always good company; one felt better for having been with her. Irene had been an active member of the Lithic Studies Society for ten years. She was killed in an air crash in Southern Chile on February 20th 1991. Her absence will leave a personal and professional gap. We shall miss her deeply.

Norah Moloney

Publications:


A fund has been opened to establish an annual award in Irene’s memory for a student at the Institute whose interests are connected with Irene’s own work. Contributions may be sent to Judith Harris, Institute of Archaeology, 31-34 Gordon Square, London WC1E OPY. Cheques should be made payable to “University College London (Irene fund).”

NEW FINDS AND OLD PROBLEMS IN THE LOWER PALAEOLITHIC OF THE UPPER THAMES VALLEY.

R.J. MacRae

Introduction

This paper has recorded an assemblage of flint artefacts found over the past 8 years in pits near the village of Stanton Harcourt in Oxfordshire, and has described work in progress, adding this to the writer’s detailed account of the quartzite implements of the upper Thames valley (1988b). It has tried to indicate the relevance of the upper Thames sequence to the solving of current problems in the British Quaternary sequence and the chronology of the regional Lower Palaeolithic. It is possible that some of the Oxfordshire implements are older than previously thought, and some deductions have been essayed from the evidence. It is hoped that continued research over the next few years will clarify their origins. A note has been added about the current re-investigation of the Stanton Harcourt warm-stage channel.

The upper reaches of the Thames have in the past decade become the scene of much increased attention by Quaternary specialists in geology, geomorphology and palaeontology, and there has been a welcome collaboration with archaeology. Finds of early Palaeolithic implements have greatly increased during the past fifteen years, during which two substantial new sites have emerged in gravel pit complexes from which only half a dozen handaxes had previously been recovered. The Oxford regional total has thus been raised by more than 300 flint and quartzite artefacts of which 144 are handaxes of one sort or another. The two sites are at Berinsfield next to Dorchester-on-Thames, and Stanton Harcourt, eight kilometres west of Oxford.

As the Berinsfield finds have already been published (MacRae 1982) this article records the more recent retrievals at Stanton Harcourt - particularly the 49 flint handaxes to which only brief published reference has so far been made. These handaxes show features more than usually interesting in their provenance, condition and technology. This paper also touches upon some of the problems encountered in an attempt to fit them into a presumed upper Thames chronology, albeit in the full appreciation of the present uncertainties surrounding the climatic events in Britain in the last half-million years. There is now, however, a better understanding of those events as they occurred in the valley between the Chilterns and the Cotswolds, and of the nature and resources of the environments which Palaeolithic hunter-gatherers exploited. While more work is waiting to be done in all the relevant disciplines, publication does not lag behind, as no fewer than three British Archaeological Reports volumes have appeared
since 1985, wholly or in good part concerned with the upper Thames (Briggs, Coope and Gilbertson 1985; Tyldesley 1986; and MacRae and Moloney 1988). Revived interest was stimulated by an informative review of the Palaeolithic industries and gravel deposits of the Oxford region as seen up to 1984 (Roe 1986). A major work on Thames geology by D.R. Bridgland is now in press.

Six important sites

Apart from scattered individual find-spots there are six places in the valley in which there are, or were, important Lower Palaeolithic sites, all upstream from the chalk escarpment.

1. Wallingford: the area containing Rumbold's pit and Painter's pit at Ewelme (SU 645928 and SU 645930); Gould's Grove pit and Turner's Court pit at Benson (SU 645902 and SU 644880); Blenheim Farm pit at Crowmarsh (SU 638883); and other nearby smaller pits in the fan gravels.

2. Abingdon: the area containing the pits at Radley (SU 524973), Drayton (SU 495952), and Sutton Courtenay (SU 515955).

3. Iffley: Cornish's pit (SP 525044).

4. Wolvercote: the Brick pit (SP 498105).

5. Stanton Harcourt: Gravely Guy pit (SP 402055), and Linch Hill pit (SP 415043G).

The Wallingford and Iffley implements were described by Wymer (1968). The well-known Wolvercote Channel assemblage and its enigmatic origin have been discussed by many authors, the most recent being Tyldesley (1986), who cites earlier references. The artefactual evidence from Abingdon still needs collating and the Berinsfield collection of 205 artefacts may need closer analysis. The non-flint artefacts from Stanton Harcourt and the above sites have been discussed by the writer in several papers.

