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The later Prehistoric pottery from Northumberland Bottom, Southfleet, Kent

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1 INTRODUCTION

The handmade, later prehistoric pottery from Zone 3, West of Northumberland Bottom, derives from excavations along a narrow linear stretch incorporating ARC33098, the watching brief, and the excavated areas ARCWNB98 and ARCHRD99. ARCHRD99 is slightly to the south of the main excavation area and produced six plain body sherds of early to middle Iron Age pottery. All of the material was recorded on separate databases in order to keep pottery from the separate excavations distinct under their respective site codes. However, these assemblages have been considered as from one site.

A total of 1955 sherds (19947 g) of later prehistoric pottery was recovered; 26 (81 g) of middle to late Bronze Age date and 1929 (19866 g) of early-middle Iron Age date. The Iron Age assemblage has a mean sherd weight of 10.3 g and is in good condition, while the later Bronze Age pottery is quite fragmented.

The pottery was analysed and recorded using the methodology designed for the routewide scheme in accordance with the recommendations set out by the Prehistoric Ceramics Research Group (PCRG 1997).

2 MIDDLE-LATE BRONZE AGE

Fragments from the lower part of a single, flat-based, thick-walled (12 mm) urn were recovered from cremation pit 2013, located at the far western end of the site. Less than 5% of the base remains. The fabric (F8) of the urn, examined in detail through petrological analysis of two thin sections, contains a moderate amount (10-15%) of moderately to poorly-sorted, angular, calcined flint temper, the majority measuring ≤ 2 mm with rare examples up to 6 mm, rare (1%) naturally-occurring, rounded red iron oxides, ≤ 0.2 mm and rare (1-2%) red-coloured, sub-angular calcined flint in a clay matrix containing moderate to common (15-20%), well-sorted, fine quartz grains measuring ≤ 0.2 mm. The character of the pottery, its fabric, thickness and firing, as well as its association with calcined bone, suggest a middle to late Bronze Age date range.

In addition, a single small sherd from a thick-walled vessel made from fabric F8 was recovered from ditch 424 in association with a few sherds of early-middle Iron Age pottery.

3 EARLY-MIDDLE IRON AGE

3.1 Fabrics

Eight broad fabric groups were recognised, within which 31 separate fabric types were defined. All flint is calcined or burnt, angular in shape and added as temper to the clay matrix

unless otherwise stated. All quartz grains are subrounded to rounded in shape and well-sorted unless otherwise stated. Thin-sectioned fabrics are indicated with an asterisk (*).

3.1.1 Calcareous-gritted group

C1. Moderate (10%), poorly-sorted, rounded, calcareous inclusions likely to be chalk, $\leq 2 \text{ mm}$, in a very fine clay matrix containing moderate (10%) quartz, $\leq 0.2 \text{ mm}$ (*)

3.1.2 Flint-tempered group

F1. Moderate (10%), poorly-sorted flint, ≤ 6 mm across with the majority less than 4 mm, in a distinctively sandy clay matrix containing common (20-25%), moderately-sorted, coarse quartz, ≤ 1 mm; may contain rare (1%) calcareous inclusions, ≤ 0.5 mm

F2. Common to very common (20-30%), moderately-sorted flint, \leq 3 mm, in a very fine to silty clay matrix with moderate (10-15%) quartz, \leq 0.2 mm

F3. Moderate (15-20%), poorly-sorted, subangular flint, ≤ 5 mm, and rare to sparse ($\leq 7\%$) irregular and rounded voids, ≤ 5 mm, in a clay matrix with moderate (10-15%), very well-sorted quartz, <0.2 mm

F4. Sparse to moderate (7-10%), well-sorted flint, $\leq 2 \text{ mm}$, in an iron-rich clay matrix with very common (30%), very fine quartz sand <0.2 mm; single piece of unidentified detritus observed, as well as rare shell fragments (*)

F5. Moderate (10-15%), poorly-sorted flint, ≤ 5 mm; may also contain rare 1% calcareous inclusions; much coarser than F4 but with a similar clay matrix

F6. Sparse to moderate (5-10%), well-sorted flint, ≤ 2 mm, in a distinctively sandy clay matrix containing common to very common (20-25%), moderately-sorted, coarse quartz, ≤ 1 mm; this is probably the same sandy clay matrix as used for F1

F7. Moderate (10%) well-sorted flint, ≤ 2 mm, in a clay matrix containing common (25%), moderately-sorted, coarse quartz, ≤ 1 mm; this is probably the same or a very similar sandy clay matrix as used for F1

3.1.3 Flint and organic-tempered group

FV1. Moderate (10%) moderately-sorted flint, $\leq 2 \text{ mm}$, moderate (10-15%) linear/organic voids, $\leq 5 \text{ mm}$ long with the majority $\leq 3 \text{ mm}$, and rare (1%) calcareous inclusions, $\leq 0.5 \text{ mm}$, in a clay matrix containing common (25%) well-sorted fine quartz sand, $\leq 0.2 \text{ mm}$ (*); may be same fabric as VF1

3.1.4 Grog-tempered group

G1. Common (20-25%), well-sorted, angular grog, ≤ 1 mm, in a fine clay matrix containing common (20-25%), very well-sorted, very fine to silt-sized quartz sand <0.1 mm; grog has a similar clay matrix to the sherd, suggesting the pot used for tempering was sourced from the same place as the new vessel (*)

3.1.5 Grog-tempered and iron oxide group

GI1. Moderate to common (15-20%), moderately-sorted pale coloured grog, ≤ 2 mm, and moderate (10-15%) rounded red iron <1 mm in a sandy clay matrix containing moderate (10-15%), moderately-sorted quartz, <0.5 mm; grog itself has similar clay matrix to the sherd, suggesting the pot used for tempering was sourced from the same place as the new vessel (*)

3.1.6 Quartz-gritted group

Q1. Moderate (10%), very fine quartz, <0.2 mm, with rare (1%) calcareous voids and rare (<1%) flint up to 1 mm in a densely-packed clay matrix (*)

Q2. Very common to abundant (30-40%), very well-sorted, silt-sized quartz in the clay matrix

Q3. Very common (30%) quartz, <0.5mm, in the clay matrix; may also contain rare (<1%) flint and/or shell. This is a fine fabric with a clay matrix similar to the clay matrix of F4.

