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London and Continental Railways
Oxford Wessex Archaeology Joint Venture**

**The later prehistoric pottery from Saltwood Tunnel,
Saltwood, Kent (ARC SLT 98, ARC SLT 98C, ARC
SLT 99, ARC SFB 99, ARC SFB 01)**

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1 INTRODUCTION

A total of 3446 sherds of later prehistoric pottery, weighing 24325 g, was recovered from archaeological investigations along the CTRL route at Saltwood Tunnel. The collection and analysis of pottery was primarily carried out to establish a chronology for the prehistoric activity at the site (Mephram 2002, 1). The material was in poor condition with a mean sherd weight of 7.1g. The assemblage ranged in date from the middle Bronze Age to the middle Iron Age (earlier and later pottery is reported elsewhere XREF), with a focus on the late Bronze Age. The pottery was recorded using the methodology designed for the route-wide scheme in accordance with the recommendations set out by the Prehistoric Ceramics Research Group (PCRG 1997).

2 RESIDUALITY AND TAPHONOMY

The later prehistoric pottery from Saltwood Tunnel was in poor condition, and few features contained any sizeable assemblages. The Prehistoric Ceramics Research Group has suggested that a minimum of 25 sherds should be present in a context in order for a statistically reliable estimation of phase to be carried out (PCRG 1997, 21). Of the 525 contexts that produced later prehistoric pottery at Saltwood Tunnel, only 26 (less than 5%) contained such levels of pottery, with 383 contexts containing five sherds or less. This is in part due to a high level of residuality on a site which had been repeatedly occupied from the early prehistoric to the medieval period.

The stratigraphic phasing assigned to contexts during the post-excavation assessment has been used here in order to assess the degree of residuality on the site. This is presented only as a guide as the final phasing information was not available at the time of writing. Single sherds of later prehistoric pottery were recovered from two early prehistoric contexts (1353 and 3297). Contexts assigned a Bronze Age to Iron Age phase produced 30% of the assemblage (1044 sherds), and Iron Age to Roman contexts produced 14% (490 sherds). A total of 716 sherds was recorded from 158 early medieval contexts, 35 sherds from 15 medieval contexts and 47 sherds from 5 modern contexts. The medieval and modern contexts therefore account for 23% of the total sherd count of the later prehistoric assemblage. Pottery recovered from contexts that could not be assigned a stratigraphic phase at the post-excavation assessment stage totalled 32% of the material.

As a result of the low number of contexts producing a reliable number of sherds the criteria were altered to include all features that contained contexts which together produced more than 25 sherds. These features have been termed 'key groups', and they form the basis for the ceramic phasing. A total of 25 key groups was identified, however this number includes two early medieval ditches (sub-groups 7 and 63) and three early medieval graves

(sub-groups 41, 129 and 200). Removal of these reduces the number of later prehistoric key groups to 20 (Table 1), and highlights the high levels of residuality on the site.

Table 1: Summary of key groups

| Sub-group | Intervention(s) | Feature Type | Count | Weight | Ceramic phase (see 'Chronology') |
|-----------|-----------------|--------------|-------|--------|----------------------------------|
| 236 | 5341 | Pit | 185 | 1369 | 6-7 |
| 311 | 3900;3910;3984 | Pit | 164 | 1161 | 3 |
| 0 | 4757 | Layer | 154 | 2338 | 2-3 |
| 0 | 2805 | Ditch | 105 | 772 | 3 |
| 206 | 5049 | Pit | 103 | 629 | 3 |
| 0 | 1484 | Ditch | 99 | 597 | 3 |
| 602 | 6499 | Pit | 89 | 769 | 3 |
| 0 | 3098 | Ditch | 72 | 893 | 7 |
| 611 | 6027 | Ditch | 70 | 1016 | 6 |
| 207 | 5235 | Pit | 67 | 1142 | 3 |
| 369 | 6658 | Pit | 67 | 622 | 3-4 |
| 208 | 5029 | Pit | 58 | 273 | 3 |
| 0 | 2303 | Cremation | 45 | 481 | Unknown |
| 612 | 6345 | Grave | 43 | 518 | 3-4 |
| 211 | 5146 | Pit | 40 | 177 | 3 |
| 0 | 2500 | Layer | 39 | 127 | 3 |
| 0 | 3193 | Cremation | 36 | 112 | 2-3 |
| 0 | 1099 | Ditch | 34 | 109 | 3 |
| 103 | 1803 | Grave | 29 | 103 | 6 |
| 0 | 1273 | Layer | 27 | 119 | 3 |

Of the contexts that could be characterised by type, the greatest quantity of later prehistoric pottery was recovered from ditch and gully features (1112 sherds, 7296 g, Table 2). Pits produced 786 sherds (6213 g) and a further 731 sherds (4149g), were recovered from funerary contexts. Layers, including the subsoil and ploughsoil, produced 225 sherds of pottery (1169 g) and smaller quantities were recovered from hollow ways (54 sherds, 253 g) and postholes (77 sherds, 462 g).

Table 2: Quantification of pottery from dominant feature classes.

| Feature type | Count | % of count of identified types | Weight (g) | % of count of identified types |
|-------------------------------|-------|--------------------------------|------------|--------------------------------|
| Ditch / gully | 1112 | 37.3 | 7296 | 37.3 |
| Pit | 786 | 26.3 | 6213 | 31.8 |
| Funerary (cremation or grave) | 731 | 24.5 | 4149 | 21.2 |
| Layer | 225 | 7.5 | 1169 | 6 |
| Postholes | 77 | 2.6 | 462 | 2.4 |
| Hollow way | 54 | 1.8 | 253 | 1.3 |

3 CHRONOLOGICAL OUTLINE

As detailed above, analysis of the key groups formed the basis of the proposed ceramic phasing for the later prehistoric pottery from Saltwood Tunnel. Seven ceramic phases were identified; these are presented below and discussed in the text.

1. Middle Bronze Age
2. Middle to late Bronze Age transition

3. Late Bronze Age plain assemblage phase
4. Late Bronze Age decorated phase
5. Early Iron Age
6. Early Iron Age to early/middle Iron Age
7. Early/middle Iron Age to middle Iron Age.

4 FABRICS

A total of 99 different fabrics was identified within the later prehistoric assemblage from Saltwood Tunnel. These were divided into ten fabric groups based on their dominant inclusion(s) type (Table 3). After analysis of the first part of the collection (SLT99) had been completed, it was decided to reduce the level of fabric recording for those sherds that had been redeposited in Saxon and medieval contexts. As a result, any later prehistoric pottery that had been recovered from Saxon and medieval contexts was classified using the code '99', prefixed by a letter, or letters, to indicate the dominant inclusion(s). Diagnostic vessel parts such as rims or decorated sherds were fully recorded wherever possible. The fabrics are described below; their quantification is presented in Table 4. The following grain size classifications have been used: coarse silt, <0.06 mm; very fine sand, >0.06-<0.13 mm; fine sand, >0.13-<0.25 mm; medium sand, >0.25-<0.5 mm; coarse sand, >0.5-<1 mm; very coarse sand, >1-<2 mm; granules, >2-<4 mm, as is presented in the methodology adopted for the route-wide scheme (PCRG 1997, appendices). Seven fabrics were sampled for thin sectioning and petrological identification to clarify the x10 to x30 power microscopic examination and these are indicated (*).

All fabrics were irregularly fired unless otherwise indicated. All flint was calcined and is angular in shape unless otherwise indicated.

Table 3: Quantification of fabric by group

| Fabric group | Count | % of count | Weight (g) | % of weight |
|---|-------------|------------|--------------|-------------|
| 1: Flint-tempered | 1749 | 50.8 | 10431 | 42.9 |
| 2: Grog-tempered | 721 | 20.9 | 6791 | 27.9 |
| 3: Flint and grog-tempered | 406 | 11.8 | 3337 | 13.7 |
| 4: Sandy wares | 198 | 5.7 | 1040 | 4.3 |
| 5: Quartzite inclusions | 4 | 0.1 | 13 | 0.1 |
| 6: Flint and quartz inclusions | 183 | 5.3 | 1248 | 5.1 |
| 7: Grog and quartz inclusions | 76 | 2.2 | 527 | 2.2 |
| 8: Iron inclusions | 47 | 1.4 | 433 | 1.8 |
| 9: Sandstone inclusions | 51 | 1.5 | 442 | 1.8 |
| 10: Unidentified inclusions, characterised by voids | 11 | 0.3 | 63 | 0.3 |
| Totals | 3446 | | 24325 | |

Table 4: Fabric quantification

| Fabric group | Fabric | Count | Weight |
|--------------|--------|-------|--------|
| 1 | F1 | 35 | 192 |
| 1 | F2 | 137 | 1097 |
| 1 | F3 | 130 | 617 |
| 1 | F4 | 72 | 368 |
| 1 | F5 | 42 | 172 |
| 1 | F6 | 10 | 35 |
| 1 | F7 | 44 | 306 |
| 1 | F8 | 21 | 126 |
| 1 | F9 | 51 | 337 |
| 1 | F11 | 17 | 135 |
| 1 | F12 | 75 | 676 |
| 1 | F13 | 48 | 195 |
| 1 | F14 | 6 | 131 |
| 1 | F15 | 31 | 283 |
| 1 | F16 | 41 | 296 |
| 1 | F17 | 177 | 857 |
| 1 | F18 | 65 | 1140 |
| 1 | F19 | 16 | 162 |
| 1 | F20 | 9 | 29 |
| 1 | F21 | 6 | 47 |
| 1 | F22 | 4 | 61 |
| 1 | F23 | 14 | 57 |
| 1 | F24 | 57 | 540 |
| 1 | F25 | 23 | 107 |
| 1 | F26 | 1 | 18 |
| 1 | F27 | 3 | 47 |
| 1 | F28 | 10 | 100 |
| 1 | F99 | 560 | 1768 |
| 1 | FV1 | 44 | 532 |
| 2 | G1 | 32 | 604 |
| 2 | G2 | 143 | 1995 |
| 2 | G3 | 22 | 52 |
| 2 | G4 | 2 | 9 |
| 2 | G5 | 61 | 478 |
| 2 | G6 | 77 | 365 |
| 2 | G7 | 37 | 446 |
| 2 | G8 | 29 | 77 |
| 2 | G9 | 22 | 64 |
| 2 | G10 | 21 | 311 |
| 2 | G11 | 46 | 625 |
| 2 | G12 | 7 | 50 |
| 2 | G13 | 16 | 541 |
| 2 | G14 | 4 | 41 |
| 2 | G15 | 39 | 181 |
| 2 | G16 | 5 | 50 |
| 2 | G17 | 48 | 269 |
| 2 | G18 | 1 | 42 |
| 2 | G99 | 108 | 576 |
| 2 | GV99 | 1 | 15 |
| 3 | FG1 | 14 | 127 |
| 3 | FG2 | 1 | 56 |

| Fabric group | Fabric | Count | Weight |
|--------------|--------|-------|--------|
| 3 | FG3 | 2 | 17 |
| 3 | FG4 | 8 | 50 |
| 3 | FG5 | 10 | 131 |
| 3 | FG6 | 2 | 12 |
| 3 | FG7 | 1 | 5 |
| 3 | FG99 | 29 | 69 |
| 3 | FGQ99 | 3 | 43 |
| 3 | GF1 | 77 | 1038 |
| 3 | GF2 | 65 | 533 |
| 3 | GF3 | 24 | 321 |
| 3 | GF4 | 6 | 52 |
| 3 | GF5 | 4 | 17 |
| 3 | GF6 | 38 | 241 |
| 3 | GF7 | 39 | 205 |
| 3 | GF8 | 8 | 52 |
| 3 | GF9 | 1 | 43 |
| 3 | GF10 | 7 | 19 |
| 3 | GF11 | 11 | 149 |
| 3 | GF99 | 56 | 157 |
| 4 | Q1 | 2 | 10 |
| 4 | Q2 | 7 | 29 |
| 4 | Q3 | 1 | 1 |
| 4 | Q4 | 10 | 114 |
| 4 | Q5 | 18 | 68 |
| 4 | Q6 | 86 | 423 |
| 4 | Q7 | 6 | 24 |
| 4 | Q8 | 3 | 5 |
| 4 | Q9 | 4 | 6 |
| 4 | Q99 | 61 | 360 |
| 5 | Z1 | 3 | 10 |
| 5 | Z2 | 1 | 3 |
| 6 | QF1 | 58 | 234 |
| 6 | QF2 | 2 | 3 |
| 6 | QF3 | 17 | 114 |
| 6 | QF4 | 3 | 8 |
| 6 | QF5 | 16 | 69 |
| 6 | QF6 | 3 | 8 |
| 6 | QF99 | 47 | 283 |
| 6 | FQ1 | 19 | 205 |
| 6 | FQ2 | 11 | 204 |
| 6 | FQ99 | 7 | 120 |
| 7 | GQ1 | 9 | 38 |
| 7 | GQ2 | 21 | 77 |
| 7 | GQ3 | 1 | 10 |
| 7 | GQ4 | 2 | 165 |
| 7 | GQ6 | 19 | 60 |
| 7 | GQ99 | 16 | 147 |
| 7 | QG99 | 8 | 30 |
| 8 | I99 | 2 | 1 |
| 8 | GI1 | 5 | 24 |
| 8 | GI99 | 3 | 8 |
| 8 | IF1 | 10 | 47 |
| 8 | FI1 | 1 | 6 |

