

Figure 1
Location map of site NHER39789.

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Following their trade without interruption

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Evidence of the Flemish potters and early tin-glazed ware production in Norwich

Richenda Goffin*

Summary

This paper presents some preliminary findings on pottery and kiln related material found in the infill of a well excavated close to the location of the original tin-glazed earthenware production centre set up in Norwich by Jasper Andries and Jacob Jansen in

AD 1567. The ceramic material is discussed in relationship to other early groups of tin-glazed wares both in the Netherlands and in London. The possibility that the Dutch potters were also producing redwares is also investigated.

Introduction

In the autumn of 2003 the Norfolk Archaeological Unit (now Norfolk Archaeology) undertook an excavation on the site of the former Warminger's waste paper plant at 36–58 Ber Street in Norwich (NHER No 39789). The site is located within the southern part of the historic medieval core of the city, fronting onto Ber Street and occupying the majority of a block of land which stretches from Thorn Lane opposite the former site of St Michael at Thorn's Church to Horns Lane (Figure 1).

The work showed evidence of Saxo-Norman activity along the street frontage, as well as medieval quarrying activity and post-medieval dumping deposits which included an assemblage of bell casting waste dating to the sixteenth and seventeenth century (Emery 2009).

Most significantly, the excavation revealed evidence of the earliest known tin-glazed earthenware production site in England, which was established in the second half of the sixteenth century. The exact location of the kiln itself remained unknown, but the presence of pottery and associated ceramic material mainly recovered from the infilling of a well, suggests that it is likely to have been close by. The following report describes the assemblage and provides some initial observations and comparisons with other early kiln groups, as well as placing the kiln material in its archaeological and historical context.

The well known background to the arrival of the immigrant potters is summarised below, along with a brief description of the production process for this type of pottery.

The establishment of this early kiln site in Norwich can be seen as a significant link in the spread of the technology of tin-glazed earthenware manufacture throughout the mercantile centres of north-western

Europe. This ceramic tradition had its roots in Italy, where the art of making such pottery had been widely practiced from the medieval period, although its real origins lay centuries earlier in the Middle East, probably in Mesopotamia (Caiger-Smith 1973). The process of making this type of pottery is described in detail by the Italian writer Piccolpasso, in his treatise on the Potter's Art of c.AD 1558 (Piccolpasso 1980). The earthenware vessel is first fired once in the kiln (biscuit ware), and is then dipped into a water-soluble glaze. Once this has been fully absorbed into the porous body, it can either be further decorated or left plain, and then fired a second time. The glaze itself is made of lead oxide to which tin oxide has been added to produce the whitened, opaque effect which is the chief characteristic of the ware, and which forms the background for further decoration.

The historical background

The establishment of the Norwich kiln can also be seen against the backdrop of the political and religious turmoil of the early modern period. The oppressive regime of Philip II and his regents in the Low Countries and their attempts to arrest the spread of Protestantism, together with heavy taxation, high unemployment and corn prices resulted in civil unrest and iconoclastic rioting in cities such as Antwerp in AD 1566, as well as in many other towns and cities in West Flanders the same year (Parker 1990, 76–78). The religious persecution in Flanders forced the displacement of many artisans and craftsmen who sought refuge abroad, where they could both practice their religion and resume their livelihoods in safety. Historically

there had long been a tradition of constant travel between those living on the east coast of England and the Netherlands (Ives unpublished). In November AD 1561 Inquisitor Titelmann wrote to Margaret of Parma (regent in the Netherlands at the time) observing that the Netherlanders 'come over time and again, without hindrance, taking their goods with them. Not only do they leave the country without let, but they also return in small groups or individually to see friends and relatives or to attend to business' (Norwood 1942). By AD 1570 there was a considerable community of Dutch refugees living in Norwich (Parker 1990, 118–119).

Amongst the citizens of Antwerp fleeing Flanders was a family of potters of Italian extraction making tin-glazed earthenware, a practice originally taught to them by their father Guido Andries (also known as Guido da Savino), a potter probably from Casteldurante who had moved to Antwerp in the early years of the sixteenth century (Caiger-Smith 1973, 105; Britton 1987, 18). Guido had been approached by no less a patron than Henry VIII to set up in England, but for whatever reason, he did not do so (Garner 1948, 1; Britton 1987, 20). Documentary records show that Joris (George) Andries and his family visited Norwich in AD 1567, and that his brother Jasper Andries, and Jacob Jansen left Antwerp to come to Norwich the same year and set up a tin-glazed earthenware kiln (Noel Hume 1977, 3; Britton 1987, 19–21; Blackmore 2005, 246). Less than three years later Jasper Andries and Jacob Jansen were unsuccessfully petitioning Queen Elizabeth to grant them a site by the Thames for a tin-glazed pottery in London, together with exclusive rights of manufacture for a period of twenty years (Noel Hume 1977, 3; Britton 1987, 20, quoting BM manuscript; Blackmore 2005, 246). Although Jansen was to establish the Aldgate pottery in AD 1571, together with other Flemish potters, it seems likely that the involvement of Jasper with the Norwich pottery was brief, as he is recorded as living in Colchester in AD 1571 (Britton 1987, 21).

A recent documentary study of Strangers in individual Norwich parishes has shown that a Jacob Johnson, potter, was recorded in the Lay Subsidy Roll of AD 1576 for the parish of St Johns on the Hill adjacent to the parish of St Michael-at-Thorn in Conesford Ward where the Ber Street kiln site was probably located (Nancy Ives, pers. comm.). As this is after Jacob Jansen had started up the pottery at Aldgate the entry is puzzling, although there may be other explanations for this, such as the existence of a son with the same name.

The Norwich kiln appears to have only been short-lived, for reasons which are unclear, although perhaps hinted at in the potters' petition to Queen Elizabeth. Documentary research has indicated the presence of other Flemish potters in Norwich at this time (Nancy Ives, pers. comm.), but they may have been producing earthenwares. Frank Britton refers to an entry dating to 1698 in the House of Commons journal which suggests

that there was a delftware kiln in Norwich, perhaps up until the late seventeenth century – 'that there are seven white earthenware houses about London; two at Bristol; and one at Norwich, which is since broke' (House of Commons Journal). However, there is little evidence in the archaeological record in Norwich for the large scale production of tin-glazed earthenwares either in the form of biscuit wares, wasters and kiln furniture or finished wares, unless the latter category are indistinguishable from the products made elsewhere.

