Appendix 2: Artefactual materials

Prehistoric pottery *by Alistair Barclay and Louise Rayner* (Fig. A2.1)

Three route sections (Movers Lane; Prince Regent Lane and Woolwich Manor Way) produced a total of 819 sherds (7680g) of prehistoric pottery, ranging in date from early Neolithic to Iron Age (Table A2.1). However, most of the pottery can be assigned to the phase of the early Neolithic when decorated bowl was current (3650-3350 cal BC) and to the Deverel-Rimbury and plain ware phases of the mid to late Bronze Age (1500-900 cal BC). Overall the assemblage is characterised by a high degree of brokenness and although featured sherds are quite numerous, the number of reconstructible profiles is relatively low. The overall condition of the assemblage is poor with most sherds exhibiting post-depositional surface damage.

Method

The assemblage was analysed using a standard system developed for the recording of prehistoric pottery and in accordance with the guidelines of the Prehistoric Ceramics Research Group (1992). The assemblage was quantified by sherd count (fresh breaks excluded where possible) and by weight (g). Featured sherds were noted and a selected record was made of decoration, surface treatment, average sherd thickness, diameter, firing colour, the presence of food residues and condition. Fabrics were recorded using a standardised alpha-numeric coding system where letters are assigned to the principal inclusions (A=sand, F=flint, G=grog, S=shell) and a number is used to differentiate variations in the frequency and size of inclusions. In the absence of featured sherds dates were assigned on the basis of fabric analysis. The data was entered on to a Microsoft Access database.

Fabrics

Fabric descriptions are listed in Table A2.2. All of the fabrics recorded indicate that local resources were involved in production. Typically the early and middle Neolithic fabrics are predominately tempered with angular (?knapped) flint inclusions, while grog (broken pottery/fired clay or clay) is used in the fabrics of late Neolithic and early Bronze Age pottery. Calcined flint (burnt and crushed often with a blocky texture) is the temper of choice during the mid-late Bronze Age. The pattern of long-term fabric use, change and choice mirrors that of other sites within the Thames Valley. The occurrence of flint as an inclusion in much of the pottery, in particular material of early-middle Neolithic and middle-late Bronze Age date, introduces the possibility that a relative small proportion of the assemblage has been assigned an incorrect date.

Charred residues and radiocarbon dating

Carbonised residues assumed to derive from the burning of food during cooking were observed on a number of vessels of early and middle Neolithic date and mid-late Bronze Age date. Five vessels with charred residues were selected for radiocarbon dating (Table A2.3). Two of the samples (context 17 sf12 from FRU01 and context 38 from TGW00 T23) failed. The other results are discussed below.

Table A2.1 Prehistoric pottery, breakdown of the assemblage by site

	Prince Regent Lane		*Movers Lane*		*Woolwich Manor Way*		*Total*	
	No. sherds	*Weight*	*No. sherds*	*Weight*	*No. sherds*	*Weight*	*No. sherds*	*Weight*
Early Neolithic – plain and decorated bowl	9	48g	186	1388g	116	918g	311	2354g
Middle Neolithic – Peterborough Ware	3	37g	68	477g			71	514g
Late Neolithic- Grooved Ware			17	159g			17	159g
Late Neolithic/Early Bronze Age- Beaker	1	8g	2	15g	13	120g	16	143g
Early/Middle Bronze Age – Biconical Urn			1	7g			1	7g
Mid-Late Bronze Age – Deverel-Rimbury/PDR	240	3419g	89	907g	4	22g	333	4348g
Indeterminate Prehistoric and Iron Age	11	56g	45	53g	14	46g	70	155g
Total	264	3568g	408	3006g	147	1106g	819	7680g

Style, form and decoration

Early Neolithic

A total of 311 early Neolithic sherds (representing a minimum of eight vessels) were recovered from three of the route sections (Freemasons Road, Movers Lane and Woolwich Manor Way, Table A2.1). Many of the sherds were assigned an early Neolithic date on the basis of fabric and, therefore, it is possible that a proportion of these are in fact 'plain' Peterborough Ware, while others could be of mid-late Bronze Age date (see above).

Nine sherds (48g) were recovered from six contexts (49, 52, 81, 101, 118 and 136) at Freemasons Road. Featured sherds include a rolled rim from 136 and a decorated body sherd, possibly from a Mildenhall

Table A2.2 Prehistoric pottery, fabric descriptions

Code	*Description*
Early Neolithic	
A1/EN	Hard sandy fabric tempered with colourless and white quartz grains
AF1/EN	Hard sandy fabric tempered with colourless and white quartz grains and rare small angular flint
AF2/EN	As above but with slightly coarser (1-3 mm) flint inclusions
F1/EN	Hard fabric with generally well sorted small angular flint (1-2mm)
F2/EN	Hard fabric with sparse ill-sorted small to medium angular flint (1-3mm)
F3/EN	As above but with flint grits up to 7mm
FA2/EN	Hard fabric with sparse ill-sorted small to medium angular flint (1-3mm)
FA3/EN	As above but with flint grits up to 7 mm
LS2/EN	Soft fabric with lenticular plate-like voids probably from leached shell
Middle Neolithic	
F2/MN	Similar to F2/EN
F3/MN	Similar to F3/EN
F4/MN	Similar to F3 but with much coarser flint inclusions
FG3/MN	Similar to F3 but with the addition of rare angular grog
Late Neolithic	
AG1/LN	Hard fabric with sparse quartz sand and rare grog
F1/LN	Hard fabric with sparse fine angular flint- possibly not of this date
G1/LN	Hard fabric with sparse small subangular grog
GFA1/LN	Hard fabric with sparse subangular grog, rare fine angular flint and rare coarse quartz sand. The presence of voids indicate that some organic material has been lost (leached shell or burnt out plant matter)
Late Neolithic/early Bronze Age	
AG1/LNEBA	Hard fabric with sparse quartz sand and rare grog
GA1/LNEBA	Soft fabric with rare subangular grog and rare quartz sand
FGA2/LNEBA	Hard fabric with sparse fine to medium flint, rare grog and rare quartz sand
VG1/LNEBA	Vesicular fabric (?leached shell) with rare subangular grog
Early middle Bronze Age	
FG3/EMBA	Hard fabric with sparse small to coarse calcined flint and rare medium to coarse angular grog
Middle-late Bronze Age	
F1/MBA,MLBA,LBA	Hard fabric with common to dense fine calcined flint
F2/MBA,MLBA,LBA	Hard fabric with moderate to common small to medium (1-3mm) calcined flint
F3/MBA,MLBA,LBA	Hard fabric with moderate small to coarse (1-6mm) calcined flint
FGP3/MBA	Hard fabric with moderate to common small to coarse (1-6mm) calcined flint, sparse subangular grog and rare natural clay pellets
FA2/LBA	Hard fabric with moderate to common small to medium (1-3mm) calcined flint and rare quartz sand
Iron Age/indeterminate prehistoric	
S1/PREH	Soft sometimes brittle fabric tempered with small and often quite dense fine shell platelets. Sometimes leached
S2/PREH	Similar to above but with coarser shell platelets
NAT/PREH	No added temper/temper free fabrics

style bowl, from context 81 (SF98) (Fig. A2.1, 7).

One hundred and eighty six sherds (1388g) were recovered from Movers Lane: most were plain body sherds. The only featured sherds were two rolled rims, one recovered as a redeposited find from Grooved Ware pit 5142 (SS16) (Fig. A2.1, 5), and the other from 3004 (SF175). Of the plain body sherds notable concentrations of pottery came from T8 context 628 (44 sherds), context 121 (43 sherds), T1, context 11 (21 sherds) and context 1094 (22 sherds).

One hundred and sixteen sherds (918g) were recovered from Woolwich Manor Way. Most of the pottery was recovered from 2008 with a few additional sherds coming from 2007, 2013 and as unstratified finds from area 3 and T15. Featured sherds included a shouldered bowl (Fig. A2.1, 1), an everted rim (Fig. A2.1, 6) and a neck sherd. Three sherds from 2008 had been either overfired or refired. The shouldered bowl had sooty and charred residue below the rim and had therefore been used as a cooking pot. The neck sherd (2008 SF82) is from a fine black burnished bowl with thickened surface broken just below the rim. A thickened semi-rolled rim (Fig. A2.1, 2) from 2008 is decorated with rows of `horseshoe`-shaped motifs probably made with the articular surface of a bird or small mammal bone to give oval-shaped impressions. Rims of similar type and with this decoration occur within decorated bowl assemblages from south-east England (for example from Spong Hill: Healy 1988). There is also an expanded rim with oblique incised decoration and internal vertical burnished lines (Fig. A2.1, 3) and a plain everted rim (Fig. A2.1, 4).

Collectively the pottery could be accommodated within the Mildenhall style of the decorated bowl tradition of the mid 4th millennium cal BC (*c* 3650-3350 cal BC) that is generally distributed across eastern England but is also found in north Kent (see Gibson and Leivers 2008; Barclay 2008). This pottery would be broadly contemporaneous with the assemblages recovered from the causewayed enclosures at Orsett and Staines (Kinnes 1978; Robertson Mackay 1987). Small assemblages of early Neolithic pottery have been recorded at the Royal Docks Community School, Prince Regent Lane (Rayner 1997) and at Brook Way, Rainham (Holder 1998, 10) while the pottery from Yabsley Street, Blackwell (Raymond 2008), Erith Spine Road (Bennell 1998) and Rectory Grove, Clapham (Densem and Seeley 1982, fig 5) belongs to the earlier Carinated Bowl tradition (4000-3650 cal BC: Barclay 2008; Barclay and Case 2007; Herne 1988).

Middle Neolithic

Seventy one sherds (514g) can be assigned to the developed Peterborough ware style (Mortlake) on the basis of form, decoration and fabric. A minimum of six vessels are represented in total with material recovered from three route sections sites (Prince Regent Lane, Freemasons Road and Movers Lane: see Table A2.1) with most of the material (59 sherds) recovered from a single deposit, 5074, from Movers Lane (see below), a context that also produced a fragmentary jet belt slider (Sheridan, Appendix 2).

A small impressed decorated sherd came from context 95 (T21) at Prince Regent Lane and two

Table A2.3 Prehistoric pottery, selected sherds with charred residue submitted for radiocarbon dating

Site code	*Lab code*	*Context*	*Date*	*Form*	*Fabric*	*Sample*	*Result BP*	*cal. BC*
WMW00 (T15)	SUERC-24830 (GU-18954)	2008	Early Neolithic	Closed shouldered bowl	F3/EN	Soot and charred residue on exterior surface below the rim	4685±45	3630-3570 (14.8%), 3540-3360 (80.6%)
FRU01	GU-18957	17 (SF12)	Mid-late Bronze Age	Rim form a bipartite jar	F2/MLBA	Internal charred residue	sample failed	-
FRU01	SUERC-24831 (GU-18958)	9 (SF3)	Mid-late Bronze Age	Lower part of a small jar with flint-gritted base	F2/MLBA	Internal charred residue on body wall	2740±45	1000-800 (95.4%)
FRU01	SUERC-24598 (GU-18959)	125 (SF150)	Mid-late Bronze Age	Fragmentary jar. Rim, body and base sherds have thick encrusted residues on the interior surface.	F2/MLBA	Base sherd-internal residue	3020±35	1400-1190 (90.3%) 1180-1130 (5.1%)
TGW00 (T23)	GU-18955	38	Mid-late Bronze Age	Rim from a jar	F2/MLBA	External charred residue	sample failed	-

sherds with impressed twisted cord decoration came from contexts 40 (SF46) and 49 (SF114) from Freemasons Road.

The majority (68 sherds) of the Peterborough Ware sherds were recovered from Movers Lane. This includes three rims (Fig. A2.1, 8-10), a shoulder and a small number of decorated body sherds (not illustrated). One of the rims, from 5016, is from the same vessel as that from 5074 (Fig. A2.1, 8). A small decorated (bone impressed) everted rim could be from an Ebbsfleet style vessel (Fig. A2.1, 11).

The fragmentary remains (55 sherds) from at least three Mortlake Ware vessels manufactured from a coarse flint-tempered fabric (F3/MN) were recovered from context 5074 (Movers Lane). All three vessels (Fig. A2.1, 8-10) are represented by a small number of decorated rim, shoulder and/or body sherds. All three vessels can be described as closed shouldered bowls, although their rim forms and decoration show a degree of variation. One vessel (Fig. A2.1, 9) has a short slightly out-turned thickened rim with typical squared profile. The exterior surface and possibly the rim-top are decorated with short lengths of impressed twisted cord, while the interior rim surface carries an incised lattice motif. A second vessel (Fig. A2.1, 10) has an out-turned rim with an internally expanded lip. The surfaces of the rim and the exterior body surface are decorated with rows of short lengths of impressed twisted cord. Black residue, possibly charred, was observed on the interior rim surface, within most of the crescentric impressions. A third vessel (Fig. A2.1, 8) (same vessel as rim fragments from 5016) has an expanded slightly T-shaped and out-turned rim that is decorated with deep neck pits (finger-tip impressed) and rows of short lengths of impressed twisted cord. The interior neck surface is also decorated with twisted cord impressions, while the outer surface of the neck, shoulder and upper body are decorated with alternating horizontal bands of pinched finger-tip and twisted cord impressions. Beneath the shoulder the body is mostly decorated with horizontal rows of rusticated finger-pinching. A few of the small sherds from this context appear to have been heat damaged, possibly through over-firing or refiring. Unfortunately these sherds can not be assigned to one of the vessels with any certainty although they are in a similar fabric. In addition, from 1109 there was a thick-walled sherd (20mm) probably from near the base of a Mortlake style bowl with faint impressed (?finger-tip) decoration, a shoulder sherd with twisted cord maggot impressions (Fig. A2.1, 13) came from context 60, a rim with twisted cord impressed decoration from context 1094 (Fig. A2.1, 12) and two sherds with indeterminate impressed decoration also came from 1094.

The bowls recorded from the A13 are different in character from the mostly plain pottery recovered from deposits at Ebbsfleet which, at around 3550-3300 cal BC, are of slightly earlier date (Burchell and Piggott 1939; Barclay and Stafford 2008). The closed bowl forms, relatively short necks, slightly heavy rims and profuse use of impressed decoration indicate that the Movers Lane vessels belong more within the Mortlake than the 'developed' Ebbsfleet style. Similarities can be made with the pottery recovered from the ring ditch at Staines Road, Shepperton (Jones 2008) which is noted as mostly Mortlake and from the outer ditch of the Staines causewayed enclosure which is classified as Ebbsfleet ware (Whittle in Robertson Mackay 1987, 90 and fig 52: P175-185).

Mortlake ware belongs to the period 3350-2850 cal BC (Barclay 2008; Barclay and Case 2007; Peter Marshall pers comm; Gibson and Kinnes 1997) and is considered to have developed out of the Ebbsfleet and decorated bowl styles of the mid-4th millennium cal BC. There are considerable finds (75 sites) of Peterborough Ware from, in particular, the west London area (Cotton 2004, fig. 15.5), although finds from the east side of Greater London are in contrast relatively sparse. River finds of Mortlake Ware are well known and include the bowls from Mortlake, Hammersmith and Putney, while other finds are known from foreshore and eyot contexts (Holgate 1988; Cotton and Johnson 2004 and Cotton 2004).

Late Neolithic

Seventeen sherds (159g) of Grooved Ware were recovered from Movers Lane (contexts 1052, 5142, 5169 and 5189). Featured sherds are rare and include a rim and a body sherd with grooved decoration from 5189 (Fig. A2.1, 14) and a small decorated body fragment from context 5169. The pottery from contexts 1052 and 5142 can only be assigned to the Grooved Ware style on the basis of fabric and appearance. However, the relatively thick-walled sherds (11-13mm) with lightly oxidised outer surface and fabric tempered with grog, quartz sand and rare flint closely resemble other Durrington Walls style pottery from the middle and upper Thames valley. Both contexts contain flat base sherds and body sherds with aplastic paired finger-tip impressions (Fig. A2.1, 15-6). The pottery is certainly different in fabric and appearance to sherds of Peterborough ware and Beaker from the A13. The pottery from 1052 could all be from a single vessel, while that from context 5142 occurred alongside residual sherds of early Neolithic bowl (including a neck sherd and semi-rolled rim: Fig. A2.1, 5). The decorated pottery from context 5189 is different in fabric and appearance to the probable Durrington Walls sherds that are described above, although the herringbone pattern and simple rim could also be accommodated within this style (Longworth 1971). Grooved Ware from southern England has a date range of 2900-2400 cal BC (Garwood 1999; Barclay and Marshall 2011).

Beaker

A total of 15 sherds and one fragmentary vessel were recovered from three of the route sections (Freemasons Road, Movers Lane and Woolwich

Manor Way: Table A2.1). The most significant find is the upper portion (approx. half the rim) from an East Anglian style or globular-shaped vessel with zonal decoration (combed bands) (Fig. A2.1, 17) that came from a layer of peat (28, SF1 and SS4), Woolwich Manor Way. The vessel fragment had been inverted and may have been placed within the peat. Residue from the inner surface of the vessel consisted of post-depositional root matter (identified by Ruth Pelling). Two further sherds were recovered from this route section, part of a base fragment (context 01) and an all-over-comb impressed body sherd from T15 context 2007 (Fig. A2.1, 20). Three sherds were recovered from Movers Lane, a base sherd with worn ?comb impressions from 1074 area A2 (Fig. A2.1, 18); a second sherd from the same context tempered with flint could also be Beaker, and two refitting sherds from context 3005 (Fig. A2.1, 19). A single sherd from Freemasons Lane (49 SF77) is from the neck of a probable 'barbed wire' impressed decorated Beaker (Fig. A2.1, 21). It is from a straight or gently shouldered vessel rather than the globular form of the East Anglian style (Clarke 1970).

Beaker pottery was until recently rare within the Greater London area (Clarke 1970, maps 1-10). However, it is now better represented especially in east London (Jonathan Cotton pers comm). Small assemblages of Beaker pottery have been recorded at the Royal Docks Community School, Newham (Rayner 1997), New Road, Rainham, (Doherty 2010), Great Arnold's Field, Rainham (Smith 1964; Howell *et al.* 2011) and further afield at Langford Road, Heybridge where a complete Beaker and some Beaker sherds were recovered (Langton and Holbrook 1997).

With the exception of the vessel fragment, the assemblage is too small to warrant lengthy discussion. The base from 1074 could be from a globular shaped vessel, while the sherds from 3005 appear to be from a vessel with relatively sharp carination. The latter when considered with the occurrence of probable all-over-comb decoration could potentially be from an early type of vessel. The fragmentary vessel belongs within Clarke's East Anglian group (1970), which is generally distributed around the lower Thames and across the adjacent counties of Essex, Kent, Norfolk and Suffolk (*ibid* map 4). This style of vessel is unlikely to be early within the sequence of Beaker pottery (2450-1700 cal BC), although it could belong to the final centuries of the third millennium BC (after 2250 BC- see Needham 2005 and fig 13).

Early/middle Bronze Age

A single sherd (7g) from Movers Lane (context 649) could be of early or middle Bronze Age date on the basis of its appearance and fabric (FG3). This type of fabric is sometimes associated with Biconical and sub-Biconical urns that belong to the end of the early Bronze Age and/or start of the middle Bronze Age period (1800-1400 cal BC).

Mid to late Bronze Age

A total of 333 sherds (4273g) can be assigned a mid-late Bronze Age date (1500-900 cal BC) (see Table A2.1). Featured sherds indicate that both Deverel-Rimbury (1500-1150 cal BC) and post-Deverel-Rimbury (PDR) plain ware (1150-900 cal BC) forms are present. The Deverel-Rimbury pottery is mostly represented by relatively thick-walled sherds (10-20 mm) that are typical of Bucket Urn forms and, more rarely, by thinner walled sherds more characteristic of Globular Urns. The latter includes a rim (Freemasons Road context 105) (Fig. A2.1, 23) and a decorated (combed) body sherd (Freemasons Road, context 81, SF98) (Fig. 22). Numerous sherds (35, 942g) from the base of a Bucket Urn were recovered from Prince Regent Lane (3677) and a single sherd came from T21 context 91. Base sherds, a cordoned sherd and various body sherds were recovered from context 11 T1 and T9 contexts 532, 1005, 1012, 1021, 1033, 1074-5, 1160 and 5038 at Movers Lane. A second base sherd was recovered from Freemasons Road (context 81) and other Bucket Urn sherds came from contexts 303, 105, and 141.

Several vessels are considered to belong to the later 2nd millennium BC and may be considered as either transitional between the Deverel-Rimbury and post-Deverel-Rimbury (PDR) traditions (1200-1100 cal BC) and/or belong to the initial PDR 'plain ware' phase (1150-950 cal BC) (Barclay 2001, 138-9; Barclay 2008; Barclay and Case 2007; Needham 1996, 2007). These assemblages tend to be characterised by simple straight, slightly splayed or ovoid-sided jars with simple flattened or rounded rims (Fig. A2.1, 24-30). Well-developed shouldered forms such as cups, bowls and jars (see Barrett 1980, fig 5:1-5, 12 and 14) are generally absent at this stage being introduced and becoming more common from the late 11th and early 10th centuries onwards. Comparable assemblages include material recovered from Stanwell (O'Connell 1990, fig 28 and 53) to the west of the City, from Gravesend, Kent (Barclay 1994) and further afield at Weston Wood, Surrey (Russell 1989 fig 11, 25), Pingewood Berks (Bradley 1983-5) and Eynsham, Oxon (Barclay 2001).