| Fabric group | Fabric | Count | Weight |
|--------------|--------|-------|--------|
| 8 | F12 | 1 | 56 |
| 8 | FI99 | 2 | 4 |
| 8 | QI1 | 10 | 93 |
| 8 | QI99 | 13 | 194 |
| 9 | QR99 | 1 | 12 |
| 9 | R1 | 20 | 90 |
| 9 | R2 | 3 | 14 |
| 9 | R99 | 17 | 242 |
| 9 | RG1 | 1 | 9 |
| 9 | RG99 | 2 | 5 |
| 9 | RI99 | 2 | 22 |
| 9 | IQR99 | 5 | 48 |
| 10 | D2 | 9 | 49 |
| 10 | D3 | 1 | 11 |
| 10 | V99 | 1 | 3 |

4.1 Fabric group 1: Flint-tempered

F1. A soft, but slightly rough fabric containing sparse to moderate (7-10%) flint, and occasional sub-rounded to sub-angular orange or red detrital flint, ≤ 4 mm, poorly sorted. The clay matrix contains moderate (10%) silt or fine and-sized sub-angular to angular quartz grains. The fracture is hackly.

F2. A soft and slightly sandy fabric containing common (20%) flint fragments, with occasional fragments of red/purple detrital flint, ≤ 5 mm, poorly sorted. Rare (1%) sub-rounded red iron oxides, ≤ 1 mm, present. Possible silty clay matrix. The fracture is hackly.

F3. A soft but slightly harsh fabric containing sparse (5-7%) flint with occasional fragments of red/purple detritus, ≤ 3 mm, mostly ≤ 1 mm, poorly sorted. The clay matrix appears to contain silt-sized quartz grains. The fracture is mostly laminated.

F4. A soft and smooth version of fabric F1, with sparse (5-7%) flint, ≤ 2 mm, poorly sorted, mostly calcined but occasional red/purple detrital fragments also occur. Rare (1%) sub-rounded, red iron oxides, ≤ 1 mm. The clay matrix appears to be silty, but individual grains are not visible at x30 magnification. The fracture is slightly laminated.

F5. A soft and smooth fabric containing sparse (5-7%) flint, ≤ 2 mm but mostly ≤ 1 mm, moderately sorted. The clay matrix appears to be silty and extremely dense. The fracture is smooth.

F6. A soft but harsh fabric containing moderate (10%) flint, ≤ 4 mm, poorly sorted, occasional pieces of detrital flint are also present. Rare to sparse (2-3%) angular iron oxides, ≤ 1 mm, and rare (1%) sub-rounded to rounded coarse to very coarse quartz grains. The clay matrix contains abundant silt-sized quartz grains, their shape was not clearly discernible at x30 power. The fracture is hackly.

F7. A soft but harsh fabric containing sparse (5-7%) angular flint, mostly calcined, but detrital fragments were also recognised, ≤ 5 mm, poorly sorted. Occasionally cortex may be seen on the flint fragments. Rare (1%) linear vesicles also present, ≤ 2 mm. The clay matrix is very dense. The fracture is smooth.

F8. A smooth fabric containing sparse (up to 7%) angular flint, ≤ 3 mm, poorly sorted, mostly calcined, but detrital fragments may also occur. The clay matrix contains an abundance of very fine or silt sized quartz grains. The fabric is characterised by an extremely laminated structure, visible in the fracture.

F9. A soapy fabric containing very common (25%) flint, occasional detrital pieces may also be seen, ≤ 3 mm but mostly ≤ 0.5 mm, opaque and poorly sorted; rare (1%) red iron oxides, ≤ 2 mm, rounded. The fracture is fine.

F10. code not used.

F11. A rough fabric containing moderate (15%) flint, ≤ 3 mm, poorly sorted, and sparse (7%) sub-rounded coarse-sized quartz grains in a silty clay matrix. The fracture is hackly.

F12. A fairly smooth fabric containing sparse to moderate (7-10%) flint, ≤ 6 mm, poorly sorted; rare (2%) sub-rounded to sub-angular red iron oxides, ≤ 2 mm. The clay matrix is sandy and contains abundant (40%) very fine sized quartz grains. The fracture is hackly.

F13. A soft, but harsh fabric containing moderate (15%) flint, mostly ≤ 5 mm, but occasional larger and more sub-rounded fragments may occur, ≤ 8 mm, poorly sorted. These larger fragments stand proud of the vessel surface. Rare (1%) rounded iron oxides, ≤ 1 mm, are also present. The clay matrix is silty. The fracture is irregular.

F14. A soft and slightly harsh fabric containing common (20-25%) flint, ≤ 4 mm, most fragments are ≤ 1 mm, well sorted. The flint is mostly calcined with a small detrital component. Rare (1%) rounded, red iron oxides, ≤ 1 mm. The clay matrix is silty. The fracture is slightly hackly.

F15. A soft but harsh fabric containing moderate (10-15%) flint, ≤ 4 mm, poorly sorted. The clay matrix is silty and the fracture is hackly.

F16. A soft but rough fabric containing common (20-25%) flint, with occasional detrital fragments, ≤ 7 mm, poorly sorted. The clay matrix is not sandy. The fracture is hackly.

F17. A soft and slightly sandy fabric containing moderate (10%) flint, ≤ 3 mm, poorly sorted, in a silty clay matrix. The fracture is laminated.

F18. A soft but very rough fabric containing very common (30%) sub-angular to angular flint, ≤ 8 mm but mostly ≤ 1 mm, moderately to poorly sorted. The clay matrix is slightly micaceous but not sandy. The fracture is hackly.

F19. A soft but rough fabric containing common (20-25%) flint, mostly calcined with a small proportion of detrital fragments and those with cortex, ≤ 4 mm, poorly sorted. Rare (1%) rounded, red iron oxides, ≤ 1 mm. The clay matrix appears to be slightly silty. The fracture is hackly.

F20. A soft and smooth fabric containing common (20%) flint, ≤ 1 mm, well sorted. The clay matrix is silty and the fracture is smooth.

F21. A soft but rough fabric containing moderate (15%) flint, ≤ 4 mm, poorly sorted, in a sandy clay matrix of very fine to fine-sized quartz. The fracture is fine.

F22. A soft and slightly harsh fabric containing moderate to common (15-20%) flint, ≤ 5 mm, moderately to well sorted. The clay matrix appears to be slightly sandy with very fine quartz grains, not clearly visible at x30 power. The fracture is extremely hackly and irregular.

F23. A soft and relatively smooth fabric containing moderate to common (15-20%) flint, ≤ 4 mm, but mostly ≤ 2 mm, poorly sorted. The clay matrix is silty and micaceous. The fresh fracture is very slightly hackly.

F24. A soft but slightly harsh fabric containing moderate to common (15-20%) flint, mostly calcined with occasional detrital fragments, ≤ 5 mm, poorly sorted. The clay matrix contains very common to abundant (30-40%) fine to medium sized grains of angular quartz, and occasional sub-angular to sub-rounded coarse sized grains. The fracture is irregular.

F25. A soft and slightly sandy fabric containing abundant (40%) flint, ≤ 2 mm, mostly ≤ 1 mm, well sorted. The clay matrix is silty. The fracture is fine.

F26. A soft but rough fabric containing common (20-25%) sub-angular detrital flint, ≤ 3 mm, moderately sorted, presumably derived from the gravel. The fracture is irregular.

F27. A soft but harsh fabric containing very common (30%) flint, ≤ 5 mm, moderately sorted. The clay matrix contains abundant (40%) silt to very fine sized quartz grains; it was not possible to discern their shape at x30 power. The fracture is laminated.

F28. A soft and slightly harsh fabric containing common (20-25%) flint, ≤ 2 mm, poorly sorted. The clay matrix is slightly micaceous. The fracture is fine.

4.1.1 Flint and organic tempered

FV1. A soft and slightly harsh fabric containing moderate (10%) flint, mostly calcined, with occasional detrital fragments, ≤ 5 mm, poorly sorted; sparse (5-7%) linear organic inclusions, ≤ 2 mm where measurable, and rare (1%) sub-angular coarse-sized quartz grains. The clay matrix is slightly silty and laminated.

4.2 Fabric group 2: Grog-tempered

G1. A soft, soapy fabric containing very common (30%) sub-angular to angular, originally unoxidised, flint-tempered grog, ≤ 2 mm. Larger pieces may also be present but were not visible in the break. Also contains sparse (5%) flint, ≤ 6 mm, well sorted, and rare (1-2%) linear organic inclusions, ≤ 15 mm. The fresh fracture is irregular.

G2. A relatively hard and soapy fabric containing moderate (10-15%) angular grog, mostly unoxidised or isotropic. The clay matrix of the grog is dense, with the occasional sub-rounded medium-sized quartz grain visible. The clay matrix of the fabric is sandy, with sparse to moderate (7-10%) medium to very coarse quartz grains, mostly sub-angular to angular; occasional sub-rounded grains are also present, moderately to poorly sorted. There is rare to sparse (2-3%) flint, ≤ 2 mm, moderately to well sorted, and rare (1-2%) pieces of flint detritus, ≤ 4 mm, sub-angular. The fracture is irregular (*).

G3. A soft and very soapy fabric containing common to very common (25-30%) angular grog, ≤ 3 mm, moderately sorted; sparse (3%) sub-angular red iron oxides, ≤ 1.5 mm, poorly sorted; rare (2%) flint, ≤ 1.5 mm; and rare (1-2%) sub-rounded quartz grains up to very coarse in size. The grog is flint-tempered with a sandy clay matrix and mostly unoxidised. The fracture is conchoidal.

G4. A soft, soapy fabric containing moderate to common (15-20%) sub-angular grog, ≤ 2 mm, poorly sorted; sparse (5-7%) rounded, red iron oxides, ≤ 1.5 mm, moderately sorted; and rare (1%) detrital flint, ≤ 3 mm. The clay matrix contains common (25%) rounded to sub-angular quartz sand, medium to coarse in size, poorly sorted. The fracture is irregular.

G5. A soft sandy fabric containing very common to abundant (30-40%) unoxidised, sub-angular to angular grog, ≤ 2 mm, moderately to well sorted; sparse (3-5%) flint, < 3 mm, including fragments with cortex and very occasional larger pieces up to 6 mm. The clay matrix is slightly silty. The fracture is smooth. Petrological analysis shows that the grog is fine in texture and similar to the clay matrix of this fabric (*).

G6. A soft and soapy fabric containing very common (30%) sub-angular originally unoxidised grog, ≤ 5 mm, moderately sorted; and up to 3% flint, ≤ 4 mm. The fracture is hackly.

G7. A soft and soapy fabric containing very common (30%) angular originally unoxidised grog, ≤ 7 mm, poorly sorted; and sparse (up to 5%) flint, ≤ 7 mm. Both the primary and the secondary pot have micaceous silty clay matrices. The fracture is hackly.

G8. A soft and soapy fabric containing common to very common (25-30%) angular grog, ≤ 3 mm, moderately sorted; sparse (3-5%) flint, ≤ 8 mm, poorly sorted. The clay matrix contains an abundance of angular, fine-sized quartz grains, occasional sub-angular to sub-rounded medium and coarse-sized grains are also present. The fracture is hackly.

