The finds

# LITHICS

Conor Brady

A total of nine sites produced lithic assemblages. The assemblages were all very small, comprising 31 lithics in total.

### Raw material

The raw materials used in these assemblages are very limited, comprising just two stone types: pebble flint and chert (Table 9.5).

Table 9.5—Raw material types by si
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Site	No. of lithics	Flint	Chert
Clonmore North (site 92.3)	1	1	0
Knockgraffon (site 137.1)	1	1	0
Templenoe (site 163.1)	2	1	1
Ballydrehid (site 185.5)	5	4	1
Caherabbey Lower (site 189.1)	9	8	1
Killemly (site 203.3)	2	2	0
Killemly (site 203.4)	1	1	0
Ballylegan (site 206.4)	3	3	0
Ballylegan (site 207.2)	7	6	1
Total	31	27	4

Flint occurs naturally in chalk and has a range of colours, from grey to black and caramel brown. The cortex or outer skin on a nodule of fresh or chalk flint is usually soft and white or chalky. During times of glaciation, flint was extracted and transported by ice sheets to non-flint-bearing areas, where it was deposited as a constituent of the general glacial drift (Jackson 1991, 34; see also Woodman 1987; Woodman et al. 2006, 81–3, fig. 3.4). Once deposited, the colour of the material tends to be altered by the absorption of minerals from the local soil and colours vary widely, ranging from shades of grey to cream through to brown (Dillon 1997, 33). Owing to the abrasion and erosion experienced during transportation, any cortex remaining is generally textured or smooth in character rather than chalky. The size of nodules and pebbles found in glacial drift tends to be much smaller than nodules from *in situ* chalk deposits because of the stresses to which the nodules were

subject during transportation. Pebble flint was the main raw material type used for tool-making in the Bally Lough survey area, Co. Waterford. The flint was apparently collected from coastal areas and was present in the form of small water-rolled pebbles, no more than 50 mm in length. This material varied in quality and colour (Green and Zvelebil 1990, 62). In Munster generally, Woodman and Griffiths (1988, 66) have noted that although it is frequently assumed that flint is scarce, it is in fact available, predominantly in the form of pockets of erratic pebbles and nodules. They suggest that flint is freely available along the coasts of east Cork and list a range of other locations where flint pebbles were noted as being present in the glacial tills, including Garryduff and the BlackwaterValley, Co. Cork, and Ferriter's Cove and Reask on the Dingle Peninsula, Co. Kerry. There may be a similar localised source close to the sites under discussion at present, but it is also possible that the material was transported some distance before it was knapped.

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Chert is a term used to describe a variety of stone types originating in Carboniferous limestone deposits. Quality and appearance vary considerably, with some black glossy cherts being indistinguishable from flint. It is a commonly used raw material particularly on prehistoric sites in the midlands and north-west, although it frequently accounts for only a very small proportion of lithics assemblages (Woodman et al. 2006, 83–4). It is present in some quantity in the assemblages from Lough Gur, although it is never the dominant raw material used (Grogan and Eogan 1987; Ó Ríordáin 1954). It has often been presumed that chert was a second-best alternative to flint, used only when supplies of suitable flint for knapping were scarce. While this may, to some extent, be true, especially given that the quality and formality of tools made from chert is low, it must also be borne in mind that a less functional or economic view of raw material utilisation might occasionally explain this choice of raw material. Chert and other raw material types may have been deliberately chosen at particular times in certain places for specific tasks.



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Fig. 9.11—Flint colour analysis.

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Another possible point of comparison for the assemblages under discussion at present are the assemblages collected during the Bally Lough Project, in which five main types of raw material were identified: pebble flint, rhyolite, basalt, quartz and quartzite (Green and Zvelebil 1990, 62). Somewhat surprisingly, chert is not listed as one of the materials identified.

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The flint artefacts from the seven assemblages along the road scheme displayed a range of colours (Fig. 9.11), including various shades of brown, grey and yellow; the colour of four of the pieces was indiscernible owing either to the degree of burning or to patination. This range of colouring is consistent with a mixed glacial till origin for the flint. The character of the cortex on cortical pieces also points to this as the probable raw material source.

