Petrological Analysis of selected medieval pottery from Alton, Hampshire

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Following a study of the medieval pottery from 18-20 High Street, Alton, carried out by Paul Blinkhorn, six samples were selected for petrological analysis (Table 1). The aims of this analysis were two-fold: firstly, to provide an accurate description of the petrological characteristics of the fabric (albeit based on a single example in each case) and, secondly, to use this information to investigate the possible source(s) of the fabrics.

Table 1

TSNO	Context	REFNO	Description	Cname	Form	Subfabric	Part	Use
V1685	192	130	PLAIN EXT SPLASH GLAZE;GROOVED DEC	LMLOC	JAR/JUG	FABRIC 31/AL 29	BS	
V1686	268	104	HANDMADE;CYLINDRICAL BODY;FLAT TOPPED RIM	MEDLOC	JAR	FABRIC 11/AL 19	R	
V1687	280	206	WHEELTHROWN;WHITE SLIPPED EXT WITH ROUGH WHEEL-APPLIED SCGRAFFITO LINES	MEDLOC	JUG	FABRIC 13/CP 22	BS	
V1688	188	129	WHEELTHROWN?;KT EXT;DARKENED EXT SURF (CF TUDB)	LMLOC	JUG/JAR	FABRIC 30/AL 27	BS	
V1689	278	206	WHEELTHROWN?;EVERTED RIM;OXID EXT MARGINS	MEDLOC	JAR	FABRIC 12/AL 20	R	
V1690	284	2	HANDMADE?;REDUCED GREEN GLAZE INT;TRACES OF HANDLE;COMBING AROUND BASE ANGLE	MEDLOC	HANDLED JAR	FABRIC 10/AL 10	B	SOOTED EXT

Petrological Description

FABRIC 31/AL 29

The following inclusions were noted in thin section V1685:

- Abundant rounded opaque grains up to 0.2mm across.
- Moderate laths of muscovite (white mica) up to 0.3mm long.
- Moderate rounded quartz grains up to 0.3mm across.
- Sparse rounded iron-rich clay pellets up to 1.0mm across

These inclusions were set in a groundmass containing isotropic baked clay minerals and abundant angular quartz silt.

FABRIC 11/AL 19

The following inclusions were noted in thin section V1686:

- Abundant rounded opaque grains up to 0.2mm across.
- Moderate laths of muscovite (white mica) up to 0.3mm long.
- Moderate rounded quartz grains up to 0.3mm across.
- Sparse angular flint fragments up to 2.0mm across.
- Sparse rounded chalk fragments up to 3.0mm across.
- Sparse opaque grains up to 2.0mm across.
- Sparse subangular brown-stained flint fragments up to 2.0mm across.

These inclusions were set in a groundmass containing isotropic baked clay minerals and abundant angular quartz silt.

FABRIC 13/CP 22

The following inclusions were noted in thin section V1687:

- Moderate rounded quartz grains up to 0.3mm across.
- Sparse rounded opaque grains up to 0.2mm across.
- Sparse angular flint fragments up to 1.0mm across.
- Sparse rounded brown-stained flint fragments up to 1.0mm across.
- Sparse rounded iron-rich clay pellets up to 1.5mm across. One of these contains a single muscovite lath, but in general these are inclusionless

These inclusions were set in a groundmass containing anisotropic baked clay minerals with no visible inclusions less than 0.1mm across.

FABRIC 30/AL 27

The following inclusions were noted in thin section V1688:

- Abundant rounded opaque grains up to 0.2mm across.
- Moderate laths of muscovite (white mica) mainly up to 0.3mm long but with some up to 1.0mm long.

- Moderate subangular quartz grains up to 0.3mm across.
- Moderate rounded glauconite grains up to 0.2mm across.
- Sparse rounded organic inclusions up to 0.5mm across. These may have been rootlets.

These inclusions were set in a groundmass containing isotropic baked clay minerals (except for the inner margin, which is still anisotropic) and abundant angular quartz silt.

