Digital Chapter 9 : the pottery

Part 7: The native' Romano-British and Anglian pottery

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(file name : ChD9NativAng)

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Part 7: The ‘native’ Romano-British and Anglian pottery

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*Original report written 1988 (NJC) with revisions and contribution from AV incorporated 2006 (NJC).

Preface

The original report on this material was written by NJC in 1988, having been presented with an assemblage of handmade pottery purportedly of ‘native’ Romano-British type. Indeed some of the material from the Holme House villa had already been identified as such by Georgina Plowright in her MA thesis for the University of Durham (Plowright 1978). However, it soon became clear from the form and decoration of some of the vessels that much of the material from sites other than the villa, was in fact of Anglian date and had previously been unrecognised as such. To an extent this was not surprising given the similarity of many of the fabrics used for both groups and for this reason the material was analysed as a whole. At the time, very little pottery of Anglian date had been published from the North East and Alan Vince’s proposal to review what was currently known through his *Northumbrian Kingdom Anglian Pottery Survey* (2002 and forthcoming) was an opportunity to revisit the Piercebridge material and undertake petrological and chemical analysis in order to establish the likely sources of the raw materials used in the pottery of both periods. The further discovery and analysis (AV) of a small number of thin sections from the assemblage (made in 1990 by Ann Woods) during 2006, concluded work so far completed on the material and reported on here. Vince’s research is contained in a free standing report appended here and the main findings are incorporated into the report below. With regard to future work, there is scope for further comparison of the ‘native’ Romano-British fabrics in light of the recent excavation by Pre-Construct Archaeology (North) of the largest ‘native’ assemblage from the region at nearby Faverdale, Darlington (T.S. Martin pers. comm.).

Structure of the Report

This report was originally prepared to accompany a catalogue split into two elements; the first, intended for the text comprising 68 vessels (55 illustrated including decorated sherds) and the second intended for microfiche, comprising some 75 vessels represented by body sherds under entries 69 to 143. These two elements have been combined into one MS Access database but the numbering of both elements remains, arranged in order of excavation, rather than by fabric, and beginning with the villa and followed by the fort and vicus.

Introduction

A total of 651 sherds of handmade 'native' Romano-British, and Anglian pottery, with a total weight of 14.810 kg, were retrieved from the excavations. Of these, 437 sherds weighing 11.750 kg belong to 'native' Romano-British vessels with the remaining 214 sherds, weighing 3.037 kg, being of Anglian date (see tables D9.1 and 2).

Spatially the material also divides into two groups. A total of 135 sherds weighing 6.545 kg (20% of the total sherd count, and 44% of the assemblage by weight) and exclusively 'native' Romano-British, derive from excavations at Holme House during 1969, 1970, and 1980, whilst the remaining 516 (80%) sherds weighing 8.270 kg (56%) and a mixture of 'native' and Anglian, derive from excavations outside the south-east quadrant of the fort, associated with the Housing Scheme between 1976 and 1981 (see table D9.3).

Fabric	*Sherd number*	*%age*	*Weight (gm.)*	*%age*	*Number catalogued*	*Illustrated numbers*
1	48	22.5	905	30	32 (10)	3, 22, 33, 37, 39, 41, 52, 54, 55, 57, 58
2	108	50.5	1115	37	32 (12)	19, 21, 25, 30, 45, 48, 49, 50, 59
3	41	19	775	25	15 (6)	20, 31, 40, 43, 44, 51, 56
4	15	7	210	7	12 (10)	27, 34, 35, 42, 46. 60
8A	2	1	32	1	2 (2)	32, 26
Total	214	100	3037	100		

Table D9.1: Anglian fabrics quantified by number of sherds and weight

Fabric	*Sherd number*	*%age*	*Weight (gm.)*	*%age*	*Number catalogued*	*Illustrated numbers*
2A	10	2.0	175	1.5	5 (5)	8, 11, 16, 17, 24
5	6	1.5	160	1.5	6 (1)	47
6	41	9.5	3575	30.5	10 (4)	1, 6, 7, 9, 13
7	322	73.5	6290	53.5	12 (11)	14, 15, 62-68
8	50	11.5	1400	12.0	14	-
9	8	1.0	150	1.0	4 (2)	2, 5
Total	437	100	11750	100		

Table D9.2: 'Native' fabrics quantified by number of sherds and weight.

Fabric	Holme House		Housing Scheme	
	Sherd number	Weight	Sherd number	Weight
1	10	200	38	705
2	-	-	105	1090
2A	8	100	5	75
3	-	-	41	775
4	-	-	15	210
5	4	100	2	60
6	38	3500	3	75
7	33	1500	289	4790
8	32	910	16	458
8A	-	-	2	32
9	8	150	-	-
Total	133	6460	516	8270

Table D9.3: Comparison of the native and Anglian pottery Holme House and the Housing Scheme

Initial Fabric Analysis (NJC 1988)

It was decided that classification of the material by fabric would provide the most satisfactory approach, since there were relatively few substantially complete vessel profiles, and a correspondingly large proportion of body sherds. The material was therefore divided into twelve fabrics recognisable with the unaided eye, and described from examination under low power (x 10) binocular microscope (full fabric descriptions are in the appendix). Fabrics 1, 2, 3, 4, and 8A are of Anglian date, whilst fabrics 1A, 2A, 5, 6, 7, 8, and 9 are 'native' wares predominantly of Romano-British date but clearly influenced by, and probably including, pre-Roman examples (e.g. fabric 5).

Petrological and Chemical Analysis (AV 2002 and 2006)

As part of the *Northumbrian Kingdom Anglian Pottery Survey* the entire assemblage was reassessed in order to select samples for petrological thin-section and chemical analysis, using inductively-coupled plasma spectroscopy. All sherds were attributed to a series of fabrics (given acronyms) which, whilst broadly confirming the initial series, reflected the geological origin of the clays and opening materials irrespective of date. The initial series thus effectively comprises sub-fabrics within the broader categories defined by AV and this serves to emphasise the similarity between materials exploited by the potters of handmade vessels in both periods (see Table D9.4).

Summary of the Petrological and Chemical Analysis (AV)

Thin section analysis indicates that the groundmass of most of the Roman and Anglian pot samples analysed has similar characteristics and that the immediate source is likely to have been boulder clay or glacial / post-glacial lake deposits, to which a series of distinct sands were added. The significance of these different tempers is not known but most contain inclusion types which one would expect to find in Quaternary deposits in the Piercebridge area, given the Carboniferous and Permian strata over which the ice and south and east-wards draining rivers would have flowed. Two Anglian vessels (Nos. 23 and 26) with limestone temper, which shows no sign of weathering, appear to have been brought to Piercebridge, since the limestone is probably the Upper Jurassic Corallian rag whose nearest outcrop to Piercebridge is the northern tip of the Hambleton Hills, about 20 miles away. With this exception, and the prehistoric to Roman use of crushed/fire cracked basic igneous rock as temper, there is no obvious difference in the petrological characteristics of the Roman and Anglian sherds. Chemical analysis of these samples indicates that the Roman and Anglian sherds have similar characteristics, if calcium and strontium and mobile elements such as phosphorous and the rare earth elements are omitted (see Tables).

Correlation of Fabrics and Sub-fabrics

The table below summarises the relationship between the broad fabric categories defined by Vince through visual and petrographic analysis and the narrower sub-fabrics originally defined visually in the hand specimen (NJC). The sub-fabrics are listed in order of frequency, with numbers of vessels (catalogue entries) following in brackets.

Fabric (AV)	Major Inclusions	'Native' sub-fabrics	Anglian sub-fabrics
ERRA	Basic igneous erratic	6 (6),5 (5), 9 (3), 7 (2)	NA
SSTMG	Sandstone	6 (5), 1A (2), 7 (1)	1 (24), 4 (10), 2 (5), 3 (1)
CHARN	Biotite Granite	2A (3), 6 (2)	2 (22), 3 (6), 1 (2)
MISC	Mixed sand	7 (9)	NA
CALC	Calcite	8 (10)	NA
LIMES	Limestone	8 (1)	8A (2)

Table D9.4. Summary of the fabrics

The greatest proportion of the assemblage is made up of fabrics employing sandstone (SSTMG) or biotite granite (CHARN). The fact that many of the fabrics can employ a similar range of inclusions in different proportions has led to sub-fabrics occurring in more than one fabric. For example 'native' fabrics 6 and 7 (which make up the bulk of the native assemblage by sherd count and weight) occur across up to three fabrics. The

Anglian sub-fabrics are more tightly grouped, with 1 and 2 accounting for the bulk of SSTMG and CHARN respectively.

The Pottery from Holme House Roman Villa

The pottery from Holme House would appear on stratigraphical grounds to be in use during the proposed occupation of the villa building and roundhouse dated by association with late 2nd century samian and coarsewares, in particular the fill of the villa drain, and the villa well. The full range of ‘native’ fabrics 1A, 2A, 5-9 occur in the villa assemblage.

The Pottery from the Housing Scheme site

A large proportion of the pottery from the Housing Scheme site comes from the disturbed upper fills of the outer and inner. Coinage points to a *tpq* of the late 4th century for the accumulation of these deposits, but it is clear from the occurrence of the pottery under discussion that there was subsequent Anglian activity over these ditches which was disturbed during the medieval period. The material from these upper ditch fills, and other areas outside the eastern defences appears to derive from this Anglian activity, and comprises fabrics 1, 2, 3, 4, and 8A. One example of the 'native' or prehistoric fabric 5 does occur in the main ditch, and it is assumed to be residual.

Other 'native' fabrics also occur at the Housing Scheme site, and thus provide chronological links with the Holme House villa assemblage, notably examples of fabric 2A from the 'Temple' (117) (nos.l6 and 17). However, only the 1981 excavations yielded 'native' pottery from other demonstrably undisturbed Romano-British contexts, notably the large group of fabric 7 from (1410) (representing over 30% of the assemblage by weight) and dated to the late 2nd or early 3rd century. This provides a link with the other occurrence of this fabric in the villa well excavated in 1980. It is perhaps significant, given the proposed dating of the Holme House material, that no 'native' pottery derived either from buildings within the fort, or from the later 1st and early 2nd century gullies.

