

The Opportunistic Exploitation of Flint at Easter Hatton, Aberdeenshire

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INTRODUCTION

During an archaeological evaluation of land at Easter Hatton, Belhelvie, Aberdeenshire (NJ 9672 1625) a surface scatter of struck flints was encountered on a small knoll where recent wind erosion had removed a depth of over 0.5m of overlying sand. The site occupies an area between agricultural fields and a steep rocky slope to the north but until very recently this knoll stood out as a rocky outcrop on the margins between an area of otherwise rolling countryside and an active dune system (Fig. 1). The sea lies some 600m to the east of the site, on the other side of the dunes. Although the evaluation of the site suggested that archaeological features were present, subsequent excavation revealed no reliable evidence for structures likely to have been contemporary with the flint scatter. Nevertheless this site is of a type that is likely to have been relatively common yet, because of its ephemeral nature, is rarely encountered and subjected to archaeological investigation.

During excavation the area of the sand-blow around the previously identified flint scatter was divided into one metre squares and all sediment removed was dry-sieved through a 5mm mesh for the recovery of flint fragments. A total of 446 pieces of flaked stone were recovered (Table 2). These are composed mainly of flint, though there is also some chert and some quartz (Table 1).

Material	Quantity
Flint	436
Quartz	2
Chert	8
Total	446

Table 1: Raw Materials. NB: Quartz may be under-represented because of the difficulty of separating struck flakes from the natural background gravel quartz.

RAW MATERIALS

The flint cortex is abraded, indicating that the raw material was drawn from pebble nodules. The assemblage includes eight small pebbles and the cores retain enough of their original rounded shape to give a good idea of the type of material used. In general, the flint is of good quality, but the small size of the individual pebbles must have restricted the knappers. Small flint pebbles such as these are found in the

local gravels around the knoll on which the site is situated and it is likely that this is the source used.

The use of this local raw material is interesting because the site lies only some 30km from the flint-rich Buchan area (Gemmell and Kesel 1979; Wickham-Jones 1986). Despite the presence of gravels with plenty of larger, good quality, nodules not far away, the smaller local pebbles apparently suited the purposes of the knappers.

The chert and quartz are only present in very small quantities and they are likely to have been drawn from similar local gravel sources to the flint. They were not a mainstay of the assemblage, but used to supplement the flint when necessary.

TECHNOLOGY

The assemblage includes several elements from which information regarding technology may be derived. The small flaked pebbles give an idea of the raw material selected for reduction (or rather in their case, rejected). Seven of them have had flakes removed, or been split by a bipolar blow, presumably to test the quality of the raw material.

There are ten cores (Fig. 2), each made on a small pebble or flake from a pebble. They are not dissimilar in size to the pebbles. Seven of the cores are bipolar cores, and three are more irregular. There are two platform cores. One has had short flakes removed from one side and the other is quite irregular and has been flaked in two directions with flakes removed across an earlier platform (Fig. 2.1). The third irregular core is a disc core where flakes have been removed in several directions across one surface of a cortical piece of flint that may have started life as a pebble (Fig. 2.2).

All of the cores retain areas of cortex, but the bipolar cores tend to have been more worked than the others. There is no obvious reason for the abandonment of any core, except for the small size of the removals. In general, the platform cores would seem to have been discarded earlier than the bipolar cores, they are generally larger, and they retain more potential material. They do not seem to have been prepared in any way; the platforms are often cortical, and they were not maintained, and there is little evidence of edge trimming. Interestingly, the platforms were made along the axis of the original pebble so that the flakes were removed from a shorter side. In contrast, the flakes from the bipolar cores



Fig. 1. Site location map

were removed down the longest axis of the pebble. In line with this the smaller flakes tend to come from platform cores (Fig. 3). It may well be that many platform cores were turned and worked by bipolar knapping once they had reached a certain size. This was a common practice and would account for the relative lack of platform cores in comparison to the greater number of platform flakes.