The evidence for the Ber Street kiln

Although the documentary reference to the setting up of the Norwich kiln is well known (British Museum MS), there is little indication of its precise location in the archaeological record. Quantities of related kiln material have been consistently recovered in the vicinity of Ber Street and Thorn Lane over the years, from both salvage and controlled excavations, first by E. M. Jope, and subsequently by Rainbird Clark and Bill Milligan at the Castle Museum (Noel Hume 1977, 108; Ayers 1994, 97).

In the 16th century the land around Sandgate Lane (later known as Thorn Lane, off Ber Street) formed part of an industrial area, the activities of which included the extraction of chalk, which was burnt in nearby lime-kilns, and flint, which was used as building material (Harris 1993). The limekilns were built on the western side of Conesford Street and they extended southwards down to the city gates at Conesford (Harris 1993, 6). This part of the city would also have been a good place for the potters to set up; not only were they near the river for the water supply and access to raw materials and fuel, but the noxious fumes, smoke and dirt produced by the kilns and the associated workshops would have been at some distance from the main residential parts of the city. It is also possible that the potters were seeking to exploit the deposits of clay available in the immediate vicinity. These are likely to have been calcareous, and particularly suitable for the manufacture of tin-glazed earthenware (Caiger-Smith 1973, 100 and 109).

The underlying geology of the site is solid Upper Chalk, overlain by Crag material of banded sand and gravel deposits which contain some inclusions of clay (Emery 2009).

The excavated evidence and the dating of the well

A small number of waster sherds and fragments of kiln furniture was collected from the site in the late 1940s from a trial hole (NHER 8) located at the northern corner of the development site where Thorn Lane meets Ber Street, less than 20m from the location of the well. The recent excavations offered a valuable opportunity to uncover further evidence of the kiln, although the

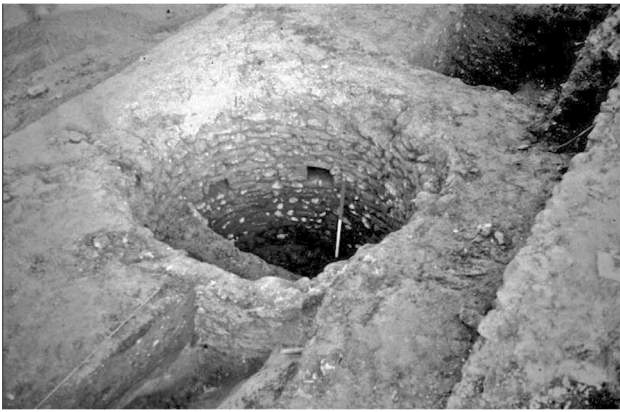


Figure 2
Flint and brick-lined well [1196] facing north, 1m scale.

stratigraphy at the northern corner of the site had been previously destroyed by the construction of basements for the Warminger's Paper Mill. This disturbance may have all but removed further evidence for the kiln site; if indeed it was sited at this specific location.

The majority of the kiln-related material was deposited into several fills of a large circular well [1196], located towards the northern edge of the excavation (Figure 2, Figure 3). It was set back *c.* 13m from the modern street frontage in an area of a former cobbled surface on the northern side of a flint wall, which is likely to have marked a boundary between different properties (Figure 4). Less than a metre to the east of the well, the ash/cess fill [1220] of a recut waste pit contained two copper alloy tokens (small find (SF) no 60) which have been dated to *c.* 1550–1559. On the other side of the wall a yard area dating to around the 16th century was identified, and to the west of this an oval shaped feature of a *c.* 16th century date was uncovered, which has been interpreted as a possible water tank. It was constructed of flint cobbles and re-used hand-made bricks, and its base was covered with a skimmed layer of mortar which was laid over the natural sand (Emery 2009).

The well [1196] had an internal diameter of 1.7m. The well lining was finely constructed of flush-worked flint with occasional intermittent courses of hand-made bricks. The square putlog sockets of two internal cross beams were inset into its walls.

The well contained ten fills of grey silty-clay. Each of the fills appeared to represent an episode of infilling, most likely as each load of material was tipped in, as part of an event which could have happened on the same day (Emery 2009). The composition of the artefactual material was roughly the same in each of the fills, a combination of brick and tile fragments, ordinary domestic ceramics and kiln-related material. Small quantities of domestic pottery were collected from these deposits which date to the 16th century, together with biscuit wares and tin-glazed waster sherds, and fragments of kiln furniture. Some additional examples of such material were identified

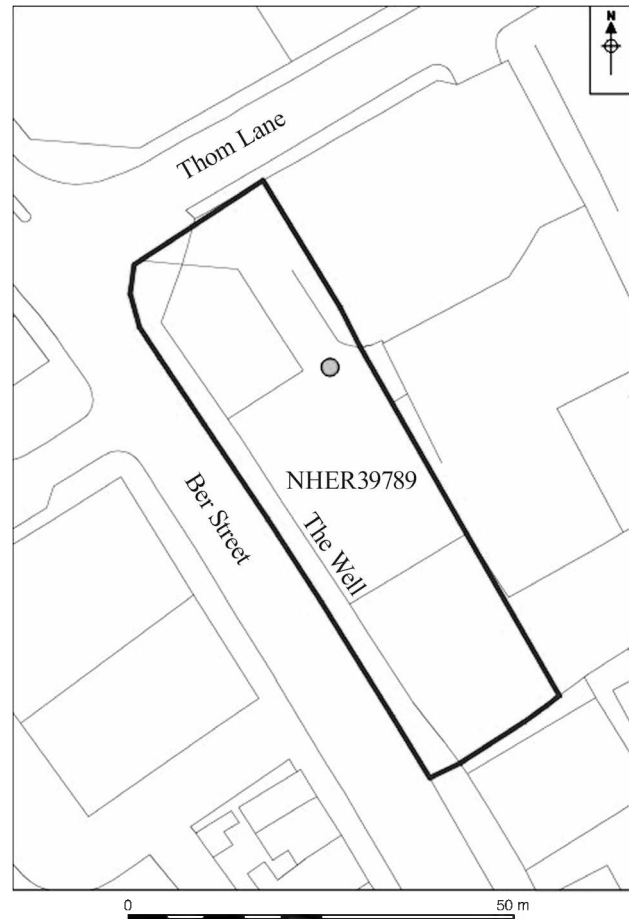


Figure 3
Site outline showing position of well [1196].

in the fills of two pits, and amongst the unstratified finds, with five additional biscuit wares also being recovered from the evaluation.