Q4. Common (15-20%), very fine to silt-sized quartz, <0.2 mm, in the clay matrix; may also contain rare (1%) shelly/calcareous inclusions measuring up to 0.5 mm and/or rare (1-3%) angular calcined flint, \leq 1 mm

Q5. Common to very common (25-30%), rounded, black glassy glauconite, ≤ 0.3 mm, and sparse to moderate (5-10%) quartz, ≤ 0.8 mm, in the clay matrix; in thin section, contrast in sizes between glauconite and quartz is particularly striking and single rounded siltstone observed (*)

Q6. Very common to abundant (30-40%), moderately to well-sorted, rounded quartz, ≤ 0.6 mm with rare grains, ≤ 1 mm, in the clay matrix;

3.1.7 Quartz and iron oxide group

QI1. Moderate (10%), poorly-sorted iron oxides and common to very common (20-30%), moderately-sorted quartz, <0.3 mm, in the clay matrix

QI2. Sparse (5-7%), moderately-sorted red/brown iron measuring up to 1 mm and moderate (10-15%), silt-sized quartz, <0.1 mm, in the clay matrix

3.1.8 Shell-gritted group

S1. Moderate to common (15-20%), poorly-sorted shell, ≤ 4 mm, in a clay matrix containing common (20%), very fine silt-sized quartz sand; may also contain rare to sparse (<5%) poorly-sorted flint (*)

S2. Sparse to moderate (7-10%), moderately-sorted, calcareous/shell inclusions, ≤ 0.5 mm, in a clay matrix containing moderate (10%), fine quartz, < 0.2 mm and rare (1-2%), rounded red inclusions, which are probably clay pellets or iron oxide (*)

S3. Shell (or voids) from a moderate (10-15%) amount of very poorly-sorted platy shell, ≤ 6 mm, rare to sparse (1-5%) well-sorted fine flint, ≤ 0.5 mm, and rare (1%) poorly-sorted subangular calcined flint, ≤ 5 mm in size in a clay matrix containing moderate (10-15%) very well-sorted fine to silt-sized quartz grains, <0.2 mm; soft, friable, yet very coarse fabric with laminated fracture; petrological examination unable to determine if the shell is fossil (*)

3.1.9 Briquetage/Organic-tempered group

VF1. Hard fired; moderate (10%) organic/linear voids ≤ 3 mm in size, and moderate (10-15%), moderately-sorted flint, ≤ 2 mm, in a clay matrix containing at least sparse to moderate (5-10%), fine quartz, ≤ 0.2 mm; possibility of additional density of quartz grains affected by hard firing condition; likely to be the same fabric as FV1

VF2. Moderate (10%) organic/linear voids, ≤ 3 mm, and moderate (10%), moderately-sorted flint, ≤ 3 mm, in a clay matrix containing moderate (10-15%) quartz, ≤ 0.2 mm; may also contain rare (1-3%) calcareous inclusions; soapy feel and softly fired

VI1. Moderate (10%) organic/linear voids, ≤ 2 mm, and sparse to moderate (<10%), poorlysorted, rounded red iron oxides in a micaceous clay matrix containing common (20%), siltsized quartz, <0.1 mm

VS1. Sparse (5%) organic/linear voids, <6 mm, and moderate (10%), poorly-sorted shell, \leq 3 mm, in a clay matrix with some quartz visible

VS2. Sparse to moderate (7-10%) organic/linear voids, <6 mm, and moderate (10-15%) calcareous/shelly inclusions, \leq 1 mm, in a clay matrix containing sparse (5-7%) fine to silt-grade quartz, <0.2 mm; soft, soapy feel

3.1.10 Discussion of pottery and briquetage fabrics

The fabrics are dominated by coarse shelly types (Table 1; Figure 1); fabric type S3 alone accounts for some 66% of the assemblage by number of sherds. Flint fabrics make up approximately 10% of the assemblage and are generally coarsely tempered with poorly sorted inclusions, sometimes measuring up to 5 mm. Fabrics F4, F6 and F7, which are quite rare, are more intermediate in nature. Quartz sand-dominated fabrics are similarly represented and include a very distinctive, glauconite-rich type (Q5) accounting for just over 2% of the assemblage.

Fabric	Count	% Count	Weight	% Weight
Calcareous				
C1	1	0.1%	8	0.04%
Flint-tempered	·			
F1	5	0.3%	85	0.43%
F2	33	1.7%	320	1.60%
F3	43	2.2%	466	2.34%
F4	35	1.8%	175	0.88%
F5	41	2.1%	485	2.43%
F6	2	0.1%	16	0.08%
F7	2	0.1%	8	0.04%
F8	26	1.3%	81	0.41%
Flint- and Organic-tempered	l l			
FV1	110	5.6%	2163	10.84%
Grog-tempered				
G1	2	0.1%	27	0.14%
GI1	1	0.1%	6	0.03%
Quartz sand				
Q1	4	0.2%	8	0.04%
Q2	46	2.4%	317	1.59%
Q3	67	3.4%	516	2.59%
Q4	57	2.9%	323	1.62%
Q5	41	2.1%	650	3.26%
Q6	1	0.1%	7	0.04%
Q99	3	0.2%	2	0.01%
Quartz sand and Iron Oxide				
QI1	6	0.3%	13	0.07%
QI2	1	0.1%	62	0.31%

