

Access Track 81 - Tower TD125, Pittentian, Crieff, Perth & Kinross

Archive Report: the lithic assemblage (4008161)

Introduction

A lithic assemblage of 13 pieces of chipped stone was recovered during the course of the excavations at Access Track 81 -Tower TD125, Crieff, Perth & Kinross (cf. Becket 2014). The artefacts that are the focus of this report.

Methodology

The methodology, type and attribute terminologies employed for the analysis of lithics from Pittentian follows the format devised and adopted for the *Southern Hebrides Mesolithic Project* (Finlayson *et al.* 1996, 2000). This built upon the research design used for the analysis of the lithic assemblage from Kinloch, Rùm (Wickham-Jones 1990), which was itself derived from the terminologies of technological analysis put forward by Tixier *et al.* (1980); subsequently enhanced (Inizan *et al.* 1999). It also incorporates aspects of Madsen's (1992) classification scheme for primary technological attributes. This format lends itself to the incorporation of later prehistoric forms such as Neolithic, Bronze Age projectile points, and certain types of scrapers. Appendix 1 has a glossary of terms.

The database for the typological and technological analysis of the lithics uses Access™ 2010. References to specific artefacts will cite the catalogue number followed by the small finds number.

Raw materials

11 of the 13 lithics are flint with one each of quartz and chert. There are no known flint sources at Pittentian. The nearest source of drift flint in alluvial deposits is recorded at Wormit, Fife (Wickham-Jones and Collins 1977, 11).

60.00% of the fresh flint is the ubiquitous grey hues associated with flint nodules eroding out of the offshore cretaceous sediments (after Hall 1991, Figure 3) potentially indicating the use of beach pebble resources. These grey hues accord with the colour of the flint at Wormit (Wickham-Jones and Collins 1977, 11). Caution is required when assigning the source of flint based on colour alone. For example, the variation in the hues of flint from Buchan include greys, reds, browns and yellows (Warren 2006, 35).

Five lithics display cortex either as secondary pieces. However, three artefacts (60.00%) present with a pitted cortex which may indicate the use of beach pebbles (cf. Wright 2012). The remainder having a smooth and hard cortical variation suggesting a proportion of the flint found at Pittentian may have derived from

fluvio-glacial sources. This does not discount entirely the movement of raw materials from elsewhere.

Condition

The lithics are fresh in colour, save for one burnt piece. The frequency of burnt pieces is probably understated. Experimental work undertaken by Finlayson (1990, 53) on flint indicated that some burnt pieces would not be classified as such due to the absence of burnt attributes.

The absence of any of the stages of patination suggests that the lithics have been either recovered from moisture retaining soil matrices, or similar. The process of patination refers to the change of the original inner colour of raw material to white, which results from the loss of water from the internal crystallite structure of siliceous materials. For example, a predominantly sand matrix will produce white cortication (after Shepherd 1972).

Character

Table 1 presents the character of the assemblage and the percentage frequencies of artefact types.

A flint flake platform core (076:060) was the only core recovered from Pittentian.

Seven of the eight flakes are a result of platform reduction. The only bipolar product is a quartz flake. Generally, bipolar blanks will be under-represented because not all debitage products will present with attributes associated with a bipolar reduction strategy (after Kuijt *et al.* 1995, 117).

The eight blanks, which are all irregular, evenly split between tertiary and secondary. There are six blanks where it is possible to determine the bulb of percussion. Four have a diffuse bulb and two have lip attributes. All of which may be categorised as having been removed from cores using a soft hammer. Where it is possible, to determine the striking platform four have a simple or plain platform and two have a cortical platform.

The modified pieces are all flint and comprise of two scrapers and an artefact with miscellaneous retouch.

Pittentian	Total	Flint	Quartz	Chert
Cores	1	1		
Flakes	8	6	1	1
Primary				
Secondary	4	3	1	
Tertiary	4	3		1
Primary regular				
Primary irregular				
Secondary regular				
Secondary irregular	4	3	1	
Tertiary regular				
Tertiary irregular	4	3		1
Small Fraction	1	1		
Modified	3	3		
Total	13	11	1	1

Table 1: Character of the lithic assemblage.

Primary technology: recovery by context

Context 304

There was a flint flake platform core (076:060) recovered from the postpipe fill (304) of posthole [303]. The posthole is one of the features comprising the inner post ring of the timber circle. The core presents with a dominant platform, an opposed sub-ordinate platform and a crossed platform.

