Lair, Glenshee, Perth & Kinross
Archive Report: the lithic assemblage (4268161; 4415161)

Introduction

A lithic assemblage of 24 pieces of chipped stone was recovered during the course of the excavations at the Lair, Glenshee (cf. Strachan and Sneddon 2012, 2014). It is these artefacts, which are the focus of this report.

Methodology

The methodology, type and attribute terminologies employed for the analysis of lithics from Glenshee 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 and Bronze Age projectile points and certain types of scrapers. A glossary of terms may be found at Appendix 1.

The database for the typological and technological analysis of the lithics has been compiled using Access™ 2010. References to specific artefacts will cite the catalogue number.

Raw materials

19 lithics were recovered during the 2012 (Project 4268161) excavations, of which 12 were quartz and five were flint. Only five lithics were found in 2014 (Project 4415161); three of quartz and two of flint.

There are no known flint sources at Lair. The nearest sources of drift flint are recorded at Lossiemouth, Moray and at a number of locations in Aberdeenshire, namely the Den of Boddam, Dalgety, Fyvie, Hatton, Moreseat, Mount Pleasant and Windyhills (Wickham-Jones and Collins 1977, 9-12).

The fresh flint are grey and brown hues, although not 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. Caution needs to be taken 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).

Bearing in mind the limitations of the size of the dataset it is possible that the flint found at Lair may have derived from nearby fluvio-glacial sources, although the movement of raw materials from Moray and Aberdeenshire should not be discounted entirely.

Condition

Only one of the flint artefacts has been analysed as burnt, the others are fresh. The frequency of burnt pieces is probably understated. Experimental work undertaken on flint indicated that some burnt pieces would not be classified as such due to the absence of burnt attributes (Finlayson 1990, 53).

The absence of any of the stages of patination suggests that the lithics have been recovered from either 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).

One of the pieces of quartz is burnt, the remaining 14 artefacts are fresh.

Character

The character of the assemblage is shown at Table 1. The modified pieces are a barbed and tanged arrowhead and an awl/borer.

Both of the quartz tested split pebbles are the product of a bipolar reduction strategy, as are 12 of 13 quartz flakes. The remaining quartz flake and five flint flakes indicate platform reduction. 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).

Secondary and tertiary blanks each have a percentage frequency of 40.91%; primary 18.18%.

There are 14 blanks where it is possible to determine the bulb of percussion. Eight have a diffuse bulb and six have a pronounced bulb. The former indicates the use of a soft hammer and the latter a hard hammer to remove blanks from cores. All three platform flakes indicate being detached using a soft hammer. Two the non-bipolar blanks (4.76%) have evidence of anvil support. The practice refers to those occasions where the platform core is placed on an anvil for support to facilitate blank removals. It suggests that platform and bipolar reduction strategies may have been coeval (cf. Wright 2012).

Ten of the 14 blanks have a cortical platform of which 9 are quartz and one is flint. The remainder have a simple platform; one of flint and three of quartz.

All of the blanks are irregular. Regularity is determined by a blank with a straight edge greater than 10mm. Blanks with a straight edge of less than 10mm are classified as irregular (Wickham-Jones 2004, 71).

Two pieces of flint small fraction debitage were recovered during the 2014 excavation. The term refers to pieces where all of the metric variants are less 10mm (cf. Finlayson *et al*. 2000, Table 2.5.5).

	4268161			4415161		
	Total	Flint	Quartz	Total	Flint	Quartz
Tested Split Pebbles	2		2			
Flakes	15	5	10	3		3
Primary	2		2			
Secondary	8	2	6	1		1
Tertiary	5	3	2	2		2
Primary regular						
Primary irregular	2		2			
Secondary regular						
Secondary irregular	8	2	6	1		1
Tertiary regular						
Tertiary irregular	5	3	2	2		2
Small Fraction				2	2	
Modified	2	2				
Total	19	7	12	5	2	3

Table 1: Character of the lithic assemblage.

