

TRANSPORT, CURATION AND RESHARPENING OF LITHICS IN THE LOWER PALAEOLITHIC

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ABSTRACT

The identification of lithic transport in the British Lower and Middle Palaeolithic is unusual. Three examples are given from the localities of Wolvercote, Boscombe and Red Barns, where rare or exotic raw material has been used to produce plano-convex handaxes. In two cases the raw material sources are at least 25km away. The correlation between exotic or rare raw material and handaxe form is argued to be due to greater curation and the regular resharpening of these artefacts. It is also suggested that large flake blanks have often been used as part of this process, which may have contributed to the plano-convex form. Both the curation of the artefacts and the use of flake blanks can be seen as an economising measure in areas of otherwise poor quality or rare raw materials.

Full reference: Ashton, N. 2008. Transport, curation and resharpening of lithics in the Lower Palaeolithic. *Lithics: The Journal of the Lithic Studies Society* 29: 6–17.

Keywords: Lower Palaeolithic, plano-convex handaxes, resharpening, Greensand chert, Solent River

INTRODUCTION

The transport and curation of lithic artefacts in the Lower and Middle Palaeolithic has important implications for understanding past human behaviour, in particular landscape use, the ability to plan ahead and some of the perceived differences between the Lower and Middle Palaeolithic (Roebroeks *et al.* 1988; Geneste 1989; Féblot-Augustins 1993, 1999; Scott 2006). These in turn feed into an understanding of the changes in cognition during this period and the apparent differences between pre-modern and anatomically modern humans. Evidence from Europe suggests that during the Lower Palaeolithic there are only rare examples of raw material being procured over distances greater than 25km, the vast majority being obtained within less than 5km of the site (Féblot-Augustins 1993). However, it is not clear whether these distances indicate a general lack of mobility in the Lower Palaeolithic with very rare excursions further afield, or whether they simply reflect patterns of lithic manufacture, use and discard, which are closely tethered to raw material source. Longer transport distances would certainly indicate a more complex use and curation of raw materials and quite possibly be a direct reflection of individual human movement. Therefore identification and study of longer distance transport of artefacts is all the more important for better understanding patterns of landscape use. It is suggested here that this could perhaps be achieved not only by studying distances from source materials, but also the effect distance from source might have on artefact form.

In Britain it has usually been very difficult to identify transport patterns due to the high concentration of known sites in southern and eastern England, and the ubiquity of flint

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derived from Chalk within these regions. There has been some success for the Upper Palaeolithic using the structure of flint (e.g. Chris Clayton, cited in Jacobi 2004, 2007), but for the Lower and Middle Palaeolithic there have been few attempts, and no successful studies, of sourcing flint to particular areas of the English chalklands. On the comparatively few occasions when non-local rocks, such as quartzite, have been used in chalkland areas, the raw material has usually been locally acquired, having been derived and transported through fluvial or glacial processes. For example, the quartzite handaxes at Lakenheath, Suffolk (Flower 1869) were almost certainly made on raw material from nearby Bytham River gravels (Ashton & Lewis 2005).

Beyond the chalkland areas of the south and east there are occasional instances where handaxes have arguably been transported beyond their source area. There are possible examples at the pre-Anglian sites of Waverley Wood and Baginton, Warwickshire (Shotton *et al.* 1993; Shotton 1953), where flint handaxes appear to have no local source and were perhaps transported over 100km from the Chilterns to the south-east or from East Anglia to the east (Keen *et al.* 2006). The only other possible explanation is that flint was brought in as part of an (as yet unidentified) glacial sediment to the north, perhaps during Marine Isotope Stage (MIS) 16. The andesite handaxes that were also found at Waverley Wood were almost certainly made on local erratics, some of which have now been found in the Baginton Formation in the area. It is not clear how the erratics reached the West Midlands, although an MIS 16 glaciation has again been postulated (Keen *et al.* 2006). This is a far more likely explanation than the alternative suggestion that they were humanly transported from an andesite source area in the Lake District, 250km to the north.