Table 1: Fabric quantification

Fabric	Count	% Count	Weight	% Weight
Shell-gritted				
S1	80	4.1%	391	1.96%
S2	5	0.3%	23	0.12%
S3	1281	65.5%	13364	67.00%
Briquetage				
VF1	17	0.9%	118	0.59%
VF2	1	0.1%	2	0.01%
VI1	1	0.1%	6	0.03%
VS1	33	1.7%	234	1.17%
VS2	10	0.5%	71	0.36%
TOTAL	1955	100.0%	19947	100.00%

Figure 1: Proportions of fabric groups



It is likely that the sherds made from organic-tempered fabrics VF1, VF2, VI1, VS1 and VS2 are derived from 'briquetage' containers used to evaporate seawater during salt production (cf. Barford 1988, 97). Assignment of this functional category was made on the basis that these sherds, in addition to being in fabrics traditionally used to produce vessels for such tasks (de Brisay and Evans 1975; Morris 1985; 2001), were often rather brittle in feel, showed considerable leaching out of inclusions, frequently had a white skin-effect to the exterior and occasionally the interior surface, and often displayed a 'pinkish lavender' colour as a result of the use of saltwater in the heating and evaporation process (Morris 1985; 2001). Pottery fabric FV1, with similar organic inclusions, did not always display these other characteristics but could be another possible candidate for the 'briquetage' classification in some cases. However, no briquetage pedestal fragments were recovered during the excavations or watching brief, as might have been expected for a salt production site in eastern England, and as has been suggested for pedestal-like objects from elsewhere in Kent (Couldrey 2003, 97, fig. 28, pot 4). Therefore, it is possible that the site occupants were consumers rather than producers of salt, and that the commodity was traded to this site from

elsewhere; the south side of the present day River Thames can be reached within 5 km of the site at Northfleet.

A minimum of 63 briquetage container sherds was identified (by EB) in the pottery assemblage (3.2% of the assemblage, 28 of which are from ditch 500). In addition, there are many sherds from vessels made from fabric S3 which also have these colouring effects, for example a distinctive rim sherd (Fig. 5, No. 24) which, due to the slight presence of a patch of pinkish lavender colour on the interior surface, should be considered as part of the range of briquetage containers. Other examples of diagnostic pottery vessels in the assemblage also display some degree of 'salt effect'. One vessel in particular (Fig. 4, No. 3) is very similar to a possible salt vessel with finger-tip impressions on the rim from the early-middle Iron Age site of Ardale along the route of the Grays By-pass in Essex (Barford 1988, fig. 83, 3). This form type, in addition to other unusual rim types described below, could have been employed in the evaporation of water from brine at West of Northumberland Bottom. Therefore, the number of sherds likely to have been associated with salt production at this site could be many more; 63 to 64 sherds should be seen as the absolute minimum. The variety of fabrics associated with salt at this site is most unusual and difficult to interpret at present. Nevertheless, all of this material represents significant evidence for early-middle Iron Age saltworking and/or the use of salt in the East Kent region and will be discussed further in the CTRL scheme-wide synthesis of later prehistoric ceramics.

3.1.11 Geology and resources

The site is situated at the foot of the North Downs, on Upper Chalk overlain by the silty sands and sandy clays of the Thanet Beds, which are also a source of clay with flints. Some areas of the Thanet Beds are intercepted by deposits of the Woolwich Beds (Dewey et al 1924, 51), a source of fossiliferous shell. Such deposits lie within 5 km of Northumberland Bottom. The preference for shell-gritted fabrics can likely be explained by the proximity of the Woolwich Beds, but the fact that flint-tempering was less commonly used than shell is significant, given the location of the site very close to deposits in which flint would have been available. The use of shell in preference to flint must represent a very deliberate choice, which may be culturally prescribed or functionally required in this case. Considering the 7 km travelling range defined by Arnold (1985) in his study of ethnographic evidence for the procurement of potting clays and tempers, and recommended by Morris (1994a; 1994b) for the study of later prehistoric pottery assemblages, it is conceivable that local resources could easily have provided all of the necessary materials for later prehistoric pottery production at Northumberland Bottom, with one exception. Therefore, it is reasonable to suppose that the majority of pottery was made locally, if not on site. The exception is the source for the glauconite and quartz sand fabric, Q5. This very distinctive fabric derives from an Upper

Greensand/Gault deposit on the basis of the abundance of glauconite present in the fabric. The closest location is over 10 km to the south-east.

3.2 Vessel Forms

One of the most striking things about the later prehistoric pottery form types from Northumberland Bottom is the similarity in character amongst different forms. In particular R1, R3 and R4 are variations on a theme and could well be the work of one potter. The vessel forms are dominated by early-middle Iron Age round-shouldered jars (closed forms) with upright, flat-topped rims (R1, R2, R3, R4; Fig. 4, Nos 1-7, 16-20, Fig. 5, Nos 25-27, 30-31, Fig. 6, Nos 35-37 and 40), plain flat bases (Fig. 4, Nos 8-12), and occasionally flat bases with flaring walls (Fig. 4, No. 15), or jars with longer, sloping shoulders R6 (Fig. 4, No. 21, Fig. 5, No. 23 and Fig. 6, No. 45). They occur most commonly in coarse shelly fabrics (particularly S3) and are often decorated. Many of these vessels are very large. In addition, there is a small number of slack-profile jars, R6 and R11. Three examples of R6 (Fig. 4, No. 21, Fig. 5 Nos 22-23) were recovered from pit 156 in association with many shouldered jars, and the single R11 jar was found in pit 667.

