Bicester Village Coach Park

Excavation Report

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Bicester Village Coach Park, Oxfordshire

Archaeological Excavation Report

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Summary

During January 2013 Oxford Archaeology carried out an archaeological excavation at the Bicester Village retail outlet in an area where a new coach park was to be constructed. It was anticipated that the excavation would find evidence of the late Iron Age-early Roman settlement located to the south of the site or of the Saxon settlement to the north. Instead the excavation uncovered a group of tree-throw holes containing a significant assemblage of late Mesolithic flintwork, a possible ditched enclosure of Bronze Age date and two early-middle Iron Age pits. The absence of Saxon material indicates that the southern limit of occupation associated with the late Saxon minster and lay settlement, from which Bicester originated, must lie somewhere north of this site.

1 Introduction

1.1.1 During January 2013 Oxford Archaeology (OA) carried out an archaeological excavation at Bicester Village retail outlet, off Priory Road, Bicester. The fieldwork was commissioned by CgMs Consulting on behalf of Value Retail PLC and was carried out in advance of the development of the site for coach and car-parking and construction of an extension of a single storey storage/staff building to be used for coach drivers. A condition requiring archaeological recording of the areas that would be affected by the groundworks had been attached to the planning permission for the development due to the potential disturbance of archaeological remains, evidence for which had been identified by an earlier evaluation.

1.1.2 The work was undertaken in accordance with a Written Scheme of Investigation that was produced by OA and agreed with Richard Oram of Oxfordshire County Council Archaeological Service prior to the commencement of the excavation (OA 2012).

1.2 Location, topography and geology

1.2.1 The development site was located on the southern outskirts of Bicester, north of Bicester Village retail outlet at NGR SP 5846 2197 (Fig. 1). It comprised an irregular parcel of land with an area of *c* 0.85ha and was bounded to the west by a stream, to the north by a bakery and to the east by a multi-story car park and trading estate. The northern part of the site was used as a temporary car park and the remainder was covered in undergrowth. The far southern end of the site was marshy and thick layers of alluvial silt were recorded here during the evaluation (TVAS 2006, 7). The excavation comprised a roughly rectangular area in the north-eastern part of the development and had was *c* 0.2ha in area. Initially it had been proposed to include part of the western side of the development site immediately south of the existing bakery, within the excavation area, but in consultation with Richard Oram of Oxfordshire County Council Archaeological Service it was agreed that this area did not need to be excavated due to the paucity of archaeological features in the adjacent stripped area.

1.2.2 The site was flat and lay at *c* 67m OD (Fig. 2).

1.2.3 The geology of the area is mapped as Middle Jurassic Cornbrash, a rubbly limestone (BGS 2002), and patches of sandy silt were also encountered during the excavation.

1.3 Archaeological and historical background

1.3.1 The site was located to the south of the medieval core of Bicester and 150m south-east of the former site of Bicester Priory, and was in an area that had seen several archaeological investigations arising from recent development. The site itself had been the subject of an archaeological evaluation that was carried out in relation to a previous planning application for the site (TVAS 2006). The evaluation recorded two medieval ditches, a post-medieval ditch and two further undated ditches. No features were identified in the southern part of the development area, which was covered with thick layers of alluvial silt and may have been too wet for occupation in the past. A trench at the northern edge of the development area uncovered deep modern truncation.

1.3.2 To the south of the site, an excavation in 1994 on the site now occupied by Bicester Village retail outlet had revealed a late Iron Age-early Roman settlement (Mould 1996). An enclosed farmstead of similar date has been found further to the east at Bicester Fields Farm (Cromarty *et al.* 1999).

1.3.3 An excavation at 61 Priory Road immediately north of the site, revealed a Roman ditch and late Saxon ditches, which contained a small quantity of residual earlier Saxon pottery (Wallis, 2009).

1.3.4 Excavations at Chapel Street, to the north of the excavation at Priory Road, revealed evidence of Saxon settlement including three sunken featured buildings dating from the 6th-7th centuries and a group of late Saxon timber buildings and associated features that were interpreted as the remains of a lay settlement associated with Bicester's Saxon minster (Harding and Andrews 2002). Features recorded at Proctor's Yard to the west may also have been associated with the minster (Hull and Preston 2002). A ditch here was interpreted as possibly defining the eastern boundary of the minster's grounds and the date range of the associated features, spanning the 11th-13th centuries, suggested that they may have been associated with the transition from the minster to the succeeding Augustinian priory.

1.3.5 The various excavations in the vicinity of the site were consistent in finding no evidence for activity dating from the late medieval and post-medieval periods, and it would appear that following the 13th century the area was not occupied again until the expansion of the town during the 20th century.

1.3.6 The turnpike road to Aylesbury, which formed part of the route from Birmingham to London, formerly extended from the south-western end of Priory Road and ran along the north-eastern edge of the development area.

1.4 Methodology

1.4.1 The excavation area was stripped to the first archaeological level using a mechanical excavator fitted with a toothless ditching bucket under archaeological supervision. The area was cleaned as necessary and all archaeological features were recorded on plan.

1.4.2 Following completion of the planning stage, an appropriate sampling strategy was agreed with CgMs Consulting and Richard Oram, the Oxfordshire County Council Planning Archaeologist. Ditches, other than those shown to be of post-medieval date, were sampled at a level of 10%, discrete features such as pits and postholes were sampled at levels of between 50% and 100%. All excavation and recording followed procedures laid down in the OA *Fieldwork Manual* (Wilkinson 1992). Due to the quantity of worked flint present in its fill, tree-throw hole 61 was divided into quadrants and fully excavated. All of the spoil was sieved in order to maximise recovery of the lithics. The other tree-throw holes were half sectioned.

1.5 Acknowledgements

1.5.1 OA would like to thank Greg Pugh and Hannah Smalley of CgMs, who commissioned the work. The fieldwork was monitored by Richard Oram of Oxfordshire County Council Archaeological Service. The project was managed by Ken Welsh and the post excavation analysis was undertaken by Andrew Simmonds. The excavation was supervised by Nick Taylor, who was assisted by Alice Rose, Christof Heistermann, Matt Fenn and Kev Moon. Mike Donnelly provided advise on the excavation and soil sampling strategy for the Mesolithic features. Emily Plunkett digitised the site plan, Markus Dylewski prepared the site figures and Adam Parsons drew the flint illustrations.

2 Site description

2.1 Mesolithic

2.1.1 A group of tree-throw holes (5, 7, 17, 22, 24, 59, 60, 61) situated in the middle part of the excavation area produced a large assemblage of mesolithic flintwork (4624 pieces). Most of the assemblage (3587 pieces) was recovered from tree-throw hole 61, which was the largest of the features (Fig 3; Fig. 5 section 27). It was an irregular hollow measuring 4.6 x 3.2m and up to 0.46m deep and was filled by a single deposit of orange brown sandy silt (77=78=81=83=84) (Fig. 5, section 27). Feature 60, a shallow, elongated feature that extended south-west from tree-throw hole 61, probably represented a roothole associated with the larger feature. Modern ditch 91 cut through the middle of the feature and disturbance associated with the digging of the ditch may have been responsible for introducing the cereal remains that were recovered from environmental samples (Boardman, below).

2.1.2 Tree-throw hole 22 was situated against the eastern baulk and extended beyond the excavated area (Fig. 5 section 8; Fig, 7). It was 0.5m deep and measured 2.5m N-S and at least 1.7m E-W. A monolith sample was taken through the feature, from which its fills have been recorded in detail (Section 4.3, below). The disposition of its fills suggested that the tree had fallen to the south-west, creating the hole and dragging some of the contemporary topsoil (26) into its base. A substantial deposit of brown silty clay on the north-eastern side of the hole was probably created by soil dropping from the up-rooted root ball, after which the remaining hollow silted up gradually, with the formation of layers 40 and 23. Some animal bone that included a fragment from a bovid pelvis that could have come from either a domestic cattle or from a young aurochs was recovered from fill 26. Pieces of worked flint were recovered from all the fills, although the largest groups came from fills 23 and 26, comprising 53 and 48 pieces respectively. It is likely that feature 24 was part of tree-throw hole 22 rather than a separate feature and represents a hollow that was formed by a root that extended westward from the main root ball.

2.1.3 The proximity of tree-throw hole 17 to the larger tree-throw hole 22, from which it was separated by a little under 1m, may indicate that they were part of a single very large feature, although it is equally possible that they were entirely separate. Tree-throw hole 17 was an irregular, elongated featured that measured 2.9 x 1.05m. The base was irregular, with a maximum depth of 0.3m, and it contained a single fill from which more than 300 pieces of worked flint were recovered, making it the most productive feature for lithics after tree-throw hole 61.

2.1.4 Only very small quantities of flint were recovered from tree-throw holes 5 and 7, which were situated toward the western edge of the excavation area. Tree-throw hole 5 was a quite large oval feature, measuring 2.1 x 1.45m, but was shallow, with a maximum depth of only 0.1m. Tree-throw hole 7 was smaller, with a diameter of 1.2m, and was more irregular in plan. Each of these features contained only a single fill.

2.1.5 Tree-throw hole 59 lay to the south of the other similar features. It was oval in plan and measured 2.5 x 1.3m and 0.2m deep. It contained only a few pieces of worked flint.

2.2 Bronze Age

2.2.1 Three very shallow linear features (63, 64, 68) at the southern end of the excavation area were tentatively interpreted as forming three sides of a rectilinear enclosure dating from the Bronze Age (Fig 4 and Fig. 5 sections 20, 21, 24). All three ditches were wide but extremely shallow features, measuring up to 2.2m across but only 0.13-0.18m deep, and each had a single homogenous fill of reddish brown sandy silt. Ditches 63 and 68 extended on parallel ENE-WSW alignments possibly forming the sides of the enclosure. Only a 9.5m length of ditch 63 was exposed, projecting from the western baulk and being truncated in the central part of the site by a concrete culvert and an associated area of modern disturbance. Ditch 68 extended obliquely across the entire width of the excavation, a total distance of 29.5m. The projected alignments of this feature and ditch 64 indicated that they would have intersected immediately beyond the eastern edge of the excavation area. The alignment of ditch 64 suggested that it extended laterally between ditches 63 and 68, enclosing the end of the enclosure, although its relationship with neither ditch survived within the excavation area. Ditch 64 was exposed for a length of 10m and was truncated at its north-western end by ditch 89. Feature 69 and an amorphous unexcavated feature beside it, both of which were interpreted during the excavation as tree-throw holes, lay on the line of ditch 64 and may in fact have represented further parts of the ditch, as they were shallow and had very similar fills. The alignment of ditch 64 was not strictly perpendicular to those of ditches 63 and 68, indicating that the enclosure, if the features are correctly identified as such, had a slightly trapezoidal shape. It would have measured 21m wide and at least 29m long. The dating evidence for the enclosure comprised two small Bronze Age sherds from ditch 63 and an undiagnostic prehistoric sherd from feature 69.

2.3 Early-middle Iron Age

2.3.1 Two shallow pits (19, 49) were attributed to the early-middle Iron Age (Fig. 4 and Fig. 5 sections 7 and 14). The pits were very similar, both measured 0.8m in diameter and a little over 0.2m deep and both contained grey fills that were clearly distinct from the fills that characterised the earlier features. They were situated 32m apart with pit 19 located towards the centre of the site and pit 49 at the northern end. Each yielded a small quantity of pottery and some animal bone. Pit 49 had the larger bone assemblage, including a significant proportion of bone from juvenile cattle, possibly representing a single calf, as well as smaller quantities of sheep/goat and pig. The upper fill (52) included patches of reddish soil that may have derived from the dumping of hearth debris.

2.4 Medieval

2.4.1 The only medieval feature was pit 62 (Fig. 4 and Fig. 5 section 23), which was situated in the central part of the excavation area and was cut on its north side by modern ditch 92. The pit measured 1.5m in diameter and 0.15m deep and contained a single fill (76) from which a nail and a sherd from a Brill/Boarstall ware strip jug with rouletted decoration dating from *c* 1250-1350 were recovered.

2.5 Modern

2.5.1 Pit 46, which was in the north-western part of the site, contained an articulated cattle burial. A modern date was indicated by a piece of clay pipe in the backfill. The feature must date to past use of the area for agriculture prior to its recent development as part of the expanding town.

2.5.2 Ditches 88 and 90 extended on parallel NW-SE alignments close to the north-eastern edge of the site. Ditches 32 and 85 aligned NE-SW branched off these features and presumably defined subsidiary boundaries. Ditch 86 branched off the north-western side of ditch 85. Pottery dating from the 19th-20th centuries was recovered from the fill of ditch 32 and from the surface of ditch 90, which was not excavated.

2.5.3 The site was crossed by three modern service trenches, including one that cut through the middle of tree-throw hole 61. There was a concrete culvert that extended across the middle of the area on an E-W alignment.

2.5.4 There were three areas of modern disturbance, including a large area in the central part of the excavation, the location of which suggested that it may have been associated with the construction of the adjacent bakery.

2.5.5 Two rectangular features that cut the northern part of ditch 85 were not investigated but, based on their shape and size, they are likely to be modern test pits.

2.6 Undated features

2.6.1 Two ditches (87, 89) could not be assigned a date on either artefactual or stratigraphic grounds. Both lay on NE-SW alignments but it was not certain whether they were in any way associated with each other. Like the other ditches on the site, they were quite shallow, ditch 87 measuring 0.2m deep and ditch 89 measuring 0.25m deep. Only a short length of ditch 87 was exposed, as it was truncated by ditch 88 at its north-eastern end and by ditch 32 at its south-west end. It lay on a similar alignment to the latter ditch and may have represented an earlier version of the same boundary, indicating a modern date, although its reddish brown fill contrasted with the grey fills that characterised the other modern ditches. Ditch 89 extended obliquely across the southern part of the excavation area. It cut across the possible Bronze Age enclosure and was cut by modern ditches 91 and 92. It too had a reddish brown fill. A copper alloy object was recovered from the fill but was not chronologically diagnostic.

3 Finds reports

3.1 Worked flint

by Antony Dickson and Aidan Parker

Introduction

3.1.1 An assemblage of 4624 pieces of flint was recovered during the excavation and the subsequent processing of environmental samples. The lithic assemblage was recovered from the excavation of a group of tree-throw holes. A total of 3587 pieces (77.57% of the assemblage) came from tree-throw hole 61, while the rest of the assemblage came from a further 20 contexts including the fills of a further eight tree-throw holes.

3.1.2 An initial assessment was undertaken to sort the entire assemblage into basic types and remove any unworked or non-flint material. During this process 330 pieces were identified as unworked natural flint and stone and 178 pieces of worked flint were identified as being from mixed contexts. Material from the mixed contexts together with the natural flint and stone is omitted from any further discussion in this report. The remaining assemblage was sorted into 3655 pieces of broken debitage including thermal flakes removed from worked material (Table 1) and 364 pieces of complete blade and flake debitage, 42 struck lithics associated with core technology, including core dressing pieces, and 55 modified blades and flakes (Table 2)

3.1.3 As part of the post excavation analysis process it was agreed that a sample of the lithic assemblage would be subjected to a detailed typological and attribute analysis. It was therefore decided to undertake this analysis on all of the complete debitage, all of the core technology (complete and fragmented cores) and core dressing pieces, and all of the complete and damaged retouched pieces (Table 2). Therefore 461 struck lithics were subjected to a full technological and attribute analysis by the authors. The remaining broken debitage was recorded by type and quantified (Table 1).