Table D9.1 provides a quantitative breakdown of the Anglian fabrics by weight and sherd count. Table D9.2 provides a quantitative breakdown of the 'native' fabrics, and Table D9.3 illustrates the occurrence of each fabric by site. Detailed fabric descriptions are located on pp. 9.265-9.

The Anglian Fabrics

Fabric 1 (SSTMG)

A hard, heavily quartz-tempered fabric with a rough feel and a hackly fracture. The quartz is angular or sub-rounded, and there is abundant fine mica, giving the surface a 'sparkling' appearance, particularly when worn.

There are 32 catalogued examples of vessels in this fabric, ten of which are illustrated. It is likely that the two examples from Holme House (3 and 76) represent the base and wall of one bucket-shaped vessel. The occurence of this 'native' form in this fabric is an unresolved anomaly, but the vessel in question does not fit readily into any of the 'native' fabric groups.

The small size of the plain rims comprising the Housing Scheme site material gives little clue to vessel form, and indeed it is often not possible to tell if they come from open or closed forms, although closed, possibly globular or biconical vessels are suggested in a number of cases (54 and 55). Bodysherd 135 clearly comes from a shouldered form, and 113 and 128 from globular or biconical forms similar to 40 or 42 in fabrics 3 and 4 respectively, suggesting an Anglian date. Bodysherds 113 and 128 are faintly decorated with incised vertical lines, and are the only examples within the fabric. However, burnishing is occasionally used on either, or both, surfaces (22, 53, and 54). The coarse nature of the fabric, and paucity of decoration would suggest domestic usage in cooking but this function is only confirmed by the occurrence of carbonized residue on the internal surface of a flat base (33).

Most examples of this fabric come from the inner ditch and, to a lesser extent, the outer ditch.

Fabric 2 (CHARN and Catterick fabric 7, Evans 1996)

The eleven illustrated examples of vessels in this fabric indicate a variety of forms. In addition to plain rims, there is a jar with an everted rim (45). Significantly there are two decorated vessels represented, one which (59) is decorated with an uncommon multiple chevron stamp, fitting into Briscoe's E1cii category (Briscoe 1981, 11).

The fabric itself is characterised by its 'gold' biotite mica content, occurring as large platey crystals up to 1mm, in addition to angular crystals of crushed white and pinkish quartz, and occasional feldspar, grog. and granite inclusions. It is generally friable, and laminated in fracture. In colour, a large proportion of vessels have buff surfaces and a grey core (21, and 59 for example), but the preservation of surface colour is largely dictated by function as demonstrated by vessel 45, where the colour has been obscured by sooting, and carbonized residues on the inner lip.

All of the vessels in this fabric come from the Housing Scheme site.

Fabric 3 (CHARN)

In appearance this fabric falls between 1 and 2; not as coarse as 1, it lacks the large mica inclusions and friability of fabric 1, but is characterised by the presence of large fragments of crushed quartz. Vessel forms are limited to plain upright, flaring or in curving rims. The globular form of 40 suggests an Anglian date for the fabric which occurs exclusively on the Housing Scheme site. However it does share certain features with the 'native' fabric 2A in terms of inclusion size general appearance, but lacks the large 'gold' mica inclusions.

Fabric 4 (SSTMG and Catterick fabric 1, Evans in Wilson *et al* 1996).

This is a very hard, densely packed fabric with small, sub-rounded, white and occasionally pink quartz, and decorated pieces in particular are black and highly burnished, and indicate a higher quality of production. This is the dominant fabric in the assemblages at Catterick (Evans in Wilson *et al* 1996).

Fabric 8A (LIMES)

A hard, fine-grained oxidized fabric with crushed shell inclusions. There are only two examples, both of which are decorated and come from the upper fills of the secondary ditch at the Housing Scheme site (nos. 23 and 26). The tempering suggests that the fabric originates from East Yorkshire, and Anglo-Saxon vessels with similar parallel horizontal grooving on the neck are found at Sancton, Yorks. (e.g. Myres 1977 fig.219, nos.2537 and 2297.)

The 'Native' Romano-British Fabrics.

Fabric 2A (CHARN)

Similar in appearance to the Anglian fabric 2, and in some respects 3 also. It is very much harder than fabric 2, lacking its friability and laminated structure. It contains large angular crystals of quartz and feldspar up to 3mm, probably resulting from the crushing of granite, and these are consistently of larger size than those in fabric 2, and similar size to those in fabric 3. In common with fabric 2 it contains large 'gold' biotite mica inclusions up to 1mm, which are lacking in fabric 3. Fabric 2A is restricted to Romano-British contexts at Holme House villa and the 'Temple' in the northern vicus, and the forms represented are either distinctively 'native' (no. 8), or appear to imitate Roman forms (Nos.16 and 17).

Fabric 5 (ERRA)

A distinctive, thick-bodied, handmade fabric with a low-fired fine clay matrix, and massive (up to 10mm) angular igneous rock (?dolerite) inclusions. The friable nature of this fabric has probably dictated its poor survival, with only six occurrences, including only one rim (47), which is upright and decorated with deeply incised parallel, horizontal grooves. Its occurrence away from the main areas of pottery disposal at Holme House may indicate that it represents an earlier phase of occupation at the site.

Fabric 6 (ERRA/SSTMG/CHARN)

The fabric is characterised by its hard, sandy feel, and hackly fracture. Inclusions comprise sub-rounded and angular quartz, igneous rock, and mica. This fabric is almost exclusively found at Home House, where it occurs within the roundhouse, and the fill of the villa drain. These deposits are securely dated to the late 2nd century by association with samian and coarsewares. All illustrated vessels are from Holme House, and include large, thick-bodied, bucket and barrel-shaped vessels. No.11 from the villa well is associated with two other substantially complete vessels of fabric 7, from the same context, and a date contemporary with the destruction of the villa *c.* 200 would tie in with the large group of material in fabric 7 from the Housing Scheme site, dated to the late second or early third century.

Fabric 7 (MISC/SSTMG/ERRA)

Quantitatively this is the most important of the ‘native’ fabrics within the assemblage. The fabric is hard and characterised by abundant sub-rounded quart sand inclusions, occasional large micaceous sandstone fragments up to 5mm, and occasional large angular crushed quartz up to 5mm. The range of vessel forms, and quality of workmanship employed differs markedly between the Holme House material and that from the Housing Scheme site. The two vessels from the villa well (14 and 15) are particularly well made highly-fired, have burnished surfaces, and well-formed rims. The Housing Scheme site material comprises crudely made, thick-bodied vessels with plain upright rims. Surface treatment is minimal with occasional burnished strokes internally: rims often show finger impressions. The two examples of everted rims in the group (66 and 67) are of a simple pinched form, one of which is rolled over.

Together fabrics 6 and 7 seem to represent the main 'native' fabrics continuing in use alongside wheel thrown, workshop-produced Romano-British wares up to the beginning of the 3rd century.

Fabric 8 (CALC)

A generally hard, fine grained, fabric with angular calcite inclusions up to 4mm. When weathered the fabric surface is pitted with angular voids, giving the characteristic 'vesicular' appearance. All the examples included would appear to fit into the native tradition of East Yorkshire during the Roman Period, which gave rise to the more widely distributed Knapton and Huntcliff types in the late Roman period. However, the closer dating of the material is hampered by the complete lack of rims in the assemblage, which is almost certainly due to them being recognized as 'Romano-British’ rather than ‘native’, and being included in that category. An example of South Midlands shell-tempered ware from Harrold, Bedfordshire, which gained wide distribution in the later fourth century was also recognised by AV (143). This material has been kept in the catalogue despite not conforming to the ‘native’ criterion of being handmade.

Fabric 9

This fabric is exclusive to Holme House, and is quite distinctive in character. It has a fine clay matrix, tempered with finely crushed igneous rock inclusions, and quartz sand up to 1mm. The two illustrated examples (2 and 5), have the same surface finish, having been smoothed with the fingers which have left impressions. A cooking vessel function is suggested by both examples.

Discussion of the 'native' Romano-British pottery

The study of 'native' pottery from the Tyne-Tees area has benefited considerably from its inclusion in two overlapping corpus studies; initially by Challis and Harding (1975), and subsequently by Plowright (1978). The situation has been examined by Swain (1987) in his study of, at the time, the most substantial, well-stratified assemblage of late Iron Age and Romano-British 'native' pottery in the region from Thorpe Thewles in Cleveland. The forthcoming analysis of the largest assemblage from Faverdale, Darlington will no doubt expand the discussion; certainly assessment indicates a range of ten fabrics very similar in character to those from Piercebridge (T. S. Martin pers. comm.).

Whilst none of the 'native' pottery fabrics (except fabric 5) would appear to be pre-conquest in date, the large number of vessel and rim form parallels that can be drawn from late Iron Age / early post-conquest pottery assemblages at sites such as Thorpe Thewles (Heslop 1987), Stanwick (Wheeler 1954), Ingleby Barwick (Heslop 1984), Catcote, and Normanby (Challis and Harding 1975) in the Tees Valley area, show that it is a product of a tradition of native technology that continues to exist alongside wheel-thrown Romano-British wares. There are also parallels to be drawn from sites on the edge of the North Yorkshire Moors such as Great Ayton Moor (Challis and Harding 1975, fig. 46). This helps to push the currency of forms and fabrics represented in the destruction deposits of the Holme House villa (their earliest stratified occurrence c. 200) back into the late Iron Age, but the problem of dating the 'native' pottery of the area accurately when not associated with Roman wares still exists because of the lack of short-lived decorative features found on southern assemblages (Cunliffe 1974).

Swain stresses that while it is possible to place assemblages from the area within a regional tradition as significant as southern equivalents (e.g. Cunliffe's Style Zones), the northern pottery tradition is characterised by the long currency of simple forms and rim types, with slight variations at a local level (1987, 65). However, extending the application of thermoluminescence dating used at Thorpe Thewles (Bailiff 1987) to other pre- or post-conquest assemblages presently 'in limbo' for lack of other dating evidence may help to define the nature of the tradition. Certainly the similarity of inclusion types used at Piercebridge and Thorpe Thewles (crushed quartz, sandstone and igneous rock), though largely dictated by local availability, lends support to Swain's view that Tees Valley Iron Age sites are sharing a common technology. This technology has its roots in the late Bronze Age when very large inclusion of this type are first used, and the suggestion that fabrics become finer over time appears to be borne out by the TL dates from Thorpe Thewles (Bailiff 1987, 72).

