Proceedings of the

SUFFOLK INSTITUTE

of

ARCHAEOLOGY AND HISTORY

Volume XXXVII Part 1

1989

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A ROMANO-BRITISH POTTERY KILN AT STOWMARKET

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INTRODUCTION

THE KILN WAS noticed in February 1978 in foundation trenches for new housing at Victoria Road, Stowmarket, and reported by the builder Mr Porch to the County Council Archaeological Unit through the Ipswich Museum. Examination of the foundation trench sections by the author showed a baked clay structure lying in the angle between two wall trenches; Mr Porch then offered to remove the topsoil from part of this area and to allow several days for further investigation after the foundation trenches had been concreted in. The excavated structure and the unexcavated part of the kiln to the east survive intact beneath the floor of the new house.

The excavation record and the finds are stored at the County Archaeological Unit in Bury St Edmunds.

LOCATION (FIG. 1)

The site is at TM 0546 5892, County Sites and Monuments Record number SKT 008. It lies on a slope facing south-west, just below the 125ft contour, on the north-east side of the Gipping valley, about 400 metres from the present course of the river. There is a small tributary of the river 250 metres to the south-east. The natural subsoil on all exposed areas of the building site was a uniform yellow sand, which was covered by about 50cm of brown sandy loam.

THE KILN (FIGS. 3–6, PLATE I)

The kiln was built in a vertical-sided, probably circular pit, cut at least 50cm into natural sand. Only small areas of the basal furnace floor were seen and its thickness was not determined; it had been largely removed at the entrance to the stokehole. The wall (*0011*) had a maximum thickness of 24cm of which the outer half was unburnt and the inside surface fired hard.

A curved baked clay pedestal, 18cm high, built into the furnace floor, was only partly investigated because the oven floor above was not removed. This pedestal was either horseshoe shaped or of two crescent shapes; the latter is more likely as no pedestal was seen in the original foundation trench section. Supported by the pedestals, and built on to the kiln wall before firing, was a clay floor (*0010*), 7.5cm thick. In front of the stokehole a large gap (*0009*) had been left in the floor extending to the front of the pedestals. The rest of the floor was pierced by twenty-three small circular vent holes, each 4cm in diameter. These were arranged along the edges of the pedestals with the holes at an angle, a central line of vertical holes, and an outer ring angled with the base of the hole nearer to the entrance. The kiln wall survived to a height of 22cm above the oven floor and leaned very slightly inwards.

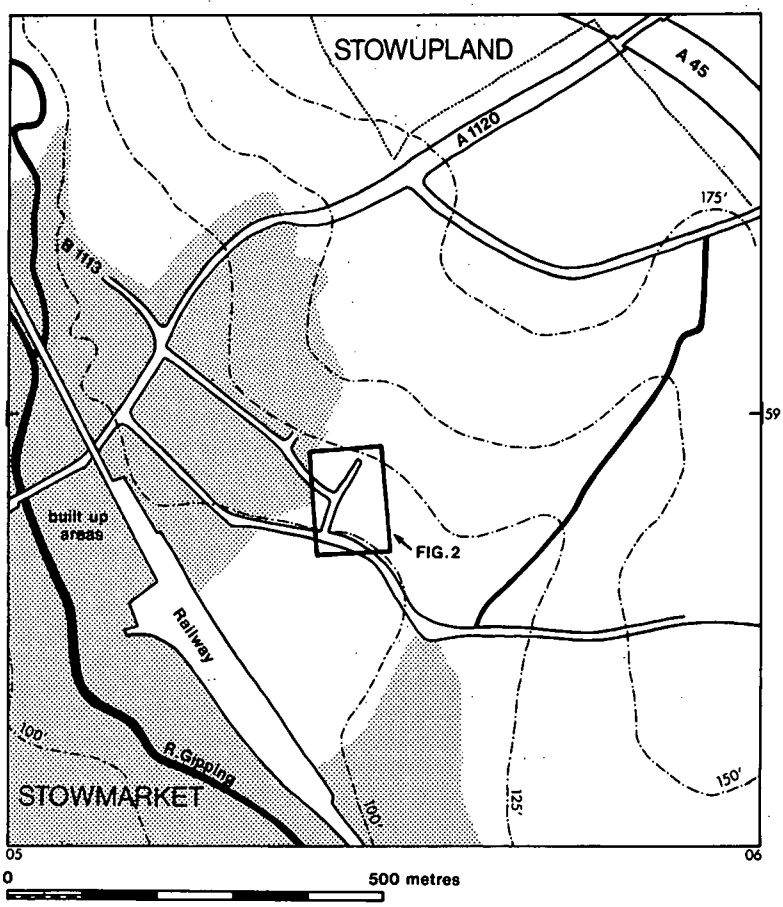

FIG. 1 – Location map.

