture of sediment, degraded white resin, yellow-green pine resin, and plant matter. A well preserved pine needle (?modern) runs diagonally through the fragment.

Find 159 (Plates 12-14) is comprised of nine flat irregular fragments of a composite material consisting of an off-white powdery material adhering to weathered skims of lightly baked sediment. Within the white powdery material are frequent fragments of semi-translucent yellow-green pine resin and frequent well preserved and potentially modern pine needles. The largest fragment measures 27.4mm x 18.0mm x 7.0mm. This material is not well understood but the white powdery substance may well be degraded and oxidised resin (see Seyfullah *et al* 2018, fig.13F) potentially incorporating ash. Like Find 150 described above, the material appears heat affected, which explains the partial fusing of the resin with the sediment.

The fragments were recovered from the occupation layer (003) at the centre of the northern end of the building, underlying floor deposit (019). It is probable that this is modern contamination introduced into the context (003) as the result of modern root disturbance.

Discussion

The fragments submitted for analysis have been confirmed to represent a range of material types, some of which are archaeological in origin and represent anthropomorphic materials (e.g., the fragment of possible fired clay object, the iron corrosion fragments, etc.) whilst others appear to be a fusion or mixture of natural substances (e.g., the fragments of sediment, pine-resin and plant matter). No fragments of daub or plaster were found amongst the material submitted for analysis.

The preservation of pine resin, and particularly pine resin in its degraded and oxidised state is unusual in the archaeological record, as it requires particular conditions to survive (Seyfullah *et al* 2018), making identification of the possible examples (F46, 151 and 159) from Shootinglee challenging. The samples have been compared to

reference photographs of modern pine resin and, most valuably, to Seyfullah *et al*'s 2018 article on the *Production and Preservation of Resins*, which illustrates and describes the author's observations on the manner of production of tree resins and the appearance of resins as the result of erosion, insect attacks, tree mould and other environmental factors. Of particular interest is the observation that in certain conditions the exterior surface of the resin, if exposed to the elements, can mattify turning white or off-white in colour, becoming powdery in texture, and can develop cracks across the surface which encourages encroachment from insect and rootlet activity as well as mixing with forest sediments (see Seyfullah *et al* 2018, Fig 8F and Fig13F as examples). A description that appears to strongly match the features of the material analysed from Shootinglee and suggest that it is likely to be the remains of a natural resin. The very well-preserved fragments of pine needles, as seen clearly in F159, are likely to be modern (Robertson, pers. comm.).

Although the anthropomorphic materials provide information to assist with an understanding of site activities at the peel house, the natural substances are likely to represent modern contamination introduced into the archaeological contexts as the result of modern tree root disturbance.

References

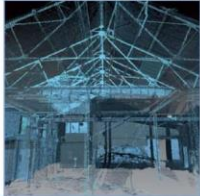
Seyfullah, L J, Beimforde, C, Dal Corso, J, Perichot, V, Rikkinen, J and Schmidt, A R 2018 'Production and preservation of resins – past and present', *Biological Reviews* 93, 1684-1714. <https://doi.org/10.1111/brv.12414> [accessed 14/03/2024].