The impact of introducing wheel-thrown Romano-British wares on the tradition would have varied with ease of access to them, and while Roxby (Inman *et al* 1985) on the North Yorkshire Moors appears to have survived without them, it is surprising in some ways that any native pottery consumption continued at all at Piercebridge given its position within the Northern military market, and the degree of Romanisation that the presence of a villa building suggests. One possibility worth pursuing is that certain sectors of the community such as the enslaved or servile, may not have had access to workshop-produced Romano-British wares or, instead, continued to produce their own wares in handmade traditions and only imitated 'Roman' forms in certain circumstances. Parallels for such practice can be seen amongst plantation slaves in the southern states of America who produced their own handmade 'Colono' ware bowls and cooking pots suited to a Creolised African cuisine but also occasionally imitated medieval forms such as tripod cooking pots (see Deetz 1996, Webster 2005; Cooper 2000 and forthcoming). Attempts to directly imitate 'Roman' forms in the present assemblage are limited to two instances (nos. 16 and 17), but the assemblage from Faverdale, Darlington (site code FAV 04) provisionally dated to *c*. AD 90-200, includes a mortarium, a BB1 beaker/cooking pot and lid-seated jars (T. S. Martin pers. comm.). Regarding the existence of a distinct servile community, the occurrence of a stone-founded round house as part of the villa complex may have significance, although disposal of 'native' wares is not confined to that structure.

It is seldom clear from existing assemblages how far native pottery extends into the Roman period. The sequence at Thorpe Thewles continues into the mid 2nd century (Swain 1987, 65) and the evidence from Holme House and the Housing Scheme site only extends this into the early 3rd century at the latest. Plowright (1978 fig.15) recognizes ten Roman sites yielding well stratified native pottery, eight of which are military (Birdoswald, Castlesteads, Corbridge, Great Chesters, Housesteads, Newstead, Mumrills, and Vindolanda) and two villas (Old Durham and Holme House itself). Of these only Housesteads has yielded material in 3rd and 4th century contexts, the so-called 'Housesteads ware' which lan Jobey (1978) has attributed to a Frisian influence.

The similarity between the 'native' fabric 2A, and the Anglian fabrics 2 and 3 cannot be ignored (notably no. 8 in fabric 2A from Holme House, and the stamped sherd no.59 in fabric 2, are barely distinguishable), but there is insufficient evidence from Piercebridge to suggest the continuity of 'native' fabrics through the later 3rd, 4th, earlier 5th, and into the Anglian period. The general similarity between the 'native' and Anglian fabrics from the site must, in the absence of evidence for such continuity, owe much to the local availability of the inclusion types (particularly igneous) common to both. There is no reason why the break in the native tradition in the later Roman period should not be genuine, as the local inhabitants become increasingly dependent on manufactured products (Cooper 1996), and the subsequent return to the use of pre-Roman clays and opening materials should therefore also not occasion surprise and is paralleled closely in Leicestershire where the use of Mountsorrel granodiorite in late Iron Age scored ware (Knight et al 2003) is interrupted for four hundred years during the Roman period before being used again for Anglian vessels (Williams and Vince 1997)

The commonest 'native' fabrics in the assemblage, 6 and 7 together make up 83% of the total by sherd count, and 84% of the total by weight. The small input from the remaining fabrics may support the impression that the assemblage represents roughly contemporary depositions at both the villa and the fort over a relatively short period around the end of the second century or possibly early in the third. The disparity between the relative contributions of fabrics 6 and 7 (9.5% and 73.5% respectively by sherd count, and 30.5% and 53.5% by weight) is due to the large number of small bodysherds in fabric 7. The dominance of fabrics 6 and 7 is probably exaggerated because of the bulky nature of the fabric, and a consideration of the number of illustrated pieces gives a better impression of the minimum number of vessels represented.

Discussion of the Anglian pottery

The occurrence of a substantial amount of Anglian pottery at Piercebridge, adds significantly to the growing picture of activity in the Tees valley at this time, boosted by the discovery of the cemetery at Norton-on-Tees (Youngs *et al* 1985, 166, fig. 1), as well as providing a further example of Anglian activity at a major Roman site in the north. Notably, the examination of the Anglian pottery from Catterick by Jeremy Evans (in Wilson *et al* 1996) with reference to the fabric series from Piercebridge, has identified fabrics (2 and 4) common to both sites, and this may help contribute to a common fabric series for Anglian material in the North East, to be made more concrete by Alan Vince's survey (forthcoming).

The main problem lies in trying to assign a date to these fabrics when there is such a paucity of decorated pieces. The multi-chevron stamp in fabric 2 is assigned a 6th century date, while a stamp-decorated urn from the 1972 excavations by John Wacher at Catterick in Evans' fabric 1 (Piercebridge fabric 4), has been dated to c.500 (pers. comm J.N.L. Myres to J.S. Wacher).

The proportions of the two major fabrics (1 and 2) at Piercebridge are not significantly different in terms of weight (30% and 37% respectively), and the conspicuous disparity in the number of sherds (22.5% and 50.5%) is undoubtedly due to the friability of fabric 2. Together fabrics 1, 2, and 3 may be considered as locally produced (though not necessarily contemporary), with fabric 2 gaining a slightly wider circulation as the only fabric of the three represented at Catterick (Evans in Wilson *et al* 1996 fabric 7).

The dominant fabric at Catterick is Evans' fabric 1 (Evans in Wilson *et al* 1996), which equates with fabric 4 from Piercebridge where it is not as well represented at only 7% by sherd count and 7% by weight. However, the quality of the pieces present (in terms of decoration) is very high, and together with the decorated pieces in fabric 8A (1% by sherd count and 1% by weight) may represent material travelling in from the Yorkshire area (see AV discussion in appendix).

Full (Sub-) Fabric Descriptions

Anglian Fabrics

Fabric 1 (SSTMG)

Hardness:	Hard	
Feel:	Rough	
Fracture:	Hackly	
Inclusions:	(1) Quartz	(2) Fine mica
Frequency:	Abundant	abundant
Size:	up to 1mm	<0.1mm
Shape:	angular sub-rounded	platy

Surface Treatment: external smooth
internal sometimes burnished

Fabric 2 (CHARN)

Hardness:	Soft and friable			
Feel:	Rough			
Fracture:	laminated			
Inclusions:	(1) Quartz	(2) Feldspar	(3) mica	(4) grog
Frequency:	abundant	sparse	common	sparse
Type:	crushed	crushed	biotite	
Size:	up to 2mm.	up to 2mm.	up to 1mm.	up to 1mm.
Shape:	angularangularplaty		rounded	

Sometimes quartz, feldspar, and mica occur together at granite inclusions
Surface Treatment: none internally; occasionally smoothed externally

Fabric 3 (CHARN)

Hardness:	hard		
Feel:	smooth		
Fracture:	smooth		
Inclusions:	(1) Quartz	(2) Feldspar	(3) Mica
Frequency:	common	occasional	abundant
Size:	up to 2mm.	up to 2mm.	< 0.1mm
Shape:	very angular	angularplaty.	

Surface Treatment: usually smoothed on both surfaces.

Fabric 4 (SSTMG)

Hardness:	Hard		
Feel:	rough		
Fracture:	hackly, occasional laminated		
Inclusions:	(1) Quartz	(2) Feldspar	(3) Mica
Frequency:	Abundant	Common	Abundant
Size:	0.1-1.0mm0.	0.1 – 1.0mm	< 0.1mm.
Shape:	sub-rounded	sub-angular	platy

Surface Treatment: external burnishing; internal smoothing

Fabric 8A (LIMES)

Hardness:	Soft
Feel:	Smooth/soapy
Fracture:	Smooth
Inclusions:	(1) crushed shell
Frequency:	common
Size:	up to 3mm.
Shape:	irregular

Native Romano-Britain fabrics

Fabric 1A (SSTMG)

Description as Anglian Fabric 1 above

Fabric 2A (CHARN)

Hardness:	Hard		
Feel:	Harsh		
Fracture:	Hackly		
Inclusions:	(1) Quartz	(2) Feldspar	(3) Fine mica
Frequency:	Common	Common	abundant
Size:	Up to 5mm.	up to 5mm.	< 0.1mm.
Shape:	angularrhomboidal	platy	

Surface Treatment: none.

Fabric 5 (ERRA)

Hardness:	very soft and friable	
Feel:	harsh (due to hard inclusions)	
Fracture:	laminated	
Inclusions:	(1) Igneous (dolerite)	(2) fine mica
Frequency:	abundant	abundant
Size:	massive up to 10mm.	< 0.1mm
Shape:	crushed blocks	platy

Surface Treatment: none

Fabric 6 (ERRA/SSTMG/CHARN)

Hardness:	hard		
Feel:	rough		
Fracture:	hackly		
Inclusions:	(1) Quartz	(2) Igneous (dolerite)	(3) mica
Frequency:	common	sparse	occasional
Size:	0.1 – 5mm.	up to 5mm.	up to 2mm
Shape:	angular chips	angular	platy

Surface Treatment: occasional smoothing or burnishing

Fabric 7 (MISC/SSTMG/ERRA)

Hardness:	hard		
Feel:	rough		
Fracture:	hackly		
Inclusions:	(1) Quartz	(2) micaceous sandstone	(3) fine mica
Frequency:	abundant	occasional	common
Size:	0.1 – 1.0mm	massive up to 5mm	< 0.1mm
Shape:	sub-rounded	irregular lumps	platy

Surface Treatment: light burnishing on both surfaces

Fabric 8

Hardness:	soft, occasional hard
Feel:	rough
Fracture:	hackly
Inclusions:	(1) calcite
Frequency:	common
Size:	up to 10mm
Shape:	angular / rhomboidal

Surface Treatment: smoothed occasionally

Fabric 9 (ERRA)