One other site where handaxes were perhaps humanly transported into a flint-impooverished area is the site of Wolvercote, Oxfordshire (Bell 1904; Sandford 1924; Tyldesley 1986; Maddy *et al.* 1991), probably dating to MIS 9 (Bridgland 1994: 63). The handaxes from Wolvercote were predominantly made on flint, often from good quality, large nodules. The Wolvercote gravel does contain flint, but the clasts have been argued to be too small for handaxe manufacture (Briggs *et al.* 1985: 10; Roe 1981: 118). Maddy *et al.* (1991) have also noted that the flint from this gravel is very decayed and probably originates from the Northern Drift, remnants of which lie 5km from the site. Fresher flint from the Midlands Chalky Boulder Clay seems to be entirely absent in the gravel. On the basis of the condition of the cortex on the handaxes, White (1998a) has argued for a local gravel source, although this has yet to be identified. However, the condition of the cortex does not actually indicate whether the source was local or not, merely that the raw material is likely to have come from gravel. The Wallingford Fan Gravels have been suggested as an alternative source, but these lie some 25km from the site (McRae 1988). The most likely source, and that favoured by most authors, is from the Chilterns, again 25km distant (Bridgland 1994: 62; Briggs *et al.* 1985: 11). Unfortunately very little débitage was collected from the site and therefore this can not be used as an indication of whether finished handaxes were brought in, or actually made at the site.

The Wolvercote handaxes are renowned for being plano-convex in cross-section. In many cases one face has been created from early knapping, which through later flaking on the opposite face has created a plano-complex profile. This has often been accentuated through small 'retouch-type' working on the same, second face. Apparent parallels with the handaxes from La Micoque and Bockstein III have been argued to suggest that they form part of a Micoquian tradition (Roe 1981: 123; Tyldesley 1986). Such cultural interpretations were rejected by White (1998a), who argued that the Wolvercote handaxes were frequently made

on large flakes and flint tablets, which naturally produced a plano-convex cross-section.

An alternative explanation has also been developed (Ashton 2001). It was suggested that the form of the Wolvercote handaxes was influenced by either the distance from the raw material source, or perhaps the rarity of good quality flint in the Wolvercote area. This led to resharpening as a means of economising, which in effect resulted in the production of a plano-convex cross-section, through the ongoing resharpening of one face and the characteristic retouching (see above), particularly near the tip. The latter may be further evidence of resharpening. It was further argued that although these technological attributes could have been undertaken as part of the initial production of the handaxes to produce a specific cultural form, if this was the case, then similar attributes should be found on the ten quartzite handaxes from the site, which had a local source. However, the quartzite handaxes are not plano-convex in form and display little evidence of retouching near the tips, with few indications of a cultural template being imposed.

Furthermore if Wolvercote was part of a Micoquian cultural tradition then it should have a similar date to other Micoquian sites on the continent. Unfortunately the term Micoquian has been confusingly applied in the past, but now generally refers to sites in western and central Europe containing handaxes that often have concave edges, an asymmetry in planform, and are sometimes plano-convex in cross-section, most of which date to the earlier part of the last glaciation. Ironically, an exception is the site of La Micoque, where the levels producing the handaxes are certainly earlier than MIS 6 and could be a similar age to Wolvercote (i.e. MIS 9; Turq 1999). While there is perhaps evidence for a Micoquian tradition from the later part of MIS 5 in central and western Europe (see Gouedo 1999 for a full discussion), there are very few sites that form a coherent group prior to this date.

Further testing of these competing interpretations is problematic without refitting or use-wear, which might help to show clearer indications of resharpening. However, one promising area would be a comprehensive study of the relationship between other plano-convex handaxes and raw material sources. This is beyond the scope of the limited study here, but two examples can be given where similar relationships between raw material source and handaxe form can be suggested.

BOSCOMBE

Boscombe, to the east of Bournemouth, lies in the Stour Valley. The Stour once formed a tributary of the Solent River, which in its earliest course flowed eastwards through Dorchester, round the northern side of the Isle of Wight, and then into the area that is now the English Channel (Figure 1). A series of different terraces has been mapped for the Stour, many of which produced large quantities of handaxes. Bristow *et al.* (1991) mapped 13 terraces (T1–T13), which broadly correspond to the named terraces of Allen (1991; Allen & Gibbard 1993).