The assemblage contains a quantity of chunks and irregular debitage flakes (Table 2), both being incidental by-products from the manufacture of stone tools. They indicate that knapping was taking place in the vicinity of the site, but it is the regular flakes themselves that have more to say about the actual techniques used. At Easter Hatton there are 262 regular flakes (59% of the assemblage). Interestingly, many of them retain some cortex (80%). This is far more than on many sites and it is no doubt an indication of the small size of the pebbles used as raw

material.

The regular flakes were examined for evidence of knapping technique. Over 16% (42) retained a platform, or evidence that they had been knapped from a platform core, and 16% (41) had been knapped from a bipolar core. The rest were either broken or indeterminate. The platform flakes were more likely to be made of inner material than the bipolar flakes (Fig. 4). No detailed record of bulb types was made, but both prominent and diffuse bulbs were noticed. It is likely that relatively hard hammers would be most useful when working this type of material, and these may well have been made of pebbles from a similar source. Different stones would have provided different hammer types, from softer quartzes and quartzites to flint itself for a harder blow. It is possible that some of the quartz flakes in the assemblage may have come from the fracturing of quartz hammerstones.

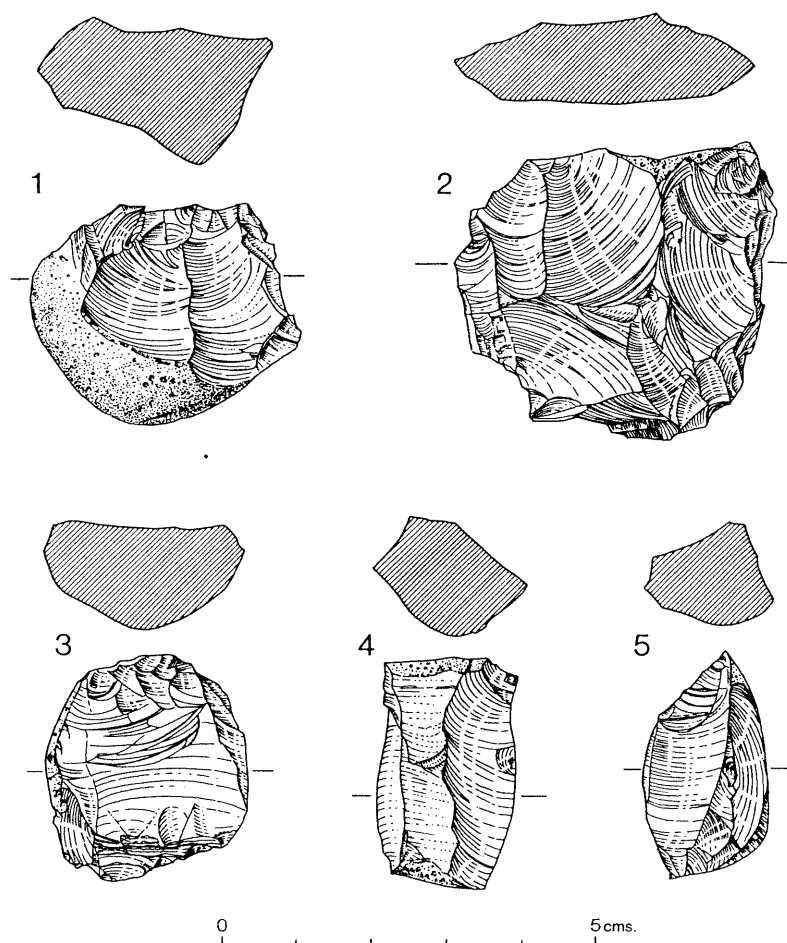


Fig. 2. Cores. 1. Platform core; 2. Disc core; 3. Bipolar cores. Catalogue nos: 156; 241; 2; 99; 100

The knappers at Easter Hatton were producing regular flakes for use. The assemblage also includes one flint blade, but there is no evidence for the use of a technology specifically geared to the making of blades so it would seem that flakes were the preferred goal of knapping. Many could have been used without subsequent alteration, but the assemblage does include five retouched pieces (Fig. 5). Four retouching flakes were recognised, thus providing some evidence that secondary alteration also took place on site.

