South East Research Framework resource assessment seminar

Neolithic and Early Bronze Age lithics in South East England: some preliminary notes

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Introduction

Nothing is to be gained from a 'resource assessment' that simply quantifies HER or other data in the absence of a series of research questions or frameworks. Consequently, this brief contribution is structured as a series of such questions which can be profitably addressed via the lithic 'resource' existing in south-east England. Research frameworks for Holocene lithics exist (Lithics Studies Society 2004), and these have been incorporated into this document where applicable.

Status of the resource

The available information is not uniform across the region. East and West Sussex are typified by large quantities of material from surface collections, Kent by an increasing number of assemblages from recent excavations, and Surrey by a mixture of the two. Consequently, the questions that it is possible to address vary accordingly.

Sources of raw materials

The vast majority of the lithics within the region are of flint, which occurs widely, although large unweathered nodules are more restricted. Procurement took a number of forms at different times: the seams of nodular and tabular flint at the base of the Upper Chalk on the South Downs were mined for axe production during the Early Neolithic; while derived flint from clay-with-flints deposits and river terrace gravels provided raw materials of varying quality throughout the Neolithic and Early Bronze Age.

In east Sussex, in particular, the clay-with-flints produced large, high quality nodules. Excavation and collection on Bullock Down, Eastbourne, has revealed evidence for the extraction and working of flint from the clay-with-flints (Drewett 1982). The flint mines of the South Downs have been shown to have been in use possibly as early as the 39th century BC, and to have been extensively used throughout the first half of the fourth millennium BC (Healy, this web site). Activity at the mines in the later Neolithic and Early Bronze Age is attested in the form of nodules grubbed from surface dumps (Gardiner 1988).

To what degree the South Downs flint mines were primarily geared towards the extraction of raw materials in a straightforward economic sense is open to question, as Frances Healy has noted. As she states, only a very restricted portion of the available flint deposits were utilised, and that chosen was not always the best available material. Nor, indeed, was the acquisition of flint through mining a necessary part of the production of stone tools: Julie Gardiner has demonstrated that other flint sources provided the majority of the raw materials for at least large core tools. In this sense, the flint mines clearly played a role in Neolithic society that was far greater than simple resource acquisition, in much the same way as has been argued for the Lake District stone axe quarries, for instance.

Of the other hard stones that were utilised, only Upper Greensand Chert is likely to originate within the region. 'Foreign' types may either have derived from glacial deposits, or were

acquired by trade: for example, Portland Chert from Dorset; Cornish, Welsh, Irish and Cumbrian axes (found in relatively large numbers in the Surrey Thames); jadeite axes, which probably originate from the Alpine foothills; and the Palaeozoic sandstones from the Belgian/Luxembourgian Ardennes and Scandinavia. This suggests widespread foreign and insular trade networks, with concentrations of 'exotic' stone types in and immediately around the Thames and at Beachy Head.

The nature, timing and duration of the Mesolithic-Neolithic 'transition'

It is becoming apparent that there is a rich and largely unexpected record of Late Mesolithic and Early Neolithic activity represented by *in situ* lithics assemblages across the South East. Sites such as Charlwood (Ellaby 2004) and North Park Farm (both Surrey) have lithics associated with radiocarbon dates 'well into the 5th millennium cal BC'. The presence of Mesolithic flint technologies until at least 4500-4300 cal BC seems undeniable on the basis of sites such as these, but the emergence of succeeding Early Neolithic technologies remains poorly- or un-dated.

Although both the Late Mesolithic and Early Neolithic periods are marked by lithic type fossils of very different forms (microliths and tranchet axes on the one hand; leaf-shaped arrowheads and polished axes on the other), our understanding of how one set of industries were transformed into the other remains extremely limited. In part this is due to uncertainties over the make-up of assemblages beyond these diagnostic types, and the consequent difficulties of identifying (especially) Late Mesolithic assemblages, but also from difficulties in knowing whether Early Neolithic assemblages indicate new imported technologies or transformed existing ones. Roger Ellaby has suggested that leaf-shaped arrowheads could be a 'native' (Mesolithic) development which would have reduced or displaced the use of microliths in Mesolithic assemblages.

