

## Characterisation of Early Anglo-Saxon Wheelthrown Pottery from Star Hill, Bridge, Kent (BR.05)

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Excavations at Star Hill, Bridge, Kent, uncovered an inhumation cemetery of early Anglo-Saxon date. Two of the graves were accompanied by wheelthrown vessels of the type found in several graves in Kent, and less frequently elsewhere (Evison 1979). From a study of their general appearance, typology and decoration, Evison concluded that the majority of these vessels, termed by her Group I (and given by the author the unwieldy code of ESAXIMP EVI), were the products of a single centre located in the Pas de Calais. A small number of the vessels studied by Evison, however, probably come from other sources, probably the same as those supplying Mid Saxon sites such as Southampton (Hodges 1981), London (Cowie et al. 1988), Ipswich (Coutts 1992) and York (Mainman 1993).

The two Star Hill vessels were assessed initially by Lyn Blackmore, who suggested that one was definitely a continental product but pointed out for the other that clays producing similar fabrics could be obtained in the southeast of England. To test these suggestions, samples of both vessels were taken for thin section and chemical analysis.

### Thin Section Analysis

#### **Grave 1 SF145 (Sample 1, V5095)**

A wheelthrown, oxidized fabric. At x20 magnification abundant quartzose sand is visible in which the quartz grains, some of which are water-polished, are coated with a dull, red material, probably haematite.



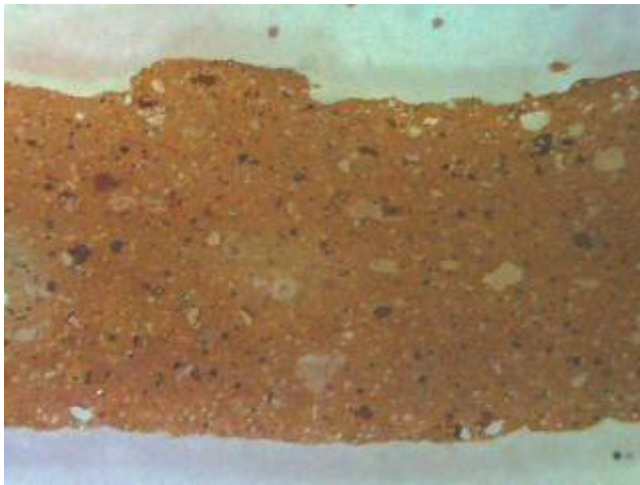
*Figure 1*

In thin section, the following inclusion types were noted:

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- Quartz. Moderate subangular fragments up to 0.2mm across, many of which have a dark red or opaque coating and some of which have red veins.
- Opaques. Moderate subangular fragments up to 0.2mm across.
- Sandstone. Rare subangular fragments up to 0.5mm across with angular quartz grains up to 0.2mm across in an opaque matrix.
- Mudstone. Sparse rounded dark red pellets up to 0.5mm long.

The groundmass consists of optically anisotropic baked clay minerals, moderate angular quartz and muscovite laths up to 0.1mm long.



*Figure 2*

#### **Grave 11 SF144 (Sample 2, V5096)**

A wheelthrown reduced fabric with a thin oxidized margin below the external, dark grey, surface which shows extensive spalling. At x20 magnification, the only inclusions larger than c.0.1mm across were angular red and dark brown fragments up to 2.0mm across. The groundmass, however, contains abundant muscovite laths as well as numerous burnt-out organic inclusions, represented by voids with a thin darkened halo.



*Figure 3*

In thin section, the following inclusions were noted:

- Opaques and iron ore. Moderate subangular and rounded fragments up to 1.0mm across ranging from a dark red colour in transmitted light to completely opaque.
- The groundmass consists of optically anisotropic light brown baked clay minerals, abundant angular quartz grains up to 0.1mm across, moderate muscovite laths up to 0.1mm long. Voids, probably once containing organic inclusions, up to 0.1mm long were also present.

### **Discussion and interpretation**

All of the inclusions seen in the section of SF145, from Grave 1, probably originated in a ferruginous sandstone or, possibly a partially iron-cemented sand. Locally, ferruginous sandstones occur in the Lower Cretaceous (1996, 61-75) whilst partially iron-cemented sands are recorded in the Tertiary Bracklesham and Barton Beds (1996, 105-6). In both cases polished quartz grains occur (in the Tertiary deposits they are probably reworked from Lower Cretaceous deposits. Exposure of those beds probably had occurred by the time the Bracklesham Beds were laid down).