APPENDIX A

Site Code	Trench (T no.)	Find number (F.No.)	Context (C.no.)	Short description	Quantity	Full description	Plant matter inclusions (identification by Jackaline Robertson)
SH17	3	151	3	Iron corrosion	3	Three fragments of orange-brown ferrous oxide detached from the surface of a heavily corroded iron object. A thin film of iron can be seen in the broken cross-section of the two larger fragments. Not enough survives to allow close identification of the former object.	None
SH15	3_5	12A	1	Fired clay object fragment	1	Three fractured fragments of incompletely oxidised fired clay. The largest of the three fragments is the best preserved of the pieces. The other two fragments are undoubtedly part of the same material but no longer join. The largest piece has a relatively smooth, convex exterior surface and a concave interior. The pattern of firing looks more like what you would expect from pottery or a mould than from daub but the curvature looks too small to be from a pot and the fabric is too gritty to be that of a mould. Possibly a fragment of thick-walled thumb pot, weight or tuyère but could also be a fragment of clay formed up against a rounded pebble. Baked rather than being 'fired'.	Yes - couple of tiny flecks of charcoal
SH15	3_5	12B	1	Fired clay	1	Same as above	Yes - couple of tiny flecks of charcoal
SH15	3_5	12C	1	Fired clay	1 + crumbs	Same as above	None
SH17	3	159	3	??	9	Irregular and amorphous fragments of a composite mix of off-white possible degraded pine resin, perhaps incorporating ash, observed as a powdery material adhering to weathered skins of baked sediment. Within the powdery white material are frequent fragments of semi-translucent yellow-green pine resin and frequent pine needles. Largest fragment is 27.4mm x 18mm x 7mm.	Small fragments of sediment with inclusions of grit, sand and stone along with resin. Fibrous roots present throughout along with inclusions of charcoal <4mm. Decayed pine needles embedded in patches of the external surface. Pine needles ?modern

SH ?	4a	249A	2	Stone	1	Angular fractured fragment of a burnt and heat-degraded stone (see also 249B). All four fragments are undoubtedly part of the same type of stone but no longer join. This, the largest of the fragments, is the only one to preserve any original surface features in the form of a partial smoothed concave notch on one break edge (surviving W 12mm, surviving H 23.5mm) which may represent the vestige of a perforation although no tool marks are visible. This surface could simply be a contact surface with a rounded clast of a denser mineral/lithology which has detached as the result of heat exposure. Geological identification would be needed to confirm	None
SH ?	4b	249B	2	Stone	3	Angular fractured fragments of a dark brown, homogenous stone. Rock type is unknown.	None
SH17	3	150	19	Pine resin/sediment	6	Small angular fragments of loamy sediment incorporating patches of pine resin and organic inclusions. Under magnification, most of the fragments have discontinuous layer of yellow-green translucent pine resin sitting on the surface of the gritty sediment with patches of a white powdery substance that may be oxidised/decayed resin. Plant matter inclusions were rare but charcoal and possible pine needles are noted. Possibly heat affected/sun-baked.	Small fragments of gritty sand with inclusion of small flecks of charcoal. One fragment of note has what appears to be a layer of resin the other fragment is composed of a mix of decayed pine needles embedded the within resin and grit.
SH18	3	46A	19	Pine resin/sediment	3	Three angular fractured fragments of a very fine, off-white substance (degraded pine resin) with what looks like frequent small (<1mm) white quartz flecks visible under magnification appears natural and unsorted, with moderate to frequent (varies between pieces) organic inclusions (average L c.7mm; average W 2mm) - degraded pine needles - also relatively unsorted - and frequent insect burrows and modern rootlets. Residual soil within voids left by degraded organics and rootlets makes these look brown but the rootlets themselves are straw coloured. No original surfaces survive and the surfaces of each fragment are soft and friable from erosion.	Three frags with plant indentions but no surviving evidence of any plant matter. Could have been pine needles given the shape and size of the indentation. Regular small holes in surface of larger frags could be root or insect activity
SH18	3	46B	19	Pine resin/sediment	1	Flattened sub-rectangular fragment of very pale beige/off-white loamy sediment/degraded pine resin incorporating frequent natural flecks of quartzite (<1mm) and ironstone/pan (<1mm) and occasional flecks of pine resin (semi translucent green-yellow). Only one original surface survives: it has been	One large fragment smooth on one surface with three noticeable impressions which could have been made by pine needles but plant no longer present. Other surface

					flattened and smoothed and appears darker in colour than the exposed 'core' material although this lacks any sign of sooting or visible residues. Three distinct short linear plant impressions (W 1.5mm) run diagonally but at opposing angles across this face.	abraded with no obvious ecofactual inclusions.
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