

# ANCIENT MONUMENTS LABORATORY

## REPORT

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**TITLE**

Petrological analysis of Iron Age pottery  
fabrics and clay samples from WINKLEBURY,  
Hampshire

PETROLOGICAL ANALYSIS OF IRON AGE POTTERY FABRICS AND

CLAY SAMPLES FROM WINCHELBURY, HAMPSHIRE

Thirty-seven fabric types of Iron Age pottery, together with samples of daub, clay loom-weights and clay, the latter from a series of conical pits found at the site, were submitted for petrological examination.

From an initial macroscopic examination of the pottery fabrics, followed in each case by thin sectioning, nine divisions could be made on the basis of temper inclusions. These are listed below following the descriptions of the fabrics. Munsell colour charts are referred to together with free descriptive terms.

Description of fabrics

Fabric 1 (740)

Medium thick, hard fabric, dark grey (10YR 4/1) surfaces with a dark brown core. Moderate inclusions of flint.

Fabric 2 (740)

Thick, fairly hard fabric, reddish-brown (5YR 4/3) surfaces with a dark brown core. Abundant inclusions of flint.

Fabric 3 (949)

Medium thick, soft fabric, dark reddish-brown (5YR 3/3) throughout. Moderate inclusions of flint.

Fabric 4 (984)

Medium thick, moderately hard fabric, dark grey (2.5Y 4/)

outside surface, dark reddish-brown inner surface and core.

Abundant inclusions of flint.

Fabric 5 (722)

Medium thick, soft sandy fabric, reddish-brown (5YR 4/4) outside surface, dark grey inner surface and core. Sparse inclusions of flint.

Fabric 6 (462)

Thin, hard fabric, light red(2.5YR6/6) surfaces, black core. Moderate inclusions of flint.

Fabric 7 (879)

Medium thick, soft fabric, reddish-brown (5YR 4/3) throughout. Moderate inclusions of flint.

Fabric 8 (879)

Thin, moderately hard fabric, dark grey (5YR 4/1) throughout. Moderate inclusions of flint.

Fabric 9 (1024)

Medium thick, soft fabric, very dark grey (7.5YR N3) surfaces, dark brown core. Abundant inclusions of flint.

Fabric 10 (810)

Thin, moderately hard fabric, surfaces haematite coated, dark brown core. Moderate inclusions of flint.

Fabric 11 (852)

Thin, brittle fabric, dark grey (5YR 4/1) outside surface, dark brown inner surface and core. Moderate inclusions of flint.

Fabric 12

Thick, hard fabric, hard fired, light grey (7.5YR N/5 ) surfaces, dark grey core. Moderate inclusions of flint.

Fabric 13 (1400)

Medium thick, moderately hard fabric, red (2.5YR 4/6) throughout. Moderate inclusions of flint.

Fabric 14 (855)

Medium thick, hard fabric, reddish-yellow (7.5YR 7/6) outside surface, light grey inner surface and dark grey core. Numerous inclusions of chalk.

Fabric 15 (586)

Thick, brittle fabric reddish-yellow ( 5YR 6/6) surfaces, dark grey core. Impressions of grass or chaff can be seen on the outer surfaces and in the paste.

Fabric 16 (905)

Medium thick, hard sandy fabric, reddish-brown (5YR 4/3) surfaces, dark brown to grey core.

Fabric 17 (949)

Thick, moderately hard fabric, dark grey (10YR 4/1) throughout. Moderate inclusions of flint.

Fabric 18 (974)

Thick, very hard fabric, greyish-brown (10YR 5/2) surfaces, dark grey core. Numerous inclusions of flint.

Fabric 19 (852)

Medium thick, hard fabric, light red (2.5YR 5/6) outside surface, dark grey inner surface and core. Moderate inclusions of large fragments of flint.

Fabric 20 (743)

Thick, hard sandy fabric, dark grey (7.5YR N 4/) throughout.

Fabric 21 (462)

Thick, hard fabric, dark greyish-brown (10YR 4/2) throughout. Numerous inclusions of flint.

Fabric 22 (1028)

Medium thick, moderately hard fabric, strong brown (7.5YR 5/6) throughout. Abundant inclusions of shell.

Fabric 23

Thin, moderately hard sandy fabric, dark grey (10YR 4/1) throughout.

Fabric 24 (3105)

Thin, hard sandy fabric, light brown (7.5YR 6/4) outside surface, red inner surface and core. Sparse inclusions of flint.