3.1.4 This report is chiefly concerned with the discussion of the 461 struck lithics that were recorded in detail in order to elaborate on the technological character of all stages of core reduction. Recourse is made to the fragmented debitage component of the assemblage to back up statements made on the character and composition of lithic technology where relevant.

Methodology

3.1.5 The initial steps of the lithic analysis involved a scan and sort of the entire assemblage, including all the lithic material recovered from soil samples taken during excavation. While this was done to isolate certain lithic types to create the sample for detailed analysis, it was also undertaken to retrieve all pieces with evidence for intentional retouch, especially microlith fragments from the samples, and to recover all lithic pieces relating to core technology.

3.1.6 In order to undertake a quick and effective typological assessment of the flaked lithic assemblage, the lithic recording system developed by Caroline Wickham-Jones for the analysis of a large assemblage of flaked lithics from Rhum, Scotland (Wickham-Jones 1990), was adopted. The complete debitage, core related pieces and all retouched, whether complete or not, were assigned to relevant typological categories: core, blade chip, broad blade, narrow blade, regular flake, irregular flake, small flake, retouched core, retouched chunk, retouched blade, retouched flake, microlith and utilised blades, flakes and chunks (Table 2). Broken pieces were assigned according to the blade, flake and chunk types detailed above and more irregular material that could not be confidently identified as flake, blade or core debitage was sorted further into indeterminate chunks and fragments (Table 1). These are likely to represent the chunky shatter and fragments produced during reduction or the results of post-depositional processes. The broken and fragmented lithic material was quantified but was not included in any further detailed analysis.

3.1.7 The complete debitage, core technology and retouched were then subjected to detailed typological classification and attribute recording, the results of which were entered into a specifically designed database.

3.1.8 The detailed typological and attribute analysis included the recording of the physical characteristics of the worked stone, raw material identification and metrical analysis of tools and waste. In addition, the material was characterised in technological terms. This was based upon a number of criteria: the recognition of distinctive forms, such as rejuvenation flakes; an assessment of the orientation of scars on the dorsal surfaces of flakes and blades; the characterisation of platforms; and the categorisation of flake and blade terminations. Although some of these criteria can be ambiguous, they can provide indications of the range of reduction strategies represented in a given assemblage.

3.1.9 Flakes and blades were also characterised and quantified in terms of their position within a generalised reduction sequence. Each one was assigned to primary, secondary or tertiary stages. Such an approach has its limitations, and it necessarily needs to be set alongside more qualitative observations on flake character and on the nature of broken material. However, it does provide a basis for establishing whether or not particular assemblages contain all, or only selected stages in the reduction of particular cores and/or tools. It should be noted that pieces of stone recognised as natural or representing thermal fractures (unless modified in some way) have been left out of the discussion.

3.1.10 An attempt was also made to identify the use of flakes, blades and other pieces. This was based upon macroscopic inspection of each piece and a characterisation of use wear in terms of retouch, edge wear, serration, and edge gloss.

3.1.11 The results of the detailed typological and attribute analysis are presented below by reference to core technology, flake and blade categorisation, morphology and tool characterisation. The text is supplemented with tables and artefact illustrations in order to elaborate on the discussion of the struck lithics.

Results

3.1.12 The struck lithic sample contains 461 pieces: 276 complete blade and flake debitage (59.87%); 27 core dressing pieces (5.86%); 15 cores and core fragments (3.25%); 37 retouched pieces (8.03%); 15 microliths and microlith fragments (3.25%); 3 utilised pieces (0.65%) and 88 (19.09%) microdebitage (flakes with dimensions >10mm) (Table 2).

3.1.13 Flint is the sole raw material type represented in the assemblage, although there is a degree of variation within it. 340 pieces (74%) are good quality flint which is likely to have been procured from local sources (Hey with Robinson 2011, 218). This material can be separated into brown and grey, with the brown flint representing material without any surface alteration while the grey represents re-corticated flint. The brown material is very dark, opaque, almost blackish brown, becoming lighter and more translucent on thinner flakes. Re-cortication manifests as a thin, milky white veneer that becomes thicker and grey as surface alteration becomes more advanced. This results in re-corticated flint appearing as an opaque light to medium grey in colour. When this material has experienced subsequent post-depositional damage or later reworking it is possible to see traces of the original brown colouration. Inclusions in the brown flint material are minimal. A core from context 77 contains fossil inclusions but this is a rare exception.

3.1.14 The presence of a small quantity (20 pieces; 4%) of a light grey opaque flint (showing no evidence for geochemical surface alteration) with a coarser texture than the brown/grey flint described above possibly represents inferior quality material that could have been procured from river gravel deposits. A further 88 pieces (19%) of micro debitage have been categorised as miscellaneous flint as, due to their size, a more specific identification of the raw material was not possible. Similarly 11 pieces (2%) have been categorised as indeterminate because material was burnt. Two microliths made on a translucent orange flint, recovered from contexts 18 and 80, stand out from the rest of the flint raw materials.

3.1.15 Within the analysis sample, 233 pieces (84%) of the complete debitage retained acute fresh edges. Of the entire assemblage 69.85% comprises broken or undiagnostic chunks and fragments (Table 1) and the condition of this material is generally very good with edge damage from post-depositional processes also minimal, although this attribute may be misleading given that some of this material is likely to represent broken blade and flake debitage. In that respect, we have to consider that some of the indeterminate fragments could represent debitage damaged through post-depositional processes rather than as shatter from reduction.

Primary technology

3.1.16 In terms of core technology, ten complete forms, representing several reduction technologies, are present, along with five core fragments, three of which possess some diagnostic potential. The presence of a relatively large number of core trimming and core rejuvenation blades and flakes indicates that core flaking fronts and platform edges were maintained during reduction (Table 2). Opposed platform technology is the most common, with four of the ten complete cores and two of the fragments complying with this reduction strategy (Fig. 16.1). Single platforms are the second most frequent, with four of the complete cores and one of the fragments identified as such (Fig. 16.2). Two right-angled platform cores are also present (Fig. 16.3) with one showing potential evidence for vice or anvil use, as indicated by small flake scars and crushing along one edge (Fig. 16.4).

3.1.17 Of the negative scars observed on core flaking fronts, 70% are blade removals (pieces twice as long as their width) and the average dimensions of those removals are 29mm long by 9mm wide, while the average negative flake scar dimensions are 12mm by 20mm. The preponderance for blade negative scars over flake scars suggests that at least the intermediate and later stages of core reduction was biased towards blade production.

3.1.18 The average dimensions for complete cores are 38 x 27mm with a thickness of 21mm. This suggests that the cores were not worked to exhaustion and therefore size does not appear to be the main reason behind their discard (Fig. 8).

Table 1: Quantification of the broken and fragmented component of the lithic assemblage

		Contexts																				
		2	**6**	**8**	**16**	**18**	**23**	**26**	**27**	**39**	**40**	**71**	**74**	**75**	**76**	**77**	**78**	**80**	**81**	**82**	**83**	**84**	**Total**
Indeterminate chunks		2				34	13	9	6				3	1		169	20	15	1		29	103	405
Indeterminate fragments						170	4	27	2						1	844	145	14	1		137	1125	2470
Flake fragments		4		2		41	10	3	3	2	1		2			126	27	2	2	1	3	119	348
Blade fragments	**Chips**					5	1									28	13				8	47	102
	Broad	1	1		1	23	6	1	1	2		1	3	2		81	6	1			2	63	195
	Narrow					5	2	1	2	1						51	11				5	53	131
Thermal flakes							1									3							4
Total		7	1	2	1	278	37	41	14	5	1	1	8	3	1	1302	222	32	4	1	184	1510	3655

Table 2: Quantification of the analysed sample of the lithic assemblage

		Context																						
Type	**Classification**	**2**	**6**	**8**	**18**	**23**	**25**	**26**	**27**	**39**	**40**	**71**	**72**	**73**	**74**	**75**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**Total**
Blade chip						3											4							2	**9**
Narrow blade		1			2	2									2	1	11	1		1			1	12	**34**
Broad blade		1	1		1	7		1									13	10		1	1	1		23	**60**
Regular flake		2	1	1	14	2	2	2	2	3		2	1		2		51	10	1		1		2	43	**142**
Irregular flake					3	1		1			1						8	2		1	2			12	**31**
Core rejuvenation																	2							1	**3**
Core trimming					4		1			1							9	2						7	**24**
Cores	**Opposed/Blade**	1			1		1																		**3**
	Opposed/Blade and flake																1								**1**
	Platform at right angles/Blade																1				1				**2**
	Single platform/Blade																				1			1	**2**
	Single platform/Blade and flake				1			1																	**2**
	Core fragment																2							3	**5**
Retouched blade	**End scraper**																1								**1**
	Edge retouched	2			2	1											7							7	**19**

		Context																						
Type	**Classification**	**2**	**6**	**8**	**18**	**23**	**25**	**26**	**27**	**39**	**40**	**71**	**72**	**73**	**74**	**75**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**Total**
Retouched flake	**Denticulate**				1																				**1**
	End scraper																2							1	**3**
	Notched																1								**1**
	Side and end scraper																2								**2**
	Side scraper	1																						1	**2**
	Edge retouched				1									1			4							2	**8**
Microlith	**Backed bladelet**																3								**3**
	Crescent																3							1	**4**
	Rod																						1		**1**
	Scalene triangle				1																		1		**2**
	Microlith fragment																1							4	**5**
Utilised flake																	1							1	**2**
Core tool																								1	**1**
Small flakes					6			2									19	3					12	46	**88**
Total		**8**	**2**	**1**	**37**	**16**	**4**	**7**	**2**	**4**	**1**	**2**	**1**	**1**	**4**	**1**	**146**	**28**	**1**	**3**	**6**	**1**	**17**	**168**	**461**

3.1.19 Thermal fractures appears to be the primary reason for core discard, with size and indeterminate reasons being secondary (Fig. 8). Core fragments are included in Fig. 4 as thermal fracturing is the main reason for their fragmentation, but it should be noted that fragmentation could also be a product of post-depositional processes. Furthermore, natural thermal flakes were also used during reduction activity: a core from context 18 was created on a thermal flake with the fracture plane being utilised as the striking platform (Fig. 16.5). Stepped/hinge fractures on the core face and adverse platform angles are also represented as potential discard reasons. It is possible that inexperienced knapping was a contributing factor to the abandonment of some of the cores. However, the intractability of the raw material should also be considered.

3.1.20 Core trimming pieces are primarily represented by flakes removed from core flaking fronts and from across the platform edge (Figs 16.6-16.8), while platform maintenance is also represented by rejuvenation tablets, whereby the entire platform has been removed to create a new one in order to continue reduction (Fig. 16.9). The core trimming pieces appear to be chiefly concerned with the removal of step and hinge fractures from core faces in order to facilitate further working. Crested blades are notable by their absence, which is interesting and perhaps unusual for an assemblage of this type where blade production is important.

3.1.21 Flakes are the most common debitage type, accounting for 37.53% of the analysis sample, with blades representing 22.34% (Table 2). This appears to contradict the evidence from the cores but when the broken blade and flake debitage is considered alongside the complete material both debitage types comprise similar proportions (12.90% for blades and 12.66% for flakes). These results are of interest in regards to the lamellar index for the assemblage, especially when seen in comparison with other late Mesolithic lithic assemblages. For example, the lamellar index for an assemblage from near Carlisle, where complete retrieval of lithics was undertaken, indicated that blades accounted for 13.08% of the flaked lithics while flakes represent 16.13% (Dickson forthcoming). This suggests that the analysis sample could be a true reflection of blade and flake ratios in the Bicester assemblage as a whole. Furthermore, the potential for a significant amount of the indeterminate fragments representing broken blade and flake debitage and therefore masking the real proportions of flake and blade blank production should also be considered.

3.1.22 However, when the complete blade and flake debitage is considered in terms of a generalised reduction sequence the results show a trend for the production of blades becoming more significant during the later stages of reduction (Fig. 9). This goes some way to backing up the evidence from the cores, although it should be noted that flake production was still of higher proportions during the same stage. When comparing the number of secondary flakes to blades, the results suggest that reduction was geared towards flake production and this could imply that removals were primarily undertaken to remove remaining cortex in order to facilitate a change in focus to blade production in the latter stages, as noted above. Very little evidence was observed for the initial stages of core preparation, implying that nodules were brought onto site partially preprepared.

3.1.23 The blade component of the analysis sample is divided into three different types: blade chips (those with widths <5mm), narrow blades (with widths between 5 and 8mm) and broad blades (those with widths >8mm) (Figs 17.10-17.12). Recent research has shown that blade chips are more likely to be associated with the finer working of cores during blade production, while narrow blades are reckoned to be favoured for microlith production and broad blades are seen as the by products of shaping cores (Zetterlund

1990). However, it has also been suggested that a width of 10mm should be regarded as the preferred bladelet width for microlith manufacture (Preston 2012, 67). Moreover, work on a large assemblage from near Carlisle (Dickson forthcoming) has revealed that microliths (and other tools) were made on a variety of blade types and also on flake fragments.

3.1.24 At Bicester it appears that blade chips can indeed be associated with core reduction. The average width for microliths from the site is just over 4mm, thus it can be proposed that narrow blades, and probably some of the narrower broad blades, were selected for microlith manufacture. We should also consider that a significant number of blades could also have been removed from the site as completed tools or as tool blanks.

3.1.25 Blades with length/breadth ratios ranging between 2.00-2.49 and 2.50-2.99 are most numerous (Fig. 10), indicating a preference for true blades, which are relatively stout morphologically. At the top end of the scale, one blade from context 80 is almost nine times longer than it is wide, reflecting an incredibly long, narrow blade.

3.1.26 Flakes are defined as pieces with a length/breadth ratio below 2.00 (Figs 17.13-17.15). The 51 flakes falling in the range of 0-0.99 (Fig. 10) possess length measurements shorter than their width. As the ratio approaches 1.00 the length/breadth measurements are close to equal. Beyond that flakes can be described as becoming more blade-like as their length measurement is just greater than their width. Therefore the 41 flakes within the ratio range of 1.5-1.99 suggest that narrow flakes were also significant in terms of blank production.

3.1.27 The direction of dorsal scars on the complete debitage from the assemblage show that working unidirectionally was the preferred reduction strategy (Fig. 11), which tentatively corresponds with the evidence from the cores. Blades and flakes with opposed and crossed flake scars appear to relate to the other core types recorded in the assemblage. However, it should be noted that the cores represent the final stages of reduction prior to discard or loss and some may have undergone several changes in direction of working during flaking activity, whereas the flakes are representative of all stages of core reduction.