The range of inclusions and texture of the fabric of the sample from Grave 11, SF144, can be matched in the London Clay, and in particular the higher beds (the Claygate Beds) which outcrop as outliers on the Isle of Sheppey (1965).

In both cases, therefore, thin section analysis indicates that a local origin is possible.

Three other thin sections of Evison Group I vessels are available to the author, from Bayfield (Norfolk), and Coddensham and Hadleigh (both Suffolk). The Bayfield sample contains polished quartz grains, but these are larger, and more rounded, than in the Star Hill vessel. However, both the Coddensham and Hadleigh sections have exactly the same range of inclusions as in the Star Hill section, and both have similar textures. Taken as a group, these

four thin sections indicate either a Lower Cretaceous or Tertiary origin for the sand found in Evison's Group I vessels and this is consistent with her identification of the Pas de Calais as a probable source although as noted above ceramic petrology alone cannot exclude a southeastern English source.

Twelve thin sections of comparable imported vessels of mid Saxon date are available (i.e. excluding those of La Londe whiteware or Rhenish origin). Four of these are clearly of different fabrics from the Star Hill vessel; three, all from the London Transport Museum site in Westminster, have a similar groundmass but contain a moderately coarse quartz sand temper whilst six, two from Flixborough and four from the London Transport Museum, are similar in groundmass to the Star Hill vessel, although some contain sparse subangular quartz sand, absent from the Star Hill sample. Of these comparable samples, three have an oxidized body with deliberately reduced or blackened surfaces (Hodges Hamwic Class 14); one has a sandwich firing (Hodges Hamwic Class 13) and the remaining two have dark brown cores, and were submitted as being possible Ipswich ware vessels. The Star Hill vessel therefore has petrological characteristics which can be paralleled with vessels thought to be of continental origin, including those for which a southeastern Belgian origin has been postulated.

### Chemical analysis

Samples of each vessel were prepared and submitted to Dr J N Walsh, Royal Holloway College, London, where they were analysed using Inductively-Coupled Plasma Spectroscopy. This technique measures the frequency of a range of major and minor elements (App 1 and App 2). To counter the dilution effect of varying quantities of silica, some of which may be deliberately added as temper, the data were normalised to aluminium.

The normalised data were examined using Factor Analysis, a multivariate statistical technique which seeks to replace the N submitted variables with a smaller number of factors, whilst recording the degree to which these new factors account for variability in the in the dataset. The Star Hill data were compared with ICP data from the early and mid Saxon imported wares described above (including some data from extra vessels which had not been thin-sectioned).

The results indicate that the Star Hill Grave 1 vessel is more similar in composition to the Coddendam and Hadleigh samples and to one from Castle Dykes, Barton upon Humber (Drinkall and Foreman 1998) than to that from Bayfield. Given that only five samples are present in total it is not possible to say for certain from this data that the Star Hill vessel is from the same source as these comparanda, but at least it does not show any large differences in chemical composition.

The Star Hill Grave 11 vessel has a similar composition to the Evison Group I samples, and to the Class 13 and 15 samples (although the latter show considerable variability) and can be

distinguished from the Group 14, black burnished, samples which have a higher sodium content.

As with the petrological data, the chemical analyses are consistent with the Star Hill vessels coming from the same sources as those of other imported early and mid Anglo-Saxon vessels but there is insufficient comparative data to show conclusively that the two vessels are definitely from the same sources.

## Bibliography

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### *Appendix 1*

<b>TSNO</b>	<b>Al2O3</b>	<b>Fe2O3</b>	<b>MgO</b>	<b>CaO</b>	<b>Na2O</b>	<b>K2O</b>	<b>TiO2</b>	<b>P2O5</b>	<b>MnO</b>
V5095	15.91	8.05	1.39	1.38	0.27	2.41	0.85	0.14	0.014
V5096	17.74	6.19	2.1	1.19	0.33	2.74	0.97	0.33	0.017

### *Appendix 2*

<b>TSNO</b>	<b>Ba</b>	<b>Cr</b>	<b>Cu</b>	<b>Li</b>	<b>Ni</b>	<b>Sc</b>	<b>Sr</b>	<b>V</b>	<b>Y</b>	<b>Zr*</b>	<b>La</b>	<b>Ce</b>	<b>Nd</b>	<b>Sm</b>	<b>Eu</b>	<b>Dy</b>	<b>Yb</b>	<b>Pb</b>	<b>Zn</b>	<b>Co</b>
V5095	367	150	46	47	55	19	84	176	28	117	43	76	45	9	2	5	3	18	100	18
V5096	427	141	40	45	60	21	136	181	50	97	48	100	53	15	4	9	5	18	106	25