At Freemasons Road the fragmentary remains of several plain vessels of probable splayed, straight or slightly ovoid form were recovered. Featured sherds include a small number of flattened or squared rims (Fig. A2.1, 27-8: contexts 107 and 125) and base sherds some with deliberately added flint grit and/or a slight 'foot' (Fig. A2.1, 25, 29-30: 9, 107 and 125). One vessel from context 17 (SF12) has a slight bipartite profile (Fig. A2.1, 26). Three simple rims from contexts 1033, 5019 and 5085 at Movers Lane could be from similar vessels to those described above. Charred residues within the bases and on the interior surfaces of a number of body and rim sherds indicate that these vessels were used to cook food over a hearth or within an oven. A fragmentary vessel from Prince Regent Lane (Fig. A2.1, 24) is of similar form to the above but has a

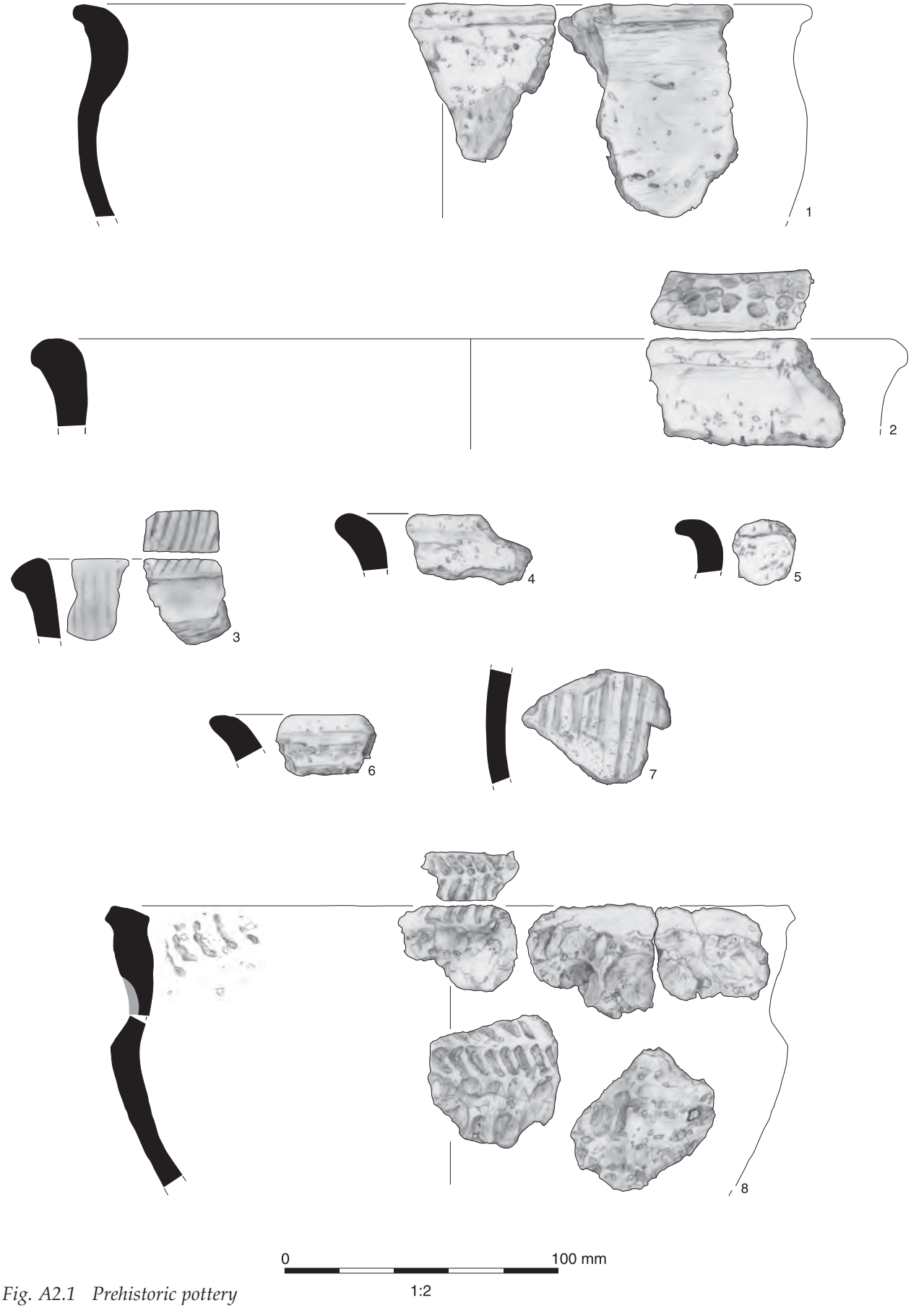

Fig. A2.1 Prehistoric pottery

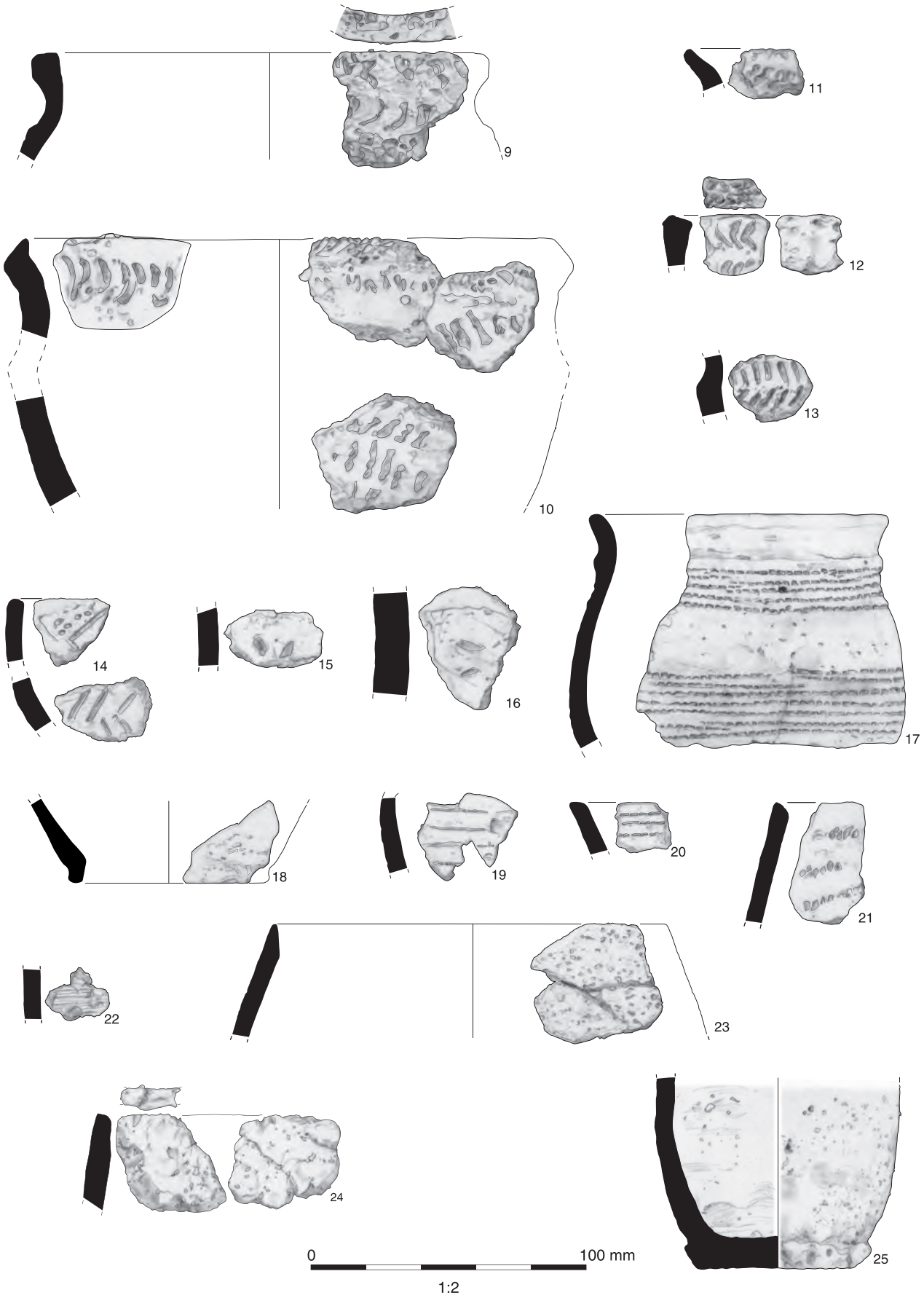

Fig. A2.1 Prehistoric pottery

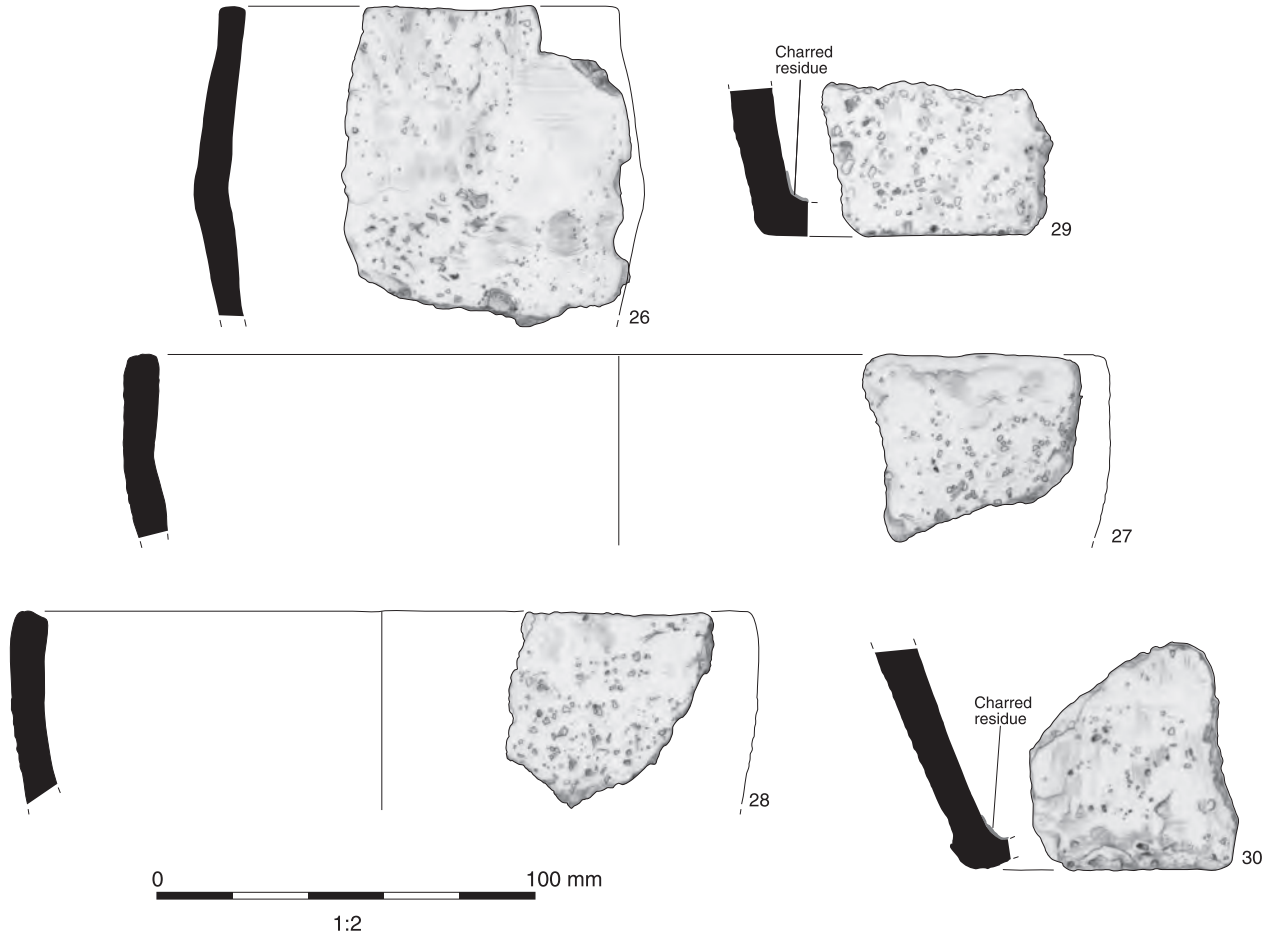

Fig. A2.1 Prehistoric pottery

notched rim. This type of vessel is also considered to be of Mid-Late Bronze Age date and can be paralleled at Gravesend (Barclay 1994, fig. 10:8) and further afield at Eynsham, Oxon (Barclay 2001) and Pingewood Berks (Bradley 1983-85, 27).

Iron Age and indeterminate prehistoric

A total of 70 sherds (155g) are of indeterminate prehistoric date; all are featureless body sherds and some may actually belong within the Iron Age. The latter includes five sherds in shell-tempered fabrics (S1-2) from Freemasons Road (contexts 47, 72, 74 and 81) and Prince Regent Lane (T23, context 63).

Illustrated catalogue (Fig. A2.1)

Early Neolithic

1. **Plain bowl, rim and shoulder sherds from a shouldered bowl of closed form** (142g). Fabric F3/EN. Colour: ext. black; core dark grey; int. dark grey to black. Burnished surfaces. Condition good. External charred residue and sooting below rim. Sample of the residue radiocarbon dated to 3630-3360 cal BC (Table A2.3). Woolwich Manor Way, T15, 2008.
2. **Decorated bowl, thickened rim sherd with impressed oval (bird/small mammal bone) decoration from a large bowl of uncertain form.** Fabric FA2/EN. Colour: ext. black to reddish brown; core dark grey; int. black. Condition good. Woolwich Manor Way, T15, 2008.
3. **Decorated bowl, externally expanded rim with oblique incised decoration on the rim and faint vertical marks on the interior.** From a **Mildenhall style bowl** of probable neutral form. Fabric FA1/EN. Colour: black throughout. Burnished surfaces. Condition good. Woolwich Manor Way, T15, 2008.
4. **Plain bowl, everted rim from a bowl of uncertain form.** Fabric FA2/EN. Colour: ext. and int. light yellowish-brown; core dark grey. Condition worn. Woolwich Manor Way, T15, 2008.
5. **Plain bowl, semi-rolled rim possibly from an S-profiled bowl.** Fabric F3/EN. Colour: ext. and int. greyish-brown; core grey.

Condition very worn. Movers Lane, 5142, SS16.

6. **Plain bowl**, **everted rim sherd** (8g), **originally burnished.** Fabric. Colour: ext. and int. dark grey; core grey. Condition worn. Woolwich Manor Way, T15, 2008, SF121.

7. **Decorated body sherd** (18g) **with shallow, wide vertical tooled lines and a burnished outer surface**. ?Early Neolithic, **Mildenhall style**. Fabric F1/EN. Colour: ext. greyish-brown; core and int. dark grey. Condition worn. Freemasons Road, 81, SF98.

Middle Neolithic

8. **Mortlake ware bowl, rim and shoulder sherds** (37, 195g) **from a closed bowl**. Fabric F3/MN. Colour: ext. greyish-brown to reddish-brown; core grey; int. greyish-brown to reddish-brown. Condition worn. Movers Lane, 5074 and 5016.

9. **Mortlake ware bowl, rim and shoulder sherds** (7, 40g) **from a closed bowl**. Fabric F3/MN. Colour: ext. greyish-brown; core black; int. greyish-brown. Condition worn. Movers Lane, 5074.

10. **Mortlake ware bowl, rim and shoulder sherds** (3, 69g) **from a closed bowl.** Fabric F3/MN. Colour: ext. reddish-brown; core black; int. greyish-brown. Condition worn. Movers Lane, 5074.

11. **?Ebbsfleet Ware**, **out-turned and everted rim with impressed bone decoration**. (1, 5g). Fabric F2/EMN. Colour: ext. and int. reddish-brown; core black. Condition worn. Movers Lane, 1189.

12. **Mortlake ware bowl, rim sherd** (5g) **from a closed bowl.** Fabric F3/MN. Colour: ext. greyish-brown; core and int. black; Condition worn. Movers Lane, 1094.

13. **Shoulder sherd** (6g) **from a small bowl decorated with impressed twisted cord 'maggots'**. Fabric F2/MN. Colour: light reddish-brown throughout. Condition worn. Movers Lane T1, 060.

Late Neolithic

14. **?Durrington Wall style, rim and body sherd from the same vessel with impressed grooves.** Fabric GVFA1/LN. Colour: light reddish-brown throughout. Condition worn. Movers Lane, 5189.

15. **?Durrington Wall style, body sherd with aplastic finger-nail impressions.** Fabric GFA1/LN. Colour: ext. dark reddish-brown; core black; int. grey. Condition worn. Movers Lane, 5142.

16. **Body sherd with aplastic finger-nail impressions**. Fabric GFA1/LN. Colour: ext. light reddish-brown; core and int. black. Condition good. Movers Lane, 1052. ?Durrington Wall style.

Beaker

17. **Approximately 50% of the rim and upper vessel of a globular shaped East Anglian type vessel.** Decorated with horizontal zonal decoration that consists of combed lines-rectangular toothed comb up to 43mm long. The rim is simple and out curves, below which is a plain cordon. Fabric VG1/LNEBA; Colour: ext. grey-reddish-brown; core black; int. greyish-brown. Condition worn. Organic matter adhering to the pottery surface is post-depositional and consist of roolets (id: Ruth Pelling). Woolwich Manor Way, 28 SF1 and SS4.

18. **Base sherd from a globular shaped vessel**. Possible worn ?comb impressions. Fabric: GA1/LNEBA. Colour: reddish-brown. Condition worn. Movers Lane, 1074.

19. **Two refitting comb impressed sherds broken at the shoulder of a carinated vessel.** Fabric: GFA1/LNEBA. Colour: ext. brown; core and int. black. Condition worn. Movers Lane, 3005.

20. **Late Neolithic/Early Bronze Age, Beaker ?upper body sherd** (3g) **with all-over-comb impressions.** Fabric FGA2/LNEBA. Colour: ext. and int. brown; core black. Condition average. Woolwich Manor Way, T15, 2007.

21. **Upper body/neck sherd decorated with short lengths of whipped cord similar impressions to barbed wire but lacking the axial incised line.** Fabric: AG1/LNEBA. Colour: ext. brown; core and int. black. Condition worn. Freemasons Road, 49, SF77.

Mid-late Bronze Age

22. **Small sherd with combed decoration, possibly from a Globular Urn.** Fabric F2/MBA. Colour: black throughout. Burnished. Condition fair. Freemasons Road, 147.

23. **Rim from a closed vessel, possibly a Globular Urn.** Fabric F2/MBA. Colour: ext. reddish-brown; core and int. grey. Interior surface had been smoothed, exterior surface is missing. Condition poor. Freemasons Road, 105.

24. **Rim and body sherds from a probable straight-sided jar with simple notched rim.** Fabric F2/MBA. Colour: ext. brown; core and int. black. Condition poor. Charred residue on

interior surface. Radiocarbon sample failed (see Table A2.3). Prince Regent Lane, T23, 38.

25. **Lower part of a small jar with flint-gritted base**. Fabric F3/MLBA. Colour: ext. and core black and int. grey to brown. Internal charred residue on a number of sherds. Sample produced a date of 1000-800 cal BC (see Table A2.3). Freemasons Road, 9, SF3.

26. **Rim and shoulder sherd from a bipartite jar.** Fabric F2/MLBA. Colour: ext. greyish-brown; core and int. dark grey. Condition fair. Charred residue on interior surface. Radiocarbon sample failed. Freemasons Road, 17, SF12.

27. **Rim, body and base sherds possibly all from the same vessel.** Simple squared rim, poss straight sided form, flint-gritted base. Fabric F2/MLBA. Colour: ext. reddish-brown; core black and int. grey. Charred residue on a number of sherds. Freemasons Road, 107, SF137-8.

28-30. **Rim, body and base sherds from at least two vessels.** Simple squared rim, poss straight sided form, flint-gritted base. Fabric F2/MLBA. Colour: ext. reddish-brown; core black and int. grey. Charred residue on a number of sherds. Produced a radiocarbon date of 1400-1190 cal BC (90.3%) (see Table A2.3). Freemasons Road, 125, SF150.

Roman Pottery *by Edward Biddulph* (Fig. A2.2)

The Roman pottery assemblage comprised some 600 sherds, weighing 11kg. Almost the entire assemblage was from Woolwich Manor Way. A single fragment was collected from Prince Regent Lane. The assemblage was quantified by sherd count, weight, and estimated vessel equivalents (EVE). Museum of London form and fabric codes (Marsh and Tyers 1978; Symonds and Tomber 1991, 94-6) were used as the primary system, although forms were cross-referenced to the Chelmsford typology (Going 1987), which serves as a standard corpus for much of the region.

Prince Regent Lane

A large base fragment (weighing 75g) in Oxford colour-coated ware (OXRC) was collected from deposit 39, a fill of ditch 58. The base was identified as a dish (Young 1977, type C45). The form was produced in the Oxford region from AD 240. Oxford's colour-coated products are recorded in London from this date, but did not arrive in quantity in London and Essex until AD 350 (Symonds and Tomber 1991, 67, 73, 77; Going 1987, 3).

Movers Lane

A single sherd of sandy grey ware (SAND) dating broadly to the Roman period was recovered from gravel layer 832.

Woolwich Manor Way

Forms and fabrics

The assemblage was dominated by sandy grey wares (SAND), which took a 62% share of the assemblage by EVE. None of the pottery could be assigned specifically to source, but the majority is likely to be of local origin. Products recorded in the fabric included necked and bifid-rimmed jars (2G,

Table A2.4 Roman pottery assemblag

Fabric	*Sherds*	*% sherds*	*Weight (g)*	*% wt*	*EVE*	*% EVE*
BB1 Black-burnished ware, category 1	21	3%	225	2%	0.58	13%
BHAD Reduced Hadham ware	15	2%	190	2%	0.15	3%
COAR Coarse-tempered fabrics	211	35%	8506	75%	0.81	18%
MHAD Much Hadham oxidised ware	2	<1%	9	<1%	0	-
NVCC Nene Valley colour-coated ware	4	1%	9	<1%	0	-
OXID Miscellaneous oxidised wares	15	2%	95	1%	0.08	2%
OXIDF Miscellaneous fine oxidised wares	7	1%	37	<1%	0.03	1%
OXRC Oxford red/brown colour-coated ware	1	<1%	4	<1%	0	-
RWS Unidentified white-slipped wares	1	<1%	12	<1%	0	-
SAMCG Central Gaulish samian ware	1	<1%	4	<1%	0	-
SAMEG East Gaulish samian ware	4	1%	65	1%	0.12	3%
SAMLG South Gaulish samian ware	1	<1%	1	<1%	0	-
SAND Miscellaneous sandy grey wares	317	52%	2074	18%	2.83	62%
SESH South Essex shelly ware	1	<1%	4	<1%	0	-
SHEL Miscellaneous shelly ware	2	<1%	30	<1%	0	-
VRW Verulamium-region white ware	3	<1%	24	<1%	0	-
TOTAL	606	-	11289	-	4.6	-

Table A2.5 Roman pottery from context groups 1514 and 2009, AD 240-350, Woolwich Manor Way

Fabric	*Bowl*	*Bowl-jar*	*Dish*	*Jar*	*Storage jar*	*Total*	*% total*
BB1			0.10	0.42		0.52	13%
BHAD				0.1		0.1	2%
COAR				0.7	0.03	0.73	18%
MHAD						*	
NVCC						*	
OXID					0.08	0.08	2%
OXIDF						*	
SAMCG						*	
SAMEG	0.05		0.07			0.12	3%
SAND	0.05	0.23	0.15	2.08		2.51	62%
VRW						*	
Total	0.10	0.23	0.32	3.3	0.11	4.06	-
% total	2%	6%	8%	81%	3%	-	-

2T and 2W—Going types G24 and G28) and plain-rimmed and bead-and-flanged dishes (4J and 4M—Going types B1 and B6), which were manufactured at kiln sites along the south coast of Essex between the 2nd and 4th centuries, for example at Mucking (Jones and Rodwell 1973), Orsett (Cheer 1998, 98-9) and Dagenham (Biddulph 2007). Other forms included a high-shouldered necked jar (2N—Going type G20) dating to the early Roman period and a 2nd-century reed-rimmed bowl (4A—Going type C16). Other reduced wares arrived during the 3rd and 4th centuries from potteries in Much Hadham, which were responsible for a groove-rimmed dish (4J—Going type B3) and bifid-rimmed jar in a relatively fine fabric with burnished surfaces, and Dorset, which produced splayed-rim cooking-jars (2F—Going type G9) and flanged and plain-rimmed dishes (4G226, 4J, 4M—Going types B1, B5, B6) in handmade black-burnished ware (BB1). Coarse-tempered fabrics (COAR), reserved for large storage jars (Going types G42-44), took the second largest share of the assemblage, contributing 18% by EVE. The fabrics contained a similar mix of inclusions, typically sand and flint, but both reduced and oxidised vessels were recorded, the latter being more common. A sherd of South Essex shelly ware (SESH), dating from the mid 1st to mid 2nd century, may also have belonged to a storage jar. The miscellaneous shelly ware (SHEL) included a piece possibly from the Harrold kilns in Bedfordshire, whose products were exported widely in the 4th century.

