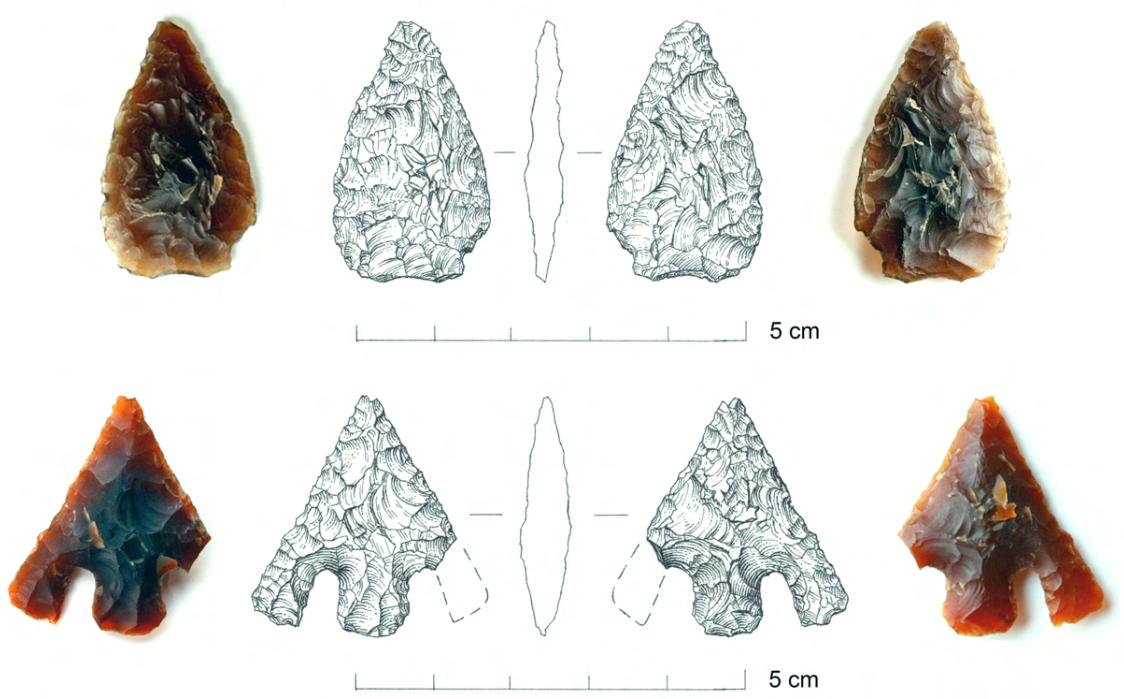
Lithic artefacts from excavations at Minchery Farm Paddock, Littlemore, Oxford

Prepared for the East Oxford Archaeology and History Project



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Introduction
This report summarises the results of an analysis of lithic artefacts recovered during excavations at Minchery Farm Paddock, Littlemore, in 2012 (MP12). This analysis was completed for the East Oxford Archaeology and History Project, or ARCHEOX. ARCHEOX is a community archaeology project hosted by Oxford University's Department for Continuing Education, and funded by the Heritage Lottery Fund and Oxford University's John Fell Fund.

The MP12 lithic assemblage indicates a human presence on the MP12 site, definitely between the Early Neolithic and Early Bronze Age (c. 4000-1500 BC), and potentially as early as the Mesolithic (c. 9000-4000 BC). This fits with wider patterns of inhabitation evidenced by archaeological investigations on neighbouring sites. Beyond the traces of daily life evidenced by the majority of the assemblage, the finely flaked barbed and tanged arrowhead from trench 2 is potentially a non-functional high status artefact used in a ritual or funerary context.

Analysis and methodology
The following analyses were undertaken to determine the character and chronology of the MP12 lithic assemblage:

- **Typological analysis** was conducted to give information about when the assemblage was created and the kinds of activity that created it. All artefacts were classified by type. Where possible the definitions set out in the unpublished draft of the Lithic Society's *'Post Glacial Lithic Artefacts: Introduction and Glossary'* and Butler (2005) have been adhered to. Only where these definitions proved inadequate for categorisation of the assemblage have new type classes been given.

- **Raw material** colour and type was recorded. This gives information about the scales of mobility, interaction, and trade/exchange of the communities who created an assemblage. It can also indicate whether certain raw material types or colours were selected for specific uses.

- The presence/absence of **burning** was recorded for each artefact. It has been suggested that distribution, and/or, proportion of burnt stone, in conjunction with the distribution of other tools, can be used as an indicator of domestic activity within a lithic assemblage (Edmonds *et al.* 1999, 54; Richards 1990).