# Condition

The condition of the artefacts examined was generally good. Thirteen of the 31 artefacts examined were complete. Just two pieces were abraded: a complete chert flake (E2266:4) from Caherabbey Lower (site 189.1) that was found in the topsoil layer, which presumably accounts for its abraded condition, and a barbed-and-tanged arrowhead (E2290:2) from the fill of a cremation pit in Templenoe (site 163.1) that must have been abraded before its deposition. Five unretouched flakes display signs of use-wear in the form of edge damage (E2126:19, E2265:40–41, E2266:2–3). Two of these came from topsoil contexts, so the damage may be the result of ploughsoil processes. It is probable that more artefacts carry microscopic traces of use-wear. Four of the flint pieces were patinated, and in some cases there were notable differences in the degree of patination on different surfaces of the same object. Three patinated artefacts were recovered from Caherabbey Lower (site 189.1). An end-and-side scraper (E2266:1) from that site had patination on all surfaces except for the retouched area along the distal, indicating that curation of the tool extended its uselife, possibly some time after its initial fabrication. An incomplete flake (E2266:3) was also patinated but only one facet was covered with a very heavy patina, possibly indicating the recovery and reworking of a larger piece sometime after its first deposition. A retouched blade (E2266:31; Fig. 9.13) from the fill of a Neolithic pit displayed post-patina retouch, again indicating curation of the piece. Four flint artefacts were recognised as having been burnt, including two from Killemly (site 203.3), both incomplete flakes (E2126:1–2). The other burnt artefacts were a complete flake (E2267:3) from Ballydrehid (site 185.5) and a complete hollow-based arrowhead (E2294:1) from Clonmore North (site 92.3).

## Primary technology

All but two of the artefacts recovered from the excavations were some kind of flake or flake fragments. A retouched blade (E2266:31, Fig. 9.13) came from the Early Neolithic phase of Caherabbey Lower (site 189.1), indicating that blades were being produced, and a single modified

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bipolar core (E2266:12) also came from here. A bipolar flake (E2265:1) was also recovered from Ballylegan (site 206.4). The identification of the use of bipolar technology is to be expected given the nature of the raw material being exploited for these assemblages. No other cores, pebbles or tested pebbles were present in any of the assemblages.

Table 9.6—Reduction sequence for all blades and flakes.

Material	Primary	Secondary	Ter	rtiary	Total
Flint	2		7	6	15
Chert	0		0	3	3

Although the numbers of artefacts being analysed in these assemblages are small, the general impression given is consistent with a pebble flint source for much of the raw material. The number of tertiary pieces is relatively low, with most pieces still displaying some evidence of cortex, reflecting the small size of the parent raw material (Table 9.6).

The sizes of the flakes also reflect the small size of the raw material used, with all artefacts measuring less than 40 mm (Fig. 9.12).



Fig. 9.12—Length categories for complete flakes.

# Secondary technology

Eleven of the artefacts were retouched, representing 35.5% of all artefacts from the site assemblages (Table 9.5). One of the retouched pieces was a chert barbed-and-tanged arrowhead (E2290:2). All of the other retouched pieces are flint.

#### The finds

### Projectile points

There were four projectile points (Pl. 9.4). Three were barbed-and-tanged arrowheads and one was a hollow-based arrowhead. One of the barbed-and-tanged arrowheads was of chert. A small flint barbed-and-tanged arrowhead (E2270:1) has bifacial invasive retouch along all edges. The piece is complete and is 18 mm in length. It came from Knockgraffon (site 137.1), the location of two Middle Bronze Age circular structures, and was excavated from a pit (F74) lying immediately west of structure B. A radiocarbon date from the fill of an associated pit (F25) of 1439–1271 BC (UB-7168) suggests activity towards the end of the Middle Bronze Age.

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Two barbed-and-tanged arrowheads were found during the excavation of site 163.1 at Templenoe, a flat cremation burial cemetery. E2290:1 is an incomplete chert barbed-and-tanged arrowhead with part of the tang missing. The piece is small, only 15 mm long. It came from the fill of pit F274, containing a cremation burial. Artefact E2290:2 is a complete flint barbed-and-tanged arrowhead. The piece is somewhat abraded. It also came from a pit (F158) containing a cremation burial. As both of these pieces came from cremation burials, it appears likely that they represent the personal belongings of individuals buried in the pits. Barbed-and-tanged arrowheads are most closely associated with Final Neolithic/Early Bronze Age (Beaker period) activity, but Waddell suggests that flint arrowheads are particularly common lithic finds from Irish Bronze Age burials; three burnt examples of barbed-and-tanged arrowheads are known from the cremation burial at Galgorm Parks, Co. Antrim, a grave that also produced a collared urn (Waddell 1990, 25, 46). Three radiocarbon dates were obtained for the Templenoe site: 1409–1269 BC (UB-7769), 1603–1432 BC (UB-7770) and 1881–1640 BC (UB-7518), broadly suggesting activity in the Early and Middle Bronze Age.