Oxidised wares were otherwise poorly represented. A smaller storage jar (Going type G45) was made in the oxidised equivalent of sandy grey ware (OXID) while a beaker was seen in fine oxidised ware (OXIDF). Both probably had a local origin, as did the single sherd of white-slipped oxidised ware (RWS). Two sherds were identified as Much Hadham oxidised ware (MHAD), a fine fabric that arrived, like its reduced ware equivalent, during the later 3rd and 4th centuries. The fabric was largely contemporary with Oxford red/brown colour-coated ware (OXRC), which was also present in small quantity. Nene Valley colour-coated ware (NVCC), dating from the late 2nd to late 4th century, was marginally better represented; no forms were identified from rims, although one body sherd was probably from a beaker. Three white-ware sherds (VRW) arrived from the Verulamium region between AD 50 and 160.

Imported products were represented entirely by samian, which contributed 3% to the assemblage by EVE. Most sherds were identified as East Gaulish samian (SAMEG). Two forms were recorded: a Drag. 37 decorated bowl, probably from the Blickweiler factory, and a Drag. 31 dish, possibly from La Madeleine; both dated from the late 2nd century. A single body sherd from a Drag. 33 cup in Central Gaulish samian (SAMCG), dating to the 2nd century, was recorded, while a chip of an unidentified South Gaulish samian (SAMLG) vessel was also present.

Chronology

The presence of South and Central Gaulish samian, Verulamium-region white ware, and South Essex shelly ware indicates later 1st and 2nd-century occupation in the vicinity of the Woolwich Manor Way site. However, no context group is certain to date earlier than the mid-3rd century, confining deposition at site to the late Roman period. Two relatively large groups illustrate the main trends in chronology and supply. Context 2009, a dump over a metalled or consolidation surface, contained almost 200 sherds. Jars dominated the group, but dishes made an important contribution. Deposition from the mid-3rd century is likely. The latest piece was an incipient bead-and-flanged dish (Going B5) in black burnished ware dating from *c* AD 240 to 300/330. An East Gaulish ware dish was probably deposited after the currency of the form (up to AD 240), but it need not have been

out of use for very long. The assemblage from context 1514, a possible midden spread, was larger than that of 2009 and contained a wider range of material. Jars similarly dominated the group, but dishes were restricted to a single bead-and-flanged vessel. Bowls were marginally better represented than dishes, although vessels present were residual. The dish and bowl-jar (cf. Going 1987, 21-2), supported by Much Hadham ware and Nene Valley colour-coated ware, date deposition to after AD 250 and up to the mid 4th century, but it is possible that groups 1514 and 2009 were contemporaneous.

The late Roman emphasis recorded at Woolwich Manor Way is only occasionally matched in assemblages in the region. Mucking's kilns III to V, whose products may well have reached Woolwich Manor Way, were fired from the late 3rd and into the 4th century (Jones and Rodwell 1973, 39). In contrast, over half of the assemblage at Dagenham Beam Washlands belonged to mid-Roman contexts, although early and late Roman pottery was represented (Biddulph 2007). Most pottery from the Stratford Market Depot site dated to the 1st or 2nd-centuries; the presence of Mayen ware, Alice Holt grey ware, Portchester 'D' ware and Oxford products – largely absent at Woolwich Manor Way – also points to later 4th-century activity (Smith 2005, 34-5). A similar assemblage was recovered from Ship Lane, Aveley. Some 40% of the pottery from that site was recovered from deposits dated to the early Roman period. Later 2nd to 4th-century material was present, but in quantities that suggested a reduction in the scale of activity. A final ceramic phase was recorded, assigned to the late 4th century or first half of the 5th century when supply became dependent on major regional industries as local production ceased (Martin 2002, 139, 145). Given Stratford and Aveley's strong early- and latest-Roman emphases, and Dagenham's strong mid Roman phase, the Woolwich Manor Way assemblage fills something of a late Roman gap in the sub-regional ceramic sequence.

Pattern of deposition

The condition of the pottery was variable, as the assemblage comprised a mix of larger pieces and very small fragments. The mean sherd weight for the assemblage as a whole was 19g, but this ranged from 4g in context group 2003 (a dumped deposit) to 31g in group 2009. The pottery from group 1514 had a mean sherd weight of 14g. There was no clear correlation between context type and condition; the mean sherd weight of pottery from alluvial deposit 2010 was 8g, compared with 21g within alluvium 2011. Similarly, the fill of ditch 1508 contained pottery with a mean sherd weight of 16g, while the pottery from a fill of ditch 2002 had a weight of 5g. Context groups were small, containing on average 47 sherds; removing groups 1514 and 2009 reduces the figure to 13 sherds. These factors suggest that, with the exception of the material from 1514 and 2009, the pottery was incidental to the process of deposition, generally being incorporated accidentally within redeposited soil. Given their size, groups 1514 and 2009 are more likely to represent deliberate dumps of cultural material, although the lower mean sherd weight of group 1514 suggests that the groups did not necessarily derive from the area of occupation; we may note too that the proportion of identified residual pottery was slightly higher in 1514.

Pottery use and status

The dominance of jars suggests that the vessel class served multiple functions, including storage, cooking and dining, and points to low-level adoption of forms, such as dishes and mortaria, that typify continental-style dining practices. The absence of mortaria from the albeit small mid and late Roman assemblage at Aveley hinted at an 'impoverished' community there too. In contrast, 46% of the late Roman group from Dowgate Hill, London by EVE was identified as dishes. At Chelmsford, dishes accounted for almost 20% of the Phase 6 (AD 260-310) assemblage (Going 1987, table 10). These figures compare with 8% in groups 1514 and 2009 combined. Similarly, mortaria, including late Roman Oxford forms, accounted for 7.5% of the assemblage by rim count at the nearby Stratford Market Depot (Smith 2005, 34), while Nene Valley and Oxford mortaria were present at the Dagenham Beam Washlands site (Biddulph 2007), but were entirely absent at Woolwich Manor Way. That said, the presence of a possible Much Hadham ware flagon at Woolwich Manor Way – represented by body sherds only – in context-group 2004, and decorated samian Drag. 37 bowl and dishes in various fabrics, suggests that the inhabitants were familiar with certain continental practices and had access to appropriate material.

Little evidence of vessel use was encountered. No fragments were obviously burnt or encrusted with soot or other deposit. The Drag. 37 bowl from group 1514 had a worn rim, while the Drag. 31 dish from 2009 had abraded surfaces, but it seems likely that the wear was caused by the conditions of deposition, rather than use.

Illustrated catalogue (Fig. A2.2)

Context 2009, dump over metalled surface. Group date: AD 240-300/330

1. **Hook-rimmed jar** (2W), fabric SAND
2. **Storage jar** (2V), fabric COAR
3. **Plain-rimmed dish** (4J), fabric SAND
4. **Bead-rimmed dish** (Drag. 31), fabric SAMEG, possibly La Madeleine

Fig. A2.2 Roman pottery

5. **Incipient bead-and-flanged dish** (4G226), fabric BB1

Midden spread 1514. Group date: AD 250-350

6. **Jar with everted rim** (2F), fabric BB1
7. **Hook-rimmed jar** (2W), fabric SAND
8. **Bifid-rimmed necked jar** (2G), fabric SAND
9. **Bead-and-flanged dish** (4M), fabric BB1
10. **Decorated bowl** (Drag. 37), fabric SAMEG, probably Blickweiler

Lithics *by Barry John Bishop* (Fig. A2.3)

Struck flint and burnt flint was recovered from three of the sites along the A13 Thames Gateway Scheme that witnessed extensive excavation: Prince Regent Lane, (PRL),Woolwich Manor Way (WML) and Movers Lane (ML).

This report incorporates and builds upon separate reports that were written for the purposes of assessing the archaeological research potential of the material following the main phases of investigations; the material from PRL, WMW and the initial evaluation at ML was compiled by the present author whilst the material recovered from the main excavation at ML was assessed separately by Wessex Archaeology. The assessment reports, which in many cases contain detailed descriptions of the material, are available from the archives. The lithic material from all of the phases of archaeological excavation including the evaluations and watching briefs was subsequently re-examined in preparation for compiling this report.

This report provides a summary description of the lithic material from each site. It continues with a description of raw material use and the typological and technological characteristics of the assemblages as a whole in order to provide an impression of the changing approaches taken to flintworking along the route of the A13. It concludes with a discussion of the nature, extent and significance of flintworking in this part of London and how this reflects on wider schemes of inhabitation and landscape use along the terrace edge.

Prince Regent Lane

A total of 595 struck flint and over 47kg of burnt flint were recovered from the investigations at Prince Regent Lane. The majority of this lithic material was recovered during the main phases of excavation at Freemasons Road Underpass (FRU) (Table A2.6, Fig. A2.3, Plates 27 and 31). Struck flint and burnt flint was present in all but one of the evaluation trenches with no apparent decline in density along the zone of investigations, indicating that prehistoric lithic-using activities were undertaken over a long stretch of the terrace edge. Further struck flint and burnt flint was recovered during a number of Watching Briefs that were conducted during the construction works, although due to the nature of this work it was not possible in most cases to relate the artefactual material to specific contexts or to assign any observed features to an overall stratigraphic sequence.

Burnt flint

Burnt flint was found throughout the depositional sequence and testifies to the persistent use of hearths at Prince Regent Lane, even during wetter periods of peat formation and alluvial deposition. Many contexts produced burnt flint; it was mostly widely dispersed and found in relatively small quantities, suggestive of the incorporation of background waste from hearth settings. Some concentrations, such as those found in the weathered sands horizons during the excavation at Freemasons Road (FRU01), may indicate the positions of such hearths. A few contexts did

Table A2.6 Lithics, quantity of material from Prince Regent Lane by intervention phase

	Blade/narrow flake Core	*Flake Core*	*Conchoidal Chunk*	*Blade*	*Broken Blade*	*Blade-like Flake*	*Flake*	*Broken Flake*	*Rejuvenation Flake*	*Micro-burin*	*Chip*	*Retouched*	*Total Struck*	*Hammerstone /Pounder*	*Burnt Flint (No.)*	*Burnt Flint (Wt:g)*
Evaluation No.	1	5	15	4	2	7	38	10			9	14	105	1	882	6953
Evaluation %	1.0	4.8	14.3	3.8	1.9	6.7	36.2	9.5			8.6	13.3	100			
Excavation No.	9	32	25	27	5	16	126	76	9	1	45	29	400	1	2757	34661
Excavation %	2.3	8.0	6.3	6.8	1.3	4.0	31.5	19.0	2.3	0.3	11.3	7.3	100			
Watching Brief No.	3	4	5	11	2	3	37	10	1		8	6	90	0	711	5883
Watching Brief %	3.3	4.4	5.6	12.2	2.2	3.3	41.1	11.1	1.1		8.9	6.7	100	0.0		

produce relatively significant quantities, such as the upper fill of ditch 28 (LBA/EIA, FRU01) or the second fill of palaeochannel 22 (LBA/EIA, FRU01), both of which contained over 2kg of burnt flint which may have derived from the deliberate disposal of hearth waste. The largest quantities of burnt flint, however, were recovered from the peat horizons. Over 20kg was recovered from Bronze Age peat at Freemasons Road and significant quantities were also present in the peat recorded during the evaluation, particularly that in T23, but also within the other trenches. Further significant quantities were recovered during the Watching Brief, with over 6kg recovered from contexts 3654 and 3679. Although this later material is not closely contextable, the material was noted as coming from dark organic layers, which most likely equate with the peat formations recorded during the evaluation and excavation.

Although the quantities of burnt flint present in the peat varied spatially, it was widely distributed and it did not appear to represent specific hearth locations. Instead, it mostly consisted of large, heavily and uniformly burnt fragments and appeared to have been dumped *en masse* into the peat. The activities surrounding the creation and deposition of this material are not easily explained. Considerable quantities of burnt flint were also deposited on a linear alignment into similarly dated peat formations at the Hays Storage Depot in Dagenham and were interpreted as 'hard core' consolidation dumped onto the peat in order to allow access across it (Meddens 1996, 326). There were no indications that the burnt flint at Prince Regent Lane formed a linear alignment or that it could have aided the traversing of the peat. It is perhaps more comparable to the quantities that are produced as burnt mound accumulations where flint or other stones are deliberately burnt, such as was identified at Movers Lane (see below), and it may therefore represent the spill-over from such activities.

Struck flint

Struck flint was recovered from throughout the depositional sequence, including anthropogenic features but principally from alluvial deposits. Many of the characteristically earlier pieces are edge chipped and abraded, indicating prolonged trampling and redeposition. The later pieces are generally in a better condition and although no certain *in situ* knapping has been identified, a greater proportion of these may have been discarded directly into features or onto adjacent surfaces and incorporated shortly after.

Mesolithic and early Neolithic activity

Indication of the earliest presence at the site is provided by a residual micro-burin from MBA ditch 183; these are characteristically Mesolithic and derive from microlith manufacture although in some cases they may have been used as tools (for example Donahue 2002). No other certain Mesolithic material was identified although a significant proportion of the overall assemblage was characteristic of Mesolithic or Early Neolithic industries. This material was concentrated within the weathered sandy soils found across the site although similar material was also recovered from later features and deposits, its condition suggesting that it had been redeposited, probably also from the weathered sands. It was perhaps most clearly represented in the weathered sands exposed in the base of the excavations at Freemasons Road (Fig. 4.6). Here the struck flint was concentrated on the western side of Area B and suggested a discrete scatter that continued to the west. A number of these pieces are likely to have been struck off of the same cores but no refitting exercises were conducted. The struck flint from the weathered sands showed no co-relation with the main concentrations of burnt flint, which were located in the northern part of Area B, hinting perhaps at the location of a disturbed hearth.

Technologically, the material from the weathered sands is blade based; blades form nearly 15% of this assemblage and blade-like flakes a further 10%. The two cores from the sands comprise an opposed-platformed blade core and a globular flake-core that had been reused as a hammerstone or pounder. Overall, this assemblage is characterised by a relatively low proportion of unusable knapping waste with a concomitant high proportion of retouched pieces, which amount to over 16%, and potentially useable flakes, which contribute a further almost 40%. This would suggest that, although some core reduction was occurring, the assemblage primarily represents tool use rather than production. The majority of the retouched component from the sands consists of scrapers (60%) with edge-retouched cutting flakes and blades also well represented (Table A2.7). Complementing these latter pieces, a number of the potentially useable flakes and blades exhibit micro-wear damage that would be compatible with them having been used for cutting soft- to medium-hard materials. A bifacially worked flake from context 106 (FRU01, Fig. A2.3.1; Plate 27, a) may indicate attempts at arrowhead manufacture and other possible arrowhead blanks were found as residual material in later phases such as flood deposit 125 (FRU01) and peat layer 101 (FRU01).

The material from the features that cut the sands includes a number of blades and blade-like flakes but these generally appear to have been residually incorporated. Pit 188 (FRU01), for example, contained 16 pieces but these are made from a variety of different raw materials, are generally very fragmented and include many burnt pieces. Retouched pieces from these features consist of two edge-retouched flakes, both probably used as cortically backed knifes (FRU, 162 and 66), a side-and-end scraper (FRU, 66), a bifacially worked flake (FRU, 168) and an invasively retouched flake (FRU,

Table A2.7 Lithics, retouched implements from Prince Regent Lane, all phases

Intervention	*Total Retouched*	*Edge retouched flake*	*Edge retouched blade*	*Bifacially/invasively retouched flake*	*Serrated Blade*	*Serrated Blade-like flake*	*Notched Flake*	*Piercer Blade*	*Piercer flake*	*Long end scraper*	*End scraper*	*Crude Scraper*	*End and side scraper*	*Circular scraper*	*Side scraper*	*Scraper fragment*	*Combined Knife/scraper*	*Invasively retouched flake*	*Arrowhead blank*
Evaluation	14		1		3		1		1	2		3				2	1		
Excavation	29	4	1		1	1		1	1	3	6	1	4	1	1			1	3
Watching Brief	6	2		2				1	1				1		1				

141). The last two possibly represent very early stages in arrowhead manufacture although this is not certain. The material from comparable deposits excavated during the evaluation was broadly similar. Suggestions of *in situ* flintworking were provided by a blade and a flake from the sands in T24 (09), which had clearly been struck from the same core.

Bronze Age

The first evidence for a change in flintworking technology occurs within deposits dated/phased as middle to late Bronze Age. It is clear that there is an element of residuality amongst this material but nevertheless, much of this material is technologically consistent with later 2nd millennium industries. The typological and technological characteristics of theses assemblages from FRU are discussed in more detail below.

Small quantities of struck flint were present in some of the features cutting the surface of the sands in Area B (FRU) but larger quantities were present in the overlying flood layer (FRU, Area B, deposit 125). This material is in a variable condition and was clearly chronologically mixed. There are many early pieces, including a possible arrowhead blank, a core tablet and a few blades, but most of the assemblage consists of crudely produced thick flakes and irregularly and minimally reduced cores, typical of industries dateable to the middle Bronze Age and after. It contains few useable flakes and only two retouched items but higher quantities of trimming flakes, flake fragments, cores and core shatter, suggesting that the assemblage primarily represents the disposal of unwanted knapping waste. All three of the cores consist of small angular fragments of rounded pebbles with flakes removed rather randomly and opportunistically, mostly using cortex or thermal planes as striking platforms, and all exhibit many incipient Hertzian cones indicating unsuccessful attempts at removing flakes. Similar material was found amongst the debris from around the piled wooden structure (Str. 32, Area A). Here, the largest assemblage came from layer 49 and also consists mostly of preparation flakes, flake fragments and cores, with few useable flakes and no retouched pieces present, suggestive of waste discard rather than tool use. This impression is repeated with the assemblage from pit 75 (Area A), which produced ten pieces although most of these consist of small flakes, flake fragments and core shatter, along with a minimally reduced core made from a thermally fractured pebble. This is also consistent with knapping waste with little evidence for actual tool use or discard.

Many of the features recorded during the evaluation, such as ditches 92 (T21) and 129 (T25) and pit 96 (T21), contained small quantities of knapping waste and crude but useable flakes, indicating sporadic flintworking and tool use may have been occurring in their vicinity.

The largest quantities of struck flint from PRL came from the main peat formations recorded at FRU This produced considerable quantities of burnt flint and struck flint, comprising nearly a third of the struck material recovered during the excavation. It demonstrates that despite the seemingly unfavourable conditions as indicated by peat formation, activity involving the use or discard of lithic material was occurring close by. It was found throughout the excavated areas but was concentrated in the southern areas of excavation furthest from presumed drier land and suggests the peat was actually traversed rather than debris just thrown in from its edges. Most of the struck material is characterised by rather thick, often cortical flakes, and cores consisting of minimally reduced shattered-pebble fragments. Actual knapping is testified by the quantities of preparation flakes, flake fragments, cores and undiagnostic core shatter, although a high retouched component is also present. This comprised five scrapers, a possible scraper sharpening flake, two piercers, a blunted-back knife, a serrate and another possible arrowhead blank (Fig. A2.3, 23; Plate 31, a and e). Some are undoubtedly residual, such as the serrate and the possible arrowhead blank, but the dominance of scrapers and, to a lesser extent, the piercers and knife suggest activities such as hide

processing were occurring in the vicinity. Spatially, only minor differences are apparent amongst the struck flint of the northern and southern areas. The northern area did contain higher proportions of useable flakes but fewer retouched implements than were present than in the south. This may indicate different activities occurring, although the size of the assemblages would preclude drawing any definitive conclusions. The silt-clay alluvial layers overlying the peat also contained struck flint and burnt flint. This is significantly less than that found within the peat although sufficient to demonstrate cultural activity continuing in the vicinity, possibly during drier periods. Half of the struck flint comprises cores; these were all made using rounded pebbles, many of which are thermally fractured. Most are minimally reduced and three may have been primarily intended as core tools, as suggested by the small size of the flakes removed. No retouched pieces were present. The distribution of burnt flint declines to the south, with a noticeable concentration within grid square 105/215. This may indicate the presence of a hearth or cooking pit but it is perhaps more likely that the burnt material had been dumped or eroded in from the north.

The peat accumulations and palaeochannels investigated during the evaluation also contained both earlier and later material. The earlier material was probably eroded from adjacent surfaces whilst the later material may indicate activity continuing during their formation. There was little evidence of actual core working amongst the earlier material but potential refittable flakes, cores and frequent trimming and primary flakes and chunks were noted amongst the later material, such as from layers 44/49 (T21).

A few of the features that were cut into these alluvial deposits contained struck flint or burnt flint, the struck flint being dominated by thick flakes and crudely reduced cores. Much of this was found in small quantities and is likely to represent background waste, but an exception to this was the material present in the upper fill of ditch 28 (FRU, 27) which comprised 16 struck flints and over 2kg of burnt flint. The struck flint include most of the stages from the reduction sequence and similarities in the cortex and flint colour suggest that the bulk of this may have originated from a few discrete knapping episodes, although no refittable pieces were identified. It is possible that this material was redeposited from the underlying alluvial deposits but it is perhaps more likely that that the upper fills of this ditch were used for the disposal of waste, including burnt flint and the products from limited knapping episodes.