At present, lithics assemblages in the South East region which can directly contribute to the elucidation of these issues are very scarce, but their existence should alert us to the possibilities of further occurrences. Tranchet axe heads of Mesolithic type from the mines at Cissbury may be evidence of transitional activity there (Gardiner 2001). Most significant for the transitional period between the Mesolithic and Neolithic are a number of sites around the Thames estuary encountered during the monitoring of large transport infrastructure projects. On the north (Essex) shore at Purfleet and on the opposite (Kent) side at Erith, very large late Mesolithic assemblages have been sampled, both probably palimpsests of activity which – on the basis of associated ceramics and lithics – continued into the Early Neolithic period without discernible changes in raw material procurement, technology or depositional practice. Neither of these sites is without problems of interpretation, but there is clearly the potential in the lower Thames for more-or-less deeply buried assemblages with at least a degree of stratigraphic integrity which span the Mesolithic-Neolithic transition.

Early Neolithic settlement and lithic artefacts

The question of settlement in the Early Neolithic period is not one which can be addressed effectively by a consideration of lithics evidence alone. Certainly, surface collections of flint – which are the main source of evidence for much of the region – give some indications of more and less densely occupied areas, but do little to pin down actual settlement sites. With the exception of still highly unusual discoveries like the White Horse Stone building, and the structures at Runnymede Bridge and in Kingston, there is a lack of evidence for structures and especially dwellings of any kind. The discovery of such evidence may be expedited by a study of lithic scatter distribution, such as the series of Thames-side scatters of gravel-flint assemblages in silted channels on both the Surrey and Middlesex sides of the river. Other than

these, evidence of Neolithic occupation associated with any structures is almost entirely confined to causewayed enclosures. Once absent from the north of the region, this site type is now widespread, with examples in Kent, Surrey and Sussex.

A recently-excavated pair of enclosures at Kingsborough, Sheppey, Kent, provides some detail of the lithics assemblages present at these sites. Although the flintwork assemblage from Kingsborough 1 (K1) and its associated features is relatively small, it is possible to suggest that its composition is typical of the assemblages from other causewayed enclosures (Saville 2002). The range of implements at K1, comprising predominantly scrapers, serrated pieces, utilised pieces, leaf-shaped arrowheads and occasional polished axes, with smaller numbers of other tool types, conforms with the assemblages from Windmill Hill, Staines, and Etton, and from limited excavations at some other causewayed enclosure sites.

The presence of a high proportion of implements at K1 is unusual, although the proportion of unretouched flakes, cores, and implements is almost exactly comparable with those in the 'main pits' at the Stepleton enclosure on Hambledon Hill (Saville 2002). As well as the utilisation of implements, significant working and processing of flint was also taking place. Although the overall number of cores and flakes is small, the ratio of cores to flakes compares well with those from Staines, where cores represented 3% of the assemblage and there was a 1:30 ratio of cores to flakes. At Offham, however, cores represent only 1% of the assemblage and there was a 1:98 ratio of cores to flakes. This might suggest that similar activities were being undertaken at K1 and Staines, while the Offham evidence warns us that these activities may not have been common to all causewayed enclosures. Saville (2002, 102) has demonstrated that care should be taken when interpreting the lithics data, as there might have been a tendency for debitage to be discarded in dumps, which varied from place to place in the ditches. Although at other causewayed enclosures (e.g. Stepleton) conjoining debitage from specific knapping events has been found (Saville 2002), none of the debitage found at K1 could be refitted.

