

Characterisation Studies of pottery from Low Farm West, Transco West Hull Pipeline (OSA02 EX04)

Alan Vince

Five vessels from Low Farm West were selected for further analysis. They consisted of a mortaria base with unusual trituration grits which Barbara Precious thought might be from a South Yorkshire source (Sample V2164) and four handmade 'Native' wares (Samples V2161-3 and V2164). Thin sections and samples for chemical analysis were taken from each sample (Table 1).

Table 1

TSNO	Context	Ref No	Common Name	Code	Form	Code	Action	Petrological group
V2161	1054	D3	NAT		JBUP		TS;ICPS;DR	ERRA
V2162	1038		NAT		CLSD		TS;ICPS	ERRA
V2163	1025	D1	NAT		URN		TS;ICPS;DR	SSTMG
V2164	1030		MORT		M		TS;ICPS	TRIAS
V2165	1010		NAT		CLSD		TS;ICPS	BIOT

Native wares

Analysis of Bronze Age, Iron Age and Roman Native wares in northern England by members of the British Museum Department of Scientific Research has suggested that there was a tradition of tempering vessels with crushed rocks, including erratic rocks derived from local boulder clays (Freestone and Humphrey 1992; Freestone and Middleton 1991). If so, then any classification based on the petrology of the large inclusions in these wares will be misleading, since the potters would have not been aware of the petrological differences in their temper, which would not reflect either the source of the raw materials or the cultural traditions of the potters. Despite this, in the case of the Low Farm West samples the four samples in thin section could be divided into three distinct groups. These are tempered with biotite granite, Millstone Grit and mixed igneous rocks, including basic rocks. These are given the subfabric codes of BIOT, SSTMG and ERRA respectively.

BIOT (V2165)

The thin section reveals moderate angular inclusions of a biotite granite up to 1.5mm across. Some of these fragments are extremely angular. The most common inclusions, however, are a quartz sand in which the largest grains range up to 0.5mm across and are rounded whereas the smaller grains are angular and subangular. A few of the grains have a high sphericity, suggestive of the 'millet grain' quartz found in the Permian Yellow Sand rock which outcrops at the base of the Permian sequence. A single rounded fragment of a coarse chert, similar to those found in the Lower Carboniferous, 1.0mm across was present. The groundmass consisted of inclusionless anisotropic clay, including a large lens of completely inclusionless clay.

The characteristics of this sample are consistent with the British Museum's interpretation but can also be paralleled in the Anglo-Saxon period at a number of sites where it has been interpreted as being a fabric made from boulder clay containing mainly rocks from northeast England and southern Scotland. It is not known how far south this particular boulder clay might extend but it seems to be present along the margins of the Vale of York, presumably being either masked or removed in the centre of the vale. It is not found along the east coast.

SSTMG (V2163)

The thin section reveals abundant fragments of quartz between 1 and 2mm across. These grains are monocrystalline quartz with overgrowth in optical continuity with the original grain and are derived from the Lower Carboniferous Millstone Grit of the Pennines. The groundmass contains moderate quartz and muscovite silt, c.0.1mm across in a matrix of anisotropic baked clay minerals.

Gravels consisting mainly of Millstone Grit-derived quartz with some sandstone fragments occur in the Vale of York and samples of Anglo-Saxon pottery with similar petrological characteristics have been recorded from various sites in northern England, especially in the central Vale of York.

ERRA (V2161, V2162)

The two thin sections reveal a fabric with large angular and rounded inclusions ranging from 1.0mm to 4.0mm across in a much finer-textured groundmass. The inclusions consist of Millstone Grit-type sandstone, a Lower Cretaceous sandstone, a fine-grained basic igneous rock, a rock composed of quartz and feldspar grains c.1.0mm across with alteration products along the crystal boundaries and rhyolite. The groundmass contains quartz, feldspar and muscovite of silt to fine sand grade in which some of the larger grains are rounded, and include cracked fragments of highly spherical quartz grains. There are differences in the frequency and relative frequency of these rock types between the two sections, suggesting that they do not come from the same vessel, but their overall degree of similarity is high.

The characteristics of these two samples suggest that they were made from boulder clay of the type which outcrops in low cliffs along the east coast, and which underlies much of East Yorkshire to the east and south of the chalk wolds. The presence of rounded erratic rocks is inconsistent with the British Museum interpretation, although it is possible that the erratic content of the samples was augmented by adding crushed rocks to an erratic-containing boulder clay.