Although the well fills must post-date AD 1567, (the date of the establishment of the kiln taken from the documentary evidence), the exact date of the deposition of the pottery is open to some debate. There is little evidence of ceramic fabrics of exclusively seventeenth century date, and there are no fragments of clay pipe in any of the fills. The ordinary non-kiln ceramics (66 fragments, weighing 2.485 kg in total) consist mainly of glazed red earthenwares such as Late medieval and transitional ware (LMT), Glazed red earthenware (GRE), West Norfolk Bichrome (WNBC), and Dutch-type redware (DUTR). Although West Norfolk Bichrome is considered to be present in Norwich assemblages 'probably in the seventeenth century' (Jennings 1981, 148) there is increasing evidence that it may have been in use there in the late 16th century (Goffin 2009). The Glazed red earthenwares and Dutch type redwares are pottery types which continue throughout the 17th century, but there are no additional fabrics accompanying them which are of 17th century date apart from a single sherd of Westerwald stoneware which was found in the uppermost fill [1079] of the well. It seems most likely therefore that the well was

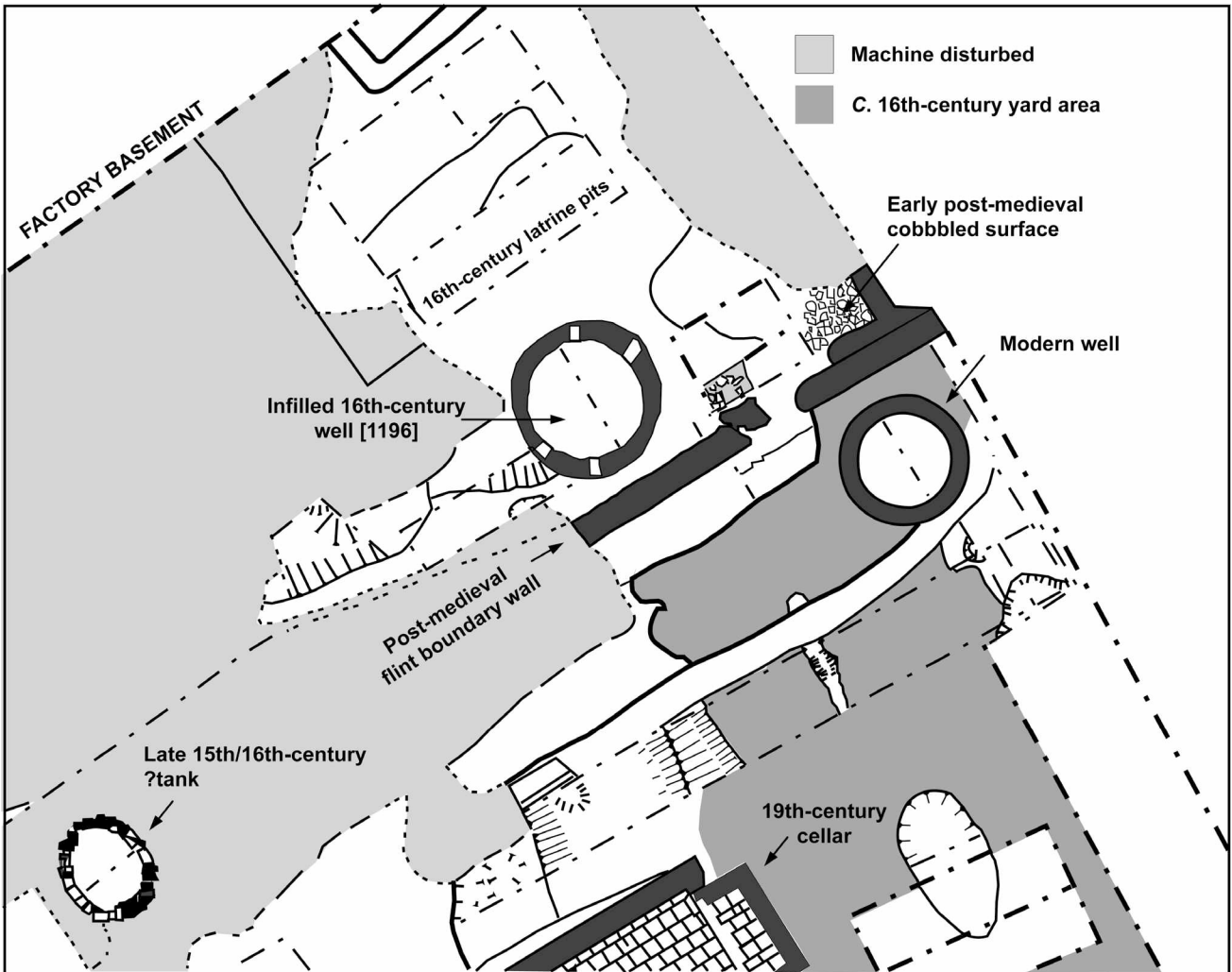


Figure 4
Northern part of the site showing well [1196] and associated features.

backfilled in the later years of the sixteenth century or at the latest around the turn of the seventeenth century.

The kiln assemblage

In addition to the non-kiln ceramics, a small quantity of tin-glazed earthenware (TGE) wasters (five fragments/0.101 kg), biscuit ware sherds (41 fragments/1.116 kg) and two biscuit-ware floor tiles (0.144 kg) were recovered from the well fills, together with a number of other items of kiln furniture. The well assemblage is supplemented by biscuit wares and wasters recovered from other features, most notably the fill of a re-cut pit [1219] located just 0.5m to the east of the well, and another pit [14] located in the south-west corner of the site (c. 46m away), together with ceramics recovered from machining or amongst the unstratified finds. In total twelve fragments of tin-glazed wasters (0.223 kg) were recovered, with 47 biscuit wares (1,469 kg) and a further five biscuit ware sherds from the evaluation (0.091 kg).

The kiln assemblage will be briefly described by form type, followed by a general discussion of the decoration and stylistic affinities of the material.

Range of forms

A table of the major form types of the kiln-related material is shown below.