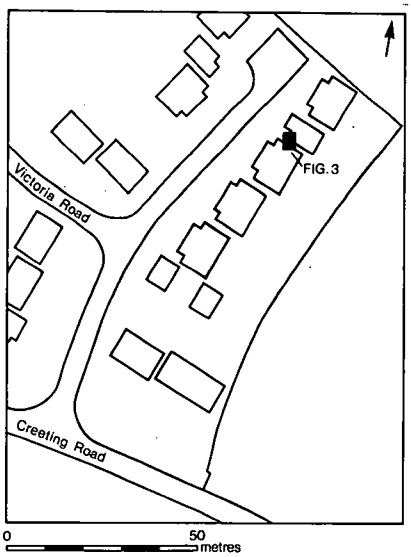

FIG. 2 – Location plan.

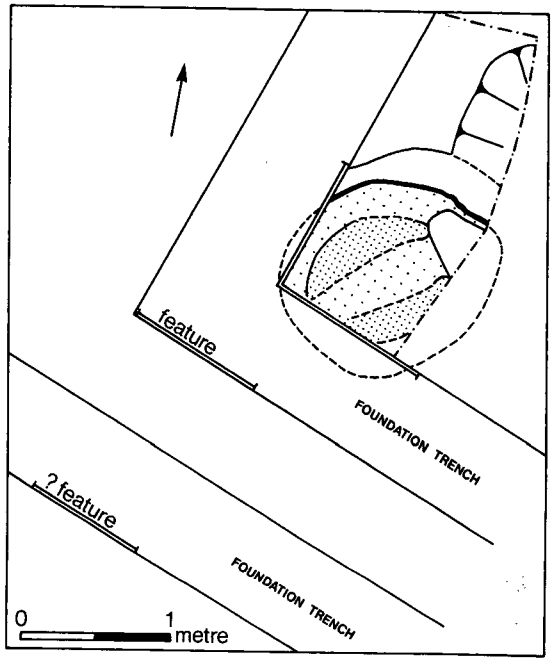

FIG. 3 – Kiln outline, partially reconstructed, and modern building foundations.

THE STOKEHOLE

Less than half of the stokehole was within the excavated area. The pit had sloping sides and was cut into natural sand, to at least the same depth as the kiln. The lower fill (*0005*) was a dark silty sand with charcoal. At the entrance to the kiln the stokehole contained a mass of partly burnt clay, probably largely collapsed kiln wall, over layer *0005*; there was no indication in the excavated area of a flue projecting from the kiln. The hole in the kiln wall leading into the stokehole was baked hard only on the inside of the kiln.

LAYERS INSIDE THE KILN

Resting on the furnace floor was a thin sticky layer of carbonised matter (*0013*), presumably firing residue, which was sampled for plant remains (see below). This was covered by about 10cm of sterile brown sand, which probably accumulated during or after the period of use of the kiln, before the walls collapsed and sealed the oven floor. There was a 5cm void between this layer and the underside of the oven floor.

Within the oven the majority of the pottery recovered was resting on the floor in a layer of dark sandy soil with patches of clay (*0008*). In some areas a thin lens of orange clay covered the floor, possibly the remains of unfired pots as the clay did not resemble that used for the kiln structure. Above *0008*, to the top of the surviving kiln wall, the chamber was filled with pieces of fired clay with lenses of unburnt greenish and burnt red-brown clay mixed with dark sand (*0004, 0006, 0007*). Many of the fired clay fragments in the lower part of the chamber fill were thin flat plates (maximum thickness 1cm) with much vegetable