Another possible exception was the material from the second fill of palaeochannel 22 (FRU). This contained over 2kg of burnt flint and eleven struck pieces, including four cores. Two of the cores are minimally reduced, with small flakes removed from thermally fractured pebbles or possibly even large flakes; one consists of a more extensively reduced rounded pebble while the fourth consists of a flint nodule arguably obtained directly from the chalk (rather than from a secondary source) which has only a few flakes removed. This last piece is somewhat puzzling; it had clearly been imported to the site and may represent a 'tested nodule' or cached piece of raw material. Its shape, which is mostly formed by narrow nodular protuberances, would preclude any extensive reduction and it would seem that the effort expended in bringing it to the site would have been unproductive in terms of its knapping potential. It is quite possible, therefore, that the piece fulfilled some function other than supplying raw material for flint knapping. The depositional history of this assemblage is also uncertain. It may have been redeposited into the palaeochannel through erosion of earlier deposits although some similarities in the technology, flint colour and cortex type may at least tentatively suggests that it represents an homogenous assemblage deliberately dumped into the palaeochannel.

Woolwich Manor Way

A total of 233 struck flints and just under 7kg of burnt flint fragments were recovered from the investigations at Woolwich Manor Way (WMW). Virtually all was recovered during the evaluation with only three struck flints and 681g of burnt flint retrieved during the excavation of the wooden structures.

The lithic material was present in all of the three principal deposits that were identified; the weathered sand horizons, the overlying peat formation and the post-prehistoric deposits and features that cut in to the peat (Table A2.8; Fig. A2.3, 2-7, 10; Plates 25 b and c; Plate 27 b-h). The bulk of the struck flint and a small quantity of burnt flint came from the weathered sand horizons, occupation upon which can be dated to the early Neolithic. Significant quantities of struck flint were also recovered from the overlying peat formation and the post-prehistoric features. The condition of this material and its typological and technological similarities with the material from the weathered sands suggests that the bulk of it probably derives from the same broad phase of activity and may have eroded or been displaced from comparable near-by deposits.

Burnt flint

Distribution of the burnt flint shows a different depositional pattern to that of the struck flint. Whilst it was also present throughout the depositional sequence, the largest quantities came from the peat horizons followed by the post-prehistoric features (see Table A2.8). The burnt flint from within the weathered sands consists of small variably burnt pebbles, typical of incidentally burnt flint clasts and indicative of small campfires or hearth settings. The quantities from the later phases,

Table A2.8 Lithics, quantification of material from Woolwich Manor Way

	Blade/Narrow flake Core	*Flake Core*	*Conchoidal Chunks*	*Blade*	*Broken Blade*	*Blade-like Flake*	*Flake*	*Broken Flake*	*Rejuvenation Flake*	*Chip*	*Retouched*	*Total Struck*	*Burnt Flint (No.)*	*Burnt Flint (Wt:g)*
Weathered Sands No.	0	2	7	18	9	11	59	3	3	4	9	125	21	185
Weathered Sands %	0.0	1.6	5.6	14.4	7.2	8.8	47.2	2.4	2.4	3.2	7.2	100		
Peat No.	2	2	3	9	7	4	30	0	1	1	5	64	290	4336
Peat %	3.1	3.1	4.7	14.1	10.9	6.3	46.9	0.0	1.6	1.6	7.8	100		
Post-Prehistoric Deposits No.	2	0	3	5	8	3	17	0	1	0	5	44	189	2190
Post-Prehistoric Deposits %	4.5	0.0	6.8	11.4	18.2	6.8	38.6	0.0	2.3	0.0	11.4	100		

however, consist of larger pieces that were generally more heavily and uniformly burnt. This would be more typical of the deliberate burning of flint, a practice documented from the Mesolithic through to the historical period. In this instance it is comparable to the pattern seen at PRL, where large quantities of deliberately burnt flint were deposited into the peat during the Bronze Age and possibly has a comparable origin to the masses of burnt flint identified as forming a 'burnt mound' accumulation at ML. The stratigraphic position and radiocarbon dates for the peat that produced the largest quantities of burnt flint (WMW, 2070) in T17, may actually indicate activity dating to the later Mesolithic period and recalls the similar, although more extensive, deposits recorded at Spine Road in Erith or Tank Hill Road in Purfleet (RPS Clouston 1997; Leivers *et al*. 2007).

Struck flint: the early Neolithic flint scatter

The material from the weathered sands probably represents relatively well-preserved surface deposited material. Most came from T15 with only single pieces recovered from the weathered sands in T13 and Area 2. The burnt flint from the sands had a slightly wider distribution, being also present in T16 and Area 1. This restricted distribution is suggestive of a discrete spread or dump of cultural material, centred in the vicinity of T15. The full knapping sequence is represented and similarities in the raw materials used suggest that many pieces may have come from the same cores, although no pieces could be successfully refitted. The material is mostly in a good, sharp, condition although around a third of the pieces show some edge chipping or rounding, there is a relatively high degree of breakage and around 10% of the struck assemblage is burnt. The somewhat variable condition of the assemblage and the lack of refits means that it is not entirely clear whether it represents a more-or-less *in-situ* knapping scatter or a dump of curated or 'middened' material, such as those recorded at other sites along the margins of the Thames, for example by Lamdin-Whymark (2008). The possibility that the assemblage had experienced some redeposition is supported by the fact that, although the full sequence is represented, there is a paucity of small chips and shatter which should be present in considerable numbers had the area witnessed *in situ* knapping.

Table A2.9 Lithics, retouched implements from Woolwich Manor Way

	Total retouched	*Edge retouched flake*	*Serrated flake*	*Serrated blade*	*Serrated blade-like flake*	*Notched blade*	*Bifacially flaked knife*	*Truncated blade*	*Piercer blade*	*End scraper*	*Denticulated Scraper*	*Combined knife / scraper*	*Leaf-shaped Arrowhead / blank*
Weathered sands	9		2	1	1	1				1	2	1	
Peat	5	2		1	1		1						
Post-prehistoric deposits	5					1		1	1	1			1

The material from the weathered sands is technologically homogeneous and similar to the bulk of the material recovered from the peat and the later features. It is predominantly blade-based. Blades contribute over 21% and blade-like flakes a further 8.8% of the assemblage from the weathered sands, and even higher proportions are present amongst the material from the peat and later features. The flakes and blades are generally small, few complete pieces attained dimensions of over 50mm and over half of the complete flakes and blades from the weathered sands are under 30mm long and 20mm wide. The typological and technological characteristics of the struck flint from the weathered sands are described in more detail below.

Only two cores were recovered from the weathered sands, both manufactured from locally available raw materials and abandoned after a few flakes had been removed. Six others were recovered from the peat and later features; all had been extensively reduced, producing blade and narrow flakes.

The flakes and blades suggest that many of the cores used had been brought to the site and any still-serviceable cores appear to have been taken away for use elsewhere, the cores remaining at the site being exhausted or unsuitable for further flake production (eg WMW00, 2005: Fig. A2.3, 7 and Plate 27, e). The flakes and blades had mostly been removed from small single-platformed cores. Interestingly, many of the flakes and blades retain narrow bands of cortex along one of their lateral edges, which may have aided their handling and potential use as cutting flakes. Nine retouched implements were recovered from the weathered sands, representing a relatively high 7.2% of the assemblage from these deposits. Similarly high percentages of retouched implements were recovered from the overlying peat and the post-prehistoric deposits (Table A2.9). The retouched pieces from the weathered sands are dominated by serrated pieces and scrapers, two of the three present being denticulated types (WMW00, 2008: SF138 and SF216; Fig. A2.3, 3-4; Plate 27, c-d). A similar range is seen amongst the retouched pieces from the peat and post-prehistoric features. Of interest are an unfinished leaf-shaped arrowhead from WMW (WMW00, 2001: Fig. A2.3, 5; Plate 25, c) and an obliquely truncated blade WMW (WMW00, 2005: Fig. A2.3, 6; Plate 25, b). Although this latter piece could technically comprise a microlith and therefore indicate a Mesolithic presence at the site, it is perhaps more likely to represent a piercer made using a snapped blade.

Struck flint: use-wear

During the excavations the potential suitability of the struck flints for displaying micro-wear traces was realised and a large proportion of the struck flints were bagged separately and not washed. It subsequently became apparent that the material from the peat and post-prehistoric features had been largely redeposited and it was decided that these would not be conducive for micro-wear analyses. Although it is not certain if the assemblage from the weathered sands was strictly *in situ,* it is in sufficiently good condition to warrant low-power micro-wear analysis following the methodology of Tringham *et al.* (1974). Many of the struck flints from the weathered sands are in a sharp condition but others had experienced some abrasion from movement within its sandy burial matrix and micro-spalling from factors such as trampling and settling, which precluded positive identification of deliberate use-wear.

In total, 86 randomly selected flakes and blades from the weathered sands were examined for potential micro-wear traces. Of these, six are formally retouched and display damage demonstrating they had been used (2 scrapers and 4 serrates), 37 are either burnt or exhibit random and sporadic edge damage considered to be caused by post-depositional processes, such as being shaken with other flakes, during excavation or through trampling (Newcomer 1976; Moss 1983), leaving 43 pieces in sufficiently adequate condition to enable the identification of potential micro-wear traces. Of these, 24 pieces (55.8%) show no evidence of having been used, although it is entirely possible that some or all had been used but not for tasks or for sufficiently long enough to leave traces.

Six types of micro-wear have been identified on the 19 pieces (44.2%) that do show evidence of potential use (Table A2.10). The precise causes of this damage cannot be determined but it is possible to suggest the kinds of actions and materials that may have been involved. Bifacial spalling is most likely to occur through longitudinal cutting- or sawing-type motions, whilst unifacial spalling is most likely to be produced from working the flint's edge at transverse angles to the material, such as through scraping, whittling, shaving or planning. Multifaceted spalling is caused by rotational movement on the tips of converging edges, such as might be caused by using the pieces for piercing. The types of material worked may be suggested by the severity of damage occasioned to the flake. The heaviest spalling, which included a degree of edge crushing, would most likely be caused by working hard materials, such as seasoned wood, bone or antler, whilst light or medium damage could have been caused by working softer materials such as meat, skin, plants or soft wood. The edge rounding observed on one flake may have been caused by the prolonged cutting of materials that have an abrasive element, such as silica-rich plants that include cereals, grasses and rushes. Other flakes from the peat deposits also exhibit clear traces of edge rounding.

The results suggest that a number of activities are represented. Most commonly indicated are cutting, whittling or scraping soft to medium materials, as represented by 12 of the 19 utilized pieces, followed by the scraping of harder materials, represented by four pieces, with piercing

Table A2.10 Lithics, results of the micro-wear analysis on the struck flint from the weathered sands from Woolwich Manor Way

Edge wear description	*Blade*	*Blade Fragment*	*Blade-like Flake*	*Flake*	*Flake Fragment*
Medium bifacial micro-spalling and edge smoothing				1	
Light bifacial micro-spalling	1		1		
Heavy unifacial micro-spalling and edge crushing	2			1	1
Medium unifacial micro-spalling		1		5	
Light unifacial micro-spalling	1		1	1	
Multifaceted micro-spalling around a point	2		1		
Total	6	1	3	8	1

indicated by three pieces. Nearly all of the utilization traces were recorded on lateral margins with a few flakes exhibiting micro-wear on their distal termination where this provided a suitably long stretch of the required edge. The three pieces used for piercing all had micro-wear traces on their converging distal ends.

The types of activities indicated broadly complement the range of retouched types, which are dominated by cutting and scraping-type tools. No piercing tools are present amongst the assemblage from the weathered sands but piercers are present amongst the material from the peat and post-prehistoric deposits. Blades and flakes with acute converging distal ends would make good piercing tools without modification and thus may be under represented among formal tool inventories. The proportions of pieces displaying edge wear and the range of activities represented is broadly comparable to that recorded for a similarly dated assemblage from Ebbsfleet (Lamdin Whymark forthcoming a).

Movers Lane

The investigations at Movers Lane (ML) resulted in the recovery of 820 struck flints (Table A2.11; Fig. A2.3; Plates 25, 29 and 31). The majority of these, 573 pieces, were recovered during the main excavations (RIR), with the remainder recovered during the preceding evaluation (MOE). Considerable quantities of burnt flint are also present. By far the largest came from a single feature, a deposit of burnt flint possibly originating from a burnt mound feature at RIR.

Burnt flint

The greatest quantities of burnt flint from any of the A13 investigations were present as deposit 5264, from which over 82kg (including material recovered during the evaluation, MOE 56/516) was collected. Two associated pits (RIR 5084 and 5088) produced a further 5kg. This deposit clearly represents the dumping of large quantities of deliberately burnt flint close to the palaeochannel and represents important evidence for pyrotechnical activities during the later Bronze Age, it being comparable to a number of 'burnt mound' accumulations found along the margins of the Thames and its tributaries, (see for example Bowsher 1991 and Moore *et al.* 2003).

The majority of the remaining burnt flint recovered during the investigations at ML was distributed in small quantities within a wide range of contexts and this most probably represents general background waste and redeposited material from the burnt flint spread (RIR, 5264). A few features contained higher quantities (RIR, layer 5192 and gully 5159), which may represent the deliberate discard of hearth waste.

Table A2.11 Lithics, quantification of material from Movers Lane

Intervention	*Blade/narrow flake*	*Core*	*Flake Core*	*Conchoidal Chunk*	*Blade*	*Broken Blade*	*Blade-like flake*	*Flake*	*Broken Flake*	*Rejuvenation Flake*	*Chip*	*Retouched*	*Total Struck*	*Hammerstone/pounder*	*Burnt Flint (No.)*	*Burnt Flint (Wt:g)*
MOE No.	1	12	22	22	9	12	108	32	1	13	15	247		1034	5235	
MOE %	0.4	4.9	8.9	8.9	3.6	4.9	43.7	13.0	0.4	5.3	6.1	100				
RIR No.	6	19	41	29	17	19	215	147	6	19	54	573	1	?	>88kg	
RIR %	1.0	3.3	7.2	5.1	3.0	3.3	37.6	25.7	1.0	3.3	9.4	100	0.2			

Struck Flint

The assemblage from ML is chronologically mixed and was clearly manufactured over a long period, with chronologically diagnostic pieces indicating activity occurring at the site from at least the later Mesolithic and continuing into the latter part of the Bronze Age. It was recovered from a variety of contexts with the majority of pieces present within various naturally formed alluvial deposits, including the fills of palaeochannels. The condition and technological characteristics of much of this material suggests that it had been produced over a long period and subsequently washed or eroded in during the formation of these various deposits.

Struck flint was also present in a wide range of features of prehistoric date although usually only in small numbers and, as with the assemblages from the alluvial deposits, in many instances the material's condition and technological characteristics suggests that it originated from earlier phases of activity at the site and had been residually incorporated. The assemblage mostly consists of undiagnostic flakes and pieces of knapping waste, which combined with the problems of widespread residuality, meant that only a few features contained assemblages of good interpretational value. No evidence of any intentional or patterned deposition was identified and, in general, the material suggested incorporation through casual loss and accidental redeposition.

Struck flint: Mesolithic and early Neolithic

The earliest activity at the site is indicated by the presence of a rod-shaped microlith of later Mesolithic date (Jacobi 1978; Switsur and Jacobi 1979), recovered from unstratified contexts from Movers Lane T5 (MOE00: Fig. A2.3, 13; Plate 25, a). No other unequivocal Mesolithic material is present but a high proportion of the overall assemblage, probably more than half, is the product of a blade-based technology of probable Mesolithic or early Neolithic date. Two flakes, one of opaque grey flint and the other of opaque brown flint (RIR01, 1064 and MOE00, 774), have polished dorsal surfaces and indicate the reuse of at least two Neolithic polished implements, most probably axes. There is also a high proportion of Mesolithic or early Neolithic retouched implements amongst the overall assemblage, these being comparable to the range of tools identified at PRL and WMW, including simple edge-retouched blades, serrated implements and various types of scrapers (Table A2.12).

Although Mesolithic or early Neolithic struck flint was widely present across the site, few features of this date could be identified as containing *in situ* or directly associated assemblages. The features initially identified as Neolithic during the assessment stage did sometimes contain struck flint of broadly contemporary date, such as tree-throw hollow 1093 (RIR01) which contained 15 struck flints, including a serrated blade exhibiting silica polishing, a small long-end scraper with blunted margins, and a badly thermally-flawed opposed-platformed core. However, as with the assemblages recovered from the other 'Neolithic' features, these pieces were manufactured from many different raw materials and their condition would indicate that they had been exposed for some time before being deposited into the feature. It is certainly possible that this material originally comprised scatters located along the terrace edge, comparable to those identifiable at PRL and WMW, although much of it had been evidently been disturbed.

Struck flint: later Neolithic/Early Bronze Age

Activity dating to the later Neolithic is represented by a petit-tranchet type transverse arrowhead (Green 1980) recovered from a later Bronze Age layer (MOE00, 60; Fig. A2.3, 15), whilst Beaker/early Bronze Age industries are indicated by the presence of a finely made Sutton B or Conygar Hill type barbed and tanged arrowhead (ibid.) from the reworked brickearth in Area 2 (RIR01, 1033: Fig. A2.3, 16; Plate 25, e). No other truly diagnostic pieces from these periods were identified but there is a high proportion of scrapers amongst the overall assemblage and, whilst scrapers are notorious difficult to date, a number of these are small, oval or circular in shape and with semi-invasive retouch around a good proportion of their circumference. Such characteristics are most commonly encountered in later Neolithic and early Bronze Age examples, as exemplified by the 'thumbnail' types

Table A2.12 Lithics, retouched implements from Movers Lane

Intervention	*Total Retouched*	*Edge retouched flake*	*Edge retouched blade*	*Serrated Flake*	*Serrated Blade*	*Serrated Blade-like flake*	*Notched Flake*	*Bifacially flaked Knife*	*Microlith*	*Flakes from polished implement*	*Piercer Blade*	*Piercer flake*	*Long end scraper*	*Scraper fragment*	*End scraper*	*End and side scraper*	*Circular scraper*	*Side scraper*	*Denticulated Flake*	*Barbed and Tanged Arrowhead*	*Transverse Arrowhead*
MOE	15	2		1	3	1	4	1	1	1					1						1
RIR	54	16	6		7		1			1	1	3	3	1	3	4	2	3	2	1	

that these closely resemble. A further possible implement of this period is a semi-invasively flaked knife made on a large curved blade and with a finely facetted striking-platform, recovered from Neolithic or early Bronze Age pit (MOE 121, Fig. A2.3, 14; Plate 29, a). This is a rather unusual implement but is perhaps most closely matched with the elaborate knives of the later Neolithic or early Bronze Age, such as the plano-convex types.

Again, no cut features of this date contained what could be reliably considered as contemporary flintwork. Some, such as hollow 1171 (RIR01) contained a few pieces with later Neolithic or early Bronze Age characteristics but the general paucity of diagnostic implements and the real possibility of residuality means that no integral assemblages were identified from any of the cut features. A small remnant of alluvium (RIR01, 300), however, contained potentially related struck flint and may represent a scatter or dump of knapping debris and discarded tools (RIR01, 3005, Fig. A2.3, 17-20; Plate 29, b-e). The assemblage consists of two refitting decortication flakes, three scrapers, an edge trimmed flake and a globular flake core. None of the flintwork is particularly chronologically diagnostic but two of the scrapers are typical of later Neolithic and early Bronze Age types whilst the core would not be out of place in assemblages of this date.

Struck flint: middle and late Bronze Age

Despite the paucity of diagnostic pieces and the problems of residuality, it is clear that a significant proportion of the overall assemblage retains characteristics of later prehistoric industries, those dating to the latter part of the second and the first millennium BC.

As with the overall assemblage, much of this was recovered from the later Bronze Age alluvial deposits, some of which contained significant quantities of struck flint, although in all of these cases there were many earlier pieces also present. The later material's condition suggests that, on at least some occasions, active channels and wet areas may have been used to dump the struck flint, although no discrete deposits were noted and much of this material may have been eroded into the alluvium along with the earlier pieces. A possible exception to this may be the struck flint recovered from around the wooden structures in the eastern palaeochannel (RIR 3001). The underlying primary silt-clays within this palaeochannel (RIR 3003) produced an assemblage of 29 pieces, which includes a narrow flake core and several blades, three of which had been trimmed along their edges. The majority of these are of Mesolithic or early Neolithic date and the assemblage is predominantly in a good condition, suggesting that, if not dropped directly into the channel as it was infilling, they must have been washed in from a near-by land surface. From the peat overlying the wooden structures is a small assemblage comprising 26 struck pieces. Some of these are similar to the material from the lower silt-clays, such as a further edge-retouched blade, but most consist of small thick flakes along with two irregularly reduced flake cores, one of which may have been used as a scraper. These are likely to be at least broadly contemporary with the structures although whether these too were residual or represented activities associated with the construction and use of the structures is less certain.

Contemporary activity beside the palaeochannels is somewhat better attested. The burnt flint spread (RIR 5264, contexts MOE 56, 516; RIR 5017, 5018 and 5083) contained 61 struck pieces including a few with early characteristics that had been burnt, but most were technologically homogeneous and typical of later 2nd millennium BC industries. These include many 'squat' flakes with the retouched implements being limited to a notched flake, two large denticulated flakes and two crudely edge trimmed flakes. There are two cores that had had a few flakes removed along one edge, resulting in wedge-shaped pieces which may have been used as tools. Many of these pieces were made from similar pieces of raw materials and a lot of small chips and fragments of knapping shatter are present, suggesting that the deposit may represent waste from both knapping and tool use, although refitting was not successful and most pieces did show some post-depositional abrasion. The deposit also produced a large (465g) weathered but unrolled flint nodule, reminiscent of that from one of the palaeochannels (FRU 22) at PRL (see above).

A large artefact scatter was located within the eastern palaeochannel (RIR 5142). This produced 90 struck flints, nearly all consisting of 'squat' flakes and crudely worked flake cores, the latter mostly consisting of split rounded pebbles each with a few flakes removed, some of which may have been intended as core-tools. Retouched pieces consist of three irregular scrapers, a long angular chunk of flint that had been modified to form a large spur-like piercer, and an edge trimmed blade-like flake, possibly a blunted-back knife, that may be residual. Recalling the nodule from the burnt deposit 5264, there is also a large fragment from a 'bullhead bed' nodule, along with a flake that refitted onto it.

Features associated with the later Bronze Age occupation rarely produced more than a few struck pieces and the material from those that did usually included evidently earlier pieces, with the overall condition of the struck flints indicating a high degree of residuality. This is evident amongst most of the 25 pieces recovered from ditch 620 (MOE 630) although in this case the presence of three refitting fragments from a core, probably a scraping-type core tool, may indicate flint use occurring in the vicinity whilst the ditch was open. Contemporary flint use may also be indicated by the assemblage from pit 5188 (RIRR). The 16 pieces included a number that, whilst not actually refittable, may

have derived from the same core. These include an irregular flake core, a scraper with retouch truncating the flake's bulbar end and three thick edge-trimmed flakes. Pit 814 (MOE) also produced an unweathered flint nodule weighing just under 2kg that must have been obtained directly from the chalk. It has a few flakes removed but is otherwise intact and comparable to the other two nodules recovered from Bronze Age deposits at the site (see above).