3.1.28 Blade and flakes with with feather terminations are the most common (Fig. 12) indicating a certain level of skill and a systematic approach to core reduction. Moreover, hinge, stepped and abrupt terminations are more prevalent on the flake debitage, which may suggest that the use of hard hammer technology was associated with the primary and intermediate stages of core reduction.

3.1.29 However, when platform attributes are considered a different picture regarding hammer technology emerges. A total of 263 pieces of blade and flake debitage feature diffuse bulbs of percussion, which is conventionally associated with the use of a soft hammer technology (Butler 2005, 38). Furthermore, a large number of both flakes and blades have flat or plain platforms (Fig. 13), some of which have been prepared prior to removal by the application of simple abrasion (Fig. 14). The analysis of platform dimensions indicates that the average platform is 7mm wide by 2mm thick for flakes and 5mm by 2mm for blades, implying a predominance of wide thin platforms on both the blades and flakes. Moreover, when considering the platform width/thickness ratios (Fig. 15) there is a distinct cluster around the 1.50-3.49 ratio bracket. When this data is considered alongside the average dimensions outlined above it indicates that blades and flakes with thin platforms approximately twice as wide as they are thick were regularly produced. This uniformity suggests a controlled and systematic approach to reduction strategies, probably utilising soft hammers. This control could have been achieved through the use of a punch to remove blades and flakes with some degree of accuracy. Thirty pieces (11%) of the complete debitage were identified as having a ventral spur at the platform. While not a large percentage, the presence of the spur does suggest an indirect soft hammer technology associated with stone working, a technology employed primarily in Mesolithic and early Neolithic reduction strategies (Butler 2005).

Secondary technology

3.1.30 The retouched pieces and tool types present in the assemblage fall into two categories, microliths and other retouched (Table 2). The microliths include three backed bladelets (Figs 18.16-18.18), two scalene triangles (Figs 18.19-18.20), four crescents (Figs 18.21-18.24), one rod (Fig. 18.25) and five microlith fragments (Fig. 18.26). Backed bladelets are characterised by microlith retouch applied to a lateral edge and tend to be triangular in cross section. These are narrow blade microliths with average dimensions of 15.00 x 4.50 x 1.93mm and should not be confused with backed blades dating to earlier periods. One of the scalene triangles has microlith retouch on all three edges and the other has blunting on the two oblique edges. All the crescents are blunted on the convex edge, although they are each different in terms of size. The rod has microlith retouch on both lateral edges, although it should be noted that the latter is incomplete and could possibly be part of a fine/needle point. Two of the five fragments are non-diagnostic, two are possible backed bladelet fragments and the other is a segment from a scalene triangle.

3.1.31 Microwear studies indicate that in addition to their use as components in projectiles, microliths were also used in a variety of tasks involving working hard- and soft-contact materials such as antler, bone, wood and in meat processing (Evans and Donahue 2012). Furthermore, there is strong evidence emerging from edge use analysis of microlith assemblages from the United Kingdom and Europe that crescents were mainly used as armatures in arrowheads (Adrian Evans pers com).

3.1.32 The remaining retouched pieces includes eight scrapers, one notched piece, one denticulate and 27 miscellaneous retouched flakes and blades (Table 2). The scrapers can be further divided into four end scrapers (Fig. 19.27), two side scrapers (Fig. 19.28) and two side and end scrapers (Fig. 19.29). With the exception of one of the end scrapers, all were produced on flakes. The miscellaneous retouched blades and flakes, both complete and broken, exhibit great variation in terms of retouch location (Fig. 19.30-19.32) and one of the flakes has inverse retouch on a lateral edge (Fig. 19.33). Two flakes show consistent small irregular flake scars along their lateral edges, suggesting that they have been utilised, while a core fragment also exhibits extensive edge damage indicating that it had been subjected to heavy use (Fig. 19.34). It is worth noting that the lithic analysis of a large late Mesolithic assemblage from northern England (Dickson forthcoming) identified several cores with edge damage initially interpreted as retouch; however, use-wear analysis identified the retouch as edge damage relating to the piece probably being gripped in a vice like structure during reduction (Evans and Donahue 2012).

3.1.33 The scrapers and some of the miscellaneous retouched blades and flakes modified by abrupt retouch indicate that probable hide processing and/or wood working activity was taking place. The presence of a denticulate and a notch suggest that cutting and scraping activities were also being undertaken.

Discussion

3.1.34 The late Upper Palaeolithic and Mesolithic section of the Solent Thames Research Framework Resource Assessment (Hey 2014), indicates that very little is known of the Mesolithic period in Oxfordshire. Therefore the assemblage of 4624 pieces recovered from Bicester should be seen as a significant discovery.

3.1.35 Overall the assemblage is characteristic of a late Mesolithic narrow blade technology, although there may be some material representing early Neolithic activity present, such as one of the cores with platforms at right angles and several of the larger broader blades. The assemblage was recovered from a series of contexts associated with tree-throw holes, fills 77 and 84 (=78=81=83) of feature 61 producing the bulk of the assemblage. There was a fairly even distribution between both contexts, with all technological aspects of the assemblage present in each.

3.1.36 It is likely that the majority of the assemblage represents secondary deposition of lithic material, although a number of observations have emerged during the lithic analysis which suggests that the assemblage could derive from occupation close to the features. Firstly, the edge condition of the complete debitage is relatively fresh, indicating that movement from post-depositional processes is not significant. Although a large amount of chunky irregular debitage and thinner indeterminate fragments are also present, it is difficult to define whether this material represents shatter from reduction or, particularly for the indeterminate fragments, additional broken blades and flakes produced from trampling or the physical movement of the material. At best, elements from both processes can be suggested and the amount of this material in both the main context assemblages could possibly indicate the presence of nearby middens from which it was derived. The small size of the majority of the indeterminate fragments adds weight to this suggestion. Secondly, a wide variation in technology is present in the assemblage, representing all phases of the reduction process, although there are some discrepancies between some lithic types and their presence/absence in specific context assemblages that are difficult to account for. An example of this is the ratio of cores to debitage, which is biased towards the latter in contexts 77 and 84 (=78=81=83). Also, the relatively high number of core dressing pieces relative to the number of cores appears to suggest that trimming pieces are over-represented, especially in the large context assemblages. In contrast, more cores were recovered from the smaller context assemblages. These discrepancies are difficult to account for and it is possible that cores were removed from the site for further reduction elsewhere.

3.1.37 The occurrence of late Mesolithic lithic assemblages in tree-throw holes is attested to elsewhere in the region (Hey with Robinson 2011, 215). In some instances this has been interpreted as intentional deposition, perhaps marking the end of a phase of habitation or as an offering made to the land. At Bicester, evidence for deliberate deposition is not readily identifiable and the assemblage is best seen as indicating the presence of late Mesolithic group/s in a wooded environment.

3.1.38 At Bicester, microliths, some undoubtedly from composite tools, indicate hunting and perhaps the subsequent processing of kills involving butchery and hide-working activity. The presence of broken microliths and the reduction of prepared cores in order to produce blade blanks for microlith manufacture imply the repair and replacement of damaged tools. The non-microlith component of the retouched tools also indicates that tasks involving scraping and cutting activities and possibly woodworking may also have been taking place. It is also likely, given the small number of microliths and the bias towards lithic debitage over cores, that some material used and produced on site was removed for use elsewhere. This evidence indicates that the site was a temporary hunting camp, while the large percentage of broken and undiagnostic debitage suggests that the location may have been used frequently.

3.1.39 Evidence for late Mesolithic activity in the Upper Thames Valley points to a prevalence of small sites in all topographical locations associated with river courses. Such evidence is thought to represent the movement of small groups of people along river valleys in search of seasonal resources and/or hunting animals (Hey with Robinson 2011, 208-211).

3.1.40 Several similar sites to that suggested for Bicester are situated near the scarp overlooking the Thames Valley, providing locations with a number of different resources within relatively easy reach. One such site at Tubney, 20 miles south west of Bicester, is thought to have been visited on a number of occasions, with evidence of more permanent occupation and a range of domestic activities taking place (Bradley and Hey 1993, Simmonds *et al.* 2010). Sites in lower-lying areas, such as Kidlington (Booth 1997) and Abingdon (Allen and Kamash 2008), as well as others identified as lithic scatters throughout the Thames valley (Hey with Robinson 2011) are, like Bicester, representative of short-term or seasonal occupation hunting sites, and are dispersed throughout the area.

Catalogue of illustrated flint

Fig. 16 Core technology and core dressing

1. Opposed platform core. Tree-throw hole 17 fill 18
2. Single platform core. Tree-throw hole 61 fill 84
3. Platform at right angle anvil use. Tree-throw hole 61 fill 81
4. Platform at right angle. Tree-throw hole 61 fill 77
5. Single platform core on thermal flake. Tree-throw hole 17 fill 18
6. Core trimming flake. Tree-throw hole 61 fill 77
7. Core trimming flake. Tree-throw hole 61 fill 77
8. Core trimming flake. Tree-throw hole 61 fill 77
9. Core rejuvenation flake. Tree-throw hole 61 fill 84

Fig. 17 Debitage

10. Broad blade. Tree-throw hole 61 fill 78
11. Narrow blade. Tree-throw hole 61 fill 78
12. Blade chip. Tree-throw hole 61 fill 84
13. Regular flake. Tree-throw hole 61 fill 78
14. Regular flake. Subsoil 2
15. Regular flake. Tree-throw hole 5 fill 6

Fig. 18 Microliths

16. Backed bladelet. Tree-throw hole 61 fill 77
17. Backed bladelet. Tree-throw hole 61 fill 77

18. Backed bladelet. Tree-throw hole 61 fill 77
19. Scalene triangle. Tree-throw hole 17 fill 18
20. Scalene triangle. Tree-throw hole 61 fill 83
21. Crescent. Tree-throw hole 61 fill 77
22. Crescent. Tree-throw hole 61 fill 77
23. Crescent. Tree-throw hole 61 fill 77
24. Crescent. Tree-throw hole 61 fill 84
25. Rod. Tree-throw hole 61 fill 83
26. Microlith fragment. Tree-throw hole 61 fill 84

Fig. 19 Non-microlithic retouch

27. End scraper. Tree-throw hole 61 fill 77
28. Side scraper. Tree-throw hole 61 fill 84
29. Side and end scraper. Tree-throw hole 61 fill 77
30. Miscellaneous retouched blade. Subsoil 2
31. Miscellaneous retouched blade. Tree-throw hole 17 fill 18
32. Miscellaneous retouched blade. Tree-throw hole 61 fill 84
33. Miscellaneous retouched blade. Ditch 68 fill 73
34. Core fragment with edge damage/use. Tree-throw hole 61 fill 84

3.2 Pottery

By Lisa Brown

3.2.1 A total of 21 sherds of prehistoric pottery weighing 154g was recovered from nine features – three features recorded as tree-throw holes, two pits, two ditches and two gullies (Table 3). This small collection included no sherds diagnostic of form or, specifically, of date. However, on the basis of fabric and treatment, and of correlation to other assemblages from the Oxfordshire/Berkshire region, the group seems to span the early or middle Bronze Age to the late Iron Age or Roman period, in some cases represented by only a single sherd. In addition to the prehistoric material the excavation recovered a single sherd (14g) from a Brill/Boarstall ware strip jug with rouletted decoration, dating from *c* 1250-1350, and 11 sherds (64g) of 19th-20th century pottery.

3.2.2 Most sherds are in limestone-tempered fabrics, indicating local production. The limestone inclusions are variable, however: in some cases fossil platey shell, in others angular limestone fragments and most containing some oolite component, suggesting that they derive from related Jurassic geologies. Two sherds in coarse flint-tempered wares, from ditch 63 and tree-throw hole 61, are probably early or middle Bronze Age. Flint would also have been available locally, probably deriving from river gravels.

Table 3: BIV13 prehistoric pottery

Context	Feature	No/wt	Description	Date
8	Tree-throw hole 7	3 / <1g	Limestone-tempered crumb sized sh	Prehistoric
77	Tree-throw hole 61	2 / 8g	1 oolite-tempered body sh 1 coarse flint-tempered body sh	BA-EIA
84	Tree-throw hole 61	1 / < 1g	Oolite-tempered crumb sized sh	Prehistoric
82	Tree-throw hole 69	1 / 1g	Limestone-tempered body sh	Later prehistoric
20	Pit 19	5 / 23g	3 fossil shell-tempered base sh 1 limestone-tempered body sh 1 limestone and flint-temp	EIA-MIA
51	Pit 49	4 / 93g	Limestone-tempered body sh	EIA-MIA
48	Ditch 88	1 / 7	Sandy greyware body sh, wheelthrown	LIA-Roman
75	Ditch 63	2 / 16	1 grog-tempered body sherd 1 coarse flint-tempered	EBA-MBA
10	Ditch 86	1 / 2g	Limestone/oolite-tempered body sh	Later prehistoric
16	Ditch 86	1 / 2g	Limestone-tempered body sh	Later prehistoric
		21 / 154g		

Tree-throw holes

3.2.3 The sherds from the three features recorded as tree-throw holes (7, 61 and 69) are exceptionally fragmentary, in some cases only crumb-sized. All but one sherd of this pottery is in limestone-tempered fabrics, which would have almost certainly been of local manufacture as the site lies on Jurassic Cornbrash. The limestone inclusions, in all cases relatively fine, are probably naturally occurring components of the clay. A single sherd from tree-throw hole 61 is in a coarse flint-tempered fabric and may be of Bronze Age date. Little can be said of this collection except that the sherds are handmade and of prehistoric date.

Pits

3.2.4 Two pits produced small quantities of prehistoric pottery which, although not very distinctive, is probably of early or middle Iron Age date. Five sherds weighing 23g were recovered from pit 19. Three conjoining fragments in a well-finished fabric with fine limestone inclusions probably belong to a flat base. A fourth body sherd in a similar fabric has carbonised residue on the inner surface. The fifth sherd is a curving neck fragment from a bowl or jar in a fabric that contains both limestone and rare flint inclusions. The surface treatment apparent on all of these sherds suggests a later prehistoric, and specifically Iron Age date.

3.2.5 Pit 49 yielded four sherds (93g) in fossil shell-tempered ware, all probably belonging to a single large handmade vessel with a straight wall. The vessel wall has been roughly smoothed and resembles early or middle Iron Age sherds from elsewhere in the Oxfordshire and Berkshire region.

Ditches

3.2.6 Ditch 88 produced a single wheelmade sandy ware body sherd of late Iron Age or Roman date. Ditch 63, on the other hand, yielded two sherds of Bronze Age type. One is a thin-walled, undecorated sherd in a grog-tempered fabric, which could possibly belong to an early Bronze Age Beaker but is too abraded to be certain. The other in a coarse flint-tempered ware of possible Deverel-Rimbury type, but possibly earlier. Ditch 86 produced two small fragments in limestone-tempered ware, classifiable only as later prehistoric.

