

# Petrological analysis of some Iron Age Pottery from Site A, Taplow-Dorney Pipeline (TAP03)

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Twelve samples of Iron Age pottery from Site A, Taplow to Dorney pipeline were submitted by Ed McSloy for thin section analysis (Table 1).

Thin sections were prepared by Steve Caldwell, School of Earth Sciences, University of Manchester, and stained using Dickson's method (Dickson 1965). They were chosen to represent five fabrics recognised by eye: F1, FE1, Q, Q2, Q6. However, in thin section this division could not be seen and instead the sections could be grouped into six petrofabrics (Fabrics 1 to 6).

*Table 1*

TSNO	REFNO	Context	Cname	Subfabric	Petrofabric
V4762	SAMPLE 01	1637	IASANDY	SANDY WITH FLINT - F1	Fabric 4
V4756	SAMPLE 02	1474	IASANDY	SANDY WITH FLINT - F1	Fabric 1
V4755	SAMPLE 03	1474	IASANDY	SANDY WITH FLINT - F1	Fabric 1
V4757	SAMPLE 04	1480	IASANDY	SANDY WITH FLINT (RED SURFACES) - F1	Fabric 1
V4754	SAMPLE 05	1474	IASANDY	COARSER SANDY - Q2	Fabric 2
V4761	SAMPLE 06	1637	IASANDY	COARSER SANDY - Q2	Fabric 4
V4753	SAMPLE 07	1474	IASANDY	FINE SAND - Q1	Fabric 2
V4758	SAMPLE 08	1598	IASANDY	FINE SAND - Q1	Fabric 3
V4760	SAMPLE 09	1606	IAFINE	INCLUSIONLESS/SPARSE SAND - Q6	Fabric 5
V4763	SAMPLE 10	1671	IAFINE	INCLUSIONLESS/SPARSE SAND - Q6	Fabric 4
V4752	SAMPLE 11	1309	IAFE	IRON OXIDE - FE1	Fabric 2
V4759	SAMPLE 12	1606	IAFE	IRON OXIDE - FE1	Fabric 3

## Description

### Fabric 1

The following inclusion types were noted in thin section:

- Rounded quartz. Abundant grains up to 0.5mm across.

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- Chert. Sparse rounded grains up to 0.5mm across
- Flint. Sparse subangular fragments up to 1.5mm across. These vary in texture and colour, unlike those in Fabric 2 which are more homogenous in appearance.
- Phosphate. Rounded, light brown fragments, some with traces of unidentified fossils.
- Opaques. Sparse well-rounded grains up to 0.3mm across.

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

## **Fabric 2**

The following inclusion types were noted in thin section:

- Rounded quartz. Sparse grains up to 0.5mm across.
- Flint. Moderate subangular fragments. Most have a light brown colour and are crossed by irregular cracks, to either side of which the flint is lighter in colour and sometimes slightly coarser in texture.
- Clay/iron concretions. Moderate rounded grains of similar texture to the groundmass but with a dark brown to opaque colour.
- Chert. Rare rounded grains up to 0.5mm across.
- Phosphate. Rare rounded fragments up to 0.5mm across.

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

## **Fabric 3**

The following inclusion types were noted in thin section:

- Rounded quartz. Moderate subangular and rounded grains up to 0.5mm across.
- Chert. Sparse rounded grains up to 0.5mm across.
- Organics. Sparse carbonised fragments up to 1.5mm long and 0.2mm in diameter with traces of structure, probably rootlets.

The groundmass consists of optically anisotropic baked clay minerals. That in V4758 contains a similar quantity of angular quartz silt to that found in Fabrics 1 and 2 but without the muscovite laths whilst that in V4759 contains few visible inclusions.

## **Fabric 4**

The following inclusion types were noted in thin section:

- Shell. Moderate fragments of thin-walled shell up to 0.5mm long and c.0.05mm thick. The lack of diagnostic fragments and the size, curvature and thickness of the shell suggests that these are bivalves rather than gastropods.
- Clay/iron concretions. Sparse rounded dark brown grains, mostly with the same texture as the groundmass but darker in colour but including some with less quartz and no shell inclusions.
- Quartz. Sparse subangular grains up to 0.2mm across.

The groundmass consists of optically anisotropic baked clay minerals, sparse angular quartz grains and rare muscovite laths up to 0.1mm across.

### **Fabric 5**

The following inclusion types were noted in thin section:

- Rounded quartz. Abundant well-rounded grains up to 0.5mm across, several of which have the outlines characteristics of Lower Cretaceous quartz sand.
- Altered glauconite? Moderate rounded grains, some botryoidal or reniform in outline, up to 0.5mm across. The grains vary from light brown to darker brown, and some have zonation with a darker crust
- Bivalve shell. Sparse shell, similar in appearance to that in Fabric 4.
- Phosphate. Rare rounded fragments up to 0.5mm across
- Clay/iron concretions. Sparse dark brown grains up to 1.5mm across having a similar texture to the groundmass.

The groundmass consists of optically anisotropic baked clay minerals and moderate angular quartz up to 0.1mm across.

### **Interpretation**

The quartzose sand, composed mainly of well-rounded quartz with minor chert, observed in Fabrics 1, 2 and 3, is typical of sand derived from Tertiary sands and sandstones. It is a common component of Quaternary sands in the midlands and Thames basin.

The flint observed in Fabric 1 appears to consist of detrital grains which have undergone different erosional processes and probably originated in different Chalk outcrops. That seen in Fabric 2, by contrast, all appears to have similar characteristics in thin section and this suggests that the sand or gravel from which it was obtained lay closer to the Chalk outcrop, and that only one outcrop was involved.

The shell found in Fabrics 4 appears to have been naturally present in the clay, and is present in the clay/iron concretions. That present in Fabric 5 might have a similar source but is less frequent.

The quartz and altered glauconite in Fabric 5 suggest that the fabric is tempered with a detrital sand derived from Lower Cretaceous deposits.

The fabrics can therefore be grouped into three: those which are probably derived from Quaternary clays, or are tempered with Quaternary sands (Fabric 1, 2 and 3); in either case, a source in the Chilterns is likely; a clay tempered with a sand derived from the Lower Cretaceous and lastly an untempered, naturally shelly clay (Fabric 4). The nearest source of Lower Cretaceous sand would be at the foot of the Chalk scarp to the north or northwest of Taplow. The closest outcrop to Taplow is probably about 20 miles to the northwest. However, it is likely that Thames terrace sands closer to Taplow also contain similar inclusions, although the glauconite probably would not survive prolonged erosion. The source of the shell in Fabric 4 is unknown but the closest potential source to Taplow would be Thames alluvium.

The thin sections therefore confirm that several different raw materials were used in the production of the Taplow Iron Age pottery but that all could probably be found within a short distance of Taplow. The most distinctive, and probably the most travelled of these fabrics is Fabric 5, represented by a single sample.

## Bibliography

Dickson, J. A. D. (1965) "A modified staining technique for carbonates in thin section." *Nature*, 205, 587