Characteristics of the lithic industries

Raw materials

The raw materials used for the lithic assemblages at the three sites all consists of flint but this varied considerable in texture and quality. They can be divided into two basic types, both of which were represented at all three sites. The first comprise small smooth-rolled pebbles and cobbles of coarse-grained 'sugary' or 'stony' cherty flint of a variety of colours. Due to the presence of thermal faults and the frequent presence of impurities, these tended to shatter rather than flake cleanly, restricting the possibility of prolonged or systematic reduction. The limitations in their flaking ability appear to have been offset by their ubiquity within the local gravel terraces, as should one piece fail it could easily be replaced. The second type comprises nodular fragments of black, brown or grey translucent or mottled 'glassy' flint with a thick rough cortex, and include flint from the 'Bullhead Beds' (Shepherd 1972). These also contain thermal flaws but are generally of superior knapping quality. They may have been harder to source. Some, such as a distinctive speckled grey flint found at WMW, may have been obtained directly from the chalk. Most, however, had cortex indicative of origins within derived deposits but which had not experienced any significant alluvial rolling (Gibbard 1986). It suggests that a number of different sources were exploited, including localised patches within the local terrace gravels, glacial tills which occur to the north of the site and mass-weathered chalk deposits which are present about 15km to the east at Purfleet or a similar distance to the south along the North Downs. All sources would have been easily accessible via the Thames and its tributaries.

Where it has been possible to assess chronological preferences in the different types of flint used, it is evident that there is some overlap. The early Neolithic assemblages from the weathered sands at WMW and PRL include good quality flint from a number of different sources but these are complemented with pebbles from the local terrace deposits. The later assemblages from PRL and ML, most of which was of later Bronze Age date, are dominated by the use of the locally available pebble flint, although occasional use of the better quality types is evident, this possibly even involving the reuse of cores and large flakes encountered as relict material from the earlier occupations at the sites.

One intriguing aspect of the later Bronze Age assemblage is the presence of three large and unrolled flint nodules found in different contexts at ML and a similar nodule found at PRL. Each have at most a few flakes removed and are not further worked. They are all of different types of flint and must have been imported to the site. They were unlike the raw materials used for the contemporary struck flint assemblage, which predominantly used low knapping quality pebbles and cobbles from the local terrace deposits. It is possible that they were residual from earlier periods of activity, perhaps representing 'caches' of raw material, as they were comparable to the raw materials used for the Mesolithic or early Neolithic industries. Alternatively, there may be a less prosaic explanation for their presence. Imported but more-or-less unworked nodules appeared to have been intentionally deposited in pre-Iron Age pits at Lefevre Walk in Bow (Brown *et al.* forthcoming) as well as at the late Iron Age site at Iwade in north Kent (Bishop and Bagwell 2005). In the latter case, some of the nodules are very fragile and it is clear that these had been deposited with some care and formality. Prosaic explanations for their deposition are hard to reconcile and it is possible that they represent symbolic or metaphorical objects or materials used in ceremonial practices.

Technology

Mesolithic and/or early Neolithic flintworking was identified at three of the A13 sites and at PRL and ML substantial later Bronze Age industries were present. In order to attempt an exploration of differences in the approaches taken to flintworking from these periods, full metrical and technological analyses were considered for each assemblage. Unfortunately most of the sub-assemblages from the sites are either too small in size or contain a high degree of residual material, rendering them unsuitable for such analyses. Exceptions to this are the artefact spread from the weathered sands at WMW, which provide an integral and well-dated early Neolithic assemblage, and to a lesser extent, the assemblages from the later phases at FRU. At FRU there are noticeable differences between the assemblages from the weathered sands, which are predominantly early in date but with a significant admixture of later pieces, and the later deposits, which although still somewhat contaminated were predominantly of Bronze Age characteristics. It was therefore decided to analyse the earlier and the later phases separately. It should be noted, however, that none of these sub-assemblages are numerically very large and therefore may be prone to a degree of statistical error. Despite this and the possible residuality for some of the material from FRU, a number of interesting trends became apparent during the analyses and it is considered worthwhile to report on these here.

Table A2.13 Lithics, basic flake typology

Types	*WMW (2008) % (n = 86)*	*FRU Weathered sands % (n = 81)*	*FRU Later deposits % (n = 175)*
Blade	29.1	19.8	9.1
Blade-like Flake	11.6	12.3	12.6
Flake	59.3	67.9	78.3

Flake typology

Table A2.13 shows that the high proportions of blades recovered from WMW is not matched by the earlier phases of FRU but there are nevertheless over twice as many blades present in the earlier phases than in the later phases at FRU. Blade-like flakes remained more-or-less consistent across all of the assemblages

Flake shape and size

In order to obtain a more accurate impression of the shape and size range of the assemblages it is necessary to exclude all flakes broken subsequent to manufacture. It is likely that thin and slender flakes would be most prone to post-manufacture breakage and these are likely to be under-represented. Thicker flakes, notably decortication and core shaping ones, are likely to be over-represented, as well as miss-hit flakes that came out thicker than intended, either through thermal flaws or simply by mistake. Nevertheless, all complete flakes and blades flakes from the two sites were measured according to Saville (1980) and their average size given in Table A2.14.

The metrical data confirms that, whilst there is significant variability in the size of flakes and blades, they are on average small with the flakes and blades from WMW being smaller than those from FRU. This is confirmed by the size distribution range; of the material from WMW, over half of the complete flakes and blades are under 30mm long (57.6%) and 20mm broad (50.7%). Although still predominantly small, the figures for the later phases at FRU show that only 38.3% are under 30mm long and 15.7% under 20mm broad. There are thus more longer and significantly more wider flakes in the later phases at FRU than at WMW. The pieces from the early and late phases at FRU are much more comparable, with the earlier material being on average only marginally longer and narrower. One of the most notable aspects of this is the small size of the raw materials used for both the early and late industries. It is argued that the later industries utilized rounded pebbles available in the vicinity (see above), the size and low knapping quality of which would inevitably result in small flakes. The raw materials used for the earlier industries include better quality raw materials that would have been available in larger sizes. Nevertheless, it appears that only small pieces were being brought to the site, presumably as these were more easily transportable. The greater efforts required to procure these may also favour the resultant cores being worked more efficiently and extensively than more-easily obtainable raw materials, which would also result in more smaller flakes being produced.

Following the standard work by Pitts (1978a and b) and Pitts and Jacobi (1979), the shape distribution of all measured unmodified complete flakes was established by dividing their breadths by lengths and these were compared to a sample of dated assemblages as given in Pitts (1978b, 194) and as modified from Pitts and Jacobi (1979, 166) (Table A2.15).

The flakes and blades from WMW are reasonably comparable to the figures given for the sample of later Mesolithic and early Neolithic industries. The

Table A2.14 Lithics, average metrical values

Measurement	*WMW (2008) (mm) (n = 73)*	*FRU Weathered sands (mm) (n=55)*	*FRU Later deposits (mm) (n = 127)*
Length Max.	63	58	70
Length Min.	9	20	10
Length Ave.	31.2	37.9	35.4
Breadth max.	60	56	79
Breadth Min.	5	5	4
Breadth Ave.	22.4	29.3	30.9
Width Max.	17	18	24
Width Min.	1	2	1
Width Ave.	5.8	8.5	8.4
Breadth/Length ratio Max	1.60	1.54	1.92
Breadth/Length ratio Min	0.22	0.30	0.07
Breadth/Length ratio Ave.	0.77	0.80	0.91

Table A2.15 Lithics, flake shapes (breadth divided by length ratios)

Reference	*Suggested Date*	*Breadth/Length Ratio %*					
		<0.2	*0.2-0.4*	*0.4-0.6*	*0.6-0.8*	*0.8-1.0*	*1. 0+*
WMW (2008) (n = 73)	Early Neolithic	0	13.6	25.4	22.0	10.2	28.8
FRU Weathered sands (n = 55)	Early Neolithic/M-LBA	0	3.6	25.5	23.6	21.8	25.5
FRU Later phases (n = 127)	M-LBA	0.8	1.6	15.8	20.5	26.8	34.6
Pitts	Early Mesolithic	2	43	27	13	6.5	9
Pitts and Jacobi	Early Mesolithic	1	34.5	26	15	9.5	14
Pitts	Later Mesolithic	0.5	15.5	30.5	22	14.5	17
Pitts and Jacobi	Later Mesolithic	0.5	13	27	22.5	14	23.5
Pitts	Early Neolithic	0	11	33	27.5	14.5	13
Pitts	Later Neolithic/Bronze Age	0	3	16	25	23	33

material from the early phases at FRU contains fewer blades and narrow flakes than the assemblage from WMW but more than in the later assemblages from FRU. The material from the later phases at FRU did correspond to the figures given for the later Neolithic and Bronze Age assemblages given by Pitts but showed an even greater proportion of very wide flakes present. This may indicate that the commonly noted tendency for flakes to become wider from the Mesolithic through to the early Bronze Age continues throughout the Bronze Age. However, all of the assemblages contain greater numbers of wider flakes than might be expected from their suggested dates, which may reflect the limitations of the small pieces of raw materials that were utilized.

Technological attributes

Table A2.16 shows the incidence of different striking platform types. Cortical striking platforms, indicative of the earlier stages in core reduction and suggestive of shorter reduction sequences and less emphasis on core preparation, remain fairly constant across the assemblages with slightly higher proportion present in the early phases of FRU than at WMW. Unmodified flake and dihedral striking platform types are noticeably less well represented at WMW than in both phases at FRU where they are equally represented and contributed nearly half as many. Complex striking platforms, those that had been trimmed or facetted, are correspondingly more frequent at WMW than within the FRU assemblages although there are slightly more amongst the earlier phases than the later at FRU. There were also greater proportions of shattered platforms amongst the FRU material from all phases, these suggesting less control over reduction and poorer quality raw materials. The average thickness of striking platforms is significantly less at WMW than at FRU, with those from the earlier phases being slightly thinner than those from the later phases.

Table A2.17 shows that the types of bulb of percussion present are in similar proportions at WMW and the earlier phases at FRU, which stand in contrast to those found in the later phases at FRU, and there is a corresponding lower proportion of pronounced types. The pronounced types are associated both with hard hammer working and less control over flaking.

It also shows that there are few differences between the majority of distal termination types in the early and later phases at FRU but the material from WMW contains significantly higher proportions of feather-type terminations and corresponding fewer hinged types. Feather distal terminations are associated with good control over flake detachment and hinged types with less successful removals. Plunged distal types are less diagnostic; they can be associated with deliberate attempts to rejuvenating the core but can also reflect

Table A2.16 Lithics, striking platform type and thickness

Type	*Striking Platform Type*		
	WMW (2008) % (n = 72)	*FRU Weathered sands % (n = 74)*	*FRU Later deposits % (n = 159)*
Cortical	9.7	12.2	13.8
Dihedral	1.4	4.0	3.2
Trimmed	55.6	33.8	30.8
Faceted	6.9	5.4	2.5
Flake Scar	20.8	36.5	37.1
Shattered	5.6	8.1	12.6
	Striking Platform Thickness		
Average (mm)	2.7	3.6	4.0

Table A2.17 Lithics, bulb of percussion and distal termination type

	Bulb of Percussion Type		
	WMW (2008) % (n = 72)	*FRU Weathered sands* % (n = 70)	*FRU Later deposits* % (n = 160)
Diffuse	57.0	59.9	48.8
Pronounced	43.1	40.0	51.2
	Distal Termination Type		
Feather	71.6	48.4	48.5
Hinged	19.6	25.8	29.3
Plunged	4.3	8.1	8.6
Retouched	1.4	12.9	8.6
Stepped	3.1	4.8	5.0

a lack of control over flake detachment. The increased numbers present at FRU may suggest the latter cause is more likely here. The frequency of stepped termination reflects the degree of thermal flawing of the raw materials. Retouched distal terminations were commonly present within the FRU material and much more infrequent at WMW. This reflects the greater number of scrapers and other tools at FRU which have had their distal ends modified, whilst serrates and edge trimmed flakes and blades, which are more likely to be modified along their lateral edges, dominated the tool inventories at WMW.

The patterns of flake scars on the dorsal faces of flakes reflects on the nature of previous removals and are indicative of the strategies and approaches used to reduce cores. Table A2.18 shows that unidirectional removals are the most common types at WMW and both the early and later phases at FRU where they formed around half of all types. The greatest differences between the sites is between the proportions of parallel scars, which are noticeably more common at WMW than at FRU, and multidirectional scars, which are much more common at FRU. Parallel scars, as with opposed scar patterns, indicate an ability to repeatedly produce narrow flakes and are closely associated with blade production. Multidirectional scars suggest an opportunistic approach to flake production, with the random use of any available platform. Most of the orthogonal dorsal scar patterns were found on core tablet type rejuvenation flakes, these being most common amongst the material from WMW.

Summary of flintworking approaches: choices and changes

The principal findings from the metrical and technological analyses suggest that there is a significant difference between the early Neolithic industries present at WMW compared to the predominantly later Bronze Age material from the later phases at FRU. More surprising perhaps is the only marginal differences apparent between the material from the earlier and later phases at FRU. Some differences were noted, the earlier material tends to be more similar to WMW than the later material suggesting that there are higher proportions of earlier material within the earlier phases than the later, but also that a significant quantity of 'intrusive' later material may also be present.

The early Neolithic material from WMW demonstrates good control over flake detachment, including evidence for the preparation and rejuvenation of cores with the intention of producing a series of uniformly shaped narrow flakes and blades. The detached flakes typically exhibit narrow and complex striking platforms and often have parallel lateral margins and dorsal scars. This maximises the productivity of the core and there is evidence that imported cores were worked down to a small size. Both blade and flake cores from this period were identified. Some of the smaller flake cores may have produced blades earlier in their productive lives; others may have been intended to produce large sturdy flakes, such as those required for arrowhead manufacture. Some had shattered during reduction and others had been discarded when exhausted.

Table A2.18 Lithics, dorsal scar patterns

Dorsal Scar Pattern	*WMW (2008)* % (n = 85)	*FRU Weathered sands* % (n = 75)	*FRU Later deposits* % (n = 150)
Multidirectional	8.2	20.0	28.7
Opposed	2.4	5.3	0.7
Orthogonal	3.5	1.3	2.7
Parallel	34.1	22.7	20.0
Unidirectional	51.8	50.7	48.0

Later Bronze Age flintworking at FRU is characterised by an ad-hoc and expedient approach to obtain serviceable edges and involved the rather haphazard reduction of unmodified pieces of raw material until sufficient suitable edges were obtained (cf Saville 1990; Brown 1991; Herne 1991; Young and Humphrey 1999; Ballin 2002). This results in the production of variable but frequently short and wide flakes comparable to Martingell's 'squat flakes' (Martingell 1990). They tend to have wide, cortical or simple-flaked, acutely angled striking platforms, thick bulbs of percussion and frequent hinged distal terminations. Flaking sequences tend to be short, resulting in high proportions of cortex remaining on the dorsal surface, whilst dorsal scar patterns tend to be either unidirectional or multidirectional, reflecting short reduction sequences and the use of fortuitous, randomly aligned platforms. Some flakes suggest the use or the 'anvil' or bi-polar reduction method, often associated with the exploitation of small pebbles, particularly during the later Bronze Age (Saville 1990). Retouched implements are numerous but limited in range to edge-retouched flakes, simple scrapers and thick piercing tools, with one of the principal aim of reduction appearing to focus on the production of sturdy but sharp cutting flakes.

Most of the cores of this period were unsystematically reduced using cortical or thermal plains as striking platforms. There is little evidence for core preparation or attempts at maintenance or rejuvenation and often only a handful of flakes had been removed from any particular platform. A few had been more extensively reduced, sometimes using a 'keeling' technique, but again, only with a few removals from any particular platform and with few long knapping sequences evident. This haphazard approach results in many cores exhibiting incipient Hertzian cones from failed attempts at flake detachment. These were often abandoned when quite large, mainly due to severe hinge/step fracturing but often, once a few suitable flakes had been procured, it appears that the core was no longer needed and consequently discarded. In many cases, however, the cores may have been intended to serve as tools. Differentiating core tools from true cores is rather subjective but the former have flake removals that seem to indicate that modification of the raw materials was the aim, rather than the production of flakes. They have produced flakes that are considered too small for any effective use and they sometimes exhibit battered and worn edges suggesting a use for chopping or heavy scraping.

Discussion: the production and use of struck flint along the A13 route

Numerous archaeological excavations over the past few decades have now been conducted along the wetlands of east London, demonstrating an intensity of interest in the floodplain margins and the marshy areas that developed there from the Mesolithic to the end of the prehistoric period (Meddens 1996; Cotton 2000; Kendall 2000; Greenwood *et al.* 2006). Much of this evidence survives below and within Holocene alluvial deposits, with worked flint often forming an important element of the evidence for human activity. Much of this work has yet to be fully published and the nature of this occupation and the role of flint industries remain poorly understood. The excavations reported here therefore provide a welcome opportunity to explore a few of the questions relating to the nature, extent and significance of flint industries within this area.

Struck flint was recovered from all three of the A13 sites where intensive excavation was conducted. It demonstrates activity along the terrace edge from at least the later Mesolithic period through until the later parts of the Bronze Age. The earliest evidence of activity is provided by a microlith from ML and a micro-burin from PRL, both of which are typological markers for the Mesolithic period. No other certain Mesolithic material was identified and, by themselves, these pieces can only indicate transient activity, perhaps associated with the maintenance of hunting equipment. The extent to which this seemingly ephemeral activity may have been typical, however, remains less certain. On the southern banks of the Thames, potentially vast quantities of very late Mesolithic flintwork were discovered at Erith Spine Road (very little was actually excavated but it appeared to be present in dense concentrations across a wide area) (RPS Clouston 1997; Bennell 1998). There, relatively low proportions of retouched implements were present and the struck flint accumulations were interpreted as representing a 'production' site, where tools such as microliths and tranchet axes were manufactured from the locally outcropping chalk-flint for use elsewhere (Taylor 1996 in RPS Coulson 1997). Further scatters of late Mesolithic flintwork, including microlith and transverse axe manufacturing waste, were found across the river from Erith at Tank Hill Road in Purfleet (Leivers *et al.* 2007). Elsewhere, numerous finds of isolated implements or small scatters of flintwork are suggestive of persistent activity along the river margins (eg Lacaille 1961; Lewis 2000a; Bradley 2005; Bishop forthcoming; MoLA in prep.). The combined evidence suggests that during the later Mesolithic the banks of the Thames were used for a variety of pursuits and, in some places, witnessed intense occupation and the prolific production of flint artefacts.

A similar pattern of activity can be traced into the early Neolithic with numerous sites in the vicinity providing characteristic struck flint (eg Lewis 2000b; Cotton 2000; Coles *et al.* 2008; Bishop forthcoming; MoLA in prep.). In many of these cases, diagnostic Mesolithic and early Neolithic struck flints have been found in close proximity suggesting that similar patterns of landscape use were maintained across the transition.

Extensive although not particularly dense spreads of early Neolithic lithic material were identified from within the weathered sands at all three A13 sites, although only at WMW did these remain relatively undisturbed by later alluvial and human activity. The nature of these assemblages is broadly comparable. Core reduction is represented at all three sites but high proportions of retouched implements and useable flakes indicate tool use was an important element of the activities conducted. The retouched implements include many simple edge-trimmed flakes and serrated pieces, some exhibiting polish, suggesting an emphasis on cutting tasks that probably included the processing of silica-rich plant materials (Avery 1982, 38; Grace 1992; Bradley 1993; Donahue 2002). These may include cereals, which were found at WMW, but other candidates include rushes that would no doubt have been abundant in this riverine area. Also well represented are scrapers, including denticulated types. Scrapers are frequently associated with hide processing, an activity often conducted close to rivers (Bradley 1978), although it has also been suggested that denticulated pieces may have been involved in plant processing (Brown 1992), possibly complementing the uses that were put to serrates. Micro-wear analysis on the Neolithic struck flint assemblage from the Royal Docks Community School, located to the south of PRL, suggests that a variety of tasks were conducted, including the processing of silica-rich plants and woodworking (MoLA in prep.). Hunting maintenance activities are indicated by an almost finished arrowhead from WMW whilst other possible arrowhead blanks are present at PRL, indicating their manufacture and recalling similar activities recorded at Tank Hill Road and further upstream of the Thames at Dorney (Lamdin-Whymark 2001; Leivers *et al*. 2007).

The early Neolithic assemblages identified during the A13 investigations suggest extensive use of the river foreshore although at least at PRL and WMW the material seems to have been formed into relatively small spreads or scatters that may reflect a palimpsest of short-term residencies strung along the river margins. This would fit into a much wider view of Neolithic settlement that acknowledges the importance of a variety of modes of mobility and temporality (Edmonds 1999; Whittle 1997; Pollard 1999).

The lithic material may reference the wider use of the landscape in other ways. The raw materials used appear to have been collected from a number of locations as well as from the immediate vicinity. A number of activities appear to be indicated but the retouched and utilized implements indicate that a degree of specialisation may have been occurring. It suggests that particular activities may have been organised at a landscape level, with different places being preferred for different tasks. The assemblages represented the full reduction sequence, indicating that core reduction and tool production were occurring on-site. Nevertheless, it may also be significant that the quantity of knapping waste was relatively low in respect to the proportion of retouched pieces, which may be considered particularly high even for a 'domestic' assemblage (Wainwright 1972, 66) and these were complemented by high proportions of unmodified flakes and blades that had been utilized. This may indicate that the on-site production of struck flint is under-represented in comparison to that being used, and that tools and useable flakes and blades manufactured elsewhere were being brought to the site. This is also supported by a large number of flakes and blades whose raw materials were not matched by any of the cores present. In addition it appears that, as well as some cores being brought to the site, others were being taken away for use elsewhere. Taken together, these strands of evidence suggests that the various stages in flint production, use and discard, the *'chaine operatoire'*, were also organised on a landscape scale, being undertaken at different times and places and with different stages being emphasised at different locations (cf Ingold 1993; Edmonds 1997; Conneller 2008; McFadyen 2008).

Later Neolithic and early Bronze Age activity is generally less visible in east London than during previous and subsequent periods although contemporary struck flints have been identified at the Royal Docks Community School and elsewhere in the area (Coles *et al.* 2008; Bishop forthcoming; MoLA in prep), and more extensive activity during this period has been recorded downstream in north Southwark (Ridgeway 1999; Proctor and Bishop 2002; Sidell *et al.* 2002). At the A13 sites, later Neolithic activity is attested by the recovery of a transverse arrowhead at ML and a barbed and tanged arrowhead from the same site indicates that activity continuing into the early Bronze Age/ Beaker period. The nature of the activity is hard to assess. A small scatter of knapping debris of possible early Bronze Age date was identified at ML along with a number of small and invasively retouched scrapers, suggesting some form of occupation, but there was little further evidence of intensive flint use during these periods at the other A13 sites. Many of the scrapers from ML were broadly comparable to the 'thumbnail' types, typically of later Neolithic or early Bronze Age date and frequently associated with Beaker period settlements (Edmonds 1995, 140-141). The barbed and tanged arrowhead and, to a lesser extent, the semi-invasively flaked knife, are finely made and this may hint at their uses as prestigious implements, these types sometimes being associated with funerary practices.

