

**Channel Tunnel Rail Link
CTRL UK Limited
Oxford Wessex Archaeology Joint Venture**

**The worked flint from Cobham Golf Course,
Cobham, Kent (ARC CGC 98)**

by Rebecca Devaney

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1 INTRODUCTION

A total of 439 pieces of struck flint were recovered from the excavations at Cobham Golf Course (Table 1). A further 238 fragments (8131 g) of burnt unworked flint was retrieved from 24 contexts (Table 2). The majority of the material can be dated to the middle and late Bronze Age. This is based on technological and typological aspects of the assemblage. There is a probable residual component, including a retouched blade, which is likely to be Mesolithic, and a small proportion of material that could well be from the Mesolithic and Neolithic. There are four distinct groups, including material associated with an early Bronze Age ring ditch, Bronze Age features, later Bronze Age features and an undated ditch boundary, which will be looked at separately from the rest of the assemblage.

2 PROVENANCE

The worked flint was recovered from 29 contexts, including ditch fills, pit fills and layers, with nearly half of the material coming from unstratified contexts. Excluding the unstratified material, only two contexts have more than 15 pieces. Contexts 221 and 223, both of which are fills associated with the early Bronze Age ring ditch, contained 54 and 72 pieces respectively.

3 RAW MATERIAL AND CONDITION

The most frequently occurring raw material in the assemblage is gravel flint (60%). It is likely that the nodules were found close to the site, as the local geology is clay with flints. A small amount (6%) of Bullhead flint is present. This is found in the Bullhead Bed at the base of the Reading Beds (Dewey & Bromehead 1915:18-19) and is identified by a green cortex with an underlying orange coloured band. In north Kent, the Bullhead Bed overlies the chalk beneath the Thanet sands (Dewey & Bromehead 1921:18; Shepherd 1972:114) and can be found fairly close to the site. Just 3% of the assemblage was identified as being chalk flint, which can also be found locally. The raw material of the rest of the assemblage is indeterminate.

Condition is fairly good with about a quarter of the material recorded as fresh and just over half recorded as slightly damaged. This implies limited post-depositional disturbance. Damage is most frequently seen on unretouched edges. Surface alteration is minimal, with just 23% of the assemblage, from 24 contexts, showing signs of cortication. A total of 26% suffer breaks and 2% show signs of burning.

Table 1. Summary of worked flint by feature.

Phase and feature	EBA Ring Ditch (SG 56) Group 41503 Primary fills		EBA Ring Ditch (SG 56) Group 41503 Secondary fills				Bronze Age features (GP 41505) Primary fills	LBA features (GP 41506) Primary fills	Undated ditch boundary (GP 41512) Primary fills	Remaining assemblage	Total
	227	248	221	223	242	233					
Contexts							<i>Pit fills 144, 146, 152, 160 and posthole fill 176</i>	<i>Pit fills 112 and 162, ditch fill 132 and layer 164</i>	<i>192, 204, 196, 198, 200, 202</i>		
Flake	6	9	38	50		1	12	13	7	182	318
Blade-like flake	1		3	5						6	15
Blade				3						11	14
Chip										1	1
Rejuvenation flake			1							1	2
Irregular waste			3	4				1	3	7	18
Janus flake								1			1
Multi-platform flake core		3	2	1	3		1		2	4	16
Single platform flake core	1		1	2	1		1		1	1	8
Core on a flake				1						1	2
Unclassifiable core		1								1	2
Tested nodule			3		1		2		3	1	10
Other heavy implement										1	1
End and side scraper	1		2	1					1		5
End scraper	2	1								1	4
Denticulate		1	1						1	1	4
Other knife										1	1
Piercer				2						2	4
Retouched flake				2				2		4	8
Retouched blade				1						3	4
Notched flake										1	1
Total	11	15	54	72	5	1	16	17	18	230	439

4 TECHNOLOGY AND DATING

4.1 Early Bronze Age ring ditch (Group 41503)

Ditches 222, 224, 228, 234 and 249 are associated with an early Bronze Age ring ditch. On the whole the material from both primary and secondary fills exhibits minimal damage and little cortication. This suggests the likelihood of *in situ* deposits. The primary and secondary fills will be looked at separately.