A complete burnt flint hollow-based arrowhead (E2294:1) was recovered during the excavation of a *fulachta fia* at Clonmore North (site 92.3) and came from the burnt mound. The condition of the artefact suggests that it was incorporated, perhaps deliberately, during an episode of use of the feature. Hollow-based arrowheads are chronologically diagnostic of the Beaker period/Early Bronze Age in Ireland and elsewhere. Examples are known from Brú na Bóinne, Co. Meath, including the pre-tomb level below site Z at Newgrange (O'Kelly et al. 1978, 295, fig. 18, 294–7), the Late Neolithic/Beaker period settlement at Newgrange (Lehane 1983, 151, fig. 64, 152–3) and the Beaker period settlement area concentrations C and E at Knowth (Dillon 1997, 251; Eogan 1984, 251, fig. 87). The burnt mound in which the arrowhead was found produced a radiocarbon date of 1525–1412 BC (UB-7227), indicating Middle Bronze Age activity. Woodman states that, while these artefacts are frequently assumed to be Neolithic, only one example has been found in a Neolithic context, at Kiltiernan Dolmen, Co. Dublin (O hEochaidhe 1957). They do not occur in other closed Neolithic contexts (Woodman et al. 2006, 134). While the artefact here may be residually incorporated into the burnt mound material, another Middle Bronze Age example is known from Knocknarea hut 1 (Bengtsson and Bergh 1984), possibly indicating that this type is longer-lived than was previously thought.

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Pl. 9.4—Barbed-andtanged arrowhead (E2270.18), barbed-andtanged arrowheads (E2290.1 & 2) and hollow-based arrowhead (E2294:1).

#### **Scrapers**

One end-and-side scraper and one scraper were found during the excavations and both are of flint (Fig. 9.13). The end-and-side scraper (E2266:1) is a complete example and has a white patina extending over its whole surface apart from one length of retouch along the distal, indicating that the piece was modified on at least two separate occasions, separated by some considerable length of time. The scraper (E2266:13; Fig. 9.13) came along with a number of other finds from features associated with Carinated Bowl pottery at Caherabbey Lower (site 189.1). The piece is complete and has short subparallel direct retouch at the distal, alternate retouch at the proximal and semi-abrupt retouch on the left of the distal and along the right side of the proximal. Also meriting some discussion under the present heading is the bipolar core (E2266:12) introduced above, as it was subsequently modified for use as a scraper. It has short, stepped, direct semi-abrupt retouch along the right lateral.



#### Miscellaneous retouched

Six additional artefacts were retouched but did not fall into any formal morphological category. Three were flakes with edge retouch (E2265:75, 138; E2267:60) and an additional example was bipolar (E2265:63). There was also one blade (Fig. 9.13) with edge retouch (E2266:31). The retouch is generally semi-invasive, suggesting that the intention was to blunt the edges being retouched. The retouch is often alternate with a degree of irregularity. Some of these were relatively long compared to other artefacts in the assemblages.

Fig. 9.13—Lithics from Caherabbey Lower (site 189.1): end-and-side scraper (E2266:10), bipolar core (E2266:12), scraper (E2266:13) and blade (E2266:31).



# Chronology

The largest assemblage, containing nine artefacts, although small by normal standards, came from Early Neolithic features on site 189.1 in Caherabbey Lower (Table 9.7).

Chronologically diagnostic artefacts were recovered from some of the sites excavated. A number of these came from sealed contexts and in some cases were associated with other artefacts, primarily pottery. The most recognisably diagnostic artefacts in these collections are the projectile points. Barbed-and-tanged arrowheads, especially the smaller examples present here, are associated with Beaker pottery, either from wedge tombs or from settlement sites like Newgrange and Knowth. They are also known from Bronze Age burials dating from as late as the Middle Bronze Age, and along with these examples may represent a continuation in use of the form.

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The occurrence of the hollow-based arrowhead from a context that produced a Middle Bronze Age date is interesting and, provided that the piece is not residual, extends the span of usage of this type.

The other artefacts from the assemblage are more problematic to date. There are no distinctive button scrapers, which are often found in association with barbed-and-tanged arrowheads and Beaker pottery, nor are there any other datable scraper types. The forms present could all sit comfortably in Neolithic or Early (to Middle) Bronze Age contexts. Little is known in detail about the use of flaked stone technology after the Early Bronze Age, although recent work has indicated that flint was used more frequently than was thought during the Bronze Age (M. O'Hare, pers. comm.).

## Conclusion

Although the assemblage from site 189.1 clearly dates from the Early Neolithic on the basis of associations with pottery, the material from the other assemblages analysed is consistent with a Late Neolithic to Early Bronze Age date. It is not inconceivable, however, that the barbed-and-tanged arrowheads, and in particular the hollow-based arrowhead, date from the Middle Bronze Age, given the amount of activity dating from this period along the course of the road scheme generally.