There is much greater evidence of flint use associated with the later Bronze Age occupations identified at PRL and ML. These occupations coincide with the onset of wetter conditions and a renewed interest in the east London peatlands, with numerous wetland and dryland sites now having been identified (Meddens 1996; Greenwood *et al.*

2006; Yates 2007). Many of these have produced flint industries although, given the general intensity of occupation, struck flint does not in general seem to play such a prominent role in the material inventories as it may have done previously. Nevertheless, the quantities of struck flint recovered from PRL and ML was sufficient to demonstrate that it continued to play an important role, perhaps complementing the increasing availability and significance of metal tools. Much of the struck flint recovered from Bronze Age deposits at WMW was probably derived from earlier levels but at PRL and ML relatively large quantities were present within alluvial deposits and the fills of cut features. As is often the case with later prehistoric assemblages, formally retouched forms were limited to simple edge retouched flakes and irregular scrapers (for example Herne 1991; Young and Humphrey 1999), with the production of sharp but unretouched flakes often being one of the principal aims of reduction. In other cases, it appears that raw materials were worked specifically to make core tools, the shape of these suggesting their use as chopping and scraping implements.

The range of activities to which the struck flints were put is not easily discerned, but comparable assemblages were recovered during the excavations at the Royal Docks Community School (MoLA in prep.). There, a similar range of implements is present and micro-wear analysis suggests that these were predominantly used to scrape, cut and pierce hides. Features interpreted as hide drying racks were also recorded and it was suggested that the site might represent a specialist hide-processing location, taking advantage of the abundance of water and possibly the peat, which can act as a tanning agent. Features interpreted as cooking pits that contained significant quantities of burnt flint were also identified and it may be that these too were associated with hide preparation. The evidence from the Royal Docks Community School is very comparable to that recorded at PRL and ML and it is possible that similar, rather specialised, activities were also occurring. If so, this does suggest a flourishing hide working industry located along the edges of the marshes. This may have been associated with the widespread agricultural reorganisations that the region witnessed, much of it appearing to focus on animal husbandry (see Meddens 1996; Guttmann and Last 2000; Yates 2007) and it is tempting to speculate that such production may have contributed to the creation of surpluses and was possibly implicated in the complex networks of exchange that were becoming increasingly important throughout the Bronze Age (Rowlands 1980; Needham 1993; Kristiansen and Larrson 2005; Yates 2007; Needham 2007).

The lithic material was present in some numbers in the fills of palaeochannels and alluvial deposits where it may have been eroded in or dumped as refuse from adjacent drier areas. Flintworking was associated with the burnt mound feature at ML and other accumulations of struck flint may suggest a degree of middening was occurring. Many of the later Bronze Age features also provided small quantities of contemporary flintwork although, in general, this material probably reflects the incidental incorporation of general background waste. It does, nevertheless, suggest the sporadic but persistent manufacture and use of struck flint at the sites, the small quantities within any particular features suggesting that flint was probably only knapped and used as the occasion required. Raw materials were obtained and struck flint manufactured, used and discarded, all with some immediacy, in and around the settlement and field-systems. This can be contrasted with the convoluted patterns of resource acquisition, mobility and landscape-wide task allocation that characterised the early Neolithic assemblages.

The quantities of burnt flint found during the excavations are also of interest. Much of this was widely dispersed, reflecting the presence of background waste accruing during hearth use. However, substantial quantities were recovered from the burnt mound feature at ML and further significant concentrations were also present within peat deposits at all of the A13 sites, suggesting that activities resulting in the systematic burning of flint were more widespread. Burnt mound accumulations or pits containing significant quantities of burnt flint have frequently been identified along the terrace edges in east London, from comparable topographic situations in north Southwark; see for example Bowsher (1991) and Heard (2000) as well as further afield, such as along the Fen edge in Cambridgeshire (Healy 1996; Edmonds *et al*. 1999; M. Knight pers. comm.). There certainly seems to be a widespread correlation between the pyrotechnical activities responsible for the generation of large accumulations of burnt flint and wetland margins, although it is less certain what sort of activities would have required the deliberate burning of such quantities. Although there are no reasons to suppose that a single cause was responsible for all, perhaps the most favoured explanations see the burning of flint as being connected with cooking activities, its scale suggesting communal efforts, perhaps associated with feasting or ceremonial practices. Other explanations regard it as the residue from saunas (Barfield and Hodder 1987) and a variety of industrial processes, including leather making, wool processing, and most recently brewing have been put forward to account for its generation (see Hedges 1975; Barfield and Hodder 1987; Barfield 1991; Jeffery 1991; Dunkin 2001; Wilkins 2011). Whatever the activities were that generated the burnt flint, it is possible that on some occasions the accumulations may also have additionally served in less mundane capacities. Before becoming covered with vegetation or buried with alluvium they would have been highly visible along the skyline and may have acted as cultural or landscape markers (Edmonds *et al.* 1999, 70), perhaps demarcating

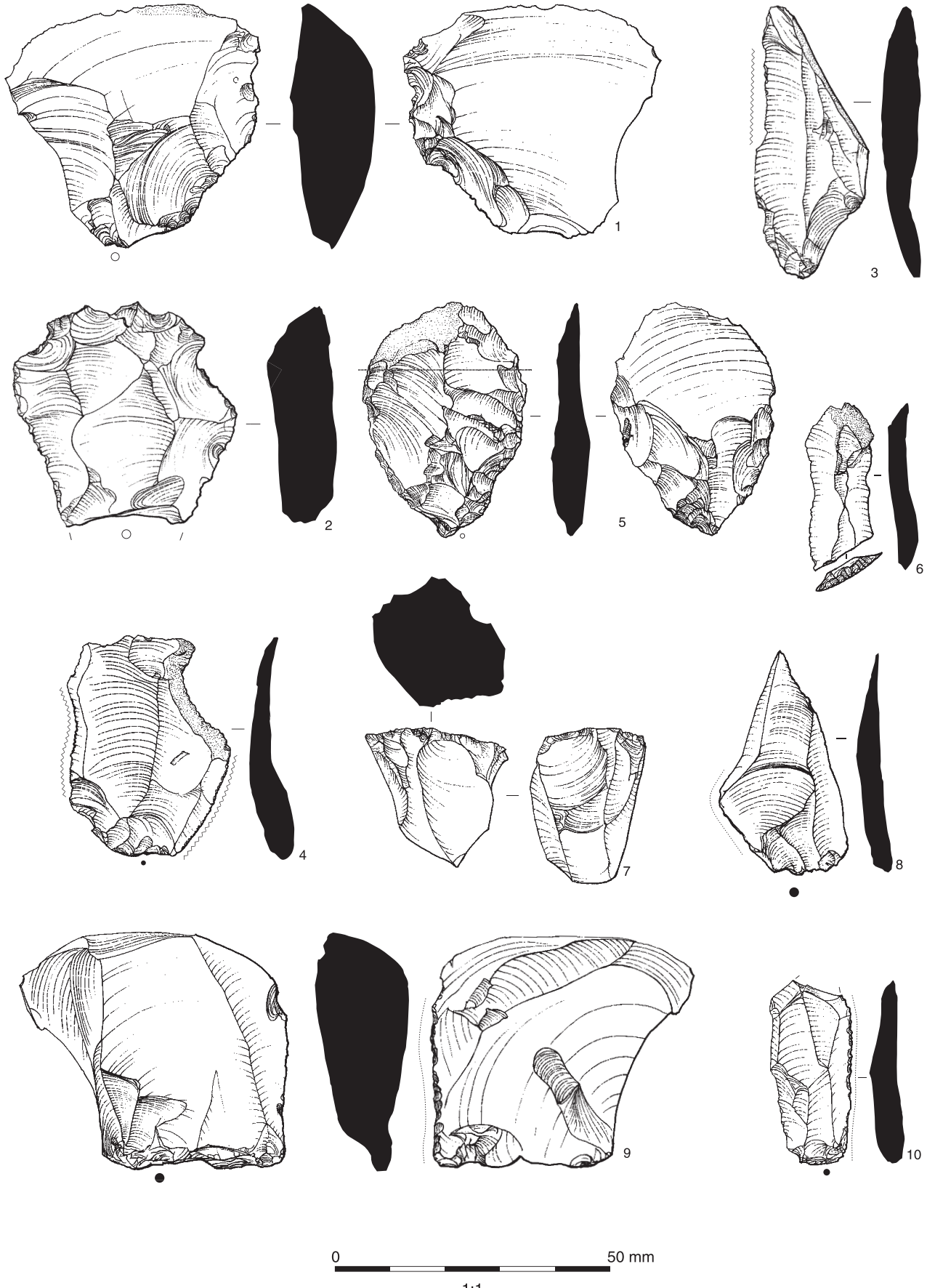

Fig. A2.3 Lithics

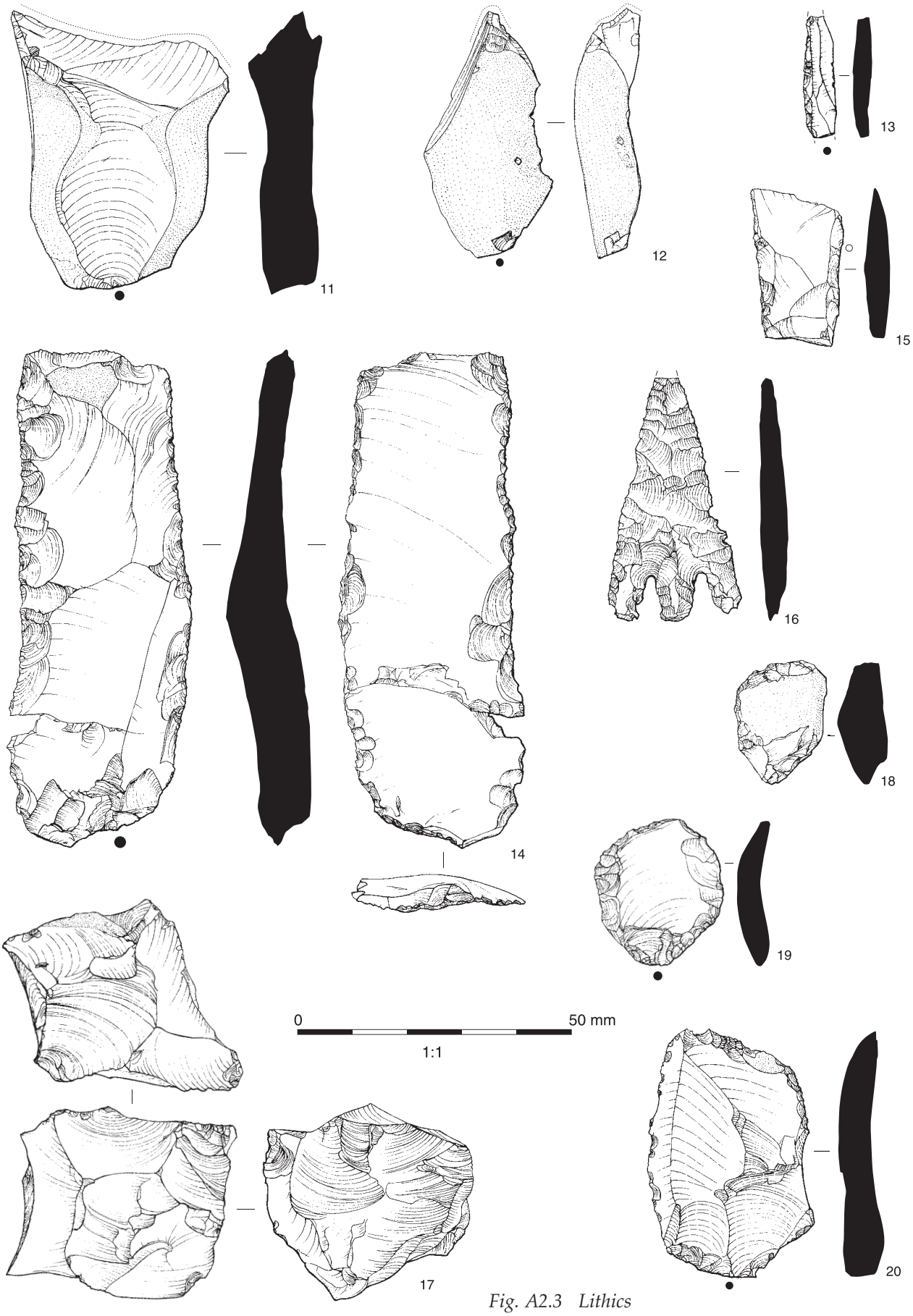

Fig. A2.3 Lithics

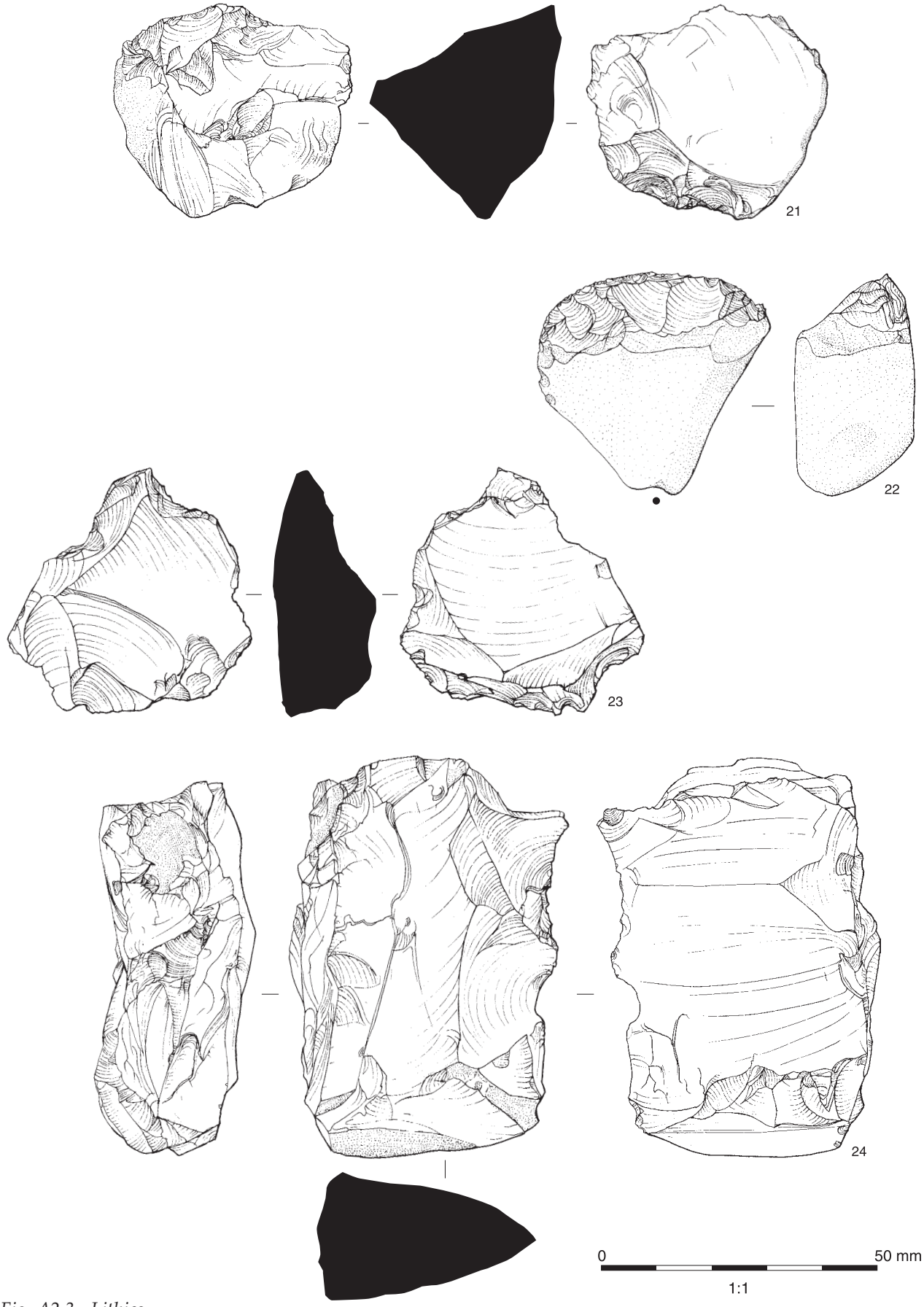

Fig. A2.3 Lithics

dryland and wetland or acting as some form of territorial or tenurial boundaries. Many burnt mound accumulations, including the example at ML, were quickly subsumed beneath alluvium or rising waters, and it is conceivable that they may have been involved in a spiritual or symbolic response to the encroaching wetlands, which were rapidly inundating traditionally held lands.

Illustrated catalogue (Fig. A2.3)

1. **Bifacially worked flake (arrowhead blank?)**. Early Neolithic. Freemasons Road (FRU01), 106, SF167
2. **Denticulated scraper**. Early Neolithic. Woolwich Manor Way (WMW00), 1517, SF3
3. **Worn serrated blade**. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF138
4. **Serrated blade-like flake**. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF216
5. **Leaf-shaped arrowhead (unfinished?)**. Early Neolithic. Woolwich Manor Way (WMW00), 2001
6. **Obliquely truncated blade.** Mesolithic/early Neolithic. Woolwich Manor Way (WMW00), 2005, SF8
7. **Exhausted blade core.** Early Neolithic. Woolwich Manor Way (WMW00), 2005
8. **Utilised flake** – heavy unifacial damage left lateral dorsal. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF189

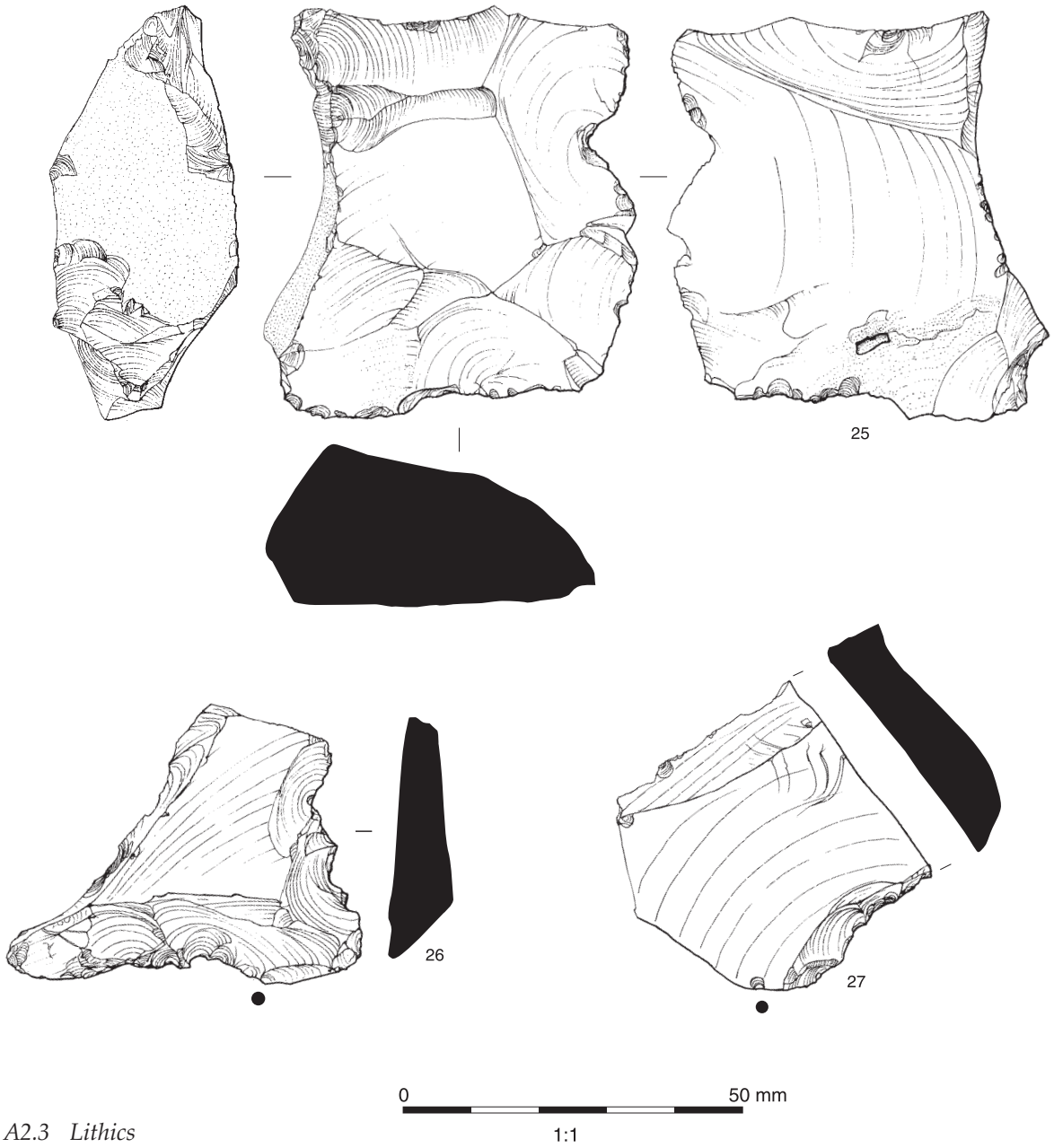

Fig. A2.3 Lithics

9. **Utilised flake** – heavy unifacial damage, left lateral ventral. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF115
10. **Utilised blade –** heavy unifacial damage, right lateral dorsal. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF109
11. **Utilised flake** – heavy unifacial damage, distal dorsal. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF102
12. **Utilised flake** – piercing. Early Neolithic. Woolwich Manor Way (WMW00), 2008, SF74
13. **Rod-shaped microlith**. Mesolithic. Movers Lane (MOE00), unstratified
14. **Semi-invasively retouched blade**. Late Neolithic. Movers Lane (MOE00), 121
15. **Petit tranchet arrowhead**. Late Neolithic. Movers Lane (MOE00), 60
16. **Barbed and tanged arrowhead.** Early Bronze Age. Movers Lane (RIR01), 1033
17. **Extensively reduced multiplatform core**. Early Bronze Age. Movers Lane (RIR01), 3005
18. **Thumbnail scraper**. Early Bronze Age. Movers Lane (RIR01), 3005
19. **Thumbnail scraper**. Early Bronze Age. Movers Lane (RIR01), 3005
20. **Edge trimmed flake**. Early Bronze Age. Movers Lane (RIR01), 3005
21. **Core tool – denticulated scraper?** Late Bronze Age. Freemasons Road (FRU01), 103
22. **Scraper**. Late Bronze Age. Freemasons Road (FRU01), 105.
23. **Core tool – piercer?** Late Bronze Age. Freemasons Road (FRU01), 32
24. **Wedge shaped core- core tool?** Late Bronze Age. Movers Lane (RIR01), 5083
25. **Wedge shaped core- core tool?** Late Bronze Age. Movers Lane (RIR01), 5083
26. **Denticulated Flake**. Late Bronze Age. Movers Lane (RIR01), 5083
27. **Edge trimmed/denticulated Flake**. Late Bronze Age. Movers Lane (RIR01), 5083

The jet belt slider, Movers Lane *by Alison Sheridan* (Fig. A2.4)

Description

Fragment, in two conjoining pieces, representing around a third of a subrectangular belt slider with a squarish end, flat top and central oval perforation. Its inner and outer surfaces are, like its end, slightly convex (Fig. A2.4). It is 34.9mm long, 9.3mm wide and 10.2mm thick, but would originally have measured around 51 x 25 x 11mm. It is black, and made of soft Whitby jet, whose woody texture is clearly visible in the fracture surface; it has broken along and across the grain and there is a crack across the hoop (soft jet is particularly prone to cracking). The broken end of the hoop has a convex fracture surface. The surfaces have been carefully smoothed but there are faint, fine striations on all of the surfaces, from where the object had been shaped by rubbing against (or being rubbed by) an abrasive surface such as fine sandstone prior to its final smoothing (the horizontal and diagonal striations on the perforation surface are perhaps more likely to relate to this smoothing process, rather than to the initial cutting- and scraping-out of the perforation). There are no obvious signs of wear. The surfaces are matte but whether they had originally been polished and have lost their sheen post-depositionally is unclear. Found damp and in a fragile condition, the slider was kept wet while post-excavation examination took place. This has precluded the possibility of undertaking compositional analysis (eg by X-ray fluorescence spectroscopy) but there is no doubt, from the macro- and microscopic examination, that the materal is jet. Given that the only significant source of usable jet in Britain is to be found around Whitby (and that around a third of all known sliders have been found in and around Yorkshire, including an unperforated roughout) this is most likely to be the material's source area.