Alder (*alnus*) charcoal from (304) has been radiocarbon dated to the Neolithic at 3316-2921BCE [4419±29BP; SUERC-58125] (Figure 1). The date straddles the boundary of 3000BCE between the early and late Neolithic periods. A radiocarbon date from another posthole [260] to the inner post ring is broadly indistinguishable at 3340-3013BCE (4457±34BP; SUERC-61741).

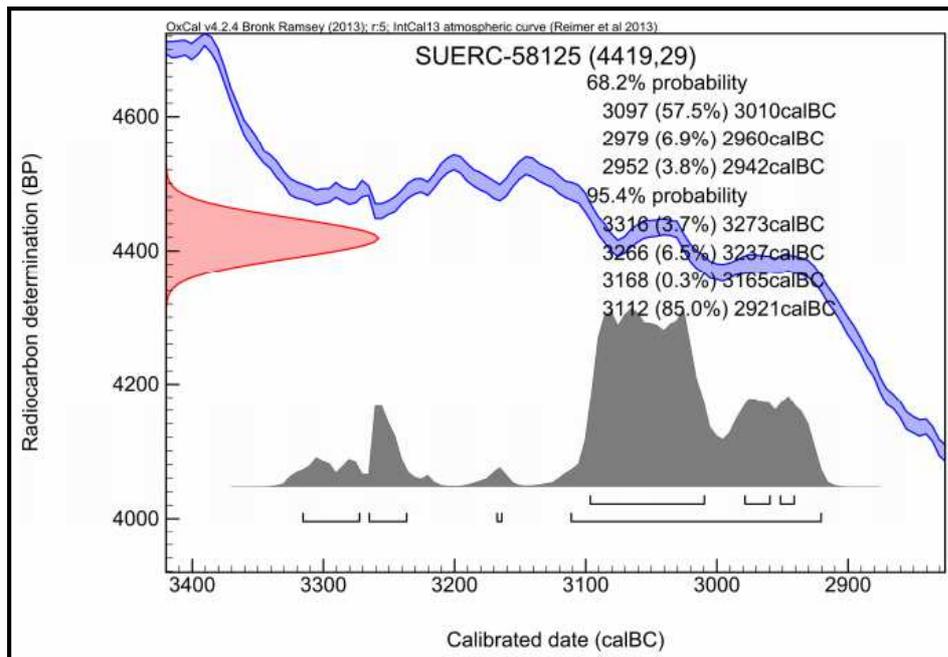


Figure 1: Radiocarbon date from alder charcoal recovered from (304).

Context 118

A primary flint flake fragment (071:011) was recovered from the fill of a posthole [012] to Structure B. The proximal end of the artefact is missing which probably occurred as the flake was detached from the core. Other small finds were daub and fragments of burnt bone.

Hazel (*corylus*) charcoal from the fill (006) of another posthole to Structure B produced a Bronze Age radiocarbon date of 1490-1297BCE (3123±29BP; SUERC-58127).

Context 131

An irregular flint flake (072:020) was recovered from one of the fills (131) of a large pit [146]. The flake was tertiary with a diffuse bulb of percussion indicating the use of a soft hammer when struck from a platform core. This charcoal rich context also included burnt mammalian bone.

An Early Bronze Age radiocarbon date of 2471-2299BCE (3906±29BP SUERC-58133) from hazel (*corylus*) charcoal from (073) provided a *terminus post quem* for (131).

Context 037

A quartz flake (073:037) and a fragments of fired clay were found in the fill (037) of a linear feature [179] which truncated several prehistoric features. The secondary flake with an unprepared cortical platform was the product of a bipolar reduction strategy.

Context 233

There are two flint flakes struck from platform cores from the stone packing fill (233) of a posthole [235]. A complete irregular tertiary flint flake (074:047) displayed a pronounced bulb with a lip attribute. The other (074: 045) was secondary, irregular with the proximal end missing. There is no evidence to suggest that the fragmentation was other than a knapping error in detaching the flake from the core.

There is a late Neolithic radiocarbon date of 2832-2471BCE (4032±34BP; SUERC-61754) from the lower portion of the postpipe (242) underlying (233).

Context 305

A flint core rejuvenation flake (077:061) was found in the packing fill (305) around the postpipe (249) of posthole [306], which is one of the features of the inner post ring of the timber circle (see Context 304 above).

The irregular flake was secondary with bulb and lip attributes, and struck from a cortical platform to remove multiple step terminations from the flaking surface of the core.

The only other small find from (305) is one piece of flint small fraction debitage (078:061).

