ARTICLES

POTENTIAL SOURCES OF FLINT AND CHERT IN THE NORTH-EAST OF ENGLAND

by Robert Young

INTRODUCTION

This note was generated by three events: first a programme of research carried out by the writer on the prehistoric archaeology of the Wear Valley, Co. Durham, which showed how little the problem of identifying the sources of lithic raw material used in the area had been examined (Young 1984); secondly, the results of the work of Weakham-Jones and Collins (1977/8), carried out in Scotland; and thirdly a recent conversation with Elizabeth Bealey when she indicated to me just how little research had been done in Britain generally on the problem of lithic raw material sources. The aim of this paper is to initiate a discussion of the potential sources of raw material not just for the Durham area itself but also for the north-east generally. The fact that flint does not occur naturally in chalk deposits in Co. Durham as a whole has led many workers to speculate about the origins of the raw material used in prehistoric artefact assemblages in the area (see below). It is hoped that the following can put that speculation on to a firmer footing.

In the course of the research noted above, lithic material from 196 locations within the Wear Valley was examined and on the basis of traditional implement typology the sites were categorised as follows:

- locations producing mesolithic material 73
- locations producing neolithic/bronze age material 45
- locations producing 'mixed' material 10
- locations producing indeterminate material 68
- TOTAL 196

In the context of the present discussion a broad indication of the raw materials occurring on these sites is needed. Therefore, the data relating to cores are presented below as it was thought that these provide, in an accessible form, a clear insight into the main raw material types which were being exploited.
The table below shows the distribution of flint cores by raw material type and flint colour for the Wear Valley:

<table>
<thead>
<tr>
<th>Raw Material Type</th>
<th>Mesolithic Cores</th>
<th>Neo/BA Cores</th>
<th>Mixed Cores</th>
<th>Other Cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey flint</td>
<td>52</td>
<td>23</td>
<td>107</td>
<td>1</td>
</tr>
<tr>
<td>Pink/fawn flint</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Red/brown flint</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Orange/brown flint</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Totally fawn patinated/corticated flint</td>
<td>1</td>
<td>-</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Totally white patinated/corticated flint</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Totally pink/patinated/corticated flint</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Blue/grey patinated/corticated flint</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Burnt flint</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Black shiny chert</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Black/grey chert</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Grey chert</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Blue/grey chert</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Dark grey banded chert</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Black/brown banded chert</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

**FLINT COLOUR**

- Grey flint: 40
- Fawn/cream flint: 9
- Fawn/brown flint: 9
- Red/brown flint: 10
- Burnt flint: 1
- Cream/fawn patinated flint: 5
- Golden-yellow flint: 1
- Toffee-brown flint: 3
- Fawn/white patinated/corticated flint: 1
- Totally white patinated/corticated flint: 3
- Fawn/pink flint: 1

**CORE NUMBERS**

- **TOTAL**: 83

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In total 183 cores (approx. 77% of the total number of cores) are in varying shades of grey flint. This seems to have been the most popular raw material utilised in the study area. A comparison of this information with 83 cores from five major sites on the Durham coast and in the east of the county (Filipkoe Beacon NE 475575, Marsden and Trow Rocks NE 406645, Blackhall NE 474388, Denholme NE 456405, and Crimson Dene NE 485967), shows grey flint being used for just over 48% of the cores examined. A much wider range of flint colour has been noted on the coastal sites and chert is completely absent.
Again, comparison with the lowland/coastal core sample is of interest, as some 60% of the 83 examples retain cortex.

Following the lead of Wickham-Jones and Collins (1977/8) and in order to begin to discuss the possible origins of this material, a survey of all government geological surveys and memoirs available for the region was carried out. This revealed only one reference to flint for the west coast, which occurred within the Birkbeckian division of this deposit (Smith and Francis 1967). It is worth quoting this in full to get some idea of the infrequency with which flint occurs in these deposits.

'At the coast and in the adjacent deep dunes, most of these depressions are only a few yards across and are generally less than 5ft. across... By contrast a discontinuous sheet of gravel up to 50ft. thick extends above rock head for several hundred yards at Castle Eden Dene. Moreover up to 20ft. of interbedded sands, gravels and clays filling buried valleys may belong to this subdivision. The Lower Gravels are characterised by a high proportion (commonly 50-60%) of pebbles derived from the local Magnesian Limestone; the remaining pebbles comprise a varied suite of Carboniferous Limestones and Sandstones, red, green and purple laves, granites, gneisses, schists, flints, quartz, quartzites and dolomites.' (Smith and Francis 1957, 209)

Further extensive research produced only two more references to flint within Co. Durham, again both in derived contexts. Woolnough, writing at the beginning of this century on 'An exposure of the 100ft. raised beach at Castle Cleadon' (in the lower Wear area), notes the presence of 5-6 ft. of irregularly-beded gravel occurring beneath the cultivated soil. The most interesting rocks found in these deposits were, he believed, 'rolled flints which have been found on the Crow rocks, at Whitham Grange, Castle Cleadon Village and in the gravel deposits resting against the old sea cliffs on Fulwell Hills' (1905-6, 244). He believed this material to have been derived from romano deposits left by the Romano-British Ice Sheet (1905-6, 245).

