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Compendiario

An Assemblage of Notes and News

SAXON POTTERY FROM MARKET LAVINGTON, WILTSHIRE

The site at Market Lavington (SU 013542) consists of an early Saxon cemetery, containing some forty inhumations, and an adjacent settlement, situated next to the present church on a small greensand spur at the western end of the Vale of Pewsey. As well as Saxon artefacts, finds of prehistoric, Romano-British, medieval and post-medieval date were also recovered from the site. The complete ceramic assemblage comprises 3198 sherds (25,796 g). Of this total, 1215 sherds (9804 g) have been dated to the Early/Middle Saxon period. This report summarises the results of the analysis of the Saxon assemblage so far.

This is as yet the largest known domestic assemblage of Saxon pottery in Wiltshire; as such it should provide valuable chronological information regarding the ceramic sequence during the Saxon period in this area, as well as other aspects such as manufacture and vessel form and function.

Apart from two complete vessels found with inhumations in the cemetery, the majority of the assemblage derives from contexts within the adjacent settlement such as from pits, ditches and sunken-featured buildings associated with a 'dark earth' occupation deposit averaging about 0.30 m in depth.

The pottery falls into two main fabric groups: organically-tempered and sandy, in a ratio of approximately 8:1. Twelve fabric types have been defined. In many cases, however, division between the various fabric types is purely subjective, and the initial impression is that differences in the coarseness and frequency of inclusions merely reflect variations along a continuous spectrum rather than discrete fabric types. It seems likely that most, if not all of the assemblage derives from local manufacture on an *ad hoc* basis. Clay sources are available nearby, and tempering agents, particularly the organic materials, would have been readily accessible. It is hoped that on-going petrological analysis will help to elucidate this point. Vessel manufacture ranges from the very crude to the fairly well-finished; firing is irregular and is consistent with the use of bonfire or clamp kilns. No evidence of pottery making on site was recovered, but such manufacture would have left only very ephemeral traces.

The definition of vessel forms has been restricted by the lack of complete profiles; apart from the two vessels from the cemetery already mentioned, only one other complete vessel, a small cup with an inturned rim, was recovered. Seven rim/vessel forms were defined, on the basis of twenty-three rims. These vessel forms include rounded or slack-shouldered jars with constricted necks (*i.e.* closed forms), wide-mouthed jars or bowls with no pronounced shoulders, and straight- or convex-sided bowls. The two complete vessels from the cemetery can be described respectively as globular and sub-biconical jars with constricted necks; the other jars from the site could fall into either shape. Evidence of use is restricted to burnt residues on the interior of several body sherds, sooting on the exteriors of one bowl and one jar, and a single perforated rim from a vessel of unknown form.

The amount of effort expended on vessel finishing varies. A small proportion of the sherds are burnished, though none to a very high quality. The coarser organic-tempered sherds often show signs of wiping with vegetable material. Decoration is very scarce; only seven sherds had any form of decoration. Two stamps were identified, a segmented circle, and a segmented oval, the latter identified by Lady Briscoe as a type so far restricted to East Anglia (Briscoe D 3ai). The two cemetery vessels are neither burnished nor decorated. The dating of this assemblage has proved problematic, due to its homogeneity, and the lack of direct association with other datable artefacts. Metalwork from the cemetery suggests a date in the 6th century; the date range of the settlement may extend further. Stratigraphy on the site is very limited, and no reliable sequence could be constructed for the Saxon pottery on this basis.

Organically-tempered pottery is considered to have a date range, in the south of England at least, from the 6th to the end of the 8th century (see Cunliffe 1976), but there is now a growing body of evidence for its survival well beyond this date, for example in Berkshire (Astill and Lobb forthcoming). In Wiltshire, other groups of organically-tempered pottery are not closely dated, and could apparently fall anywhere between the late 5th and the 9th centuries (Fowler 1966). The dating of vessel forms is equally unreliable, since many of the forms, being of a purely functional nature, are likely to be long-lived.