G9. A soft and soapy fabric containing very common (30%) angular originally unoxidised grog, ≤ 9 mm, poorly sorted; sparse (2-3%) flint, ≤ 4 mm; rare (1%) sub-rounded red iron oxides, ≤ 1 mm. The clay matrix is silty. The grog was added to the fabric in an unoxidised state, but has become oxidised on the surfaces during the firing of the secondary vessel as is the case for all the previous grog-tempered fabrics. The fracture is hackly.

G10. A very soft and soapy fabric containing 30-40% angular, oxidised grog (some fragments have evidence of fine flint-tempering in the parent vessel), ≤ 9 mm, poorly sorted. The clay matrix is sandy with abundant (40%) sub-rounded to sub-angular fine quartz grains. The fracture is hackly.

G11. A soft and soapy fabric containing common to very common (25-30%) sub-angular grog, ≤ 2 mm, moderately to well sorted. The grog is mostly oxidised and buff in colour, but may remain unoxidised in the core. Rare (2%) flint, both calcined and detrital, also present, ≤ 3 mm. The clay matrix is silty with sparse (3-5%) sub-angular to sub-rounded coarse-sized grains. The fracture is fine.

G12. A soft and soapy fabric containing common to very common (25-30%) angular, originally unoxidised grog, ≤ 2 mm, well sorted; rare (2%) flint, ≤ 3.5 mm; and rare (1%) sub-rounded, coarse-sized quartz grains. The fracture is hackly.

G13. A soft and soapy fabric containing common (20-25%) angular grog, ≤ 3 mm, moderately sorted. The grog has mostly been oxidised to a light greyish buff colour. Sparse (5-7%) sub-angular to angular, ≤ 1 mm, poorly sorted vesicles are visible, possibly deriving from mudstones. Rare (1%) rounded iron oxides, ≤ 1 mm, are also present. The clay matrix appears to be silty. The fracture is hackly. (*)

G14. A soft and soapy fabric containing common (20%) sub-angular to angular grog, ≤ 5 mm, moderately sorted. The grog appears to be isotropic or highly fired. The clay matrix is silty with common (20%) sub-rounded, red iron oxides of medium-grain size, and sparse (3-5%) coarse-sized, sub-rounded quartz grains. The fracture is irregular.

G15. A soft and soapy fabric containing very common to abundant (30-40%) sub-angular grog temper, ≤ 3 mm, well sorted. There is also rare (1-2%) flint (some with cortex), < 2 mm, moderately to well sorted. The clay matrix is silty, the fracture is hackly.

G16. A soft and soapy fabric containing moderate to common (15-20%) sub-angular to angular grog, ≤ 4 mm, moderately sorted, and rare (1%) angular, coarse-sized quartz grains in a glauconitic sandy clay matrix. Grains of glauconite were also visible within the grog in petrological analysis. The fracture is hackly (*).

G17. A soft and soapy fabric containing common to very common (20-25%) sub-angular to angular grog, ≤ 6 mm, moderately sorted; rare (1-2%) flint, ≤ 2 mm, moderately to well sorted. The clay matrix is sandy with an abundance of very fine quartz grains. The fracture is laminated.

G18. A soft and soapy fabric containing common (20%) angular grog, ≤ 6 mm, poorly sorted; rare (2%) sub-angular, red iron oxides, < 2 mm, and rare (1%) flint, ≤ 1.5 mm, in a silty clay matrix. The fracture is hackly. Petrological analysis reveals that the grog is nearly isotropic (under crossed nicols) and its fabric is dominated by medium-sized quartz (up to 0.5 mm), which can be typical of crucible/mould material (cf. Howard 1983; Morris, pers. comm.) (*).

4.3 Fabric group 3: Flint and grog tempered

4.3.1 *Flint dominated*

FG1. A soft and slightly soapy fabric containing common (20-25%) flint, mostly calcined but with some detrital fragments, ≤ 4 mm, poorly sorted; moderate to common (15-20%) angular, unoxidised grog (from a flint-tempered vessel), ≤ 4 mm, well sorted; rare (1%) rounded iron oxides, ≤ 1 mm. The fracture is irregular.

FG2. A soft and fairly soapy fabric containing common (25%) flint, ≤ 4 mm, poorly sorted and sparse (3%) probable sub-rounded grog or clay pellets, ≤ 1 mm. A fresh fracture was not made as this fabric was seen only on a rare pedestal base form (B6: PRN 2339, Fig. 3, No. 8), and it was not considered appropriate to create a break.

FG3. A soft and slightly soapy fabric containing common (20-25%) flint, ≤ 4 mm, poorly sorted; moderate to common (15-20%) sub-angular to angular grog, < 2 mm, moderately sorted; rare (1%) sub-rounded iron oxides, ≤ 1.5 mm. The fracture is hackly.

FG4. A soft and soapy fabric containing common (20%) flint and sub-angular detrital fragments, ≤ 6 mm, poorly sorted; moderate to common (15-20%) angular grog, ≤ 2 mm, well sorted. The sandy clay matrix has very fine-sized quartz grains. The fracture is laminated.

FG5. A soft but rough fabric containing common (20-25%) sub-angular to angular, calcined and detrital flint, ≤ 5 mm, poorly sorted; and sparse (7%) flint-tempered grog, ≤ 2 mm, well sorted. The clay matrix is silty. The fracture is hackly.

FG6. A soft and smooth fabric containing common (20-25%) flint, ≤ 2 mm but mostly ≤ 1 mm, well sorted; moderate to common (15-20%) sub-angular to angular grog, ≤ 2 mm, moderately sorted; rare (2%) rounded, red iron oxides, ≤ 1 mm. The clay matrix is silty and the fracture is slightly hackly.

FG7. A soft and relatively smooth fabric containing common (20%) flint, mostly calcined but occasional red detrital fragments also occur, ≤ 1.5 mm, well sorted. Moderate (15%) angular grog, ≤ 1.5 mm, well sorted, also present. The fracture is hackly.

4.3.2 *Grog dominated*

GF1. A soft but slightly harsh fabric containing common (20%) grog, ≤ 3 mm, moderately sorted; and moderate (15%) flint, ≤ 4 mm, moderately sorted. The clay matrix is silty with the occasional grain of sub-rounded coarse sand. The fracture is hackly.

GF2. A soft, slightly soapy, rough fabric containing common (25%) angular and originally unoxidised grog, ≤ 4 mm, moderately sorted; sparse (7%) flint, ≤ 6 mm, poorly sorted. The fracture is hackly.

GF3. A soft and slightly soapy fabric containing moderate (10%) sub-angular unoxidised grog, ≤ 3 mm, well sorted, made with fine flint temper in a silty clay matrix; moderate (10%) sub-angular to angular flint, mostly detrital, ≤ 5 mm, poorly sorted; rare (1-2%) rounded, red iron oxides, ≤ 1 mm, and rare (1%) sub-rounded to rounded grains of coarse to very coarse quartz sand. The fresh fracture is irregular.

GF4. A soft and soapy fabric containing common (20%) angular, unoxidised grog, ≤ 7 mm, poorly sorted; sparse (3-5%) sub-angular to angular detrital flints, ≤ 5 mm, poorly sorted; sparse (5%) rounded black iron oxides of medium-grain size, well sorted; rare (1%) rounded, red iron oxides, ≤ 1 mm; and rare (1%) sub-angular to angular medium-sized grains of quartz. The fracture is hackly.

GF5. A soft but harsh fabric containing very common (30%) angular grog, ≤ 2 mm, well sorted; and sparse (7%) flint, ≤ 1.5 mm, moderately sorted. The fracture is irregular.

GF6. A soft and soapy fabric containing common (20-25%) sub-angular originally unoxidised grog, ≤ 2.5 mm, moderately sorted; sparse (3-5%) flint, mostly calcined, with a few detrital and cortex-bearing fragments, ≤ 2 mm, poorly sorted. Rare (1%) rounded iron oxides, ≤ 1.5 mm are also present. The clay matrix is silty with rare (1%) fine to medium sized grains of angular quartz. The fracture is slightly laminated.

GF7. A soft and soapy fabric containing common (20%) angular grog, ≤ 2.5 mm, moderately sorted; sparse (5-7%) angular and detrital flint, ≤ 3 mm, poorly sorted, occasionally cortex is visible on the flint. The clay matrix is silty. The fracture is laminated.

GF8. A soft and soapy fabric containing very common to abundant (30-40%) sub-angular to angular flint-tempered grog, ≤ 10 mm, poorly sorted; moderate (10%) flint, ≤ 4 mm, moderately sorted. The fracture is hackly.

GF9. A soft and soapy fabric containing very common (30%) angular grog, ≤ 2 mm, well sorted; sparse (5-7%) angular flint, ≤ 2 mm, poorly sorted. The fracture is fine.

GF10: A soft and fairly smooth fabric containing moderate to common (15-20%) angular grog, ≤ 1 mm, well sorted; moderate (10%) calcined and detrital flint, ≤ 2 mm, poorly sorted. The clay matrix is silty with rare to sparse (2-3%) medium-sized sub-angular quartz grains, with occasional rounded coarse-sized examples. The fracture is hackly.

GF11. A soft and soapy fabric containing common (20-25%) angular grog, ≤ 4 mm, poorly sorted; sparse to moderate (7-10%) flint, ≤ 6 mm, well sorted. The clay matrix is dense and silty. The grog also appears to have a silty clay matrix and be derived from a flint-tempered vessel. The fracture is hackly.

4.4 Fabric group 4: sandy wares

Q1. A soft and silty-textured fabric containing abundant (40%) silt to very fine grains of quartz, very well sorted; sparse (5-7%) sub-angular red iron oxides, ≤ 2 mm, and rare (1%) angular flint, ≤ 1 mm. The fracture is smooth.

Q2. A soft and sandy fabric containing abundant (50%) sub-angular, fine to medium sized quartz grains, very well sorted, and occasional more rounded coarse-sized grains. The fabric also contains rare (2%) flint, calcined, ≤ 1 mm, and detrital, ≤ 2 mm. The fracture is fine.

Q3. A soft and sandy fabric containing abundant (>40%) sub-angular to angular very fine to fine-sized quartz grains, very well sorted; sparse (3-5%) flint fragments, ≤ 2 mm but mostly ≤ 0.5 mm, poorly sorted; rare (1%) sub-rounded to rounded red iron oxides, ≤ 1 mm. The fracture is fine.

Q4. A soft but harsh fabric containing abundant (40%) sub-rounded to rounded colourless and cloudy quartz sand, with occasional very well-rounded grains, coarse to very coarse in size, very well sorted. The fracture is irregular.

Q5. A soft and sandy fabric containing abundant (40-50%) glauconite and quartz sand. The glauconite grains are rounded, medium-sized, and very well sorted. The quartz grains are less frequent but larger, coarse to very coarse in size, moderate to well-sorted. The fabric also contains sparse (5%) flint, ≤ 1 mm, moderately sorted, and rare (1%) sub-rounded iron oxides, ≤ 1 mm. The fracture is fine.

Q6. A soft and sandy fabric containing very common to abundant (30-40%) sub-rounded to rounded quartz grains, mostly medium to coarse in size, with the occasional very coarse grain, moderately to well sorted. Up to 20% of mudstone inclusions were also present, mostly represented by sub-rounded to sub-angular vesicles, ≤ 2 mm, poorly sorted. The fracture is fine.

Q7. A soft and sandy fabric containing common to very common (25-30%) sub-rounded to rounded, coarse to very coarse sized grains of quartz, well sorted; sparse (5-7%) flint, ≤ 4 mm, poorly sorted; and rare (1%) rounded iron oxides, ≤ 1 mm. The clay matrix also contains a background of abundant (40%) very fine quartz sand, not clearly visible at x30 power. The quartz grains in this fabric appear, therefore, to be bipolar in nature. The fracture is irregular.

Q8. A soft, sandy fabric containing sparse (5%) sub-rounded quartz grains, mostly medium to coarse in size, with rare very coarse examples, well sorted. The clay matrix is sandy and contains grains of very fine size, barely visible at x30 power. The quartz grains in this fabric appear, therefore, to be bipolar in nature. Rare (1%) sub-rounded iron oxides, ≤ 1 mm, are also present. The fracture is slightly hackly.

Q9. A very soft, smooth and slightly soapy fabric containing sparse (3-5%) calcined and detrital flint, ≤ 2.5 mm, poorly sorted; rare (1%) rounded, black iron oxides, ≤ 2 mm. The clay matrix appears to be sandy, although individual grains are not visible at x30 power. The fracture is fine.