Primary fills 227 and 248 produced 26 pieces of flint (Table 1). The debitage category consists of 16 flakes, including one blade-like flake. This supports the suggested Bronze Age date (Ford 1987:79, table 2). Platform edge abrasion is present on three pieces including the blade-like flake, suggesting a sometimes careful knapping strategy, which usually occurs in earlier periods and could therefore represent a residual element. The cores can be subdivided into three multi-platform flake cores, one single platform flake core and one unclassifiable core. The cores vary in size, the smallest, the single platform flake core, weighs 66 g and the largest, the unclassifiable core, weighs 302 g. The cores are irregularly worked with no evidence of platform edge abrasion, which again supports a Bronze Age date. The unclassifiable core has few definite removals. The denticulate has chunky direct retouch which creates large teeth on three sides. Denticulates are most commonly associated with the Bronze Age and therefore support the suggested dating. The three end scrapers have direct retouch to their distal ends (Illustration AH-1857). The end and side scraper has chunky direct retouch to the distal end and distal left and is almost denticulated. It also has platform edge abrasion. The high number of scrapers and denticulates compared to the lack of any other tool type may imply the presence of a specialised scraping activity.

Secondary fills 221, 223, 233 and 242 produced 132 pieces of flint. The debitage category comprises 108 pieces of unmodified waste, of which flakes are the dominant type. There are eight blade-like flakes and three blades, just 10% of the total debitage compared to 82% flakes. This proportion supports the suggested Bronze Age date (Ford 1987:79, table 2). There is also one rejuvenation flake and seven pieces of irregular waste which suggests knapping may have taken place close by (the absence of chips may reflect collection methods). Although hammer-mode is indeterminate on most pieces, there are roughly equal numbers of both hard and soft hammer struck flints, which suggests a mixed hammer-mode. Approximately one fifth of the material exhibit platform edge abrasion, suggesting a sometimes careful knapping strategy. Removals from all stages of the reduction process are present, which supports the suggestion of knapping taking place close by.

The cores can be subdivided into six multi-platform flake cores, four single platform flake cores, one core on a flake and four tested nodules. The cores are small to large in size,

The proportion and range of tools is fairly high. Functionally diagnostic tools include three end and side scrapers, two piercers and one denticulate. The three end and side scrapers have direct retouch to their distal ends and sides (AH-1824), with one being almost denticulated (Illustration AH-1998). One of the piercers has direct retouch on both distal edges and the other has bifacial retouch on the distal left edge (Illustration AH-1825). The denticulate is a crescent shape with continuous direct retouch (Illustration AH-1996). Denticulates are most commonly associated with the Bronze Age and therefore support the suggested dating. Functionally non-diagnostic tools include one retouched blade and two retouched flakes. The retouched blade is bifacially retouched and the retouched flakes have either direct or inverse retouch.

All the material from Sub-group 56 was examined for refits. Although no knapping refits or conjoins were found, context 223 included three groups of related material, identified on the basis of similarities of cortex and colouration (Groups ZY-8, ZY-9 and ZY-10).

4.2 Bronze Age features (Group 41505)

Pits 145, 147, 153, 161 and posthole 177 are thought to be Bronze Age features. Their primary fills (144, 146, 152, 160 and 176 respectively) produced just 16 pieces of flint, most of which came from context 161 (Table 1). The debitage category consists of 12 flakes, with the lack of any blade component supporting a Bronze Age date (Ford 1987:79, table 2). There is no evidence of platform edge abrasion, which also supports a Bronze Age date. The cores category comprises one multi-platform flake core, one single platform flake core and two tested nodules. They are small to medium in size, weighing between 61 g and 136 g, the tested nodules being the largest. There is no evidence of a planned reduction strategy or platform preparation, which again supports a Bronze Age date. Knapping refits, each with three pieces, were found in Pit 161. The two groups probably derive from the same nodule, but cannot be directly refitted. The knapping refits consist of three flakes (Photo ZY-1) and a multi-platform flake core with two flakes (Photo ZY-2).

4.3 Later Bronze Age features (Group 41506)

It is suggested that pit 113, ditch 133, pit 163 and layer 164 are later Bronze Age in date. Their primary fills (112, 132 and 162 respectively) and layer 164 produced 17 pieces of flint. Layer 164 contained most of the material with one flake present in each of the other three

contexts (Table 1). Most of the material is technologically undiagnostic but would be consistent with a Bronze Age industry. The only tools in the group are two retouched flakes. Both are trimming flakes with retouch along one edge. Neither were assessed for usewear.