In the absence of definite evidence to the contrary, therefore, the bulk of the Anglo-Saxon assemblage is taken to date from the 6th century, and this is supported by comparison with the domestic assemblage from Old Down Farm near Andover, also dated to the 6th century, which provides parallels for many of the vessel forms from Market Lavington (Davies 1980). Ambiguous evidence for a continuation of the sequence in the settlement beyond this date comes from a single rim sherd in a calcareous-tempered fabric, found in a feature cutting one of the sunken-featured buildings. While the rim form is paralleled amongst the rest of the assemblage, the anomalous fabric might represent a chronologically later element. Otherwise, there appears to be a hiatus on the site until the appearance in the 10th century of Late Saxon ceramics in the form of Cheddar B ware and other calcareous-tempered wares.

Work is still in progress on the ceramic assemblage from Market Lavington, and the results will be included in the final site report, which is to be published in monograph form.

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FURTHER OBSERVATIONS ON EARLY GLAZES

In the last journal, Ken Barton drew attention to the growing application of the term splashed (or splash) glaze to define a glaze dusted in lead sulphide with characteristic 'nucleolated craters', giving the appearance of splash marks (Barton 1990, 58). This type of glaze is particularly prevalent in the 12th and

13th centuries on, for example, tripod pitchers in the West Country (the north Wiltshire tripod pitcher industry) and the Midlands, to name but a few regions. A number of questions were raised. Why is glaze frequently absent from underneath the handle? If the pot was leather hard, how was the heavy mineral fixed to the body? Barton correctly states that water alone will not work, and suggests a slip onto or into which the lead is placed. Pointing at the lack of evidence for dipping, or pouring, he cites the suggestion of painting on the glaze mixture by brush.

The first part of this article describes a few simple experiments on glazing conducted in 1985 in the course of work on a local early glazed ware from Coventry. This has a hard, coarse sandy fabric which is generally reduced grey with patchy light brown margins (Coventry Glazed ware = Broadgate East fabric D; see Redknap 1985). The thin patchy olive-green glaze has a characteristic uneven, patchy coverage, with reddish patches where thin. Decoration of the body of tripod pitchers consists of combing, horizontal grooving, and applied strips, while handles are frequently adorned with inlaid rolled and twisted cables, pinched strips, combing or stabbing.

A number of technical details could be observed on some sherds from the excavations at Broadgate East (1974/5), Coventry. Join voids were visible on the insides of wall sherds, suggesting that they were coil built. The bases were uneven, and may have been rolled out as 'pancakes'. The small peg feet were each rolled, and then passed through holes in the base and luted into place on the outside. A number of pots appeared to have a visible join void between neck and shoulder. This observation on Oxfordshire pitchers may have led Jope to suggest that the necks and bodies of these vessels were constructed separately (Jope and Threlfall 1959), but the voids may just reflect the difficulties of access to this point for final surface finishing. Handles were passed through holes in the neck near the rim and luted into place.

Two replicas of Coventry Glazed ware pitchers were made using clay collected from Webster and Flemming's brick pits, on the east side of Foleshill, and to the north of medieval Coventry (Fig. 1). A more plastic potting clay had to be added to this in order to make the clay less 'short'. The starting point for the experimental glazing of the pots was *'De coloribus et artibus Romanorum'*, the treatise ascribed to Eraclius and dated to the 10th century (the background and problems are outlined in De Bouard (1974, 67)

'..if you wish to lead-glaze the pot, take some wheat flour, boil it in a pan with water, then let it cool and cover the whole of the surface of the pot with it. Then take some lead well 'solutum' [?divided]. However, if you want to obtain a green colour, take some copper, or better still, some brass, and mix it with the lead as follows: take the lead and melt it in a pot; when it is molten stir it by turning with your hands (sic) in the pot until a powder is produced, and mix this then with 6 parts of brass filings. When the pot has been dampened with water and flour sprinkle it immediately with lead, i.e. with the filings mentioned above...'
(translation in De Bouard 1974, 69).