Hardness:	soft		
Feel:	rough		
Fracture:	hackly		
Inclusions:	(1) igneous	(2) quartz	(3) mica
Frequency:	common	common	common
Size:	up to 1mm.	up to 0.5mm.	< 0.1mm.
Shape:	angularrounded		platy

Surface Treatment: smoothing with fingers

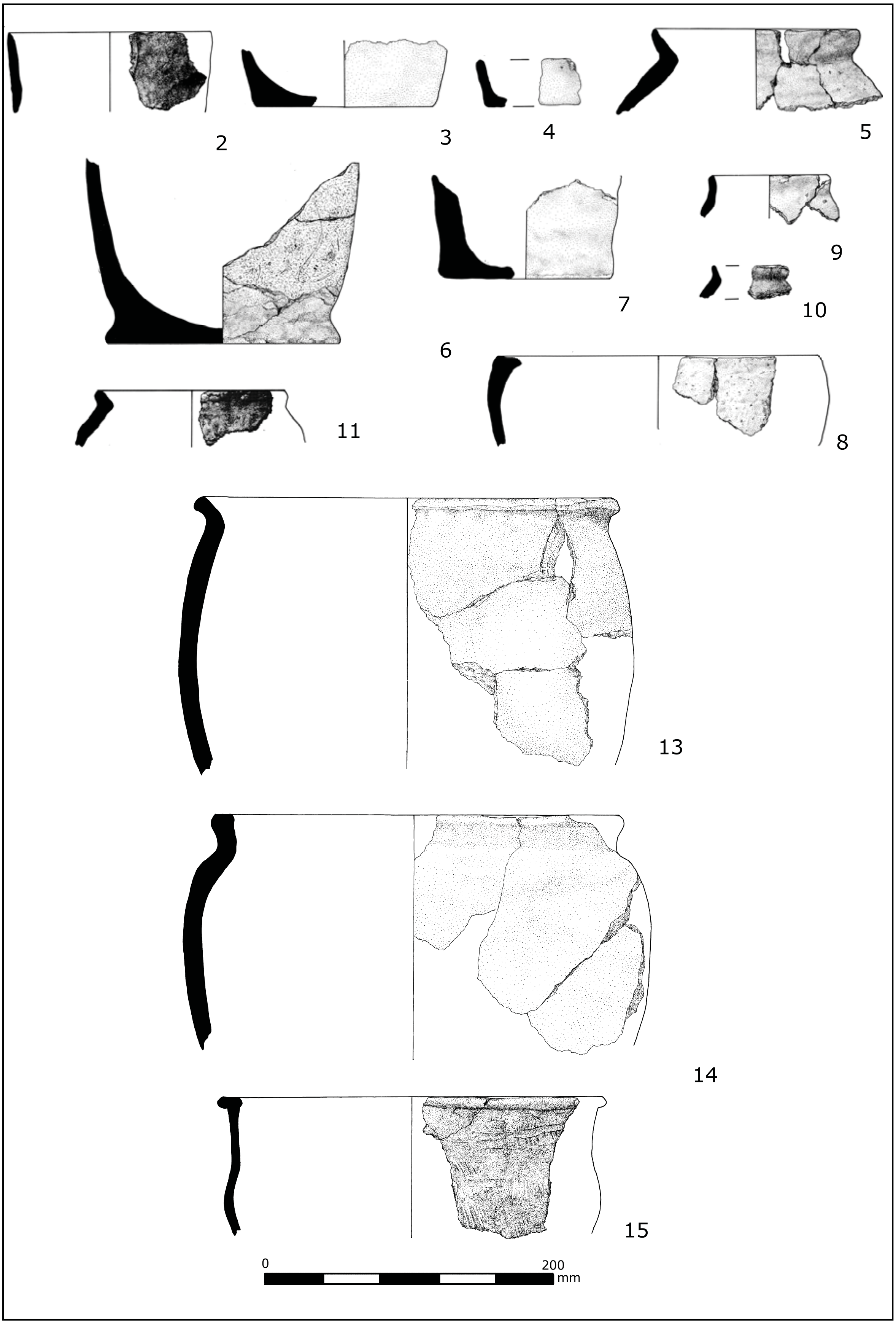

Fig. D9.70. Native pottery from the villa. Scale 1:4

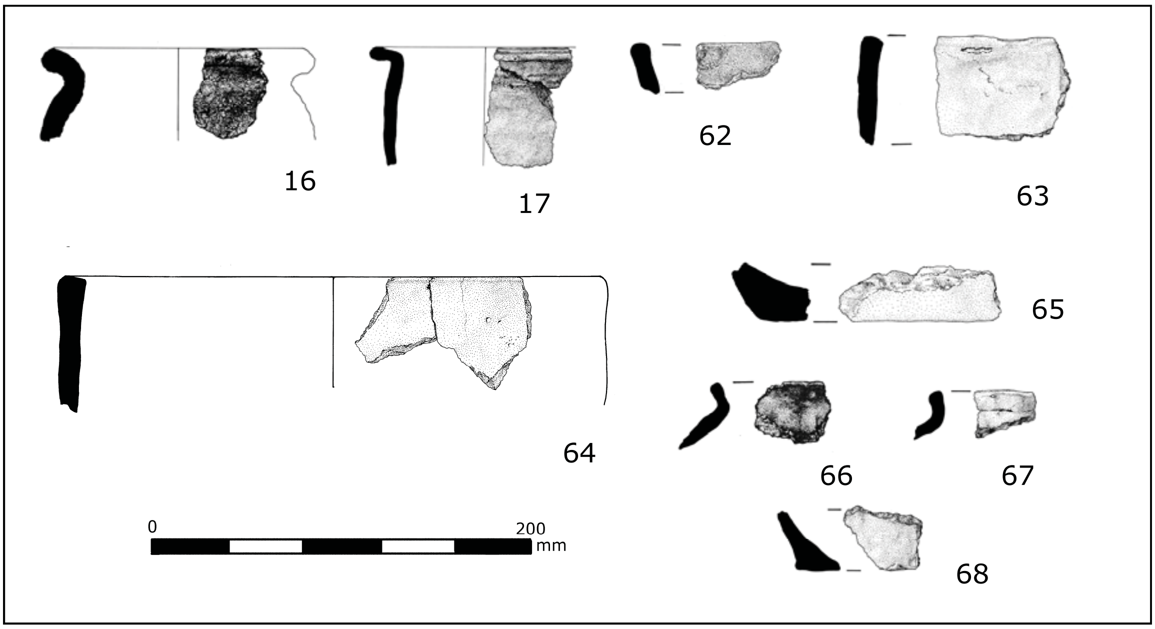

Fig. D9.71—Native pottery from the Housing Scheme. Scale 1:4

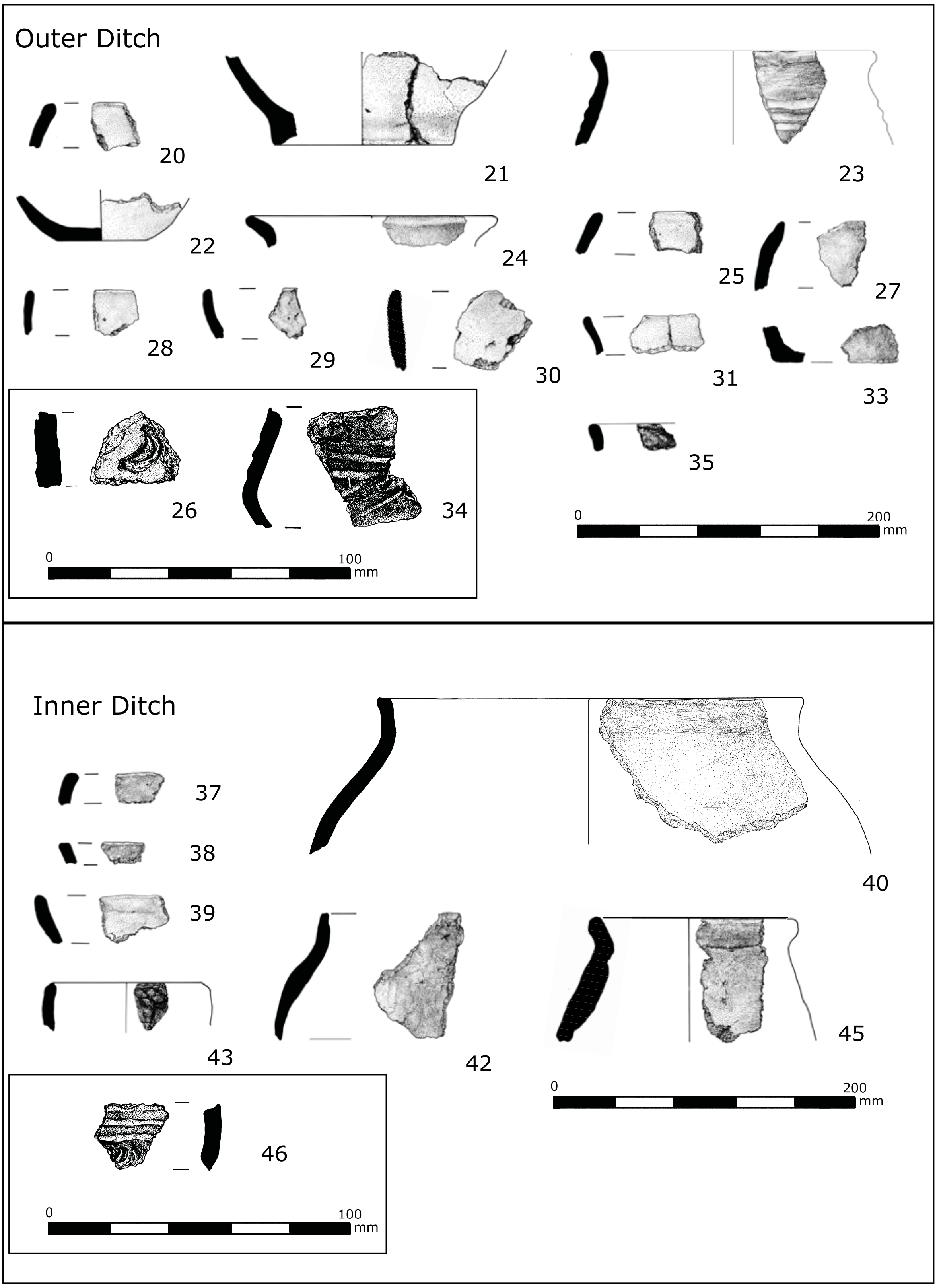

Fig. D9.72. Anglian pottery from the inner and outer ditches.
Scale 1:4 other than 26, 34 and 46 1:2.