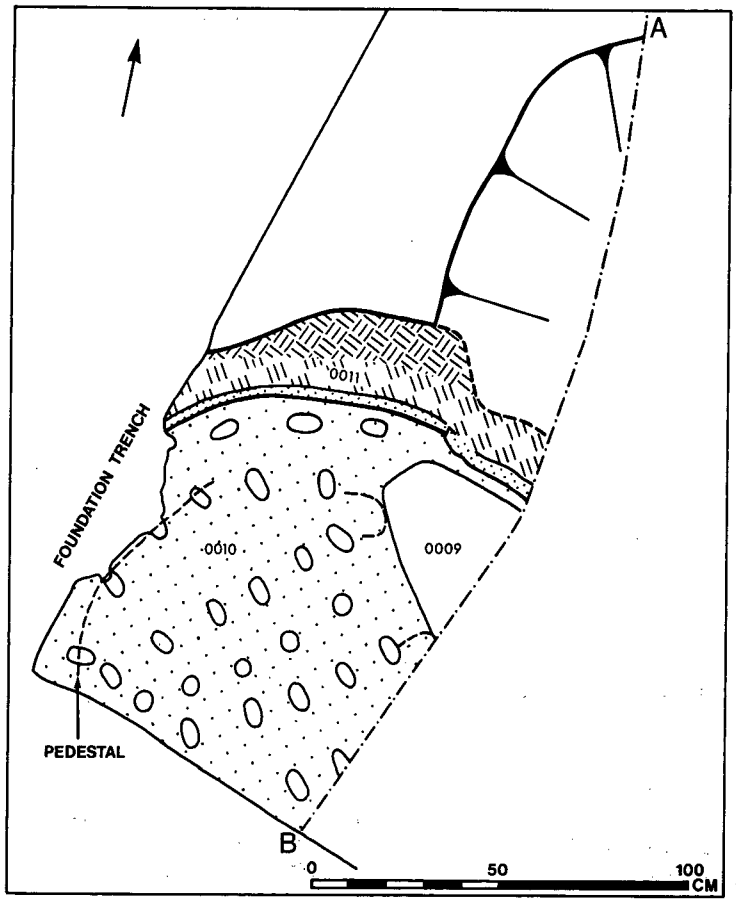

FIG. 4 – Plan of the excavated kiln.

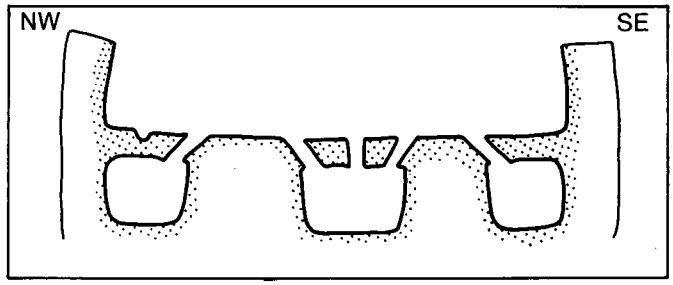

FIG. 5 – Profile across kiln structure, partially reconstructed (scale as Fig. 4).

Hard burnt clay
Reddened clay
Green chalky clay
Orange clay
Mid-brown sandy loam
Dark brown sandy loam
Dark grey silty sand
Charcoal