The presence of core rejuvenation pieces, the well-worked nature of many of the cores, and the nature of the flakes and blades, highlights the fact that this Early Neolithic assemblage was being carefully worked and, despite the plentiful supply of local flint, some considerable skill was being used in the knapping process. Although some excavators have seen the flintwork found at causewayed enclosures as being specially selected and deposited as part of a ritual or ceremonial use (Pryor 1998), the flintwork assemblage found at K1 appears to be more domestic in nature.

There is no clearly differentiated primary assemblage associated with the construction and initial use of Kingsborough 2. Only six pieces of flake debitage were recovered from the primary silts of two ditch segments, only one of which had been retouched.

The status of the lithics in the secondary and tertiary ditch fills is varied. Some is undoubtedly residual material derived from the primary use of the enclosure, but identifying components within this material is rendered difficult by the lack of closely datable tool types, the continued mixing of hammer technologies, and the very small size of the identifiable primary assemblage. Overall, the material from the primary and secondary fills of the enclosure ditches reflects a 'normal' earlier Neolithic lithic assemblage (Healey & Robertson-Mackay 1983; Holgate 1988, 51).

In terms of lithics, the assemblages at K1 and K2 are superficially very similar, consisting of comparable mixtures of (presumably local) raw materials. Notably small cores occur, as do a variety of types. Tools are primarily scrapers in both assemblages, with smaller numbers of

leaf-shaped arrowheads and pieces with miscellaneous retouch. In these terms both assemblages are typical of lithics from causewayed enclosures, although it is worth stressing that, in both instances, only a very small (and not necessarily representative) sample was recovered.

The differences between the two assemblages are perhaps more revealing. For instance, the ratios of raw material types differ, with far more Bullhead flint present in the K1 assemblage than at K2. Bullhead flint makes up 20% of the Early Neolithic flintwork at K1, and appears to have been specifically selected for some types of implement, and to have been more carefully and systematically worked than the other types of flint in the assemblage. The cores are so well worked-out that no further flakes could be removed. Core rejuvenation was also being utilised to maximise the potential of the cores. The Bullhead flint debitage tended to consist of long flakes, blades, or bladelets with little or no remaining cortex, predominantly produced using a soft hammer from cores with prepared platforms. Bullhead flint accounted for 33% of the serrated and utilised pieces (the two main implement types produced from long flakes or blades). This trend has been seen elsewhere. At Ringlemere, a pre-monument Early Neolithic phase had a large proportion of soft hammer-struck flakes and blades, some serrated, that were manufactured using Bullhead flint (Butler 2003).

It is possible, given the quality and unusual colour of the Bullhead flint, that it was a prized resource that was carefully curated and used in the production of only selected implements. At K2 however, only a limited number of pieces were made on Bullhead flint. This material occurs locally in chalk overlain by Thanet sands (Smart *et al.* 1966), and its frequency at K1 and scarcity at K2 must therefore be due to a choice on the part of the users of the enclosures, rather than due to possibilities of access to the material. It is possible that these differences in lithic raw material are an effect of changing cultural predilections in the limited period separating the construction and use of the two enclosures. Given that it is now possible to demonstrate that the two were in use simultaneously for much of their lives, it seems prudent to search for other explanations. It is possible, for example, that the two enclosures served different purposes, or were used by different groups. The former explanation seems the more plausible: the morphological differences between the two enclosures are similar to those at other 'pairs' of enclosures where complementary or differing functions have been suggested (Oswald *et al.* 2001), and while differing clay sources, tempers, and lithic raw materials could be interpreted as markers of group affiliation, they could equally be cultural choices based on how different materials were understood to be appropriate for different acts or locations. This could also explain the differences in knapping technology between the two sites: cores were treated differently, with more platform abrasion and less formal rejuvenation at K2. Scraper types also differ: at K1 the dominant form is the end scraper (52.5%), while at K2 most (85.7%) were end and side scrapers (which formed only 15% of the K1 examples). The single end scraper from K2 (14.3% of the total number) is probably residual