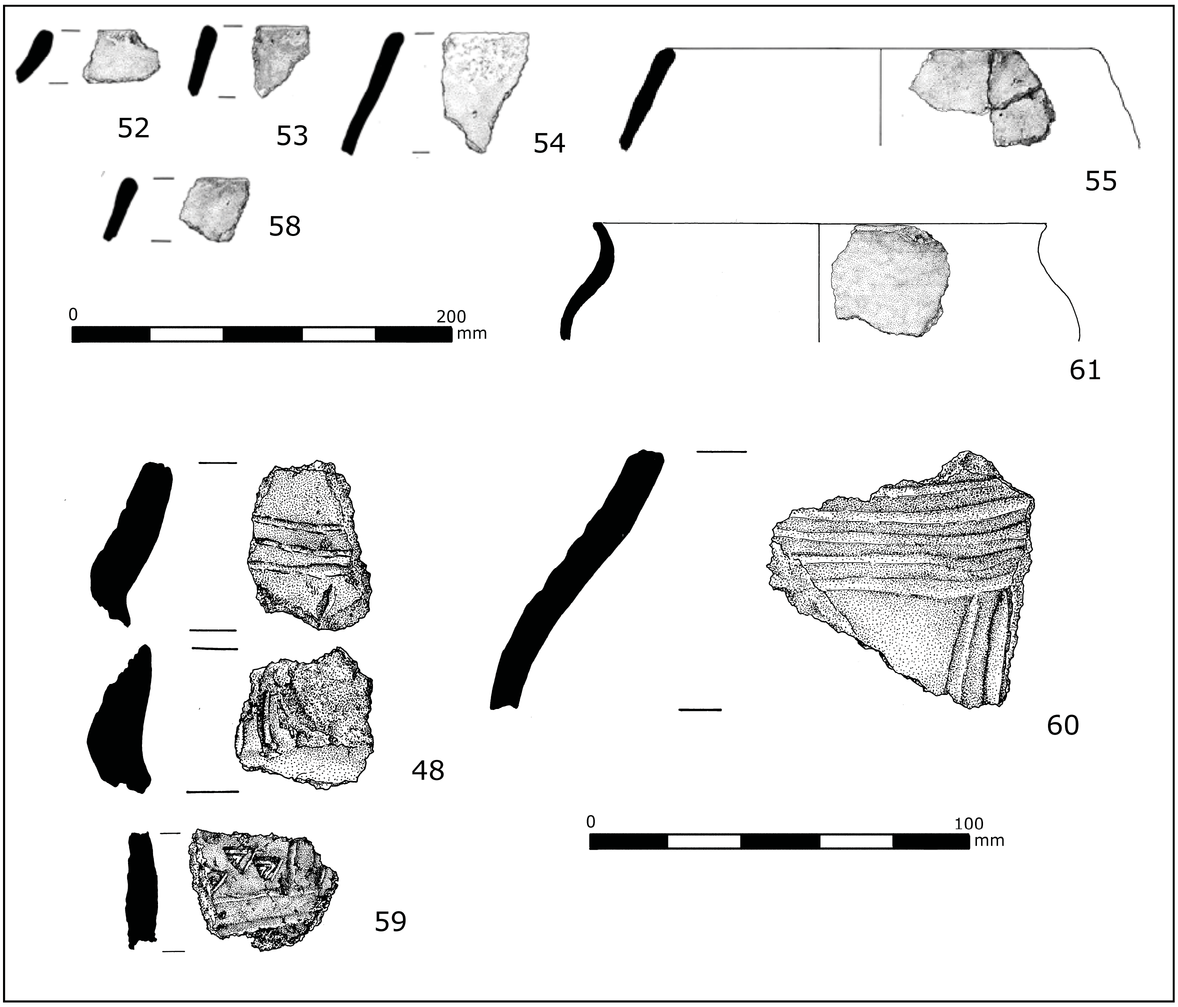

Fig. D9.73. Anglian pottery from miscellaneous contexts in the Housing Scheme
Scale 1:4 apart from nos. 48, 59 and 60 (Scale 1:2)

Characterisation Studies of Roman and Early to Mid Anglian Pottery from Piercebridge, County Durham

Alan Vince

Excavations at Piercebridge produced a large assemblage of handmade Romano-British coarseware and early Anglian handmade wares. Some of these sherds could be assigned to a production period as a result of their typology or production and decorative techniques but others could not be differentiated. Furthermore, it was clear that deposits which produced definite early to mid Anglian pottery also produced large quantities of residual Roman material. For this reason a sample of both wares was examined by the author as part of a survey of Anglian pottery in northern England. These samples were investigated using thin section and chemical analysis (Inductively-Coupled Plasma Spectroscopy) with the intention of determining:

a) whether systematic differences in fabric could be used to date handmade coarsewares.

b) Whether the same sources of clay and temper were used in both periods.

The samples are listed in Appendix 1 and the chemical data are listed in Appendices 3 (major elements, measured as percent oxides) and 4 (minor elements measured in parts per million).

In 2006, a series of thin sections prepared by students of Anne Woods at the University of Leicester were located and these have been incorporated into the previous study, resulting in this paper (Appendix 2).

Prehistoric and Romano-British 'native' wares

Erratic-tempered ware

Nineteen vessels were tempered primarily with angular fragments of basic igneous rock. Binocular microscope study suggests that some of the edges on these grains are slightly rounded and there are no triangular-sectioned chips such as one might expect if the material had been crushed by the potters.

Such wares have been found in late Bronze Age and pre-Roman Iron Age contexts over much of northern Britain and have been studied in detail by Wardle (REF), Lapuente (1992), the British Museum Department of Scientific Research and others (2004).

In these studies it has been noted that the identity of the basic igneous rock inclusions is consistent with their origin in the Whin Sill and similar sills and dykes cutting through the carboniferous rocks of the northeast and with the Derbyshire Traps of the Peak District. Fragments of quartz dolerite are indeed present in boulder clays along the east Yorkshire coast, but never in similar quantities to those seem in these vessels and always in association with other rock types typical of the terrain of the areas from which the clays were derived.

In the case of Iron Age wares from the Vale of Pickering, it was noted that any one sample would be likely to contain basic igneous rocks of one or two lithologies only, and that these included types which would not naturally occur together in such quantities. The interpretation of this seems to be that the angular igneous rock fragments have been selected from local boulder clays and crushed, and that this selection only involved a few erratics for each pot.

In one case, #15, the vessel contained a mixture of basic igneous and acid igneous rock fragments. Other inclusions are present in these 19 vessels, but only as sparse fragments which may have been present in the clay as dug, or accidentally added alongside the igneous rock fragments. These include subangular red iron-rich nodules (#5, #84), muscovite laths (#5, #71, #84), biotite (#6), fine-grained white sandstone (#72), coarse-grained sandstone of Millstone Grit type (#13, #71) and rare, heavily wind-ablated, rounded quartz grains (#15, #72, #74, #75). The groundmass sometimes contains abundant silt-sized quartz grains. In the absence of the igneous rocks, therefore, these vessels can be said probably to have originated in an area containing detrital grains derived from Carboniferous and Permian strata, which would include much of the northeast of England.

Samples of three of these vessels were thin-sectioned (Catalogue Nos. 5, 13, and 75).

Nos 5 and 75 have very similar characteristics. The thin sections contains several angular fragments of an unidentified basic igneous rock, all of the same lithology. Those in No.75 have a slightly finer grain size than those in No.5. The fragments range from c.0.3mm to 3.0mm across. Sparse well-rounded quartz grains up to c.1.0 mm across, sparse rounded opaque grains up to 1.0mm across and sparse carbonised organic inclusions up to 0.5mm long are the only other large inclusions. The groundmass consists of abundant angular quartz and sparse muscovite laths up to 0.2mm long in a fine-textured groundmass of baked clay minerals. In much of the section this is black due to unburnt carbon but at the oxidized margins this clay appears to have a light brown colour.

The groundmass is consistent with a glacial lacustrine deposit derived from Coal Measure mudstones and sandstones. The organic inclusions were probably present in the parent clay and the basic igneous rock in this case shows no sign of rounding at all and was probably therefore crushed/fired cracked and deliberated added to the fabric. It is not clear whether the rounded quartz was deliberately added, but is probably of Permian origin.

13. Fragments of basic igneous rock and coarse-grained sandstone were noted in the hand specimen at x20 magnification but are not present in the thin section [Nick. I wonder whether this TS is correctly identified. Short of comparing it with the sherd in Barnard Castle I don't know what we can do though].

The thin section, by contrast, contains several carbonised organic inclusions and voids where such inclusions were probably once presence. They range up to c.1.0mm long. The remainder of the inclusions consist of abundant quartz sand, with grains ranging up to 0.5mm across with rare inclusions of angular chert and fine-grained sandstone. The larger grains are well-rounded and highly spherical and the smaller grains, which range from less than 0.1mm upwards are angular and subangular. The groundmass is mostly opaque but the thin outer margin is oxidized and can be seen to contain rounded dark brown/opaque grains up to 0.1mm across.

The organic inclusions in this section appear to have been deliberately added, in contrast to No.5, and the remaining inclusions – chert fragments, rounded quartz and fine-grained sandstones - are typical of sands derived from the weathering of Triassic sandstones although the rounded quartz grains might be of Permian origin. Triassic sandstones, the Sherwood Sandstone, outcrop to the south and east of the Piercebridge area. The silty character of the groundmass suggests a possible alluvial or lacustrine origin for the clay.

An example of this fabric was found in the fill of the villa well, No.14.

14. The thin section contains moderate fragments of angular basic igneous rock and a granite. The rock fragments range from c.0.3mm to 3.5mm and there is some slight rounding of the corners of the fragments. A single well-rounded spherical quartz grain was present, 0.5mm across, together with sparse subangular quartz up to 0.5mm and sparse dark brown clay/iron oolitic concretions up to 1.0mm across. The groundmass consists of abundant angular quartz, ranging from les than 0.1mm to c.0.3mm and moderate muscovite laths up to 0.2mm long.