The assemblages, which are very small, are dominated by pebble flint, and chert was also used. They do not seem to indicate any prolonged activity, nor do they seem to directly indicate settlement. There is no extensive evidence of processing or production; there are no conventional cores present, although there is a bipolar core from the Early Neolithic phase of Caherabbey Lower (site 189.1). This strongly suggests that there must be other sites in the vicinity, which did not feature in these excavations, with more extensive lithic assemblages, possibly with stronger settlement characters, where the artefacts from the current sites were manufactured.

compositions.
assemblage
Table 9.7—Summary

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	Killemly 203.3	Killemly 203.4	Ballylegan 206.4	Ballylegan 207.2	Caherabbey Lwr 189.1	Ballydrehid 185.5	Knockgraffon 137.1	Templenoe 163.1	Clonmore North 92.3	Total
Flake	5	1	2	4	2	4				18
Bipolar flake			1							1
Barbed-and-tanged arrowhead							1	2		ŝ
Hollow-based arrowhead									1	1
End-and-side scraper					1					1
Scraper					1					1
Retouched flake				2		1				3
Retouched bipolar flake				1	1					2
Retouched blade					1					1
Totals	5	1	ŝ	7	6	2	1	2	1	31

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ogue.	Condition Colour Reduction Production Description stage	lised flake Incomplete, Unknown Tertiary Unknown Platform missing; feather left lateral and owing to termination; multi-directional distal end burning; scars on the dorsal face missing humt on ante	lised flake Incomplete; Unknown Tertiary Unknown Platform missing: feather fresh; burnt owing to burning; onduce	ed flake Complete; <sup>71</sup> secondary Soft hammer Plain platform; lip at the junction fresh opaque. Plain platform; father termination; platform; father termination; 2.5Y 8/2 factors; facther termination; parallel flake scars on the dorsal face; textured brown cortex c.1 mm thick	lised bipolar flake Complete; Yellow, Secondary Unknown Crushed platform; irregular fresh opaque. termination; opposed flake scars Munsell No. on dorsal face; smooth light 10YR 8/6. brown cortex <0.5 mm thick
catalogue.	Type Conditi	Unutilised flake Incompl left later distal en	Unutilised flake Incompl fresh; bu	Utilised flake Comple fresh	Unutilised bipolar flake Complei fresh
9.8—Lithics	Material	Flint	Flint	Flint	Flint
Table	Find no.	E2126:1	E2126:2	E2126:19	E2265:1

L 19 mm, W 12 3 g

mm,T 6 mm

L 9 mm, W 12 1 g mm, T 2 mm

Cortical platform; feather termination; parallel flake scars

Soft hammer

Secondary

Olive yellow,

Complete; fresh

Unutilised flake

Flint

E2265:4

translucent. 10YR 7/2

percussion

L 18 mm, W 13 2 g

on the dorsal face; smooth brown cortex c. 1 mm thick Platform missing; crossed flake scars on dorsal face; smooth light

Soft hammer percussion

Secondary

Munsell No. 2.5Y 6/8 Light olive

translucent. Munsell No. 2.5Y 5/3

proximal ends missing; fresh

brown,

Incomplete —

Unutilised flake

Flint

E2265:23

distal &

brown cortex c.2 mm thick

mm, T 2 mm

L 16 mm, W 18 2 g mm, T 2 mm

Cortical platform; feather termination; smooth grey cortex c. 2 mm thick

Soft hammer percussion

Secondary

Light grey, translucent. Munsell No.

Incomplete — distal tip missing; fresh

Unutilised flake

Flint

E2265:2

cortex < 0.5

brown

mm thick

In the Shadow of the Galty N	Mountains
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Wt