4.5 Fabric group 5: fabrics with inclusions of quartzite

Z1. A soft but rough fabric containing sparse to moderate (7-10%) sub-angular to angular quartzite, ≤ 4 mm, poorly sorted, in a slightly silty clay matrix. The fracture is fine.

Z2. A soft and very rough fabric containing common to very common (20-25%) angular to very angular quartzite, ≤ 3 mm, poorly sorted; rare (2%) rounded, red iron oxides, ≤ 1 mm. The clay matrix is silty. The fracture is irregular.

4.6 Fabric group 6: fabrics with inclusions of flint and quartz

4.6.1 *Quartz dominated*

QF1. A soft and sandy fabric with a sandy clay matrix containing abundant (40%) sub-angular to angular quartz grains, very fine to fine in size, with occasional angular medium-sized grains, well sorted; and sparse (5-7%) flint, ≤ 2.5 mm, poorly sorted. The fracture is fine.

QF2. A soft but rough fabric containing sparse (5%) calcined and detrital flint which stand proud of the surface, ≤ 4 mm, moderately sorted, in a sandy clay matrix of very fine-sized quartz grains, not clearly visible at x30 power. The fracture is laminated.

QF3. A soft and sandy fabric containing abundant (40-50%) glauconite and quartz grains. The glauconite is sub-rounded to rounded and of medium grain size, very well sorted; the quartz is a minor component and consists of sub-angular coarse to very coarse sized quartz grains. The fabric also contains sparse (5%) flint and occasional pieces of flint detritus, ≤ 3 mm, poorly sorted. The fracture is hackly.

QF4. A soft and sandy fabric containing common (20-25%) quartz, ranging from rounded very coarse-sized grains to more angular medium-sized grains, poorly sorted, probably derived from gravel. Sparse (5-7%) calcined and detrital flint, ≤ 4 mm, poorly sorted; rare (2%) sub-rounded to sub-angular iron oxides, ≤ 2 mm, also present. The fracture is hackly.

QF5. A soft and sandy fabric containing sparse (5%) flint, ≤ 3 mm, moderately sorted, and common (30%) sub-angular to angular quartz grains, medium to coarse sized, moderately sorted. The fracture is irregular.

QF6. A soft and sandy fabric containing common (20%) sub-rounded to sub-angular quartz grains, medium to coarse sized, well sorted; moderate (15%) flint, ≤ 1 mm, well sorted; and rare (1%) sub-angular to angular iron oxides, ≤ 1 mm. The fracture is fine.

4.6.2 *Flint dominated*

FQ1. A soft but rough fabric containing common (20-25%) flint, ≤ 4 mm, poorly sorted, and abundant (40-50%) sub-angular to angular, medium-sized, very well-sorted quartz. The fracture is hackly.

FQ2. A soft and slightly sandy fabric containing sparse (3-5%) flint, ≤ 3 mm, poorly sorted, rare (2%) linear voids from organic matter and sparse (3-5%), sub-angular coarse-sized quartz in a silty clay matrix. The fracture is laminated.

4.7 Fabric group 7: fabrics with inclusions of grog and quartz

GQ1. A soft and soapy fabric containing common (20%) angular grog, both oxidised and unoxidised fragments, ≤ 2 mm, well sorted; sparse (7%) sub-rounded to sub-angular quartz grains, coarse-sized, well sorted, and moderate to common (15-20%), rounded glauconite, very fine to fine-grained, well sorted. Irregular fabric.

GQ2. A soft and soapy fabric containing moderate to common (15-20%) sub-angular grog, ≤ 3 mm, well sorted. The clay matrix is silty, but also contains sparse (7%) sub-rounded to sub-angular coarse quartz. The fracture is hackly.

GQ3. A soft and soapy fabric containing common (20-25%) sub-angular grog, ≤ 4 mm, moderately sorted; and moderate (15%) sub-angular coarse quartz, and moderate (15%)

rounded glauconite, fine to medium-grained, well sorted, in a very fine sandy clay matrix. The fracture is hackly.

GQ4. A soft and fairly soapy fabric containing very common to abundant (30-40%) angular grog, ≤ 3 mm, well sorted; sparse (5-7%) sub-angular quartz grains, coarse sized, well sorted; rare (1%) angular quartz sandstone, ≤ 3 mm, and rare (2%) flint, ≤ 2 mm. The fracture is hackly.

GQ5. code not used.

GQ6. A soft and slightly soapy fabric containing common (20%) angular grog, ≤ 1 mm, well sorted; and rare (2-3%) flint, ≤ 1 mm; moderate (15%) rounded, fine-grained glauconite, well sorted, and sparse (5-7%) sub-rounded to sub-angular, coarse, well-sorted quartz in a silty clay matrix. The fracture is hackly.

4.8 Fabric group 8: fabrics with iron inclusions

GI1. A soft and soapy fabric containing very common (25-30%) sub-rounded to angular, unoxidised flint-tempered, grog, ≤ 2 mm, well sorted; sparse (3-5%) sub-angular ironstone fragments, ≤ 2 mm, moderately sorted; and rare (1%) calcined flint, ≤ 2 mm. The fracture is irregular.

IF1. A soft and slightly soapy fabric containing moderate (15%) rounded, red iron oxides, ≤ 4 mm, poorly sorted; sparse (3-5%) detrital flint, ≤ 8 mm, poorly sorted, in a very fine-sandy clay matrix with a scatter of sub-rounded medium-sized grains. The fracture is hackly.

FI1. A soft but harsh fabric containing moderate (10%) flint, ≤ 2 mm, moderately sorted; sparse (3%) sub-angular to rounded, red iron oxides, ≤ 2 mm, moderately sorted. The fracture is hackly.

FI2. A soft and slightly rough fabric containing common (20%) flint, ≤ 6 mm, poorly sorted, with a scatter of very small fragments and sparse (5%) sub-rounded to rounded red iron oxides, ≤ 2 mm in a silty clay matrix. The fracture is hackly.

QI1. A soft and sandy fabric containing moderate (10-15%) sub-angular iron oxides, ≤ 4 mm, poorly sorted and rare to sparse (2-3%) flint, ≤ 2 mm, poorly sorted, in a sandy clay matrix of abundant very fine-grained quartz, with occasional (2-3%) sub-angular, medium to coarse-sized quartz. The fracture is irregular.

4.9 Fabric group 9: fabrics with sandstone inclusions

R1. A hard sandy fabric containing very common (30%) angular quartz sandstone, ≤ 3 mm, poorly sorted; rare (1%) rounded, red iron oxides, ≤ 1 mm, in a silty clay matrix with sparse (3%) sub-angular to angular quartz grains, medium to coarse in size. The fracture is irregular.

R2. A soft soapy fabric containing sparse (5-7%) angular quartz sandstone, ≤ 4 mm, poorly sorted; rare (1-2%) rounded, red iron oxides, ≤ 1 mm. The fracture is irregular.

RG1. A soft, smooth fabric containing common (20%) sandstone fragments, both sub-angular fragments of the rock, ≤ 3.5 mm, and also smaller individual angular grains, up to very fine sized. Occasional sub-rounded to rounded grains of clear or rosy quartz, medium to coarse sized; moderate to common (15-20%) sub-angular to angular unoxidised flint-tempered grog, ≤ 2 mm, poorly sorted; and rare to sparse (2-3%) rounded, red iron oxides, ≤ 1 mm, are also present. The fracture is fine.

4.10 Fabric group 10: unidentified fabric characterised by voids

D1. Code not used.

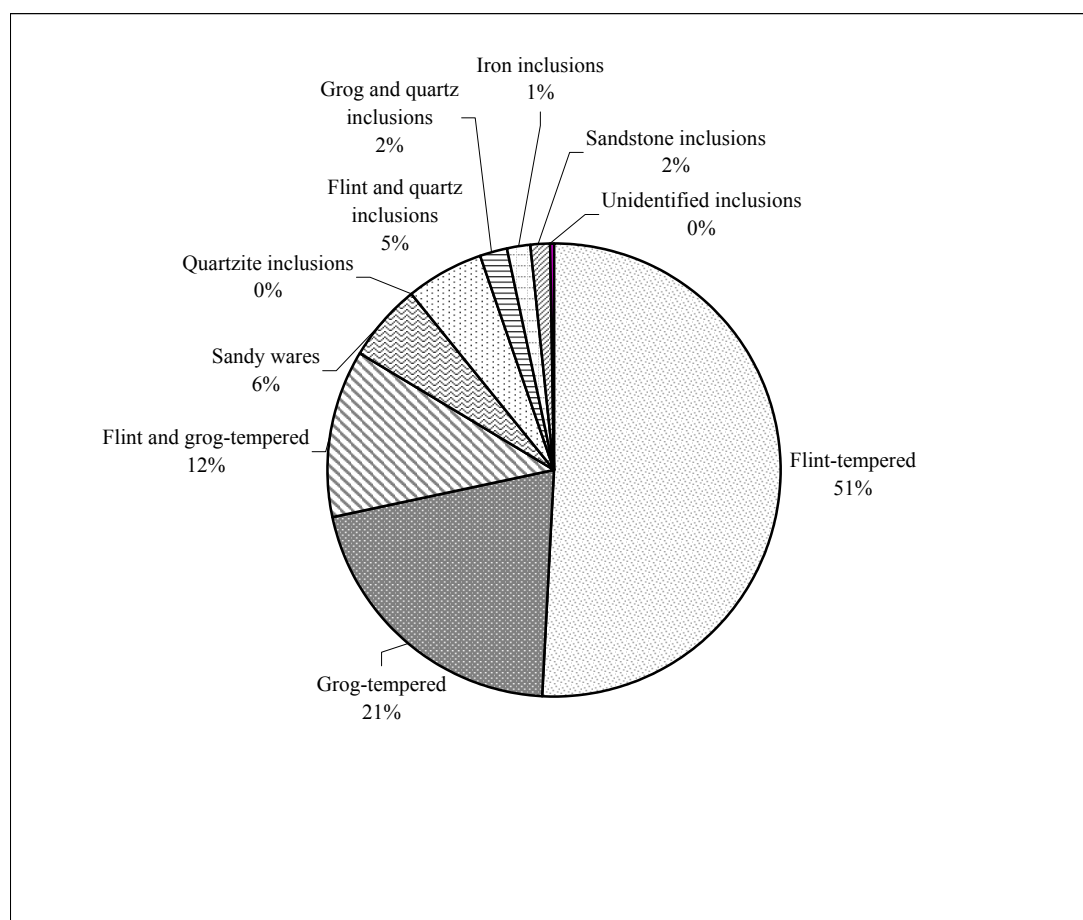
D2. A soft and soapy fabric containing common (20-25%) very angular vesicles, ≤ 5 mm, and rare (1%) sub-rounded medium-sized quartz grains. The fresh fracture is hackly (*).

D3. A soft and soapy fabric with moderate (10%) voids, ≤ 4 mm, poorly sorted, which may have derived from mudstones. Within the core other voids from organic material are also visible. The clay matrix is slightly sandy with fine-grained angular quartz. The fracture is hackly.

4.11 Discussion of the fabrics

The later prehistoric pottery assemblage from Saltwood Tunnel is dominated by flint-tempered fabrics which account for 51% of the total count of sherds (Fig. 1), and 43% of the weight (Table 3*). These are followed by grog-tempered fabrics (21% of count, 28% of weight), and the grog and flint-tempered fabrics (12% of count, 14% of weight). Sandy wares account for 6% of the count and 4% of the weight, and the flint and quartz group is represented by 5% of the count and weight of the assemblage. The remaining fabric groups are seen in small quantities, all less than 3% of the count or weight.