Four of the retouched pieces are scrapers. One is a small circular scraper on a primary flake, it has steep edge retouch around three sides, and a narrower, cortical "butt" (Fig. 5.1). The other three scrapers are made on more chunky flakes and have wider scraping edges, though they all have narrower cortical "butts" opposite the retouched edge. Two have roughly straight scraping edges (Fig. 5.3 & 4), but on one the scraping edge is slightly concave (Fig. 5.2). Finally, there is one broken retouched tool that it is not possible to allocate to a formal type.

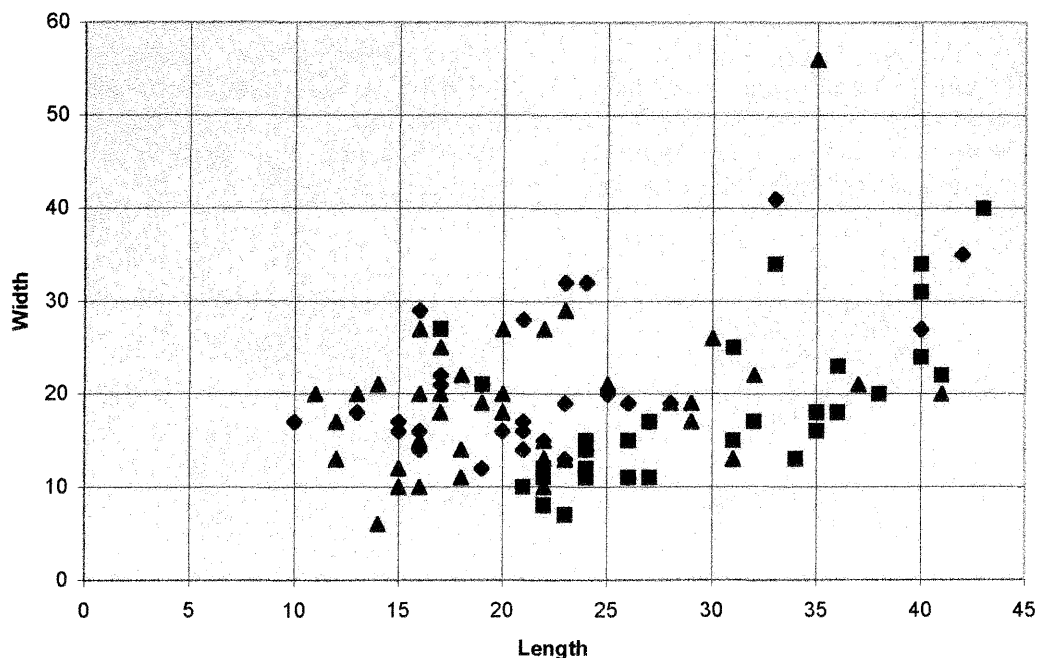


Fig. 3. Sizes of complete regular flakes in mm (square = bipolar; triangle = platform; lozenge = indeterminate)

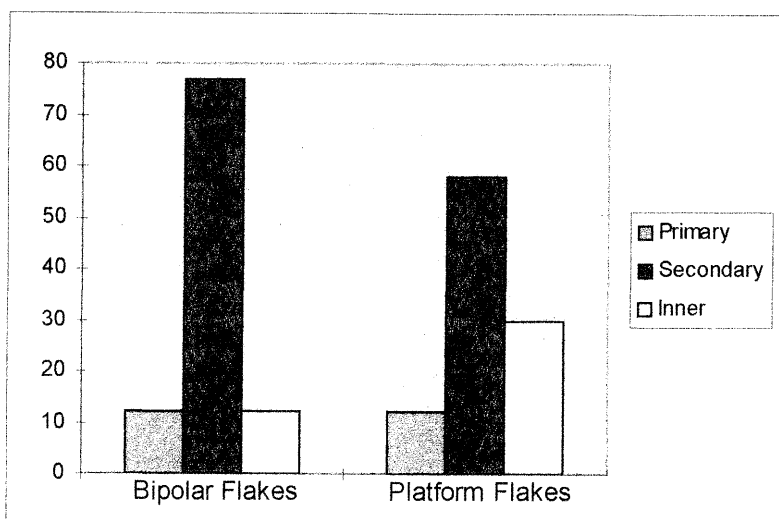


Fig. 4. Percentage of breakdown of the regular flakes by platform type and flake type