In order to test the practicalities of the recipe, flour and water were boiled into an even paste and allowed to cool. The paste was then poured over the vessel surface. A glazing powder prepared from litharge (lead monoxide), containing fairly coarse lumps, mixed with less than 10% copper carbonate, was sprinkled over the pot. The paste acted as an efficient bonding agent, and a thin glaze resembling that on tripod pitchers was achieved at 880°C. Glaze was absent from the underside of handles, it being difficult to pour paste or sprinkle powder in this area (Fig. 2). When flour and water were not boiled up, the clay of the vessel body simply absorbed the water, leaving flour in a dry non-adhesive slip on the pot surface. Whether a finely ground lead oxide would stay in place if dusted onto a wet unfired pot has yet to be tested, although we suspect much would fall off during kiln loading, so getting glaze in all the wrong places and fusing together that which should not be joined! The use of a boiled flour and water paste, on the other hand, is supported by the documentary evidence quoted above and would appear to be one method of ensuring that the heavy powder, once dusted on the pot, remains in place until fired. It also appears to be a method which could give rise to the features observed on so-called splashed glaze pots. With the use of paste as an adhesive, the fluid runs of glaze arise during firing rather than during the application of glaze mixture in liquid form as implied by the term splashed glaze, and the irregular coverage is due in part to irregular adhesion of powder rather than liquid (but see below on causes of mottling).

The remaining experiments described in this paper were conducted in 1992 using clay from Cannon Park, just south of Coventry, biscuit fired in an oxidising atmosphere at 1000°C and then treated as described below.

One starting point was to consider whether the flour paste has any effect other than to stick the litharge on to the surface. A paper by Engle (1983, 7–16) suggests that the opal (a form of silica) phytolith content of wheat heads enables wheat to form a glass after half an hour at 900°C. While we would be sceptical of the idea that there is enough silica in wheat heads to form any significant amount of glass it is certainly true that wheat ash contains components that might act as fluxes and react with the surface of the clay and reduce its fusion temperature. Analysis (scanning electron microscopy with energy-dispersive X-ray spectroscopy: SEM-EDS) of the ash remaining after heating the stoneground wheat flour paste at 800°C for two hours showed that it contained roughly 50 wt% P_2O_5 [phosphorous pentoxide], 30 wt% K_2O [potash], 10 wt% MgO [magnesia], 6 wt% CaO [lime] and 3 wt% SiO_2 [silica] with a little sulphur, sodium and iron. It should be appreciated, however, that it takes a very large amount of flour to make a small amount of ash.

A further potential effect of the flour paste might be to produce a localized reducing atmosphere at the glaze/body interface. To test this, two brickettes were fired together for half an hour at 800°C in an electric muffle furnace, one piece having been coated with a paste made by boiling stoneground wheat with water followed by a layer of finely powdered litharge, and the other coated with the litharge alone. The atmosphere in the muffle furnace is oxidising from the presence of air. As the Coventry Glazed ware with its grey body and olive-green glaze appears to have been fired in a neutral or reducing atmosphere, a fragment of this was fired together with the two test brickettes. All three samples emerged having a similar orange body with a similar mottled brown glaze, with no obvious difference between the sample with flour paste and that without. The flour would appear to have been oxidized away during the firing.

The mottled appearance of the glazes of these experimental pieces and their archaeological counterparts deserves some comment. One explanation that has been given is that it is due to uneven application of the glazing powder. While this may apply in the obvious sense that glaze may be absent at some points on a vessel and undergo a decrease in thickness (and thus in intensity of colour) between full thickness areas and the boundary of the glazed area, it should be noted that the lead glaze was fairly fluid and gave an even coating on the test briquettes even though the distribution of litharge on the pieces had not been even. Variations in glaze thickness do contribute to a mottled appearance where the surface of the body is not even, since the fluid glaze runs into and fills any small depressions on the surface of the body.

A more significant contribution to the mottled appearance of these glazes seems to be localized inhomogeneity in the constitution of the surface of the body or perhaps the glaze mixture, which affects the colour of the glaze by, for instance,

Fig.1. Replicas of Coventry Glazed ware pitchers. Heights 305 mm (left) and 304 mm (right).