3.3 Metalwork

By Ian Scott

3.3.1 Just two metal finds were recovered: an iron nail and a small fragment from an object of cast copper alloy. Neither can be closely dated.

3.3.2 Context 76: Small handmade nail possibly with a T-head (L: 41mm). The nail cannot be closely dated, but could be Roman or later in date.

3.3.3 Context 74: fragment of hollow cast copper alloy (L: 17mm; W: 13mm). The fragment appears to come from an object that was curved. Unfortunately, too little survives to identify or date the object.

3.4 Worked stone

By Ruth Shaffrey

3.4.1 A single hammerstone (SF 2) was recovered from the surface of tree-throw hole 61. This quartzitic sandstone cobble has percussion damage on three distinct areas, suggesting occasional use.

4 Environmental reports

4.1 Charred plant remains and wood charcoal

By Sheila Boardman

Introduction

4.1.1 Nine bulk soil samples (of 40-160l) from four tree-throw holes (17, 22, 59, 61), all believed to be of Mesolithic date, were investigated for charred plant remains and wood charcoal. Small amounts of additional material from one wet-sieved sample (11) were also identified. All the contexts produced worked flint, with particularly large quantities in tree-throw hole 61, which was excavated and sampled as four quadrants: north east (sample 10), south east (sample 7), south west (samples 9 and 11) and north west (samples 6 and 8). Eight bulk soil samples produced some charred plant remains and four samples had small quantities of wood charcoal. It was hoped that the botanical remains would provide evidence for activities taking place in the vicinity of and contemporary with the tree-throw holes.

Methods

4.1.2 The bulk samples were processed using a modified Siraf tank. Flots were collected in a 250µm mesh and the heavy residues, in a 500µm mesh. Once dried, all of the >250µm flots were sorted for charred plant remains, including cereal grains, smaller seeds and nut shell fragments. The flots were dry sieved at 2mm and the >2mm charcoal fragments were extracted. Wood identifications were carried out for 25-30 fragments from three bulk samples, and 10 fragments from the wet-sieved sample (11). Individual charcoal fragments were fractured by hand and sorted into groups based on features observed in the transverse sections, at magnifications of x10 to x40. Sub-samples of these were fractured longitudinally and examined at magnifications of up to x250. Identifications were made with reference to Hather (2000), Gale and Cutler (2000) and Schweingruber (1990). Plant nomenclature follows Stace (2010).

Results

4.1.3 Eight samples produced very small amounts of charred plant material (<0.25 items or fragments per litre of soil). These are listed in Table 4. Three samples produced 30-50 identifiable (>2mm) charcoal fragments, of which 25-30 fragments were identified. They are summarised in Table 5. The trees and shrubs included oak (*Quercus*), hazel (*Corylus*), alder (*Alnus*), alder/hazel (*Alnus*/*Corylus*), willow/poplar (*Salix*/*Populus*), ash (*Fraxinus excelsior*), field maple (*Acer campestre*), cherry/ blackthorn (*Prunus* sp.) and hawthorn group (Pomoideae). The latter includes crab-apple (*Malus*), pear (*Pyrus*), hawthorn (*Crataegus*) and rowan/whitebeam/service (*Sorbus*). Tables 4 and 5 also include the small amounts of material identified from sample 11.

Discussion

4.1.4 For samples 2, 4 and 5, from tree-throw holes 22, 17 and 59 respectively, the charred plant remains amounted to one to three cereal grains, some smaller seeds and/or hazelnut shell fragments. Very little can be said about this material other than that the cultivated cereals are inconsistent with deposits of this age, so all the plant remains may be intrusive. Sample 4 produced only hazelnut shell fragments, which could be contemporary with the feature and worked flints, but without independent dating this remains conjectural.

4.1.5 Hazelnut shell fragments were present in five of the six bulk samples from tree-throw hole 61 and in the dry sieved sample. Again, these may be contemporary with the worked flints, or, as with the accompanying cereal grains, they may be more recent. The cereals included free threshing wheat (*Triticum aestivum/turgidum*), barley (*Hordeum* sp.), oat (*Avena* sp.) and possible rye (cf. *Secale cereale*). This range of material is most typical of the early historic period (probably the early medieval period onwards) but could represent material from activities of different ages.

4.1.6 The same caveats regarding mixed age intrusive material apply to the wood charcoal, especially since the majority of fragments examined were in the 2-4mm size range. On the basis of the woody taxa represented, the charcoal assemblage could have come almost any period from the Mesolithic onwards (Smith 2002).

Conclusions

4.1.7 Extensive sampling of four tree-throw holes for charred plant remains and wood charcoal produced disappointing results. While some remains may be contemporary with the deposits and other finds, the cereal remains cannot be, leading to the conclusion that all the plant material was possibly intrusive. Radiocarbon dating may resolve this issue for individual finds from some samples, but is unwarranted on the basis of the species present and the quantities of remains, and it would not remove doubts over the age of the majority of the material.

Table 4: Summary of charred plant remains

Sample No		**2**	**4**	**5**	**10**	**7**	**9**	**11**	**6**	**8**
Context No		**26**	**18**	**80**	**83**	**78**	**84**	**84**	**77**	**77**
Feature type		**Tree-throw hole**	**Tree-throw hole**	**Tree-throw hole**	**Tree-throw hole - NE**	**Tree-throw hole - SE**	**Tree-throw hole - SW**	**Tree-throw hole - SW**	**Tree-throw hole - NW**	**Tree-throw hole - NW**
Feature No.		**22**	**17**	**59**	**61**	**61**	**61**	**61**	**61**	**61**
Period/Phase		**Meso**	**Meso**	**Meso**	**Meso**	**Meso**	**Meso**	**Meso**	**Meso**	**Meso**
Sample vol. (litres)		**40**	**40**	**40**	**70**	**40**	**160**	**(50L Dry sieved)**	**40**	**60**
Cereal grain										
Triticum spp.	free threshing type wheat					4	7		2	1
Triticum spp.	wheat			1	4	4	3		3	
cf. Secale cereale	cf. rye						1			
Hordeum sp.	barley				2		3			
cf. Hordeum sp.	cf barley									1
Avena sp.	oat grain						3		1	
cf. Avena sp.	cf. oat					1	1		1	
Cereal indet.	indet. cereal	2			5	6	6		1	
Wild plants										
Vicia/Lathyrus	vetch/tare (> 2mm)	1								
Melilotus/Medicago/Trifolium	small seeded legume				1					
Corylus avellana	hazelnut shell fragments		2F		5F	13F	4F	5F		1F
cf. Plantago sp.	cf. plantain						1			
Carex sp.	sedge, three sided nutlet									1
Indeterminate	seed/fruit/nut						1F			1

Key: Meso = Mesolithic; F - fragments

Table 5: Summary of wood charcoal

Sample No		**2**	**7**	**11**	**9**
Context No		**26**	**78**	**84**	**84**
Feature		**Tree-throw hole 22**	**Tree-throw hole 61 - SE**	**Tree-throw hole 61 - SW**	**Tree-throw hole 61 - SW**
Date		**Meso**	**Meso**	**Meso**	**Meso**
Sample vol. (litres)		**40**	**40**	**(50 Wet-sieved)**	**160**
Rosaceae					
Prunus sp.	cherry/blackthorn	*			*
Pomoideae* (see key below)	hawthorn group			*	
Fagaceae					
Quercus	oak		***hs	*	**hr
Betulaceae					
Alnus	alder	**			
Corylus	hazel		*	*	*
Alnus/Corylus	alder/hazel	**	**	*	*
Salicaceae					
Salix/Populus	willow/poplar		*		
Sapindaceae					
Acer campestre	field maple				*
Oleaceae					
Fraxinus excelsior	ash				*
Indet. charcoal fragments		*b			*b

KEY: b - includes bark; h - inc. heartwood; s - inc. sapwood; r - inc. roundwood
* = 1 - 5 items/frags; ** = 6 - 10; *** = 11 – 20.
Pomoideae (syn. Maloideae), includes *Crataegus* (hawthorn), *Sorbus* (rowan, service, whitebeam), *Pyrus* (pear) and *Malus* (apple).

4.2 Animal bone

by Lena Strid

Introduction

4.2.1 A total of 72 animal bone fragments were recovered from features dating from the Mesolithic to the early-middle Iron Age. The majority of the assemblage was hand-collected, only four bones coming from sieved soil samples. A full record of the assemblage, documented in a Microsoft Office database, can be found in the site archive.

Methodology

4.2.2 The bones were identified to species using a comparative reference collection, as well as osteological books and articles. Ribs and vertebrae, with the exception of the atlas and axis, were classified by size: 'large mammal' representing cattle, horse and deer, 'medium mammal' representing sheep/goat, pig and large/medium-sized dog, and 'small mammal' representing small dog, cat and hare.

4.2.3 The condition of the bone was graded on a 6-point system (0-5), grade 0 equating to very well preserved bone and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable. With the exception of bones from Mesolithic features, the faunal remains were generally in a fair condition (Table 6). The fragments of burnt bone from the Mesolithic features were relatively well preserved, a consequence of the resistance to surface degradation associated with high temperature burning (calcining). Gnaw marks from carnivores were noted on a single bone from the early-middle Iron Age assemblage (Table 6).

The assemblage

4.2.4 The Mesolithic assemblage derives from two features interpreted as tree-throw holes. The only fragment identifiable to taxon comes from a bovid pelvis (Table 7). The small size of the fragment suggests it could be from either domestic cattle or from a young aurochs; if the former this would suggest that the bone was not contemporary with the lithics on which the feature's date attribution was based. Cattle pelves fuse at *c* 7-10 months of age (Habermehl 1975, 104-105), but due to the lack of fusion zones in the identified fragment, as well as the poor condition of the bone surface, it was not possible to establish age at death for this specimen.

4.2.5 The early-middle Bronze Age assemblage includes an unusual find of a horse astragalus (Table 7). The earliest secure post-glacial horse in Britain comes from a late Neolithic/early Bronze Age deposit from Grimes Graves and until the middle Bronze Age horse remains a rare archaeological find. By the late Bronze Age horse remains are commonly found (Bendrey 2010, 10-12).

4.2.6 The early-middle Iron Age assemblage comes from two pits (19, 49) (Table 7). Pit 49 contained fragments of mandible, scapula, ulna, femur and tibia from juvenile cattle, possibly a single individual. This may be feasting waste, as even a calf would have provided more meat than could be consumed by one household in one sitting. While natural calf mortality cannot be excluded, and no cut marks were evident, the lack of larger parts of the skeleton suggests disarticulation prior to deposition. Communal feasting was common in the Iron Age and provided a means of displaying social status, either by the amount of food or by the choice of food. While a calf may not have been considered a 'luxury food' in the same way as deer or wild boar may have been, calf slaughter represents a loss of future yields of milk, meat and herd replenishment. Other bones from this pit include a pig ulna, a sheep/goat scapula and a long bone and several ribs from medium mammals. Cut marks from disarticulation were found on the sheep/goat scapula. The other pit (19) contained far fewer bones and the finds could not be associated with a single event.

4.2.7 Evidence for ageing in the early-middle Iron Age assemblage was scant, comprising only bones from the above mentioned calf, one fused sheep/goat scapula (over 7-10 months old at the time of death) and one fusing distal pig tibia (*c* 2 years old at the time of death) (Habermehl 195, 121, 150).

Table 6: Bone preservation and the number of bones with traces of burning and gnawing

	N	0	1	2	3	4	5	Burnt	Gnawed
Meso.	20		5.0%	25.0%		70.0%		6	
E-MBA	4			75.0%	25.0%				
E-MIA	43		7.0%	90.7%	2.3%				1
Preh.	2			100.0%					
L.Preh.	3		100.0%						

Table 7: Quantification of the animal bone assemblage by date and species

	Mesolithic	Early-middle Bronze Age	Early-middle Iron Age	Prehistoric	Later prehistoric
Cattle			8		
Cattle/aurochs	1				
Sheep/goat			1		
Pig			3		1
Horse		1			
Medium mammal	1		9		
Large mammal			14		
Indeterminate	18	3	8	2	2
Total	20	4	43	2	3
Weight (g)	29	41	182	2	45

4.3 Monolith sample

By Christof Heistermann

4.3.1 A 0.36m long monolith sample was taken from Section 8, through possible tree-throw hole 22, reaching from the subsoil (2) through contexts (23), (40), (26) down to the natural (3) (Fig. 20) A vertical, linear, 10mm wide, discontinuous void occurs from 0.03 to 031m in the monolith, caused by a decayed root. Note that in comparison to the section drawing the contacts of the fills and the natural have moved higher up, due to the concave base of the feature.

Table 8: Summary of the monolith

Depth (m)	Context	Description
0.0 – 0.06	2	Firm, friable fine sandy, clayey silt (SILT LOAM) dark greyish brown [2.5Y5/6] with common small strong brown [10YR5/8] and rare dark brown mottles [10YR3/3]. Clear contact. SUBSOIL
0.06 – 0.14	23	Firm to stiff clayey silt with common lenses of (20mm) of dark yellowish brown [10YR4/6] fine sandy clayey silt. Small yellowish brown mottles common [10YR6/6]. Rare flecks of charcoal. Abrupt contact. MIXED FILL
014 – 0.17	40	Firm slightly plastic silty clay, olive brown [7.5yr4/3] rare fine strong brown [7.5YR5/8] and blackish flecks. Clear contact. DEPOSIT
0.17 – 0.26	26	Firm to stiff slightly plastic very dark greyish brown [2.5 Y3/2] with common fine strong brown mottles [7.5YR5/8] silty clay, trace of sand. Small charcoal mottles common. Structured by weak sub-angular blocky soil peds. Abrupt contact. REDEPOSITED TOPSOIL
0.26 – 0.32	3a	Firm, plastic light olive brown [2.5Y5/3] silty clay, trace of sand, many small strong brown mottles [7.5YR5/8] and rare fine light bluish grey small mottles. Clear contact WEATHERED NATURAL
0.32 – 0.38	3	Firm, slightly brittle strong brown [7.5YR5/8] with few small very dark greyish brown [10YR3/2] mottles, clayey silt. Rare inclusions of rounded small pebbles of very pale brown [10YR8/4] sandstone. NATURAL, KELLAWAYS CLAY MEMBER

Interpretation of the monolith

4.3.2 The layers in the monolith comprise subsoil (2) overlying two fills (23 and 40) of fine clayey sediments that overlie a topsoil type sediment (26). The topsoil type sediment that displays an abrupt contact to the underlying two layers of weathered natural stiff clayey silt (3a and 3). The abrupt contact is inconsistent with an *in situ* palaeosol. Instead, it argues the case of redeposited topsoil. These observations, and the information on the shape of the feature and the profile of the fills, suggest that the feature is a tree-throw hole. The following discussion of the processes involved in the formation of the fills will be lead by this assumption.