By contrast with Nos. 5 and 75, the large rock inclusions are of more than one lithology and show some signs of weathering. They are therefore possibly from a coarse sand or gravel containing mainly basic and acid igneous rock fragments as opposed to the deliberately crushed/shattered grains found in Nos. 5 and 75. The groundmass, however, is very similar to those two samples.

Handmade Romano-British ware

The most common Romano-British 'native' ware contains only sparse rock fragments in a groundmass containing abundant quartz silt/fine sand. Six examples were thin-sectioned, Nos.3, 7, 8, 11, 12 and 64, and these show a range of characteristics, summarised below.

These thin sections have several distinct coarse inclusion suites: quartz derived from coarse-grained sandstone (Nos. 3, 7 and 11); quartz and feldspar derived from a coarse-grained arkose (No. 12); rocks and minerals derived from a biotite granite (No.8) and a mixed sand composed of rounded quartz of Permo-Triassic origin, mudstone of probable Coal Measures origin and limestone and marl of Permian origin (No.64). None of the inclusions appear to have been artificially prepared by crushing or cracking and probably either come from coarse sands or gravels or were natural inclusions in boulder clay. The groundmasses of these six fabrics vary in texture from almost silt-free clay to coarse silt/fine sandy clays. All, however, share a fine-textured, laminated clay matrix with dark brown clay/iron pellets. This fine textured groundmass is typical of clays derived from weathered Coal Measures mudstones. All could have been made from boulder clays or glacial lake clays in the Piercebridge area, but the differences in groundmass texture and coarse inclusion petrology suggest that the raw materials were collected from different clay exposures. Whether, these exposures were in a single area, utilised by a single group of potters, or separated by miles or tens of miles, is unknowable without a detailed survey of the sands and gravels of the Piercebridge area.

Coarse Overgrown Quartz Grains, Feldspar and Coarse-grained Sandstone

No.3. Abundant coarse angular (overgrown) quartz grains c.1.0-1.5mm across, probably derived from Millstone Grit or similar sandstone. Also rounded dark brown clay/iron pellets up to 1.0mm across and organic inclusions rounded, up to 0.5mm across. The groundmass consists of dark brown burnt clay minerals, dark brown amorphous inclusions, angular quartz up to 0.05mm across and muscovite up to 0.2mm long.

No. 7. Moderate coarse angular quartz grains as in No.3. Also rounded dark brown oolitic clay/iron concretions up to 1.5mm across. The groundmass consists of dark brown burnt clay minerals and abundant subangular quartz ranging from less than 0.05mm across to 0.4mm across and moderate muscovite laths up to 0.2mm long.

No.11. Abundant coarse angular (overgrown) quartz grains ranging from c.0.3mm to 1.5mm across. Also present were rounded dark brown clay/iron pellets, some oolitic, up to 1.0mm across. The groundmass consists of dark brown laminated burnt clay minerals, sparse angular quartz up to 0.1mm across.

No. 12. Moderate subangular fragments of overgrown quartz and altered feldspar up to 2.0mm across and a single rounded fragment of sandstone composed of overgrown quartz and one altered feldspar grain 3.0mm across. The groundmass consists of laminated dark brown clay minerals and abundant angular quartz ranging from c.0.05mm to 0.3mm across and sparse rounded dark brown clay pellets up to 0.2mm across.

Angular Biotite Granite

No.8. Abundant subangular fragments of biotite granite ranging from c.0.5mm to 3.0mm across. The fragments have irregular outlines but the sharp corners of the grains show some rounding. The groundmass consists of laminated opaque black burnt clay minerals with abundant angular quartz grains ranging from c.0.1mm to 0.3mm across. The outer margin is oxidized and rounded dark brown clay/iron pellets up to 0.2mm across are visible.

Quartz Sand

No.64. Abundant rounded quartz grains up to 0.5mm across. Also present were sparse angular quartz grains up to 1.5mm across, sparse rounded limestone up to 3.0 mm across, sparse marl up to 1.0mm across, sparse rounded light-coloured mudstone up to 1.5mm long and a single rounded fragment of slag, 4.0mm across. The groundmass consists of dark brown burnt clay minerals and dark brown rounded clay/iron grains up to 0.2mm across.

Calcite-tempered ware

Eleven examples of calcite-tempered ware were found (including catalogue numbers 70 and 77). Such vessels were produced along the southern edge of the Vale of Pickering, utilising veins of calcite which occur within the chalk of the Yorkshire Wolds, immediately to the south. Thin-section analysis has shown that these vessels were produced using the Speeton Clay, which only outcrops within the Vale, thus excluding any other possible sources within the area of the chalk outcrop, or around its fringes.

Harrold Shelly ware (1998, 115)

A single example of a south-east midlands shell-tempered ware was found (No.143). This type can be distinguished from Lincolnshire Dales ware both by its much higher shell content and by the presence of echinoid shell fragments and punctate brachiopod shells.

Early to Mid Anglian wares

Samples of 20 vessels of early to mid Anglian date were sampled for thin section and ICPS analysis. The vessels are all of types which either have a form or decoration which distinguishes them from the Roman native wares. On the basis of their inclusions over 0.3mm across, they can be divided into five fabric groups but these could be subdivided on the basis of their groundmass characteristics which, as with the Roman "Native" wares, vary between almost no silt/fine sand inclusions and abundant angular quartz. Two of these fabric groups do not occur within the sampled Roman sherds (Limestone and Fine-grained sandstone). The remainder are fabrics which occur within the Roman "Native" ware samples and there is no obvious petrographic difference between the Roman and Anglian wares.

Coarse overgrown quartz grains, feldspar and coarse-grained sandstone

Nos. 22, 34, 37, 39, 40, 41, 55, 60, 61 and 135. All of these thin sections contain moderate to abundant coarse overgrown quartz grains up to 1.0mm across and altered feldspar grains of similar size (between c.10% and c.20% of the grains are feldspars). Rounded dark brown clay/iron pellets, some oolitic, are present in most sections. The groundmass varies from having very little and abundant angular quartz silt/fine sand. Moderate rounded dark brown clay pellets less than 0.2mm across occur in most thin sections.

Angular biotite granite

Nos. 21, 27, 45, 48, 118, 138 and 142. All of these thin sections contain fragments of biotite granite up to 1.5mm across in a groundmass varying in texture from being virtually silt-free to having abundant angular quartz silt/fine sand.

Quartz sand

Nos. 32, 42 and 83. These three sections contain sparse coarse quartz and feldspar grains up to 1.0mm across, sparse rounded quartz grains ranging between c.0.2mm and 0.5mm across, and sparse dark brown clay/iron pellets, some oolitic, up to 1.5mm across in a groundmass containing abundant angular and subangular quartz. One of the sections contains definite voids from burnt-out organic inclusions.

This is probably a sparsely-tempered version of Fabric 1.

Limestone

Nos. 23 and 26. These two samples contain moderate angular fragments of limestone and sparse angular fragments of fine-grained sandstone, both ranging from c.0.3mm to 1.5mm across. The groundmass consists of optically anisotropic light brown baked clay minerals and abundant well-sorted quartz grains and sparse muscovite laths ranging from c.0.05mm to 0.15mm long.

The limestone is a grey biomicrite containing rounded quartz grains, rounded fragments of nacreous bivalve shell, coral, echinoid spines and punctate brachiopods. Dark brown clay/iron compounds occur as the filling of some fossils and as a replacement of the micrite groundmass. Several of the quartz grains are well-rounded but lack the high sphericity of Permo-Triassic grains and are closer in appearance to those found in lower Cretaceous deposits.

The sandstone consists of well-sorted overgrown quartz grains c.0.1-c.0.3mm across with both kaolinite and brown clay infilling of pores.

A single angular fragment of acid igneous rock (altered feldspar and sparse quartz) 1.0mm across was also present.

The closest source of limestone would be the Permian Magnesian Limestone which outcrops extensively in County Durham. However, chemical analysis indicates a low magnesium to calcium ratio in these two samples. Chemical analysis also indicates a higher chromium content than that found in the other samples which indicates a different source for the clay as well as the limestone. Both of these features are, however, matched by samples of limestone-tempered Anglian vessels from West Heslerton where the limestone inclusions were thought to be from the Upper Jurassic Corallian limestone which outcrops around the north and southwest fringes of the Vale of Pickering.

Fine-grained sandstone

No.33. This sample contains a mixture of coarse inclusions: moderate fine-grained sandstone containing well-sorted overgrown quartz grains up to 1.0mm across; moderate well-rounded spherical quartz grains up to 1.0mm across; moderate subangular chert up to 1.0mm across; sparse subangular opaque grains up to 1.0mm across; sparse coarse-grained sandstone up to 1.5mm across; and sparse basic igneous rock up to 1.0mm across. The groundmass consists of opaque black burnt clay minerals and abundant angular quartz ranging from c.0.05mm to c.0.3mm across and sparse muscovite up to 0.1mm long.

The coarser inclusions in this sample come from a variety of sources but most are consistent with a local fluvio-glacial sand or gravel derived from Carboniferous and Permian rocks and erratic biotite granite, probably from the Lake District or southwest Scotland (Ixer in Vince forthcoming). The fine-grained sandstone might be of Carboniferous origin but is similar to Jurassic sandstones. Similar sandstones were noted at x20 magnification in Nos. 7, 8, 12 and 79 as well as in the limestone-tempered samples, where a Jurassic origin is quite likely.

Discussion

Thin section analysis indicates that the groundmass of most of the Roman and Anglian pot samples analysed has similar characteristics and that the immediate source is likely to have been boulder clay or glacial/post-glacial lake deposits, to which a series of distinct sands were added. The significance of these different tempers is not known but most contain inclusion types which one would expect to find in Quaternary deposits in the Piercebridge area, given the Carboniferous and Permian strata over which the ice and south and east-wards draining rivers would have flowed.