There are many regional parallels for the most common jar types from West of Northumberland Bottom – R1, R2, R3 and R4. R1 resembles Fox Hall Farm, Southend vessels 9 and 10 (Ecclestone 1993, 32, fig. 8), one of which also has a decorated rim top, as do many of the Northumberland Bottom vessels. The choice of shell tempering for the Fox Hall Farm vessels parallels fabric choice at Northumberland Bottom, and given their reasonably close location (some 32 km apart, a distance easily covered by water across the Thames) it is not inconceivable that the shell source for both sites was simply different outcrops of the Woolwich Beds, and/or that certain cultural traits were shared. Forms R1 and R3 are also similar to vessel no. 3 from A2 site 1, Barham Downs (Macpherson-Grant 1980, fig. 4), and site 6 vessel no. 23 which has rim top and shoulder decoration (ibid., fig. 6). Slack shouldered form R4, especially vessel no. 7, is similar to A2 site 8 vessel no. 135, which also appears to have a cabling type of decorative effect on the rim top (ibid, fig. 20).

In addition to these common jar types, there are a number of quite unusual, neutralprofile forms that occur much less frequently. Type R9 (Fig. 6, No. 42), represented by a single example in the assemblage, is a typical saucepan pot with its straight-walled to slightly convex profile and flat-topped rim. It is slightly unusual amongst saucepan pots from southern England due to its completely oxidised firing condition. It was recovered from pit 591 with large body sherds of vessels made from fabrics Q3 and S3, but no sherds with diagnostic forms. Elsewhere in Kent, one saucepan pot was recovered at Bigberry (Thompson 1983, 260, fig. 10) and two coarse ware examples were illustrated from A2 site 1 at Barham Downs (ibid., 1980, figs. 6, 22 and 7, 37). Several more examples from sites in Kent have now been identified within the CTRL assemblages. Saucepan pots are traditionally dated from the middle to late Iron Age period, from the 4th/3rd to 1st century BC/AD.

Two other neutral forms in the assemblage are the most unusual, possibly subrectangular vessel type R10 (Fig. 5, No. 32) and the flaring, conical-profile form R7. One example of the latter type (Fig. 5, No. 29) has pink-lavender 'salt colours' on the interior and one (Fig. 5, No. 24) has 'white skin' effect on both surfaces; therefore this form is very likely to be a type of briquetage container used to dry brine and transport salt. The overall shape of this conical, or flower vase, open form is quite similar to that of other briquetage containers found at inland salt production sites during the Iron Age (Morris 1985). Form type R10 may also be linked to salt production as it is likely to be from a shallow pan, on the basis of similarities to examples recovered from many salt production sites in the Fenland region (Lane and Morris 2001). The identification of forms associated with salt production can be difficult and their similarity to pot forms is not uncommon in south-east England (cf. Barford 1988, fig. 83).

A significant number of highly burnished, round-bodied bowls (type R8) was recovered (Fig. 5, No. 33, Fig. 6, Nos 38-39, 44 and 46); the majority were made from sandy fabrics. This bowl type with its rounded profile and everted rim is usually dark grey/black in colour and burnished on both surfaces. It is similar to Bigberry vessel no. 61 (Thompson 1983, 262, fig. 11). Vessel 33 from Ebbsfleet (Perkins 1992, 296, fig. 9) provides a good general parallel for this particular class of early-middle Iron Age bowl. The single example of a recessed or footring base, type B3 (Fig. 6, No. 34), is also of this date and likely to belong to one of the two R8 bowls found in the same feature (Fig. 6, No. 39). Round-bodied bowls were found on several CTRL sites and the significance of this will be discussed in the later prehistoric pottery synthesis. This bowl type is usually dated to the end of the early Iron Age and into the beginning of the middle Iron Age, from the 5th to 4th centuries BC.

It is important to indicate that the two R8 bowls and the recessed or footring base found in ditch cut context 586 were recovered in association with typical examples of the shelly fabric shouldered jars with finger-tip impressed decoration on the rim (Table 4; Fig. 6, Nos 34-40). These bowls are made from different sandy fabrics but neither has glauconite pellets in the clay matrix. In contrast, the R8 bowls from ditch 889 (Fig. 6, No. 44) and ditch 597 (Fig. 6, No. 46) were both made from the glauconitic sandy fabric. The example from ditch 889 was also recovered in association with a shelly fabric, shouldered jar, as was the F6 fabric example from pit 1263 (Fig. 5, No. 33). These examples show that all variations of the R8 bowl were contemporary in deposition with the common early-middle Iron Age shouldered jars.

Table 2 shows the correlation of form types to fabric types. Early-middle Iron Age jar forms R1, R2, R3 and R4, as discussed above, can be seen to occur almost exclusively in

coarse shelly fabric S3, as does the conical neutral form R7 which is usually a type of briquetage. However, types R1-R3 are also distinctive because they are found not only in fabric S3 but also in various flint-tempered fabrics (F1, F3, FV1) indicating that the forms were not exclusive to potters who only used shelly fabrics. It may be that potters (and/or saltmakers) were using more than one clay/temper source or that several potters using very different resources were making vessels used at Northumberland Bottom during this period. Bowl form R8 usually occurs in sandy fabrics or fine flint-tempered fabric with a sandy clay matrix – but never in shell-bearing fabrics. Interestingly, the boundary of fabric types used for briquetage and those used for pottery seem to blur on occasion, with the occurrence of distinct pottery forms in fabrics very similar to briquetage.

	Fabr	ric														
Form	F1	F2	F3	F4	F6	FV1	Q1	Q2	Q3	Q5	QI2	S2	S3	VF1	VS1	Total
R1						1							15			16
R2	1					1							3		1	6
R3			1										2			3
R4													6			6
R5							2									2
R6									1				3			4
R7													4			4
R8					1			2	2	5						10
R9						1										1
R10													1			1
R11				1					1			1				3
R12												1				1
B1	1			1	1	1			1		1		19	2		27
B2		1				1			1	1						4
B3								1								1
Total	2	1	1	2	2	5	2	3	6	6	1	2	53	2	1	89

Table 2: Correlation of fabric and form types (quantification by vessel count)

3.2.1 Vessel/rim forms

R1 short-necked, high-shouldered jar with upright, flat-topped rim and conical lower profile below shoulder zone (Fig. 4, Nos 1-3, 16-17, Fig. 6, Nos 35-37)