Key to Figs. 4, 5, 6

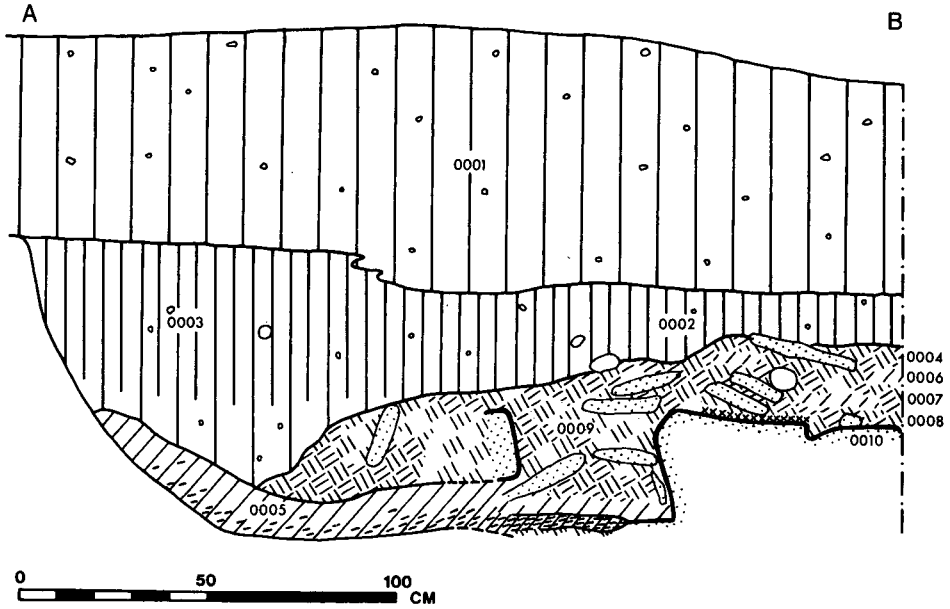

FIG. 6 – Section A–B (Fig. 4) through stokehole and kiln.

tempering, possibly 'dome plates' used as temporary roofing during firing; the upper fill contained more larger and thicker pieces identical to the standing kiln wall. The furnace area below the large gap in the oven floor was filled with the same mixture of pottery, clay and baked clay fragments, with no indication of anything used to block the hole during firing.

Both the stokehole and the kiln above the wall level were covered by a layer of dark grey-brown sandy loam containing some pottery (*0002, 0003*). Above this was about 50cm of topsoil (*0001*), removed by machine, consisting of a mid-brown sandy loam with small stones and no apparent occupation debris.

SIZE AND FUNCTION

Assuming symmetry about the central line of vent holes, the internal maximum width of the kiln would have been 1.20m; this is supported by the distances observed in the foundation trench section. The internal length was proably nearer 1.40m. There was a feature visible in the south side of the foundation trench containing burnt material but no apparent structure, which may have continued into the next trench to the south-west (Fig. 3). This feature may not be connected with the kiln, but it was in the right place for a second stokehole, diagonally opposite the other.

Whether single or double stoked, the kiln was of normal updraught type, with hot air passing from a fire in the mouth of the furnace through the vent holes in the oven floor to fire the pots. The function of the large hole in the floor is not known; if it was open during firing (and there is no sign of blocking) it would have channelled most of the heat up the front side of the oven. If it was blocked during firing by, for example, pots, it might have

been designed for post-firing access to rake out debris from below the oven floor. The other vent holes were unusually small and might have caused a very slow firing; the pottery found in the kiln is under- rather than over-fired.

The thin clay plates found in the lower collapse layers in the oven suggest a temporary roofing system rather than a permanent clay dome.

There were no signs of relining or patching on the kiln, nor any indication as to why it went out of use.

THE POTTERY (FIGS. 7 AND 8)

The bulk of the pottery was found sealed by the collapsed walls in the bottom layers of the oven (*0007, 0008*) and in the large hole by the stokehole entrance (*0009*). This probably represents part of a final load with the pots stacked upright.

The fabric when examined in the hand is fairly hard (i.e. difficult to scratch with a thumbnail) and sandy with occasional large quartz inclusions, fired to a brownish grey but frequently oxidised to a pale reddish brown. (Munsell Chart centred around 10 YR 6/3, oxidised to 2.5 YR 6/6 or 7.5 YR 6/6).

Two sherds from contexts *0007* and *0008* were also examined in thin section under a petrological microscope by Dr D.F. Williams of the Department of Archaeology, University of Southampton. He described the petrology as follows (this was previously included with other comparative material in Martin, 1988, 46):