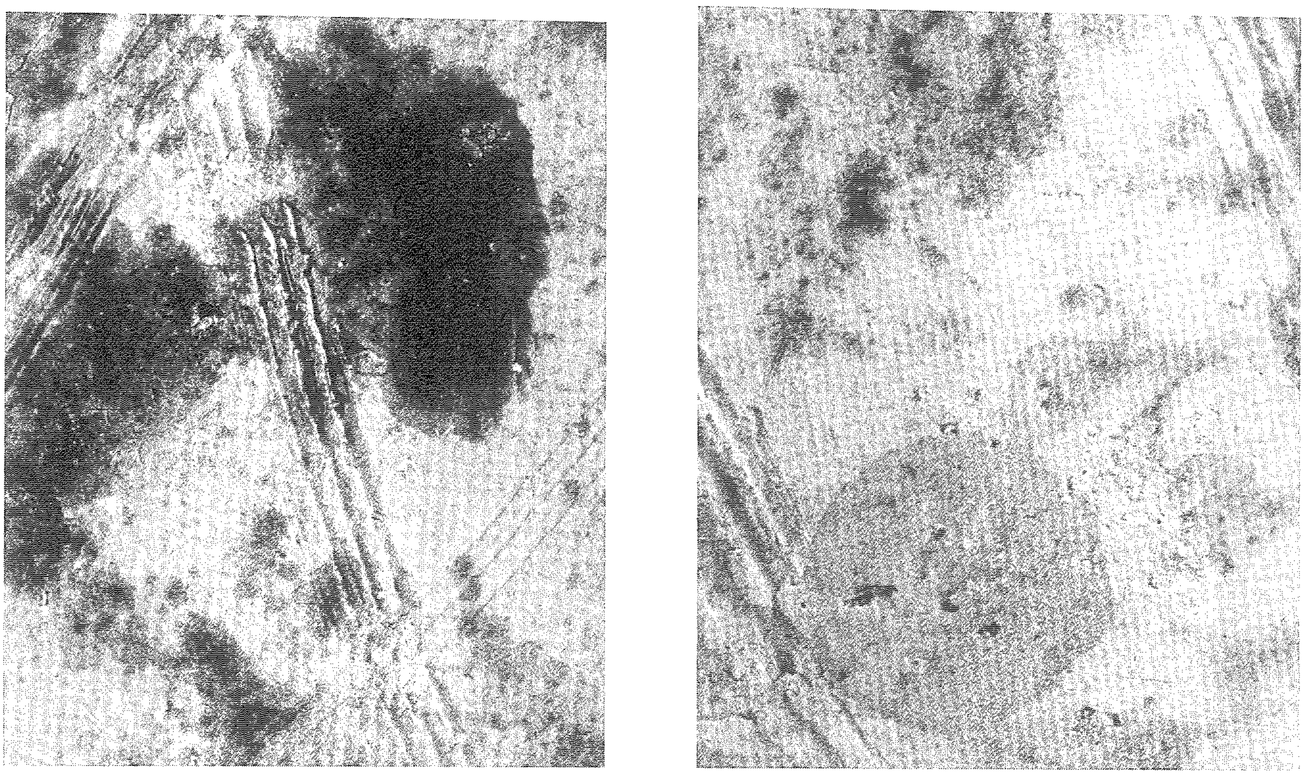

Fig.2. Details of glazed and unglazed surfaces on replicas of Coventry Glazed ware pitchers.

having a higher iron content or affecting the local reduction or oxidation conditions. The lead oxide reacts with the body and the glaze dissolves components of the body. The silica, alumina and other components of a lead glaze may often be derived from the body, and may not necessarily represent an additional component in the applied glaze mixture. Dissolution of iron from the body imparts a colour to the glaze. Dark brown spots in archaeological and experimental pieces can sometimes be seen to overlie darker, apparently iron-rich, grains in the body. Iron-rich contaminating particles in the glaze could also give a mottled appearance.

Analyses of the glaze on a small fragment of Coventry Glazed ware by SEM-EDS suggest that the olive-green colour of its glazes is probably the result of its iron content. Analysis of the green glaze in cross-section showed it to have a composition of 73 wt% PbO [lead monoxide], 16 wt% SiO_2, 8 wt% Al_2O_3 [alumina], 0.8 wt% Fe_2O_3 [ferric oxide] and smaller amounts of calcium, potassium and sometimes titanium. The surface of the glaze has markedly lower lead levels, perhaps due to weathering. No copper was detected and the non-lead constituents of the glaze are in roughly the same ratio as they occur in the clay matrix of the sherd, which has the composition 59 wt% SiO_2, 30 wt% Al_2O_3, 5 wt% Fe_2O_3, 2 wt% K_2O, 1 wt% CaO and 1 wt% TiO_2 [titania]. Analysis of a brown spot in the green glaze of the Coventry Glazed ware fragment gave a result that was essentially the same as that from the green glaze, so in this case at least, the variation in colour appears to arise from oxidising conditions prevailing locally at the brown spot. It is interesting to note that the brown glaze was thicker than the green in that it covered a depression in the surface of the body. A fuller explanation of the spots must await further analysis and experimentation.

