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INTERIM STATEMENT ON THE EXCAVATION OF A MEDIEVAL KILN SITE AT EDEN STREET, KINGSTON UPON THAMES

A preliminary desk-top assessment from documentary sources carried out in 1993 led to an on-site archaeological evaluation taking place at 70-76 Eden Street, Kingston upon Thames. The purpose was to assess the nature, extent, survival quality and significance of archaeological deposits likely to be affected by the proposed development of the site for a retail store and associated basement, in accordance with a specification approved by English Heritage. A strategy of trial trenching was devised to achieve a representative sample of the threatened areas. The site had previously been excavated in the late 1960s by Kingston upon Thames Archaeological Society (KUTAS), when a medieval Surrey whiteware pottery kiln was identified to the rear of 70-72 Eden Street (Hinton 1980).

Six trial trenches were investigated during the initial evaluation. Machine clearance revealed a number of large pits on the northern half of the site. These were interpreted as post-medieval gravel extraction pits. Trench 6 was located in the approximate position of the medieval kiln excavated in the 1960s, and revealed the backfilled KUTAS trench and a series of deposits probably associated with the kiln.

THE EXCAVATION

As a result of the initial evaluation, more thorough archaeological excavation took place on-site from 29th March to 2nd June 1995, in accordance with a specialised research design, addressing the presence of one or more medieval kilns, associated structures and industrial activity that may have been present on site. One large excavation area was opened in two stages. A total of four 14th-century medieval Surrey whiteware kilns were exposed and excavated. All were disturbed, although one was relatively well preserved. The kilns had been dug directly into the natural brickearth and lined with a mixture of brickearth and straw. The best example, located in the south-east corner of the excavation, was a two-flued kiln with stoking pits positioned at either end. The kiln chamber housed a central pedestal. The flues of this kiln were constructed from medieval roof tiles and were extant to the point where they began to arch over. Possible kiln capping (again a mixture of brickearth and straw) and the fired clay used to seal the flue openings during firing were found within the kiln backfills, which generally consisted of redeposited waster material and kiln superstructure debris.

Substantial quantities of Kingston-type Surrey whiteware waster material were retrieved from the kiln interiors, stoking pits and waster pits, including many intact vessels. Surrey whitewares were used in London and the Lower Thames Valley from the 13th century onwards. These whitewares are generally divided into three source groups: Kingston-type ware, Cheam whiteware and Coarse Border ware (Pearce and Vince 1988), reflecting the location of known kiln sites in Kingston, Cheam and around Farnham. Kingston-type ware is currently dated in London from c. 1230-1400, and was found at this site dating to c. 1300-1400.

The majority of the pottery assemblage consisted of waster material, in the form of small and large jugs and cooking pots. Other forms, such as crucibles (although some smaller crucible forms may also have functioned as lamps), cups (lobed and plain), bowls, a dripping dish, a condiment dish and a money-box were also found, and at least two anthropomorphic vessels were identified. Many wasters

exhibited the variability of kiln firing in discoloration of the fabric and glaze, buckling, explosion or implosion and fusing of vessels.

Other medieval features, such as pits and a ditch, were excavated, but because of later truncation of the medieval ground surface it is difficult to associate these features with the medieval kiln usage of the site.

This kiln material has a very important contribution to make to the dating of Kingston-type ware. If the archaeomagnetic dates obtained can be associated with a specific range of forms and decoration types there are significant implications for refining the dating of pottery recovered from elsewhere in the London area. Archaeomagnetic dating of two of the kilns produced dates of 1300–1325. In this pottery group, already important is the presence of lobed cup fragments, a form previously dated to the late 14th century rather than earlier.