Figure 1: Frequency of fabric groups by % of count



The middle Bronze Age (ceramic phase 1) and middle to late Bronze Age transitional (ceramic phase (cp) 2) ceramics are characterised by flint-tempered wares and those containing inclusions of both flint and grog. Pure grog-tempered fabrics were not recognised amongst the middle Bronze Age material; but are present in the middle to late Bronze Age pottery. Of the material that could be assigned to a ceramic phase, the late Bronze Age pottery exhibited the widest range of fabrics; all fabric groups, with the exception of group 9, were in use during this phase. However, the emphasis is still clearly on flint-tempered wares which account for 49% of the number of ceramic phase 3 sherds. A further 34% were grog-tempered and 11% were grog and flint-tempered. A shift in emphasis is seen during the Iron Age phases (cp5-7), as flint-tempered fabrics play a much more minor role and sandy fabrics become more popular. The grog and flint-tempered fabrics (group 3) are dominant, and small proportions of ferric fabrics and those containing inclusions of sandstone are also utilised. The presence of glauconite in a number of fabrics (QF3, GQ1; GQ3; G16 and Q5) also appears to be a characteristic of the Iron Age phases. The percentage of fabric groups (by count) present in each of the key groups is shown in Table 5*.

Table 5: Percentage of fabric groups present in each key group

| Sub-group / intervention | Ceramic phase | Fabric group | | | | | | | | | |
|-----------------------------|------------------|--------------|------|------|------|-----|-----|------|-----|-----|-----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 103 | 6 | 13.8 | 58.6 | 0 | 24.1 | 0 | 0 | 3.4 | 0 | 0 | 0 |
| 206 | 3 | 32 | 49.5 | 4.9 | 4.9 | 0 | 9.7 | 0 | 0 | 0 | 0 |
| 207 | 3 | 95.5 | 0 | 3 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 208 | 3 | 58.1 | 6.5 | 19.4 | 11.3 | 1.6 | 3.2 | 0 | 0 | 0 | 0 |
| 211 | 3 | 40 | 2.5 | 27.5 | 17.5 | 0 | 7.5 | 5 | 0 | 0 | 0 |
| 236 | 3 | 49.7 | 22.7 | 26.5 | 0 | 0 | 1.1 | 0 | 0 | 0 | 0 |
| 311 | 3 | 56.1 | 36 | 4.9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 369 | 3-4 | 71.6 | 4.5 | 16.4 | 0 | 0 | 4.5 | 3 | 0 | 0 | 0 |
| 602 | 3 | 71.7 | 16.3 | 6.5 | 0 | 0 | 0 | 5.4 | 0 | 0 | 0 |
| 611 | 6 | 0 | 0 | 92 | 1.3 | 0 | 5.3 | 1.3 | 0 | 0 | 0 |
| 612 | 3-4 | 81.4 | 16.3 | 2.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1099 | 3 | 26.5 | 67.6 | 0 | 0 | 0 | 2.9 | 0 | 0 | 2.9 | 0 |
| 1273 | 3 | 74.1 | 3.7 | 7.4 | 0 | 0 | 0 | 14.8 | 0 | 0 | 0 |
| 1484 | 3 | 71.6 | 5.9 | 11.8 | 2 | 0 | 3.9 | 0 | 0 | 0 | 4.9 |
| 2303 | U/K | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2500 | 3 | 74.4 | 10.3 | 10.3 | 0 | 0 | 0 | 2.6 | 2.6 | 0 | 0 |
| 2805 | 3 | 71.4 | 3.8 | 10.5 | 3.8 | 0 | 9.5 | 1 | 0 | 0 | 0 |
| 3098 | 7 | 5.6 | 31.9 | 0 | 54.2 | 0 | 0 | 0 | 5.6 | 1.4 | 1.4 |
| 3193 | 2-3 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4757 | 2-3 | 0 | 99.4 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 |

Saltwood Tunnel lies on the Folkestone Beds of the Lower Greensand (Cretaceous). To the south of the site further deposits of Cretaceous Lower Greensand are located, namely the

Sandgate Beds and Hythe Beds, as well as drift deposits of alluvium and storm beach gravel. To the north of the site lie the Gault, Lower Chalk, Middle Chalk and deposits of Head Brickearth (Geological Survey of Great Britain, Sheets 305 and 306). These geological deposits are located within 10 km of the site, the maximum distance recorded in Arnold's (1985) ethnographic study that potters were willing to travel to obtain tempering material (the maximum distance for clay deposits was 7 km). Flint bands present in the upper parts of the Middle Chalk sequence may have been the source for the flint inclusions seen in much of the later prehistoric assemblage. Deposits of quartz sand were widely available in the Lower Greensand deposits but also in the drift deposits. The sandstone inclusions recorded in the group 9 fabrics may also have originated from the Lower Greensand (Smart *et al.* 1966). The source of the quartzite is uncertain, but only very small quantities of these fabrics were recorded from the Saltwood Tunnel assemblage, and their raw material may have come from the drift deposits. Using the Arnold model (cf Morris 1994a; 1994b) it may be suggested that the inclusions identified in the pottery represent local resource procurement, although if flint-tempered vessels had been brought in from another source this would be nearly invisible archaeologically.

5 FORMS, AFFINITIES AND DATING

5.1 Form types

The following form types have been identified:

5.1.1 Rims

- R1. Jar with high, rounded shoulder, flat-topped rim and short upright neck (Fig. 4, No. 51)
- R2. Saucepan pot with rounded undifferentiated rim (Fig. 5, No. 62)
- R3. Round-shouldered jar with short upright neck, usually thin-walled (Fig. 3, No. 1, Fig. 4, Nos 31, 37, 41, 43, Fig. 5, No. 57)
- R4. Globular coarse ware bowl with short, upright, rounded rim (Fig. 4, No. 35)
- R5. Simple, convex, intermediate ware jar with ovoid profile, rim shaped by finger-impressed cabling (Fig. 4, No. 36)
- R6. Long-necked jar with carinated shoulder and flat-topped, expanded rim (Fig. 5, No. 64)
- R7. Slightly flared rim from necked jar (Fig. 5, No. 63)
- R8. Necked bowl with slightly rounded, upright rim and carinated shoulder where seen (Fig. 3, Nos 11, 13)
- R9. Carinated jar with upright neck and externally expanded flat-topped rim (Fig. 4, No. 39, Fig 5, No. 66)
- R10. Hooked-rim jar (Fig. 4, No. 45)
- R11. Ovoid jar with undifferentiated, rounded rim (Fig. 4, No. 40, Fig. 5, No. 56)
- R12. Flat-topped, convex profile vessel of neutral form (Fig. 5, No. 58)
- R13. Convex jar with well sprung profile and incurved flat-topped rim (Fig. 3, No. 26)
- R14. Barrel-shaped jar with flat-topped undifferentiated rim (Fig. 3, No. 27)
- R15. Flat-topped, expanded rim on medium upright neck, probably from a fine ware bowl (Fig. 3, No. 14)
- R16. Rounded rim and concave neck, apparently from round-shouldered bowl (Fig. 5, No. 65)

- R17. Carinated bowl with upright rim, may be channel-topped or rounded (Fig. 5, Nos 55, 60-61)
- R18. Jar with flat-topped, slightly flared rim (Fig. 6, No. 67)
- R19. Straight-walled neutral vessel, usually with rounded, undifferentiated rim (Fig. 6, Nos 68-69)
- R20. Flat-topped rim, expanded on the interior, irregularly beaded on the exterior, possible bowl form (Fig. 6, No. 70)
- R21. Necked jar with short everted rim and carinated shoulder (Fig. 6, No. 71)
- R22. Bipartite bowl with flat-topped rim and internal bevel Fig. 3, No. 3, Fig. 4, Nos 30, 49)
- R23. Round-shouldered, necked bowl with flat-topped, slightly everted rim (Fig. 3, Nos 1-2, 23, Fig. 4, No. 48)
- R24. Softly shouldered jar with short neck and flat-topped rim (Fig. 3, No. 10)
- R25. Coarse ware hemispherical bowl with flat-topped rim and slight exterior lip (Fig. 3, Nos 5, 18-19, Fig. 4, No. 52)
- R26. Straight-sided neutral form vessel with flat-topped, undifferentiated rim and slight exterior lip (Fig. 4, No. 44)
- R27. Flat-topped rim on probable shouldered jar (Fig. 3, No. 24)
- R28. Globular urn/jar with undifferentiated rim (Fig. 6, No. 72)
- R29. Bucket urn/jar with fingernail-impressed flat-topped rim (Fig. 3, No. 21)
- R30. Shouldered jar with long, slightly concave neck and flat-topped rim (Fig. 4, No. 32)
- R31. Round-bodied bowl with long, slightly flared neck and rounded rim (Fig. 4, No. 29)
- R32. Flat-topped, internally expanded rim on straight-sided vessel (Fig. 6, No. 74)
- R33. Tripartite jar with round shoulder, slightly flared long neck and flat-topped rim (Fig. 6, No. 75)
- R34. Round-shouldered bowl with squared rim and internal bevel (Fig. 6, No. 76)
- R35. Small diameter vessel, probable cup, with flattened rim and slightly shaped neck zone (Fig. 3, No. 22)
- R36. Slightly flared, rolled-over rim from coarse ware bowl (Fig. 4, No. 47)
- R37. Flat-topped rim on medium-necked, round-shouldered bowl (Fig. 4, No. 51)
- R38. Flat-topped, slightly everted rim from medium necked vessel of unknown profile (Fig. 4, Nos 33, 38)

5.1.2 Bases

- B1. Slightly expanded, flat base (Fig. 3, Nos 6-7, 15, Fig. 5, No. 54, Fig. 6, No. 73)
- B2. Similar to B1 but with better defined expansion (Fig. 4, Nos 42, 50)
- B3. Pedestal base (Fig. 3, No. 28)
- B4. The vessel wall is widely splayed, indicating a globular form, possibly from a bowl (not illustrated)
- B5. High pedestal base (Fig. 3, No. 8)
- B6. Rounded base, wall/base angle is almost imperceptible (Fig. 6, No. 82)

5.1.3 Others

- L1. Lid fragment (Fig. 3, No. 4)
- H1. Lug/handle (Fig. 3, No. 25).

Table 6: Form to fabric correlation

| | | Fabric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|----|--------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|----|----|----|----|-----|-----|---|--|---|--|--|--|
| Form | CP | D2 | F2 | F3 | F4 | F5 | F7 | F8 | F13 | F16 | F17 | F18 | F20 | F23 | F24 | F99 | FQ2 | G1 | G2 | G5 | G6 | G7 | G9 | G11 | G13 | G15 | G16 | G17 | G18 | GF2 | GF3 | GF4 | GF6 | GF7 | GF8 | GF9 | GF11 | GQ2 | GQ4 | IF1 | Q2 | Q3 | Q6 | Q9 | QF1 | Q11 | | | | | | |
| R1 | 3 | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| R2 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | |
| R3 | 3 | | | | | 1 | 1 | | | | | 1 | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | |
| R4 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| R5 | 3 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R6 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| R7 | 3 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R8 | 3 | | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| R9 | 3 | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| R10 | 3 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R11 | 3 | | | | 1 | | | 1 | 1 | 3 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R12 | 2 | | | | | | | 1 | | | | | | | | | | | 1 | | | | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| R13 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R14 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R15 | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R16 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R17 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | | |
| R18 | 5 | 1 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| R19 | 2 | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| R20 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R21 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R22 | 3 | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | |
| R23 | 3 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | Fabric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|----|--------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|----|----|----|----|-----|-----|--|--|--|--|--|
| Form | CP | D2 | F2 | F3 | F4 | F5 | F7 | F8 | F13 | F16 | F17 | F18 | F20 | F23 | F24 | F99 | FQ2 | G1 | G2 | G5 | G6 | G7 | G9 | G11 | G13 | G15 | G16 | G17 | G18 | GF2 | GF3 | GF4 | GF6 | GF7 | GF8 | GF9 | GF11 | GQ2 | GQ4 | IF1 | Q2 | Q3 | Q6 | Q9 | QF1 | Q11 | | | | | |
| R24 | 3 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R25 | 3 | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| R26 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | |
| R27 | 0 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | |
| R28 | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R29 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| R30 | 4 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R31 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| R32 | 6 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R33 | 5 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R34 | 6 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R35 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| R36 | 3 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R37 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| R38 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

5.2 Ceramic phases 1 and 2

The earliest identifiable later prehistoric form types were typical of the Deverel-Rimbury tradition, and middle Bronze Age in date (ceramic phase (cp) 1). A globular jar (R28, Fig. 6, No. 72) was recovered from pit 5366, and a bucket jar form (R29, Fig. 3, No. 21) from ditch 5162. Traditionally such forms have been termed ‘urns’, but it has been suggested recently (Gibson 2002, 145) that this term should be reserved for vessels recovered from funerary contexts. The fabric of the globular jar contained fine flint temper, the bucket form contained coarse inclusions of grog and flint temper.