Two Anglian vessels (Nos. 23 and 26) with limestone temper appear to have been brought to Piercebridge, since the limestone is probably the Upper Jurassic Corallian rag whose nearest outcrop to Piercebridge is the northern tip of the Hambleton Hills, about 20 miles away and since the limestone shows no sign of weathering.

One Roman vessel (No.13 [Nick to determine whether this identification of the thin section is good enough to use]) contains quartz sand which is more similar to Triassic than Permian sands and this too may have been brought to the site from the southeast.

With these exceptions, and the prehistoric to Roman use of crushed/fire cracked basic igneous rock as temper, there is no obvious difference in the petrological characteristics of the Roman and Anglian sherds.

Chemical analysis of these samples indicates that the Roman and Anglian sherds have similar characteristics, if calcium and strontium and mobile elements such as phosphorous and the rare earth elements are omitted. Fig. D9.74 shows the results of factor analysis on this restricted dataset. The samples in which fine-grained white sandstone were observed at x20 magnification are shown as triangles.

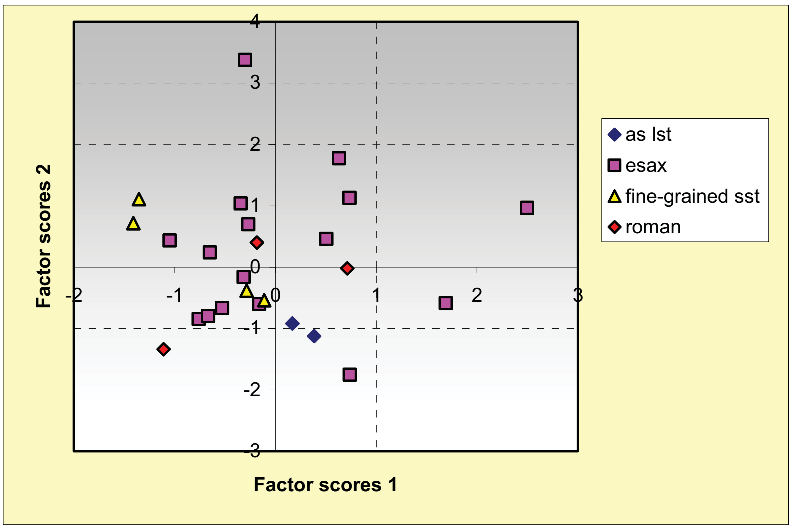

Figure D9.74. Results of factor analysis

Fig D9.75 shows the same data coded by inclusion type and Fig D9.76 shows a plot of the two remaining factors, which indicates that the samples with granitic inclusions have higher F4 scores and lower F3 scores than the remainder, and that the samples with limestone inclusions have high F3 scores. Examination of the data indicates that this is due mainly to the higher sodium content and lower chromium content of the granitic samples. Omitting these two elements removes any sign of a difference between the sherds with sandstone and limestone inclusions but the two samples with limestone inclusions show a difference which is due mainly to their lower lithium content.

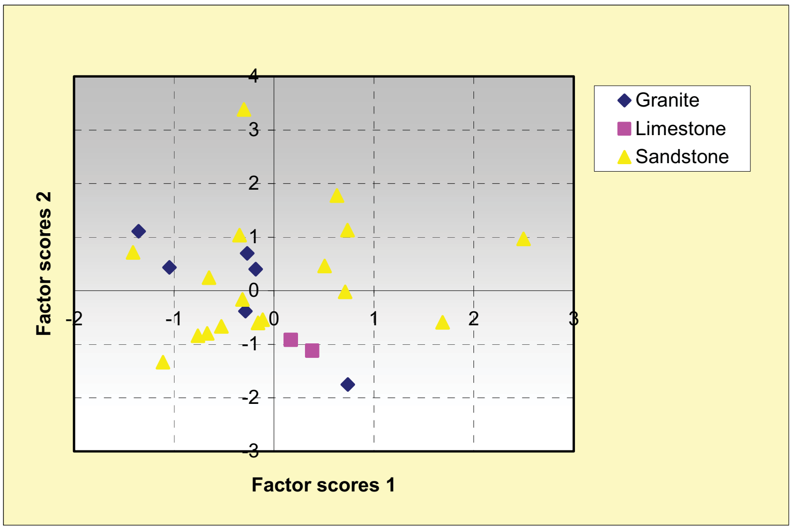

Figure D9.75. Results of factor analysis

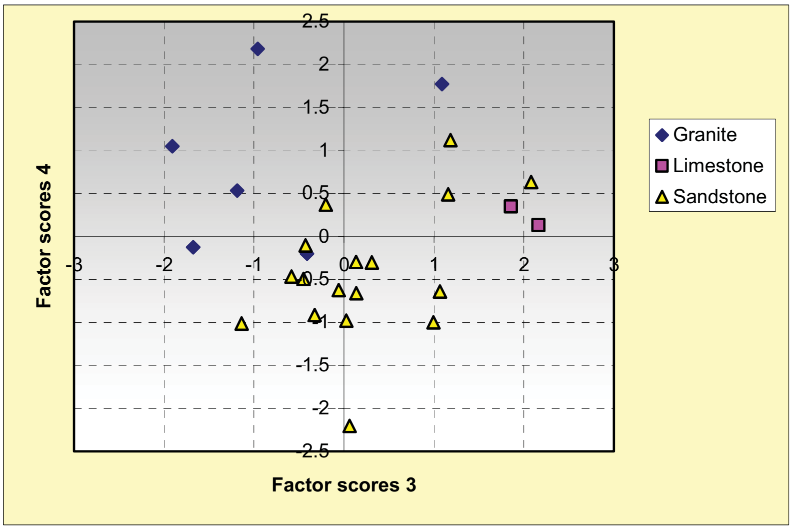

Figure D9.76. Results of factor analysis

Appendix 1

TSNO	Sitecode	Context	Catalogue No	cname	Form	Action	Description	subfabric
V1453	HH69	3A,W13	79	CHARN		ts;icps	VILLA;	Fabric 6, ABUNDANT SA Q >0.3MM;ROUNDED WHITE FINEGRAINED SST;M MEDIUM-GRAINED BIOTITE GRANITE (GRAINS C.1.0MM).
V1454	HH69	1,V10	3	SSTMG	JAR	ts;icps	FLAT BASE;From towards N End of subrectangular ditched enclosure; TS26	Fabric 1, SSTMG
V1455	HS78	SN,10.8	33	SSTMG		ts	OUTER DITCH;	Fabric 1, RQ;FLINT;ROUNDED FE
V1456	HH69	3B,V13	78	SSTMG		ts;icps	VILLA;	Fabric 7,
V1457	HH70	NEQ M10,CS	8	CHARN		ts;icps;TS(LU)	Roman ROUNDHOUSE;SF 188	Fabric 2A, ABUNDANT FINE-GRAINED Q
V1458	HH70	BW,SWQ	83	ECHAF		ts;icps	Roman ROUNDHOUSE;	Fabric 8,
V1459	HH70	L10,CS	7	SSTMG		ts;icps	Roman ROUNDHOUSE;	Fabric 6, FINEGRAINED WHITE SST
V1460	HH70	2,X14	11	SSTMG		ts;icps;TS(LU)	VILLA; TS27;NC11	Fabric 2, MUSC
V1461	HH70	2,X14	12	SSTMG	JAR	ts;icps	VILLA; FLAT BASE	Fabric 2, RQ >2.0MM;FELDSPAR;FINEGRAINED WHITE SST
V1462	HS76	AH,14.12	17	CHARN		ts	THE TEMPLE;	Fabric 2A,
V1463	HS76	(12) 5B,AR	37	SSTMG		ts;icps	INNER DITCH;	Fabric 1,
V1464	HS76	,AS	39	SSTMG		ts;icps	INNER DITCH;	Fabric 1,
V1465	HS76	(11) 4B,AS	40	SSTMG	GLOBULAR JAR	ts;icps	INNER DITCH; TS24	Fabric 3,
V1466	HS76	(11)	41	SSTMG1		ts;icps	INNER DITCH;	Fabric 1,

TSNO	Sitecode	Context	Catalogue No	cname	Form	Action	Description	subfabric
V1467	HS76	4B,AS (15) 1B,AT	42	SSTMG		ts;icps	INNER DITCH;	Fabric 4, HAEMATITE-C0ATED/CEMENTED QUARTZ GRAINS
V1468	HS76	(11) 5B,AS	114	SSTMG1		ts;icps	INNER DITCH;	Fabric 2,
V1469	HS78	KG2,21.8	45	CHARN	JAR	Ts	INNER DITCH;	Fabric 2, BIOTITE GRANITE;RQ (MATT SURFACED)
V1470	HS77	DE4,7.7	21	CHARN		ts;icps	SECONDARY DITCH;	Fabric 2,
V1471	HS77	DE4,4.7	22	SSTMG		ts;icps	SECONDARY DITCH;	Fabric 1, CHAFF
V1472	HS77	DE3,11.7	23	LIMES	JAR	ts;icps	SECONDARY DITCH;	Fabric 8, ROUNDED MICRITE;FINEGRAINED WHITE SST;SA Q >0.3MM
V1473	HS77	DQ,	48	CHARN	CARINATED JAR	ts;icps	INNER DITCH;	Fabric 2,
V1474	HS78	9.12,LE	32	MISC		ts	SECONDARY DITCH;	Fabric 6, A SA Q >0.3;S RQ >1.0MM;MUSC >1.0
V1475	HS77	JL,	55	SSTMG		ts;icps	MAIN DITCH;	Fabric 1, MUSC;BASIC;ROUNDED FE
V1476	HS77	BG,1.3	128	SSTMG1		ts;icps	EAST OF FORT DEFENCES;	Fabric 3,
V1477	HS77	JL,14.10	135	SSTMG1	GLOBULAR JAR	ts;icps	INNER DITCH;	Fabric 1,
V1478	HS78	KK2,26.4	26	LIMES	JAR	ts;icps	SECONDARY DITCH;	Fabric 8, SA Q >0.3MM;ROUNDED MICRITE
V1479	HS78	,AREA 505	34	SSTMG	BICONICAL JAR	ts;icps	SECONDARY DITCH;	Fabric 4, FELDSPAR
V1480	HS78	ZZ,14.7	60	SSTMG	JAR	ts;icps	UNSTRAT;	Fabric 4, FELDSPAR
V1481	HS78	KG,21.8	118	CHARN		ts;icps	INNER DITCH;	Fabric 2,
V1482	HS78	QM2,15.5	138	CHARN		ts;icps	EAST OF FORT DEFENCES;	Fabric 2,