4.3.3 Context (3) is a strong brown clay. It belongs to the Kellaways Clay Member from the Mid-Jurassic Kellaways Formation. The typically dark grey mud-stone has been altered in its upper parts to its recorded appearance by hydro-morphic processes. Context (3) is a strong brown clay. It belongs to the Kellaways Clay Member from the Mid-Jurassic Kellaways Formation. The typically dark grey mud-stone has been altered in its upper parts to its recorded appearance by hydro-morphic processes.

4.3.4 Above context (3) is a light olive brown silty clay with strong brown and fine light bluish grey small mottles (3a). It is the weathered upper member of the natural. Its upper contact forms the base of the tree-throw hole.

4.3.5 The topsoil type sediment (26) derives from a well developed humus-rich brown soil, structured into weak, sub-angular blocky soil peds with a random inclusion of charcoal fragments. The abrupt contact shows that this soil has not formed *in situ*. It was deposited at the base of the feature as a bulk sediment body, since it showed no sorting or lenses that related to washing in of a heterogeneous material. Thus context (26) is buried topsoil and not an *in situ* palaeosol.

4.3.6 Context (40) is a fine-grained sediment that is seen as an initial washed-in sediment preceding or opening the process that formed the upper, mixed washed-in deposit (23).

4.3.7 Context (23) is the uppermost fill of the feature. This fine-grained sediment may have been washed into the hollow. Lenses of sandy and clayey silt included in the deposit are of similar composition to the subsoil and are interpreted as clasts of subsoil that fell from the sediment adhering to uprooted tree roots, while fine sediment was washed into the hollow, possibly during a down-pour event.

4.3.8 The uppermost unit of the monolith (2) represents the local subsoil. It represents the B-Horizon of the local soil formed by soil formation processes. Remarkable is the presence of fine sand in the subsoil, given that the natural does not contain any sand and that all other fills, except for contexts (23) and (26), are poor in sand. Possible sources for the sand in the subsoil are a quaternary sand influx or residual sand from the removed upper member of the KELLAWAYS FORMATION.

Conclusions

4.3.9 Fill 26 is not a buried soil layer. It is a topsoil type sediment that has been deposited at the base of a sequence of fills. The fine texture of the upper fills suggests that they have been washed into the depression, with the addition of some clasts of subsoil material. This finding is consistent with the proposed interpretation of feature 22 as a tree-throw hole, as suggested by its shape and the build-up of its deposits.

5 Discussion

5.1.1 The excavation found no evidence for continuations of the known late Iron Age-early Roman settlements to the south or the Saxon settlement to the north, but instead uncovered activity dating from other periods. The remains comprise a group of tree-throw holes containing a significant assemblage of late Mesolithic flintwork, a possible Bronze Age enclosure, and two early-middle Iron Age pits. All of these features are rare finds in this part of the county.

5.1.2 The Mesolithic material is typical of the ephemeral remains left by the temporary camps that characterise the hunter-gatherer lifestyle of this period (Hey with Robinson 2011, 193). Late Mesolithic sites are rare in this part of Oxfordshire, in contrast to remains from the earlier part of the period, which have been recorded nearby at Bicester Fields Farm and Slade Farm and to the south at Merton (Cromarty *et al.* 1999, 157; Ellis *et al*. 2000, 258; Bradley *et al*. 1997, 82). This is the reverse of the usual distribution in the Thames catchment area, in which later Mesolithic sites are generally more numerous and encompass a wider range of geological and topological locations (Hey with Robinson 2011, 208).

5.1.3 Mesolithic sites are more commonly identified from surface scatters of worked flint or from residual material in later features, although a similar example of deposition within a tree-throw hole, albeit dating from the earlier part of the period, has been found at Bicester Fields Farm (Cromarty *et al.* 1999, 157) and a few other instances are known elsewhere within the Thames Valley (Hey with Robinson 2011, 215). How the material became incorporated into the features is uncertain, although in the case of tree-throw hole 61 the sheer size of the flint assemblage indicates that it was deposited deliberately. It is possible that such deposition represents the ritualised placing of offerings, and may represent the origin of the Neolithic practice of placing deposits in deliberately dug pits, although the Mesolithic deposits lack the clear structuring that characterises some of the Neolithic examples (Lamdin-Whymark 2008). The assemblages from the other tree-throw holes were much smaller and are more typical of material that has been incorporated within the feature incidentally.

5.1.4 The large size of the assemblage and the fresh condition of the flints suggest that the material had not moved far from where it was created and used, and that it represents the detritus from occupation in the immediate vicinity. A range of activities appear to have been carried out here, including the manufacture and repair of tools and processing activities utilising flint tools. There is some evidence for small numbers of microliths may have used as the points for arrows. The overall bias towards debitage over cores suggests that some pieces that were produced on site had been taken away for use elsewhere, emphasising the role of this site in what was no doubt a network of interconnected, task-specific sites spread across the landscape.

5.1.5 Fragments of burnt hazelnut shell were recovered from six of the nine soil samples from the tree-throw holes. These are likely to have derived from consumption of the nuts and such remains are a common find on sites of this period and represent one of the few Mesolithic foodstuffs for which definite evidence has been recorded (Hey with Robinson 2011, 199). The only other possible evidence for diet was provided by the cattle bones from tree-throw hole 22. It is unfortunate that it was not possible to determine whether the bones were from domesticated cattle or aurochs: the former would indicate that the feature was of later date than had been assumed, and that the Mesolithic flint within it was residual, whereas the latter would provide possible evidence for hunting of aurochs during the Mesolithic. Such hunting has been evidenced elsewhere, as for example at Thames Valley Park, Reading, where the butchered remains of an aurochs were discovered in a palaeochannel (Barnes *et al*. 1997, 97-9)

5.1.6 It is not possible to be certain whether the tree-throw holes were the result of trees being blown over by the wind or the result of deliberate felling. It is, however, likely that Mesolithic hunter-gatherers managed their environment to some extent by creating clearings in the Wildwood or maintaining natural openings (Hey with Robinson 2011, 218-9). The most convincing evidence for deliberate felling comes from deposits of charcoal within tree-throw hole fills. This is presumed to derive from the burning of the roots of trees (Barclay *et al*. 2003, 66), but it was not present in significant quantities in the features on this site. Trees are most vulnerable when they are situated at the edge of an existing clearing, as they are exposed to the full force of the wind (Hugo Lamdin-Whymark pers comm) and, in the case of deliberate felling, the clearing provides space into which the tree could be pulled (Barclay *et al*. 2003, 67). The presence at Bicester Village Coach Park of a group of tree-throw holes in close proximity may therefore suggest that the site lay on the edge of a clearing, whether man-made or natural in origin, within which the camp was situated. A single crested blade among the very small and otherwise unremarkable flint assemblage from 61 Priory Road may indicate that the camp extended to the north-east.

5.1.7 The identification of ditches at the southern end of the site possibly forming three sides of a Bronze Age enclosure is tentative, since the junctions of the ditches were not uncovered and thus it was not demonstrated that they formed part of a single enclosure. The dating is based on the admittedly scanty evidence of two pieces of pottery. The similarity of the form and fill of the three ditches, however, strongly indicated that they were associated. Although their wide, shallow profiles are similar to those of medieval plough furrows, no other evidence has been identified for ridge and furrow cultivation in this area, either at this site or at the other excavations nearby. The investigation of the ditches was limited to a single intervention in each. The only finds were two small sherds of pottery, one possibly from a Beaker and the other possibly from a Deverel-Rimbury vessel. Neither sherd could be identified with certainty. There was also a small fragment from a hollow cast copper alloy object that was too small to be diagnostic and provided no dating information. A date during the Bronze Age and probably from the middle part of the period seems most likely.

5.1.8 The paucity of occupation material, either in the form of artefacts or of charcoal incorporated into the ditch fill, and the absence of associated structures or features, suggest that the enclosure had a non-domestic function, perhaps as a corral for livestock. The enclosure ditch was clearly too insubstantial to form an affective barrier for such a function, but it may have been supplemented by a bank or hedge that has left no archaeologically detectable trace. That a substantial ditch was not necessarily required is demonstrated by a late Bronze Age site at Plumpton Plain, Sussex, where the banks enclosing a group of settlements were apparently constructed using soil scraped from the surface of the interior (Holleyman and Curwen 1935).

5.1.9 The evidence for Bronze Age occupation in Oxfordshire is mostly concentrated within the Thames Valley, and none has been excavated in the Bicester area. Enclosures of this date that are comparable in form with the Bicester example are particularly rare, and appear to encompass a range of functions. The closest parallel, at least in geographic terms, is at Corporation Farm, Abingdon, where a settlement was set within a large rectilinear enclosure, to which annexes were subsequently added (Shand *et al*. 2003, 37-40). The evidence for structures within the enclosure and the quantity of artefact recovered from the enclosure ditch, however, suggest that this site was very different to the one at Bicester. Perhaps more similar is an oval enclosure at Latton Lands, Gloucestershire, which could only be dated broadly to the late Neolithic-early Bronze Age (Powell *et al*. 2009). As at Bicester, the enclosure ditch was not particularly deep and was wide in relation to its depth and yielded little artefactual material although localised deposits of a cattle skull, a complete late Neolithic-early Bronze Age miniature vessel and sherds of a decorated Aldbourne Cup were recovered from the ditch terminals. The excavators suggested a ritual function for the enclosure. This extensive site also uncovered other evidence for possible rectilinear enclosures in the form of an L-shaped ditch and a similarly shaped structure defined by postholes. Similar L-shaped ditches have also been excavated at Eynsham Abbey and Latton Lands (Barclay *et al*. 2001; Powell *et al.* 2010).

5.1.10 Alternatively, it is possible that the ditches did not form an isolated enclosure but were part of a more extensive field system. Large areas of the gravel terraces of the Thames Valley were divided in this way during the middle Bronze Age, with particular concentrations around Didcot and Dorchester-on-Thames (Lambrick with Robinson 2009, 79-80). It would, however, be very unusual to find such a system as far from the river as Bicester.

5.1.11 The animal bone and possible hearth debris from middle Iron Age pit 49 may suggest that it was situated close to an area of settlement, although there is little other evidence to support this and contemporary activity is absent from the other excavations in the vicinity. It is quite possible that the material derives from an isolated episode that was located away from contemporary settlement.

5.1.12 The absence of features of Saxon date is significant in relation to the development of Bicester at this time. Blair (2002) has postulated that the town originated as a minster church situated to the west of the River Bure with an associated lay settlement on the opposite bank. A ditch interpreted as forming part of the eastern side of the enclosure around the minster has been identified at Proctor's Yard (Hull and Preston 2002) and part of the settlement was excavated at Chapel Street (Harding and Andrews 2002), both sites lying *c* 200m north of the current site. The southern limit of the settlement has not been identified (Harding and Andrews 2002, 172), but the results of the excavation at Bicester Village Coach Park indicate that it did not extend this far south, although three ditches possibly of late Saxon date have been recorded immediately to the north at 61 Priory Road (Wallis 2009).

5.1.13 Evidence that was attributable to the medieval and post-medieval periods was limited to a single medieval pit and possibly animal burial 46, although the dating of the latter is not precise. This paucity of activity is consistent with the location of the site beyond the limits of the town during these periods. The evaluation was hampered by flooding of the trenches in the southern part of the development area by groundwater and recorded alluvial deposits in this area (TVAS 2006), and it is possible that the site was historically situated on the edge of marshy ground associated with the adjacent River Bure. It is only since the mid 20th century that the expansion of the town has resulted in the development of this area, principally for light industrial and retail use.

5.1.14 The alignment of ditches 88 and 90 suggests that they were associated with the adjacent turnpike road to Aylesbury and thence to London, with ditches 32 and 85 perhaps forming field boundaries that branched off its southern side. The pottery from these features dating their backfilling to the 19th century, which would be consistent with the disuse of the route after it was effectively severed to the south-east of the town by the construction of the railway in 1850.

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Appendix B. Summary of Site Details

Site name: Bicester Village Coach Park

Site code: BIV13

Grid reference: SP 5846 2197

Type: Excavation

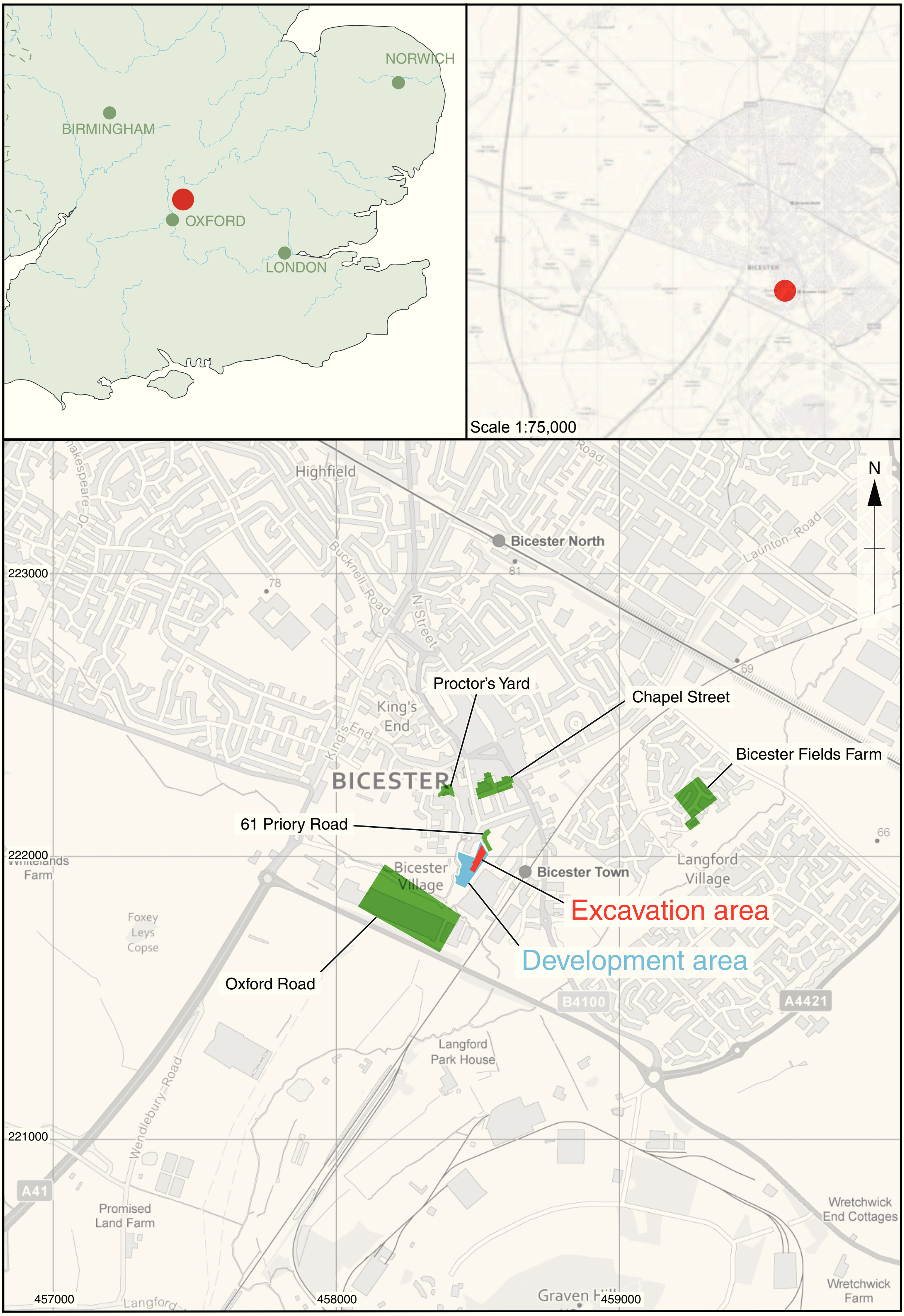
Date and duration: 7th-26th March 2013

Area of site: 0.2ha

Summary of results: The excavation found a group of tree-throw holes containing a significant assemblage of late Mesolithic flintwork, a possible ditched enclosure of Bronze Age date and two early-middle Iron Age pits.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with Oxfordshire Museum Service in due course under accession code OXCMS: 2013.22.