METHODOLOGY

As it was clear from an early stage that this site would produce vast quantities of waster pottery, it was necessary to devise a policy to deal with the material. Processing on-site was preferable, which reduced transportation costs and allowed an immediate feedback to the excavator. The waster pottery came out of the site in large sacks, and was initially spread on a grille over a silt tank; the material was then hosed to allow it to be sorted into diagnostic and non-diagnostic sherds (diagnostic being defined as handles, rims, bases, or other featured sherds). Rims will be used for any statistical analysis of the assemblage using estimated vessel equivalent (eves). Other criteria for the diagnostic group of sherds included any that displayed evidence of faults, such as spalling, glaze over broken edges, kiln scars etc. Decorated sherds were also retained.

The diagnostic sherds were hand-washed, whereas the non-diagnostic sherds were allowed to dry in trays, weighed when dry and subsequently discarded on site.

The rationale of this policy was to create a substantial saving in long-term storage costs. The only immediately identifiable reasons for keeping the non-diagnostic sherds were:

1. to contribute to the reconstruction of vessels.
2. to contribute to a statistical analysis of the assemblage.

However, the material did not add significantly to the range of forms known from previous excavations (e.g. Hinton 1980). This was presumed to be a result of the intermixing of dumps. The only practical contribution that non-diagnostic sherds could make to analysis would be weight, which was recorded. Discarding them leaves a physically reduced body of evidence, but not a significantly reduced source of data. Despite this considered policy to deal efficiently with such a massive body of evidence, it was only possible to process about two thirds of the kiln material on-site.

TYOLOGY OF FORMS

When examining a group of kiln material, it is important to remember that it is a reflection of the failed pottery produced by the kiln, and not necessarily an accurate reflection of the forms in common circulation. While any typology of forms produced is important, probably the most valuable information recovered concerns the methods and procedures employed in potting and firing.

The forms identified among the material processed to date mirror quite closely the range of forms excavated previously (Hinton 1980), with a number of exceptions. At this stage, these oddities and exceptions can, in some ways, be regarded as the more interesting part of the assemblage, but it is necessary to summarise the major forms present. Since the material is awaiting full quantification, it is not yet possible to give the relative proportions present. A range of the forms found is illustrated in Colour Plate 1.

Small biconical jugs are the most common form surviving; there are numerous intact or near-intact examples from various contexts (cf. Pearce and Vince 1988, Fig. 82, Nos. 182–92). They generally have a rounded, rather than angular, carination.

The presence of *baluster jugs* is indicated by thick flaring bases, the diameter of which often exceeds the maximum girth of the vessel. Frequently these vessels have thick, glossy, green glaze over the upper portion of the body, rather than the insubstantial bibs of speckled glaze on the small biconical jugs. The baluster jugs are devoid of decoration such as applied stamps or rouletting, although there are examples with thumbing around the base, either intermittent or continuous. Baluster jug fragments are commonplace throughout the material, including both tulip-necked and narrow-necked types (cf. *ibid.*, Figs. 60, 62). There is a possible sub-type of the narrow-necked baluster which tends to have a very narrow body, giving an almost cylindrical form. This smaller type is often coated with glossy, even, green glaze. One example has a very wide base compared to the maximum girth of the vessel. The bases of tulip-necked baluster jugs are normally smaller in diameter than the maximum girth of the vessel, and with narrow-necked balusters the base diameter is roughly the same as the maximum girth. No examples of metal-copy balusters have been recognised.

Fewer vessels could be categorised as *rounded* or *barrel-shaped jugs*, although these must be certainly present (cf. *ibid.*, Figs. 74–81). There are also a number of sherds from straight-sided, undecorated, *conical jugs* (cf. *ibid.*, Figs. 64–5), usually with intermittent, or, in one case, continuous thumbing around the base.

After jugs, *cooking pots* are the most common form. These come in a variety of sizes with little difference in shape. They are commonly glazed in a desultory fashion, and decoration is confined to applied, thumbed strips.