Table 1
Range of forms of kiln related materials.

form type	number of sherds
drug jar	23
dish	10
bowl	6
unassigned body sherd	29
floor tile	2
setter	21
total	91

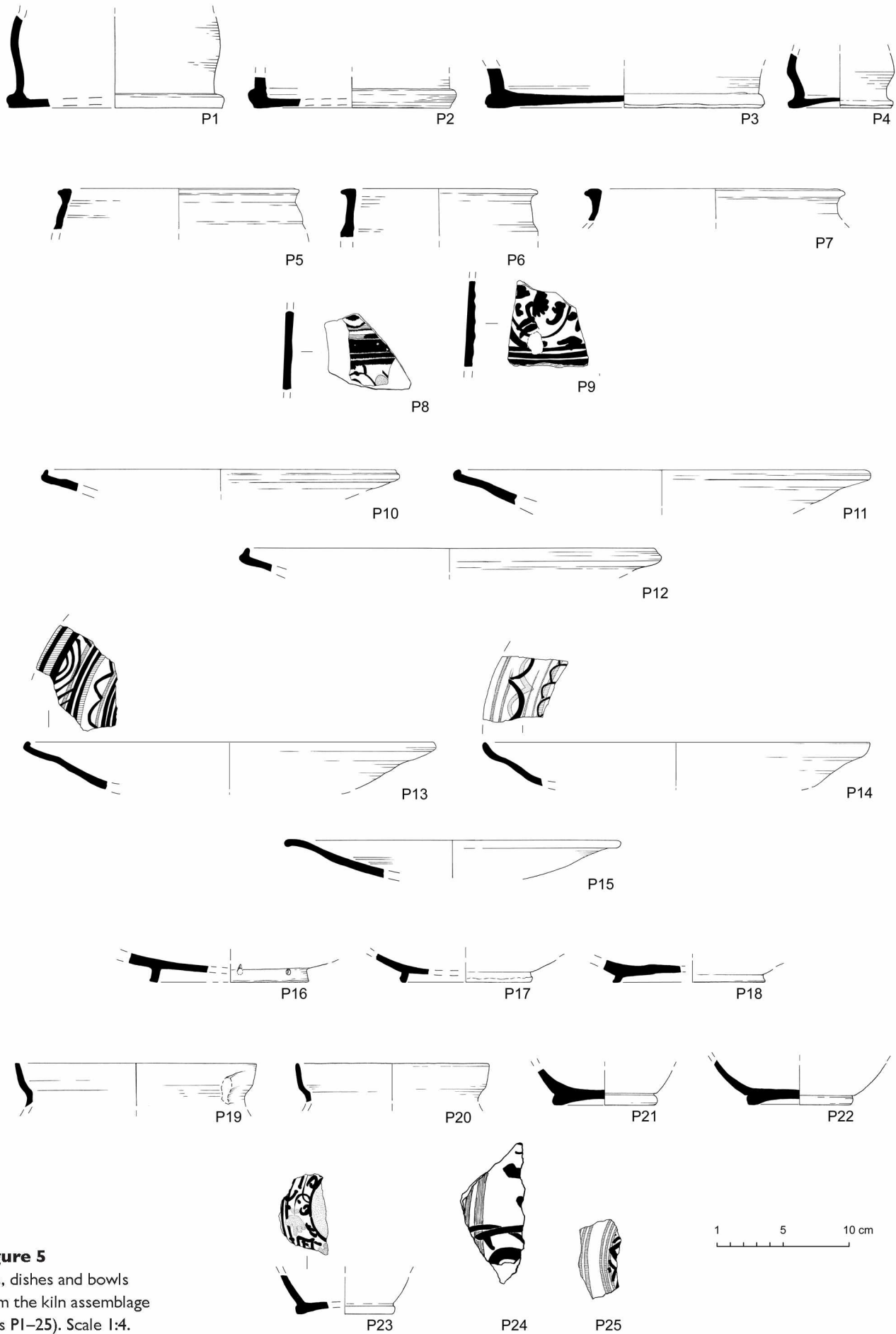


Figure 5
Jars, dishes and bowls
from the kiln assemblage
(nos P1–25). Scale 1:4.

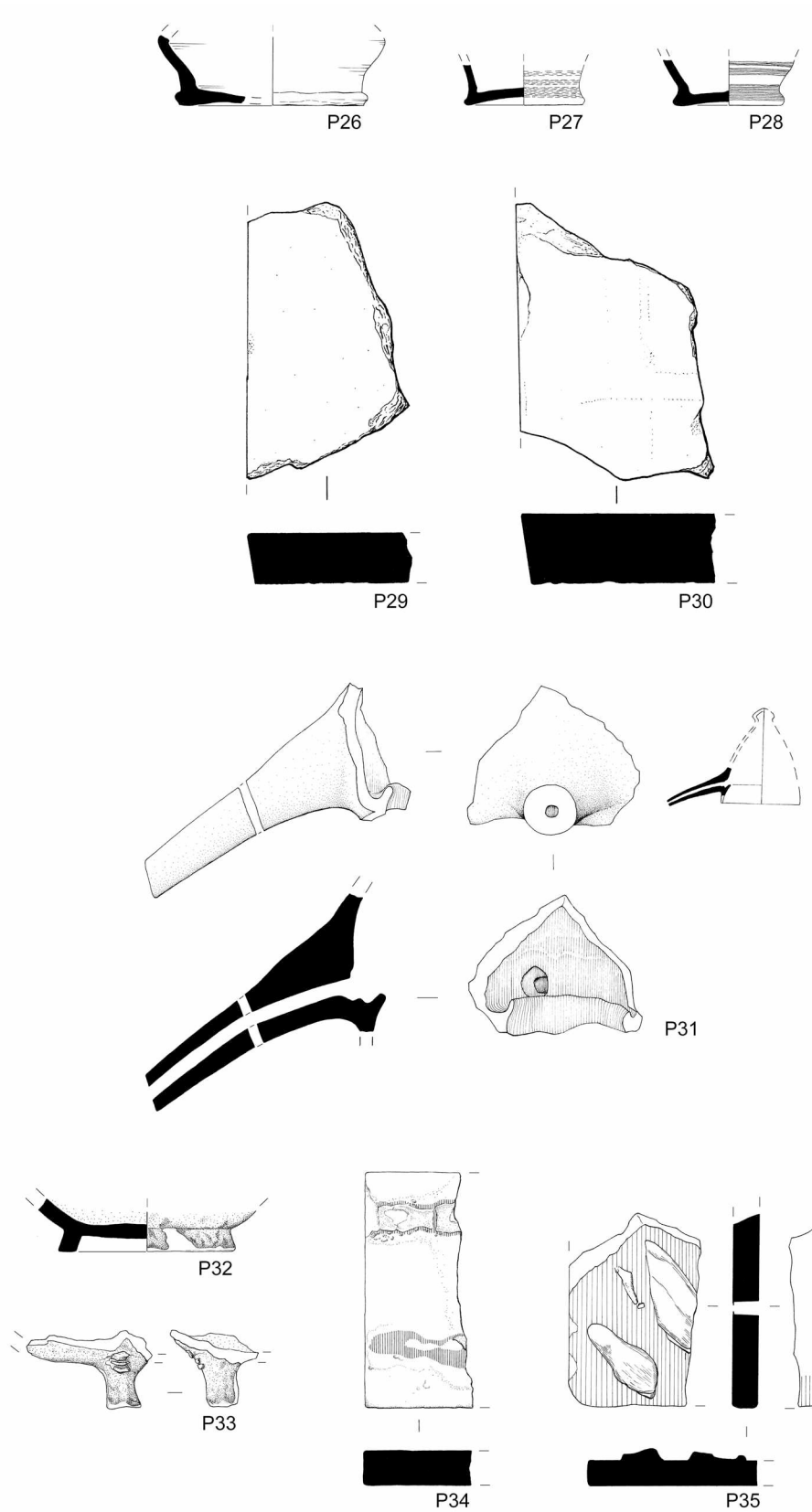


Figure 6

Miscellaneous forms, floor tiles and other pottery associated with the kiln group (nos P26–35). Scale 1:4.

