

LK12: SERF Archive Report: Lithics

Introduction

There are 69 lithics recovered from the LK12 excavations in 2012, i.e. six, seven and 56 from LK12.01, LK12.02 and LK12.03, respectively.

Methodology

The methodology, type and attribute terminologies employed for the analysis of the primary and secondary technologies follows the format devised and adopted for the Southern Hebrides Mesolithic Project (Finlayson et al. 2000). This augmented the research design used for the analysis of the lithic assemblage from the site at Kinloch on Rùm (Wickham-Jones 1990), derived from earlier terminologies and technological classifications (Tixier et al. 1980), and subsequently enhanced (Inizan et al. 1999). This format lends itself to the incorporation of later prehistoric forms such as projectile points, 'knives', certain types of scrapers and Post-Medieval gunflints (cf. Wright 2012). The database for the typological and technological analysis of the lithics uses Access™ 2016.

Primary Technology speaks to those initial procedures of the chaîne opératoire relating to the choices made in the selection and the obtaining of appropriate raw material, the reduction strategies, the production of blanks, e.g. flakes and blades through to the discard of cores. The knapping reduction strategies undertaken in the past are determined by reference to the detailed analysis of the characteristics and attributes of the cores and debitage products recovered during archaeological fieldwork (Finlay et al. 2000a, 553; Woodman et al. 2006, 78).

Secondary Technology refers to the later stages of the chaîne opératoire, which considers the process of the modification of blanks, their utilisation and discard. Following the removal of a blank from a core, modification is generally achieved by the application of pressure to the edge of the blank. In the case of scrapers, the modified edge functions as the working edge. However, that may not be the case for all retouched artefacts. For example, the modification may be undertaken to facilitate hafting (Finlay et al. 2000b, 571; Wickham-Jones and McCartan 1990, 87). Invasive and inverse retouch are generally particular features of secondary modification during the Neolithic and Bronze Age periods (Ballin 1999 and others).

For individual lithics, the first number is the catalogue reference followed by the small finds number, if available.

Raw Materials

The solid geology comprises Scone Sandstone Formation, with a drift geology of Glaciofluvial Sheet Deposits of gravel, sand and silt (Digimap® EDiNA Geology Roam).

There are 63 flint lithics (91.30%) in the assemblage with two chert, and one each of jasper, pitchstone, quartz and siltstone. There are 13 lithics with cortex, 11 of which are flint. The cortex variants include those defined as smooth and chalky rolled hard, and smooth/hard which suggests that the flint derives from fluvio-glacial riverine deposits.

There are no known local sources of chert (Wickham-Jones and Collins 1977, Figure 2). The British Geological Survey for the Midland Valley notes the occurrence of quartz, chert and andesite in the Scone Sandstone Formation (Phillips 2007, 8-9). There are nodules of chert in dressed sandstone, e.g. the dovecote at Green of Invermay and at Invermay House on the Invermay Estate. It is possible that quartz, chert, agate and jasper eroding out of the solid geology and nearby glacial till may have been available from riverine locations (after Wickham-Jones and Collins 1977, 7). Pitchstone is a form of volcanic glass from Arran (cf. Ballin and Faithfull 2009).

Character

Table 1 shows the character of the assemblage. There are only four primary flakes, three flint and one quartz. The majority of flakes and blades are secondary and tertiary (91.30%), i.e. 42 of 46. The only regular blank is the pitchstone blade.

The modified pieces comprise a flint scraper and flint 'knife'.