R2 slightly everted rim on medium to short-necked, round-shouldered jar with nearly vertical lower profile below shoulder zone (Fig. 4, Nos 4 and 18)

R3 flat-topped, upright rim on long-necked, shouldered jar (Fig. 4, No. 5)

R4 upright rim on medium-length neck jar, with high, sharp shoulder (Fig. 4, Nos 6-7, 19-20, Fig. 5, Nos 26-27)

R5 thin elegant out-flaring rim on necked jar or bowl (Fig. 5, No 28, Fig. 6, No. 41)

R6 possibly slack-shouldered or shoulder-less jar; may have simple upright, rounded rim or flat-topped rim (Fig. 4, No. 21, Fig 5, Nos 22-23)

R7 conical profile, open form; briquetage/saltworking container (Fig. 5, Nos 24 and 29)

R8 round-bodied, necked bowl with upright or slightly everted rim (Fig. 5, No. 33, Fig. 6 Nos 38-39, 44 and 46)

R9 saucepan pot with flat-topped rim (Fig. 6, No. 42)

R10 possible briquetage pan/trough; not cylindrical vessel (Fig. 5, No. 32)

R11 flat-topped, out-flaring rim on necked, shouldered jar (Fig. 6, No. 43)

R12 neckless ovoid, slack-profile jar with thickened or expanded rim (Fig. 6, No. 47)

R99 undiagnostic rim; too small to assign to rim type

3.2.2 Bases

B1 plain flat base (Fig. 4, Nos 8-12)

B2 flat base with vessel walls out-flaring (Fig. 4, No. 15)

B3 recessed or footring base (Fig. 6, No. 34)

B99 undiagnostic base

3.2.3 Angled sherds

A1 obtuse-angled or shouldered body sherd ($<90^{\circ}$)

3.2.4 Others

P plain body sherd

D decorated body sherd

3.3 Surface Treatment

Surface treatment is not particularly common on later prehistoric pottery from Northumberland Bottom, with only 68 records (316 sherds; 16% of the assemblage) (Table 3). Burnishing is the most common type of surface treatment, and occurs most often on the exterior of vessels (30 records) though 17 records show burnishing on both surfaces, indicating that these are bowls. Depending on the level of finish required, burnishing can be an extremely labour intensive activity, and may have been employed specifically to reduce permeability of vessel walls, or for aesthetic purposes. The burnished vessels are all in flint-tempered or quartz gritted fabrics, and burnishing is found most commonly of vessel form R8. Only smoothing or wiping is seen on shell tempered pottery (15 records). It is important to point out that there are no examples of rustication or deliberate surface roughening as a surface treatment type in this assemblage. Rustication (roughening of vessel exterior surface,

or sometimes the application of 'bobbles' of clay) has been noted at other sites in Kent, mainly in east Kent, and has been cited as a phenomenon possibly exclusive to east Kent and the continent (Macpherson-Grant 1991, 41, 43).

	Surface Treat				
Form	Burnishing	Smoothing	Wiping	Total	
B1	1	1	1	3	
B2	4			4	
Р	27	2	8	38	
P/A1	2			2	
R1	1			1	
R2		1	1	2	
R3		1		1	
R4		1	1	2	
R5	2			2	
R7			1	1	
R8	11			11	
R99	1			1	
Total	49	6	12	68	

Table 3: Correlation of surface treatment type with vessel form

3.4 Decoration

There are only 35 occurrences of sherds with decoration (Table 4). The most common form is finger-tipping on the shoulder (Fig. 4, Nos 1-4, 6-7,13-14, 16-17, 19-21, Fig. 5, Nos 23, 25, 27 and 30) or rim top (Fig. 5, No 30, Fig. 6, Nos 35-36). Some vessels have distinctive finger-pinched cabling decoration on the rim top (Fig. 4, Nos 6, 18-21, Fig. 5, No. 29 and Fig. 6, No. 40), and there are many more that have what is very difficult to define as deliberate decoration (in the form of irregular 'squashing' or depressions) on the rim top. In some cases this has been identified as finger-tipping, but the possibility remains that some are manufacturing marks. Incidences where manufacturing marks are clear are not recorded in Table 4 below.

Table 4: Correlation of decoration type with vessel form

	DECORATION TYPE				
FORM	Finger pinched cabling	Finger tip	Finger tip and finger pinched cabling	Tooled	Total
A1		6			6
D		3			3
D1				1	1
R1		6	1		7
R14		1			1
R2		3	1		4

	DECORAT	FION TYPE				
FORM	Finger cabling	pinched	Finger tip	Finger tip and finger pinched cabling	Tooled	Total
R3	2					2
R4			3	2		5
R6			1	1		2
R7	1					1
R99			3			3
Total	3		26	5	1	35

A sherd from ditch context 888 (Fig. 6, No. 48) in a quartz-gritted fabric has tooled curvilinear decoration which is similar to that on middle Iron Age vessels from sites in Essex, as at Ardale on the Grays By-pass (Wilkinson 1988, fig. 72, 22) and Shoeburyness, which occurs in a fine, flint-tempered fabric (Stamataki 2000). The possibility exists, therefore, that similar decorative techniques were shared amongst sites in the region or that the vessel was transported to Northumberland Bottom.

3.5 Vessel Sizes

Measurable rim diameters for the later prehistoric pottery from Northumberland Bottom range from 12 cm to 38 cm. One of the most striking things about the collection is the size of some of the vessels – the overall profile of the rim diameter histogram (Figure 2) is quite typical for the Iron Age with a major peak in the smaller range of sizes to the left, and a long tail to the right. However, three things stand out: first, there are no small vessels measuring 10 cm or less in diameter; second, the most commonly-recorded rim diameter is four centimetres larger than normal (cf Brown 1995 fig. 25; Woodward and Blinkhorn 1997, fig. 1); and third, for a moderately large assemblage with 37 measurable diameters, the presence of six vessels greater than 28 cm is remarkable compared to other assemblages in England of similar date. Six R1 jars are 20 cm or larger, which may be a reflection of the use of some in salt-related activities. However, in contrast, all of the R8 bowls are 18-20 cm or smaller in size, suggesting that these were likely to have been made for individual use – none display salt colours.