Jars

Many of the biscuit wares represent fragments of dry drug jars of albarelli type with waisted profiles. These were made in a variety of sizes, with base diameters measuring from 80 mm to 180 mm (Figure 6, P1–P4). The bases are slightly concave with a range of different profiles, some of which are nearly straight-sided but slightly bevelled (P1), more rounded, (P2 and 3) or uneven (P4). The biscuit ware jar rims also show some variety in diameter size, from 120 mm to 180 mm (Figure 6, nos. P5–7). The three examples are not dissimilar in shape, and are relatively straight-sided with bevelled or expanded rims. A small number of jar sherds with failed glazes are present. One of these has blue bands and the fragmentary remains of yellow and blue floral/foliate decoration (Figure 6, no P8, Figure 7). Another sherd with blue banding and stylized floral and foliate decoration was recovered from cesspit fill [1220] which was in direct proximity to the well (Figure 6, no P9, Figure 7).

Dishes

A total of ten fragments were attributed to dishes, with rim diameters ranging between 240–260 mm. No complete dish profiles were recovered but rims and bases were identified. Three biscuit sherds have distinctive, hooked, inturned rims (Figure 6, nos.



Figure 7
Decorated jar sherds (Figure 5, nos P8 and P9)



Figure 8
Dish rims (Figure 5, nos P13 and P14).

P10–12), a profile classified by Britton as Type A (Britton 1987 Appendix V, 194). Two decorated dishes were present, one of which also has a hooked rim type (Figure 6, no P13, Figure 8a). This has a blue and white design in thin bands interspersed with curvilinear decoration, and an unsuccessful and crazed glaze. A second decorated, polychrome dish with a more delicate inturned rim (Figure 6, no P14, Figure 8b), has a border decoration in blue and yellow of overlapping arcs. Another biscuit ware dish profile is gently everted and closer to Britton Types B and C (*ibid*, 194) (Figure 6, no P15). There are three examples of the footring bases, all in biscuit ware. One of these is splayed with a straight edge (Figure 6, no P16). It is pierced by a suspension hole, together with the scar of another failed perforation attempt. A second biscuit ware footring is still splayed but with a profile which is less square with slight bevelling (Figure 6, no P17). Another base has a small shallow, more rudimentary footring which is slightly splayed (Figure 6, no P18).

Small bowls

There are several examples of smaller deeper open vessels which have been categorised as small bowls or porringers. One biscuit ware porringer rim with a diameter of 160 mm has a small horizontal handle above the carination (Figure 6, no P19). A second bowl fragment has a similar profile (Figure 6, no P20). The bases of the bowls are slightly concave and are splayed, being small and rounded (Figure 6, no P21: biscuit ware and no P22: biscuit ware). This is a distinctive feature, the significance of which is discussed below. Few of the bases are decorated, although one example has the remains of an unfired tin-glaze covering its internal surface (P22 as before). Only one of the bases is fully decorated, with a yellow centre and a band outlined in blue containing a blue and yellow schematic floral design (Figure 6, no P23, Figure 9b). The exterior of the vessel is covered with a failed, discoloured tin-glaze.

A number of other blue and white body sherds were present, the most notable being a small fragment of



Figure 9
Dish and bowl fragments (Figure 5, nos P25 and P23).

a dish or bowl which has a blue decoration perhaps enclosed within a roundel (Figure 6, nos. P24, Figure 10). It cannot be certain that this sherd comes from the kiln, but the clay body is poorly mixed and the outer surface has an off-white discoloured glaze. A second sherd decorated in blue and white shows alternating chevrons encompassed by blue bands (Figure 6, no P25, Figure 9a).

Other bases

A fragment of a dark orange biscuit ware base was recovered during the evaluation of the site. This vessel which has a diameter of 100 mm has become slightly distorted in the firing, and has a rounded, uneven splayed base (Figure 6, no P26). It may be the bottom part of a jug rather than a jar. A similar base is present in the Castle Museum collection (Ayers 1994, 97, fig.74).

Two other complete bases were present in the well fill deposit [1081]. One of these is from a semi-finished glazed vessel, presumably a jar with a small rounded splayed base, decorated externally with blue bands (Figure 6, no P27, Figure 11a). The second base is more rounded, and the vessel more globular in shape, indicating that it may be the base of a jug. It has the remains of a fully glazed blue-banded decoration on the exterior, but is unglazed on the inside (Figure 6, no P28, Figure 11).

Floor tiles

Two definite biscuit ware floor tiles were recovered from the well, with thicknesses of 14 mm and 20 mm (Figure 6, nos. P29–30: SFs 101 and 104). Both tiles have chamfered edges. A third tile is thicker (23 mm) and is made from a pink and buff fabric, which may not necessarily have come from this kiln.

Associated tiles and kiln furniture

In addition to the ceramics described above, a number of other tiles were clearly associated with the activities taking place inside the kiln. One of these is a buff earthenware tile 19 mm in thickness, with a complete surviving length of 137 mm. The tile has no chamfered edges and has runnels of green copper glaze on its surface (Figure 6, no P34, Figure 12: SF103). The glaze pattern and the associated scars from the adhesion of clay setters indicate that it was deliberately made for use inside the kiln, as a shelf, to form a base on which pottery and tiles could be placed. Another buff earthenware tile fragment may have been used inside the kiln as a support or divider (SF 106). It is made from a coarser fabric and is noticeably less chamfered than the floor tiles with a thickness of 14 mm. The upper surface is lightly pitted with droplets of clear and milky glaze.

Other non-biscuit ware tiles which show the remains of glazes or bits of pottery still adhering,



Figure 10
Dish fragment (Figure 5, no P24).