	Total	LK12.01	LK12.02			LK12.03				
		Flint	Flint	Chert	Pitchstone	Flint	Chert	Jasper	Quartz	Siltstone
Tested Split Pebbles										
Chunks	1						1			
Cores										
Flakes	39	6	4	1		26		1	1	
Primary	4		1			2			1	
Secondary	4	2		1		1				
Tertiary	31	4	3			23		1		
Primary regular										
Primary irregular	4		1			2			1	
Secondary regular										
Secondary irregular	4	2		1		1				
Tertiary regular										
Tertiary irregular	31	4	3			23		1		
Blades	6		1		1	4				
Primary										
Secondary										
Tertiary	6		1		1	4				
Primary regular										
Primary irregular										
Secondary regular										
Secondary irregular										
Tertiary regular	1				1					
Tertiary irregular	5		1			4				
Small Fraction	21					20				1
Modified	2					2				
Total	69	6	5	1	1	52	1	1	1	1
LK12.01 n=6										
LK12.02 n=7										
LK12.03 n=56										

Table 1: Character of the assemblage.

Condition

The majority of the pieces within the assemblage are fresh (89.86%), burnt 8.70%. A chert flake is the only weathered artefact. 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).

Primary technology

Six flint flakes are the product of a bipolar reduction strategy. All of the remaining blanks 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).

There are 35 blanks where it is possible to determine the bulb of percussion. 26 have a diffuse bulb and nine have a pronounced bulb. The former indicates the use of a soft hammer and the latter a hard hammer to remove blanks from cores.

The dorsal scars on 41 blanks indicate that 68.29% removals from single platform cores, 14.63% from multidirectional cores, 9.76% have crossed scarring, and 7.32% opposed. The dorsal surface on 85.37% are free from step and/or hinge terminations. This indicates a low level of knapping errors in the reduction strategy. This was achieved with 25.00% showing evidence of scrub preparation prior to detachment.

44.44% of the blanks are complete (Table 2). The incidence for the removal of the proximal and/or distal ends stands at 26.67%. This may be a strategy and not simply due knapping errors. Other fragmentations result from the reduction strategy in the removal of the blanks.

	Total	LK12.01	LK12.02	LK12.03
Complete	20	3	2	15
Proximal missing	4		2	2
Distal missing	5		1	4
Proximal fragment				
Distal fragment	3			3
Medial fragment	3		1	2
Truncated width 'siret'	7	1		6
Proximal spalling	3	2	1	
Distal spalling				
	45	6	7	32

Table 2: Numerical frequency of fragmentation character of blanks.

LK12.01

DS025/DF0170

Upper fill (12017) of eastern posthole [12016] to four-poster.

- One fresh, tertiary, irregular, platform, blade-like flake (0143/12030).

DS025/DF0171

There is a radiocarbon date from (12019) of 2901-2681 cal BC (4212 ± 29 BP; SUERC-59114).

Upper fill (12019) of southern posthole [12018] to four-poster.

- One fresh, secondary, irregular, platform, flint flake (0139/12003); and
- One fresh, tertiary, irregular, bipolar, flint flake (0144/12041).

DS025/DF0172

Upper fill (12023) of northern posthole [12022] to four-poster.

- One fresh, secondary, irregular, platform, flint flake (0141/12017).

DS025/DF0173

Postpipe (12035) of western posthole [12034] to four-poster.

- One fresh, tertiary, irregular, platform, flint flake (0142/12028).

DF150

Fill (12038) of pit [12037].

- One burnt, tertiary, irregular, platform, flint flake (1038).

LK12.02

Unstratified

Deposit of brown sandy silt (12202) underlying top soil (12201).

- One fresh, tertiary, irregular, platform, flint flake (0149/12009);
- One fresh, tertiary, irregular, platform, flint flake fragment (0146/12202);
- One fresh, tertiary, irregular, bipolar, flint flake fragment (0150/12210);
and
- One weathered, secondary, irregular, bipolar chert flake (0151/12212).

DF0214

There is a radiocarbon date from the fill (12326) to western side of [12207] overlying (12344) in east underlying packing stones (12322) of 2454-2146 cal BC (3824 ± 30 BP; SUERC-65637).

Upper fill (12208) of central posthole [12207].

- One fresh, tertiary, irregular, platform, flint blade fragment (0147/12204).

Fill (12326).