COMPOSITION AND INTERPRETATION OF THE ASSEMBLAGE

The assemblage contains enough debitage to indicate that the manufacture of flaked stone tools took place locally, but there are also plenty of regular flakes and a few retouched pieces (Table 2). Given that lithics were recovered by sieving as well as by eye the amount of debitage is not unduly great (178 pieces = 40%). It would seem likely, therefore, that the site has evidence for tool use as well as for manufacture. All of the regular flakes would be useful as tools, in addition to the five retouched pieces. Unfortunately it is impossible to confirm whether or not a piece has been used without a detailed microscopic analysis which was not within the scope of this study.

Given that the assemblage would appear to result from tool use as well as manufacture it is interesting to note that the knappers were apparently making, and using on site, only a restricted range of tools. Their main product was regular flakes with the addition of a few scrapers. Flaked stone assemblages generally contain a higher proportion of retouched

pieces than Easter Hatton, and there is usually much greater variety of retouched tools. Some tools, of course, may have been removed for use elsewhere, but the relatively small amount of debitage makes this unlikely and it would be unusual for all tools of one specific type to have gone. This assemblage would seem to be a very specialised one, presumably reflecting the nature of the work undertaken on site.

Type	Quantity
Pebbles	8
Cores	10
Chunks and Chips	55
Debitage Flakes	101
Retouching Flakes	4
Regular Flakes	262
Blade	1
Scrapers	4
Miscellaneous	1
Total	446

Table 2. *Composition of the Assemblage.*

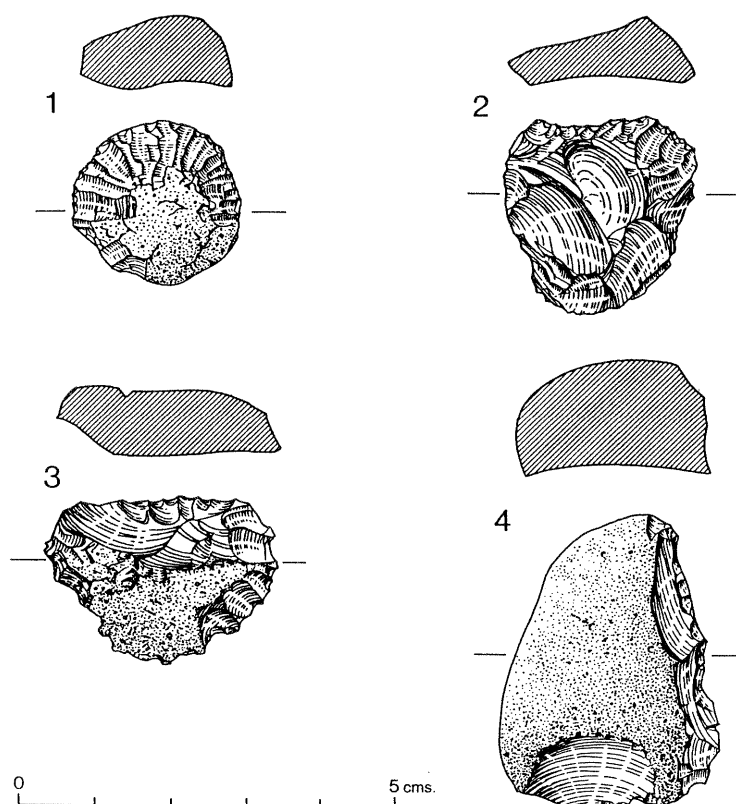


Fig. 5. Retouched pieces. All scrapers with proximal ends at base. Catalogue nos: 11; 189; 329; 216

SPATIAL ANALYSIS

The assemblage was not spread evenly over the area of archaeological activity. Some material (23%) came from general contexts such as a preliminary surface collection or the retents of superficial features. However, the bulk of the pieces (77%) were collected from a metre grid across the site and these could be analysed for spatial information.