In the whole region, Roe's 1968 Gazetteer records 400 early Palaeolithic artefacts, and since then new finds have brought the total to over 700 - less, of course, than that for the Middle Thames, but a figure that is satisfactorily high for a part of Britain previously considered to be near the very edge of the Palaeolithic settlement of Europe. Having been able to rescue most of these newer finds including 81 flint and quartzite artefacts from Stanton Harcourt (and just outside the boundary of that parish at Hardwick), the present writer has been given willing advice from Quaternary specialists regarding interpretation of the gravel deposits, the taphonomic processes affecting the implements found therein, and the supposed chronological sequence in the valley. However, among the voices there seems at times to be as much dispute as certainty.

Recent finds at Stanton Harcourt

The Stanton Harcourt handaxes, like those from Berinsfield and Iffley, come from the lower part of the Summertown-Radley terrace, a well known feature of the upper Thames sequence. Recovered from commercial gravel pits using mechanical methods of extraction and sorting they could not be excavated from completely undisturbed deposits. The same is true of the vast majority of Lower Palaeolithic finds in Britain. There are as yet no primary context sites in the Oxford region, though not for want of looking for them. Wolvercote was evidently very near to being one, and one day may be verified as such.

Since regular and quite intensive search began eight years ago at Stanton Harcourt, the most prolific pit known (for some curious rural reason) as "Gravelly Guy" has been extended to about 600m x 150m. As extraction proceeds, enormous rubbish-dumps, environmentally well-controlled and reclaimed, rapidly fill the worked-out areas. About half of the artefacts have been recovered from the pit floor and half from reject heaps at the pit, having been 'screened' before washing but often with an identifiable matrix of sand or silt still adhering to them. A much larger area of adjacent worked-out pits in the same terrace at Linch Hill has yielded only 3 small handaxes, 4 flakes, 1 handaxe tip, and 3 worked fragments, despite frequent search. Large pits at Hardwick have recently given up 6 quartzite bifaces, 2 quartzite chopping-tools and 2 flint handaxes.

The lithology of the gravels to the west of Oxford is quite different from the flint-rich accumulations in which Palaeolithic implements are found in most other parts of southern Britain. It is made up of small pebbles of Jurassic limestone of the Cotswolds with small proportions of erratics derived from the pre-Cromerian Plateau Drift. Bunter quartzite pebbles and cobbles are plentiful and provided raw material for some handaxes and chopping-tools, but all sound toolmaking flint had to be brought from the Chiltern foot hills, either as ready-made handaxes or roughouts (MacRae 1988a). The region's Palaeolithic sites all lie within a few kilometres of the present river which has changed its direction in these upper reaches very little since the Cromerian (Briggs 1988). Massive spreads of gravels, mostly younger than the Summertown-Radley terrace and stretching towards the source of the Thames, have produced only a few stray finds, although limited search may partly be blamed for this. Remnants of older terraces exist in these gravels.

Chronology and Artefact Survival

Attempted dating of the Stanton Harcourt handaxes encounters great difficulties, not least from the conflicting proposals put forward regarding a Pleistocene time-scale and the names attached to climatic stages. Wymer's assessment (1988) of the relationship between Palaeolithic archaeology and
the British Quaternary sequence sets out the evidence as then seen, and, within its stated limits, appears to the writer reliable and convincing. Roe’s (now classic) 1981 survey of British Palaeolithic sites remains an indispensable background to any study of the period. Neither author, however, goes beyond caution about the upper Thames. "Unfortunately, at present", says Wymer, "correlations with the middle Thames or the British Quaternary sequence are not reliable, apart from the question of derivation of the palaeoliths from older surfaces or gravels in which they are found".

Roe, in his survey of the Oxford region (1986) wisely suggests probabilities rather than certainties in dating sites and artefacts. After a prolonged and thorough examination of upper Thames palaeoenvironments, similar views have been expressed by David Briggs (1988) when he declares the chronology to be "inherently uncertain and open to debate", each stage being in itself a complex episode with substantial climatic variations. Notwithstanding such doubts Briggs and his colleagues set out a considerable body of information on the contextual environment of the region’s artefacts.

The upper Thames has certainly had its full share of gravel aggradations, terraces eroded and re-worked by periglacial processes and meltwater floods, with arctic cold frequently calling a halt to the whole succession. Despite all that turmoil, 700 artefacts survive in the region. Many of them are in fresh or fairly fresh condition, including the classic Wolvercote bifaces and the majority from Stanton Harcourt. In face of such upheaval how did the Gravelly Guy implements keep their heads down, so to speak? Perhaps their very situation in the sediments may be a clue to their ages. Coming as most did from the basal sands, silts and weathered clays immediately overlying the Oxford Clay bedrock, the Stanton Harcourt handaxes were somehow protected, very probably by having lain on an ancient land surface, subject only to gradual and minimal disturbance, before the initial deposition of gravel overwhelmed them. Up to 6 metres of gravel blankets these basal sediments, which can be seen now in drainage ditches in the bottom of the pit as well as over much of the area of the pit floor.