One fresh, tertiary, regular, platform, pitchstone blade fragment (0148/12208).

DF0217

Fill (12310) of medieval rig and furrow [12205].

- One burnt, tertiary, irregular, platform, flint flake (0152/12215).

LK12.03

DS027/DF0174

There is a radiocarbon date from (12476) of 2828-2474 cal BC (4035 ± 29 BP; SUERC-59116).

Fill (12403) of posthole [12476].

- One fresh, tertiary, irregular, platform, flint blade fragment (0188);
- Two fresh, tertiary, irregular, platform, flint blades (0193; 0195);
- One burnt, tertiary, irregular, bipolar, flint flake fragment (0167/12444);
- One fresh, secondary, irregular, platform, flint flake (0162/12425);
- Two fresh, tertiary, irregular, platform, flint flake fragments (0170/12405; 0189);
- Five fresh, tertiary, irregular, platform, flint flakes (0182; 0183; 0186; 0187; 0192); and
- Six pieces of flint small fraction debitage.

Fill (12404) of posthole [12405].

- One fresh, primary, irregular, platform, flint flake (0161/12418);
- One fresh, primary, irregular, bipolar, flint flake (0171/12454);
- One burnt, tertiary, irregular, platform, flint flake (0163/12437);
- One fresh, tertiary, irregular, platform, flint flake fragment (0160/12417);
- Two fresh, tertiary, irregular, platform, flint flakes (0155/12405; 0168/12440); and
- Three pieces of small fraction debitage, two flint and one siltstone.

Postpipe (12476) of avenue post [12405]

- Two fresh, tertiary, irregular, platform, flint flakes (0184; 0185).

Packing fill (12407) for post [12476], which came after clay packing (12472), from post [12405].

- One burnt, tertiary, irregular, platform, flint flake fragment (0173/12465); and
- One fresh, tertiary, irregular, bipolar, flint flake fragment (0174/12465).

Recovered from interface between (12403) and (12407).

- One fresh, tertiary, irregular, platform, flint flake fragment (0175/12467).

DS027/DF0175

Fill (12408) of posthole [12406].

- One fresh, primary, irregular, platform, quartz flake fragment (0208).

Clay packing for postpipe (12463) in posthole [12406].

- Three fresh, tertiary, irregular, platform, flint flakes (0176; 0177; 0181); and
- Three pieces of flint small fraction debitage.

DS028/DF0176

Fill (12416) of posthole [12415].

- One fresh, tertiary, irregular, platform, flint flake (0198); and
- Nine pieces of flint small fraction debitage.

Fill (12430).

- One fresh, tertiary, irregular, platform, core rejuvenation blade (0159/12412).

DS028/DF0180

Packing (12439) in posthole [12425] around postpipe (12426).

- One burnt, tertiary, irregular, platform, flint flake fragment (0169/12445).

Test Pit 5

Fill (12458) of natural palaeochannel.

One fresh, tertiary, irregular, bipolar, jasper flake (0156/12407).

Secondary technology

LK12.03

Unstratified

Top soil (12401).

- Flint scraper (0153/12401). There is direct, semi-abrupt, semi-invasive, scalar retouch at the left hand side. A flake removal, below the bulb of percussion, creates a shallow concave edge with edge damage.

DS027/DF0174

Fill (12404) of posthole [12405].

- Flint 'knife' (0154/12404). There is bifacial edge trimming to the right hand side of the flake creating a convex cutting edge. The trimming extends from the proximal to the distal.

Summary

None of the lithics are truly diagnostic to any given archaeological period, although none anomalous to those contexts of recovery will radiocarbon dates.