Fabric 25 (2794)

'Glastonbury ware'. Medium thick, hard fabric, dark grey (2.5Y N 4/) to black surfaces, black core. Burnished on the outside surface which is decorated.

Fabric 26 (3105)

Medium thick, hard fabric, pinkish-grey (7.5YR 7/2) outside

surface, dark grey inner surface and core. Moderate inclusions of flint.

Fabric 27

Thin, brittle fabric, dark grey (7.5YR N 4/) surfaces, reddish-brown core. Abundant inclusions of flint.

Fabric 28 (3823)

Thin, hard fabric, reddish-brown (2.5YR 4/4) surfaces, black core. Burnished on both surfaces.

Fabric 29 (3880)

Moderately thick, hard fabric, dark brown (7.5YR 3/2) throughout. Numerous inclusions of flint.

Fabric 30 (3881)

Medium thick, soft sandy fabric, dark reddish-brown (5YR 3/1) throughout.

Fabric 31 (3642)

Medium thick, hard sandy fabric, dark grey (7.5YR N 4/) throughout.

Fabric 32 (109)

Medium thick, hard sandy fabric, light reddish-yellow (5YR 6/6) throughout. Inclusions of red iron ore.

Fabric 33 (240)

Medium thick, very hard fabric, reddish-yellow (7.5YR 6/6) outside surface, light grey inner surface and core. Moderate inclusions of flint.

Fabric 34

Medium thick, moderately hard fabric, pinkish-grey surfaces (7.5 YR 7/2), grey core. Abundant inclusions of shell.

Fabric 35 (1527)

Medium thick, hard sandy fabric, dark grey (5Y 4/1) throughout.

Fabric 36 (2188)

Thin, hard fabric, red (2.5YR 4/6) surfaces, dark brown core. Moderate inclusions of flint.

Fabric 37

Thick, very hard fabric, red (2.5YR 4/6) surfaces, dark brown core.

Description of fabric groups

Group One      Fabrics 2,3,4,6,9,10,12,13,18,19,21,24,26,27,29,33  
and 36.

In thin section all the samples are characterized by inclusions of crushed flint, together with subangular grains of quartz. The quantity and size distribution of the flint varies within the group. In fabrics 2,4,9,18,19,21,27 and 29 the fragments of flint are numerous and range up to 2.4mm. across, although the average size is about 0.80-1.20mm. A scatter of subangular quartz is present, average size 0.10-20mm. Samples 3,6,10,12,13,26,33 and 36 have smaller flint fragments which are less numerous than in the

previous group, the average size being 0.40-.60mm., while the quartz grains are more plentiful, though of the same average size. Lastly, fabric 24 has sparse flint inclusions, average size 0.20-.40mm., with quartz grains about 0.20-.30mm. across.

A large group of flint tempered wares is perhaps to be expected from Winklebury, situated as it is on the chalk, and possibly represents locally made pottery.

Group Two      Fabrics 16,23,28,30,31,35 and 37.

Thin sectioning reveals an optically anisotropic ground mass of fired clay containing numerous inclusions of angular or subangular grains of quartz. In fabrics 16,23,30,31 and 35 the average size of the quartz grains is 0.30-.50mm., while in fabrics 28 and 37 the average size is 0.10-.20mm. In an attempt to suggest a source for these sandy wares a heavy mineral analysis was carried out on fabric 16, the only fabric to allow a large enough sample for this method (see Peacock,1967). In the event, the result proved disappointing, as too few grains were obtained to give a reliable reading.

Group Three      Fabrics 5,7,8,11,17 and 20.

Thin sectioning shows that each sample contains numerous inclusions of well rounded light brown grains of limonite (probably altered glauconite), average size 0.20-.30mm. Also



present are a scatter of fragments of crushed flint and abundant grains of quartz, average size 0.20-.40mm.

If correctly identified, the glauconitic inclusions could possibly have been obtained from the base of the Reading Beds in the region (White, 1909, 42), the nearest deposits of which lie some one and half miles north-east of Winklebury.

Group Four      Fabric 14

Thin sectioning reveals inclusions of chalk, together with numerous subangular grains of quartz, average size 0.15-.30mm. The quartz grains are slightly larger and the fabric much more sandy, to suspect that the clay from the conical pits analyzed below was used.

Group Five      Fabric 15

In thin section the fabric consists of an optically anisotropic matrix of baked clay containing a considerable number of elongate voids, commensurate with the vesicular nature of the sherd. The tempering agency was in all probability grass or chopped chaff.