Little biostratigraphic data survives in the terrace gravels to help with the dating. Westaway *et al.* (2006) have argued that Levallois technology was introduced during the formation of the Ensbury Park Gravel or Terrace 10 and have attempted to date the terrace on this basis to MIS 9–8. Other than the obvious dangers of using Levallois material to date terrace formations, there are further problems with this approach. For example, Levallois technology is also recorded from areas mapped as Milford-on-Sea and Setley Plain Gravels (e.g. from the Brixey and Goods Pit at East Howe, and from the Railway Ballast Pit at Corfe Mullen). However, the

key point is that it is not clear whether such material comes from the actual terrace gravel or from overlying sediments. For the moment any interpretation of the dating of these terraces should be treated with caution.

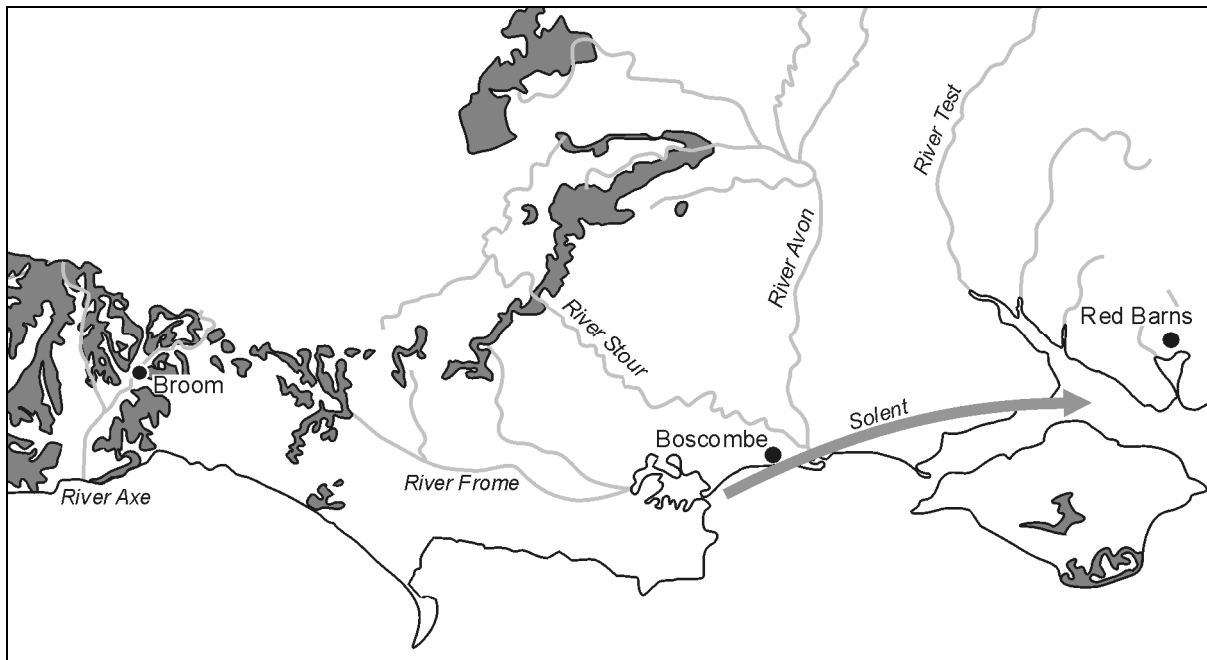


Figure 1: Map of the Solent area, showing the sites discussed in the text, the main river systems and the possible source areas for Greensand chert. Illustration by Beccy Scott.

Boscombe encompasses the area mapped as Ensbury Park Gravel (Terrace 10). Many handaxes have been found from Boscombe, although these often lack details of provenance or context. It has been assumed that most of these artefacts probably originate from the Ensbury Park Gravel (Wessex Archaeology 1993: 135).