Dimensions

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L 12 mm,W 7 mm,T 2 mm

0.5 g

L 7 mm, W 5

mm,T 2 mm

L 20 mm, W 16 3 g mm, T 3 mm

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missing fresh translucent. on dorsal face; smooth dark   Munsell No. Numsell No.   IOYR 6/6 Numsell No.   Utilised flake Incomplete   proximal end Unknown   missing; fresh Platform missing; frather   nissing; fresh Nam, W 29   Retouched bipolar flake Dale vermination; opposed flake scars   Retouched bipolar flake Complete.   Munsell No. Secondary   Soft hammer Plain platform; short sub-parallel   Munsell No. along left lateral; parallel flake   2.57 7/4 scars on dorsal face; textured   Dunkus Complete 2.57 7/4	Inising fresh   translucent.   translucent.   translucent.     Munsell No.   Munsell No.   Munsell No.   Munsell No.     Utilised flake   Incomplete -   Munsell No.   Platform mising feather   L38 mm, W 29   10 g     No   mising fresh   Pale yellow,   Secondary   Soft hammer   Platform sing feather   L38 mm, W 29   10 g     Retouched bipolar flake   Complete.   Pale yellow,   Secondary   Soft hammer   Plain platform, short sub-parallel   L23 mm, W 16   3 g     Retouched bipolar flake   Complete.   Light   Prina platform, short sub-parallel   L23 mm, W 16   3 g     Retouched flake   Incomplete -   Light   Prinary   Secondary soft sub-parallel   L23 mm, W 16   3 g     Retouched flake   Incomplete -   Light   Prinary   Secondary soft sub-parallel   L3 mm, W 16   3 g     Retouched flake   Incomplete -   Light   Prinary tretouch   mm, T 4 mm   3 g     Retouched flake   Incomplete -   Light   Prinary   L0 s   3 g   3 g     Retouched flake   Incomplete -   Light   Prinary	Insing fresh     translucent.     otorsal face: snooth dak       Unliked flake     Incomplete – incomplete – insing fresh     UNR 6/6     Unknown cortex c.1 mm thick     138 mm, W.29     10 g       Retouched bipolar flake     Complete;     Pale yellow, secondary     Secondary     Seth hamme, short sub-parallel     1.38 mm, W.29     10 g       Retouched bipolar flake     Complete;     Pale yellow, secondary     Secondary     Seth hamme, short sub-parallel     1.23 mm, W.16     3 g       Retouched flake     Incomplete – itight     Pale yellow, secondary     Secondary     Seth hamme, short strahled hamme, short strahled hamme, short strahled hamme, short strahled hame     1.38 mm, W.16     3 g       Retouched flake     Incomplete – itight     Primary     Unknown     Plan platform short strahled hame     1.38 mm, W.16     3 g       Retouched flake     provinal & goot disc; textured     Pale platform sing short prafiel     1.13 mm, W.9     0.5 g       Retouched flake     complete:     I.dik     Primary     1.0 mm, Y.14     2 g       Retouched flake     complete:     Primary     Soft hamme     Plan platform; short parallel     L1.3 mm, W.9     0.5 g	Flint	Utilised flake	Incomplete — right lateral	Brownish- yellow,	Secondary	Soft hammer percussion	Irregular platform; feather termination; crossed flake scars	L 21 mm, W 14 2 g mm, T 6 mm
Utilised flake Incomplete — Unknown Platform missing feather L 38 mm, W 29 10 g   proximal end termination; opposed flake scars mm, T 8 mm   missing fresh and dorsal face mm, T 8 mm   Retouched bipolar flake Complete; Pale yellow, Socindary Soft hammer Plain platform; short sub-parallel L 23 mm, W 16 3 g   Retouched bipolar flake Complete; Pale yellow, Secondary Soft hammer Plain platform; short sub-parallel L 23 mm, W 16 3 g   Retouched bipolar flake on adorsal face mm, T 4 mm along left lateral; parallel flake mm, T 4 mm   2.5Y 7/4 scars on dorsal face; textured brown cortex c. <0.5 mm thick	Utilised fake   Incomplete –   Unknown   Platform missing feather   L 38 mm, W 29   10 g     proxinal end   missing fresh   proxinal end   mix, W 29   10 g     Retouched bipolar flake   Complete;   Pale yellow, Secondary   Soft hammer   Platform nissing feather   L 38 mm, W 29   10 g     Retouched bipolar flake   Complete;   Pale yellow, Secondary   Soft hammer   Platform; short sub-parallel   L 23 mm, W 16   3 g     Munsell No.   Daque:   percussion   inverse semi-abrupt retouch   mm, T 4 mm   3 g     Retouched flake   Incomplete –   Light   Primary   Unknown   Platform missing short parallel   L 13 mm, W 9   0.5 g     Retouched flake   Incomplete –   Light   Primary   Unknown   Platform missing short parallal   L 13 mm, W 9   0.5 g     missing: fresh   small   inclusions,   alternating semi-abrupt retouch   mm, T 1 mm     firstlends   2.5Y 6/4   2.5Y 6/4   2.5Y 6/4   10 gotg left ateral   m, T 1 mm   5 g	Utilised flake     Incomplete – insting fresh     Unknown     Platform missing fresh     L 38 mm, W 29     10 grown 20 monthle missing fresh       Retouched bipolar flake     Complete;     Pale yellow, secondary     Socti hamme     Dia platform; short sub-parallel     L 38 mm, W 29     10 grown.       Retouched bipolar flake     Complete;     Pale yellow, secondary     Socti hamme     Dia platform; short sub-parallel     L 33 mm, W 16     3 grown.       Retouched fibele     Incomplete –     Light     Primary     Unknown     Dia platform; short sub-parallel     L 13 mm, W 16     3 grown.       Retouched fibele     Incomplete –     Light     Primary     Unknown     Dia form missing fresh     mm, T 4 mm       Retouched fiake     Incomplete     Light     Primary     Unknown     Platform missing short parallel     L 13 mm, W 9     0.5 grown       Retouched fiake     mont stand facet     mont stand facet     Inm, T 4 mm     Inm, T 1 mm     Inm, T 1 mm       Musel No.     2.5Y 7/4     Primary     Unknown     Platform missing short parallel     L 13 mm, W 16     5 grown       Musel No.     2.5Y 6/4     Prinary			right låteral missing; fresh	yellow, translucent. Munsell No. 10YR 6/6		percussion	termination; crossed flake scars on dorsal face; smooth dark brown cortex c. 1 mm thick	mm,T 6 mm