- Artefact **weight** gives an alternative to artefact count for quantifying aspects of a lithic assemblage. Weight was measured to the nearest gram.

- The stage of **reduction sequence** for each artefact was inferred from the extent of cortex (the original outer surface of a flint nodule/pebble) surviving on its **dorsal face**. This surface layer, modified by physical and/or chemical action, is more difficult to work than the 'fresh' material in the centre of a nodule (Andrefsky 2008, 103). Based on the assumption that the first stage in the reduction of any block of raw material would have been the removal of the cortex, the amount of cortex on the dorsal face of an artefact can be used to indicate the stage of the stone working process or reduction sequence that it represents (Andrefsky 2008, 103). Simply put, the more cortex remaining on the dorsal surface of an artefact, the earlier in the stone working process it belongs. In this analysis each artefact

was assigned to 1 of 6 classes according to the percentage of cortex surviving on its dorsal face.

- The shape of **dorsal scars** on each artefact was recorded. The size and shape of lithic debitage has the potential to indicate assemblage chronology. Several authors (for example, Smith 1965; Pitts and Jacobi 1979; Ford 1987; Ford *et al.* 1984 and Edmonds 1995) have suggested that certain aspects of lithic artefact morphology, principally the shape of artefact blanks, are chronologically sensitive. They propose a change from proportionally long, narrow, thin blades during the Mesolithic to proportionally shorter, wider, thicker flakes by the end of the Early Bronze Age. Within this framework the presence of a significant blade-based component in an assemblage is seen as indicative of *early*, probably Mesolithic or Early Neolithic, activity. Similarly a significant flake-based component is likely to reflect *later*, potentially Neolithic/Early Bronze Age, activity. Rather than conducting a full chronometric analysis of the debitage component of the current assemblage (after Bond 2006; Snashall 2002; Ford 1987; Ford *et al.* 1984), a more expedient approach was adopted with the current assemblage. Here dorsal scar morphology was used as a crude chronological indicator on all artefacts. Effectively the presence of blade-based stone-working practices was taken as being indicative of *early* (Mesolithic or Early Neolithic) activity.

All prehistoric lithic artefacts recovered from the MP12 excavations appear to be residual material redeposited within Medieval and Post-Medieval contexts. For the purposes of this analysis all lithic artefacts are treated as a single unstratified assemblage, although where apparent, spatial reference is made to any spatial patterning.

Chronology, typology and activity

The analysed assemblage consists of 59 pieces of flaked stone with a combined weight of approximately 557g. Table 1 gives a typological and chronological breakdown of the assemblage. The assemblage consists of 43 pieces of unmodified debitage and 16 pieces with macroscopic traces of retouch or utilisation. Of these retouched pieces 2 are individually chorologically diagnostic and can be assigned a date range with a high degree of confidence. .

- *Early Neolithic – 4000-c. 3400 BC* (see figures 1 and 2)
  A single Early Neolithic leaf-shaped arrowhead (small find 142) was recovered from pit fill (2057) in trench 2. A single c14 date from this deposit of 1035-1186 cal. AD suggests that this Neolithic artefact has been removed from its original depositional context and redeposited in the fill of Medieval pit [2058]. The arrowhead has maximum dimensions of approximately 34mm long, by 20mm wide, by 2mm thick and weighs 2.7g. It is struck from a translucent dark to mid grey non-cortical flint. It has extensive invasive retouch to both faces. None of the surfaces of the original flake-blank remain. The tip of the arrowhead is missing, as is 1 of the corners of the base. A slight hinge fracture and truncated removal scars suggest that the very base of the arrowhead may also be missing. It is most similar in form to Green's class 3A (1980, 71).

- *Early Bronze Age 2500-1800 BC* (1 and 3)
  A single Early Bronze Age barbed and tanged arrowhead (small find 2) was recovered from layer (2000) in the southern area of trench two. This context

occurs immediately under the turf and overlies the top of Medieval deposits. It is considered likely that this artefact has been disturbed from its original depositional context during the construction/use of the priory and has been redeposited within Medieval/Post Medieval deposits. The arrowhead has maximum dimensions of approximately 31mm long, by 27mm wide, by 6mm thick and weighs 3.2g. It is struck from a mid-orange, non-cortical flint. It has extensive fine invasive retouch to both faces with none of the surfaces of the original flake-blank remaining. The very tip of the arrowhead is missing, as is 1 of the tangs. The symmetry and balance of the artefact in all dimensions is striking. The arrowhead displays very fine retouch, a concave base profile and both squared barbs are slightly shorter than the tang. It most closely resembles Green's Conygar Hill type (1980, 123).