Context 319

There is an irregular, secondary flint flake (082:083) with a diffuse bulb of percussion and proximal spalling from the packing stones fill (319) of a truncated posthole [361].

There is a Bronze Age radiocarbon date of 1497-1300BCE (3133±34BP; SUERC-61744) from an adjacent truncated pit [362].

Context 001

A chert flake (083:086) from the top soil (001) is irregular, tertiary with a diffuse bulb of percussion, and struck from a platform core with a simple platform.

Secondary technology: recovery by context

Two of the three modified pieces are scrapers. Applying a provenance based on the morphology of scrapers without further corroborative evidence is generally not sound practice. Scrapers are common artefacts in the assemblages of later prehistory (cf. Finlay *et al.* 2000, 583). ‘Thumbnail’ scrapers and rounded scrapers with invasive retouch are typically Bronze Age (Edmonds 1995, 159-160; Hardy and Wickham-Jones 2007). The situation is more complicated for other forms. Angled and sub-angled scrapers are common in Mesolithic assemblages, e.g. they have the highest incidence of occurrence at Kinloch, Rùm (Wickham-Jones and McCartan 1990, 91). These together with convex and straight edge may, however, be found

in Neolithic assemblages, with 'horseshoe' and 'disc-like' forms with invasive retouch indicative of the Late Neolithic (Edmonds 1995, 104-105).

Context 249

There is a flint scraper (079:062) was recovered from the postpipe (249) of posthole [306]. The postpipe was set within the packing fill (305) within which a flint core rejuvenation flake (077:061) was found (see above).

The scraper is fashioned from a tertiary flint flake. The left hand side has been trimmed/blunted with short, abrupt, direct retouch from the proximal to the lower medial. This contrasts to the right hand side of the artefact. In addition to the trimming/blunting from the upper to lower medial there is direct, semi-abrupt, semi-invasive scalar retouch creating a straight scraping edge.

Context 266

Posthole [267] is adjacent to posthole [235] (see Context 233 above). A flint scraper was recovered from the stone packing (266) around the postpipe (262) in posthole [267].

A tertiary, regular flint flake with the proximal end missing modified as a sub-angled scraper (080:063). The left hand side has been trimmed/blunted with short, abrupt retouch. Semi-abrupt, semi-invasive, direct retouch applied to the distal end of the flake created a sub-angled scraping edge.

There is a late Neolithic radiocarbon date of 3011-2872BCE (4283±34BP; SUERC-61755) from the postpipe (262) of [267].

Context 102

A retouched burnt flint blade fragment from the fill (102) of a shallow pit [384] is regular, tertiary with the distal end missing (081:068). Struck from a simple platform, the dorsal surface shows evidence of trimming and scrub preparation prior to detachment from the platform core.

There is short, abrupt direct trimming/blunting retouch to the left hand side, and edge damage to the right hand side at the medial and a notch at the upper medial.

There is a Bronze Age radiocarbon date of 1530-1408BCE (3193±34BP; SUERC-61751) from hazel (*corylus*) charcoal.

Discussion and summary

It is not possible to ascribe any of the blanks unequivocally to an archaeological period. However, they do not contradict the radiocarbon dates.

The only artefacts recovered from the fills of postholes and pits were fashioned in flint. The paucity of lithic finds within the postholes and pits may counter any argument against the possibility of widespread ceremonial deposition at Pittentian.

However, those contexts where burnt bone (118:131) and lithics were recovered may speak to structured depositional practice 'beyond the mundane' (cf. Anderson-Whymark and Thomas 2012; Brophy and Noble 2012; Brophy and Wright 2013).

The sub-angled end scraper 'horseshoe' (080:063) may tentatively be ascribed to the late Neolithic, and the straight edge scraper (079:062) to the early Neolithic. The trimming/blunting to the burnt flint blade (081:068) is more problematic to date by typology. It is not untoward to ascribe a Bronze Age date.

There is no evidence to suggest that either primary or secondary knapping occurred at Pittentian.

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Appendix 1: Glossary of Terms¹

Introduction

The definitions of terms is a composite from a number of different sources (i.e. Finlayson *et al.* 2000; Inizan *et al.* 1999; Wickham-Jones 1990, 2004). If other sources are used then the relevant section is referenced accordingly.

Glossary

Anvil: These coarse stone artefacts are recognised by distinctive wear patterns (Clarke 1990, Illustration 78). They may have also used as percussors (Finlayson *et al.* 2000, 72).