Retouched bipolar flake Complete; Pale yellow, Secondary Soft hammer Plain platform; short sub-parallel L 23 mm, W 16 3 g   fresh opaque. percussion inverse semi-abrupt retouch nm, T 4 mm   Munsell No. along left lateral; parallel flake 2.5Y 7/4 scars on dorsal face; textured   2.5Y 7/4 brown cortex c. <0.5 mm thick	Retouched bipolar flake   Complete:   Pale yellow, Secondary Soft hammer   Plain platform; short sub-parallel   L 23 mm, W 16   3 g     fresh   opaque.   mmsell No.   inverse semi-abrupt retouch   mm, T 4 mm   3 g     Munsell No.   2.5Y 7/4   percussion   along left lateral; parallel flake   mm, T 4 mm     Z:5Y 7/4   exars on dorsal face; textured   mm, T 4 mm   mm, T 4 mm     Retouched flake   Incomplete -   Light   Primary   Unknown   Platform missing short parallal   L 13 mm, W 9   0.5 g     Retouched flake   incomplete -   Light   Primary   Unknown   Platform missing short parallal   L 13 mm, W 9   0.5 g     Mussling fresh   small   along left lateral   mm, T 1 mm   along left lateral   mm, T 1 mm     Restouched flake   small   inclusions,   inclusions,   inclusions,   inclusions,   inclusions,     Restouched flake   Soft semi-abrupt retouch   mm, T 1 mm   J 3 m, W 9   0.5 g     Soft semi-abrupt   Mussli No.   Soft semi-abrupt retouch   mm, T 1 mm   J 3 m, Y 9     Mussli No.   Soft semi-abrupt retouch   mm, T 1 mm	Retouched bipolar flake     Complete:     Pale yellow, musel No.     Secondary     Soft harmer     Plain platform; short sub-parallel     L23 mm, W16     3 mm, mm, T 4 mm       Retouched flake     0paque.     0paque.     percussion     inverse semi-abrupt retouch     mm, T 4 mm     mm, T 4 mm       Retouched flake     1ncomplete     Light     Primary     Unknown     Platform missing short parallel     L13 mm, W9     0.5 g       Retouched flake     incomplete     Light     Primary     Unknown     Platform missing short parallel     L13 mm, W9     0.5 g       Retouched flake     incomplete     Light     Primary     Unknown     Platform missing short parallel     L13 mm, W9     0.5 g       Retouched flake     monsult     Numsell No.     Anong left lateral     L13 mm, W14     2 g       Retouched flake     complete:     Pale brown,     Soft hanner     Platform missing short parallel     L13 mm, W14     2 g       Retouched flake     complete:     Platform missing short parallel     L13 mm, W14     2 g       Retouched flake     complete:     Platebrown,     Soft hanner     Platform sh		Utilised flake	Incomplete — proximal end missing; fresh			Unknown	Platform missing; feather termination; opposed flake scars on dorsal face	L 38 mm, W 29 10 g mm, T 8 mm
	Retouched flake Incomplete - Light Primary Unknown Platform missing short parallal L 13 mm, W 9 0.5 g   proximal & yellowish brown with alternating semi-abrupt retouch mm, T 1 mm   distal ends brown with along leff lateral mm, T 1 mm   missing: fresh small along leff lateral   missing: fresh small mmsEl No.   2.5Y 6/4 2.5Y 6/4	Retouched flakeIncomplete -LightPrimaryUnknownPlatform missing short parallalL 13 mm, W 90.5 gproximal & vellowishbrown withalemating semi-abrupt retouchmm, T 1 mm0.5 gdistal endsbrown withalong left lateralmm, T 1 mmmissing freshsmallinclusions,along left lateralmm, T 1 mmmissing freshsmallinclusions,errenting semi-abrupt retouchmm, T 1 mmmissing freshsmallinclusions,errenting semi-abrupt retouchmm, T 1 mmMunsell No.2.5Y 6/4Aerrenting semi-abrupt retouch alongmm, T 1 mmRetouched flakeComplete;Pale brown,SecondarySoft hammerPlain platform; short parallelL 29 mm, W 142 gMunsell No.freshtranslucent:mmsell No.percusioninfect semi-abrupt retouch alongmm, T 5 mm2 gRetouched flakeComplete;Pale brown,SecondarySoft hammerPlain platform; short parallelL 29 mm, W 142 gMunsell No.IOYR 7/3percusioninfect semi-abrupt retouch alongmm, T 5 mmpercusionpercusionIOYR 7/3percusioninfect semi-abrupt retouch alongmm, T 5 mmpercusionpercusionpercusionIOYR 7/3percusioninfect semi-abrupt retouch alongpercusionpercusionpercusionpercusionpercusioninfect semi-abrupt retouch alonginfect semi-abrupt retouch alongpercusionpercusionpercusion </td <td></td> <td>Retouched bipolar flake</td> <td>Complete; fresh</td> <td>Pale yellow, opaque. Munsell No. 2.5Y 7/4</td> <td>Secondary</td> <td>Soft hammer percussion</td> <td>Plain platform; short sub-parallel inverse semi-abrupt retouch along left lateral; parallel flake scars on dorsal face; textured brown cortex c. &lt;0.5 mm thick</td> <td>L 23 mm,W 16 3 g mm,T 4 mm</td>		Retouched bipolar flake	Complete; fresh	Pale yellow, opaque. Munsell No. 2.5Y 7/4	Secondary	Soft hammer percussion	Plain platform; short sub-parallel inverse semi-abrupt retouch along left lateral; parallel flake scars on dorsal face; textured brown cortex c. <0.5 mm thick	L 23 mm,W 16 3 g mm,T 4 mm
Retouched flake Complete; Pale brown, Secondary Soft hammer Plain platform; short parallel L 29 mm, W 14 2 g   fresh translucent. Munsell No. intert semi-abrupt retouch along im, T 5 mm mm, T 5 mm 14 2 g   Munsell No. Munsell No. intert semi-abrupt retouch along intert semi-abrupt semi-abrupt retouch along intert semi-abrupt semi-abr	Unutilised flake Incomplete — Light Primary Soft hammer Crushed platform; smooth cream L 15 mm, W 10 2 g   distal & left brownish- percussion cortex c. 1 mm thick nm, T 5 mm   lateral missing: grey, fresh translucent.   fresh translucent. Munsell No.			Retouched end-and- side scraper	Complete; fresh	Unknown owing to all- over white patina but small inclusions visible on surface	Secondary	Soft hammer percussion	Plain platform; lip at junction of wentral face & platform; short stepped abrupt retouch at distal end & semi-abrupt at right lateral & distal; parallel flake scars on dorsal face; textured grey cortex c. 1 mm thick	L 34 mm, W 33 13 g mm, T 12 mm