The broad Early Neolithic to Early Bronze Age date range indicated by these 2 distinctive artefacts is also reflected in many of the less diagnostic elements of the retouched and debitage components of the assemblage. This includes a small number of retouched flakes, notched flakes and scrapers, as well as by the flake-based reduction sequences that dominate the assemblage. However, in addition to this later material there are hints of earlier potentially Mesolithic or Early Neolithic date, including 1 retouched and 2 utilised blades. This potentially earlier element is further evidenced by an analysis of dorsal scar morphology on all artefacts (see table 2), which shows that 31% of the assemblage has traces of a blade-based reduction sequence.

Taken as a whole the assemblage reflects the manufacture, maintenance, use and discard of a range of stone tools spanning several millennia. The presence of scrapers, retouched/utilised blades and flakes all suggest a range of cutting and scraping tasks, reflecting the activities of daily life. The 2 arrowheads potentially expand this suite of activities to include hunting. However, the high quality of manufacture of the barbed and tanged arrowhead suggests that it may have had a non-utilitarian use. It fits closely with Devany's (2005) classification for *ceremonial* as opposed to *domestic* arrowheads. Devany (2005,16) notes that finely worked barbed and tanged arrowheads generally display fewer traces of use/post-depositional damage than cruder *domestic* examples. She suggests that this is because fine barbed and tanged arrowheads were principally used as grave goods (2005,16). Whether or not this is the case with the current example remains unclear. However, it is possibility that this arrowhead was disturbed from an Early Bronze Age funerary/ritual context and the missing tip and barb are due to post-depositional damage rather than use damage.

Only 3 artefacts, all from trench 3, display any signs of burning (see table 3). Several unworked modern pieces of nodular flint were observed in trench 3 some of which were burnt. It is possible therefore that the burning seen on the 3 artefacts may represent a modern rather than prehistoric event.

Raw material and reduction sequence

All 59 artefacts in the assemblage are struck from flint (see table 4). Where present, areas of cortex on all but one artefacts are relatively unabraded. This suggests that the majority of this material is derived from a nodular flint source, either from within *in-situ* chalk deposits or from clay-with-flints deposits. The closest sources of such raw materials are on, or close to, the Chilterns and the Berkshire Downs at least 15km to the east, south and south-west of Oxford. Only a single piece has areas of water-worn cortex and is derived from a wider range of possible riverine or gravel sources,

potentially much closer to Oxford. As this small fragment of flake core is relatively undiagnostic it is not possible to link the use of this raw material to a specific period.

Table 5 summerises raw material colour. The majority of nodular flint is dark to mid grey in colour (65%). Smaller quantities of brown and orange flint are also present. Mid orange flint is particularly prominent in trench 2. It is not clear whether this colour range reflects the original raw material colour, or is as the result of post depositional staining. The slightly translucent orange flint from which the barbed and tanged arrowhead is made is likely to have been a deliberate aesthetic choice.

As shown in table 6 the majority of the nodular flint retains little or no dorsal cortex suggesting that most of the assemblage represents the mid (47%) and late (37%) stages of the stone working process. However, 16% of the assemblage retains a proportionately higher percentage of dorsal cortex, reflecting some of the earlier stages of the stone working process. It is likely that the very earliest stages of the reduction sequence (extraction and initial core preparation) occurred elsewhere in the landscape, and probably close to the raw material source. Raw materials probably arrived in the area of the MP12 in a minimally prepared state, where they were then further reduced and used in the manufacture of stone tools.

Interpretation and summary

The MP12 lithic assemblage indicates a human presence on the MP12 site, definitely between the Early Neolithic and Early Bronze Age (c. 4000-2500/1500 BC), and potentially as early as the Mesolithic (c. 9000-4000 BC). This fits with wider patterns of inhabitation evidenced by archaeological investigations on neighbouring sites. This includes Late Mesolithic, Neolithic and Bronze Age activity at Oxford Science Park to the west (Moore *et al.* 2001. 198-99), and Mesolithic activity on the Kassam Stadium site (RPS 2001) to the south-east.

The assemblage is likely to have been created by millennia of multiple episodes of inhabitation by at least partially mobile communities. Certainly the evidence of the assemblage's raw materials indicates that the communities that created it were keyed into patterns of movement, contact and exchange that reached beyond the immediate Oxford area. Whittle (1998) proposes a spectrum of different practices from total mobility to complete sedentism that characterised the inhabitation of specific places between the Mesolithic and Early Bronze Age.