The majority of the handaxes from Boscombe are made of flint, are moderately to heavily rolled, iron-stained, and take a variety of forms from ovates to thick-butted pointed examples. However, one handaxe stands out. It is from the Garraway Rice Collection (BM registration: 1933.4-6.3) with no further provenance than Boscombe. It is marked out from the rest of the Boscombe material by its very fresh condition, the good quality of the Upper Greensand chert from which it is made, and the marked plano-convex cross-section (Figure 2). As with some of the Wolvercote pieces, it also appears to have been made on a large flake, which must originally have been from a large nodule or block, the handaxe being 165mm in length. The piece was manufactured through initial knapping of the ventral face of the flake blank. The flake scars on this face suggest that they were struck from at least 20mm away from the existing edge, indicating that the original flake-blank was at least 100mm in width. All further knapping was undertaken on the opposite face to create a comparatively steep-angled, plano-convex cross-section and a distinct ridge along its length. Finally, the edges and tip were retouched, leaving the butt as a flat natural surface.

The original source of this raw material is unknown, although the nearest Upper Greensand is 30km to the south east on the Isle of Wight. The best known source of Greensand chert is even further afield, being in the Axe valley, 80km to the west (Figure 1). This area is famous for the sites at Broom, which are characterised by large quantities of handaxes made on good

quality chert (Wymer 1999: 181; Hosfield & Chambers 2002). Whether the Greensand chert was humanly transported or brought into the Boscombe area through fluvial action is not clear. However, what is apparent is that Greensand chert is exotic to the area, and in this instance the block was extensively worked and therefore perhaps valued more than the local flint. This may be one example where resharpening played a role in final handaxe form.

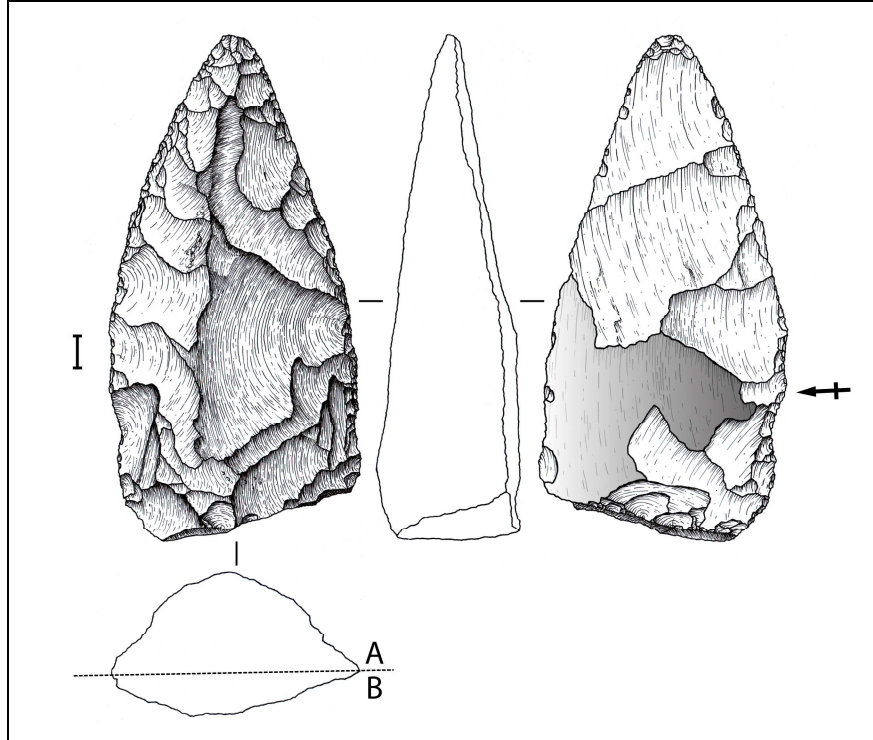


Figure 2: Plano-convex handaxe made of Greensand chert. Found in Boscombe, near Bournemouth. The greyscale-shaded area is the remnant ventral surface of the flake blank on which the handaxe was manufactured; the arrow denotes the flake removal direction and approximate position of the striking point. The broken line in the end profile shows the bifacial plane separating the two worked faces of the handaxe: the convex dorsal surface (A) and the much flatter ventral face (B). The scale bar is 10mm. (Garraway Rice Collection, British Museum registration: 1933.4-6.3). Illustration by Adam Brumm.