0007 Frequent subangular grains of quartz, average size 0.05mm – 0.04mm and flecks of mica.

0008 A scatter of subangular quartz grains 0.20mm and under in size, flecks of mica and limestone.

Form Types

1. Medium-mouthed jar, with a single groove at the base of the neck and a plain rounded body. Rim everted with a thickened rounded end, some with a slight undercut. Generally no surface treatment except one (no. 4) with burnishing on neck, rim and rim interior. Eleven examples (nos. 1–5, 8). Comparable to Colchester Form 266, a common type in the 1st century.
2. Medium or wide-mouthed jar, with raised band(s) bounded by double grooves.
   a) Single raised band (nos. 9,10,12)
   b) Several bands, one with incised or burnished line decoration (nos. 13, 14)
   Rim everted with a thickened rounded end, sometimes undercut. Body carinated, once very sharply (no. 12), usually more rounded; one example uncarinated (no. 14). Surface treatment often includes a burnished or smoothed exterior on the upper half of the jar and burnished horizontal lines on the exterior below the carination (nos. 12, 14). Five examples at least.
   Comparable to Colchester Form 218, 1st–early 2nd century.
   No complete profiles of either form were reconstructed because many of the jars were very thin and friable at their widest part. Bases were of two main types:
   a) Plain, flat, with a raised 'dimple' at the centre (no. 15). Five examples.
   b) With a slight footring or groove, with a similar raised 'dimple' at the centre, (no. 16). Three examples.
   The 'raised dimple' makes these bases unusually distinctive.

Other vessel forms are represented by single examples only; these include: one bowl (no. 17); two coarse, probably handmade, jars (no. 18); and a probable flagon (no. 19). The total number of pots represented is between twenty and twenty-four.