Comparable excavated Neolithic flint assemblages from the north Kent coast are few in number. The lithics from Chalk Hill remain in post-excavation, although interim notes record a large multi-period assemblage (*c*.21,000 pieces (Shand 2000) of which 6675 came from the causewayed enclosure ditches (Wilson 2002). The tools from Chalk Hill are dominated by scrapers (26 pieces), with smaller quantities of other types (arrowheads, an axe, a piercer, a knife, notched, and serrated pieces). Other lithic assemblages from north Kent provide some limited comparanda. At Iwade, blade cores, long end scrapers and leaf-shaped arrowheads demonstrate a very similar earlier Neolithic technology.

Recent recognition of the wide distribution of causewayed enclosures may indicate that the apparent lack of a tradition of Neolithic earth and timber building across much of Surrey, at

least, is more perceived than real, and that the whole region was occupied whether there are architectural traces of that occupation or not. Pits and their contents indicate settlement across the South East, on the chalk, the greensand and around the Thames estuary. The lithics from these pits are often 'utilitarian'; i.e. collections of debitage with perhaps a few scrapers. A pit at Springhead, Kent, for example, contained 67 pieces in mostly very fresh condition, including material from all stages of reduction except cores but including a hammer, chips and rejuvenation flakes. The material could have derived from only one or two nodules, with the exception of two flakes struck from a group implement, possibly an axe. The debitage includes flakes and blades, many of which have traits of soft hammer technology. Two broken blades, a flake and a broken flake have edge damage consistent with use. A very large flake with semi-abrupt direct retouch on the convex right margin and around the distal end appears to be a crude scraper.

Similar assemblages, undoubtedly related, are recovered from tree-throw hollows. Again from Springhead, 1634 pieces were recovered from one such feature, of which flakes and blades accounted for 76% of the collection; blades themselves contributed 12%. Cores and broken cores were noticeably under-represented, accounting for only 1.3% of the assemblage, with a core:flake/blade ratio of 1:56. Even allowing for the presence of rejuvenation flakes, which were removed to prolong the working life of the core and maximise blank production, cores are still underrepresented. Micro-debitage (chips) was also especially scarce, given the size of the assemblage and the methods of recovery, comprising only 3% of all worked flint. The absence of micro-debitage, in particular, suggests that the worked flint represents a dump of flaking waste mixed with some abandoned tool rough-outs and possibly some exhausted tools, which together also contribute 3% to the total. There were also a small number of pieces spread through the collection that had been burnt before inclusion in the dump. Primary, secondary and tertiary flakes from the densest parts of the concentration indicate that all phases of blank production were represented. Of the 38 retouched pieces, the largest component comprises 12 scrapers or probable scrapers, there are seven knives and four other pieces with edge damage, possibly used as knives, and four leaf arrowheads, of which two were found with snapped tips (neither certainly as a result of impact) and two were probable rough-outs. Scrapers are often the most prolific retouched tools in Neolithic assemblages, but the range and frequency of other tool types are significant and may indicate subsidiary activities. These may indicate whether such assemblages derived from semi-permanent settlements or transient hunting camps. Comparisons with other published Early Neolithic assemblages may help to resolve this.

Other pit deposits (such as at Grovehurst, Milton-next-Sittingbourne, Kent) are of an entirely different character, containing assemblages of stone tools of very definite composition. Grovehurst, for instance, there were 'rechipped' polished flint axes, single-piece flint sickles and leaf-shaped arrowheads amongst the material (Piggott 1932, 138).

In wider spatial terms, the distributions of leaf-shaped arrowheads from surface collections in East Sussex demonstrate a concentration on the clay-with-flints, usually in fairly close proximity to causewayed enclosures and long barrows. In the Weald, both leaf-shaped arrowheads and flint axes are common on the Lower Greensand south of the North Downs in the west of the region. Groups of flint and other stone axes are known from the Thames, on the South Downs Chalk and the Wealden Greensand. The circumstances of the discovery of most makes their interpretation difficult, but as far as can be judged few if any occurred with traces of their manufacture or alteration, or in association with other sorts of 'normal' material (see Pitts 1996 for a catalogue). Most of these artefacts seem likely to be deliberate deposits of Early Neolithic type (if not date) akin to those familiar from the Thames. Similar deposits

of later Neolithic date are less common, but include examples from Bexley Heath (Healy, this web site).