RED BARNES

The assemblage from Red Barnes, Hampshire is one other site that might support the relationship between raw material and handaxe form. A large primary context assemblage was recovered during a rescue excavation in 1975, predominantly from a landsurface, overlying solifluction, and overlain by colluvial deposits (Gamble & ApSimon 1986; Wenban-Smith *et al.* 2000). The site has been difficult to date due to its position in hill-slope deposits, whilst ratios from amino acid racemisation have been inconclusive. The assemblage is dominated by irregular waste and débitage, and of the latter only 7% is diagnostically from handaxe manufacture (Wenban-Smith *et al.* 2000). There are roughly equal numbers of tested nodules and handaxes, and occasional cores. The raw material was immediately available at the site and came from flint derived from soliflucted chalk. It is clear from the débitage at the site, that although there was no shortage of flint raw material, the quality was often poor, with frost-fracturing being a major problem (Wenban-Smith *et al.* 2000: 225).

Although there are 18 handaxes listed in the assemblage, these include rough-outs and miscellaneous flaked pieces with possible bifacial flaking, leaving only eight that can be characterised as finished, recognisable handaxes. These eight can be divided into two groups based on size, quality of raw material and quality of flaking. The first group of five are all less than 92mm in length, and in at least two cases are made on small nodules. With only one exception, they have steep, irregular edges and are difficult to characterise as a particular handaxe type, other than perhaps the small, irregular Type E of Wymer (1968). They could certainly have been made on the raw material immediately available at the site.

The second group consists of one complete handaxe and two broken tips. The complete handaxe is 16cm in length and finely finished. It is plano-convex in form, the final flaking having taken place on the convex face. It also bears characteristic retouching along the tip and edges. The two broken tips were almost certainly from finely-made plano-convex handaxes, so far as it is possible to tell. The tips themselves are plano-convex with the final flaking and retouch again limited to one face. Given the poor quality of the raw material available in the immediate area of Red Barns, it seems unlikely that this group was made at the site. Other flint sources were doubtless available within a short distance, but it is not known whether they provided good quality flint. The important point is that plano-convex handaxes were curated, perhaps only a short distance, but even a short distance appears to have had an effect on the final form. It is argued in this paper that this final form was due to resharpening.

DISCUSSION

The suggestion that plano-convex handaxes form a coherent cultural group has thus far relied on technological and typological similarities of particular handaxes. One way to carry this interpretation forward would be to demonstrate the delimitation in time and space of this handaxe form. This type of approach was, for example, used by White (1998b) to try to understand the phenomenon of 'twisted ovate' handaxes; assemblages which contained significant numbers appeared to be limited largely to Britain and attributable to MIS 11. As yet, it is difficult to delimit plano-convex handaxes either in time or space. In Britain there is a lack of good dating evidence (see examples above), although they seem to form part of several Lower Palaeolithic assemblages. It is not yet clear how the British examples relate to those in the rest of Europe, other than being much earlier than the Micoquian assemblages, which predominantly date to the first part of the last glaciation.

Interpretations based on raw material and resharpening provide more robust arguments. Wolvercote, Boscombe and probably Red Barns are three examples where there is an apparent relationship between distance from raw material source and a peculiarity in handaxe form, suggesting that plano-convex handaxes are produced as part of a resharpening process to economise on rare, but valued, raw materials. One other common aspect of many of the Wolvercote pieces and the single example from Boscombe seems to be the use of large flakes as blanks. The use of large flakes from a single block is itself an economising measure, so that several handaxes can potentially be made from one nodule. Furthermore, flake-blanks are more easily transported over long distances than large nodules of raw material. The use of flake-blanks from distant raw material sources therefore fits with other economising measures associated with plano-convex handaxes.

If the interpretation that plano-convex handaxes were produced as part of an economizing measure is correct, then the question still remains as to why this particular method of resharpening was deployed, rather than using methods such as tranchet resharpening, as at

Boxgrove (Roberts and Parfitt 1999)? Again, the answer might lie in the use of flakes as blanks. This has already been suggested by White (1998a) as the reason for the plano-convex shape, with the ventral surface in effect providing, with minimal modification, one side of the handaxe. This in itself is a further example of an economising measure, so that only one face required more extensive knapping. In addition, it may also have affected the way resharpening was deployed on the handaxes, with the continued flaking of just one face.