Substantial remains of a number of *pipkins* were excavated. These conform to the standard form, with a globular body and tapering strap handle (e.g. *ibid.*, Fig. 95, Nos. 311–17). No tripod pipkins have yet been identified among the material. The incidence of *cauldrons* is uncertain as the sherds can be easily mistaken for cooking pots. None of the distinctive angled loop handles of rod or square section were found, but one globular vessel has a stabbed strap handle springing from the rim to the waist. There are also fragments of *frying pans* with hollow socket handles (cf. *ibid.*, Fig. 97, No. 334); in one case, the hollow handle has pierced the wall of the vessel to give a spout-like form.

On the whole it is difficult to distinguish *bowls* and *dishes* when fragmentary, although the range of forms appears to conform to excavated examples from London (e.g. *ibid.*, Figs. 97–8). All known types are present, including the distinctive small dish or saucer.

Crucibles come in two basic forms and a variety of sizes. There is a thick-walled straight-sided type, as well as a number of examples of rounded hemispherical shape, which have pronounced pinched pouring lips.

A number of fragments of *lobed cups* were identified. These are wide, pedestal base cups with rims divided into distinct, pinched lobes. These vessels tend to be thin-walled,

with a finer fabric and are usually covered with a thick, glossy, green glaze. Since their rims tend to be fragile, the cups are frequently broken around the rim, leaving the base pedestal. Identified cups have short, loop, strap handles. Cups were also being produced without lobes; these tend to be somewhat taller than the lobed examples. It is quite likely that there are also examples of the wider, shallower cup form without lobes. Clearly the presence of these sherds suggests that this form started earlier than previously thought, and was in use at least by the early 14th century.

Several fragments of *money-boxes* were identified, usually by the vertical coin slit. They tend to be rounded, without the distinctive finial found on later examples (cf. *ibid.*, Fig. 99, Nos. 373–83). The apparent reason for discarding the vessels is that the coin slit was not wide enough to accept coins, as a substantial allowance should have been made for shrinkage during firing (*ibid.*, 49).

There are a number of fragments of sub-rectangular, slab-built *condiments*, as well as the wheelthrown dish type with a single internal partition (cf. *ibid.*, Fig. 99, Nos. 367–72).

Cisterns are evidenced by several of the distinctive bung-holes that characterise this form.

There is a single sherd with a triangular-shaped cutaway, which may belong to a *puzzle jug*, or possibly a *lantern*.

The bottom of a jug with a pronounced upturned base was identified. Its function is unclear, although a similar example was found in earlier excavations at Eden Street (Hinton 1980, Fig. 3, No. 27).

A single, green-glazed, mushroom-shaped knob, c. 30mm in diameter, may come from a *lid*.

DECORATIVE TYPES

The bulk of the decorated sherds come from jugs. However, there is a complete absence of highly decorated, polychrome sherds. There are fragments from two anthropomorphic jugs and stamped bosses are also present; the wheatear or fern leaf type being the most common. Other stamps found include *fleur-de-lys*, debased scallop shells and heraldic devices. There are a few jug sherds with applied raspberry prints.

PRODUCTION PROCESSES

The excavation of kiln sites can significantly add to our knowledge of the pottery industry and provide valuable information, not only on kiln structures and their application, but also on pottery technology and products. They are one of the most important form of finds for dating all archaeological sites. The excavation of medieval kiln sites allows the technology of the industry to be studied at first hand. The type and function of the kiln can be studied in direct relationship to a sample of the goods produced. In particular, the evidence of technological failure gained from a study of the wasters can be compared with the kiln designs and firing techniques, allowing conclusions to be made about the efficiency of the pottery production methods. Faults can occur at all stages of the potting and firing process, and frequently mistakes made at one stage of the process do not manifest themselves until the next stage is complete. Some examples are given below.

Clay preparation. The procuring of clay of the correct colour and plasticity is fundamental to the potting process. Clearly no adulteration has occurred to the white-firing clay used at Eden Street, since there is no sign of marbling with red-firing clay. There is some evidence for poor or careless clay preparation, with some vessels displaying spalling, where

a flake breaks away from the body. This is usually caused by stones or impurities which should have been removed from the clay when it was puddled prior to potting.