Illustrated Pottery

1. Jar, Form 1, 'lumpy' texture – ? inadequately puddled, very pale brown with darker surface. From *0007, 0008, 0009.*

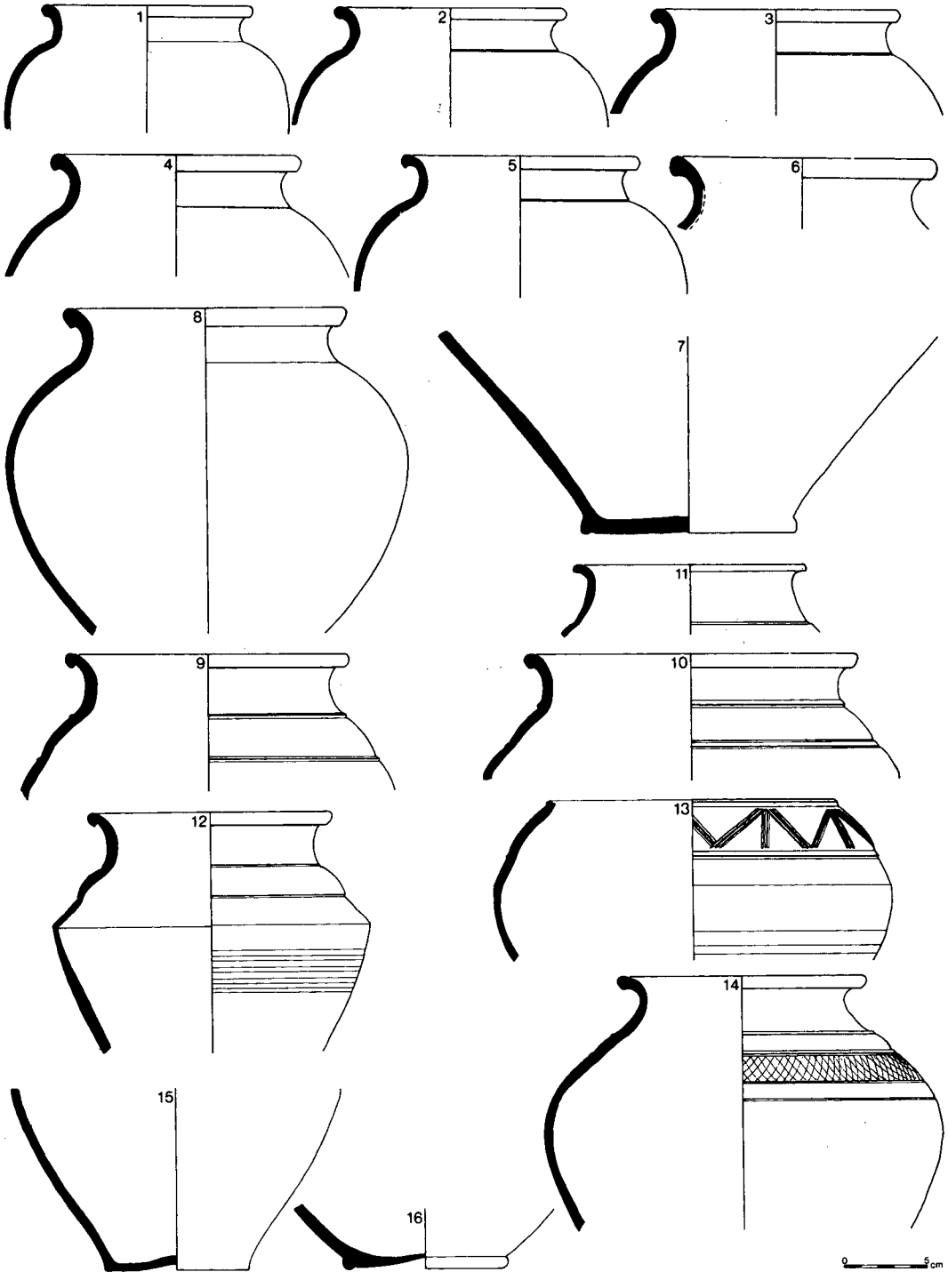

FIG. 7 – The pottery (scale 1:4).

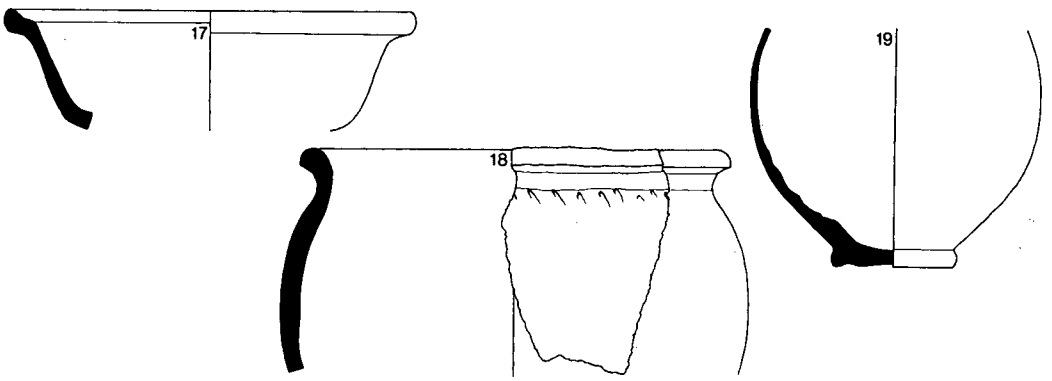

FIG. 8 – The pottery (scale 1:4).

2. Jar, Form 1, brown, oxidised reddish yellow in places, paler surface. From *0008.*
3. Jar, Form 1, lumpy texture (as no. 1), greyish brown, slightly darker surface. From *0007.*
4. Jar, Form 1, pale brown, grey burnished surface on neck and rim. From *0009.*
5. Jar, Form 1, pale brown, partly oxidised reddish yellow, paler surface. From *0008.*
6. Jar, rim , light red, light grey central core in places, very dark grey partly burnished exterior surface. From *0008.*
7. Base, fabric very similar to no. 6, probably the same jar. From *0008.*
8. Jar, Form 1, yellowish red, yellower surface, uneven colour. From *0005, 0007, 0008, 0009.*
9. Jar, Form 2a, pale brown. Traces of burnishing on exterior. From *0007.*
10. Jar, Form 2a, pale brown. Traces of burnishing on exterior. From *0008.*
11. Jar, Form 2, very pale brown. From *0008.*
12. Jar, Form 2a, brown, smoothed light yellowish brown surface. Bands of horizontal burnishing below carination. From *0007, 0008.*
13. Jar, Form 2b, body sherds only, light brownish grey, pale brown surface. Band of incised decoration bounded by a cordon above and double groove below. From *0004, 0007, 0008.*
14. Jar, Form 2b, light red, pinkish light brown surface. Band of burnished lattice decoration, with a burnished band below. From *0007, 0008.*
15. Jar, base, red, reddish brown surface. From *0008, 0009.*
16. Jar, base, with small footring, very pale brown, light grey to yellow surface. From *0008.*
17. Bowl, grey. From *0008.*
18. Jar, coarser fabric with voids, pale brown. Band of slashes below neck. Hand made. From *0008.*
19. Base, ? flagon, pinkish grey to reddish yellow fabric, very pale brown to white exterior surface. Traces of red paint on upper part of body. From *0007, 0008.*

PLANT REMAINS

by Peter Murphy

Four samples of fired clay from the structure of the kiln, and two 1kg samples of soil containing carbonised plant material from its interior were examined.