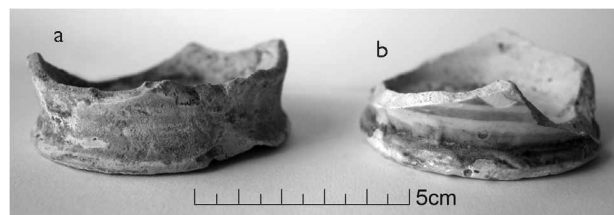


Figure 11
Bases with blue banded decoration (Figure 6, nos P27 and P28).



Figure 12
Tile fragment used inside kiln (Figure 6, no P34).

provide further evidence of the production process. A red earthenware tile from the well has two inverted whitewares collapsed on its surface, together with the remains of the scar of a redware vessel. The tile itself is covered with an orange and green lead glaze (Figure 6, no P35: SF108). Other red tiles also have glaze scars adhering, such as SF105. A total of twenty-one fragments of clay setters were recovered from one of the well infill deposits [1081] (Figure 13). These are strands of buff or pink rolled clay which have impressed spaces periodically along their lengths for the edges of tiles to be stacked, thus separating them from others inside the kiln. A single small spacer or 'cushion', (a fragment of what is left of one of the setters when it has broken off on either side of the raised area) made of red earthenware was also present.

Other wares

In addition to the domestic and kiln production wares, two joining sherds of an industrial vessel, a glazed red earthenware alembic, were found in one of the well fills (Figure 6, no P31, Figure 14). The surviving fragments form part of the rim and the spout. No analytical work has been undertaken so far on the residue which has collected inside the sill of the rim and inside the spout. It is unclear if the distilling vessel was related



Figure 13
Clay setter fragments from well infill [I081].



Figure 14
Alembic fragments from well fill [I194] (Figure 6, no P31).

to the processes of pottery manufacture or whether its presence is completely unconnected to this industry.

Discussion of the pottery

Although only a small quantity of the ceramics recovered from the site could be attributed to the production of the kiln, there is sufficient evidence to provide valuable details of the output of the earliest known tin-glazed production site in England.

The examples recovered confirm the statement in the petition of AD 1570 to Queen Elizabeth that the Norwich potters had been producing 'Galley paving tiles and Vessels for potycaries and other very artificially ...' (Noel Hume 1977, 3; Britton 1987, 20). This 'other' cannot be identified with any certainty, but the potters may have been referring to the kitchenware and tableware that they were also making, of which there is some evidence within this assemblage.

The ceramics indicate that the Norwich potters were aiming to produce a range of attractively decorated floor tiles and vessels for pharmaceutical and household use and display. There is no evidence from the admittedly small excavated assemblage that any of the wares were attempting to demonstrate a high degree of decorative quality or artistic merit.

Although only a few fully decorated sherds survive, many of the biscuit wares show diagnostic features

which are in themselves revealing. This is particularly the case with the bowls and dishes which demonstrate close stylistic links both with the repertoire of the Antwerp potters and with the pottery workshop set up by Jacob Jansen and his associates at Aldgate in London in AD 1571 (Edwards 1999, 137–139; Blackmore 2005, 237–247), evidence for which was found during excavations at Holy Trinity Priory (pit F22; Schofield and Lea 2005, 177–81).

A number of the dishes, both biscuit and finished glazed wares have inturned ‘hooked’ rims (Figure 6, nos. P10, P11, P12 and P13, Figure 8a), a profile categorised by Britton as Type A (Britton 1987, Appendix V 194). These dishes bear a strong similarity to three more complete biscuit ware examples recovered from the pit group F22 at the Holy Trinity Priory site, Aldgate (Blackmore 2005, 238, fig.202, <P22–24>; Edwards 1999, 137).

This distinctive rim variant has been found most notably at the Steenhovensvest kiln site in Antwerp, thought to date to *c.* AD 1556–62 (Blackmore 2005, 238: quoting J Veeckman and published examples in Dumortier and Veeckman 1994). This kiln was constructed inside a building owned by Lucas Andries, (a brother of Jasper Andries, one of the co-founders of the Norwich pottery), who had taken over his father’s business in Antwerp in AD 1562 (Veeckman 1999, 115; Britton 1987, 19). Other dishes with this rim type have been found elsewhere in the Low Countries, at Utrecht (Hoekstra 1986) and Rotterdam (Britton 1987, 29).

A small number of bases with splayed footings (Figure 6, nos. P16 and P17) recovered from the Norwich kiln site are not dissimilar to those from Holy Trinity Priory, Aldgate (Blackmore 2005, 238 fig.202, <P22–25>).

The small bowls recovered from the Warminger’s site also show strong affinities to similar wares produced in Antwerp. One biscuit ware sherd has a horizontal handle applied at a particular part of the vessel above the carination (Figure 6, no P19), a feature present on several finished tin-glazed earthenwares published in the Norwich Survey (Jennings 1981, 200). One of the bowls illustrated (Jennings 1981, fig.89, no.1418) was found at Rose Lane, not far from Ber Street. This bowl form has been found in Antwerp (for example, a finished maiolica bowl recovered from the Steenhovensvest excavation (Veeckman 1999, 122, fig.6.14). In addition small carinated bowls of this type have been identified at Middleburg in Netherlands (Hurst *et al* 1986, fig.56 no.170, 123–4), where Joris (George) Andries set up a workshop in AD 1564 (Britton 1987, 19). No complete profiles of these small bowls are present amongst the Norwich material, but three of the vessels have a small, slightly concave and splayed base rather than a thrown footing, which is also a characteristic feature (Figure 6, nos. P21, P22–23, Figure 9b). Such bowls have also been identified amongst the kiln material associated with the Aldgate kiln from the pit group F22 (Edwards and Stephenson 2002, 177; Blackmore 2005, fig.202, <P30>).