Primary technology

Context 001: Trench 1

This context is recorded as topsoil and turf from which a quartz flake (005) and a flint core rejuvenation flake (006) were recovered. The latter was struck from a simple platform to remove step terminations on the flaking surface of the core.

Context 002: Trench 1

Two quartz tested split pebbles (018; 020), five quartz flakes (019; 021; 022; 023; 024) and a flint flake (004) were recovered from the collapsed southern turf wall of a structure.

Context 003: Trench 1
The artefacts recovered from the collapsed north turf wall of a structure comprised of four quartz flakes (011; 012; 013; 014).

Context 005: Trench 1
Two flint flakes (002; 003) and a flint awl/borer (see below) were found within the slumped turf bank of a structure.

Context 020: Trench 1
A flint flake (007) was recovered from the fill (020) of a pit/posthole [019]. Birch charcoal from (020) has been radiocarbon dated to 665-854BCE (1269±29BP SUERC-42424).

Context 119: Trench 18
There were three quartz flakes (015; 016; 017) found within the collapsed turf walls of a structure.

Context 120: Trench 18
One piece of flint small fraction debitage (008) was recovered from the collapsed turf wall. (120) was distinguished from (119) by being marginally darker in colour.

Context 128: Trench 18
This context has been interpreted as a hearth deposit with charcoal, nutshell, flecks of burnt bone, and one piece of flint small fraction debitage (009). The flint did not present with any attributes to classify it as burnt, although that does not necessarily indicate that it was not burnt (after Finlayson 1990, 53).

Discussion
The number of artefacts and their contexts of recovery may be summarised as follows.

- Top soil 2
- Collapsed turf walls 18
- Fill of pit/posthole 1
- Hearth deposit 1

None of the lithics are truly diagnostic and cannot to ascribed to any given archaeological epoch. The finds location of 21 of the 22 artefacts may be said to be as a result of unknown taphonomic processes and events. Despite the presence of a core rejuvenation flake (006) with attributes suggesting anvil supporting, it is possible that the quartz artefacts and the use of a bipolar reduction strategy relate to a different phase of events to the platform reduced flint. The quartz flake characterised as platform may be bipolar but simply does not have attributes to assign that classification (after Kuijt *et al.* 1995, 117).

Secondary technology

Context 005: Trench 1

A flint awl (001) was recovered from the slumped turf bank of a structure together with two flint flakes (see above).

The distal end of a flake fragment has been blunted with inverse, abrupt, scalar retouch, which has created a shallow concave edge. There is inverse, semi-abrupt, scalar retouch to the left hand side and inverse, semi-invasive, scalar retouch to the right hand side at the proximal end of the artefact. The retouch has combined to create the awl/borer point.

Context 016: Trench 3

A barbed and tanged arrowhead (010) was found within the natural accumulation of material in a linear hollow; possibly the location of either a small burrow or plant. The left hand side tang was presumably broken during manufacture leading to the abandonment and discard of the artefact. The retouch to the dorsal covers the whole surface, however, the ventral retouch is only semi-invasive suggesting that the artefact was incomplete. The arrowhead is a Kilmarnock type [sub-type O] (after Green 1980).

Discussion

A Bronze Age provenance may be ascribed to the awl and the barbed and tanged arrowhead (after Edmonds 1995, 205; Green 1980). The recovery locations may be said to be due to unknown taphonomic events and processes.

Summary

The tested split pebbles and the primary flakes suggest that the primary knapping of quartz was undertaken in the vicinity of the structure revealed in Trench 1. The Early Neolithic sees an increase in the use of quartz as a supplementary raw material in Eastern Scotland (cf. Warren 2006, 35-37). However, it is not possible to assign an archaeological epoch to the knapping events. The modified artefacts indicate Bronze Age events, although there is no evidence to indicate that they were produced at the Lair.

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Appendix 1: Glossary of Terms[1]

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 in 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 esquillèes* (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.