Finally, the evidence presented above provides some clues to early landscape use, where the evidence from both Wolvercote and Boscombe suggest rare, but visible examples from Britain of people moving in excess of 25km. In each case there are obvious routes which could have been followed. Wolvercote is upstream along the Thames from the Goring Gap and the flint sources of the Chilterns, while Boscombe is downstream of the Stour and the Frome, both of which drained the Greensand areas and potential sources of chert to the north-west and west respectively. These examples add to the growing evidence of the use of rivers as natural route-ways through the landscape (Ashton *et al.* 2006).

The understanding of human landscape use in the Lower Palaeolithic is a key area of research, but has largely been limited to studies of raw material transport. This paper attempts to take this one step further by examining the relationship between distance from raw material source and handaxe form. Future research might build on this through similar studies based on handaxe morphology, or take a broader look at the effects on assemblage composition. It is hoped that this study has provided a platform for future research.

ACKNOWLEDGMENTS

I am very grateful to Adam Brumm for the illustration of the Boscombe handaxe and cross-sections, and to Beccy Scott for the map. I am also grateful to both of them and to Matt Pope for useful discussions and comments on the paper.

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COMMENT

This is an interesting paper, and I certainly agree with Ashton that we need to investigate mobility of Lower Palaeolithic people around their landscape, and the spatial organisation of their lithic production in relation to raw material sources. Ashton argues that the typological form of some handaxes is related to specific re-sharpening treatment, which in turn is associated with distance from raw material source. This is a reasonable argument in a general sense, as one can certainly imagine that re-sharpening and economising on handaxe discard would accompany increasing distance from raw material, and consequent increasing difficulty and energetic costs in replacing a handaxe. However, there are a number of problems with the specific case chosen, applying this argument to the occasional occurrences of plano-convex handaxes in the British record.

Firstly, while resharpener might well lead to changes in the shape, particularly at the tip, it actually has no bearing on plano-convexity. It would be difficult, if not impossible, to make a handaxe plano-convex through resharpener which had not been plano-convex from the beginning. Furthermore, the flat site of these handaxes is not just at the tip, but along the whole of one face, so the proposed resharpener would in fact be a major renewal of the whole handaxe. Additionally, the proposed resharpener would have to be deliberately aimed from one face at producing plano-convexity, and there is no suggested reason why the need to resharpen while distant from raw material source, should lead to this particular distinctive approach, rather than being carried out bifacially.

Secondly, in relation to the use of Red Barns as an example, the proposed distinction between locally sourced “non-plano-convex” handaxes and curated/transported plano-convex forms is not so clear cut as suggested. The proposed “local” group includes one small handaxe, which, as described, has steep edges, formed from numerous step fractures due to the repeated failure of attempts by the knapper to thin the handaxe. However, this handaxe is still recognizably of plano-convex form, and there are no apparent flaws in the raw material. There is no reason to separate it from the other group. Its distinctive characteristics reflect failures on the part of the knapper, rather than inadequacies of the raw material. Two of the broken handaxes are also clearly plano-convex in cross-section. Furthermore, of the three handaxes (or parts of) identified as curated/transported, the one large one in fact retains a frost-fracture characteristic of the local raw material, and the other two are broken tips, so there is no independent evidence of whether the main part of these two handaxes was affected by frost fracture.

Finally, in relation to raw material quality at Red Barns, it is worth emphasising that the flint itself is of good quality, but it is the prevalence of frost fractures through the flint that may compromise its potential for handaxe manufacture. Given the local abundance of flint nodules, it seems at least equally reasonable to suggest that knappers at the site were happy to make repeated attempts at handaxe manufacture on the local raw material until they found a flint nodule without sufficient flaws to impede successful completion of a handaxe. This supposition is supported by the large collection of flint nodules from the excavation site retained in the British Museum, which represent the locally available material, and many of which are minimally flawed, if at all.

Overall, there may well be instances in the Lower Palaeolithic record where the observed typological outcome is relatable to transport/curation and distance from raw material source,

and Ashton is right to investigate this possibility. However, the proposal that this model is applicable to the instances of plano-convex handaxes in the British Palaeolithic record, and that the evidence from the site of Red Barns supports this proposal, seems difficult to sustain.