Anvil support: Refers to those occasions where the platform core is placed on an anvil for support to facilitate blank removals.

Blade: A blade is arbitrarily defined as an artefact which is twice as long as it is wide usually with straight parallel sides. Such examples may sometimes be referred to as 'true blades' to distinguish them (Wickham-Jones 2004, 69).

Blade-like flakes: The blade fits the metric parameters to be categorised as such, however, the morphology of the piece is more in keeping with that of flakes, e.g. they may often be irregular and do not have parallel sides.

Blanks: Collective term for blades and flakes (Wickham-Jones 2004, 69).

Bulb of percussion: This attribute signifies where the core was struck to detach the blank. A pronounced bulb may indicate the use of a hard hammer, and a diffuse bulb invariably indicates the use of a softer hammer (Wickham -Jones 2004, 69). Bulb and lip and pronounced lips are associated with the use of soft hammer. Lip attributes may suggest the use of an antler percussor (Madsen 1992, 104-105). Experimental studies confirm this, although such studies are usually undertaken using flint of exceptional quality (cf. Ohnuma and Bergman 1982). Bulb attributes will vary with different raw materials (cf. Costa *et al.* 2005).

Chunk: These artefacts are generally a by-product, and do not have a platform or ventral face. Some chunks may have been used, e.g. *pièces esquillées* (Wickham-Jones 2004, 69).

Cores: The core is the artefact from which blades and flakes are struck.

Bipolar/bipolar cores: Indicates that cores are worked utilising an anvil. They may present with removals from both the proximal and distal ends due to the strike of

¹ Wright 2014

the hammerstone and the shock reverberation from the anvil, and there may be evidence of severe crushing damage, percussion ridges from repeated strikes, step and hinge terminations and the presence of cortex (Hayden 1991, 3).

Platform/platform cores: The term refers to the utilisation of a plain or simple platform which is struck to detach blades and flakes. These cores can be predominantly for either blade or flake production. A distinction that is ascertained by determining the most common form of blank removed. Some cores will be classified as non-specific platform referring to the removal of blades and flakes in broadly equal frequencies. The remaining category is for cores described as amorphous which represent irregular knapping sequences (Wickham-Jones 2004, 70; Finlayson *et al.* 2000, Table 2.5.3).

Core rejuvenation strategies: Knapping accidents will occur resulting in negative step and/or hinge terminations on the flaking surface of the core, which may be removed by a core rejuvenation blank to leave a clear flaking surface for future removals. Accumulations of material at the distal end of the core can be removed by the blank with a plunging termination. Strategies are also encountered when part of the platform surface is removed by a side blow (after Inizan *et al.* 1999, 153).

Cortex: Refers to the original surface of the nodule or pebble, which may be fresh, rolled, abraded, pitted or battered. Cortex may be either smooth/chalky or smooth/hard. The cortical attribute may indicate the possible source of the raw material (Wickham-Jones 2004, 69).

Dorsal and ventral faces of blanks: The upper face or dorsal is the flaking surface of the core prior to the removal of the blank. The lower face or ventral represents the fracture face of the blank having been detached from the core. The ventral and the core will conjoin.

Edge damage: Edge damage may result from the reduction strategy, use and other post-depositional factors such as ploughing, trampling, natural abrasion, and other unknown taphonomic processes (Finlayson *et al.* 2000, Table 2.5.1; Mallouf 1982; McBrearty *et al.* 1998; Neilsen 1991).

Flake: A classification of a blank. Metric variants distinguish flakes from blades. Flakes are also generally less regular than blades. They may be either modified or unmodified for use (Wickham-Jones 2004, 69).

Hammerstone: Hammerstones vary in hardness which may be indicated by the bulb of percussion on blanks, and the negative bulb of percussion visible on cores (Wickham-Jones 2004, 69-70).

Languette: Represents a knapping error creating tongue-like distal termination. They are associated with a soft hammer (Inizan 1999 *et al.*, 144).

Original pebble/nodule size: A medium sized pebble has been categorised as fist-sized. An approximate term based in the size of pebbles recorded on Islay (Finlayson *et al.* 2000, Table 2.5.2).

Patination: Discolouration of original fresh colour artefacts. Variations in patination may arise because of the nature of the soil matrix from which they were recovered. It may also indicate ground disturbance (Inizan *et al.* 1999, 147; Wickham-Jones 2004, 69).

Platform type: There are four types of platform referred to (Finlayson *et al.* 2000, Table 2.5.4).

Cortical: The entire blank platform is covered in cortex.