Only a small quantity of decorated fragments of dishes and bowls were recovered, but these demonstrate a strong Italianate and Flemish influence, confirming that the potters from Antwerp were not deviating much from their established repertoire when they started up in Norwich. The limited evidence includes two dishes, one of which has a polychrome decoration of intersecting and overlapping arcs of yellow and blue bordering an inner ring of overlapping blue arcs (Figure 6, no P14, Figure 8b). This is similar to a decorated dish sherd with zigzag lattice border from pit group F22 at Aldgate (Blackmore 2005, fig.203, <P51>). Such border designs have been assigned a wide date range of AD 1550–1640 in the Netherlandish maiolica study by Korf (1981, 54, fig.103, 65). A handled bowl with similar polychrome intersecting arcs excavated from a cesspit in the Schoytestraat in Antwerp has been dated to the end of the sixteenth century (Veeckman 1999, 123, fig. 6.20). A second dish from the Norwich site, decorated in plain blue and white curvilinear design has been crudely executed and is covered with a failed glaze (Figure 6, no P13, Figure 8a). Similar decorative borders are dated by Korf to *c.* AD 1560–1610, with the main concentration being *c.* AD 1570–1600 (1981, 55, fig.105, 97). The decoration of the interior of the small glazed bowl with the schematic design of yellow flowers and blue foliage, and the drug jar sherd with a similar blue motif may be relatively crude (Figure 6, no P23, Figure 9a and no P9, Figure 7b), but they are versions of decorative devices which were commonly found on vessels in the Low Countries (Korf 1981, 122–124, nos. 270–280; Baart 1999, 134 fig.7.18–7.20) and which have earlier antecedents. There is a strong parallel between the jar sherd (Figure 6, no P9) and a small decorated TGE dish in the Norwich Survey catalogue (Jennings 1981, fig.89, no.1421). One of the dishes from the assemblage at Aldgate has a zone of a similar type of decoration (Blackmore 2005, 240 and fig.202 <P42>). A small sherd from a dish or bowl decorated with a design in two shades of blue has not yet been identified, although initially it was considered that it might represent part of a monogram (Figure 6, no P24, Figure 10).

It is interesting to note that there are no examples of sgraffito type decoration in which the white tin-glaze underneath is revealed by scratching through the coloured decoration, a feature which is present amongst the Aldgate material, as well as being found at the Steenhovensvest site (Blackmore 2005, fig.203, <P50>, and Veeckman 1999, 115).

It is probable that dry drug jars were one of the main forms produced in the Norwich kiln, and although a number of fragments were identified both in biscuit wares and as decorated sherds, they are too incomplete for the vessel form to be described in detail. Their overall shape however shows broad similarities with the jars from the Aldgate pit assemblage (Blackmore 2005, fig. 202 <P31–39>).

The surviving sherds show that the rims of the jars are expanded, and unlike some of the jars from Aldgate

(Blackmore, 2005, fig.202, <P37 and P39>), they have no internal beading. The bases of the jars from Norwich seem to be more straight-sided than many of the illustrated examples from Aldgate; although one example (Figure 6, no P4) has more of a bevel at the base.

Evidence of the pottery production

Only limited evidence of the manufacturing process can be gathered from the kiln furniture. One of the tiles (Figure 6, no P34, Figure 12: SF 103) was clearly used as the base upon which setters were placed to support the ceramics inside the kiln. Another tile appears to show the remains of collapsed vessels which had not been placed within saggars. Apart from the setters, there are no fragments of stilts or trivets, or any saggars. The biscuit wares and kiln setters are in a variety of colours ranging from pale buff to brick red (Figure 13). In this respect they are similar to the wasters recovered from the Steenhouwersvest and Schoytestraat assemblages in Antwerp (Veckman 1999, 116). Here, biscuit wares in a similar range of colours were recorded, and it was suggested that the colour was not only the result of the mixing of red and white clays, but the fact that reddish biscuit ware sherds would turn white after the second firing (Veckman 1999, 116). Similar biscuit wares were identified amongst the material from pit F22 at Holy Trinity Priory Aldgate (Blackmore 2005, 237). A few sherds had been partially finished, that is the biscuit wares had been covered in a plain tin-glaze but this had not been further decorated or fired for a second time.

There is also a small amount of evidence to suggest that the Flemish potters may have been supplementing their attempts to produce tin-glazed wares with cheaper, ordinary glazed redwares, similar in style to those Dutch and Dutch-type lead glazed earthenwares which were in circulation at the time. Two fragments of pottery from the well fill [1081] are of interest. The base of a pale redware vessel has a bichrome glaze, that is a clear orange internal glaze and a mottled copper glaze on the exterior. It appears to be a bowl or dish with a large footring, a form usually associated with tin-glazed earthenwares (Figure 6, no P32, Figure 15). A second fragment from the base of a bichrome tripod pipkin was found in the same context. It is made from a fine, slightly micaceous red earthenware and has an orange glaze internally with a green copper glaze on the outside, with possible redware glazed kiln scars (Figure 6, no P33, Figure 16). Locally made bichrome redwares have been identified on sites in Norwich and in Kings Lynn and are thought to date from the 17th century (Jennings 1981, 148; Clark and Carter 1977, 238). However, as discussed above, there is some evidence from recent work in Norwich that these wares could date from the later sixteenth century. The range of forms for such redware appears to be mainly pipkins and jars, with some bowls and jugs, but there are no parallels for the bowl or dish with the deep footring. It may be that the presence of these vessels in the well is

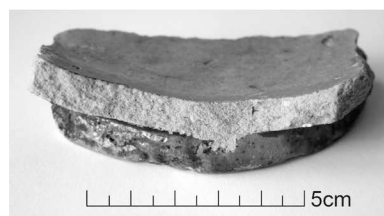


Figure 15

Bichrome footring base (Figure 6, no P32).



Figure 16

Fragment of bichrome redware pipkin with kiln scars (Figure 6, no P33).

just co-incidental, since other redwares are also present, but the unusual form of one vessel and the kiln scars on the underside of the other may be significant. In their petition to Queen Elizabeth, Jasper Andres and Jacob Jansen allude to the difficulties that they had to cope with in setting up in Norwich 'and have bine at very greate charges before they could find the materials in this Realme' (Britton 1987, 20, quoting British Museum manuscript). It is possible that the potters may also have been producing more utilitarian redwares with bichrome glazes, which were much cheaper and less trouble to make than the tin-glazed wares. Although no redware wasters were found on the Holy Trinity Priory site at Aldgate, fragments of crudely made Dutch-type redwares have been identified elsewhere in the eastern part of the City of London (Blackmore, pers. comm.), and it is possible that the immigrant potters were also producing these as well as tin-glazed earthenware (Blackmore, in prep a and b). Other delftware kilns of a later date are known to have manufactured additional pottery types, for example, the Hermitage pothouse in Wapping, which may also have been making a small quantity of stoneware and earthenware in the 17th and 18th century (Stephenson 1999, 152).

Taking into account the short lifespan of the kiln set up by the Flemish potters in Norwich, together with the documentary evidence that they had trouble in finding the raw materials to make it a successful enterprise, it is perhaps not surprising that there is no large scale evidence of the pottery production in archaeological deposits in Norwich. It seems likely that the potters were managing to manufacture a certain amount of delftware, but they were struggling with the 'quality control' of the glazing and firing processes. It is tempting to view some of the porringers and dishes published in the Norwich Survey volume (Jennings

1981 fig.89) as evidence of this problem, although their attribution to the Norwich kiln is at the moment conjecture. There are several examples of imperfectly decorated/glazed bowls and dishes – ‘badly fired glaze’ (No. 1418) ‘badly discoloured glaze and blue decoration’ (No. 1420), ‘totally discoloured glaze and blue decoration’ (No. 1421) ‘Small dish... crackled centre’ (No. 1423). Although they were imperfect, it appears that these vessels had been successfully sold. In addition, there could also have been a market for the semi-finished and biscuit wares. Excavations in Antwerp have shown that both undecorated and unglazed maiolica vessels were deposited into cesspits from non-kiln sites, indicating that they had a commercial value (Veckman 1999, 114).