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Find no.	Material	Type	Condition	Colour	Reduction stage	Production	Description	Dimensions Wt	
E2266:2	Flint	Utilised flake	Incomplete — medial section & right lateral missing; fresh	Very pale brown, opaque. 10YR 8/2	Secondary	Soft hammer percussion	Cortical platform; feather termination; opposed flake scars on dorsal face; smooth light brown cortex <0.5 mm thick	L 45 mm, W 20 5 mm, T 9 mm	uo
E2266:3	Flint	Utilised flake	Incomplete — distal tip missing;fresh	Light grey with small inclusions, translucent. Munsell No. 7.5YR 7/1	Tèrtiary	Soft hammer percussion	Irregular platform; one facet on left side of dorsal face heavily patinated; feather termination; multi-directional flake scar on dorsal face	L 24 mm, W 22 4 mm, T 6 mm	ou
E2266:4	Chert	Unutilised flake	Complete; abraded			Unknown	Plain platform; feather termination	L 21 mm, W 12 2 mm, T 5 mm	on
E2266:12	Flint	Retouched bipolar core	Complete; fresh	Pale yellow with small inclusions, opaque. Munsell No. 2.5Y 8/2	Secondary	Unknown	Crushed platform; short stepped direct semi-abrupt retouch along right lateral; smooth light grey cortex <0.5 mm thick	L 29 mm, W 28 6 mm, T 6 mm	cu
E2266:13	Flint	R etouched scraper	Complete; fresh	Grey, translucent. Munsell No. 10YR 6/2	Tertiary	Soft hammer percussion	Reworked platform; short sub- parallel direct retouch at the distal; alternate retouch at proximal and semi-abrupt retouch on left of the distal and along the right side of the proximal; smooth cream cortex c. 1 mm thick	L 20 mm, W 18 3 mm, T 5 mm	ω
E2266:31	Flint	R etouched blade	Complete; fresh	Greyish- brown, translucent. Munsell No. 10YR 5/2	Tèrtiary	Soft hammer percussion	Plain/crushed platform; white pre-retouch patina; semi-invasive sub-parallel alternate semi-abrupt retouch along the left lateral; hinge termination; parallel flake scars on dorsal face	L 30 mm, W 10 2 mm, T 3 mm	on
E2266:32	Flint	Unutilised flake	Incomplete — left lateral missing, fresh	Grey with small inclusions, translucent. Munsell No.	Tertiary	Soft hammer percussion	Plain platform; hinge termination; parallel flake scars on dorsal face	L 15 mm, W 20 1 mm, T 2 mm	on