Potting or forming. The potting process occasionally led to the making of deformed vessels, a few of which seem to have been allowed to pass through to firing, e.g. vessels which are not symmetrical, dented, or have poorly attached handles which are only luted to the vessel wall, and not pushed through. In addition, vessels thrown with a base substantially thicker than the walls of the body, suffer from differential expansion during firing, and fracturing occurs at the junction of the base with the wall of the vessel. This is shown by the occasional occurrence of a base sheared from the body, leaving only a fired disc.

Drying. Before firing, vessels are allowed to dry slowly to a stage known as leather-hard; firing prematurely will lead to fracturing during firing and spalling. Over-drying can also lead to the vessel becoming excessively brittle. Inevitably, pots would not all be dry to the same stage, as it is not feasible to fire the kiln before it is full, and this must have led to some imperfectly dried vessels being consigned prematurely to firing.

Glazing. A lead glaze with added copper was probably applied as a powder or a paste. The bib of glaze normally found under the rim of jugs, opposite the handle, is misplaced on a number of examples, suggesting a somewhat cavalier application. In addition, the mixture of the glaze appears on some vessels to be faulty, leading to discolouration. The application of excessive quantities of glaze leads to running and fusing to adjacent vessels.

Loading and firing. The next stage of the process was loading the kiln which was a highly skilled undertaking, because the kiln would have to be stacked in such a way that hot air could circulate as evenly as possible. The experienced kiln loader would have to take into account the fact that certain vessels would need greater exposure to heat than others, and portions of the kiln would inevitably be hotter than others. This would influence the placement of vessels in the kiln and might create a bias in the make-up of the discarded material, as the kiln loader would place valuable or complicated vessels where he knew they would be successfully fired, whereas the common, mass-produced vessels could be placed in a marginal section of the kiln. If the kiln was stacked badly there would be a higher incidence of overfired vessels closer to the heat source, with hard, discoloured, brittle fabric and blistered glaze; and underfired vessels with soft, crumbly fabric further away.

It is generally assumed that kilns were stacked with vessels placed rim to base, and mostly upside down, and that to reduce the likelihood of glaze running and fusing pots together, where bases were not thumbbed (see Newell 1994, 54), sherds were reused to separate vessels and reduce the area in contact with the vessel below. Many sherds display signs of having been used for this purpose, usually with glaze over the broken edge. In addition, there are a number of vessel fragments that have separator sherds fused to them, as well as impressions of the rim of the vessel above in the glaze under the base. Scars in the glaze are also common on vessel walls, caused by touching during firing.

Even though saggars were not in common use at this time, there is evidence that larger vessels were improvised as saggars; for example, the base of a large baluster jug bears the scar of a smaller vessel inside it.

Unloading. When the firing was judged to be finished the kiln would be unloaded. It was important to get this right, because premature unloading, while the pots were still hot, would lead to fracturing if they were allowed to cool too quickly.

Clearly there is much potential to produce wasters at all

stages of the potting process. Unfortunately, it is not always possible to identify at what stage a waster was discarded, as similar effects could have different causes. For instance, fracturing could be caused by excessive heating or cooling of a vessel. It is not therefore possible to identify any one stage in the process which was more prone to produce wasters.

FURTHER WORK

There are certain constraints on the interpretation of kiln material, in that groups of wasters are the rejects from the production process. Groups of wasters do not give an accurate reflection of overall successful production, and therefore cannot be seen as representative quantitatively of what was demanded by the consumers. However, the range of vessels produced can be determined, as well as those forms which were prone to failure. Quantification of primary dumps of pottery is currently being undertaken to compare the material with other assemblages, such as that recovered from the nearby Knapp Drewett site which has an archaeomagnetic date of 1345–1375 (Vince 1985). This should show whether any changes took place in the overall make-up of production, or whether there were any fundamental changes in the technology; for instance, if any errors were corrected between groups at Eden Street, or at other later sites.