The clay samples are described in Table I. Where the clay had been fired in oxidising conditions inclusions of plant origin had burnt out and only impressions remained; clay fired in reducing conditions contained carbonised plant material.[1] The outer surfaces of the oxidised clay samples were inspected for impressions, and the material was then repeatedly fractured to reveal further specimens. Most of the impressions seen were of grass and cereal culm, but latex casts were made of identifiable impressions at each stage. Attempts to disaggregate the reduced clay samples by chemical means, in order to release

the included carbonised material, proved unsuccessful, so the samples had to be physically crushed. Carbonised botanical remains were extracted from the resultant debris by flotation. Obviously only a proportion of the total plant material from these clay samples has been isolated. Quantification is therefore possibly misleading, so taxa are simply noted as 'present' in Table II.

Charcoal and other plant remains were extracted from the two soil samples (*0005* and *0013*) by water flotation, collecting the flot in a 250 micron mesh sieve.

The plant remains identified are listed in Table II.

Comments

The kiln was constructed of Chalky Boulder Clay tempered with straw and chaff, with occasional cereal grains. This was almost all of spelt wheat (*Triticum spelta*), though barley (*Hordeum* sp.) and oats (*Avena sativa*) were also identified.

The samples from the stokehole (*0005*) and the furnace floor (*0013*) also produced carbonised cereal debris, again mostly of spelt, with a single oat grain (possibly wild oat), a possible glume base of emmer (*Triticum dicoccum*), and a rachis internode of six-row barley, together with seeds of common crop weeds. Waste products from threshing and winnowing were apparently used for kindling. Charcoal, including ash and hawthorn-type (tentative identification), was also present in these samples, but in relatively small quantities.

DISCUSSION

There are not many Roman sites recorded in the area around Stowmarket. Some objects – pottery and single coins – have been found in the town. A mile to the north-west of the kiln site a cremation group was uncovered at Old Newton (ONW 005) in the 19th century, probably dating to the late 1st or early 2nd century (Low 1909). More recently field walking has discovered a site (SUP 009) in Stowupland parish just under a mile and a half to the east of Victoria Road. The surface pottery finds from this new site indicate settlement in the late Iron Age and throughout the Roman period. It is also probable that a road linked the Roman military sites and major settlements at Coddenham and at Pakenham. This

TABLE I : THE CLAY SAMPLES

Context and description	*Sample weight (g)*	*Reduction/oxidation state*	*Plant material*	*Other inclusions*
0008 (1) Dome plate?	750	Mainly oxidised	Impressions, and silica 'skeletons'*	Chalk, flint
(2) Wall frags?	340	Mainly reduced	Carbonised, some impressions	Chalk, flint, oyster shell
0010 Kiln floor	1750	Mainly oxidised ? partly fired	Impressions	Chalk, flint, some discrete sandy patches
0011 Kiln wall	650	(1) Inner 'skin' *c.*2cm thick. Mainly oxidised	(1) Impressions	Chalk, flint
		(2) Outer reduced layer	(2) Carbonised	Chalk, flint

* The cell structure of epidermal tissue fragments, represented by surviving silica deposits, was frequently well preserved in this sample.