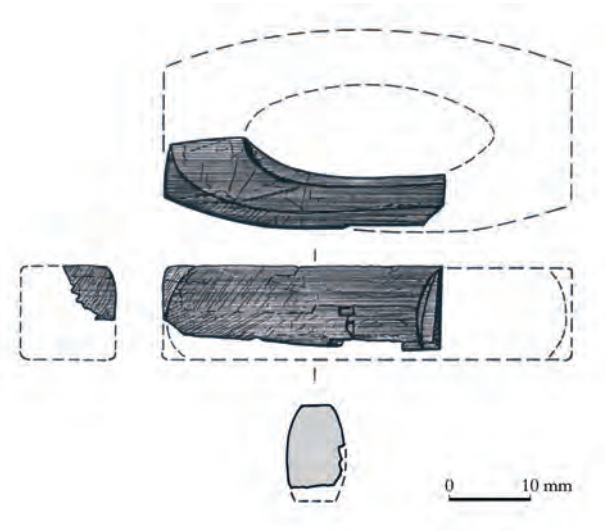

Fig. A2.4 Jet belt-slider, Movers Lane

Discussion

Belt sliders of jet and similar-looking materials are a distinctive, and exclusively British, middle Neolithic artefact type. In her review, Isla McInnes (1968) listed 17 examples and mentioned two further, but cruder, slider-like objects, from Hal[l]myre in the Scottish Borders and Scawton in North Yorkshire. Today, the total has risen to 29, including

one allegedly found in an Anglo-Saxon grave on 'Hambleton Moor' discussed below; these are listed in Table A2.19 and their distribution shown in Figure A2.5. The additions to McInnes' list reinforce trends in the geographical pattern. Overall, there is a marked tendency towards coastal and riverine finds and there are two clusters: one in North Yorkshire, within 50km from the source of the jet in the Whitby area (Nos. 9–12 and 14–17 in Table A2.19) and the other (Nos. 22–28) encompassing the Thames and Wessex, with three finds (Nos. 22–24) on the Upper Thames gravels, and with the Movers Lane slider (No. 26) closer to the mouth of the river. The wide geographical spread of the overall distribution reminds us of the extensive networks of contacts that must have been operating during the currency of the sliders, and the importance of maritime connections is underlined not only by the east coast distribution but also by the remarkable series of finds along the western seaboard from Cornwall to Skye (although see Table A2.19 regarding the latter find).

Contextually, one slider (No. 10, Boltby Moor) is from a settlement site; twelve or thirteen are associated in some way with funerary monuments; and six are from watery contexts – peat bogs, rivers or the immediate vicinity of rivers. The association with water is strengthened if one includes the eight funerary and stray finds from close to rivers or to the sea. With the exception of the Clyde cairn at Beacharra, where the slider had probably accompanied a secondary interment in a communal chamber tomb, and the sub-megalithic funerary chamber in Gop Cave, which had housed the remains of 14 individuals, the funerary contexts tend to feature individual, crouched or flexed inhumations of adult males, under round or oval barrows or within ring ditches. At Barrow Hills the male was accompanied by a female; at Linch Hill the single 'female' has recently been re-identified as male: see Table A2.19 for details. That the sliders were regarded as precious and prestigious items is indicated by their rarity and by this association with funerary monuments that privilege specific individuals; the associated artefacts, such as a waisted flint 'Seamer' axehead from Whitegrounds, reinforce this impression. As for the context of the Movers Lane slider, its watery association is clear, but whether it represents a votive deposit, placed in or beside the river, or else the last traces of an eroded funerary deposit is uncertain; no specific association with the five fragments of disarticulated human bone from the same context (layer 5074) need necessarily be assumed. Votive deposition would accord with the practice attested further upriver at Basildon (No. 24).

The sliders vary in length from *c* 36mm (at Aldro, No. 15) to possibly about 120mm (probably from Luce Sands, No. 8) and in overall shape from squat and broad (as at 'Hambleton Moor') to long and slender (as at Balgone). As McInnes pointed out (1968, 137) to some extent the variation in shape can be accounted for by the nature of the raw material: the squat form of the Hal[l]myre slider, for example, follows the shape of the jet beach pebble from which it had been made.

The raw material has been confirmed through macro-/microscopic examination by the author, backed up in several instances by compositional analysis, to be jet in twelve, possibly thirteen cases. Most of the remainder may well also be of jet. Only six out of the 29 are definitely of jet: four from Scotland, one from Wales and one from Giant's Hills 1 long barrow, Skendleby, Lincolnshire, are definitely not of jet, and in all but one of those cases (a broken roughout from Ogmore-by-Sea, Vale of Glamorgan, No. 21) a black, jet-like material has been used, to emulate jet as closely as possible. One can thus answer Terry Manby's question (1974, 98) about whether they had all been made by a single craft specialist or workshop: this appears not to have been the case. However, one cannot rule out the possibility that the same person, or few people, had made several, if not most, of the jet examples; McInnes and Manby were correct to point out the degree of skill required to manufacture these objects. Given that other middle Neolithic items such as 'Seamer' axeheads and 'Duggleby' adzes of flint are likely to be the products of specialist manufacture in Yorkshire (Manby 1974; Manby *et al*. 2003, 53), then specialist jetworking at this time around the Whitby source area, is entirely possible (and indeed would be consistent with the discovery of an unperforated roughout at Fylingdales, to the south of Whitby – the closest find to the source of the jet). Some variation in the quality of manufacture was noted by McInnes, who pointed out that the squat, knobbly jet examples from Hal[l]myre (No. 4) and Scawton (No. 12) are more crudely worked than the other jet examples. Similarly, among the non-jet examples, she noted that 'The edges of the central opening [of the Giant's Hills, Skendleby example, No. 18 are] very crudely gouged out and unfinished' (McInnes 1968, 142), while cut-marks had been left visible on the Scottish examples from 'Wigtownshire (?)' (= probably Luce Sands, No. 8), from Balgone (No. 2) and from 'probably south-east Scotland' (No.5; note that the Balgone example is better finished than the others). The Ogmore roughout had broken and been abandoned during manufacture. As for the example from beside the Glinzier Burn (No. 6), it may be that this was unfinished, since the 'central opening [was] roughly cut and incomplete' (ibid., 143). It is particularly unfortunate that its raw material cannot be checked, as the item is in private hands, although from its description it may have been of jet, thus suggesting importation in unfinished form.

Whether these objects had actually been used as belt sliders, to retain the loose end of a belt, is a moot point although the consistency of their position with regard to the body, at the hip (Nos. 14, 16, 23, 28) clearly indicates some kind of belt-related use: the Linch Hill example was found 'against the left forearm'. Where use-wear has been identifiable, it

has taken the form of locally-heightened polish to the outer edges of the perforation on both sides, rather than polish to the interior surface of the perforation, or to one external surface as might be expected from its use as a slider, with one side rubbing against a garment. The observed pattern of wear could conceivably have been caused by the use of the objects as fasteners, with one side attached to a belt and the other end of the belt being threaded through it; however, attachment in that way would actually minimise the visual impact of the artefact, and for this reason seems unlikely. Suspension from a belt, in the manner of a Japanese *netsuke*, is another possibility but again, more wear to the interior of the perforation would be expected. Of limited assistance to this issue is the fact that a very similar-shaped object, of bone, is known from an Iron Age context at All Cannings Cross and is featured in the Wiltshire Heritage Museum website (registration number DZSWS:2006.1.35). It may be, of course, that the objects were not old enough when buried to have acquired distinctive use-wear traces.

The associated artefacts fall within a relatively narrow range. Ceramic associations are limited to three findspots (excepting the Beacharra chamber tomb, where the pottery pre-dates the deposition of the slider) and in each case it has been Peterborough Ware, in its Mortlake style at Gop Cave and at Movers Lane, and in a northern British congener, the Rudston style, at Boltby Moor (see Barclay and Rayner, this publication, on the Movers Lane pottery). A fourth site, Handley Down barrow 26, Dorset, has also produced Peterborough Ware (almost all Mortlake style), from the ditch fill and the mound covering the grave. At none of these sites, except perhaps Boltby Moor, was the pottery closely associated with the sliders, but a general contemporaneity can arguably be assumed, particularly in the light of the available radiocarbon dating evidence for the sliders and the pottery, reviewed below. Furthermore, a tendency for southern English Peterborough Ware to be found in riverine locations, especially the Thames, reminiscent of some of the slider findspots, has been noted by several commentators including Cotton and Johnson (2004) and Hey *et al*. (2011, 380). The lithic associations are often of distinctive, high-status artefact types: a Seamer axehead at Whitegrounds, and partly-ground flint knives at Barrow Hills and Linch Hill (the latter associated with a woman) and an all-over-ground/polished flake knife at Gop Cave. The leaf-shaped flint arrowhead at Barrow Hills may not have been as prestigious as the large, lozenge-shaped arrowheads found elsewhere in middle Neolithic single graves, some accompanying ground/polished knives (Kinnes 1979), but it may have been accorded special status by virtue of its context – unless, of course, it had been inside the man's body; it had been disturbed by an Anglo-Saxon *Grubenhaus* (see Table A2.19 for other, less closely associated flint artefacts.) As for other associated material, excepting the animal bones noted at several findspots, mention should be made of the bone skewer pin found at Gop Cave, albeit not directly associated with the sliders.

As for the date of belt sliders, one can safely discount McInnes' claim for a brief currency 'in the second quarter of the second millennium' (1968, 142) which was based on a false premise. The dating evidence can be reviewed under three headings: i) dated human remains directly associated with the sliders, plus other relevant dated human remains; ii) dates relating to associated artefact types; and iii) dates relating to other artefact types forming part of a suite of high status middle Neolithic grave goods. Each will be considered briefly below, as will Ian Kinnes' claim (2004, 107) that the 'Hambleton Moor'slider is of Anglo-Saxon date.

Dated human remains directly associated with the sliders

Two recently-obtained radiocarbon dates for the individuals from Linch Hill (No. 22) and Handley Down barrow 26 (No. 28) together with three dates for individuals from Gop Cave (Nos. 19, 20) provide valuable additional information to add to the data from Whitegrounds (No. 15) and Barrow Hills (No. 23). The Whitegrounds date of 4520±90 BP (see Table A2.19 for details) produced a broad range of 3500–2920 cal BC, although its 1σ version narrows the range to 3360–3090 cal BC. The Barrow Hills skeletons' dates, of 4120±60 BP and 3860±50 BP for the male and female respectively, are both late and mutually inconsistent and may reflect the poor quality of the dated bone. It may be that the four dates obtained from antler from the surrounding ditch, which calibrate to between 3360–3030 cal BC and 3335–2700 cal BC (except for one date with a much greater standard deviation), provide a more accurate assessment of the age of the grave and its slider (see Bradley 1992, 138; Garwood and Barclay 1999, 278 and Hey *et al*. 2011, 397, 398 for a discussion of the Barrow Hills dates). The Linch Hill skeleton has produced a date of 4760±30 BP (3640–3380 cal BC; Mike Parker Pearson pers comm.) while the Handley Down Barrow 26 skeleton has been dated to 3310–2910 cal BC (4410±30 BP: Mike Allen pers. comm.). Finally, although not necessarily associated with either of the two sliders from that chamber, three individuals from Gop Cave have been dated to 3100–2900 cal BC, with one date possibly extending as early as 3300 cal BC (Rick Schulting pers. comm.). Overall, and with the exception of the Linch Hill individual, this dating evidence could be taken to indicate a *floruit* for jet and jet-like belt sliders between around 3350 and 2900 BC.

Dates for associated artefacts

As discussed in Barclay and Rayner's report on the Movers Lane pottery (above), the Mortlake style of Peterborough Ware appears to belong to the period 3350–2850 BC, which accords well with the skeletal dating evidence reviewed above. Furthermore, the

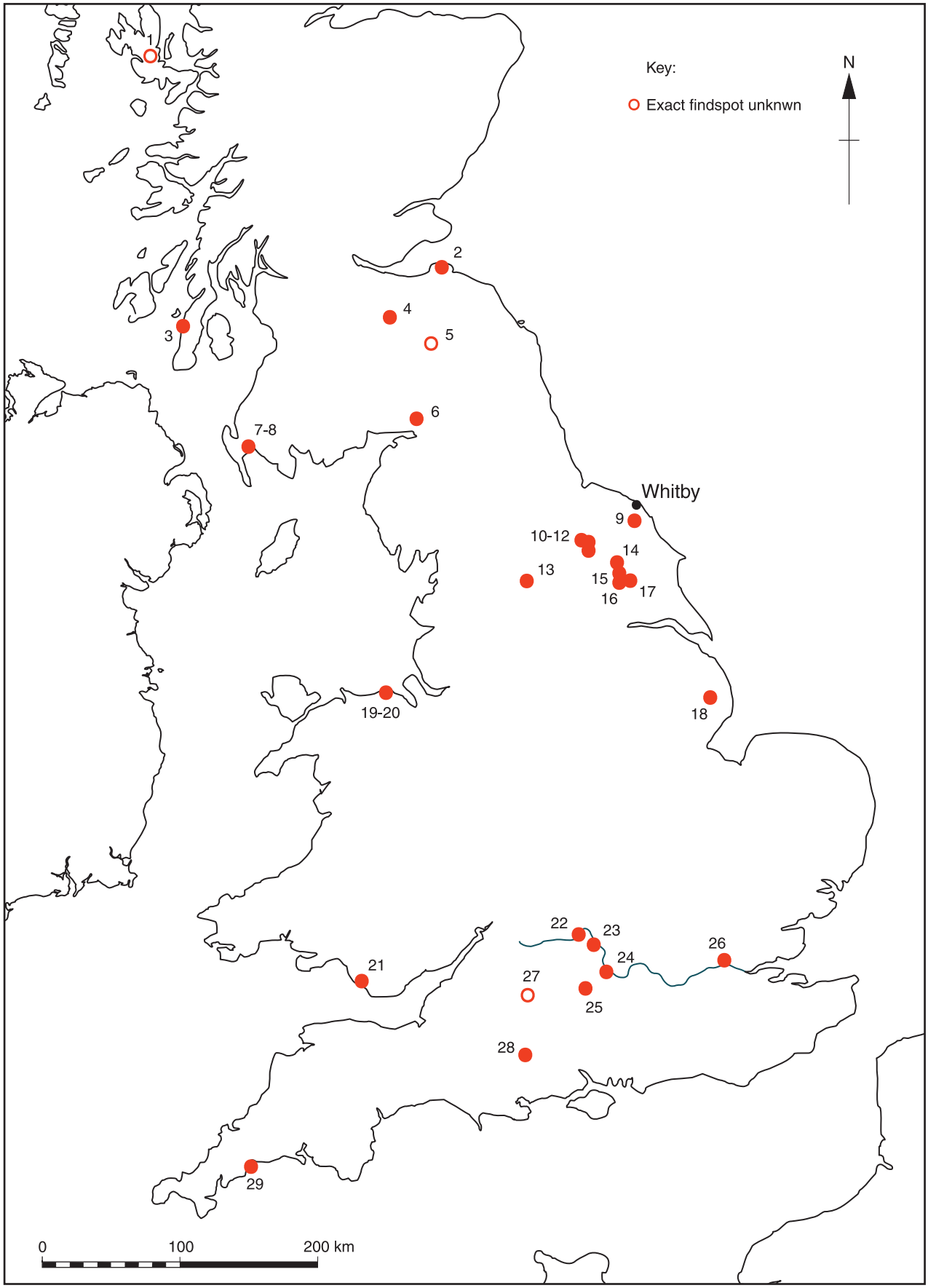

Fig. A2.5 Distribution of jet and jet-like belt sliders

Table A2.19 List of jet and jet-like belt sliders

No.	*Findspot*	*Context, associations*	*Dimensions (mm, L x W x Th where available)*	*Material ID: macroscopic, by whom**	*Confirmed by analysis? by whom?**
1	Skye	No information; presumably stray find	77 x 18.9x16.5	Shale (JAS, MD)	XRF (MD)
2	Balgone, near North Berwick, East Lothian	In peat, 6–8 ft (1.83–2.44 m) deep, with 1 ft (0.3 m) more of peat below; close to outlet of ancient lake. Human bones and bones, antlers and tusks of animals; 'Several of the animal bones appear to have been formed into cutting implements'	97.8 x 20.9 x 13.4	Cannel coal or shale	XRF (MD)
3	Beacharra, Argyll & Bute	In blocking material in chamber of Clyde cairn (3rd compartment from entrance); early-to-middle Neolithic pottery, flint flake	84.8 x 22.5 x 10	Jet (JAS)	-
4	Hal[l]myre, Newmains, Scottish Borders (Peeblesshire)	Stray find	48 x 31 x 17	Jet (JAS)	XRF (LT)
5	Probably South-East Scotland	No information; presumably a stray find	35.6 x 15.9 x 9.9 (fragment)	Cannel coal or shale (JAS)	XRF (MD)
6	Glinzier, Dumfries & Galloway	In peat, 4 or 5 ft (1.22 – 1.52 m) deep in 'a very solid peat moss beside the Glinzier Burn'	93 x 32	Probably jet, to judge from McInnes' description	-
7	Luce Sands, Dumfries & Galloway	No information; presumably stray find	15.1 x 20.8 x 12.5 (fragment; less than ¼ present)	?Poor-quality jet (JAS, MD)	-
8	Probably Luce Sands, Dumfries & Galloway	No information; probably stray find	65 x 15 (McInnes says 67 x 19). (Fragment; original L might have been *c* 120)	Probably cannel coal (JAS)	-
9	Fylingdales, North Yorkshire	Barrow? Or stray find – see comments	117.7 x 28.8 x 14.3	Jet (JAS, MD)	-
10	Boltby Moor east of Boltby Scar, North Yorkshire	Settlement. Peterborough Ware (Rudston style); lithics include ground flint knives	30.4 x 20.3 x 16.8 (fragment; probably between ¼ and ⅓ present)	Jet (JAS, Terry Manby)	XRF (SK)
11	'Hambleton Moor', North Yorkshire	Recorded as having been found in a cist with an iron spearhead, of Anglo-Saxon date	41.7 x 34.3 x 35.7	Jet (JAS, MD)	-

References (see McInnes 1968 for further references)	*Current location*	*Comments; dates (calibrated using OxCal 4.1; 2σ values cited)*
McInnes 1968, no. 13; Clarke *et al.* 1985, 238, no. 13, fig. 3.36, bottom; Wilson 1851, 300	NMS X.FN 43	Find location: Wilson 1851 states 'found in th Isle of Skye'; according to Clarke *et al.* 1985, 238, 'Early accession records do not confirm Skye as the place of discovery'. Photograph caption in Clarke *et al.* 1985 incorrectly lists this as being at top of the photo
McInnes 1968, 12; Struthers 1866	NMS X.FN 164	Mislabelled as FN 162 on object
McInnes 1968, no. 10; Clarke *et al.* 1985, 238, no. 12, fig. 3.36, top	Campbeltown Museum	Photograph caption in Clarke *et al.* 1985 incorrectly lists this as being at bottom of the photo
McInnes 1968, no no.; fig. 29.15	Hunterian B.1914.472	McInnes' account is confused: she omits to list it and cites its illustration under the entry for Gop Cave. Made from a water-rolled beach pebble, minimally modified. Measurements given are those taken by author; Hunterian Museum on-line catalogue says 50 x 33 x *c* 20
Unpublished	NMS X.1998.1 (part of)	From collection of Walter Mason, Selkirk
McInnes 1968, no. 11	In private possession	Possibly an unfinished roughout: according to McInnes, 'Outside brilliantly polished but central opening roughly cut and incomplete'
Unpublished	NMS, X.BH [number between 8208 and 8429]	This is not the missing piece of No. 8
McInnes 1968, no. 14; www.futuremuseum.co.uk	Stranraer WIWMS Museum 1945.144A	Findspot given as 'Wigtownshire?' by McInnes. Material given as jet in the Stranraer Museum website entry, but macroscopically it seems more likely to be of cannel coal or shale. This is the example listed by McInnes as coming from a collection from Castle Kennedy; website entry (inf. Stranraer Museum) states that it had been collected, probably from Luce Sands, by Wigtownshire antiquary Rev R. Anderson. John Pickin (Stranraer Museum) adds (pers. comm..) that Anderson had probably acquired it during the 1920s/1930s. He lived at The Manse, Castle Kennedy.
Unpublished	British Museum 1902.02-16.4	Roughout, unperforated. Note: this is the closest find to the source area of jet around Whitby. It is part of a set of material acquired from the sale of Thomas Boynton's collection, which included material collected by Mr Marshall, the owner of Fyling House, who explored barrows in the area. It is unknown whether the roughout came from a barrow or was a stray find (Terry Manby pers comm.)
Manby 1974, 95; Manby *et al.et al.* 2003, 51, fig. 18	Private hands (T. Lord Collection, currently c/o T. Manby)	'..north-east of Boltby Scar camp (SE 510862 area) an extensive Rudston style assemblage..was salvaged by T. [Tot] Lord in 1959 from an old quarry-like hollow, perhaps a collapsed mouth of a sink-hole or a 'windypit' (Manby *et al.* 2003, 87)
McInnes 1968, no. 9	British Museum 1882.0323.41	See text for discussion of the date and context of this slider. Terry Manby (pers comm.) has suggested that it resembles a macehead in miniature, and has added that 'Hambleton Moor' does not exist as a place name, although the findspot will lie within the Hambleton Hills, which stretch north-south for around 25 km