So far as taphonomy is concerned, nearly all the handaxes at Stanton Harcourt show little sign of any considerable removal from their place of use and abandonment, dispersed as they were over 0.25 km² with only a few scattered ‘outliers’. For example, the writer recovered 11 flint handaxes and 3 quartzite flaked points partially embedded in the clay at the very base of the deposits, and they were in almost fresh condition, though none could be said to be in primary context. Their condition is consistent with their having been deposited at a time when there was a wide floodplain, with the river’s course alternating according to changes in climate between meanders and braided streams. If they were moved, from higher bars or adjacent hillslopes, their progress would be towards the deeper channels, so armoured by mud and silt that their sharp flake-ridges would suffer minimal abrasion. Deposition of the basal sediments must have been only sporadic and must have occurred over a considerable period of time. Artefacts abandoned on the hillslopes may have been moved by solifluction on to the floodplain, and in some cases may also have been transported downstream, though stream velocities even in the larger and more permanent braided channels were moderate (Briggs pers. comm.). It appears also that scouring of the river bed or beds prior to gravel aggradation need not have been severe, unlike the downcutting of the Thames in its lower reaches which was affected by changes in sea-level.

The Summertown-Radley Terrace

K.S. Sandford (1924) named the upper Thames terraces in descending order of age - Hanborough, Wolvercote, lower section of Summertown-Radley, upper section of Summertown-Radley (the Ipswichian 'Eynsham Gravel'), and Northmoor (the Devensian Floodplain). There are no Lower Palaeolithic artefacts unequivocally belonging to the Hanborough or Wolvercote terrace gravels, and none has yet been found in earlier deposits like the Cromerian Sugworth Channel (Shotton et al. 1980). The Eynsham Gravel is devoid of handaxes, and those found in the Floodplain terrace are derived. So, except for the Wallingford fan gravels and the Wolvercote Channel, Acheulian handaxes occur only in or below the cold stage of the Summertown-Radley terrace, for which oxygen isotope Stage 6 was favoured by West (West 1968). This attribution fits well if the provisional dating of the Stanton Harcourt warm channel (referred to later in this paper) is correct as being within Stage 7, because the deposits of this recently-discovered feature lie immediately below the cold Summertown-Radley terrace gravel.

If the Stanton Harcourt handaxes pre-date the initial deposition of the cold gravel, as it appears they do; and if they had lain on an old land surface, there is still insufficient evidence about the age and duration of such a surface or surfaces. In the Stanton Harcourt area "soil formation took place at times on the exposed silts and sands" (Briggs 1985). Previous vegetated landscapes may have been swept away and re-formed. One horizon, a fossil feature on a valley floor, is clearly identified, and contains plant remains, though no pollen has been recovered. Some species of molluscs from these basal deposits indicate a temperate or cool-temperate climate. Mammoth and woolly rhinoceros bones and teeth occur though there is no proof of their direct association with the artefacts.

Possible alternative origins

While the most likely probability is that the handaxes rested for a very long period, little disturbed, in the basal sediments, the possibility might be considered that all or some had their origin during the subsequent build-up of the gravels when there were short interstadials, which have been
identified as such but not dated. By analogy with such phases elsewhere, it may be envisaged that they were characterised by summer temperatures up to 8-10°C, conditions suitable for summer hunting forays from France or the Low Countries, given passable land-bridges. Were that the case, and the artefacts were contained in horizons somewhere in the 5-6m of gravel deposits, occasionally being washed out of overbank sediments as the river channel migrated, they would have been buried several times before coming to rest where they are now found. None of this (Briggs pers. comm.) need have involved serious abrasion nor widespread dispersal, and the picture of the artefacts surviving as lag deposits on a gradually lowering valley floor may be necessary to explain the evolution of the wide valley floor throughout the upper Thames.

However, there is as yet no way of associating the handaxes with any interglacial phase, and the above remains one possibility. Another hypothesis, given the dearth of handaxes in the overlying Eynsham Gravel (which is almost certainly Ipswichian) is that they are from Hoxnian deposits, as yet obscure and undated in the upper Thames. The only admissible suggestion in this respect is that the Stanton Harcourt handaxes show some technological affinity to those in the Middle Gravels at Swanscombe, by consensus attributed to Stage 10 or 11 (i.e. 'Hoxnian'). But then so do handaxes from many British sites, and handaxe typology is agreed to be unreliable as an indicator of age with the possible exception of certain Mousterian types. Incidentally, there is in the upper Thames no known Clactonian, and only the industry at Clacton is said to be firmly placed within the earlier part of the 'Hoxnian' interglacial.