An interesting question raised by the assemblage is why did this location see multiple episodes of inhabitation spanning thousands of years. One school of thought on such *'persistent places',* (for example, Barton *et al.* 1995; Foley 1981), stresses economic and environmental factors. As such repeated return to the Minchery Farm area could be due to the continued availability of resources in this slightly elevated location, at the confluence of the Littlemore and Northfield brooks. Another, and not necessarily mutually excusive, explanation emphasises the role of social factors in maintaining the persistence of places (for example, Pollard 1999; 2000; 2005; Tilley 1994). Within this framework, over time, and through repeated episodes of inhabitation, locations developed meaning and history. As such repeated return to prehistoric Minchery Farm may have had as much to do with its associated memories, myths, stories, and traditions, as with its calorific and raw material potential.

Beyond the traces of daily life evidenced by the majority of the assemblage, the finely flaked barbed and tanged arrowhead from trench 2 is a potentially non-functional high status artefact used in a ritual or funerary context.

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	Date	Tr 1	T 2	Tr 3	Total
Unmodified debitage					
Blade (unmodified)	Mesolithic/Early Neolithic		6	2	**8**
Blade Core (fragment)	Mesolithic/Early Neolithic		1	1	**2**
Flake (unmodified)	Uncertain	1	14	9	**24**
Flake core (fragment	Uncertain		1	3	**4**
Flake Core (multi-directional)	Uncertain		2		**2**
Chip	Uncertain		1		**1**
Chunk	Uncertain			2	**2**
Retouched/utilised pieces					
Blade (retouched)	Mesolithic/Early Neolithic			1	**1**
Blade (utilised)	Mesolithic/Early Neolithic		2		**2**
Flake (notched)	Uncertain		1	1	**2**
Flake (retouched)	Uncertain		3	2	**5**
Scraper (end)	Uncertain		1		**1**
Scraper (fragment)	Uncertain		2	1	**3**
Arrowhead (barbed and tanged)	Early Bronze Age		1		**1**
Arrowhead (leaf-shaped)	Early Neolithic		1		**1**
Total (weight g)		**1 (25)**	**36 (195)**	**22 (337)**	**59 (557)**

Table 1. Typology and chronology

Burning	**Tr 1**	**Tr 2**	**Tr 3**	**Total**
Burnt			3 (14%)	**3 (5%)**
Unburnt	1 (100%)	36 (100%)	19 (86%)	**56 (95%)**
Total	**1**	**36**	**22**	**59**

Table 2. Artefact burning

Dorsal scar type	TR 1	TR 2	TR 3	Total
Blade (earlier)		13 (36%)	5 (23%)	**18 (31%)**
Flake	1 (100%)	23 (64%)	15 (68%)	**39 (66%)**
Uncertain			2 (9%)	**2 (3%)**
Total	**1**	**36**	**22**	**59**

Table 3. Dorsal scar type

Raw material type	TR 1	TR 2	TR 3	Total
Nodular Flint	1 (100%)	24 (67%)	11 (50%)	**36 (61%)**
Water-worn Flint			1 (5%)	**1 (2%)**
Non-cortical Flint		12 (33%)	10 (45%)	**22 (37%)**
Total	**1**	**36**	**22**	**59**

Table 4. Raw material type

Raw material colour	TR 1	Tr 2	Tr 3	Total
Grey (Dark)		12 (33%)	6 (27%)	**18 (31%)**
Grey (Mid)		11 (31%)	9 (41%)	**20 (34%)**
Grey (Light)		1 (3%)	2 (9%)	**3 (6%)**
Brown (Dark)		3 (8%)	2 (9%)	**5 (8%)**
Brown (Mid)	1 (100%)	3 (8%)	1 (5%)	**5 (8%)**
Orange (Dark)		1 (3%)	1 (5%)	**2 (3%)**
Orange (Mid)		5 (14%)	1 (5%)	**6 (10%)**
Total	**1**	**36**	**22**	**59**

Table 5. Raw material colour

Reduction sequence	% Dorsal cortex	TR 1	TR 2	TR 3	Total
Early	100% cortical				**0**
	76-99% cortical	1 (100%)	1 (3%)	3 (14%)	**5 (8%)**
	51-75% cortical		2 (6%)	3 (14%)	**5 (8%)**
Middle	26-50% cortical		4 (11%)	4 (18%)	**8 (14%)**
	1-25% cortical		17 (47%)	2 (12%)	**19 (33%)**
Late	Non-cortical		12 (33%)	10 (46%)	**22 (37%)**
	Total	**1**	**36**	**22**	**59**