Figure 2: Early/middle Iron Age pottery by rim diameter sizes in 2 cm intervals

The majority of later prehistoric pottery rims recovered from Northumberland Bottom are very fragmented and account for less than 5% of a vessel. Most of these rims are in fabric S3 and derive from pits, which suggests, as might be expected, that this coarse, soft, shell tempered fabric is likely to abrade quickly; if used in salt-related activities, the salt may also have affected its condition. It is also possible that pits were left open for long periods of time which may help explain why some sherds are so small and in such bad condition. In addition, the shell temper in many sherds of fabric S3 is leached – suggesting that although the site is on chalk, acidic groundwater may have been present to assist in the deterioration of the sherds. Vessels with diameters of over 30 cm had a maximum of 13% of their rim present, and most of the vessels with the highest surviving rim percentages were of smaller size, with the single vessel with more than 40% of the rim remaining being of medium (20 cm) diameter.

Figure 3: Percentages of rim present



3.6 Evidence of Use

Evidence of vessel use in the form of residues and deposits (either on the inside or outside of vessels) is very rare. There is one occurrence of abrasion on the neck interior of an R8 form, possibly caused by stirring. Carbonised residues on the interior surface occur on only five records, four of which are in coarse S3 fabric, suggesting that at least a few of these vessels had been used for cooking and preparing food. There are no occurrences of soot deposits on the exterior of vessels. The presence of soot deposits would have indicated that cooking over a direct fire had definitely taken place at the site. What is most interesting, however, is that all but one of the usewear incidences (a large sherd with cess type deposit on the interior surface) were recovered from the western part of the site to the west of Downs Road.

Several sherds display a white residue-like skin or discolouration caused by the presence of salt, but not all of these were recorded in the database.

3.7 Distribution

The later prehistoric pottery from Northumberland Bottom is spread along the length of the excavation, although there are areas where it appears to be concentrated. The most significant of these areas is the large 'linear' pit cluster in ARC330 98, to the west of Downs Road and north of Hazell's Farm (features 327, 122, 210, 273, 111, 109, 118, 120, 205, 147 and 156), which accounts for 1009 sherds, and as such this area must be viewed as the focus for later prehistoric activity (Table 5).

Site		Fab	ric																					
Code	Feature	F1	F2	F3	F4	F5	F6	F8	FV1	Q1	Q2	Q3	Q4	Q5	Q6	QI1	QI2	S1	S2	S3	VF1	VQ1	VS1	Total
330	pit 109			24																259		2	1	286
330	pit 111								6											31				37
330	pit 147		3		1								2					2	1	31				39
330	pit 156		18							1									1	506			1	526
330	pit 205		2	1	1				6	2			4		1					43				60
WNB	ditch 204								60							1			1	6				68
WNB	pit 222										2									34			2	38
WNB	ditch 271											2						3		27				32
WNB	ditch 279											18								61				79
WNB	ditch 360						1				14			15			1							31
WNB	ditch 424							1					19							16				36
WNB	ditch 500								2			1	3							8			28	42
WNB	ditch 512								1		9	4								14	2			30
WNB	context 586			2		2			8		2	5	1					1		14			1	36
WNB	ditch 606										6	2	3	2				28				6		47
WNB	ditch 889											2		7						22				31
WNB	pit 1263	3		4	8				10							3		2		63				93

Table 5: Quantification of fabric(number of sherds) by principal feature

Almost all of these sherds (891) are in coarse shelly fabric S3. There is a minimum of 27 separate vessels (shouldered jars R1, R2, R4, slack-profile jar R6 and conical vessel R7) present in this group of features, of which seven come from pit 109 and 16 from pit 156 (Table 6). The possible 'ritual pit' 147, which contained a barbed and tanged arrowhead, contained a large R1 vessel, 28 cm in diameter. Also in this area of the site is the furnace feature 1427 and associated features, of which 1315, 1332, 1338, 1396, 1400 and 1420 contained a total of 60 sherds of later prehistoric pottery, once again following the pattern set for this area of the site and dominated by 39 sherds of fabric S3. Two sherds, from pit 1338 and feature 1396, have a 'pinkish' tinge that may be associated with salt production. Only one form type comes from this group of features, an R2 shouldered jar in a flint tempered fabric from feature 1396. A further 93 sherds (63 in fabric S3) come from pit 1263 to the west of the furnace complex. This contained two vessels of form R2 (Fig. 5, Nos 30 and 31), one in a flint fabric and one tempered with flint and organic matter, and one R8 bowl in a fine flint fabric (Fig. 5, No. 33). Fifteen sherds from a fine ware (Q4) burnished pot come from ditch 1270 to the west of pit 1263 and the furnace complex. The range of form types present on this area of the site points to a mixed assemblage of both domestic and special activities; the dominance of fabric S3, the presence of salt-related activity and the observation that four of the five

recorded incidences of carbonised residue on vessel interiors come from this area – three from pit 156 and one from pit 205 – support this interpretation.