This leaves the Stanton Harcourt handaxes to be placed somewhere in the vast spaces of time so indeterminately named 'Anglian' and 'Wolstonian', during which several, or many, incursions along the river could have been made by nomadic groups separated by many thousands of years but all making handaxes in the same basic tradition. Could there be a connection with the 122 handaxes found between 1880 and 1945 in and below the Wallingford fan gravels? Technology is similar, and the flint is identifiable as being from the same source, as the present writer has stated with confidence (MacRae 1988a). The fan gravels, a massive fluvial and soliflucted series of deposits, rich in flint, swept into an ancient tributary of the Thames. One of the most confident assertions about the geology of the region was that of Horton and his colleagues who attributed the initial deposition to the beginning of the Anglian, or Stage 12 (Horton et al. 1981). They traced at least two warm intervals, one of long duration, during the accumulation of the fan gravels - which may or may not be significant in terms of possible human occupation, but there seems to be some possibility that the Wallingford area handaxes are related to the late Anglian.

Enigmas remain however, but the writer feels that any evidence which may eventually contribute to a closer dating of upper Thames handaxes should be examined in greater depth than is possible in this short article, conjectural though its suggestions may be. For example, more information is required as to the actual deposits within the fan gravels which contained good sound unfrosted flint accessible to the Acheulians, and when it might have been available. This was possibly in the bedded gravel underneath the soliflucted mass. The flint in which is now heavily frost-cracked. Many of the Berinsfield handaxes, lying close to the fan gravel spread, are now frost-damaged, but very few at Stanton Harcourt display such damage. Neither do the fine Wolvercote Channel 'Micoquian' type handaxes of Chiltern flint, which because of their advanced technology have long been thought to be much later than the general run of Acheulian handaxes throughout the region.

The age of the Stanton Harcourt handaxes is not yet known, but the chronological limits may have been narrowed. If they are broadly contemporary with those at Wallingford, they could have been buried in their soft muddy bed at the base of the terrace gravel for a very long time indeed, undisturbed by the repeated periglacial processes occurring above them. A final thought, speculative though it is: typology is so unfashionable these days that the writer hesitates to record that an elegant cordate handaxe from Stanton Harcourt (Fig 1) was recently 'matched' against an uncannily similar one from Boxgrove, alike in size, shape and flaking technique. Boxgrove is regarded as pre-Anglian.

The Stanton Harcourt Channel

Evidence of a warm, even fully interglacial stage now exists in the remnant of a channel identified a kilometre to the south-east of Gravelly Gyle where the bulk of the handaxes were found, but no trace of it has been seen in the pit itself. It was in 1978 that the channel was discovered by David Briggs, and mapped as 60m x 200m around S.P. 414053 in the disused Linch Hill gravel pit immediately under the terrace gravel. It was shown that the channel, infilled with fossiliferous deposits, represented a meandering stream in a stable, warm environment, providing evidence of a hitherto unknown interglacial episode of unknown duration. The investigation was published (Briggs et al. 1985; Briggs 1988) and the stratigraphy, sedimentology and palaeohydrology were confirmed by several specialist reports. Mammoth, bear, lion and horse were among the vertebrate remains, and warm climate molluscan species included Corbicula fluminalis.

In the summer of 1989 new exposures of the same channel feature became available and controlled re-excauation, directed by Dr Katharine Scott began, under the aegis of the Donald Baden-Powell Quaternary Research Centre at Oxford. Professor Briggs assists and advises, and an abundance of warm-stage faunal recovery is rewarding the continuing efforts of
volunteer workers. Full publication is planned. The channel has tentatively been correlated with a similar one at Marsworth dated at around 170,000 BP. Professor D.Q. Bowen and his colleagues (1989) have used amino-acid geochronology on molluscs from the Stanton Harcourt Channel, the results suggesting a date within Stage 7.

With pardonable eagerness, the present writer has sought in the channel exposures for sharp handaxes which might have solved the Gravelly Guy problems. Alas, all that has emerged so far are two very small, rolled, discoloured bifaces of crude manufacture with no resemblance to any upstream. In debris thrown up from the channel dig two obviously derived quartzite bifaces were recovered. The search for certainties in the upper Thames is not yet over. New evidence may emerge from the channel, and from new gravel pits due to open west of Oxford. The writer, ever an optimist, hopes to still be around then.