Simple/plain: Represented by a simple flaked surface.

Complex/faceted: Multiple flake removals define this form of platform. Examples of this strategy during the Mesolithic period are likely to be accidental.

Crushed: A collapsed platform associated with bipolar reduction.

Primary material: Cortex covers the dorsal surface of the artefact (Wickham-Jones 2004, 70).

Primary technology: Refers to the procurement of raw material, preparation of cores and debitage products, such as blades, flakes, chunks and small fraction debitage (Wickham -Jones 2004, 70).

Reduction strategy: Refers to the use of either bipolar or platform reduction strategies (Wickham-Jones 2004, 71).

Regular/irregular blanks: Regularity is determined by a blank with a straight edge <10mm. Blanks with a straight edge of <10mm are classified as irregular (Wickham-Jones 2004a, 71).

Remaining platform size: This schema is taken from Madsen (1992, Figure 70).

Point: Where remaining platform represents <33.33% of blank width.

Small/narrow: Remaining platform width is c.33.33% of blank and length is <33.33% and >66.67%.

Broad/narrow: Remaining platform length is >66.67% of blank.

Large: The width and length of the remaining platform is >66.67%.

Retouch, angle of: There are four forms of retouch referred to in this study (cf. Inizan *et al.* 1999, 129-130; Woodman *et al.* 2006, 95). The first three categories are focused on the edge of the blank.

Abrupt: Marginally less than 90°.

Enclume: Use of anvil with angle at 90°.

Semi-abrupt: angle at approximately 45°.

Semi-invasive: Similar to semi-abrupt, although retouch extends across the surface of the blank.

Retouch, extent of: The extent of removals are classified as either short, semi-invasive, invasive or covering (Figure 6).

Retouch, position of: Direct retouch is visible on the dorsal face, conversely inverse retouch is seen on the ventral face. Alternate is where a blank has been modified by both direct and inverse retouch.

Secondary material: Artefact with cortex visible on the dorsal surface (Wickham-Jones 2004, 71).

Secondary technology: Refers to the modification of blanks into tools (Wickham-Jones 2004, 71).

Scrapers: Scrapers present with a blunt working edge (cf. Finlayson *et al.* 2000, Table 2.5.8).

Short convex: Convex scraping edge <10mm thick.

Short convex flared: As for short convex but where artefact narrows from scraping edge.

Short thick convex: As for short convex with scraping edge <10mm.

Short thick convex flared: As for short thick convex but flared.

Long convex: Scraper which is twice as long as it is wide with a scraping edge of <10mm.

Long convex flared: As for long convex but flared.

Long thick convex flared: Scraper which is twice as long as it is wide with a scraping edge of >10mm.

Disc: Continuous retouch to circumference of scraper.

Concave: Scraper with concave scraping edge.

Denticulate: Scraping edge is denticulated or presents with multiple notches.

Angled: A scraper with more than one scraping edge which meets to form an angled corner(s).

Sub-angled: As for angled but with rounded corners.

Straight: The edge is neither convex nor concave in plan.

Wide convex: A side scraper with retouch to longest axis.

Irregular: Scrapers which do not into the other classifications.

Fragment: Refers to a scraper fragment.

Siret fracture: Refers to a knapping error where the width of the blank is split. This may or not extend the full length of the blank (Inizan *et al.* 1999, 156).

Small fraction debitage: Debitage where metric variants are all <10mm (Finlayson *et al.* 2000, Table 2.5.5).

Tertiary material: Artefact without any trace of the original cortical surface present (Wickham-Jones 2004, 70).

Tool form types: General term for all tool forms. Apart from microliths and scrapers other tool forms are set out below (cf. Finlayson *et al.* 2000, Table 2.5.1).

Abruptly backed: Any artefact which has abrupt retouch to blunt edge.

Thin-backed: Refers to any artefact with fine retouch to blunt edge.

Point: Two or more convergent edges with retouch.

Denticulate: Edge is formed as a series of notches. Each notch may be as a result of single or multiple removals.

Thick denticulate: As for denticulate but where modified edge is >10mm.

Notch: Artefact with non-contiguous notch attributes. The notch may be as a result of single or multiple removals.

Miscellaneous retouch: Artefact with retouch that do not fit into any of the other categories.

Awl: Generally awls are fashioned on thick blanks and comprise of abrupt retouch on two sides to form point.

Trimming: Relates to the abrasion of an unretouched edge producing semi-invasive scalar removals. It is associated with the shaping of artefacts.