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References

- Ballin, T. B. 1999. The Lithic Assemblage in S. Speak and C. Burgess: Meldon Bridge: a centre of the third millennium BC in Peeblesshire. *Proceedings of The Society of Antiquaries of Scotland*, 129: 81-93.
- Ballin, T. B. and J. Faithfull. 2009. *Gazetteer of Arran Pitchstone Sources: Presentation of exposed pitchstone dykes and sills across the Isle of Arran, and discussion of the archaeological relevance of these outcrops.* (<http://www.sair.org.uk/sair38/>): SAIR 38.
- Finlay, N., B. Finlayson and S. J. Mithen. 2000a. The Primary Technology: its Character and Inter-site Variability. In S. J. Mithen (ed.), *Hunter-gatherer landscape archaeology: The Southern Hebrides Mesolithic Project 1988-98. Volume 1: Project development, palaeoenvironmental studies and archaeological fieldwork on Islay. Volume 2: Archaeological fieldwork on Colonsay, computer modelling, experimental archaeology, and final interpretations*: 553-569. Cambridge: McDonald Institute for Archaeological Research.
- Finlay, N., B. Finlayson and S. J. Mithen. 2000b. The Secondary Technology: its Character and Inter-site Variability. In S. J. Mithen (ed.), *Hunter-gatherer landscape archaeology: The Southern Hebrides Mesolithic Project 1988-98. Volume 1: Project development, palaeoenvironmental studies and archaeological fieldwork on Islay. Volume 2: Archaeological fieldwork on Colonsay, computer modelling, experimental archaeology, and final interpretations*: 571-587. Cambridge: McDonald Institute for Archaeological Research.
- Finlayson, B. 1990. The examination of surface alteration. In C. R. Wickham-Jones (ed.), *Rhum, Mesolithic and later sites at Kinloch: Excavations 198-86*: 53-54. Edinburgh: Edinburgh University Press.
- Finlayson, B., N. Finlay and S. J. Mithen. 2000. The cataloguing and analysis of the lithic assemblages. In S. J. Mithen (ed.), *Hunter-gatherer landscape archaeology: The Southern Hebrides Mesolithic Project 1988-98. Volume 1: Project development, palaeoenvironmental studies and archaeological fieldwork on Islay. Volume 2: Archaeological fieldwork on Colonsay, computer modelling, experimental archaeology, and final interpretations*: 61-72. Cambridge: McDonald Institute for Archaeological Research.
- Inizan, M.-L., M. Reduron-Ballinger, H. Roche and J. Tixier. 1999. *Technology and Terminology of Knapped Stone*. Nanterre: CREP.
- Kuijt, I., W. C. Prentiss and D. L. Pokotylo. 1995. Bipolar Reduction: An Experimental Study of Debitage Variability. *Lithic Technology*, 20(2): 116-127.
- Phillips, E. 2007. *Petrology and provenance of the Siluro-Devonian (Old Red Sandstone facies) sedimentary rocks of the Midland Valley, Scotland*: British Geological Survey Internal Report (IR/07/040).
- Tixier, J., M.-L. Inizan and H. Roche. 1980. *Préhistoire de la pierre taillée, 1 terminologie et technologie*. Valbonne: CREP.
- Wickham-Jones, C. R. (ed.). 1990. *Rhum, Mesolithic and Later Sites at Kinloch: excavations 1984-86*. Edinburgh: Edinburgh University Press.
- Wickham-Jones, C. R. and G. H. Collins. 1977. The sources of flint and chert in northern Britain. *Proceedings of the Society of Antiquaries of Scotland*, 109: 7-21.

- Wickham-Jones, C. R. and S. B. McCartan. 1990. The Lithic Assemblage: Secondary Technology. In C. R. Wickham-Jones (ed.), *Rhum: Mesolithic and Later sites At Kinloch: excavations 1984-86*: 87-102. Edinburgh: Society of Antiquaries of Scotland.
- Woodman, P. C., N. Finlay and E. Anderson. 2006. *The Archaeology of a Collection: The Keiller-Knowles Collection of the National Museum of Ireland*. Wicklow: Wordwell.
- Wright, A. D. 2012. SERF Archive Report: Flaked Lithic Assemblages 2007-10. Unpublished SERF Report: University of Glasgow.