That the non-lead components of the glaze may be derived purely from the body is again shown by the experimental briquettes. Surface analysis of the glaze on the briquette to which only litharge was applied showed 80 wt% PbO, 15 wt% SiO_2, 4 wt% Al_2O_3 and 0.4 wt% Fe_2O_3 and 0.1 wt% K_2O, although there might have been higher levels of body-derived components deeper in the glaze (the experimental body contained 62 wt% SiO_2, 17 wt% Al_2O_3, 8 wt% Fe_2O_3, and 6 wt% K_2O).

As the use of flour paste made no visible difference in these oxidising firings, the possibility of detecting its use by X-ray analysis was also considered. The wheat ash (analysis given above) contained phosphorous, potassium and magnesium as its major constituents. The experimental briquette made with litharge overlying a generous layer of flour paste gave the same glaze surface composition as the briquette glazed with litharge only, with neither phosphorous nor magnesium detected and the potassium probably coming from the body. The failure to detect the use of flour paste by this method was not suprising given the very low ash content of the paste, although it might conceivably be detected by analysis at the glaze/body interface.

The above tests were conducted under oxidising conditions, whereas the early Coventry Glazed ware is noted to have been fired under reducing or neutral conditions. In an attempt to make a start on replicating the appearance of the excavated pieces and discovering whether under different firing conditions the use of flour paste might have a visible and perhaps archaeologically detectable effect, the above experiment was repeated with the briquettes sitting on heaps of fine charcoal grains under inverted graphite crucibles. Under these circumstances there was a distinct difference in the results from the briquettes with and without flour paste, although we were not wholely suprised to find that the results did not replicate the excavated sherds, the litharge being largely reduced to lead metal. Nevertheless, the results were not without interest. The formerly orange briquettes were blackened. On the briquette first coated with flour paste the experiment produced a layer of loose fine carbon with ash, and a single globule of lead metal. On the other briquette without flour paste, the litharge proved far more corrosive and the glaze sank into the briquette producing a black glassy product through the fabric and leaving many small pits in the surface, some of which contained tiny droplets of lead metal. It would seem that the flour paste may have acted as a barrier protecting the ceramic, and providing a surface over which the metal could flow while the litharge reduced to metal and coalesced as a single globule by surface tension. The flour paste may also have hastened the reduction to metal by locally supplementing the reducing conditions. The blackness of the glassy product in the absence of the paste layer may be due to the large amount of iron dissolved.

In order to replicate more closely the early glazed ware, a briquette coated with litharge alone was fired for half an hour at 750°C on a bed of charcoal granules but with no graphite lid, the aim being to attain less aggressively reducing conditions. In this case the orange briquette was not blackened but the glaze did have a greenish tinge.

It was felt that the glaze colour might not have been showing well against the orange background, so two briquettes were blackened by being buried in charcoal granules at 800°C for half an hour. One was then coated with litharge alone, and one with litharge and flour paste, and they were heated in a hollow of charcoal granules for half an hour at 800°C. The resulting glazed briquettes were of similar appearance, had retained their grey colour, and had a glaze that was distinctively greenish, although not quite as green as the archaeological examples. A further blackened briquette coated with litharge and fired for an hour at 800°C under a graphite crucible but without charcoal granules produced a closer match to the 12th-/early 13th-century glaze colour.

It would appear that while the use of a flour paste adhesive followed by dusting can give a result that has been termed 'splashed glaze', the use of the flour paste is not likely to be directly detectable archaeologically. Such an adhesive could, however, have provided an alternative method of application to a slip, producing identical features such as pitting, dribbling, and the absence of glaze beneath handles.

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