invoice_codes_a-h*BIV13*BIVPX*Bicester Village Coach Park*MD*26.2.14



Scale 1:20,000

Figure 1: Site location

Figure 2: The northern end of the site during stripping of overburden

Figure 3: Tree throw hole 61 during excavation

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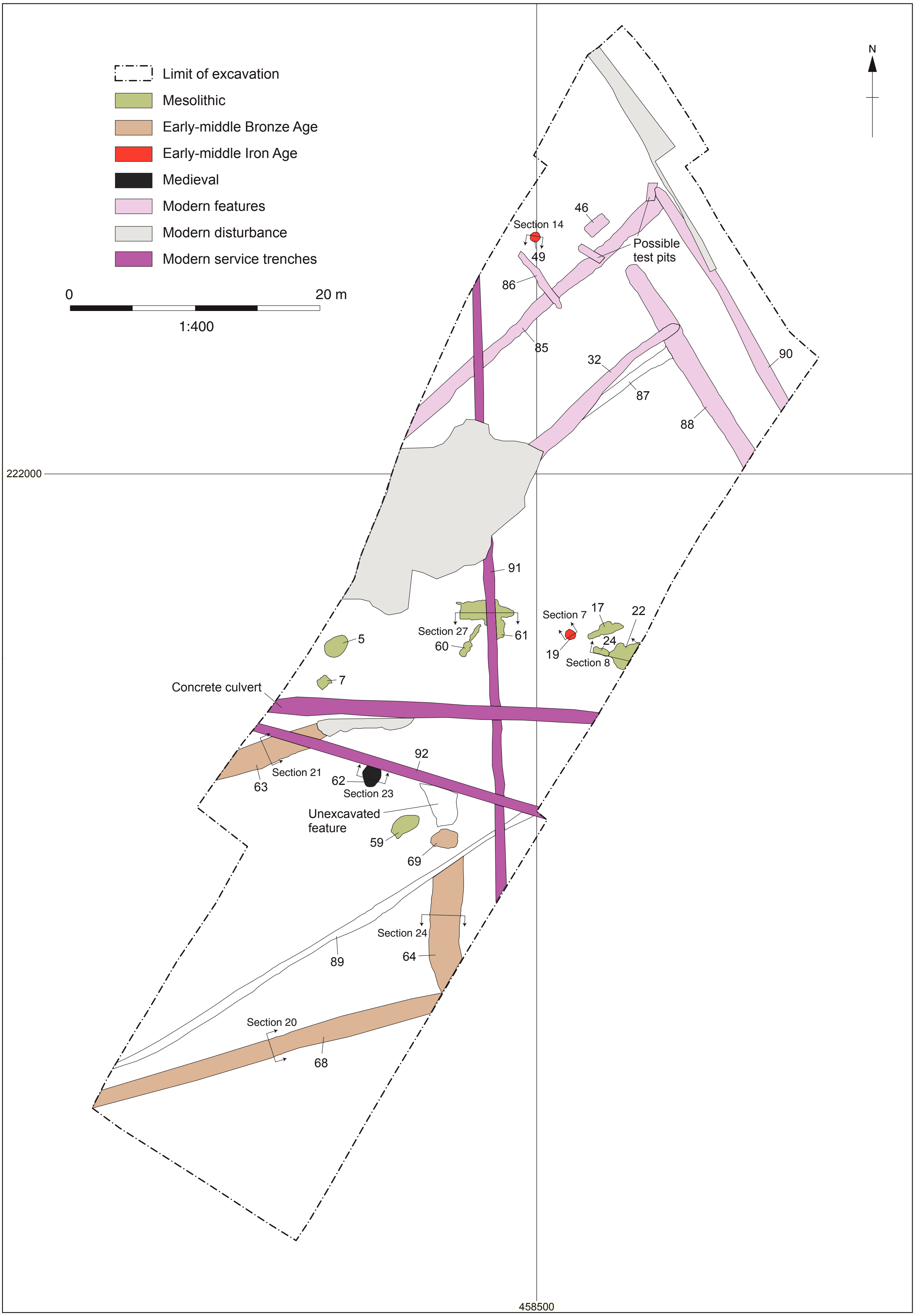

Figure 4: Plan of all archaeological features

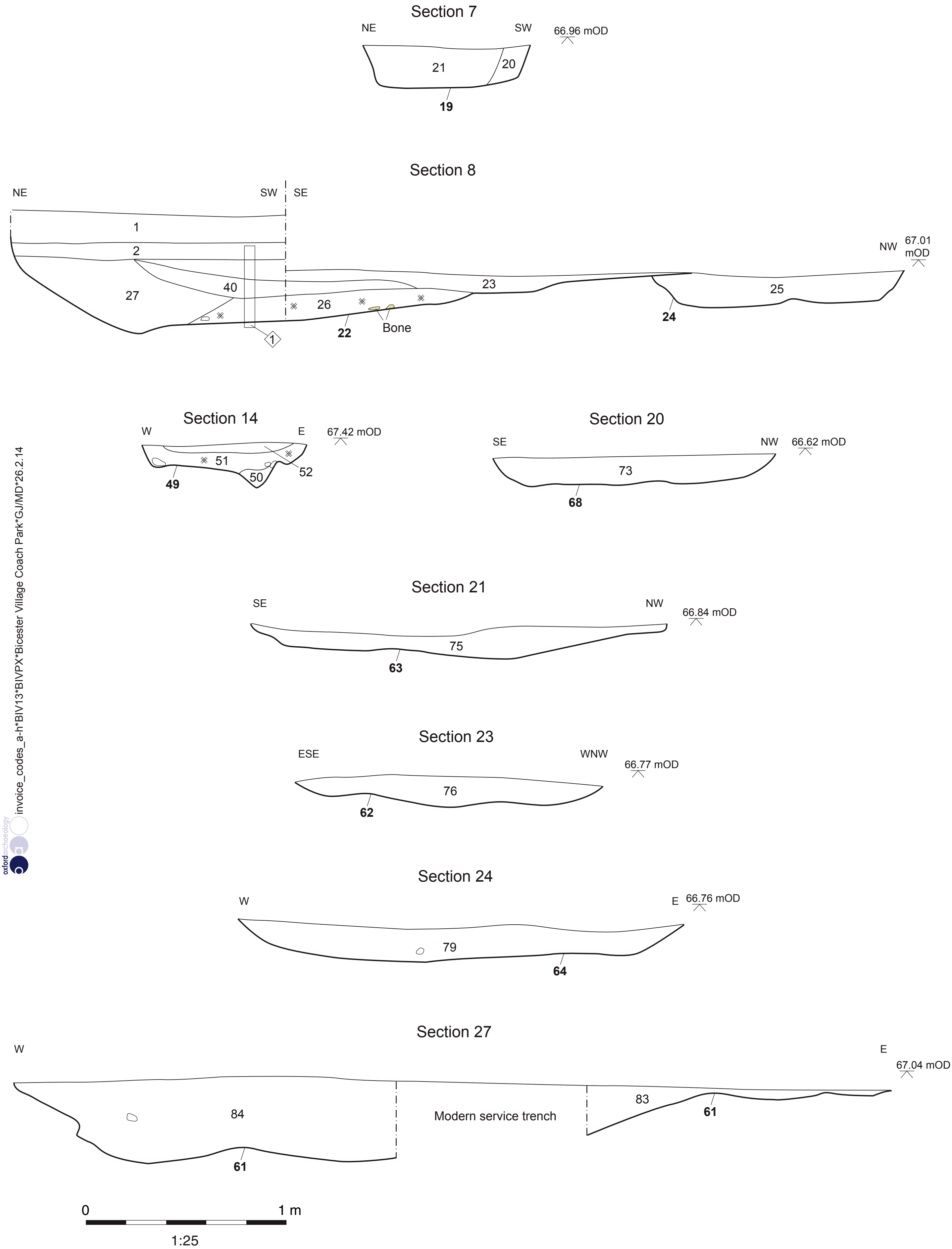

Figure 5: Sections of selected features

Figure 6: Soil samples being taken during excavation of tree throw hole 61

Figure 7: Tree throw hole 22

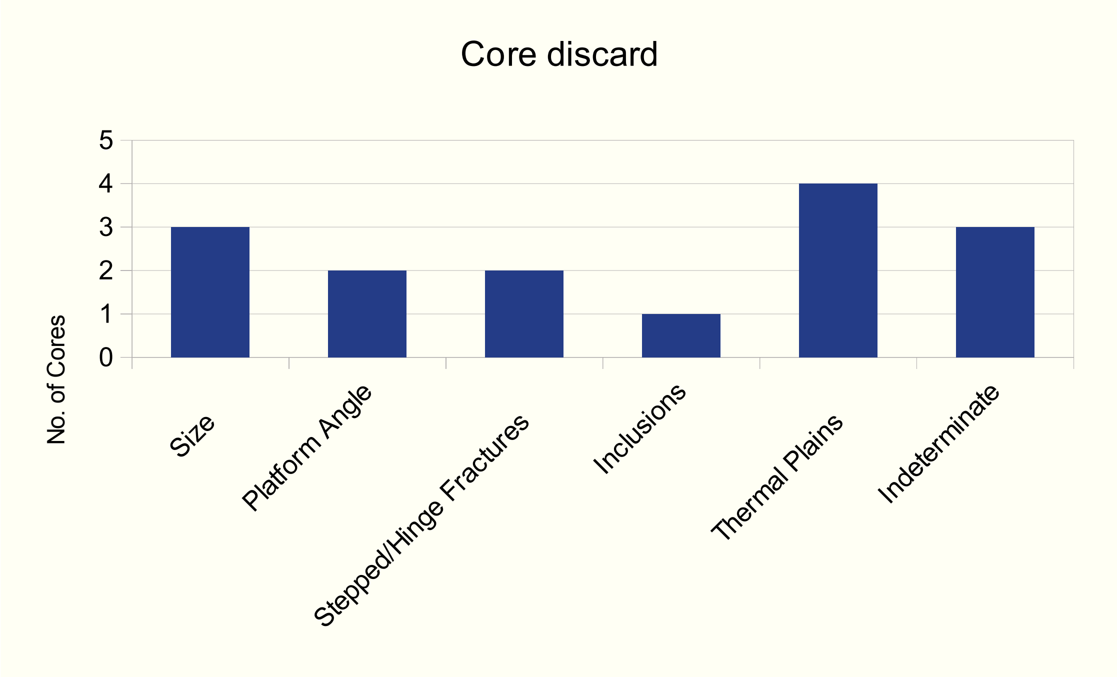

Figure 8: Possible reasons for core discard

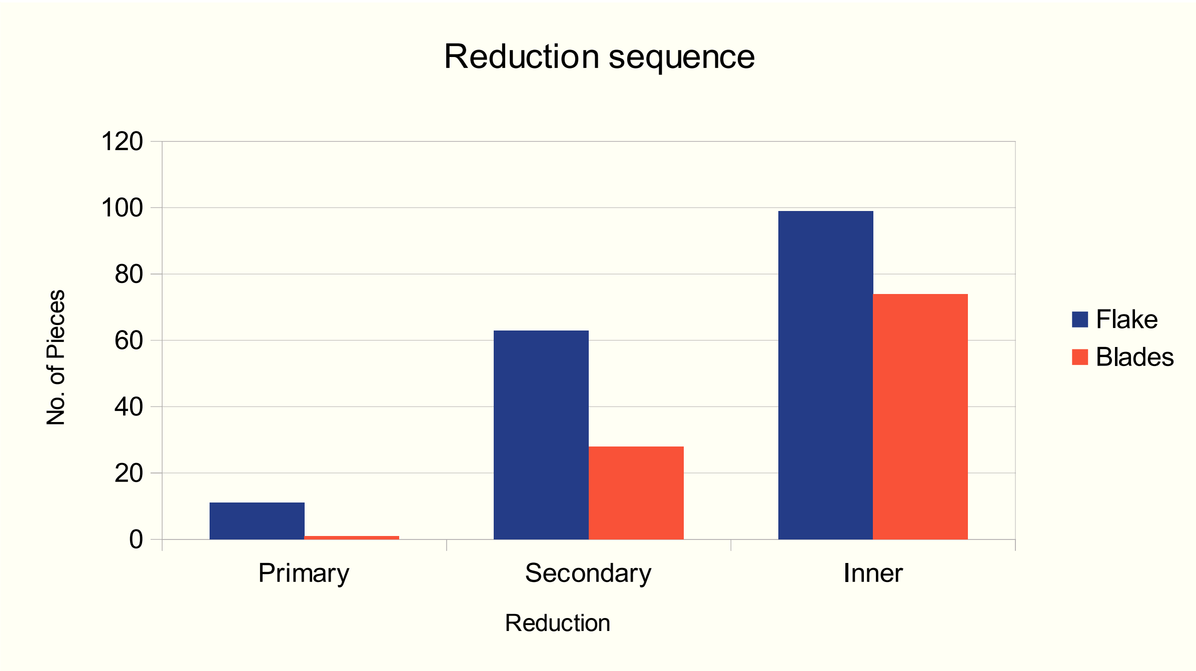

Figure 9: The representation of the complete blade and flake debitage in a general reduction sequence