Site		Rim 1	Form							
Code	Feature	R1	R2	R3	R4	R5	R6	R7	R8	Total
330	pit 109	3	1	1	2					7
330	pit 147	1								1
330	pit 156	2	2		4	1	3	4		16
WNB	pit 222	1	1							2
WNB	ditch 271	2								2
WNB	ditch 360								1	1
WNB	context 586	2		1					2	5
WNB	ditch 606								1	1
WNB	ditch 889			1					1	2
WNB	pit 1263		2				1		1	4
	Total	9	6	2	6	1	4	4	4	42

Table 6: Quantification of vessel/rim types by principal feature (number of rims)

Immediately east of Downs Road lies a group of ditch features and the mine/well 591. From this area of the site come 73 sherds of later prehistoric pottery, 47 sherds from ditch 606 alone. Six sherds from R8 bowls in sandy fabrics came from this ditch cut and from feature 610. The only saucepan pot in the assemblage (Fig. 6, No. 42) was recovered from pit 591, in association with large sherds of fabric S3 vessels and small sherds from flint-tempered pots. To the east of these features lies droveway 588 and to the north-west a group of ditches and pits, where features 461, 500, 486, 512, 279, 483 and 424 contained a total of 246 sherds. Ditch 500 contained 42 sherds, of which 28 were briquetage fabric VS1 – the largest context group of this fabric. There were no sherds of diagnostic form type from this group of features, and the fabrics are mixed shell or quartz, neither one particularly dominant. Slightly to the west of this group of features is a series of ditches, amongst which later prehistoric pottery was derived from features 332, 334, 336, 360, 635, 645, 346, and 322, amounting to 115 sherds. Only one diagnostic vessel type was present, an R8 bowl from ditch cut 334. Fabrics are dominated by flint or quartz types, and in ditch 336 by possible briquetage fabric VF1. Ditch 360, dominated by quartz fabrics, contained 15 sherds of glauconitic sandy fabric Q5, possibly from a single bowl.

The occurrence of later prehistoric pottery becomes less frequent from this point onwards towards the far eastern end of the site. A series of pits bounded by ditches, features 230, 326, 415, 301, 378, 221, 222 and 219 produced only 21 sherds, dominated by flint-tempered fabrics, though pit 415 contained four sherds of VF1. Six sherds possibly from the same R8 burnished bowl measuring 18-20 cm in diameter (not illustrated) and made from

glauconitic fabric Q5 came from ditch cut 71. The north-east corner of the site containing a large ditch complex produced only seven sherds of later prehistoric pottery.

The dominance of later prehistoric pottery on the western part of the site is clear, suggesting that this was the main focus of later prehistoric activity. Within the western half of the site itself, there is a pattern of both fabric and form variation from west to east. The western section contains well over half the total amount of pottery, dominated by shellgritted, high-shouldered jars with finger-tip decoration around the shoulder. Towards the east there is an increase in the quantity of quartz and flint-tempered fabrics, and bowl form R8. These patterns may suggest that the focus of settlement shifted slightly over time from the west of Downs Road to an area east of it. Alternatively, the presence of salt production, or at least salt processing, was associated with one major type of coarse ware fabric (S3), vessel forms such as R1-R3 and other specialised briquetage containers in the west of the site, with the actual domestic settlement using both bowls and jars made from other rather finer fabrics contemporary but located in the eastern part of the site. Because the R5 and R8 bowls are found with the common shouldered jar forms, it is most likely that the area to the west was actually broadly contemporary with that to the east, but this can only be proven with further excavation and a programme of radiocarbon dating. For example, both pit 1263 (Fig. 5, Nos 30-33) and context 586 (Fig. 6, Nos 34-40) contained mainly jars but also one or two examples of bowls, as well as sherds affected by salt if not actual salt containers. It is important to emphasise that salt-related activities occurred both west and east of Downs Road, bowls were recovered from both areas and cooking activity, while more frequent in the western area, was also present in the eastern area. Therefore, there are variations in fabrics and in frequency of forms between the west and the east of the site, but these are not extreme differences and it is likely that there was simply a shift in emphasis between the two zones of the settlement. This may have been a result of change through time, but this cannot be demonstrated by the ceramic evidence alone.

4 DISCUSSION

The main phase of later prehistoric occupation at West of Northumberland Bottom dates from the end of the early Iron Age to the beginning of the middle Iron Age and is represented by high, round-shouldered jar forms with characteristic finger-tipped shoulders and finger pinched cabling on rim tops, many of which are quite large in diameter, and fine roundbodied bowls, one of which had a recessed or footring base. This phase is dominated by coarse shell fabric for the jars and sandy fabrics for the bowls. The presence of a single saucepan pot strengthens the dating for this phase as being just within the middle Iron Age, and there is a possibility that the fragmentary examples of barrel or slack-profile simple jars support the middle Iron Age date. In addition, there are two less common vessel forms, flared or conical and possibly sub-rectangular in shape, which may have been made specifically for salt making or salt using. Some of the shouldered jars appear to have been part of this salt-related process. These forms are supported by the presence of various organic-tempered fabric sherds with unusual firing conditions resulting in extreme hardness or 'salt colours'; either salt was traded to this site in these containers, brine was dried and processed here, or salt was used in the preservation or processing of food or other materials at this site in some quantity. The significance of this early-middle Iron Age assemblage lies in the presence of evidence for salt processing if not actual salt production alongside more typical evidence for domestic settlement. It is highly likely that the different areas of these activities were contemporary but there is a possibility that the settlement developed at a slightly later date in the eastern area than the salt-related activity in the western area. Altogether it is likely that the early-middle Iron Age activity at this site took place over a period from the 5th to 3rd centuries BC.

The majority of the early-middle Iron Age pottery could have been made from resources available in the immediate area but some of the rounded bowls were traded or transported to the site from further south. The presence of glauconitic sandy fabric in the assemblage is significant because it is the only positively identified non-local fabric type. It is most likely that the various fine, burnished bowls made from this fabric were supplied by potters from elsewhere and traded to the occupants of the site, given as special gifts or were part of the possessions of women given in marriage. The recognition of this fabric is particularly important since other fine sandy fabrics used for bowls in the assemblage are more likely to have been made from local resources; fine vessels of this type did not need to be imported. This type of apparently unnecessary trade or exchange of pottery types identical to locally available vessels suggests that the occupants of the site were deliberately maintaining links with other people further inland – possibly as part of the trade in salt.

In addition, a single middle-late Bronze Age cremation urn was recovered at the eastern end of the site.