Table A2.19 List of jet and jet-like belt sliders (continued)

No.	*Findspot*	*Context, associations*	*Dimensions (mm, L x W x Th where available)*	*Material ID: macroscopic, by whom**	*Confirmed by analysis? by whom?**
12	Scawton, North Yorkshire	Stray find	63 x 48 x 23	From photo on website, could well be jet (JAS)	-
13	Blubberhouses Moor, North Yorkshire	Stray find	No dimensions recorded	Jet ('shiny black jet') (Terry Manby)	-
14	Whitegrounds, North Yorkshire	In small of back of adult male, 25–30 years old, crouched, under round barrow constructed over Early Neolithic oval barrow. Seamer axehead. Calf jaw and pig humerus found in wood-covered pit immediately below body	73 x 17 x 16 (from illustration in Brewster 1984; L confirmed in Clarke *et al.* 1985)	Described by excavator as of jet; from from photograph in Clarke *et al.* 1985, fig. 3.35, seems plausible	-
15	Aldro 177, North Yorkshire	In disturbed round barrow, *c* 25 cm below surface, a little north of the barrow's centre; barbed and tangedflint arrowhead and small flaked flint knife 'close by', but probably later; disturbed remains of two unburnt skeletons at the base, near the centre	36.1 x 21.5 x 15.25	Jet (JAS)	-
16	Painsthorpe 118, near Thixendale, North Yorkshire	Crouched skeleton of old person, primary grave under round barrow; animal vertebrae and jaw fragment with tooth of ox; disarticulated human bones. Slider found close to left hip	73 x 24 x 18.6	Jet (JAS)	NAA (GB)
17	Riggs 16, North Yorkshire	On old ground surface below a round barrow, 2 ft (0.6 m) from crouched skeleton of child, also on old ground surface	70 x 14 x 13 (Th measured from Mortimer's illustration)	Not seen by JAS; described as jet by Mortimer (1905, 177) and presumed jet	-
18	Giants' Hills long barrow 1, Skendleby, Lincolnshire	Upper fill of ditch of long barrow. Beaker at same level in ditch; Beaker pottery in primary ditch fill and in mound	71 x 19 x 21	Not jet (JAS, AW)	XRF (MD, DH): shale or cannel coal
19, 20	Gop Cave (x 2), Flintshire	Cave, sub-megalithic funerary structure with remains of 14 crouched unburnt bodies. Mortlake-style Peterborough Ware; all-over ground flint flake knife; quartz pebbles; skewer pin; burnt animal bones. According to Boyd Dawkins (1901, 330), the 2 sliders and the ground flint knife were found 'in one group'	i) 54 x 22 x 16; ii) 70 x 29 x 27 (as published by Boyd Dawkins) (as published by Boyd Dawkins)	'Jet or Kimmeridge shale', according to Boyd Dawkins	-
21	Ogmore-by-Sea, Vale of Glamorgan, Wales	Stray, among other partly-worked items of the same local stone	50.9 x 29.8 x 15.6	Locally-available fine-grained soft stone	SEM (MD)
22	Linch Hill (burial 1), Stanton Harcourt, Oxfordshire	Crouched skeleton of young adult (see comment for sex) in pit at centre of double ring ditch; part-ground flint knife, used. Knife and slider found 'against the left forearm'	46 x 27 x 23	Jet (GB; also Dr H.J. Plenderleith, cited by Grimes)	XRF (GB)

Appendix 2

References (see McInnes 1968 for further references)	*Current location*	*Comments; dates (calibrated using OxCal 4.1; 2σ values cited)*
Elgee 1930, 112, pl. XVIII, fig. 3; McInnes 1968, 137 ; www.teesmuseums.com	Dorman Museum, MIDDM: 1910.232 Middlesbrough	According to McInnes, like Ha[l]lmyre, of much cruder manufactur than the rest. Is certainly squat like Hal[l]myre and 'Hambleton Moor', and also shares with Hal[l]myre the grooving, on either side of the perforation, that differentiates the ends from the central section. Could have been made from a pebble of jet. Photo on website suggests it has been polished to a medium to high sheen, especially at one end (where it may have been enhanced by wear)
Unpublished; Terry Manby pers comm.	Unknown; stolen from finder	Three fragments, found through fieldwalking by the late Joe Davis
Brewster 1984; Clarke *et al.* 1984, no. 31, fig 3.35	Malton Museum P 117.1	^{14}C date: 4520±90 BP (HAR-5587) 3500–2920 cal. BC
McInnes 1968, no. 6; Mortimer 1905, 73, fig. 154	Hull & East Riding Museum KINCM. 1942.175	Wear-polish around outer edges of perforation
Bussell 1976; McInnes 1968, no. 8; Mortimer 1905, 127, fig. 320; Thurnam 1870, fig. 206	Hull & East Riding Museum KINCM: B.118/349:42	
McInnes 1968, no. 7; Mortimer 1905, 177, fig. 445; Sheppard 1929, no. 445	Hull & E Riding Museum	McInnes shows it as having part of one end missing, whereas Mortimer and Sheppard show it as intact; McInnes' L measure ment of 70 tallies with the L shown in Mortimer's illustration.
McInnes 1968, no. 3	British Museum 1935 04-12 0067	Radiocarbon dates from this monument relate to material in the mound (Kinnes 1992, 38), not to the secondary ditch fill
Boyd Dawkins 1901; McInnes 1968, nos. 15, 16	Last known location Manchester Museum; not found when curator contacted by JAS	It is unclear which of the individuals had been associated with the sliders. Three C14 dates for three of the individuals were obtained by Rick Schulting (Schulting & Gonzalez 2007) but these were affected by a laboratory problem at Oxford Radiocarbon Accelerator Unit and have been withdrawn; three replacement dates have produced results grouping between 3100 and 2900 cal BC, with one possibly extending as far back as 3300 cal. BC (though possibly subject to the 4th millennium calibration plateau). There is no guarantee that these date the sliders. More dates are planned (Schulting pers comm.)
Mary Davis pers comm.	National Museum Wales, unreg	Roughout
Bussell *et al.* 1982; Grimes 1960, 154–64; McInnes 1968, no. 4	Ashmolean Museum 1945.99	The 'warping and crazing' upon drying, described by Grimes, is characteristic of soft Whitby jet. L.F. Cowley (in Grimes 1960, 168) identified the sex of the individual as female, but re-examination of the remains by Prof Andrew Chamberlain has led to a re-identi fication as 'possible male, because it had a mix of male and female morphological features but the male ones predominated'. This individual has recently been C14-dated for the Beaker People Project: SUERC-26192 (GU-19938) 4760±30 BP, 3640–3380 cal. BC. (Date cited courtesy of Prof Mike Parker Pearson)

Table A2.19 List of jet and jet-like belt sliders (continued)

No.	*Findspot*	*Context, associations*	*Dimensions (mm, L x W x Th where available)*	*Material ID: macroscopic, by whom**	*Confirmed by analysis? by whom?**
23	Barrow Hills, Radley (near Abingdon), Oxfordshire	On hip of adult male crouched skeleton (age 30–35) in pit under oval barrow; leaf-shaped flint arrowhead. Beside adult female crouched skeleton (age 30–35) , with partly ground flint knife in front of her head	55 x 11 x 13 (dimensions from illustration)	Described in publication as 'shale or jet'	-
24	Basildon, Berkshire	Found on dump beside towpath of Thames Conservancy dredgings, so presumably originally in Thames	50 x 24	Described as jet by McInnes 1968; from Reading Museum photo, breakage pattern is consistent with jet (JAS)	-
25	Near Newbury, Berkshire	In peat, 8 ft (2.44 m) deep in a 12 ft (3.66 m)-thick peat bed; bones of red and roe deer and cave bear	93 x 19	Described as being 'of highly polished jet' in J Brit Arch Assoc XVI, 1860, 323	-
26	A13 Movers Lane, Barking, Essex	From *c* 150 mm thick deposit of alluvial clay sealing Neolithic features cut into terrace gravels; large assemblage of Mortlake-style Peterborough Ware pottery	34.9 x 9.3 x 10.2 (Fragment; est. original dimensions *c* 51 x 25 x 11, to nearest mm)	Jet (JAS)	-
27	Wiltshire?	No information, but assumed to be barrow	38 x 20.6 x 14.9 (including lump of consolidant, which has added *c* 1 mm to L and Th). Much of one side missing	Jet (JAS, AW)	-
28	Handley Down barrow 26, Dorset	Crouched skeleton under round barrow Slider found at hip. Peterborough Ware (almost all Mortlake style) in mound and in ditch fill; Beaker pottery at higher level in ditch fill	76.5 x 19.9 x 20.7	Jet (GB)	XRF (GB)
29	Pentewan tin streamworks, Cornwall	Found on old land surface, below 14.6 m of streamworks overburden, 'on a lavel with hazels, oaks etc.'	L 67	-	-

References (see McInnes 1968 for further references)	*Current location*	*Comments; dates (calibrated using OxCal 4.1; 2σ values cited)*
Bradley 1992	Ashmolean Museum	Male skeleton C14-dated to 4120±60 BP (BM-2707, 2880–2500 cal. BC) and female skeleton dated to 3860±50 BP (BM-2708, 2470–2150 cal. BC), but believed to be unreliable, as bones in poor state. Seem anomalously late, and since both individuals appear to have been buried together, would have expected dates to be closer to each other. Antler deposits in the ditches have produced dates of 4500±50 BP (BM-2391, 4420±70 BP (BM-2393), 4320±130 BP (BM-2390) and 4330±80 BP (BM-2391), calibrating to between 3360–3030 and 3335–2700 cal. BC (3360–2590 in the case of BM-2390). See Bradley 1992, 138, Garwood and Barclay 1999, 278 and Hey *et al.* 2011 for discussion
McInnes 1968, no. 2	Reading Museum 1962.132.1	Small part of one side missing
McInnes 1968, no. 1	Society of Antiquaries of London	
This publication	c/o Oxford Archaeology	
Annable & Simpson 1964, no. 131; McInnes 1968, no. 5	Devizes Museum DM 1469 (Brooke Collection)	High sheen around most of perforation edge on both sides could relate to use-wear, although no obvious use-wear signs in interior of perforation. The Brooke Collection was acquired in 1916; a refer ence to the slider by John Thurnam in 1871 (p. 513) makes it cleat that it had previously been in Sir Richard Colt Hoare's collection at Stourhead: 'In the Stourhead collection, but from what barrow does not appear, is a broken oblong object, an inch and a half in length, a sort of link or slider, perhaps for securing the belt. A perfect slider here figured, very similar in form, from a barrow at Thixendale, East Riding, Yorkshire, is in the Mortimer collection; and one smaller, from the peat, near Newbury, Berks, has been recently added to the museum of this Society [i.e. the Society of Antiquaries of London].'
Bussell *et al.* 1982; McInnes 1968, no. 2	Salisbury Museum 2c4 16	Skeleton recently C14-dated for Dr Mike Allen, as part of the English Heritage-funded Wor Barrow Project; date cited courtesy of Dr Allen: SUERC-33328, 4410±30BP, 3310–2910 cal. BC (Allen *et al.* in prep, A date with Wor Barrow: the life and death of the Wor Barrow people, Antiquaries Journal). Slider split and fell apart on the day after discovery, but fragment analysed; its decomposition is typical of what often happens with soft jet. (Pitt Rivers noted that even the woodgrain in the jet had been visible, and reports that an exact wooden copy of the slider was made)
Penhallurick 1986, 178, fig. 82	Lost	Found 1790; recorded (by William Copeland Borlase) 1871; since lost. from Borlase's engraving, is clearly of a black material and may be jet

available dating evidence relating to the Rudston regional style of Peterborough Ware, sparse though it is (Manby *et al.* 2003, 55; Vyner 2011, 242–3) suggests a similar currency. As regards the dating of partly, and fully-ground/polished flint knives, a category of artefact as discussed for example by Manby (1974), Kinnes (1979), Bradley (1999) and Hey *et al.* (2011, 445), a recently obtained radiocarbon date for skeletal remains associated with a partly-polished flake knife from the rich middle Neolithic round barrow grave at Liff's Low, Derbyshire, also falls within the same time span 3350–3100 cal BC (SUERC-26173: 4510±30 BP) (Jay 2010, 128). Whether any of the aforementioned recently-obtained dates for human remains from Gop Cave (3100–2900 cal BC) date the all-over ground flake knife found there is uncertain, but the possibility cannot be ruled out. Two fully-ground flint knives from Yorkshire, more neatly rectangular than the Gop Cave flake knife, have also recently been dated from associated human remains. One from Aldro barrow C75 (Mortimer 1905, 74, fig. 156) is associated with a date of 3320–2920 cal BC (OxA-V-2199-32: 4422±30 BP) (Mike Parker Pearson pers. comm.) while the other, from Duggleby Howe (Burial D) is associated with a date of 3090–2890 cal BC, modelled as 2980–2885 cal BC (OxA-16747: 4344±33 BP) (Gibson and Bayliss 2009, table 1 and 69).

Dates for comparable material from rich middle Neolitbic graves

Belt sliders and partly-ground/polished flint knives form part of a set of objects found in rich middle Neolithic graves, others of which include antler maceheads, edge-polished flint axeheads and large leaf- and lozenge-shaped flint arrowheads. This material has been discussed by several authors, including Fiona Roe, who coined the term 'Macehead Complex' (1968), and Ian Kinnes, who tried to tease out chronological groupings among assemblages from Neolithic round barrows (Kinnes 1979 (his 'Stage D'); Kinnes 2004; cf. Hey *et al*. 2011, chapters 12, 14 and 15 on the Thames middle Neolithic graves). Recent radiocarbon dating programmes have helped to clarify the absolute dating of this material, with the Loveday *et al*. 'antler maceheads dating programme' placing that artefact type within the bracket 3500–2900 BC (Loveday *et al*. 2007); Mike Parker Pearson's *Beaker People Project* providing the aforementioned dates for Linch Hill, Liff's Low and Aldro barrow 175; and Alex Gibson and Alex Bayliss' project on the Neolithic round barrows of the Upper Great Wold Valley, Yorkshire, providing further valuable dates, especially for Duggleby Howe (Gibson and Bayliss 2009; 2010). In addition to the aforementioned flint knife date for Duggleby Burial D, of greatest relevance to the current discussion is their date for Duggleby Howe Burial G, associated with (*inter alia*) a waisted, edge-polished adze-head (the eponymous 'Duggleby adze') which offers a counterpart to the waisted, edge-polished axehead ('Seamer axe') from Whitegrounds (mean of OxA-17243, GrA-33104 and SUERC-13939: 3335–3025 cal BC, modelled as 3345–3210 cal BC at 94% (4473±19 BP). See Gibson and Bayliss 2009, 68, on the fact that the associated, dated antler macehead was old when buried).

Taken together, this dating evidence points strongly to a currency of *c* 3350–2900 BC for jet and jet-like belt sliders, with the Linch Hill date suggesting that some may have been in use earlier. This period falls, of course, on a plateau in the radiocarbon calibration curve (*c* 4400 BP), although the recent Bayesian modelling of the Duggleby Howe dates suggests that it may be possible to address that issue and refine the chronology a little further. At present the only date which does not fall within that time frame is the one from Linch Hill (although the Whitegrounds date overlaps with it at the 2σ probability level), Finally, as for the attribution of the 'Hambleton Moor' slider to a post-Neolithic date by virtue of its alleged association, in a cist, with an Anglo-Saxon iron spearhead (Kinnes 2004, 107; McInnes 1968, 143): three points need to be noted. Firstly, as McInnes pointed out, details of the discovery of this object are not clearly recorded, and its findspot location is uncertain. Secondly, a recent *corpus* of Anglo-Saxon belt fittings (Marzinzik 2003) includes nothing remotely resembling the 'Hambleton Moor' artefact, either in form or in material. The same is true of the finds from the many Saxon graves in east Yorkshire investigated by Mortimer (1905): Kinnes had suggested that it had been a toggle rather than a slider, but again no parallel of Anglo-Saxon date suggests itself. Thirdly, as Terry Manby has pointed out (pers comm.) the object resembles a miniature waisted stone macehead of a type that is very likely to have been in use between 3500 and 2900 BC. Therefore, if the findspot genuinely was an Anglo-Saxon cist grave, and this is not certain, then one cannot rule out the possibility that the deceased had been buried with an ancient *objet trouvé*: 'Hambleton Moor' lies at the heart of the Yorkshire slider distribution.

Conclusion

In conclusion, the Movers Lane belt slider constitutes a prestigious, exotic artefact that formed part of a set of high status objects during the period *c* 3350–2900 BC and its presence at Movers Lane is consistent with middle Neolithic depositional practices.

Fired and unfired clay finds *by Lorraine Mepham, Charlotte Thompson and Louise Rayner*

Perforated clay balls and a loomweight from Trenches 23 and 21 Prince Regent Lane (PGL00) *by Louise Rayner*

Two ceramic beads or perforated clay balls, one of which was complete were recovered from the late Bronze Age to early Iron Age alluvial deposits overlying the main phase of peat formation in T23 (context 16, samples 1 and 2). Both beads are in a

dark fabric with sand quartz inclusions, which gives a rough finish to the surface. The beads are crudely formed, sub-rounded and on the complete example has an off-central perforation. The maximum diameter of this bead is *c* 12mm.

The beads are not intrinsically datable but examples of similar artefacts are known from the late Bronze Age site at Runnymede Bridge (for example Needham and Spence 1996, fig. 99 C37, although this bead is larger in size) and from Danebury Iron Age hill fort (for artefacts classified as beads and perforated clay balls). Two examples from Danebury are more comparable in size to these beads (Cunliffe 1984, fig 7.44, no. 7.12 and 7.13).

Also examined from this site, is a fragment of loomweight from a late Bronze age deposit in T21 probably a cylindrical type, which are generally ascribed a Bronze Age date. The loom weight fragment is indicative of more settled activity than evidenced by the pottery alone, so is an important find.

Unfired clay from Freemasons Road Underpass (FRU01) by Charlotte Thompson

A total of 53 pieces of unfired clay, weighing 938g were recovered from 16 contexts (Table A2.20). All of the pieces were much abraded. The assemblage was recorded to Museum of London Specialist Services standards, established in accordance with the guidelines outlined by the Prehistoric Ceramics Research Group (PCRG 1992, revised 1995). The pieces were examined using a x20 binocular microscope and recorded by fabric, form and condition, and was quantified by 'fragment count' and weight.

The unfired clay objects are all made from a soft silty/sandy fabric that is crumbly or powdery to the touch. Almost all of the pieces have very rare coarse crushed calcinated flint inclusions; occasionally the fabric contains organics and this gives the matrix a vesicular appearance. The assemblage is much abraded, which is due to the crumbly nature of the fabric and the fact that the pieces are unfired.

No forms could to be distinguished due to the abraded nature of the assemblage. However, the unfired clay is likely to have been either weights such as loom or thatch weights, or to have been used for daub. It is worth noting that no piercing typical of clay weights have been found, and as no original surfaces are left it is not possible to see impressions of wattle or organics that would be present if the clay had been used for daub. However, given the abraded nature of the pieces, it is more than likely that such indications have simply not been preserved.

A piece from layer 32 has a marbled-effect fabric from clays being poorly mixed. This is of interest as it indicates that certain clays and inclusions were chosen and then mixed, showing that some degree of selection was used in the preparation of the clay

Table A2.20 Unfired clay from Freemasons Road Underpass

Context	*Sample*	*Count*	*Weight (g)*	*Comments*
9		1	45	Slightly off-coloured chunk of unfired clay. Rare very coarse flint incls
9		3	66	Largest piece has very coarse (7mm) rock and sub angular flint incls
25		1	13	Has one flat, unabraded surface. Clusters of fine bright red (iron rich?) incls. Very sandy
27	16	5	1	Very scrappy pieces
27		4	1	Small, scrappy pieces
32		2	40	Probably from same object. Coarse iron rich clay pellet incls
32		3	55	Largest piece has marbled effect from poor mixing of clay. Two smaller pieces have very rare coarse flint incls
32		1	19	Abraded, powdery piece. Rare coarse flint incls
33	55	1	3	Vesicular, abraded piece. Organic incls
47		3	57	Chunky pieces - two join. Very rare very coarse flint incls
49		1	6	Some accretion on exterior
49		1	15	V. smooth, worn lump of clay. Slightly sooted at one end. Occasional coarse flint incls
49	101	2	3	Small, abraded pieces. Rare coarse flint incls
52		5	293	Probably from same piece. Large chunks. One lightly sooted
54		4	36	Very abraded and rounded. Very rare coarse flint incls
66		2	4	Small, scrappy pieces
66		1	5	Crumbly/powdery lump of clay
69		4	25	Largest sherd has iron rich clay mixed in and occasional coarse flint incls. Two smallest sherds are brittle
74	102	1	3	Small, smoothed piece
81		4	154	Probably from one object. Largest piece has one flattened side with white accretion on it. Possibly building material
105		1	32	Tatty and very abraded piece
141		2	56	Abraded lump of clay
212		1	6	Crumbly. Full of organic incls and quartz

so as to attain a particular consistency, hardness or perhaps colour.

It is interesting that contexts 47, 49, 52, 74, 81, 105 and 141 contain both unfired clay objects and prehistoric pottery. In this regard, it is more than likely that the entire assemblage of unfired clay objects is prehistoric in date.

Due to the enigmatic nature of these pieces, it is not possible to establish their original form and function, although it is likely that they were used as building materials (such as daub or as thatch weights) or as loomweights.

Fired clay from Movers Lane (RIR01) *by Lorraine Mepham*

A very small quantity of fired clay (18 pieces, 294g) was recovered, deriving in small quantities from various features and deposits across the site (ditch 1198, alluvial deposits 1018/1021 and 5070, peat deposit 5263, gully 5159 and clay deposit in palaeochannel 5271). None of these are diagnostic, although a few have traces of surfaces; most if not all fragments are likely to be structural in origin.