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L 14 mm,W 8 mm,T 2 mm	L 25 mm, W 15 mm, T 5 mm	L 24 mm,W 11 mm,T 4 mm	L 33 mm,W 18 mm,T 5 mm	L 16 mm, W 10 mm, T 3 mm	L 32 mm,W 45 mm,T 25 mm
Irregular platform; feather termination; parallel flake scars on dorsal face	Platform missing; feather termination; parallel flake scars on dorsal face; smooth brown correx	Platform missing; feather termination; parallel flake scars on dorsal face	Platform missing; milky mottled patina; short sub-parallel inverse semi-abrupt retouch along left lateral; plunging termination; parallel flake scars on dorsal face; smooth brown cortex $<0.5$ mm thick	Platform missing; feather termination; crossed flake scars on dorsal face	Cortical platform; smooth cream cortex c. 5–6 mm thick
Soft hammer percussion	Unknown	Soft hammer percussion	Soft hammer percussion	Soft hammer percussion	Unknown
Tertiary	Secondary		Secondary	Terüary	Primary
Light brownish- grey with small inclusions, opaque. Munsell No. 10YR 6/2	Unknown owing to burning; onaque	- 	Greyish- brown with small inclusions, opaque	Brown with small inclusions, translucent. Munsell No. 10YR 5/3	Brown with small inclusions, transparent. Munsell No. 7.5YR 5/2
Incomplete — left lateral missing; fresh	Incomplete — proximal end missing; burnt	Incomplete — distal end missing: fresh	Incomplete; fresh	Incomplete — left & right laterals missing; fresh	Incomplete — left lateral missing; fresh
Unutilised flake	Unutilised flake	Unutilised flake	Retouched flake	Unutilised flake	Unutilised flake
Flint	Flint	Chert	Flint	Flint	Flint
E2266:40	E2267:3	E2267:4	E2267:60	E2267:61	E2267:70

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Find no.	Material	Type	Condition	Colour	Reduction stage	Production	Description	Dimensions Wt
E2270:1	Flint	Barbed-and-tanged arrowhead	Complete; fresh	Light yellowish brown with one large inclusion (cortex?), translucent Munsell No: 10YR 6/6	Tertiary	Unknown	Reworked platform. Bifacial invasive pressure flaking extending across both faces of the piece and along all edges. Green's Sutton (b) type (h)*	L 18 mm, W 15 2 g mm, T 3 mm
E2290:1	Chert	Barbed-and-tanged arrowhead	Incomplete — part of tang missing: fresh	Grey, opaque		Pressure flaking	Bifacial invasive pressure flaking extending across both faces, along all edges. Green's Sutton (b) type (h)*	L 15 mm, W 10 2 g mm, T 3 mm
E2290:2	Flint	Barbed-and-tanged arrowhead	Complete; abraded	Light grey, opaque	Tertiary	Pressure flaking	Bifacial invasive pressure flaking extending across both faces, along all edges. Green's Sutton (a) type (c)*	L 25 mm, W 11 2 g mm, T 4 mm
E2294:1	Flint	Hollow-based arrowhead	Complete; fresh; burnt	Light grey, opaque	Tertiary	Unknown	Bifacial invasive retouch along all edges	L 39 mm, W 25 5 g mm, T 4 mm
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(\*Green 1980, 122, fig. 45).

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