Table 6. Reduction sequence/dorsal cortex

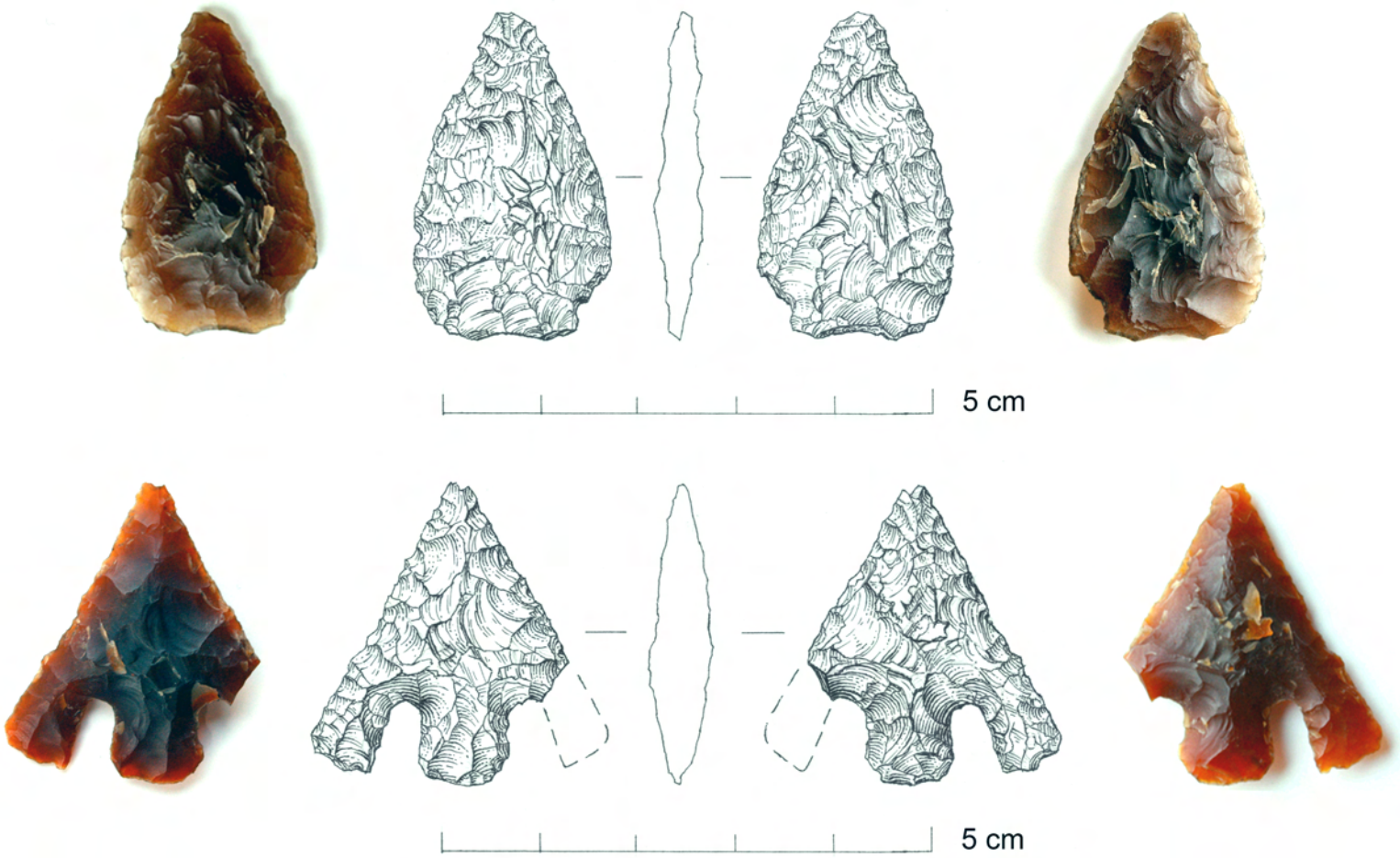

Figure 1. Leaf-shaped arrowhead and barbed and tanged arrowhead (Drawings by Jeff Wallis and photographs by Gail Anderson)

Figure 2. Reflectance Transformation imaging (RTI) images of leaf-shaped arrowhead (by Ian Cartwright)

Figure 3. Reflectance Transformation imaging (RTI) images of leaf-shaped arrowhead (by Ian Cartwright)