The spatial analysis reveals several concentrations of material. In general, the squares that contained more pieces contained larger quantities of everything, debitage as well as flakes and tools. It is interesting, however, that whereas the cores concentrate in the south eastern area of the site, the scrapers come from western squares. Looking at the relative amounts of regular flakes against debitage, the regular flakes dominate over most of the site except for the south-eastern edges, where the squares tended to have mainly debitage. The combination of cores and debitage in the south-east suggests that knapping was concentrated here. Interestingly the four retouching flakes came from four squares more associated with the scrapers.

CULTURAL AND CHRONOLOGICAL COMPARISONS

The absence of a clear cut blade technology and the lack of microliths would suggest that the site does not date to the mainstream Mesolithic period. Flake assemblages with scrapers are, however, ubiquitous throughout stone-using prehistory. There is some suggestion that broader flake types and chunkier scrapers were of more importance at a later date, into the Bronze Age, (Edmonds 1995). Bronze Age core types also tend to be more irregular like those from Easter Hatton, and disc cores are more common, but little is known of regional variation in Scottish prehistory and the use of small, local, pebble flints must be taken into account. It has to be remembered, also, that at Easter Hatton these tools were clearly specific types produced for a particular use on site, and they may well have been drawn from a more varied repertoire elsewhere.

It may be, therefore, that the assemblage at Easter Hatton is of Bronze Age date, but in the absence of other dating material from the site and more detailed lithic analysis from other sites in the area, this must remain open to question.

DISCUSSION

The flint assemblage suggests a Bronze Age date for the site, but the lack of closely dateable lithic types and the absence of other dateable material means that this cannot be accepted without qualification. Some

consideration of similar ephemeral sites representing small, resource-specific encampments has been undertaken for the Mesolithic period (eg Wickham-Jones and Dalland 1998) but little comparable work has been made for the Scottish Bronze Age. There are two reasons for this. First the ephemeral nature of the sites mean that they are rarely encountered archaeologically and second, the difficulty of dating such sites has meant that they often remain unpublished. Their position within the broader settlement pattern therefore remains unclear and largely undiscussed.

It is only by comparison with similar, but more clearly understood sites, that the present tentative date for this site will be bettered but the assemblage does provide us with some important information regarding the site within the prehistoric landscape. Despite the presence of good quality flint to the north, the knappers at Easter Hatton were content to work the plentiful supply of small local flint. The presence of so many regular flakes, and the relatively small amount of debitage, makes it unlikely that tools were being prepared to be taken away for use elsewhere. The flakes were clearly made on site and there is some suggestion that tool manufacture was concentrated in the south-eastern part of the site. The evidence also suggests that the tools were used on site. They appear to have been made as necessary and used locally. New tools could then be added from the raw material to hand as the old ones wore out and were discarded on the spot. As cores were not apparently exhausted it may be that the knappers returned to them from time to time. The bipolar technique was popular for testing and opening nodules, and for the manufacture of flakes from some nodules, though platform cores were also made. From this material the knappers made one principal product: regular flakes which could have been hafted or unhafted and could have been used for a variety of functions including cutting or scraping. Only in a few cases were pieces deliberately fashioned into specialised scrapers (Fig. 5).

The site is situated on a knoll at the back of the dunes and provides access to coastal resources, to raw material for tools to process them as well as fresh water from the nearby stream. It is not possible to suggest the precise tasks to which these tools were being put, but the knappers at Easter Hatton were making a very limited product - regular flakes with a few scrapers. This is a specialised assemblage that may well have been produced for the undertaking of a specific activity. It seems likely that the knappers were taking advantage of the littoral and marine environments, perhaps for dune-nesting birds or sea birds, marine mammals or fish, while the local gravels provided them with a readily available source of stone from which to flake the tools necessary for their task.

Acknowledgements

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