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REPLY TO WENBAN-SMITH

I am grateful to Wenban-Smith for his comments on my paper, which address three main issues: 1. the relationship between initial form, specific resharpening and the possible effect on plano-convexity; 2. the division of the Red Barns handaxes into two groups; and 3. the quality of raw material at Red Barns. I'll address each in turn.

The point that Wenban-Smith makes, that it would be '... difficult, if not impossible, to make a plano-convex handaxe which had not been plano-convex from the beginning.' is an interesting comment and deserves further investigation. This is clearly best proven one way or the other by knapping experiments. However, if the cross-section of the Boscombe handaxe is used as an example, it is clear first of all that even the 'plano' face is in fact slightly convex. It has been suggested that the flake scars on the 'plano' face were removed from perhaps 20mm out from the current edge. The reconstruction in Figure 1 below illustrates the subsequent resharpening, also beginning from 20mm outside of the final edge. It is not difficult to see how a series of removals on the opposite face would alter what was once a handaxe with two convex faces, into a handaxe with a marked plano-convex cross-section.

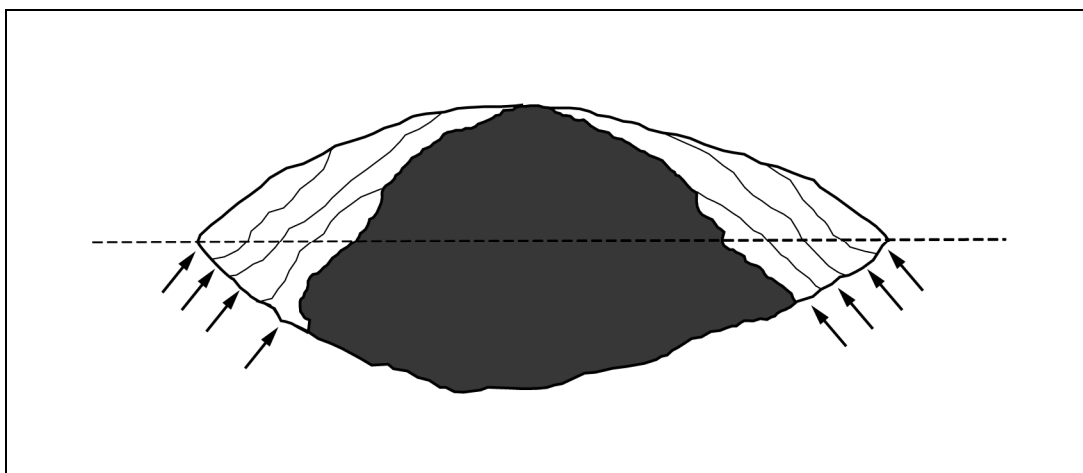


Figure 1: The transformation of a bi-convex handaxe into a plano-convex handaxe through resharpening, using the cross-section of the Boscombe handaxe as an example. Illustration by Adam Brumm.

As part of the same comment, Wenban-Smith suggests that the proposed resharpening would be a major renewal of the whole handaxe, i.e. both tips and edges. This, I think, is the point that I am making, although whether this happened as a series of resharpening events, or one major event can not be discerned.

His final point on comment (1) is that the specific technique of resharpening on one face has no direct bearing on distance from raw material source. This point has been discussed in the

original paper. One suggestion offered was that if flakes were used as blanks for the original handaxes (which in itself could be regarded as an economising measure) then the blanks might lend themselves better to resharpening from one face. There certainly seems to be a strong correlation between handaxes made on flakes and plano-convexity at Wolvercote and on the one piece from Boscombe (see also White 1998). A suggestion put forward by Emery and Pope (Emery in prep.; Emery & Pope in prep.) is that resharpening from a single face will maintain the cutting angle and edge better than extensive bifacial resharpening.