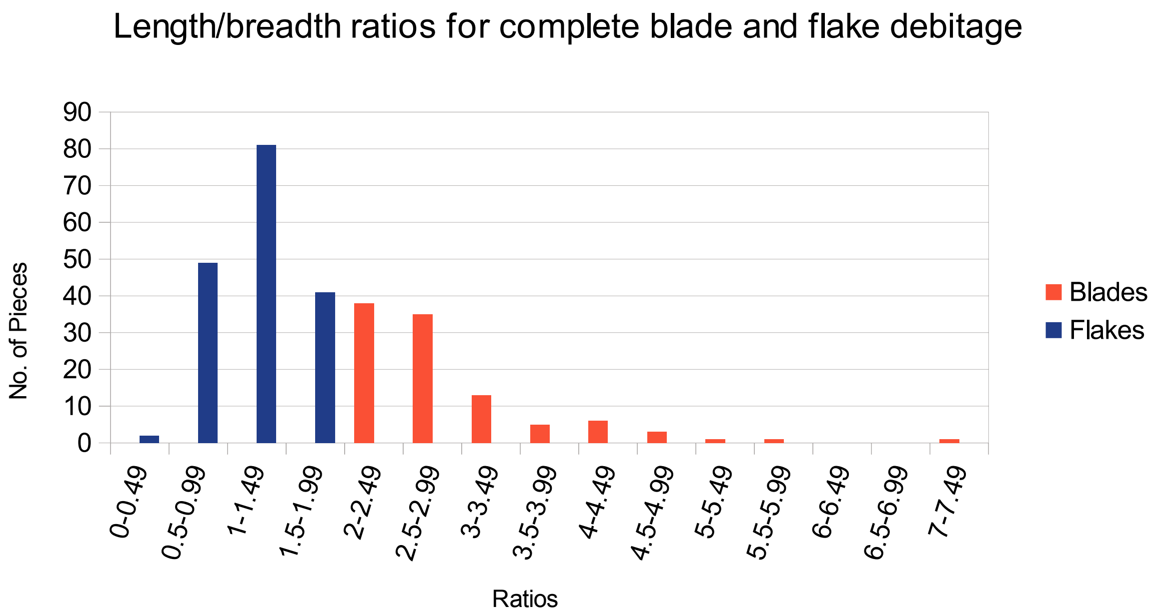

Figure 10: Length/breadth ratios for complete blade and flake debitage

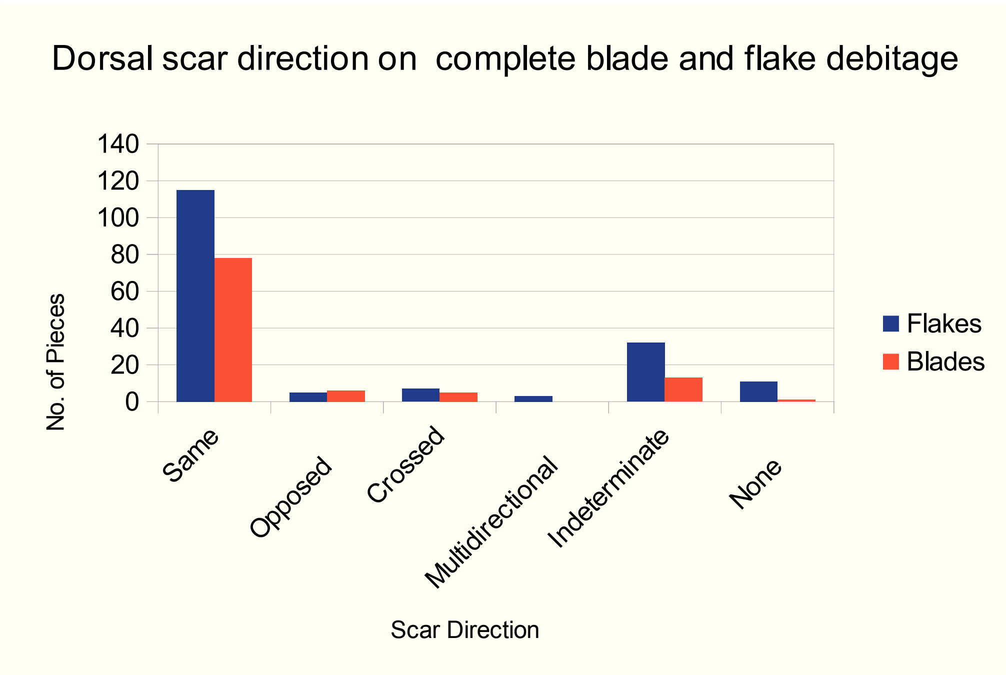

Figure 11: Dorsal scar direction on complete blade and flake debitage

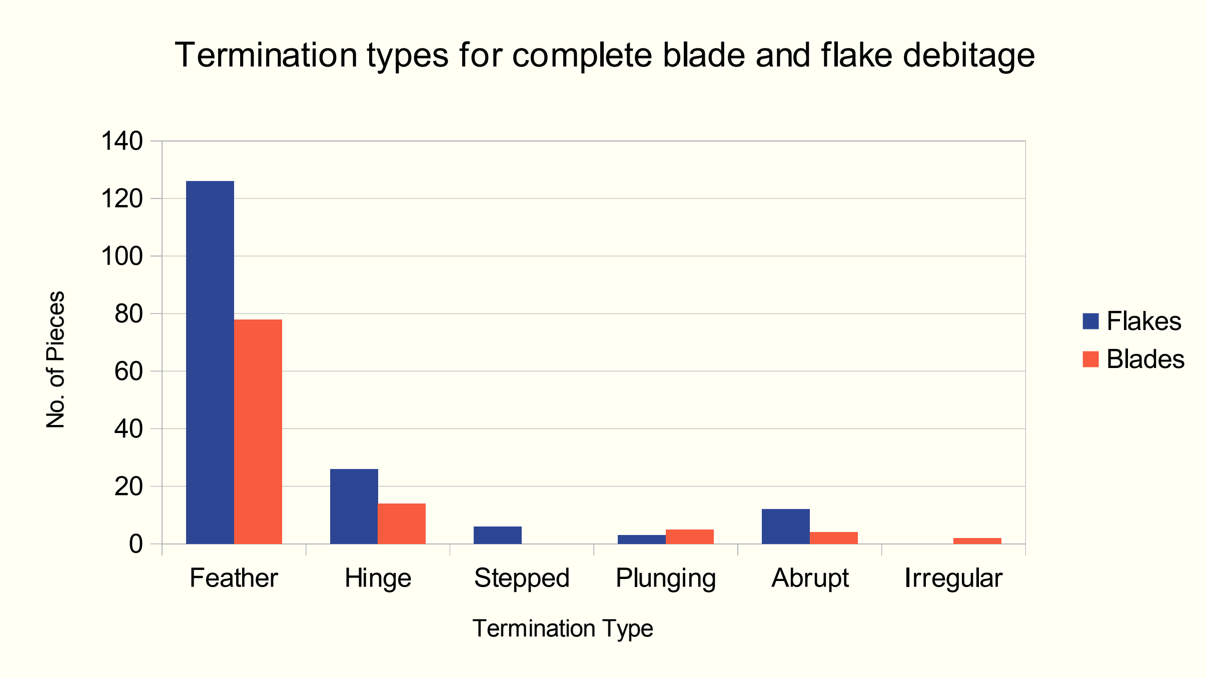

Figure 12: Termination types for complete blade and flake debitage

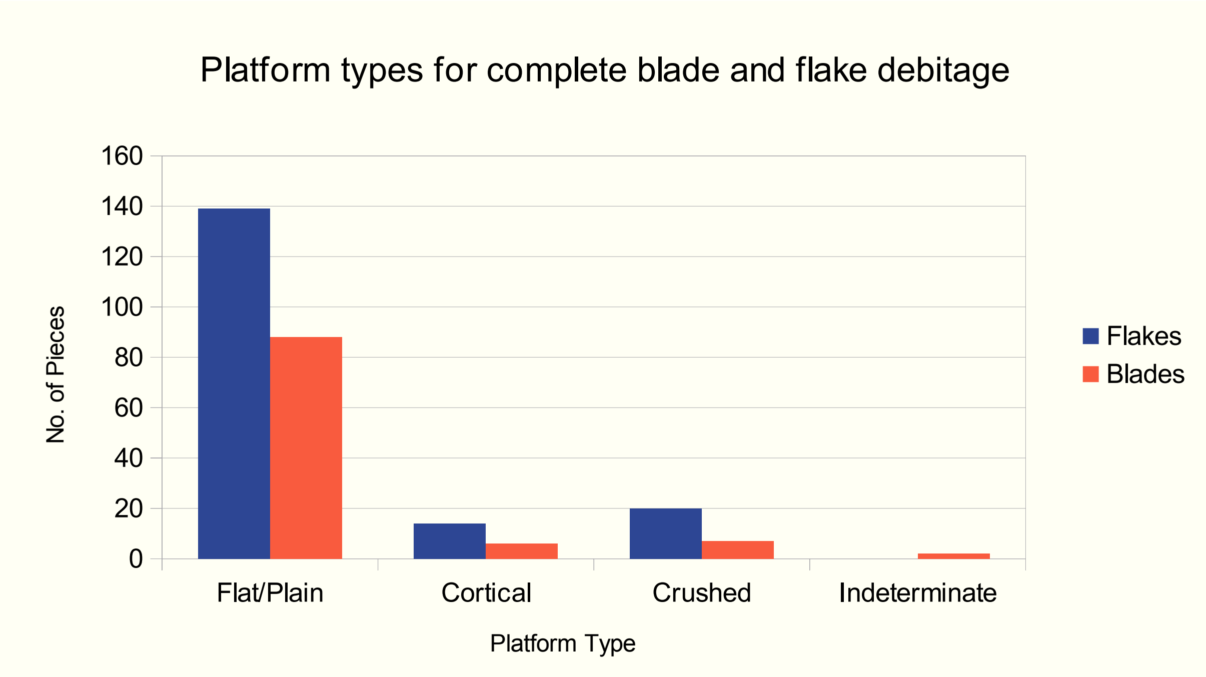

Figure 13: Platform types for complete blade and flake debitage

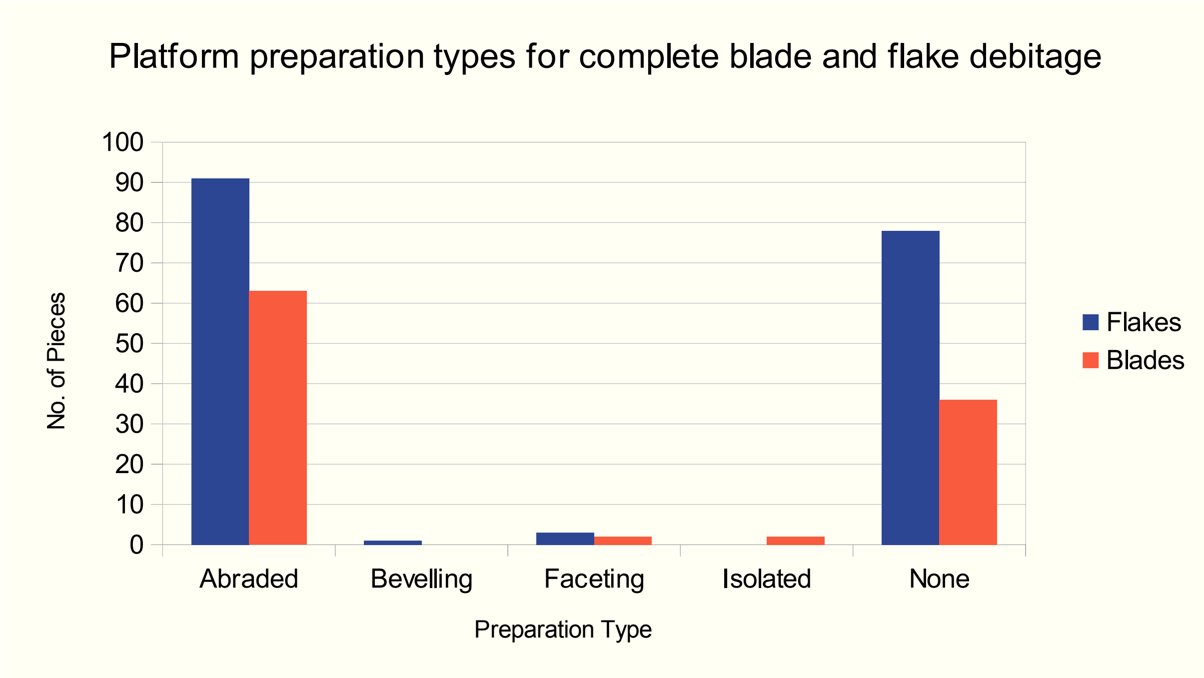

Figure 14: Platform preparation types for complete blade and flake debitage