5 CATALOGUE OF ILLUSTRATED SHERDS

FT = finger-tip impressed decoration; PRN = Pottery Record Number in database

Pit 109, context 108 (Fig. 4)

1. Shouldered jar; R1; fabric S3; FT on shoulder; 'squashed' effect rim. PRN1002.

2. Shouldered jar; R1; fabric S3; FT on shoulder; 'squashed' effect rim. PRN 1003.

3. Shouldered jar; R1; fabric S3; FT on shoulder; 'squashed' effect rim; white 'skin' effect on interior and exterior surfaces. PRN 1006.

4. Shouldered jar; R2; fabric S3; FT on shoulder; 'squashed' effect rim. PRN 1001.

5. Shouldered jar; R3; fabric S3; FT manufacture marks on rim top. PRN 1004.

6. Shouldered jar; R4; fabric S3; FT on shoulder; finger pinched cabling decoration on rim top; wiped and burnished rim interior. PRN 1005.

7. Shouldered jar; R4; fabric S3; FT and spalling on shoulder; burnished interior surface and top of rim. PRN 1007.

8. Plain flat base; B1; fabric S3; wiped exterior; white 'skin' effect on exterior. PRN 1009-1011.

9. Plain flat base; B1; fabric S3. PRN1012 and 1014.

Pit 156, contexts 149 and 150

Figure 4

10. Plain flat base; B1; fabric S3. PRN 1096, context 149.

11. Plain flat base; B1; fabric S3; traces of possible white 'skin' effect on exterior. PRN 1098, context 149.

12. Plain flat base; B1; fabric S3; white 'skin' effect on exterior and interior. PRN 1100, context 149.

13. Angled shoulder; A1; fabric S3; FT on shoulder. PRN 1102, context 149.

14. Angled shoulder; A1; fabric S3; FT on shoulder. PRN 1103, context 149.

15. Flat base with flaring walls; B2; fabric F2; burnished wall and base exterior; possible burnished interior. PRN 1091, context 149.

16. Shouldered jar; R1; fabric S3; FT on shoulder. PRN 1112, context 149.

17. Shouldered jar; R1; fabric S3; FT on shoulder. PRN 1113, context 149.

18. Shouldered jar; R2; fabric S3; finger-pinched cabling on top of rim. PRN 1114, context 149.

19. Shouldered jar; R4; fabric S3; FT on shoulder and traces of possible finger-pinched cabling on top of rim. PRN 1108, context 149.

20. Shouldered jar; R4; fabric S3; FT on shoulder; finger pinched cabling on rim top. PRN 1115, context 149.

Figure 5

21. Slack shouldered jar; R6; fabric S3; FT on shoulder; finger pinched cabling on rim top. PRN 1109, context 149.

22. Slack shouldered jar; R6; fabric S3. PRN 1110, context 149.

23. Slack shouldered jar; R6; fabric S3; FT on shoulder. PRN 1111, context 149.

24. Conical, open form briquetage container; pink to lavender coloured effect on interior; R7; fabric S3. PRNs 1105-1106 (context 149) and 1127 (context 150).

25. Shouldered jar; R2; fabric S3; FT on shoulder; smoothed exterior. PRN 1121, context 150.

26. Shouldered jar; R4; fabric S3; smoothed interior and exterior. PRN 1123, context 150.

27. Shouldered jar; R4; fabric S3; FT on shoulder; 'squashed' effect rim (probably manufacture). PRN 1124, context 150.

28. Bowl; R5; fabric Q1. PRN 1122, context 150.

29. Conical, open form briquetage container; R7; fabric S3; finger pinched cabling on rim top; wiped interior and exterior; traces of white 'skin' effect on exterior. PRN 1128, context 150.

Pit 1263, context 1262 (Fig. 5)

30. Shouldered jar; R2; fabric F1; FT on shoulder and top of rim. PRNs 1181-1182.

31. Shouldered jar; R2; fabric FV1. PRN 1184.

32. Sub-rectangular, briquetage container; R10; fabric S3. PRN 1175.

33. Round-bodied bowl; R8; fabric F6; burnished interior and exterior. PRN 1180.

Ditch cut, context 586 (Fig. 6)

34. Recessed or footring base from a bowl with flaring walls, nearly a footring base; B3; fabric Q2; burnished interior and exterior. PRN 1339.

35. Shouldered jar; R1; fabric S3; FT on top of rim. PRN 1330.

36. Shouldered jar; R1; fabric S3; FT on top of rim. PRN 1331.

37. Shouldered jar; R1; fabric S3. PRN 1333.

38. Round-bodied bowl; R8; fabric Q3; burnished interior and exterior. PRN 1337.

39. Round-bodied bowl; R8; fabric Q2; burnished interior and exterior. PRN 1338; context 586, ditch cut.

40. Shouldered jar; R3; fabric F3; finger pinched cabling on rim top. PRN 1345.

Other Features(Fig. 6)

41. Bowl; R5; fabric Q1; burnished interior and exterior. PRN 1051, context 112, pit 113.

42. Saucepan pot; R9; fabric FV1. PRN 1305, context 852, pit 591.

43. Necked jar with flat-topped rim; R11; fabric Q3. PRN 1153, context 209, pit 210l.

44. Round-bodied bowl; R8; fabric Q5; burnished interior and exterior. PRN 1309, context 888, ditch 889.

45. Necked jar; R6; fabric Q3; 'scallop' effect on rim. PRN 1226 (ARC33098), context 323, ditch 271.

46. Round-shouldered bowl; R8; fabric Q5; burnished interior and exterior. PRN 1350, context 596, ditch 597.

47. Neckless ovoid, slack-profile jar; R12; fabric S2. PRN 1394, context 666, pit 667.

48. Decorated jar sherd; fabric Q2; burnished exterior; curvilinear tooled decoration. PRN 1396, context 888, ditch 889.

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