Bucket urn/jar forms commonly occur in Deverel-Rimbury assemblages across southern Britain, and parallels for R29 may be seen at a number of sites including Downsview, Sussex (Hamilton 2002b, fig. 7.27:8 and fig. 7.29:27). Two cordoned body sherds recorded from Saltwood Tunnel (Fig. 6, Nos 83 and 84) may also represent Deverel-Rimbury vessels, probably also derived from bucket urns forms. Similar cordons were seen at Mile Oak Farm, Sussex (Hamilton 2002a, fig. 2.31: 27 and 28), as well as a number of undecorated bucket urn vessels. A globular jar from the same site had been decorated with an incised geometric motif which is similar to a decorated body sherd from Saltwood (Fig. 6, No. 77). The handle for this vessel also has similarities with the Saltwood lug handle (Fig. 3, No. 25).

Whilst the Saltwood assemblage as a whole was dominated by late Bronze Age vessels, there does appear to be an intermediary stage between this and the earlier Deverel-Rimbury tradition, which has been identified as ceramic phase 2. This phase is represented by two neutral profile vessels, R12 and R19. Form R19 (Fig. 6, No. 69) is straight-sided and appears to have evolved from the Deverel-Rimbury bucket urn form, while R12 (Fig. 5, No. 58) has a slightly more convex profile and may represent further evolution of the form.

One of the few published sites from Kent in which both Deverel-Rimbury and the later plain ware pottery have been identified is Coldharbour Road, Gravesend. Here Deverel-Rimbury bucket urn forms were recorded, including examples of applied cordons (Barclay 1994, fig. 9, nos 6 and 7). A decorated sherd from a globular vessel had similarities with Deverel-Rimbury material in terms of fabric and decoration, however it was thought more likely that the sherd originated from a post Deverel-Rimbury Class V (after Barrett 1980) cup (Barclay 1994, fig. 9.5). In terms of decoration and fabric it also closely mirrors a body sherd from Saltwood Tunnel (Fig. 6, No. 81), found in association with a mid to late Bronze Age transitional form, R19. Furthermore, hints of a transitional stage were noted at Coldharbour Road as a cordoned bucket urn was found in direct association with a post-Deverel-Rimbury

hooked-rim jar (*ibid.*, fig. 10.8). Burnt residue from the hooked-rim jar produced a radiocarbon determination of 1225-989 cal BC (*ibid.*, 389).

5.3 Ceramic phase 3

The third ceramic phase at Saltwood Tunnel was characterised by thin walled, well-finished vessels which are typical of the plain ware tradition of the late Bronze Age. This ceramic tradition has been defined by Barrett (1980) who defined five vessel classes. Pottery from this ceramic phase will therefore be presented using the Barrett scheme. In total, 45 late Bronze Age vessels were identified, including 26 jars, 18 bowls and one possible cup. The jar forms were dominated by coarse ware forms (Barrett Class I). This class of vessels has coarse fabrics and limited surface finishing, and dominates domestic assemblages (*ibid.*, 303). Saltwood forms R1 (Fig. 5, No. 59), R3 (Fig. 4, No. 43), R5 (Fig. 4, No. 36), R6 (Fig. 5, No. 64), R10 (Fig. 4, No. 45), R11 (Fig. 5, No. 56), R24 (Fig. 3, No. 10) and R26 (Fig. 4, No. 44), a total of 21 vessels, may be defined as Class I jars. The fine ware jars, Class II (forms R7, Fig. 5, No. 63, and R9, Fig. 5, No. 66), were less common, totalling 5 vessels. The R7 (Fig. 5, No. 63) also appears to belong in this class, but insufficient of the profile was present to confirm the vessel form.

Barrett (*ibid.*, 302) has suggested that the appearance of bowls in later Bronze Age ceramic assemblages indicates a departure from the Deverel-Rimbury tradition. Seven coarse ware bowls were identified, forms R4 (Fig. 4, No. 35), R25 (Fig. 3, No. 18), R31 (Fig. 4, No. 29) and R36 (Fig. 4, No. 47). The fine ware bowls, Class IV, totalled 11 vessels, and included R8 (Fig. 3, No. 13), R22 (Fig. 4, No. 30), R23 (Fig. 3, No. 2) and probably the poorly-defined R15 (Fig. 3, No. 14). Barrett notes that this vessel class is the second most numerous in domestic assemblages (*ibid.*). One small diameter vessel, R35 (Fig. 3, No. 22), is probably a cup form (Class V). There are few published parallels for the plain ware vessels from sites in Kent, but a much wider range is available from a number of other sites across southern England. Pottery from Runnymede Bridge, Berkshire (Longley 1991) dated to the 9th century BC, shows a number of similarities with the material from Saltwood. Form R1 may be equated with Runnymede type 12, high-shouldered jars (*ibid.*, fig. 104); R3 with type 11, jars with smoothly curving profiles (*idem*); R4 with type 9, shouldered bowls (*ibid.*, figs 77 and 86); R6 may also be subsumed in the type 12 (*ibid.*, fig. 85); R21 could also be encompassed by Runnymede type 12 (*ibid.*, fig. 101); and R24 by the type 5, open bowls (*ibid.*, fig. 78).

Excavation at Reading Business Park also produced a late Bronze Age assemblage dominated by plain wares (Hall 1992). Parallels for the Saltwood Tunnel form R1 may be found in the Reading Business Park (RBP) type 11, R6 is paralleled by RBP type 12, R11 by RBP type 8, R15 by RBP type 4, and R22 by RBP type 3. The transitional middle to late Bronze Age form R19 is similar to Reading Business Park type 7 which may be its successor.

The latter form also parallels R26 at Saltwood Tunnel. One cup form was also recorded from the site, the type 24, but this is slightly different to the Saltwood R35.

Plain ware pottery has also been identified at the late Bronze Age site at Yapton, West Sussex (Hamilton 1987). Again a number of the Saltwood Tunnel forms find parallels amongst this assemblage including R4 (*ibid.*, fig. 4.8); R10 (*ibid.*, fig. 5.9); R11 (*ibid.*, figs 4.2 and 4.5); R22 (*ibid.*, fig. 5.15) and R25 (*ibid.*, figs 5.12 and 5.14). Small diameter vessels, similar in form to R35 from Saltwood Tunnel, have been recorded from a late Bronze Age enclosure at Broomfield, Chelmsford (Brown 1995, fig. 8 nos 25 and 32). A coarse ware bowl there (*ibid.*, fig. 8.33) parallels Saltwood Tunnel form R4. A 9th century BC date has been suggested for the Broomfield assemblage (*ibid.*, 12).

A lug handle recovered from ditch 1484 at Saltwood Tunnel (Fig. 3, No. 25) may represent a rather late plain assemblage form. It is very similar to a number of handled jars recovered from the Queen Mary's Hospital site, Carshalton, Surrey (Adkins and Needham 1985, fig. 7, 101-2; fig. 8, 216-220; fig. 11, 338-340). The vessels were described as having 'a low placed maximum girth', and tended to be made in a relatively fine fabric; some had been burnished (*ibid.*, 31). The Queen Mary's Hospital assemblage has been dated to the 10th-8th centuries BC (*ibid.*, 32). This date may be supported by the presence of a handled vessel from Mill Hill, Deal, as a date towards the end of the late Bronze Age has been suggested for this assemblage (Champion 1980, 237, fig. 6.1). A parallel for the handle may also be seen from the late Bronze Age enclosure at Lofts Farm, Essex (Brown 1988, fig. 14.15). The Lofts Farm material is characteristic of plain assemblage pottery, and a date in the 10th to 9th centuries BC has been suggested (*ibid.*, 269). The Lofts Farm assemblage provides a number of other parallels for the Saltwood material, including forms R23 (*cf ibid.* fig. 14.22), R25 (*ibid.*, fig. 14.23), R1 (*ibid.*, fig. 15.41) and R8 (*ibid.*, fig. 15.43). The wedge-shaped impressions seen on a possible fine ware bowl from Lofts Farm (*ibid.*, fig. 15.42) are very similar to those on a decorated body sherd from ditch 1043 at Saltwood Tunnel (Fig. 6, No. 79). Furthermore, the decoration seen on a body sherd from another possible fine ware bowl at Lofts Farm (*ibid.*, fig. 15.47) is similar to that from Saltwood Tunnel (Fig. 6, No. 81).

5.4 Ceramic phases 4 and 5

The plain wares ceramic tradition is succeeded by one employing a range of decorative techniques (Barrett 1980). Two vessels from the Saltwood assemblage may potentially indicate activity on the site during this phase (ceramic phase 4), R30 (Fig. 4, No. 32, pit 6658) and R37 (Fig. 4, No. 51, feature 6345). R30 is paralleled amongst the late Bronze Age/early Iron Age transitional material from Monkton Court Farm (Macpherson-Grant 1994, fig. 6.13). At the same site a bowl decorated with incised horizontal lines (*ibid.*, fig. 9.24) provides a parallel for Saltwood form R37. The form of the R30 is also paralleled by an undecorated

example at the Queen Mary's Hospital site (Adkins and Needham 1985, fig. 10.318), however this assemblage is dominated by plain ware vessels. It is unclear if the presence of R30 and R37 at Saltwood Tunnel represents a decorated component of a plain ware assemblage, possibly some form of special deposit, or a real presence on the site during the late Bronze Age/early Iron Age transitional period.

The early Iron Age (ceramic phase 5) is represented by one vessel form, the R18 flared-rim jar (Fig. 6, No. 67), paralleled amongst the 7th to 5th century BC material from Danebury (Brown 2000, form JB1.2).

5.5 Ceramic phases 6 and 7

The early to middle Iron Age material from Saltwood Tunnel has been divided into two ceramic phases, the early Iron Age to early/middle Iron Age (ceramic phase 6) and early/middle Iron Age to middle Iron Age (ceramic phase 7). The slightly earlier phase 6 is represented by forms R17 (Fig. 5, No. 55), R32 (Fig. 6, No. 74) and R34 (Fig. 6, No. 76), a total of five vessels. Forms R2 (Fig. 5, No. 62), R13 (Fig. 3, No. 26), R14 (Fig. 3, No. 27), R16 (Fig. 5, No. 65) and R33 (Fig. 6, No. 75) appear to be typologically slightly later (cp 7), and total five vessels. Forms R14 and R34 had rusticated surfaces.

Form R34 is paralleled at Ebbsfleet, Isle of Thanet (Macpherson-Grant 1992a, fig. 6.10) where it is dated to the early to middle Iron Age period. The tripartite jar from Saltwood (R33) is paralleled at site 8 of the A2 works (Macpherson-Grant 1980, fig. 17.95), where the pottery was dated to the 5th to 3rd centuries BC. R16 may be compared to Form 13 in the Iron Age assemblage from Little Waltham (Drury 1978, fig. 38).

Further afield, the Iron Age material from Danebury provides a number of parallels (Brown 2000). Saltwood Tunnel form R2 is similar to PA1 at Danebury, with a date range of 470-310 BC. R13 bears resemblance to Danebury JC2.2, dated *c* 350-50 BC; R14 may be paralleled by JC1, 470-50 BC, and R17 by BA2.1, dated 5th-4th centuries BC (*ibid.*).

6 SURFACE TREATMENT

A total of 321 pottery records (either a single sherd or group of related sherds), out of a possible 1785, displayed some form of surface treatment, equating to 18% of the assemblage (Table 8). The techniques employed include burnishing (BU), smoothing (SM), wiping with vegetation or cloth (WP), finger wiping (FWP), and roughening (RG) or rustication (RS) of the vessel surface.

Burnishing was the most commonly occurring treatment, with 50% of the recorded instances of surface treatment relating purely to burnishing. The technique was identified in all phases of the assemblage, but predominantly in the late Bronze Age plain assemblage (ceramic phase 3). Burnishing is relatively common in a number of other late Bronze Age

assemblages. These include the finer vessels from Lofts Farm which have well-smoothed surfaces that may have been burnished (Brown 1988, 269), and the late Bronze Age pottery from Broomfield, Chelmsford (9th century in date), that also displayed well smoothed surfaces which again may originally have been burnished (Brown 1995).