The landscape and environmental settings of these settlements are not readily susceptible to investigation through a study of lithics. The oft-assumed direct relationship between forest clearance and stone axes is not one which holds up under scrutiny, and there are no extensive data from – for instance – microscopy to inform on use-wear and gloss patterns which may (or may not) elucidate functional aspects of tools.

Settlement in the later Neolithic and Early Bronze Age

Apart from the axe groups, later Neolithic activity is known mostly from surface collections. One notable exception is the site at Baston Manor, Hayes, Kent (Philp 1973), associated primarily with Peterborough Ware ceramics and probably marking a settlement site of some kind. The lithic assemblage contained 2,209 pieces, with the tool component consisting largely of knives and scrapers. Other concentrations of lithics probably marking the locations of later Neolithic or Early Bronze Age settlements have been encountered along the northern edge of the North Downs.

In Sussex, flint scatters are found across the Downs, and may mark areas of settlement, or surface/natural exposure flint working sites, predominantly of nodules from the clay-with-flints. Notable amongst the later Neolithic and Early Bronze Age groups are the concentrations of discoidal flint knives noted by Julie Gardiner (1988 and forthcoming), especially around Beachy Head and the Bourne Valley, but also in Surrey (Cotton 1984). Surface collections with and without discoidal knives in Sussex are distinctively different. Gardiner, for example, has identified a group of sites with lightweight flake tools and high numbers of fabricators, chisels and piercing tools (but no knives, and a smaller proportion of axes) around Brighton, and another dominated by cutting and scraping tools (including knives and a greater proportion of axes) around Eastbourne.

In Kent, Late Neolithic assemblages are known from pits, as for instance at Springhead, where large flakes from primary core preparation, irregular debitage, and all stages of reduction down to chips are present, together with hammer stones, cores and tools such as end and side scrapers, edge-trimmed knives and transverse arrowheads. A recurring feature of these assemblages is the use of a mixture of raw materials, often including Bullhead, bi-zoned, and poor quality flint. Quite often, Beaker pits with large lithic assemblages contain an unexpected quantity of retouched material, principally scrapers. For instance, in some of the pits at Springhead, scrapers accounted for between 15% and 40% of lithic assemblages, while more modest assemblages tend to be dominated by waste flakes, scrapers generally accounting for under 10% of the material.

Substantial lithic assemblages of the Early Bronze Age, in contrast to those of the later Neolithic, tend to derive from funerary contexts. For example, at Cliff's End Farm, Thanet, Kent, a fairly large, mostly utilitarian assemblage of lithics included 118 pieces clustered at the north edge of grave at the centre of a barrow, in an elongated 'figure-of-eight' spread apparently representing two bags of material that were placed next to one another. The bags contained a barbed and tanged arrowhead, five plano-convex knives, seven scrapers, five triangular bifacial knives, eight edge-flaked knives, three retouched knives, five other knives, eight pieces with miscellaneous retouch, and the balance of flakes. While the entire assemblage was of mixed quality, source and type, one of the most striking qualities of the grave assemblage was the quality of the raw material. It is, almost without exception, of the finest quality pure black flint, which shows no hint of serious thermal flaws. There is the

inescapable feeling that the entire assemblage was derived from one, or at the most two or three large nodules that were flaked specifically for the burial.