FABRIC 12/AL 20

The following inclusions were noted in thin section V1689:

- Abundant rounded quartz grains up to 0.3mm across. These grains are noticeably more rounded than those in other sections and some are clearly well-rounded grains which have subsequently cracked.
- Sparse rounded chert grains up to 0.3mm across.

These inclusions were set in a groundmass containing isotropic baked clay minerals and sparse angular quartz silt up to 0.1mm across and sparse muscovite laths up to 0.1mm long.

FABRIC 10/AL 10

The following inclusions were noted in thin section V1690:

- Abundant rounded opaque grains up to 0.2mm across.
- Moderate laths of muscovite (white mica) up to 0.3mm long. There is a single lath noted which is 1.0mm long.
- Moderate rounded quartz grains up to 0.3mm across. Some of these grains have brown-stained veins.

These inclusions were set in a groundmass containing isotropic baked clay minerals (except for the inner margin which is still anisotropic) and abundant angular quartz silt.

Discussion

There is very little difference in the petrological characteristics seen in Fabric 31/AL 29 and this in Fabric 10/AL 10. In both cases the outlines of the quartz grains suggest that at least some of the rounded quartz originated in lower Cretaceous deposits, which are widespread throughout the southeast of England. The presence of brown-stained veins in Fabric 10/AL 10 probably indicates that the parent body had an iron-rich cement and similar sands are

common throughout the Surrey/Hampshire border. Unless this distinction between iron-stained and non-iron-stained quartz grains can be confirmed through visual examination of more samples the two fabrics ought to be amalgamated.

The coarse sand temper found in the sample of Fabric 11/AL 19 indicates a mixed gravel draining upper Cretaceous and Tertiary deposits. In composition this gravel is similar to those derived from the Plateau gravels found in coarsewares in the Southampton area but similar gravels probably occur closer to Alton and the Gault clay outcrop, thought to be the origin of the parent clay (see below).

The abundant fine grained rounded opaque inclusions seen in Fabrics 31/AL 29, 11/AL 19, 30/AL 27 and 10/AL 10, were certainly present in the parent clay, despite being strictly speaking of fine sand grade rather than silt. Although they may well have originated as glauconite grains (and the presence of glauconite grains of similar size and character in Fabric 30/AL 27 seems to support this) it is likely that the replacement by an opaque material, presumably an iron oxide, took place in the geological past rather than as a result of firing (heat-altered glauconite turns brown, from green, but is still translucent). Such micaceous, silty, glauconitic clays occur in the lower Cretaceous strata of southern England, such as the Gault Clay. The similarity of the four samples suggests that they were all produced from the same strata.

The two remaining sections, from Fabrics 13/CP 22 and 12/AL 20, are rather different. The former is produced from a clay with a low iron content and few inclusions to which a quartzose sand, with minor flint inclusions, has been added as temper. Such wares were produced at numerous centres exploiting light-firing beds in the Reading and Bagshot Beds (Chatwin 1960). The presence of rounded brown flint grains confirms that the sand temper includes Tertiary material but otherwise the fabric is not diagnostic in thin-section. It is comparable in its petrological characteristics, for example, with the products of the Laverstock and Salisbury industries in southeast Wiltshire whilst the absence of quartz grains from the lower Cretaceous distinguishes it from Surrey whitewares (Pearce & Vince 1988).

The latter fabric (12/AL 20) was tempered with a sand which includes a high proportion of grains of Permo-Triassic origin. However, such sands have a much wider distribution than that of the parent strata, reaching at least as far south as Berkshire. The low quantity of silt in the clay matrix also distinguishes this fabric from the presumably more local products.

Bibliography

Chatwin, C P (1960) *The Hampshire Basin and Adjoining Areas*. British Regional Geology London, HMSO.

Pearce, J E and Vince, A G (1988) *A Dated Type-series of London Medieval Pottery: Part 4, Surrey Whitewares*. London Middlesex Archaeol Soc Spec Pap 10 London, London Middlesex Archaeol Soc.