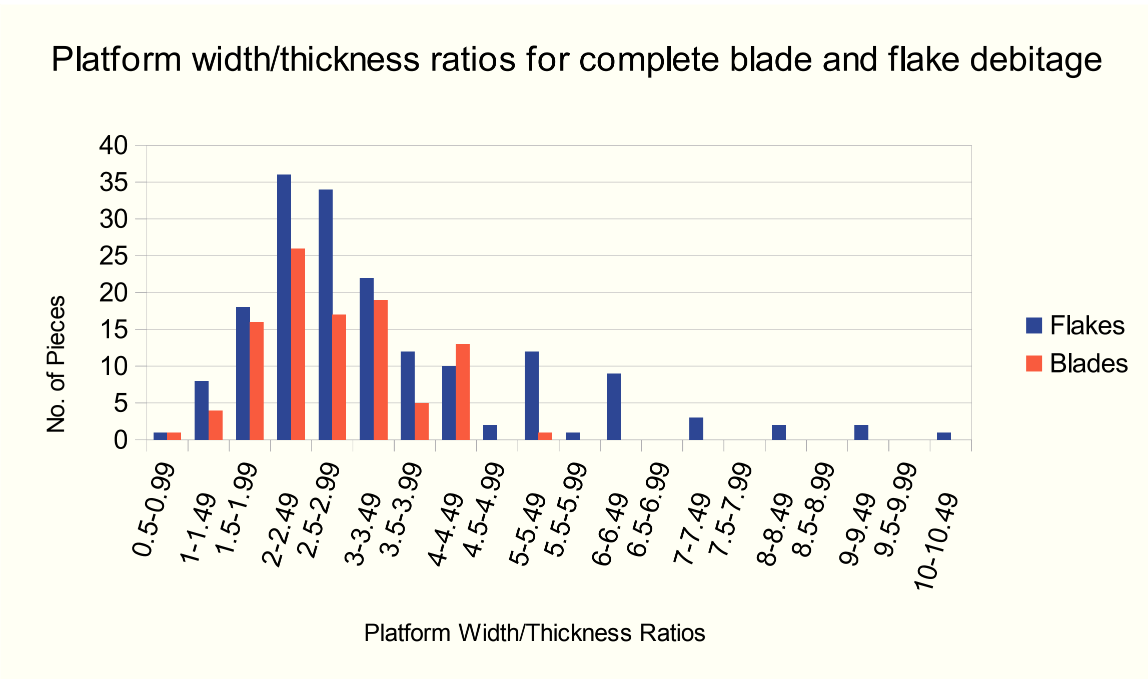

Figure 15: Platform width/thickness ratios for complete blade and flake debitage

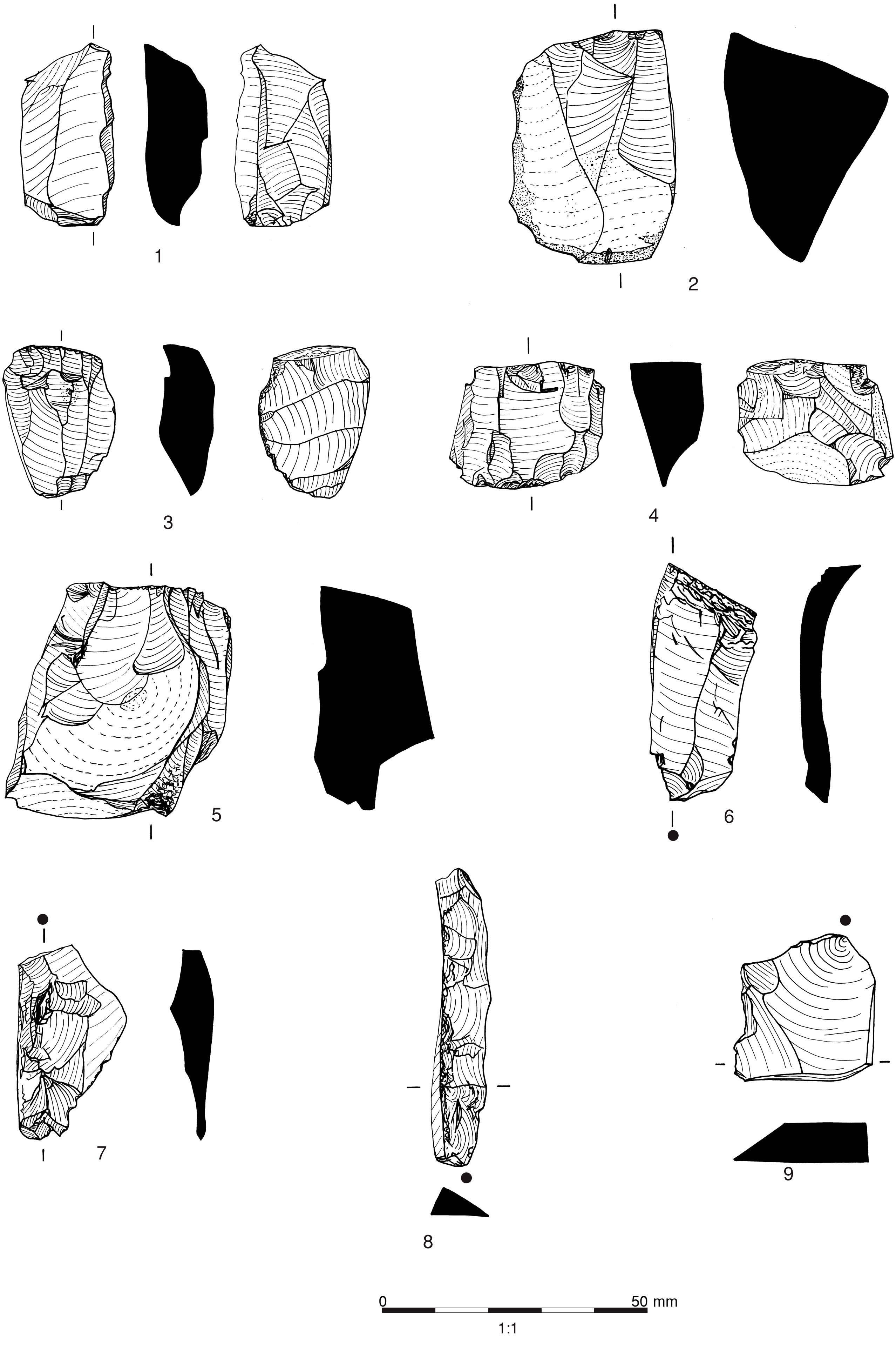

Figure 16: Worked flint: core technology and core dressing

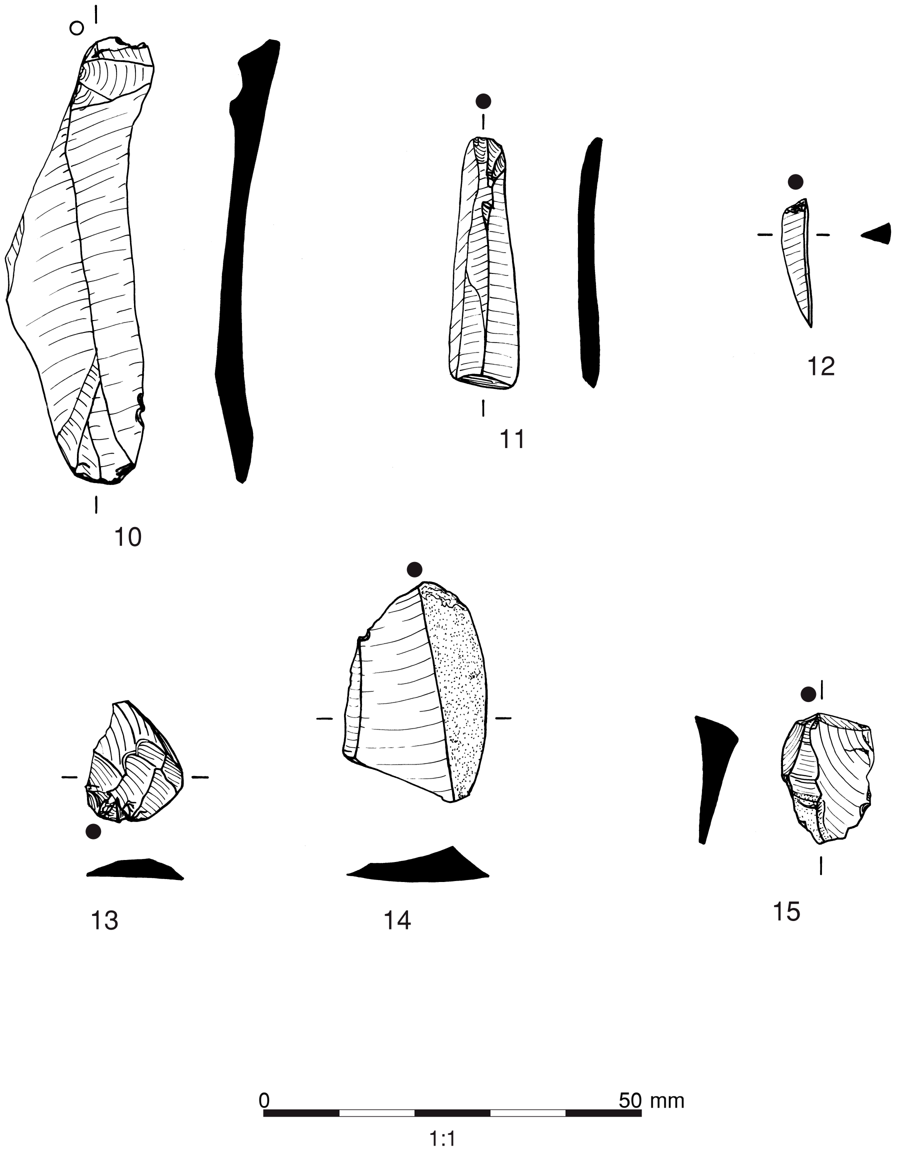

Figure 17: Worked flint: debitage

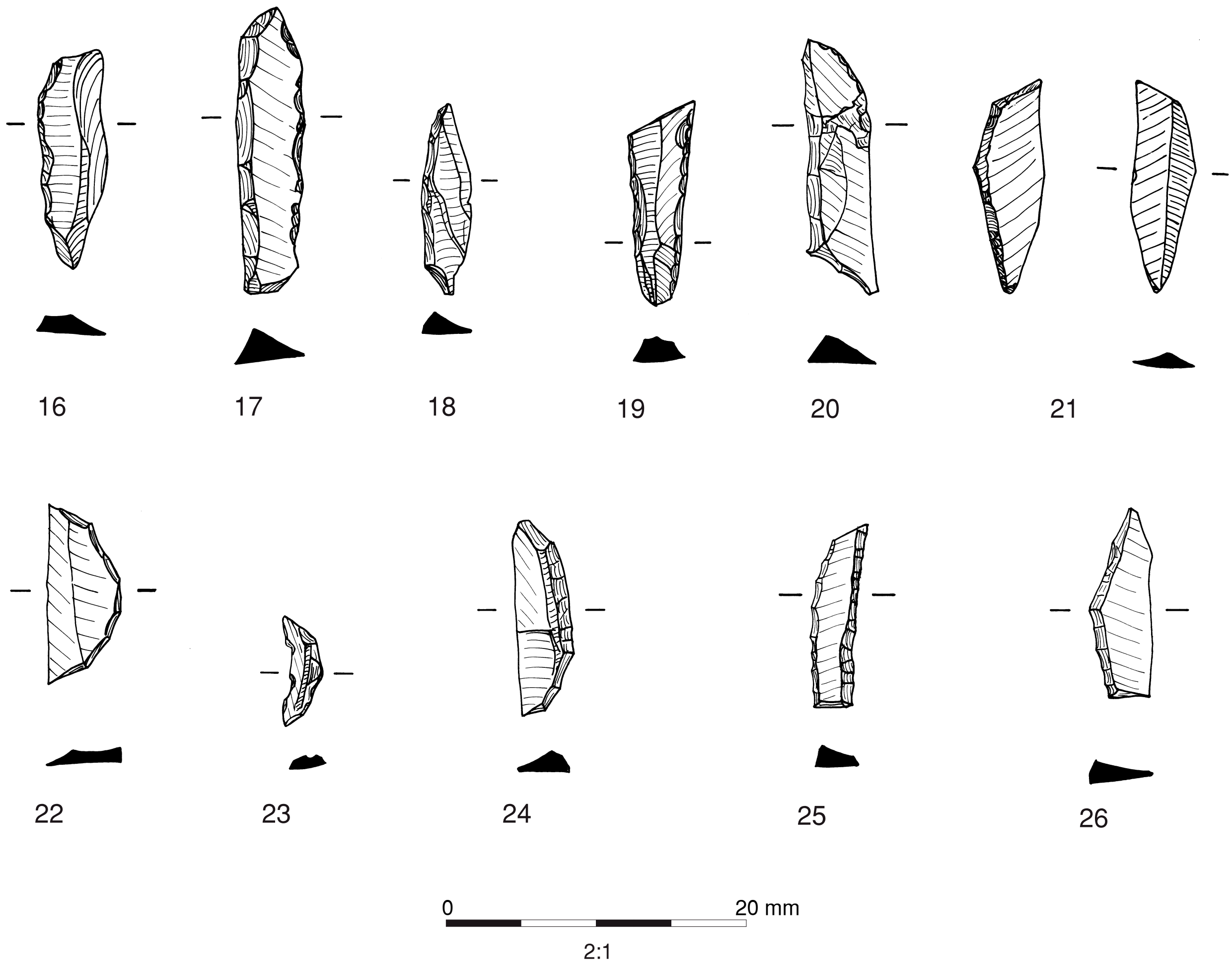

Figure 18: Worked flint: microliths

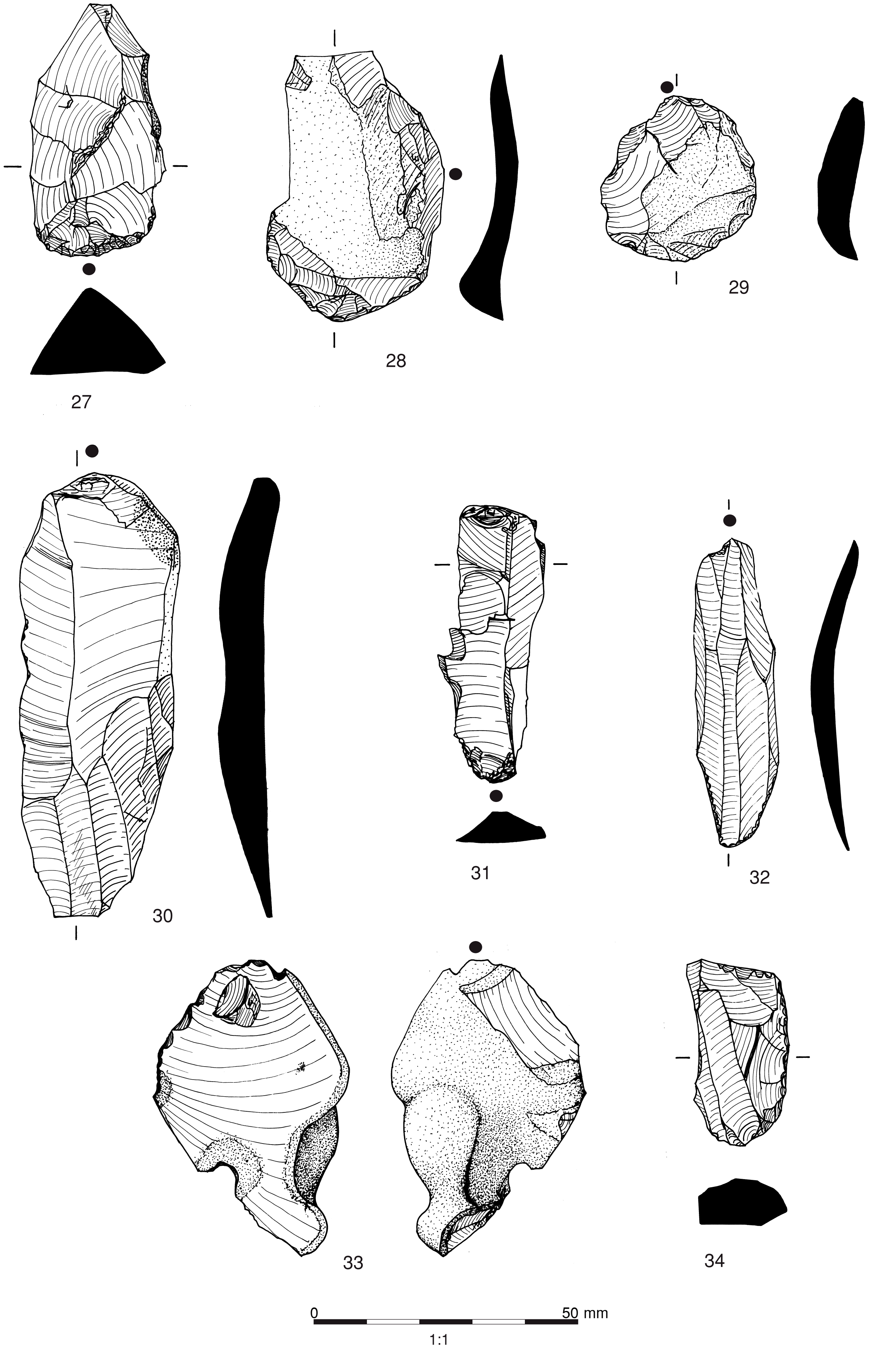

Figure 19: Worked flint: non-microlithic retouch

Figure 20: Monolith sample through tree throw hole 22, showing soil layer 26

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