In addition to a statistical breakdown of specific dumps of wasters, the final publication will include a fully illustrated typology of the range of forms produced at the site. Coupled to this will be a detailed commentary on the technology, and on the nature and extent of the pottery defects.

The kiln material from Eden Street has a very important contribution to make to the dating of Kingston-type ware. If the archaeomagnetic dates can be associated with a specific range of forms and decoration types there are important implications for refining the dating of assemblages of pottery recovered from elsewhere in London. Already the presence of lobed cup fragments is important in this group, since this is a form previously dated to the late 14th century, and the latest archaeomagnetic date from the site is 1300–1325.

Acknowledgements

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CONFERENCE REPORTS

THE AGE OF TRANSITION: THE ARCHAEOLOGY OF ENGLISH CULTURE 1400–1600

A Conference held at the British Museum, London,
14–15 November 1996

It was appropriate that the first joint meeting between The Society for Medieval Archaeology and The Society for Post-Medieval Archaeology should concentrate on what divides them, the process of transition out of the medieval period. Some 125 delegates attended the British Museum in November 1996, and speakers included historians and archaeologists both academic and field.

Hugh Tait, a founding member of the SPMA, gave an admirable introduction to visual change, from the medieval and Gothic of 1400 to the Renaissance and allegorical paintings of 1600. He defined civilised society as one where freedom of mind was encouraged; this had been the strength of Florence where the spirit of criticism was already abroad. North of the Alps it was a period when new global horizons were opening minds to the tradition of antiquity; in England the court of Henry VII no longer used French, and by the second quarter of the sixteenth century every church had a bible in English rather than Latin. Learning was an integral part of life for the Elizabethan nobility, and knowledge of fine arts was part of that learning; everyone could become a gentleman. By 1600 intellectual freedom and the competitive spirit to achieve great things had been established in Britain; the true renaissance spirit.

Paul Courtney was sceptical of the historian's analysis of the great divide. Archaeologists, he felt, could do much to show the long-term change experienced by more ordinary households, and to study the complexities and inter-connectedness of change within and between societies. In particular, archaeology can address the document impoverished groups who are often assumed to have had no active material culture. A witty overview by Frans Verhaeghe argued that every category of artefact had a different cultural cycle; the mechanisms for change were set in the twelfth and thirteenth centuries, but the speed of change differed and different transitions occurred between then and the eighteenth century, a pattern that English archaeologists were to confirm later in the conference. He too stressed the regional differences in northern Europe. Each Flemish town had its own identity: architectural styles varied, some maintained the medieval building type while in others the middle class house had grown vertically. The medieval street layout in some Flemish towns remained unchanged until the later seventeenth and early eighteenth centuries, a phenomenon paralleled in many English towns. By the later sixteenth century major changes in warfare generated new fortification, while the rural world remained conservative. From an art historical point of view he could identify a marked change about 1500, but lamented the lack of theoretical framework and recommended a more holistic approach.

Helmut Hundsbichler's central thesis was that new knowledge of the past does not change history but reveals what has not been apparent before. He illustrated his contribution with pictorial sources of Austria and Central Europe, mainly of the fifteenth and sixteenth centuries, housed in his institute's collection at Krems in Austria. Chris Dyer showed how well placed archaeologists were to challenge questions of change, particularly amongst the

with a finer fabric and are usually covered with a thick, glossy, green glaze. Since their rims tend to be fragile, the cups are frequently broken around the rim, leaving the base pedestal. Identified cups have short, loop, strap handles. Cups were also being produced without lobes; these tend to be somewhat taller than the lobed examples. It is quite likely that there are also examples of the wider, shallower cup form without lobes. Clearly the presence of these sherds suggests that this form started earlier than previously thought, and was in use at least by the early 14th century.

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