Burnishing is a method of creating extremely smooth vessel surfaces, and is often associated with bowl forms that tended to be used in social situations, where greater attention was given to a vessel's surface. Burnishing can also be purely functional, creating a less permeable surface, better suited to containing liquid. At Saltwood Tunnel it was mostly commonly recorded on thin-walled vessels (less than 9 mm in thickness). The low number of vessels identifiable to form type introduces bias in any correlation between form type and surface treatment. It is quite clear, however, that burnishing is a technique that was predominantly applied to bowl and neutral forms. These vessels range in diameter from 120 mm to 320 mm, with a peak at 160 mm and 180 mm.

Smoothing was recorded as the sole treatment of a vessel on 17 records. Far more common was the use of some form of wiping, perhaps with chaff, grass or some kind of cloth, to smooth the vessels surfaces, particularly the exterior. This technique was almost exclusively used during the late Bronze Age (ceramic phase 3), on both bowl and jar forms of a range of sizes. Wiping using the fingertips was rarely employed, and has been recorded on only two records. Two vessels appeared to have been sat on a bed of burnt, crushed flint during the forming or drying process; one was late Bronze Age in date, and the other originated from the Iron Age phases.

The Iron Age phases (ceramic phases 6 and 7) saw the introduction of rustication, the application of additional clay to a vessel's external surface, or some other method to cause a rough external surface. The technique has its origins in the Continent, and appears in Kent during the late Bronze Age/early Iron Age transitional period, and is commonly seen during the early Iron Age (Macpherson-Grant 1991, 41). It is uncertain if the technique was employed for decorative or utilitarian reasons, or perhaps both. 'Rough surfaces provide a better grip, for example, for carrying a heavy, wet vessel and may also improve heat transfer in cooking' (Rice 1987, 138).

7 DECORATION

Decoration was recorded on a small proportion of the assemblage, amounting to 52 pottery records (3%). The decorative techniques employed during the middle Bronze Age include the application of cordons, sometimes with fingernail impressions (Fig. 6, No. 84) or fingertip impressions (Fig. 6, No. 83), and the use of an implement to create chevron-style impressions (Fig. 6, No. 78), incised (Fig. 6, No. 72) or tooled lines. A single instance of combing was recorded on the exterior of a middle to late Bronze Age transitional vessel, in conjunction

with fingernail impressions applied to the top of the rim (Fig. 6, No. 68). Combing of a vessel's surface may alternatively be seen as a type of surface treatment, designed to increase grip.

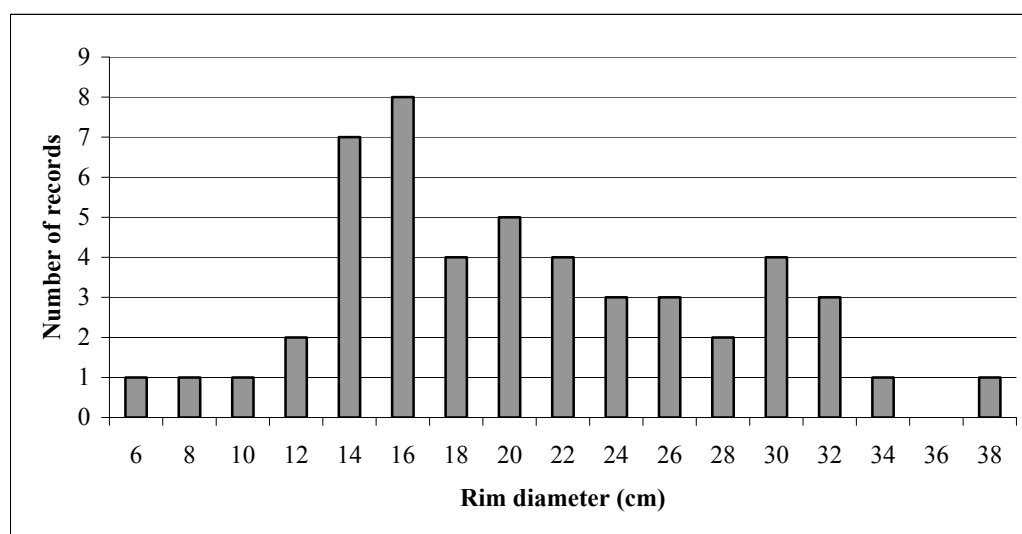
The decoration recorded on the late Bronze Age plain assemblage vessels (ceramic phase 3) is dominated by finger impressions, including the application of fingernail impressions to the top of the rim (Fig. 5, No. 58), or 'pie-crusting' of the rim (Fig. 4, No. 36). The latter may also have had a more functional purpose such as a simple finishing of the rim. Fingertip impressions were also seen around the shoulder of vessels during this phase but were less common than those applied to the top of the rim. Incised and tooled lines were also identified on seven records (eg Fig. 3, Nos 17, 20, Fig. 6, Nos 79-80). Decoration of both rim top and shoulder together was not seen on any of the vessels from this phase, but this combination did occur on a single ceramic phase 4 vessel. None of the vessels identified as belonging to the Iron Age phases had any form of decoration.

8 EVIDENCE OF USE

Little evidence of vessel use survived on the pottery, as a result of its poor condition. Abrasion was noted on the interior of two vessels, but the dominant form of evidence consisted of some form of carbonised remains. Sooting was recognised on the exterior of a number of vessels, and burnt residue still adhered to the interior of others. In total, 417 sherds (12%, 21% by weight), displayed these traces and indicate the use of such vessels in a cooking or heating activity. Just over half of the identified form types showed this type of use, including R1, R3, R4, R6, R8, R9, R11, R12, R13, R18, R19, R24, R30, R32, R37 and R38. Most of the forms were late Bronze Age in date and undecorated, although decorated wares, and Iron Age vessels, also displayed this form of use.

9 VESSEL SIZE

A wide range of vessel sizes was used at Saltwood Tunnel (Fig. 2*), from 6 cm (R7) to 38 cm (R1). When presented as size categories, two vessels may be defined as very small (<10 cm), 22 as small (10-18 cm), 17 as medium (20-28 cm) and nine as large (30-40 cm). The most commonly occurring diameters were 14 cm (7 vessels) and 16 cm (8 vessels), a size suitable for individual eating vessels. The large vessels may have been used for the preparation and serving of communal meals, or for storage.

Figure 2: Frequency of measurable rim diameters

Only one complete profile was recovered from the site, located in Iron Age grave 1421, context 1447 (Fig. 5, No. 61). The internal diameter was 122 mm and the internal height 70 mm, the capacity of the vessel may therefore be estimated as 0.8 litres. A larger example of this vessel form was recovered from Iron Age grave 1411, context 1412 (Fig. 5, No. 60), but a complete profile could not be reconstructed. This vessel does appear to have broken at the base, and therefore the internal height may be estimated as 180 mm, and a capacity of 13.4 litres extrapolated. Similarly, the R24 vessel in pit 5235 (Fig. 3, No. 10) appears to have broken at the base join, allowing an estimation of the capacity at 11.8 litres. The R31 in pit 6658 (Fig. 4, No. 29) has an estimated capacity of 6.8 litres, the R4 in pit 3900 (Fig. 4, No. 35) has an estimated capacity of 2.1 litres.

10 DISCUSSION

Interpretation of the later prehistoric pottery recovered from Saltwood Tunnel is extremely problematic as a result of its condition and context of recovery. A quarter of the assemblage had been incorporated into features of medieval to modern date. Of the contexts that did produce later prehistoric pottery, 73% contained less than five sherds and less than 5% contained more than 25 sherds. The result of this is that few features could be assigned to a ceramic phase with any confidence. The general spread of isolated sherds, many removed from their original place of discard, has also created difficulties in the identification of fabrics as many of the sherds had become extremely small and abraded, and 6% of the assemblage had been burnt. In spite of these problems, a number of key groups of late Bronze Age and Iron Age date were identified (Table 1). Perhaps the most significant aspect of the assemblage is the identification of the late Bronze Age material.

Barrett (1980) discussed the change from the Deverel-Rimbury ceramic tradition to the later Bronze Age, and found that the rather limited range of Deverel-Rimbury forms gave way to a much wider repertoire including bowls and cups (*ibid.*, 302). He further notes that although a full range of vessel sizes is seen on these later sites, there is ‘an increased emphasis upon the production of smaller vessels’, although there were not necessarily any fabric differences between larger and smaller vessels (*ibid.*, 303). The development of a wider range of vessel forms in the post-Deverel-Rimbury ceramics indicates that ‘pottery has now assumed a wider range of domestic functions and appears to have become a more widely used commodity’ (*ibid.*).

Barrett suggested that the Deverel-Rimbury tradition had mostly died out by the end of the second millennium BC, to be replaced initially by a tradition that favoured a range of plain wares, and later by one employing a range of decorative techniques. This sequence of development differs for the Upper Thames Basin and the Wessex region (*ibid.*, 314). More recently, Needham (1996) has created a periodisation for the British Bronze Age, which sees the Deverel-Rimbury tradition dominant in Period 5 (*c* 1500-1150 cal BC). The post-Deverel-Rimbury (PDR), plain wares ceramics, characterise Period 6 (*c* 1150-950 cal BC), with the decorated PDR pottery current during Period 7 (*c* 950-750 cal BC). Unfortunately the dating of Needham’s Period 7 is hampered by the calibration of the radiocarbon plateau (*ibid.*, 136).

The post-Deverel-Rimbury plain ware tradition is clearly evidenced at Saltwood Tunnel. Here it is characterised by a wide range of forms including coarse ware and fine ware bowls and jars, and also a cup form (R35). The vessels are often quite thin-walled and have wiped or burnished surfaces. The following features contained pottery assemblages that can be placed in this plain ware phase: pit 5341 (sub-group SG 236); pit 3900/3910/3984 (SG 311); ditch 2805; pit 5049 (SG 206); ditch 1484; pit 6499 (SG 602); pit 5235 (SG 207); pit 5029 (SG 208); pit 5146 (SG 211); ditch 1099 and layers 2500 and 1273. Material from cremation 3193 and layer 4757 could possibly be slightly earlier and displayed some middle to late Bronze Age transitional traits, whilst pit 6658 (SG 369) and feature 6345 (SG 612) may run into the later, decorated phase.

Pit sub-groups 206, 207, 208 and 211 are spatially related and form a group of late Bronze Age, plain ware features. Pit 206 contained two coarse ware bowls and three fine ware bowls, as well as an unusual pedestal base (Fig. 3, No. 8) and a small clay rod, possibly a fired coil remnant from pottery production (Fig. 3, No. 9). Pit 207 contained a fine ware bowl (R8) and a large coarse ware jar (R24). A radiocarbon date from this feature has produced a date of 1130-900 cal BC (R28504 NZA-19637). Pit 208 contained one fine ware jar, one coarse ware cooking bowl and one fine ware bowl. Two coarse ware bowls were recovered from pit 211. As a group these features displayed a high ratio of bowls to jars, mostly in thin walled fabrics. The group was surrounded by ditch 210 which contained a middle Bronze Age

bucket jar sherd and a number of very small and abraded body sherds, some of which may be early prehistoric in date and others late Bronze Age. The date of this feature is therefore uncertain. Pit 602 contained plain assemblage pottery including three fine ware bowls. Pit 311 contained one fine ware jar, four coarse ware jars and one coarse ware bowl. Ditch 1484 contained a coarse ware jar, a fine ware bowl and the cup and handle (Fig. 3, Nos 23-25). It is uncertain if the pottery that has been characterised as ceramic phase 4 does indeed represent a presence on the site during the 10th to 8th centuries BC or a hiatus of activity. The decorated elements are most clearly seen in pit 369. It may be, however, that this feature contained a special deposit, but still fell into Needham's Period 6 (Needham 1996). The same is true for pit 236 and feature 612.

The Saltwood assemblage is not limited to the late Bronze Age, but it is the presence of a tradition of plain ware vessels, first defined by Barrett (1980), that dominates the assemblage and is of regional importance. In 1992 Macpherson-Grant stated 'To date no settlements producing 'plainware' pottery as defined by Barrett have been definitely recognised in Kent' (Macpherson-Grant 1992b, 62). The Saltwood Tunnel assemblage is therefore important in confirming activity in Kent during this period.