TABLE II : PLANT REMAINS

Context		*0005*	*0008*	*0008*	*0010*	*0011*	*0011*	*0013*
Carbonised (C)/Impressions (I)		C	I	C	I	C	I	C
Triticum spelta L.	spk/spf	4	+	-	-	-	+	-
Triticum spelta L.	g/gb	51	+	+	+	-	-	5
Triticum cf. *dicoccum*	gb	1	-	-	-	-	-	-
Triticum sp.	ca	3	-	-	-	-	-	4
Triticum sp. (brittle rachis) (b)	ri.frags	2	-	+	-	+	-	5
Triticum sp. (damaged/fragmentary)	g/gb	33	+	+	+	+	-	13
Triticum sp.	a.frags.	+	-	-	-	-	-	+
Hordeum sp.	ri	1(a)	+	+ (a)	-	-	-	-
Hordeum sp.	ca	-	+	-	-	-	-	?1
Avena sativa L.	fl	-	+	-	-	-	-	-
Avena sp.	ca	1	-	-	-	-	-	-
Avena sp.	a.frags	+	-	-	-	-	-	-
Cereal indet.	ca	6	+	-	+	-	-	1
Cereal indet.	p.frags	+	-	-	-	-	-	+
Agrostemma githago L.	s	1	-	-	-	-	-	-
Chenopodium album L.	s	1	-	-	-	-	-	1
Atriplex sp.	s	1	-	-	-	-	-	-
Chenopodiaceae indet.	s	2	-	-	-	+	-	4
Leguminosae indet.	s	1	-	-	-	-	-	4
Rumex sp.	nu	3	-	-	-	+	-	-
Polygonum convolvulus L.	nu	1	-	-	-	-	-	-
Polygonaceae indet.	nu	-	-	-	-	-	-	1
Hyoscyamus niger L.	s	-	-	-	-	+	-	-
Plantago lanceolata L.	s	1	-	-	-	-	-	-
Bromus mollis/secalinus	ca	5	+	+	-	+	-	3
Gramineae indet.	ca	2	-	-	-	-	-	7
Indet	s	2	-	+	-	+	-	2
Fraxinus sp.	ch	-	-	-	-	-	-	+
cf. *Crataegus* – group (c)	ch	+	-	-	-	-	-	-
Unidentified diffuse porous	ch	-	-	-	-	-	-	+

\+ indicates presence, not quantified.

Abbreviations:

a.	awn	indet.	indeterminate
ca.	caryopsis	nu.	nutlet
ch.	charcoal	p.	plumule and primary root frags
fl.	floret	ri.	rachis internodes
frags.	fragments	s.	seed
g.	glume	spk.	spikelet
gb.	glumebase	spf.	spikelet fork

Notes: (a) 6-row variety
(b) Only small fragments recovered
(c) Unusually large vessels

road line would presumably follow the Gipping valley as far as Stowmarket, six miles north-west of Coddenham (Moore *et al.* 1988, 32).

General questions about the status of the site such as whether pottery manufacture was one aspect of a large settlement cannot be answered. No other features were seen in trenches in the vicinity, but the builder had noticed pieces of pottery in earlier construction

work towards the Creeting Road. The use of straw, both in the structure and in the firing debris, suggests at least a nearby farm.

Dating of the kiln rests entirely on the style of the products. Both the main jar forms are 1st-century, derived from Belgic types; comparable but stylistically earlier forms occurred in the upper levels of the enclosure ditch at Burgh by Woodbridge in a probably Claudian context (Martin 1988, 40–41). They do not occur in the late 1st-century industry at West Stow. Another kiln group from Hacheston (unpublished, Ipswich Museum 1974.79) produced a very similar range of pottery, again undated, but it is likely that publication of excavated groups from the settlements at Coddenham, Pakenham and Hacheston will provide a better date range for these types within the Neronian–Flavian period.

The design of the kiln is unusual in Suffolk in that no others with permanent clay floors are known, except for 3rd-century examples at Pakenham (PKM 005 and PKM 006) (Smedley and Owles 1960) which are probably related to an outside industry, either Colchester or the Nene Valley. Permanent floors are known in 1st-century kilns at Colchester (Hull 1963, 147, 154) and in Norfolk at Caistor by Norwich (Atkinson 1932, 33), Morley St Peter (*J. Roman Stud*, 1959, 123), and Brampton (Green 1977, 39), but these kilns are mostly square in plan and all have tongue pedestals supporting the floor. Several East Anglian kilns have a double pedestal: Hacheston (HCH 001), Icklingham (IKL 020) and Needham, Norfolk (Clarke and Frere 1945, 208) and all of these date to the 2nd and 3rd centuries.

The most obvious explanation for a kiln of unusual design in 1st-century Suffolk, particularly on the route from Coddenham to Pakenham, would be a military stimulus. The limited range of Belgic-inspired products argues against this, though the flagon base (no. 19) at least suggests that a 'Romanised' market was being supplied.

ACKNOWLEDGEMENTS

I would like to thank Mr Anthony Porch, builder, for allowing the excavation of the kiln and for his help in removing the topsoil and keeping the area open. The pottery was processed and drawn by Hazel Bourne who also assisted in the excavation.

NOTE

1 Variations in oxygen availability and temperature are thought to account for the 'banding' effect in the kiln wall sample (*0011*).

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This article has been published with the aid of a grant from Suffolk County Council.