TSNO	Sitecode	Context	Catalogue No	cname	Form	Action	Description	subfabric
V1483	HS80	WG 2,14.2	61	SSTMG		ts;icps	INNER DITCH;	Fabric 4, BIOTITE;SPARSE RQ (MATT SURFACED)
V1484	HS81	,AKG	142	CHARN	JAR	ts;icps	EAST OF FORT DEFENCES;	Fabric 2, ABUNDANT SA Q >0.3MM

Appendix 2

Catalogue No	Sitecode	Context	cname	Action	trench	Description	subfabric
64	HS81	,AGY	MISC	TS(LU)	FORT	Roman FLOOR;	Fabric 7, ANGULAR WHITE SST;SPARSE RQ
75	HH69	3A,T10	ERRA	TS(LU)	VILLA	CENTRE OF ENCLOSURE BETWEEN VILLA AND ROUNDHOUSE; TS24	Fabric 5, ABUNDANT ANGULAR BASIC IGNEOUS ROCK >4.0MM;SPARSE RQ >1.0MM (MATT SURFACED)
13	HH80	,VILLA WELL	ERRA	TS(LU)	VILLA	VILLA WELL; TS17	Fabric 6, BASIC;ACID IGNEOUS;SSTMG
5	HH70	,L10	ERRA	TS(LU)	VILLA	VILLA; TS19	Fabric 9, SA IRON-RICH NODULES >4.0MM;A SA Q;S MUSC
11	HH70	2,X14	SSTMG	ts;icps;TS(LU)	VILLA	VILLA; TS27;NC11	Fabric 2, MUSC
8	HH70	NEQ M10,CS	CHARN	ts;icps;TS(LU)	VILLA	Roman ROUNDHOUSE;SF 188	Fabric 2A, ABUNDANT FINE-GRAINED Q
27	HS78	KK2,21.6	SSTMG	TS(LU)	SECONDARY DITCH	OUTER DITCH; TS BY A WOODS STUDENTS	Fabric 4,
14	HH80	VWB,VILLA WELL	MISC	TS(LU)	VILLA	VILLA WELL; TS23;NC14	Fabric 7, FINE-GRAINED WHITE SST;SA AND RQ >0.5MM

Appendix 3

TSNO	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO
V1453	14.99	3.39	0.78	1.33	0.53	1.36	0.53	0.46	0.04
V1454	13.25	4.65	0.99	1.55	0.39	1.66	0.51	0.62	0.12
V1455	14.53	3.82	0.99	1.31	0.6	1.8	0.52	1.08	0.04
V1456	17.71	3.62	1.16	1.51	0.2	1.22	0.48	0.28	0.01
V1457	20.26	4.93	1.18	1.23	1.23	2.95	0.7	0.44	0.08
V1458	16.83	4.12	1.32	0.99	0.57	1.96	0.69	0.29	0.03
V1459	14.86	4.29	1.03	0.96	0.45	2.07	0.59	0.77	0.02
V1460	14.38	2.9	0.78	1.06	0.2	1.35	0.67	0.52	0.03
V1461	17.07	3.44	1	1.77	0.41	1.02	0.63	1.14	0.06
V1462	16.18	4.7	1.34	1.4	1	1.66	0.53	1	0.25
V1463	14.41	2.85	0.83	1.13	0.34	1.27	0.68	1.12	0.03
V1464	14.53	4.7	1.26	0.87	0.61	1.66	0.54	0.61	0.01
V1465	15.52	3.4	0.92	1.48	0.51	1.9	0.53	1.35	0.06
V1466	11.92	4.11	3	1.24	0.47	2.6	0.47	0.82	0.05
V1467	15.43	3.44	1.21	1.92	0.36	1.37	0.51	2.19	0.03
V1468	11.81	4.12	3.21	1.14	0.56	2.98	0.43	0.71	0.05
V1469	13.72	3.51	1.33	1.45	0.9	1.97	0.47	0.83	0.04
V1470	18.67	9.88	2.31	2.07	0.74	2.16	0.6	1.04	0.17
V1471	17.3	5.17	1.45	1.25	0.34	1.85	0.61	1.2	0.07
V1472	12.63	5.97	1.11	5.55	0.53	2.02	0.57	0.92	0.04

TSNO	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO
V1473	12.24	7.28	1.47	1.51	1.19	2.43	0.46	0.64	0.06
V1474	16.87	6.15	1.06	1.45	0.33	1.68	0.58	1.21	0.41
V1475	12.62	7.28	0.8	1.68	0.46	1.45	0.48	1.86	0.04
V1476	11.64	4.16	3.13	1.24	0.54	2.87	0.42	1.06	0.05
V1477	14.01	5.64	2.3	1.22	0.49	2.6	0.53	1.35	0.05
V1478	13.3	6.31	1.14	4.21	0.53	3.24	0.59	0.72	0.07
V1479	17.18	9.95	2.23	1.23	0.22	2.26	0.55	0.81	0.1
V1480	14.3	7.46	1.59	1.31	0.29	2.46	0.51	1.31	0.11
V1481	15.35	7.74	1.94	1.53	0.86	2.52	0.6	0.94	0.18
V1482	17.58	4.84	1.17	1.54	0.43	2.61	0.75	1.89	0.02
V1483	16.05	8.75	1.83	1.47	0.6	2.49	0.6	0.49	0.09
V1484	16.12	4.24	0.91	1.67	0.86	1.43	0.6	1.14	0.25

Appendix 4

TSNO	Ba	Cr	Cu	Li	Ni	Sc	Sr	V	Y	Zr*	La	Ce	Nd	Sm	Eu	Dy	Yb	Pb	Zn	Co
V1453	916	81	25	157	46	18	93	64	48	25	51	111	56	15.8	2.8	8.8	3	47	174	9
V1454	937	76	60	49	50	10	108	58	16	20	36	83	37	6.3	1.1	3.2	1.1	108	122	15
V1455	652	84	32	70	26	13	139	71	17	23	37	82	38	7	1.2	3.5	1.2	48	134	9
V1456	1309	101	29	167	53	19	78	78	47	30	50	122	55	16.5	3.1	8.9	3	42	513	7
V1457	1212	100	52	157	52	17	239	86	35	25	55	122	58	13.1	2.4	6.8	2.3	70	187	15
V1458	734	98	22	80	38	14	106	82	18	50	44	100	45	7.4	1.2	3.7	1.8	39	83	10
V1459	910	87	22	57	53	13	120	78	22	25	44	96	45	8.8	1.5	4.2	1.5	52	87	13
V1460	636	89	16	57	30	13	73	97	19	31	40	89	41	7.4	1.5	3.8	1.4	42	84	9
V1461	1004	94	28	176	53	18	114	70	40	34	56	127	60	15.3	3	7.8	2.5	34	149	9
V1462	1480	87	33	84	56	16	147	84	41	36	57	153	61	14.3	2.6	7.7	2.7	44	175	22
V1463	809	88	31	52	37	14	94	101	31	41	51	114	53	10.5	2	5.4	2.1	33	117	11
V1464	600	83	25	77	35	13	88	88	18	26	35	86	37	7.8	1.3	3.9	1.5	33	98	8
V1465	1173	81	25	75	33	12	152	73	18	25	40	94	41	7.6	1.2	3.7	1.3	51	86	9
V1466	1004	68	23	42	38	10	139	61	18	29	32	70	33	5.8	0.9	3.3	1.4	66	83	13
V1467	1127	87	34	78	48	17	256	77	36	36	46	125	49	12.1	2.2	6.5	2.4	42	172	12
V1468	1065	63	44	49	41	10	128	59	18	27	32	69	33	5.3	0.9	3.4	1.3	28	102	12
V1469	611	70	27	155	48	15	180	65	50	28	47	99	51	11.6	2.3	7.3	2.8	39	139	8
V1470	1186	109	48	93	72	21	185	164	50	46	51	124	56	13.7	2.1	8.3	4	26	178	18
V1471	918	102	26	112	49	17	138	95	29	42	47	111	49	10.5	1.7	5.5	2.3	36	165	14
V1472	696	90	53	39	33	13	181	103	20	36	34	79	35	6.6	1	3.6	1.6	30	96	11
V1473	963	55	18	47	28	9	131	80	21	30	28	69	30	6.3	0.8	3.4	1.7	28	88	10
V1474	1322	96	27	136	61	16	120	81	32	27	45	124	49	11.6	2.1	7.3	2.1	67	234	24
V1475	1376	67	39	103	45	11	180	55	24	25	39	82	40	7.7	1.2	3.9	1.6	40	166	8

TSNO	Ba	Cr	Cu	Li	Ni	Sc	Sr	V	Y	Zr*	La	Ce	Nd	Sm	Eu	Dy	Yb	Pb	Zn	Co
V1476	1133	64	34	41	40	10	134	59	18	27	31	69	32	5.7	0.9	3.3	1.4	26	119	11
V1477	1533	80	107	79	40	12	148	81	19	26	35	81	36	6.4	1	3.3	1.5	32	189	13
V1478	622	94	43	43	38	13	137	100	21	34	36	86	37	7.7	1.1	3.7	1.6	33	115	12
V1479	1627	111	45	91	72	19	128	162	44	47	50	104	54	12.3	2	7.4	3.6	43	221	15
V1480	1105	87	42	73	47	14	161	115	30	39	42	90	45	9.6	1.4	5.4	2.5	35	146	12
V1481	701	85	33	80	53	16	136	124	34	41	39	106	42	10.1	1.6	6.2	2.8	40	166	18
V1482	997	106	20	85	25	14	203	97	13	32	43	99	43	5.2	0.9	2.5	1.3	39	84	6
V1483	891	97	32	99	52	17	177	139	38	30	45	97	48	11.5	1.8	6.5	2.9	35	125	14
V1484	1119	80	34	234	60	17	167	68	40	24	51	138	55	15.1	2.8	7.7	2.5	54	117	12