Warrenfield, Crathes: Flaked Stone

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Abstract

This report outlines the characteristics of a small assemblage of flaked stone artefacts recovered during excavations of an early neolithic timber hall at Warrenfield, Crathes during 2004. The assemblage is dominated by flakes and blades, derived from a curated platform core approach to stone-crafting. In this, the assemblage is broadly in keeping with early neolithic industries from across eastern Scotland.

Introduction

A total of 28 pieces were presented for analysis. Of these, 3 were natural and are excluded from further discussion.[2] All artefacts were analysed according to established standards (see Finlayson et al 2000) with minor additions to allow a greater understanding of platform variation and taphonomic processes. Artefacts were individually recorded in a database constructed in Access, and a full catalogue is appended to this report (Appendix One).

Three artefacts were recovered from Area 3 and 22 from Area 1. There is no clear technological distinction between these assemblages and they are treated as a unit in this discussion unless stated otherwise. Of the 25 artefacts 15 (60%), including all of the artefacts from Area 3, were recovered from the topsoil at varying depths, and 10 from buried features (see below for discussion).

Raw Materials

The assemblage is dominated by flint (n=23, 92%). This flint is mainly derived from small battered pebbles: 43.5% (10 of 23) of the flint is cortical and the average length of complete flint pieces is only 22.7±6.2mm (n=12). Much of the flint has been altered by burning but honey flint is slightly more common than grey. Derived flint pebbles of this kind would have been available from either coastal deposits (25 km downstream to Aberdeen Bay) or the Buchan plateaux (Wickham-Jones & Collins 1978).

The two other materials include a burnt chunk of an indeterminate material found in the topsoil. This complex material has been transformed by heat and includes hints of two different lithologies (Prof P. Shannon, pers comm.). Although it includes cherty areas, it is clearly not a flint. Its origin cannot be established, and it associated with burning of coal and may thus be a later intrusion into the assemblage.

The final piece is a small bipolar core of pitchstone recovered from a fill of post pit 31. This piece is a slightly unusual pitchstone, mainly dark grey to black with some mottling. It does not have clearly visible phenocrysts. Archaeological pitchstones in Scotland are ultimately traced to Arran by geochemical analyses (Thorpe and Thorpe 1984) and the presence of small amounts of Arran pitchstone in early neolithic assemblages in eastern Scotland is relatively common (Warren forthcoming). The reasons for the extensive exchange of pitchstone in the early neolithic of this area are not clear, but some non-utilitarian aspect to the material seems likely. The Warrenfield piece is slightly unusual, in that much of the pitchstone in the region is of

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a high quality, characteristically olive green/black with visible phenocrysts, nevertheless, it seems likely that this piece is derived from Arran.

Condition

Unsurprisingly the condition of artefacts from Warrenfield is influenced by their context (Table 1). Of the 15 artefacts recovered from the topsoil 13 (86.7%) were abraded whereas only 3 of 10 (30%) from pit fills were. The only fresh pieces fresh came from post and pit fills. The 2 patinated pieces were found in the topsoil. Burning was found in all areas but was more common in sealed contexts, with 33% of topsoil finds burnt and 60% of those from sealed contexts showing varying degrees of burning – in some cases severe. Edge damage was also common on many pieces with little clear distinction between contexts: 80% of topsoil finds and 70% from sealed contexts. Breakage is also comparable between the contexts, with 40% of each assemblage broken. Artefacts from the topsoil are also a little smaller than those from contexts (see table 2).

	fill of large axial pit	fill of post pit	topsoil
Burnt	4	2	5
Not Burnt	1	3	10
Abraded	1	2	13
Not Abraded	4	3	2
Fresh	4	3	
not fresh	1	2	15
Edge Damaged	4	3	12
Not Edge Damaged	1	2	3
Broken	4		6
Not Broken	1	5	8
Indet			1

Table 1: Condition of assemblage

Material	Length (mm)	Width (mm)	Depth (mm)	N
Flint	22.3±6.1	17.1±4.5	6.2±3.4	23
all materials	22.4±6.3	17.2±4.6	6.6±3.8	25
Flint unbroken	22.7±6.2	17.4±5.3	6.4±4.2	12
Sealed contexts	24.9±6.8	16.5±4.4	5.8±2.6	10
Topsoil	20.8±5.6	17.7±4.8	7.2±4.4	15
Area 1	23.1±6.0	17.3±4.8	6.8±4.0	22
Area 3	17.3±7.6	16.7±2.1	5.7±2.1	3

Table 2: size of finds

Finds from Warrenfield were almost uniformly small, with an average length of only 22.4±6.3 mm. Even unbroken pieces were little larger (Table 2). Finds from Area 3 are on average smaller than those from Area 1 but this is likely due to a combination of small sample size and the fact that all flints from Area 3 are from topsoil.