11 CATALOGUE OF ILLUSTRATED VESSELS

(PRN, Pottery Record Number in database)

Figure 3

1. Necked bowl; R23; fabric G5; burnished both surfaces; PRN 2307 and 2335, context 5224, pit 5049, sub-group 206.
2. Necked bowl; R23; fabric G5; PRN 2322, context 5224, pit 5049, sub-group 206.
3. Bipartite bowl; R22; fabric Q9; burnished both surfaces; PRN 2323, context 5224, pit 5049, sub-group 206.
4. Probable lid; L1; fabric F4; PRN 2315, context 5224, pit 5049, sub-group 206.
5. Coarse ware hemispherical bowl; R25; fabric G15; PRN 2338, context 5224, pit 5049, sub-group 206.
6. Plain base; B1; fabric F19; PRN 2306, context 5224, pit 5049, sub-group 206.
7. Plain base; B1; fabric FQ1; basal flints; burnt residue on interior; PRN 2324, context 5224, pit 5049, sub-group 206.
8. Pedestal base; B5; fabric FG2; PRN 2339, context 5224, pit 5049, sub-group 206.
9. Clay object, possible rod; context 5224, pit 5049, sub-group 206.
10. Shouldered jar; R24; fabric F18; wiped exterior surface, traces of slurry treatment in some areas; traces of soot in shoulder region; PRN 2287 and 2288, contexts 5250 and 5265 respectively, pit 5235, sub-group 207.
11. Necked bowl; R8; fabric Q6; burnished both surfaces; PRN 2293, context 5237, pit 5235, sub-group 207.
12. Shouldered jar; R3; fabric F17; PRN 2355, context 5030, pit 5029, sub-group 208.
13. Necked bowl; R8; fabric F4; burnished both surfaces; PRN 2350, context 5030, pit 5029, sub-group 208.
14. Bevelled rim vessel; R15; fabric F2; PRN 2361, context 5184, pit 5029, sub-group 208.

15. Plain base; B1; fabric F9; burnished exterior; PRN 2346, context 5030, pit 5029, sub-group 208.
16. Decorated sherd; fabric F3; burnished both surfaces; two parallel incised lines on exterior; PRN 2353, context 5030, pit 5029, sub-group 208.
17. Decorated sherd; fabric GF2; five parallel incised lines on exterior; PRN 2370, context 5184, pit 5029, sub-group 208.
18. Coarse ware hemispherical bowl; R25; fabric GF2; PRN 2426, context 5154, pit 5146, sub-group 211.
19. Coarse ware hemispherical bowl; R25; fabric FQ2; burnishing on rim top and interior; sooted exterior; PRN 2456, context 5157, pit 5146, sub-group 211.
20. Decorated sherd; fabric F5; burnished exterior with five tooled parallel lines; PRN 2454, context 5151, pit 5146, sub-group 211.
21. Bucket jar; R29; fabric GF11; PRN 2488, context 5163, ditch 5162, sub-group 210.
22. Cup; R35; fabric GF6; smoothed interior; PRN 5343, context 1483, ditch 1484.
23. Necked bowl; R23; fabric F20; burnished exterior; PRN 5342, context 1483, ditch 1484.
24. Possible shouldered jar; R27; fabric F17; incised diagonal lines on the rim top; PRN 5341, context 1483, ditch 1484.
25. Lug handle; fabric GF6; smoothed both surfaces; wiped exterior; traces of soot on exterior; PRN 5339, context 1483, ditch 1484.
26. Squared-rim jar; R13; fabric G11; traces of burnish on exterior and upper interior; wiped interior; sooted exterior; PRN 1118, context 3097, ditch 3098.
27. Barrel-shaped jar; R14; fabric Q11; rustication on lower exterior; PRN 1121, context 3097, ditch 3098.
28. Pedestal base; B3; fabric Q5; burnished on base exterior; PRN 1116, context 3097, ditch 3098.

Figure 4

29. Round-bodied bowl; R31; fabric GQ4; wiped exterior; small traces of smoothing on interior; PRN 3064, context 6661, pit 6658, sub-group 369.
30. Bipartite bowl; R22; fabric F4; burnished exterior; PRN 3016 and 3021, context 6662, pit 6658, sub-group 369.
31. Shouldered jar; R3; fabric F4; possible finger-impressed cabling on the rim top; PRN 3022, context 6662, pit 6658, sub-group 369.
32. Shouldered jar; R30; fabric F24; wiped both surfaces; finger-impressed cabling on top of rim, fingertip impressions around shoulder; traces of soot on exterior and burnt residue on interior; PRN 3012, context 6662, pit 6658, sub-group 369.
33. Probable shouldered jar; R38; fabric F2; wiped both surfaces; finger-impressed cabling on the top of the rim; sooted exterior; PRN 3011, context 6662, pit 6658, sub-group 369.
34. Decorated sherd; fabric F2; wiped both surfaces; fingertip impressions around shoulder; sooted exterior; PRN 3010, context 6662, pit 6658, sub-group 369.
35. Necked globular bowl; R4; fabric GF2; wiped both surfaces; sooted exterior; PRN 1027, context 3902, pit 3900, sub-group 311.
36. Convex jar; R5; fabric F8; wiped both surfaces; finger-wiped exterior; finger-impressed cabling on the top of the rim; PRN 1071, context 3903, pit 3900, sub-group 311.
37. Shouldered jar; R3; fabric G6; possible finger-impressed cabling on the rim top; sooted exterior; PRN 1025 and 1043, context 3902, pit 3900, sub-group 311.
38. Probable shouldered jar; R38; fabric F3; wiped both surfaces; fingertip impressions on the top of the rim; PRN 1070, context 3911, pit 3910, sub-group 311.
39. Necked jar; R9; fabric G9; burnished both surfaces; PRN 1099, context 3912, pit 3912, sub-group 311.
40. Ovoid jar; R11; fabric F7; PRN 1101, context 3912, pit 3910, sub-group 311.
41. Shouldered jar; R3; fabric Q2; PRN 1098, context 3912, pit 3910, sub-group 311.
42. Pinched base; B2; fabric F2; PRN 1045, context 3911, pit 3910, sub-group 311.

43. Shouldered jar; R3; fabric G17; wiped both surfaces; finger-impressed cabling on top of rim; sooted exterior; PRN 2404, context 5271, pit 5341, sub-group 236.
44. Straight-sided vessel; R26; fabric GF6; small amount of soot under exterior rim lip; PRN 2400, context 5344, pit 5341, sub-group 236.
45. Hooked-rim jar; R10; fabric F17; PRN 2424, context 5271, pit 5341, sub-group 236.
46. Decorated sherds; fabric FV1; finger-impressed cabling around the shoulder; PRN 2406, context 5271, pit 5341, sub-group 236.
47. Probable necked bowl; R36; fabric G5; smoothed both surfaces; PRN 5699, context 6498, pit 6499, sub-group 602.
48. Necked bowl; R23; fabric G5; smoothed both surfaces; PRN 5698, context 6498, pit 6499, sub-group 602.
49. Bipartite bowl; R22; fabric F24; wiped exterior surface; PRN 5700, context 6498, pit 6499, sub-group 602.
50. Pinched base; B2; fabric F28; PRN 5650; context 6431, pit 6499, sub-group 602.
51. Round-shouldered bowl; R37; fabric GF9; burnished on exterior and upper interior; three incised parallel lines around the shoulder; sooted exterior; PRN 5631, context 6344, feature 6345, sub-group 612.
52. Coarse ware hemispherical bowl; R25; fabric G5; wiped both surfaces; sooted exterior; PRN 5720, context 6650, feature 6345, sub-group 612.
53. Decorated sherds; fabric F24; fingertip impressions around the shoulder; traces of burnt residue on internal surface and soot on external surface; PRN 5719, context 6650, feature 6345, sub-group 612.

Figure 5

54. Plain base; B1; fabric GF1; roughened exterior surface; basal flints; PRN 4000, context 6010, ditch 6027, sub-group 611.
55. Carinated bowl; R17; fabric Q6; PRN 2007, context 1805, grave 1803, sub-group 103.
56. Ovoid jar; R11; fabric F13; PRN 1134, context 3192, cremation 3193.
57. Shouldered jar; R3; fabric F5; PRN 5347, context 1502, ditch 1484.
58. Convex profile neutral form: R12; fabric G1; wiped and finger-wiped exterior; patches of burnish on both surfaces; fingernail impressions on top of rim; PRN 1000, context 3701, feature 4757.
59. Round-shouldered jar; R1; fabric G2; wiped exterior; traces of soot on exterior; PRN 1002, 1003 and 1004, context 3701, feature 4757.
60. Carinated bowl; R17; fabric G13; traces of burnish on both surfaces; wiped interior; PRN 2000, context 1412, grave 1411, sub-group 69.
61. Carinated bowl; R17; fabric GF3; burnished both surfaces; PRN 2001, context 1447, grave 1421, sub-group 68.
62. Saucepan pot; R2; fabric Q6; burnished both surfaces; PRN 2154, context 1538, sunken featured-building 1537, sub-group 61.
63. Necked vessel; R7; fabric F3; burnished exterior; PRN 1218, context 3765, ditch 3766, sub-group 301.
64. Carinated jar; R6; fabric GF4; sooted exterior; PRN 1178, context 3089, ditch 3090.
65. Round-shouldered bowl; R16; fabric QF1; burnished both surfaces; PRN 1209, context 3750, early medieval grave 3751, sub-group 115.
66. Necked jar; R9; fabric G11; burnished exterior and top of rim; sooted exterior; PRN 1174, context 3088, ditch 3087.

Figure 6

67. Flared rim jar; R18; fabric GF7; sooted exterior; PRN 2511, context 5347, pit 5346, sub-group 235.
68. Straight-walled neutral vessel; R19; fabric GF8; combed exterior; fingernail impressions on top of rim; burnt residue on interior; PRN 2474, context 5368, pit 5366, sub-group 251.

69. Straight-walled neutral vessel; R19; fabric F16; traces of external soot and internal burnt residue; PRN 2002 and 2003, contexts 1335 and 1304 respectively, ditch 1303, sub-group 63.
70. Expanded rim bowl; R20; fabric GQ2; burnished both surfaces; PRN 2204, context 1756, ditch 1755, sub-group 56.
71. Carinated jar; R21; fabric G2; PRN 2188, context 1718, hollow way 1716, sub-group 34.
72. Globular urn/jar; R28; fabric F23; two incised, parallel horizontal lines on exterior; PRN 2477, context 5368, pit 5366, sub-group 251.
73. Plain base; B1; fabric G5; patches of burnish on exterior surface; PRN 2296, context 5224, pit 5049, sub-group 206.
74. Straight-sided vessel; R32; fabric F13; burnished both surfaces; wiped interior; traces of external soot and internal burnt residue; PRN 4020, context 121, Roman hollow way 841.
75. Tripartite jar; R33; fabric F99; PRN 5083, context 1104, layer.
76. High-shouldered bowl; R34; fabric G11; rusticated exterior; burnished interior; PRN 5051, context 1184, modern layer, sub-group 459.
77. Decorated sherd; fabric F14; burnished exterior; decorated with two parallel incised lines above an incised herringbone pattern; sooted exterior; PRN 1154, context 2281, pit.
78. Decorated sherd; fabric F23; impressed or stabbed design on exterior and two possible tooled lines; PRN 5039, context 1042, ditch 1043.
79. Decorated sherd; fabric GF7; decorated with six horizontal tooled lines and three diagonal incised lines; PRN 3039, context 6535, ditch 6531, sub-group 356.
80. Decorated sherd; fabric F3; three tooled lines; PRN 3038, context 6535, ditch 6531, sub-group 356.
81. Decorated sherd; fabric F3; smoothed both surfaces; incised chevron design and three incised horizontal lines; PRN 2004, context 1304, ditch 1303, sub-group 63.
82. Plain base; B6; fabric F23; PRN 2476, context 5368, pit 5366, sub-group 251.
83. Decorated sherd; fabric F27; cordon decorated with fingertip impressions; PRN 5290, context 1499, pit 1491, sub-group 504.
84. Decorated sherd; fabric FI2; cordon decorated with fingertip impressions; sooted exterior; PRN 2527, context 3444, ditch 3543, sub-group 148.

12 ADDITIONAL NOTE

A further 1606 g of pottery (a minimum of 22 sherds) was received from Lincolnshire Conservation, after the completion of this report. This pottery originated from a single vessel, PRN 1000, part of which had been analysed for this report and is drawn in its entirety here (Fig. 5, No. 58). The vessel is Bronze Age in date, the form is R12 and the fabric is G1.

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