Westgate (1957, 37-38) also in a discussion of glacial deposits, which he terms the 'Cheviot Drift', notes a twofold division of this deposit into:

a) stony boulder clay, and
b) sand and gravel and water-sorted boulder clay.

The sand and gravel manifests itself mainly in the south of Durham, 'especially at Elwick, Greatham and Throstle', and 'the material is current-beded shelly gravel with flints and pieces of chalk' (1957, 39). Trecbmann believed that this material had been swept inland from an interglacial shoreline.

On balance the occurrence of flint within the superficial deposits of Durham would seem to be infrequent, a point paralleled in Raistrick's work on flint-scatter sites in Northumberland. He produced a map (1952, 147, area 3, inset) which showed the location of patches of what he termed the 'North Sea Drift', which produced coloured flint of supposed Danish origin.

Fell and Hildyard also believed that this was the source of flint used in Weardale (1953, 108-110) and quoted Trecbmann's analysis of the origin of the flint found at Grindon Beck, on the coast, in support of their argument (Trecbmann 1936, 167). Today, the glacial material of the coast is the usual source of flint quoted by local archaeologists and Jacoby has echoed this belief in his survey of the British megalithic art (1976, 51). However, the writer believes that in the past too much emphasis has been placed on this possible source of supply.

Dr D. Haling (in lit. to E.J.W. Hildyard, Dec. 1955) disagreed with Fell's suggestions as to the origins of the Weardale flint. He believed, as does the writer, that the drift would not possibly account for all of the flint which has been turned up in the area. Pointing out the scarcity of this material (as noted above) and arguing from his own work that no flints occur naturally in the drifts of the Wear Valley, he suggested that the 'only possible source regions for the flints are: 1) the eskers on the Cumberland coast, derived from Antick or (2) the chalk of either the East Riding or Antick.'

The present writer does not believe that Cumbria or Ireland are likely sources for the flint utilised in Durham. The geographical and physical considerations put forward by Fell and Hildyard would seem to rule this out (1953, 99). The East Riding of Yorkshire would seem to be the most likely source for a major part of the raw material used in the Wear Valley and in the county as a whole.

In Yorkshire the grey flint, which predominates in the Wear Valley assemblages, would be readily available in outcrops along the coast, especially between Filey and Flamborough Head, and substantial amounts of red, yellow, and brown flint are also available as beach pebbles (Bisant 1939; Wilson 1948; Rankine 1952, 146). A macroscopic examination of grey flint, weathered out from the cliffs in this area and selected at random by geology undergraduates at Durham University in 1977-79, would indicate that the flint is similar in nature to that from the Wear Valley. The blocky nature of the fracture, frost damage, and battering abrasion are all similar to that observed on the material from the study area.

It seems, therefore, that prehistoric groups may have been exploiting the readily-available flint resources of the Yorkshire coast in addition to some utilisation of the locally-available glacial flint, though the latter may not have been as important a source of supply as previous writers have intimated.

**Chert**

Chert is readily available in the Carboniferous deposits of Weardale. Fell and Hildyard acknowledged this fact (1953, 108) and an examination of the available geological literature shows the frequency with which chert occurs. For example, Dunham (1948, 19, 22 and 34) shows that the Scar Limestone, exposed to the west of the Burtreeford Disturbance and in the area between Blackden and Bellings, the Four east coast could provide considerable amounts of brown, pink, yellow, and black flint. He produced a map (1952, 147, inset) which showed the location of patches of what he termed the 'North Sea Drift', which produced coloured flint of supposed Danish origin.
Fathom Limestone, which is regularly exposed in Weardale; and the 'lime plate', which occurs in Swinhope and the area around the headwaters of the Bullhope Burn, may all carry chert. Johnson and Durham (1963, 156) also point to local sources in Teesdale.

Given the frequency with which chert occurs in the upland area of Co. Durham, its seeming underuse in the mesolithic assemblages from the region will be the subject of further work by the writer.

The above is very much an interim statement on potential sources of flint and chert in the north-eastern area. If any readers have any further thoughts or comments on this problem I would be very interested in hearing from them c/o: The Archaeology Unit, Department of Geography, Saint David’s University College, Lampeter, Dyfed, Wales, SA48 7TU.

REFERENCES


Rankine, W.F. 1952. Implements of coloured flint in Britain: their distribution and derivation of raw material. Archaeol Newsletter 4(10), 145-149.


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