In general therefore, finds from topsoil are smaller, more abraded and in some instances, patinated than those from sealed contexts. Surprisingly burning and edge damage does not appear to be affected by context, although these comparisons are complicated by small sample sizes and variations within the artefacts from sealed contexts. It is striking that the large axial pit (C.30/2) is very different from the post pit fills: in this context a higher proportion of pieces were burnt, edge damaged and broken than in the post pits.

Primary Technology

Blank	Flint		indet	pitchstone
Blade	4	17.4%		
Bipolar Core	1	4.3%		1
Chunk	6	26.1%	1	
Flake irregular	1	4.3%		
Flake indeterminate	1	4.3%		
Flake regular	9	39.1%		
Split pebble	1	4.3%		
	23		1	1

Table 3: primary technology at Warrenfield

The assemblage at Warrenfield is dominated by flakes, mainly regular, with an important proportion of blades (Table 3). The significance of chunks is a consequence of fragmentation associated with burning – 5 of 7 chunks are burnt.

A single flint bipolar core (SF10) indicates the exploitation of a small rolled pebble; the core has been struck through two axes. The pitchstone piece is a small and rather unusual bipolar core. No flakes showed unequivocal evidence for being struck from bipolar cores, most were clearly derived from platform cores.

Platform cores are not present, although two core rejuvenation pieces are. SF64, recovered from the fill of the large pit, is a blow at 90^{o} to the main plane of removals on unidirectional blade/flake core face; the rejuvenation blow has corrected some step fractures near the core edge. SF9, from topsoil, is a small and slightly unusual partial core rejuvenation tablet. This core rejuvenation evidence indicates that flint working took place at Warrenfield, but, in keeping with other early neolithic sites, the platform cores appear to have been highly curated, or only deposited under particular conditions.

Platforms were mainly simple flake surfaces. Removal of overhangs was present on some blades, but no flakes: however, due to a small sample size, it is not clear whether this distinction is statistically valid. Bulbs of percussion were mainly diffuse, or absent. Dorsal profiles mainly indicated removals from unidirectional or parallel cores, with no clear evidence of the use of multidirectional cores. With the exception of the bipolar core, there is little evidence of direct hard hammer percussion and the

assemblage seems to demonstrate the use of medium-soft hammer techniques. Surprisingly, given the raw materials available, there is little evidence of hinged or stepped terminations, although the fragmentary character of the assemblage should be noted. This, along with the core rejuvenation evidence, is testimony to the control and skill of the flint working at Warrenfield.

The dominance of flakes and blades and the comparative absence of production evidence of platform technologies, alongside the presence of some bipolar working of smaller pebbles is a feature of many early Neolithic sites in eastern Scotland (Warren forthcoming).

Secondary Technology

No artefacts displayed any secondary working.

Spatial analysis

As noted in the discussions above distinctions can be identified between artefacts recovered from topsoil and those from sealed contexts. Whilst of interest in terms of the loss of information caused by plough damage to such archaeological sites the differences between the assemblages associated with the archaeological features themselves are of more interest. The clearest distinction is between the deposit in the large axial pit, which contains a high proportion of burning, edge damage and breakage. The pit also contains a very high proportion of blades (3 of 4 recovered from Area 1) and regular flakes (2 of 7). This indicates that the lithics contained in this deposit are unusual. The five lithics contained within post pits show little coherent spatial patterning.

The assemblage in its regional context

As noted above the Warrenfield assemblage is broadly in keeping with early neolithic stone tool assemblages from across eastern Scotland. A recent review (Warren in press) highlighted common features of these industries, including: low overall numbers of finds; structured flake and blade platform technologies, with a low representation of cores, alongside bipolar techniques used on small, possibly local materials; a restricted range of retouched pieces. Warrenfield is clearly within this broad range, although some distinctive aspects, such as the absence of retouched pieces, should be noted.

The assemblage from Warrenfield is comparable to that recovered from Balbridie (Sabine & Warren forthcoming). At Balbridie 129 artefacts were recovered, of which 128 were flint and one quartz. Flakes, both regular and irregular, dominated the assemblage, which included substantial evidence for expedient working and testing of pebbles, mainly concentrated in the centre and west of the structure. Given that the east end of the Warrenfield structure has been examined to date, it will be very interesting to identify whether a similar pattern can be identified. A high proportion of the Balbridie assemblage was retouched (some 34 pieces) with scrapers and edge retouched flakes and blades significant. Burning was also common. Warrenfield therefore includes a lower proportion of bipolar working, and much less retouched material, but the low numbers of finds, evidence of curation of platform cores, and many of the technological aspects of the assemblages are very comparable.

Claish returned only a very small lithic assemblage of seven pieces, with quartz, quartzite, pitchstone and flint all present. The material was found in pits and postholes (Saville 2002). Again, this is broadly comparable to Warrenfield, not least in the presence of pitchstone.

Discussion

The small assemblage from excavations to date at Warrenfield is therefore of some analytical interest. The industry is broadly in keeping with other assemblages from the region, but with some subtle differences: particularly the absence of retouched pieces and low proportion of bipolar evidence. It is possible that further excavation, and an expanded assemblage, will transform this picture: at present our understanding of spatial variation in the deposition of material within these timber longhouses is very poor. It is, for example, clear that the deposit in the large axial pit at Warrenfield is not a representative sample of the material, and seems likely to be a deliberate selection.