The differences in groundmass texture and composition suggest that these Native wares are of three distinct fabrics made in different places. However, more samples would be required to confirm this. It is suggested here that the ERRA subfabric is likely to have been made to the east of Low Farm West whereas the other two subfabrics are more likely to have been made to the west or northwest. There is some support for the British Museum interpretation of the petrology of these wares but even if so the potters are likely to have chosen rocks which commonly occur in the local boulder clays and gravels and so there is not necessarily any conflict between their conclusions and those put forward here.

Mortaria (V2164)

The mortaria thin section (V2164) did not include any trituration grit. However, it did include one large rounded grain, 2.0mm long, which was of Lower Carboniferous radiolarian chert. The remaining inclusions consisted of abundant rounded and subangular quartz grains up to 0.5mm across, sparse rounded fine-grained sandstone fragments up to 1.0mm across, some with a ferruginous cement and some with a silica cement and sparse rounded opaque grains up to 1.0mm across. The groundmass consists of isotropic baked clay minerals and sparse angular quartz silt.

These petrological characteristics suggest that the inclusions come from a detrital sand derived from the weathering of Triassic sandstones. Such sandstones outcrop from the Tees valley southwards but are mainly masked by superficial deposits in Yorkshire. However, they are typical of parts of south Yorkshire, Nottinghamshire and the Trent valley.

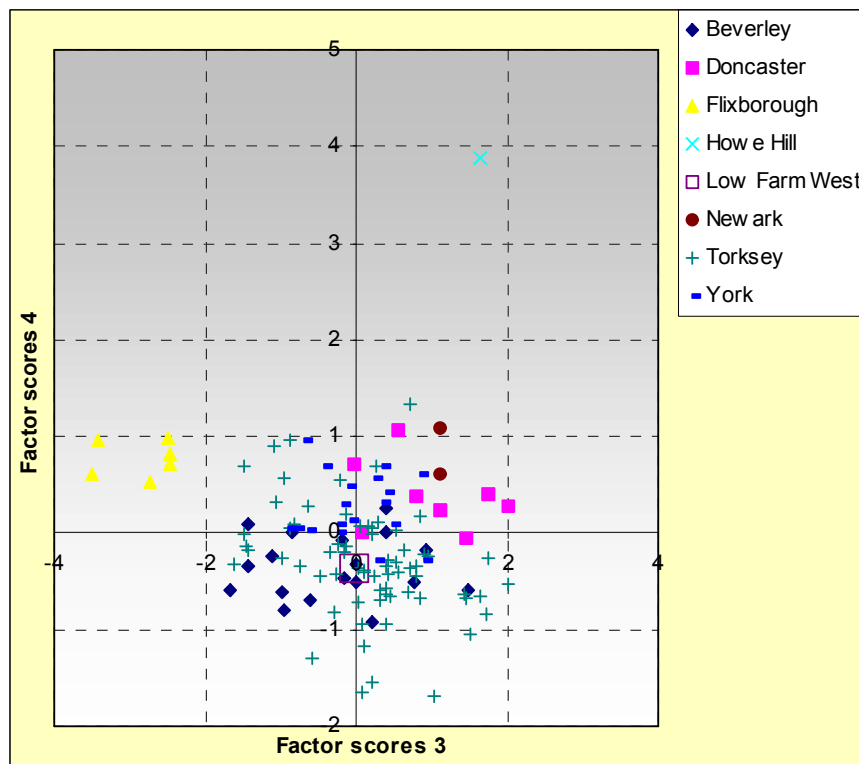


Figure 1

Factor analysis of the chemical data from this sample and that of Anglo-Scandinavian Torksey wares shows that there is strong similarity between the two, which might indicate a source in one of the Trent valley production sites. In a dataset consisting of samples from kiln sites in Torksey, and Torksey-type wares from sites at Newark, Beverley, York, Doncaster and Flixborough the mortaria sample was more similar to the Torksey kiln samples than were several of the samples from consumer sites, most of which are thought to have been Torksey products whose chemical composition had been altered by post-burial processes (Fig 1). Therefore, although an origin in the Cantley/Rossington bridge industry,

as suggested from visual examination by Barbara Precious, is not discounted the possibility of a Trent valley origin should also be considered.

Bibliography

Freestone, I. C. and Humphrey, M. S. (1992) "Report on the petrology of prehistoric pottery from Staple Howe, Yorkshire."

Freestone, I. C. and Middleton, A. P. (1991) "Report on the petrology of pottery from Iron Age cemeteries at Rudston and Burton Fleming." in I. M. Stead, ed., *Iron Age cemeteries in East Yorkshire: Excavations at Burton Fleming, Rudstone, Garton-on-the-Wolds, and Kirkburn*, English Heritage Archaeol Rep 22 English Heritage in association with the British Museum, London, 162-164.