The Implements

The flint artefacts from Stanton Harcourt are:

Handaxes, undamaged or slightly damaged 49
Large broken butts 3
Small broken butts 2
Handaxe tips 2
Flakes with re-touch 1
Flakes 5

The handaxes are classified according to Wymer's type list

Pointed handaxes type E 13
Pointed handaxes type F 17
Sub-cordate handaxes type G 9
Cleavers, type H 1
Cordate handaxes type J 2
Ovate handaxes type K 3
Ficron handaxes type M 2
Incomplete bifaces, indeterminate types 2

The collection reflects broadly 'mid-Acheulian' traditions (if that term is still valid), with strong size and shape preferences and various degrees of flaking skill. It is similar to the Berinsfield assemblage but lacks the well-made ovates found there. Pointed types predominate, and rough thick butts are frequent, but in the larger pointed types (from 12 cm to 17 cm long), and the sub-cordates, flaking is shallow and regular with delicate points. Cortex retention is minimal, and several tools show careful trimming of butts. Only four of the larger handaxes show moderate rolling and only one ovate and three type E bifaces are heavily rolled. Two of the latter are the only ones in the assemblage to have been made from local Plateau Drift flint, and three artefacts may have been re-sharpened.
Outstanding specimens include the 27cm long flint handaxe recorded in Britain (MacRae 1988); a fine cleaver an impressive sub-cordate with a roughly-fashioned butt (Fig 2a); and a truly elegant sub-cordate 17cm long (Fig 2b). Except for the type E tools, the general standard of flaking and finish is high. The paucity of flakes should not be interpreted as selective collecting but as evidence of tool manufacture away from the site.

**Post-manufacture cortication**

The Stanton Harcourt flint artefacts all have a most unusual colouring in the range from bright yellow to golden brown. The majority are only slightly rolled, many being in very fresh condition. Common to all is a highly distinctive cortical change, a kind of decomposition, in that the original translucent black flint has undergone penetration by long exposure to alkaline water from the Cotswold limestone. This has transformed large areas of the flint into pure white hydrated silicate to depths from 3-6mm. Yet the shape of the handaxes is entirely unaffected and the flake-edges remain sharp. That the hydrated substance is somewhat softer and more fragile than the original flint is seen on some of the implements as very slight edge-damage, probably due to the weight of overlying deep gravels and minor movements within them.

The 19 quartzite bifaces and chopping tools from the same pit and dispersed in much the same way are in no way affected by the hydration process, but some are more abraded than the flint tools. Their thicker sections and rounded shapes probably allowed them to be more easily rolled along in streams than the flatter flint handaxes. Solutional rounding has been suggested, but little seems to be known about chemical action on quartzose rocks. These implements were previously described by the writer (MacRae 1988).

The opportunity is taken here to record that Jeffrey Wallis, a keen field-worker and recorder of early Palaeolithic implements in the Abingdon area, has found in the past decade 18 quartzite and 7 flint bifaces, as well as 12 chopping-tools, from pits at Radley, Drayton and Sutton Courtenay.

**Acknowledgements**

The author would like to thank Dr D.A. Roe for his comments on an earlier version of this paper and J. Wallis for the artefact illustrations.

**Addendum**

In compiling this article the author has often felt that it would be easier to find his way across
Rannoch Moor in a Scotch mist than to steer a way through the conflicting views of geologists and palaeontologists concerning the chronology of the upper Thames, and indeed of the British Quaternary sequence. Climatic stages are re-shuffled, names altered or even abolished, and hitherto 'confident' assertions demolished with the speed of a Hoxnian meltwater flood — except that there might not have been a Hoxnian anyway, and it might now have to share inverted commas with the late lamented Wolstonian. All, no doubt, with good reason. Such stimulating, thought-provoking activity is to be welcomed, but it does create an almighty lot of dust!

In the preceding text several alternative hypotheses have been put forward as to the origin of the handaxes of the upper Thames — tentative, deductive, but hopefully a more productive exercise than plate negativism. In the light of very recent research, Professor Briggs has since been helpful in raising one or two points. For example, the assumption by Horton and his colleagues that the "greater part of the (Wallingford Fan Gravel) deposit is of middle Pleistocene age and could have been laid down at the start of the Anglian stage or earlier" (1981) is now apparently discounted on the ground that since their investigations the Marsworth and Stanton Harcourt interglacial deposits have become known, and "perhaps the two warm stages identified at Wallingford occurred at Stages 5 and 7, correlating with the Eyamham Gravel and the Stanton Harcourt Channel respectively" (Briggs pers. comm.). The supposition that the Wallingford handaxes are Anglian must in any case be abandoned, but an alternative dating for them in lacking, and remains so for the Gravelly Guy implements.

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