Wenban-Smith's second comment is more subjective. I suggest in the paper that the eight handaxes from Red Barns split into two groups based on the three criteria of size, condition and quality of knapping, which is further supported by one group being plano-convex in cross-section. The small size of five of the handaxes marks out the first group, which vary between 92 and 62mm in length. By contrast, the likely original size of the second group, which comprises one complete handaxe and two handaxe tips, was probably much larger. Wenban-Smith *et al.* (2000) suggest that the handaxe tips broke as a result of use, perhaps in one case through leverage or twisting. This is more likely to have occurred if the original handaxes were large, providing sufficient length to lever or twist. If, as seems reasonable, the tips are at most a third of the original length of the handaxes, then the original handaxes would have been at least 168mm and 147mm in length respectively. It is interesting to note that the two tips take a very similar form in terms of technology, outline shape, width and thickness to the complete plano-convex handaxe, which measures 165mm in length (see Figure 12 of Wenban-Smith *et al.* 2000).

Assessment of condition of raw material is difficult. The first group of handaxes are either made on small, slightly thick pebbles with occasional flaws or in one case on a small, naturally frost-fractured slab. There is only one handaxe of better quality in this group, where the knappers have overcome the problem of raw material size and condition, to produce a slightly thick, partially cortical pointed handaxe of 73mm in length. The remainder contain clear flaws or breaks, and signs of where the knappers seem to have struggled with the thickness of the blanks, resulting in step-fractured, thick, partially cortical, irregular handaxes.

In contrast, the raw material used for the second group of handaxes seems to have been sufficiently good to enable the knapper(s) to manufacture what would originally appear to have been three finely made handaxes (see comments above about breakage through use). This is despite a minor flaw in the flint of the complete handaxe.

The handaxes also divide into two distinct groups on the quality of the finished handaxes. This may be in part a reflection of the quality and size of the raw material, but it also reflects a difference in treatment by the knappers. The difference in treatment may simply relate to the relative abilities of the knappers. An equally valid argument is that the good quality raw material acquired a special status and was therefore treated, possibly through transport and certainly through knapping, in a very different way. The difference in treatment is also reflected in the clear plano-convexity of the second group. By contrast, in the first group there is only one handaxe that could be remotely argued to have a plano-convex form. This piece, however, is very irregular with an '...operational sequence [that] is less structured than for the other specimens...' (Wenban-Smith *et al.* 2000: 230). Perhaps the important point here is that even if it was included as a plano-convex handaxe, there still appears to have been little intentionality on the part of the knapper.

The final comment of Wenban-Smith relates to the quality of raw material available at Red

Barns. When Wenban-Smith states that the raw material would have been of good quality if it had not been for the degree of frost-fracturing, I assume that the main point he is trying to make is that there was still some raw material that had not undergone frost-fracturing and was available at the site. There appears to be little indication of this from the débitage and ‘irregular waste’, both of which display high levels (65% and 75% respectively) of frost-fracturing. Nor is there evidence of any good raw material from re-examination of 26 of the unworked nodules and frost-fractured blocks that have been retained from the site. The average length of these nodules is 162mm, with a range of 70mm to 230mm. Only one of the nodules has the characteristic ‘ring’ used by knappers to find nodules unhindered by frost-fracturing. This nodule, however, has several awkward protuberances that would have considerably reduced the effective size of the blank. Although in principle some of the larger nodules could have produced handaxes of over 160mm in length, in practise these nodules all contain frost-fractures. It would seem, therefore, that there is little evidence of good quality raw material at the site for the manufacture of handaxes over 160mm in length.

One final point of note in relation to Red Barns is the presence of one tranchet resharpening flake. It seems to have been taken from the tip of a finely finished bi-convex handaxe, but from a relatively plane face. The detailed working of the handaxe, which is visible on the dorsal face of the flake, resembles that found on the convex face of the second group of handaxes (see Wenban-Smith *et al.* 2000: Figure 12e). The interpretation offered here is that it is the resharpening of a finely made handaxe and this resharpening would begin to increase the plano-convexity of that handaxe.

The important point to emerge from all this, is that a different value seems to have been placed on handaxes made on raw material of rare quality, or exotic to an area. This may have led to the curation and transport of these handaxes and the additional likelihood of regular resharpening through their life-histories. One trajectory that may result through resharpening is the deliberate reworking of one face, which led to plano-convex handaxes. The next step in this research is to take a much broader investigation of the links between raw material, transport histories and the final forms that handaxes take.

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