The assemblage indicates that some stone working was most likely taking place on site – not least through the presence of core rejuvenation and some bipolar evidence. Yet our understandings of the tasks that included stone tools in and around these structures remains poor: a programme of use-wear analysis, possibly including residue analysis, on any artefacts from sealed contexts recovered in future seasons of excavation should be considered a priority. To this end, funding should be assured for these analyses, and any lithic artefacts recovered should not be cleaned.

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Appendix One: catalogue of artefacts recovered in 2004

SF no	Area	Context	Material	Colour	Red Seq	Fresh	Abraded	Patinated	Burnt	Rolled	Blank	Sub blank	Retouched	Edge damaged	Broken	Name	Notes	L	W	T
1	1	1	Flint	white	2	n	y	n	y	n	flake	reg	No	Yes	Yes			23	21	9
2	1	1	quartz	grey	99	n	n	n	n	n	natural		No	No	No			0	0	0
5	1	1	Flint	grey	2	n	y	n	y	n	chunk		No	Yes	Indet			24	20	11
7	1	1	quartz	white	99	n	n	n	n	n	natural		No	No	No			0	0	0
6	1	1	indet	grey	2	n	n	n	y	n	chunk		No	No	No		indeterminate raw material, definitely not flint. Some cherty areas, but also coarse materials. Possibly associated with coal deposits and burnt in this context? (Patrick Shannon pers. comm. 9/3/05)	32	23	16
8	1	1	Flint	honey	2	n	y	n	n	n	flake	reg	No	Yes	No			20	17	4
9	1	1	Flint	honey	3	n	y	n	n	n	flake	irreg	Indet	No	No	core rejuve tablet (partial)	small and slightly unusual core rejuvenation tablet (partial). Core edge is rather rounded, and with slightly unusual morphology, and distal termination of flake is also unusual.	19	20	4
10	1	1	Flint	honey	1	n	y	n	n	n	Bipolar core		No	Yes	No		from 4 directions, thin rolled pebble	24	24	5
11	1	1	Flint	grey	3	n	y	n	n	n	flake	reg	No	Yes	Yes			16	16	4
16	1	1b	Flint	w - white	2	n	y	y	n	n	flake	reg	No	Yes	Yes			18	14	4
18	3	1b	Flint	w - white	3	n	y	n	y	n	flake	reg	No	Yes	No		hard hammer, prob. bipolar splitting of pebble	26	15	8
19	1	1b	Flint	w - white	3	n	n	n	y	n	chunk		No	Yes	Yes		broken since burning	27	13	7
20	1	1b	Flint	w - white	3	n	y	y	n	n	chunk		No	Yes	No			13	6	3
22	1	1b	other	w - white	99	n	n	n	n	n	natural		No	No	No			0	0	0
23	1	1b	Flint	grey	3	n	y	n	n	n	chunk		No	No	No			23	18	17
24	1	3/1	Flint	honey	3	n	y	n	n	n	Blade		No	Yes	No		hints of gloss on dorsal ridges, but not on working edges	26	10	4
31	3	1c	Flint	honey	3	n	y	n	n	n	flake	indet	No	Yes	Yes			12	16	5
33	1	31/1	pitchstone	grey	3	n	y	n	n	n	Bipolar core		No	No	No		slightly unusual laminar pitchstone	17	14	7
37	1	1c	Flint	grey	2	n	y	n	n	n	Split pebble		No	Yes	Yes		'sieved from 11/12'	21	24	7

50	3	3/1 (over pit 5)	Flint	honey	3	n	y	n	n	n flake	reg	No	Yes	No			14	19	4
58	1	11/6	Flint	honey	3	y	n	n	y	n chunk		No	Yes	No		? Very lightly burnt causing a thermal flake to pop off a flake with the dorsal surface of this being dorsal of original flake?	20	20	4
62	1	12/1	Flint	grey	2	y	n	n	n	n flake	reg	No	Yes	No		some modern edge damage	35	21	4
64	1	30/2	Flint	honey	2	y	n	n	n	n flake	reg	No	No	No	core rejuve flake	at 90 to removals, taking away steps near the core edge. Core itself is a one platform blade/flake	30	24	11
67	1	30/2	Flint	grey	2	y	n	n	y	n Blade		No	Yes	Yes		some modern damage	32	14	7
72	1	38/1	Flint	grey	3	y	n	n	y	n chunk		No	No	No			22	15	9
76	1	30/2	Flint	grey	2	y	n	n	y	n flake	reg	No	Yes	Yes		very extensive RHS edge damage is probably use wear	29	16	5
87	1	30/2	Flint	grey	3	y	n	n	y	n Blade		No	Yes	Yes			24	12	3
88	1	30/2	Flint	grey	3	n	y	n	y	n Blade		No	Yes	Yes			14	19	4