It is difficult to place the Cliff's End lithics in a meaningful context since very few local sites of this period have been fully excavated, and fewer adequately published. What is clear is that the assemblage from the central feature of the barrow is remarkable. No similar groups of high quality, deliberately-selected lithics are known from the locality, although there are occasional individual finds of broadly similar material. The inescapable impression gained is of a high status burial subsequently serving as a focus for a cemetery, of which three (or possibly four) barrows were within the excavated area. The only indication of chronology comes from the two projectile points, a chisel type E in Barrow 3 and a barbed-and-tanged Sutton type C in Barrow 1. This, however, is unhelpful: the types overlap by at least 200 years, and the chisel could have been an heirloom at the time of its deposition.

In the lack of adequate local comparanda, it is necessary to look further afield. The physical location of Thanet means that comparative material can be sought over a very broad area. This includes not only Essex to the north, but also the European mainland: Cruse and Harrison have identified possible Dutch associations for the four-post structure in the Wouldham barrow (1984, 93); while the Ringlemere cup has its scarce parallels scattered across north-west Europe. The presence of very high status items such as the Ringlemere cup highlights the widespread contacts existing at this time in north-east Kent, and also its association with what would traditionally be called the Wessex Culture.

Other materials suggest a link with Wessex, particularly the small group of Kentish slotted 'incense cups', which includes one from Lord of the Manor (Perkins 1980). It is perhaps in the rich barrow burials of the central Wessex chalklands that the best parallels for the Cliff's End Barrow 1 lithics will be found. Even here, comparisons may be general rather than specific for, as Harding has noted, the contents of the Cliff's End assemblage are dissimilar to other burial groups, lacking both the barbed-and-tanged arrowheads which tend to typify warrior/archer/hunter burials and the scrapers which are more usual in domestic assemblages.

This raises the question of the status of this assemblage as a whole, and particularly of its sources. The Cliff's End grave group can be readily envisaged as having special status, selected deliberately for deposition and perhaps even created especially for that purpose, during ceremonies associated with the digging of the grave or as part of other mortuary rites. This explanation will not hold for the bulk of the material, however. While the chisel arrowhead in the Barrow 3 grave can be considered a 'grave good', the majority of the assemblage has no inherent features to distinguish it as special. Given this, it is unclear what these lithics represent: it is possible that the material in the ditches is the detritus from successive episodes of knapping around the barrows over an extended period. On the other hand, it may be that the material represents deposits of refuse generated in domestic contexts and transported here for discard. Natural transport is unlikely given the condition of the bulk of the pieces, and the location of the barrows on a hilltop. If this suggestion has any validity, a further question is posed, namely where is the associated settlement? Early Bronze Age remains (mainly ring ditches) are known to cluster above the former south coast of the island, from Ramsgate westwards broadly along the line of the A253 at least as far as Monkton. Two sites within this group have been recognised as Early Bronze Age settlements: Laundry Road, Minster (Boast and Gibson 2000), and Oaklands Nursery, Cliffsend (Perkins 1998). It is possible then to envisage a dispersed linear barrow cemetery on the higher ground behind a zone nearer the coast within which sites of domestic character remain to be discovered.

A smaller lithic assemblage, perhaps more representative of Early Bronze Age lithic assemblages, was recovered from two small pits at Springhead, Kent. The associated ceramics indicate that these are dumps of domestic refuse from a Beaker settlement, presumably somewhere nearby. Small amounts of refitting debitage indicate the basic contemporaniety of the material, although the composition of the assemblage indicates that it is imbalanced, with far too many cores (all failed), too many tools and not enough flakes. The cores include migrating platform, multi-platform and spherical examples, one of which has been used heavily as a hammer. Tools include two knives with bifacial backing against an opposite, straight, long edge; three denticulates; 13 end scrapers on flakes, eight of which have retouch cutting through cortex, all relatively small; nine side/end scrapers, four with retouch that cuts cortex, much as on the end scrapers; two side scraper/knives, both made on elongated flakes, one with fine pressure flaked retouch and five miscellaneous retouch pieces made mainly on thick flakes, but predominantly involving inverse retouch.

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