4.4 Ditch boundary (Group 41512)

Ditches 193, 197, 199, 201, 203 and 205 are thought to be part of a Middle Bronze Age ditch boundary. Their primary fills (192, 196, 198, 200, 202, and 204 respectively) produced 18 pieces of flint (Table 1). Flakes dominate the debitage category with no blades or blade-like flakes present. This suggests a Bronze Age date (Ford 1987:69). Most pieces are of an indeterminate hammer mode, however hard and soft hammer struck pieces are present suggesting a mixed hammer mode. There is no evidence of platform edge abrasion, which also suggests a Bronze Age date. The majority of removals are preparation flakes, which may suggest that the decortication of nodules was being performed in the area.

There are two multi-platform flake cores, one single platform flake core and three tested nodules. The cores vary in size, weighing between 68 g and 681 g, with the smallest being a tested nodule and the largest a multi-platform flake core. They are irregularly worked and retain areas of cortex. The single platform flake core has many hinged terminations, implying the use of hard-hammer percussion. There is no evidence of platform edge abrasion to suggest a careful reduction strategy, therefore indicating a probable later prehistoric date for the cores.

The only tools are one denticulate and one end and side scraper. The denticulate is made on a thick side trimming flake. It has crude inverse retouch, which probably continued beyond the distal break. As previously mentioned, denticulates are associated with the Bronze Age and therefore support the suggested Bronze Age date for this feature. The end and side scraper is also made on a trimming flake. It has direct retouch to the distal end and distal sides (Illustration AH-1991).

4.5 The remaining material

The rest of the assemblage from Cobham Golf Course was recovered from undated, unstratified and modern contexts (Table 1). There are 208 pieces of debitage. Flakes dominate this total, although there is a small proportion of blades and blade-like flakes (7%). Most of these are from the unstratified contexts and could either be unintentional removals or residual from an earlier phase. The two blades and two blade-like removals from context 3002 are likely to be intentional removals. The only other material in the context is a flake from an opposed platform core, which combined with the blade material suggests a Mesolithic or early Neolithic date for this context. The assemblage also includes one chip, seven pieces of irregular waste and one rejuvenation flake. This may reflect the presence of knapping. Of

particular note is a used blade from an opposed platform core, which is likely to be Mesolithic or early Neolithic. Unfortunately this piece came from the unstratified material but supports the suggestion of earlier activity at the site. Platform edge abrasion was noted on a quarter of the assemblage, suggesting that material from both the Neolithic and Bronze Age is present.

Of the nine cores, there are four multi-platform flake cores, one single platform flake core, one core on a flake, one unclassifiable core, one tested nodule and one heavy implement made on a single platform flake core. The cores vary in size, weighing between 38 g and 294 g. One of the multi-platform flake cores and the single platform flake core have platform edge abrasion, possibly suggesting that they are residual from an earlier technology. Unfortunately both are from the unstratified material and cannot be compared to associated material. The heavy implement is a single platform flake core with a very battered keeled edge. It was possibly used as a chopping tool following reduction as a core.

The tools category consists of one denticulate, one end scraper, one knife, two piercers, one notched flake, three retouched blades and four retouched flakes. The denticulate has three inversely retouched teeth, which possibly continued beyond the break. The end scraper has direct retouch on the distal end and is in good condition. The knife has direct retouch on the proximal and medial left (Illustration AH-1942). Unfortunately it is broken and has suffered edge damage. The two piercers both have direct retouch. The notched flake has been retouched on a thermal flake. The retouched flakes and blades have direct or inverse retouch on one or more edges. Of the three retouched blades, one is of particular note. It has direct retouch on the whole of the left edge (Illustration AH-1660) and is likely to be an early Mesolithic long blade.

4.6 Usewear

A total of 161 pieces, from five contexts, were examined for utilisation, the aim being to identify the key groups that would benefit from more detailed analysis in the future. Assessable material was scanned using low power microscopy (x20-x40 magnification) and the presence or absence of damage from utilisation was recorded. Just five pieces were unaccessible and of the remaining number 47% have usewear present.

5 COMPARISON WITH ARC CGC97

The material recovered from the excavations was compared to that already examined from the 1997 evaluation. The following characteristics can be seen in both assemblages: gravel was the predominant raw material, with some use of Bullhead and chalk flint; both hard and soft hammer impacts were recorded; multi-platform flake cores are in the majority, with tested nodules also being fairly common; retouched flakes and blades feature highly; rejuvenations are present. The main difference between the two assemblages is the date placed on them. The

evaluation was dated as being Neolithic and early Bronze Age, slightly earlier than the Middle and Late Bronze Age date given to the material from the excavations.