Group Six      Fabric 22 and 34

Thin sectioning confirms that the predominant temper is shell, though it is difficult to tell if it is fossiliferous or not. A scatter of subangular grains of quartz, average size 0.10-.20mm., is also present.

Group Seven      Fabric 32

The principal temper is well rounded grains of red iron ore, average size 0.30-.40mm., together with numerous subangular grains of quartz, average size 0.20-.30mm., set in an optically anisotropic matrix of fired clay.

Earthy iron ore is associated with Reading Beds in the area (White, 1909, 43).

Group Eight      Fabric 1

The predominant temper is grog, crushed up fragments of pottery, set in an optically anisotropic matrix of fired clay. Both the clay matrix and the grog contain subangular grains of quartz, average size, 0.10-.15mm. Also present are a scatter of fragments of flint.

Group Nine      Fabric 25

This is a sherd of 'Glastonbury ware' type. Thin sectioning reveals an optically anisotropic matrix of baked clay containing subangular fragments of ferruginous coated sandstone and numerous dissociated sand grains. The sherd falls into Peacock's Group 2 (sandstone inclusions), though it is not possible to say whether the sandstone in this sample also originates in the Mendip Hills as he suggests for the group as a whole (1969, 46). This sherd lies well outside the main geographical distribution of

Peacock's Group 2, which is centred on Somerset, though a few examples to the east of that area are known (ibid.,47).

#### Analysis of two sherds

619. Thin sectioning reveals numerous inclusions of uniform subangular quartz grains, average size 0.20-.30mm. (Group Two).

1400. In thin section there are sparse inclusions of flint up to 0.50mm. across, and a scatter of subangular grains of quartz, average size 0.10-.20mm. (Group One).

#### Analysis of an unfired sherd (765892-3738 814)

The sherd is medium thick and yellowish-brown (10YR 5/4) throughout, with numerous inclusions of flint. A sample was baked and then sectioned. Petrologically the sherd falls into Group One, fabrics 2,4.. etc. The clay used does not compare with that analyzed below.

#### Analysis of the clay

Samples of a mottled red clay from seven of the conical pits, and probably obtained from Reading Beds to the north-east of the site, were baked and then sectioned for study under the petrological microscope in the same way as the pottery: nos. 982(3942), 3790 (3945), 988(3948), 2178(3951), 719(3953), 848(3958) and 601(3966). Thin sectioning shows that all the samples contain large

inclusions of crushed chalk, a scatter of subangular grains of quartz, average size 0.05-.10mm., and occasional mica and fragments of flint.

The clay compares favourably with petrological analysis of samples of daub (nos. 604, 729, 2794, 3603 and 3738) and clay loom-weights (nos. 801, 811, 815 and 816). Both of the latter contained inclusions of crushed chalk, while the texture of the clay matrix and the quantity and size distribution of the quartz grains were similar to that of the clay from the conical pits. The inclusions of crushed chalk in the daub were, however, more plentiful than those in the loom-weights.

### Conclusions

Of the thirty-seven pottery fabrics analyzed, only in the case of the 'Glastonbury ware' sherd does it appear likely that pottery originated from some distance to the site. In each of the other fabrics the raw materials, clay and temper, could have been obtained from reasonably local sources. This latter view might also be applied to the majority of pottery from a number of other Iron Age sites in the Basingstoke area. Macroscopic examination of fabrics from Oakridge, Viables and Ructstalls Hill (a small number of sherds from the latter site were also thin sectioned) showed that a large group of pottery at each site is flint tempered, as is the case at Winklebury. Furthermore, a small

programme of thin sectioning on a selection of sandy wares from Ructstalls Hill by Williams revealed that a group of these contain what appear to be grains of glauconite, similar to those present in Group Three at Winklebury (Oliver and Applin, forthcoming). The Ructstalls Hill sherds also include some with stabbed holed decoration paralleled in Winklebury fabrics 7, 8, 17 and 20. Both groups appear similar in thin section, though it is not possible at this stage to say if they originate from a single source. Nevertheless, it would seem likely that the local Reading Beds clay was being used for these fabrics, though as glauconite is not an uncommon mineral, an origin further afield cannot be ruled out.

It seems that none of the clay analyzed from the conical pits at Winklebury was used in the production of the pottery examined. Instead, in all probability the clay was intended primarily for building purposes, with the addition of a liberal amount of crushed chalk, and to a lesser extent for smaller items such as the loom-weights.

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