Previous analytical work on biscuit wares from the museum collection

No analytical work has so far been carried out on the kiln related material recovered from the recent excavations. A small number of biscuit wares from the Castle Museum archive, collected mainly from the Ber Street area have been analysed as part of the programme of neutron activation of maiolica undertaken at the British Museum (Hughes and Gaimster 1999). The major aim of this research was to investigate the possibility of differentiating through analytical techniques individual production centres in Britain and the Low Countries, especially for the period of the sixteenth to early seventeenth century (Hughes and Gaimster 1999, 57). The results of this analysis showed that some of the biscuit wares submitted from Norwich had a distinctive composition, characterised by ‘relatively high hafnium and rare earth elements, coupled with low concentrations of chromium, cobalt, scandium and sodium’ (Hughes and Gaimster 1999, 65). Other analysed sherds from Norwich have different chemical compositions, which suggest that they were imported or made from imported clays.

Conclusions

The recent excavations in Norwich have provided an opportunity to examine some of the evidence for the earliest known tin-glazed earthenware production site in Britain. The kiln was probably short lived, but it marks a significant episode in the dissemination of the art of tin-glazed earthenware production. Following the establishment of the Aldgate pottery, and other possible production centres in Southwark during this period, the delftware industry became fully established in England, with major centres in Southwark and Lambeth flourishing in the 17th and 18th century as well as other parts of Britain.

This has been very much a preliminary study, and it is hoped that further scientific, ceramic, and

documentary research will be undertaken on this material and on other relevant artefacts currently held by the Castle Museum, Norwich.

Appendix Catalogue of illustrated forms

- P1** Jar base: context [1080] (Figure 6).
- P2** Jar base: context [1081] (Figure 6).
- P3** Jar base: context [1081] (Figure 6).
- P4** Jar base: context [1079] (Figure 6).
- P5** Jar rim, biscuit ware: context [1194] (Figure 6).
- P6** Jar rim, biscuit ware: context [1081] (Figure 6).
- P7** Jar rim, biscuit ware: context [1081] (Figure 6).
- P8** Jar sherd with blue bands with yellow and blue foliate decoration: context [1081] (Figure 6 and 7a).
- P9** Jar sherd with blue bands with stylised floral and foliate decoration: context [1220] (Figure 6 and Pl 2b).
- P10** Dish, biscuit ware sherd with hooked rim: context [1081] (Figure 6).
- P11** Dish, biscuit ware sherd with hooked rim: context [1081] (Figure 6).
- P12** Dish, biscuit ware sherd with hooked rim: context [1081] (Figure 6).
- P13** Dish with hooked rim. Blue and white design with unsuccessful crazed glaze: context [12] (Figure 6 and 8a).
- P14** Polychrome dish – delicate inturned rim with border decoration in blue and yellow arcs: context [12] (Figure 6 and 8b).
- P15** Dish, biscuit ware sherd with gently everted rim: context [1081] (Figure 6).
- P16** Footring base, splayed and straight edges with suspension hole: context [986] (Figure 6).
- P17** Footring base, splayed but less square with slight bevelling: context [1081] (Figure 6).
- P18** Footring base, rudimentary and slightly splayed: context [776] (Figure 6).
- P19** Small bowl with small horizontal handle above the carination: context [02] (Figure 6).
- P20** Small bowl, similar to P19: context [1081] (Figure 6).
- P21** Small bowl, with small rounded splayed base: context [1079] (Figure 6).
- P22** Small bowl, with remains of unfired tin-glaze on internal surface: context [02] (Figure 6).
- P23** Small bowl, fully decorated in yellow and blue with schematic floral design: context [02] (Figure 6).
- P24** Small bowl, body sherd with blue decoration enclosed within a roundel: context [1081] (Figure 6 and 10).
- P25** Small bowl, body sherd, blue and white with alternating chevrons encompassed by blue bands: context [1081] (Figure 6 and 9a).
- P26** Miscellaneous form base, dark orange biscuit ware NHER 26508: context [17] (Figure 6 and Pl 4b).
- P27** Miscellaneous form, complete base with blue bands: context [1081] (Figure 6 and 11a).
- P28** Miscellaneous form base, fully glazed, blue banded decoration on exterior only: context [1081] (Figure 6 and 11b).
- P29** Floor tile SF101: well [1196] (Figure 6).
- P30** Floor tile SF104: well [1196] (Figure 6).
- P31** Alembic fragments: context [1194] (Figure 6 and 14).

- P32** Redware bowl/dish [I081]: context (Figure 6 and 15).
P33 Redware, bichrome tripod pipkin: context [I081] (Figure 6).
P34 Tile (SF103) showing runnels of green copper glaze: [I081] (Figure 6 and 12).
P35 Tile (SF108) with scars and green lead glaze: context [I192] (Figure 6 and 16).

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Résumé

Cet exposé présente des constatations préliminaires sur la découverte d'objets de poterie et fours de cuisson dans le remblai d'un puits excavé à Norwich. Il se situe à proximité du centre original de production de terre cuite à glaçure stannifère fondé par Jasper Andries et Jacob Jansen en 1567. Cet artisanat céramique est étudié en relation avec d'autres groupes d'objets anciens en faïence des Pays-Bas et de Londres. L'hypothèse selon laquelle les potiers néerlandais produisaient également des objets en terre cuite est également examinée.

Zusammenfassung

Dieser Artikel stellt einige vorläufige Erkenntnisse über Keramik und Materialien mit Bezug auf Brennöfen vor, die in der Füllung eines Brunnens gefunden wurden, die in der Norwich in der Nähe des Standortes ausgegraben wurden, an dem Jasper Andries und Jacob Jansen 1567 ihre ursprüngliche Produktionsstätte für Steingut mit Zinnglasur eingerichtet hatten. Das Keramikmaterial wird im Zusammenhang mit anderen frühen Gruppen von Keramikwaren mit Zinnglasur aus den Niederlanden und aus London besprochen. Es wird die Möglichkeit erkundet, dass die holländischen Töpfer auch Steingut hergestellt haben.