6 DISCUSSION

The majority of the flint from Cobham Golf Course can be dated to the middle and late Bronze Age. This is based on technological and typological aspects of the material. There is an earlier component to the assemblage, including a long retouched blade, which is likely to be Mesolithic, and a small proportion of material that could be from the Mesolithic and Neolithic. This suggests a long term human presence at the site. The flint supports the proposed dating of the three distinct groups, that is the early Bronze Age ring ditch, a series of Bronze Age features and a group of later Bronze Age features. On the basis of technology and typology, the flint from the undated ditch boundary can also be dated to the Bronze Age. The rest of the material was recovered from a variety of contexts, and represents material from the Mesolithic through to the Bronze Age. Excluding the flint from the early Bronze Age ring ditch, most of the flint was thinly spread across the site and suggests low-density background activity.

The high number of tested nodules, 26% of the total number of cores, is unusual. Most exhibit minimal flaking and may suggest that an abundant source of raw material is located fairly close by. There is also an unusually high number of denticulates, 13% of the total number of tools. It is possible that specialised activities took place at the site, for example flax processing.

*Table 2. Summary of burnt unworked flint by context
Mostly re-used assessment data (Bradley 2001:55, tables 12, 14) with some additions.*

Event code	Context	Feature	Count	Weight (g)	Comments
ARC CGC 98	0		15	479	
ARC CGC 98	61	62	1	74	Small burnt pebble, also 2 natural
ARC CGC 98	112	111	2	141	Calcined grey
ARC CGC 98	122	123	1	89	Calcined grey
ARC CGC 98	128	129	4	284	Calcined grey and red
ARC CGC 98	136	137	8	231	Calcined grey
ARC CGC 98	138	139	3	167	Calcined grey
ARC CGC 98	142	143	7	185	Calcined grey
ARC CGC 98	146	147	2	140	Calcined grey
ARC CGC 98	148	149	4	406	Calcined grey
ARC CGC 98	160	161	53	2664	Calcined grey and occasional red
ARC CGC 98	160	161	2	37	Calcined grey with red tinges
ARC CGC 98	162	163	25	642	Calcined grey
ARC CGC 98	164	165	3	164	Calcined grey
ARC CGC 98	168	169	2	140	Calcined grey
ARC CGC 98	176	177	21	1291	Calcined grey, including large pieces from nodules
ARC CGC 98	178	179	3	281	Calcined grey
ARC CGC 98	182	183	1	5	Calcined grey, also 25 natural
ARC CGC 98	223	224	2	141	Calcined grey
ARC CGC 98	227	228	1	29	Calcined red
ARC CGC 98	360	363	15	242	
ARC CGC 98	361	363	50	118	
ARC CGC 98	366	367	3	146	

Event code	Context	Feature	Count	Weight (g)	Comments
ARC 330 98D	362	363	10	35	Calcined white to grey
Total			238	8131	

7 CATALOGUE

Table 3. Catalogue of illustrated flint.

Fig.	Context	Feature	Category/description
AH-1857	227	228	End scraper. Side trimming flake, cortical platform, direct retouch to distal end.
AH-1824	223	224	End scraper. Direct retouch to distal end and distal right, cortical distal end, damage to medial left
AH-1998	221	222	End and side scraper. Made on a cortical blank, direct retouch to distal end and distal sides.
AH-1825	223	224	Piercer. Direct retouch to distal left and right, some cortex on flake, minimal damage.
AH-1996	221	222	Denticulate. Made on a cortical blank, crescent shape, continuous direct retouch.
AH-1991	198	199	End and side scraper. Made on trimming flake with cortical platform, direct retouch to distal end and distal sides, usewear on scraping edge.
AH-1942	0		Knife. Side trimming, large bulbar scar, distal break, edge damage, direct retouch proximal and medial left.
AH-1660	3001	3002	Retouched blade. Upper Palaeolithic or early Mesolithic long blade, small proximal break with later retouch, direct retouch on whole of left edge, some damage.

Table 4. Catalogue of photographed refits.

Fig.	Context	Feature	Category/description
ZY-1	160	161	Refit between 3 flakes. Struck from same platform, hard hammer, early stage in reduction process.
ZY-2	160	161	Refit between a multi-platform flake core and 2 flakes.

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