LATE BRONZE AGE SETTLEMENT AND SALT PRODUCTION ON THE STOUR ESTUARY: EXCAVATIONS AT STUTTON CLOSE, STUTTON

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Summary

Small-scale excavations in the village of Stutton in south-east Suffolk, overlooking the estuary of the river Stour, revealed part of an unenclosed Late Bronze Age settlement, including one probable post-built structure and several pit groups. The pits produced significant finds assemblages, including pottery, quern stones, loom weights and spindle whorls, whilst charred plant remains indicate the cultivation and processing of wheat and barley. Radiocarbon dating of the charred plant remains provided dates covering the ninth and tenth centuries BC. Most significantly, several of the pits produced evidence for salt working in the form of a substantial assemblage of briquetage. This represents the earliest secure evidence for salt working in Suffolk, but should be seen in the context of comparable material from Late Bronze Age sites further south, in Essex and along the Thames Estuary. The site makes an important contribution to the understanding of Late Bronze Age settlement in the county, whilst extending the known distribution of early salt working sites in eastern England.

INTRODUCTION

IN 2020 OXFORD ARCHAEOLOGY (OA) carried out excavations in Stutton, in advance of a residential development on the southern side of the modern village (Fig. 197). The excavation was preceded by a geophysical survey and a trial trench evaluation of the entire 1.7ha development area. Whilst the geophysics did not record any significant anomalies, the trial trenches revealed three prehistoric features, comprising a single pit associated with Middle Bronze Age pottery and two pits containing Late Bronze Age pottery (Fig. 198). Subsequent open area excavation (*c.*0.3ha) was targeted on the remains identified by the trenching. A small area centred on the Middle Bronze Age pit in the southern part of the site (Area B) demonstrated that it was an isolated feature, whilst excavation to the north (Area A) revealed that the two Late Bronze Age pits were part of a more extensive scatter of pits and post-holes associated with substantial assemblages of pottery and briquetage. No significant remains post-dating the Late Bronze Age were recorded, with later features consisting of three lengths of ditch representing post-medieval/modern field boundaries.

A detailed account of the results of the excavations, including full specialist reporting of the finds and environmental evidence, has been prepared and is freely available to download from the OA Library.[1]

TOPOGRAPHY AND GEOLOGY

The site lies at approximately 29m OD on the upper part of a south-facing valley side, which overlooks the estuary of the river Stour and is close to the head of a minor north to south aligned spring-fed valley. The bedrock geology of the area is London Clay, which outcrops as

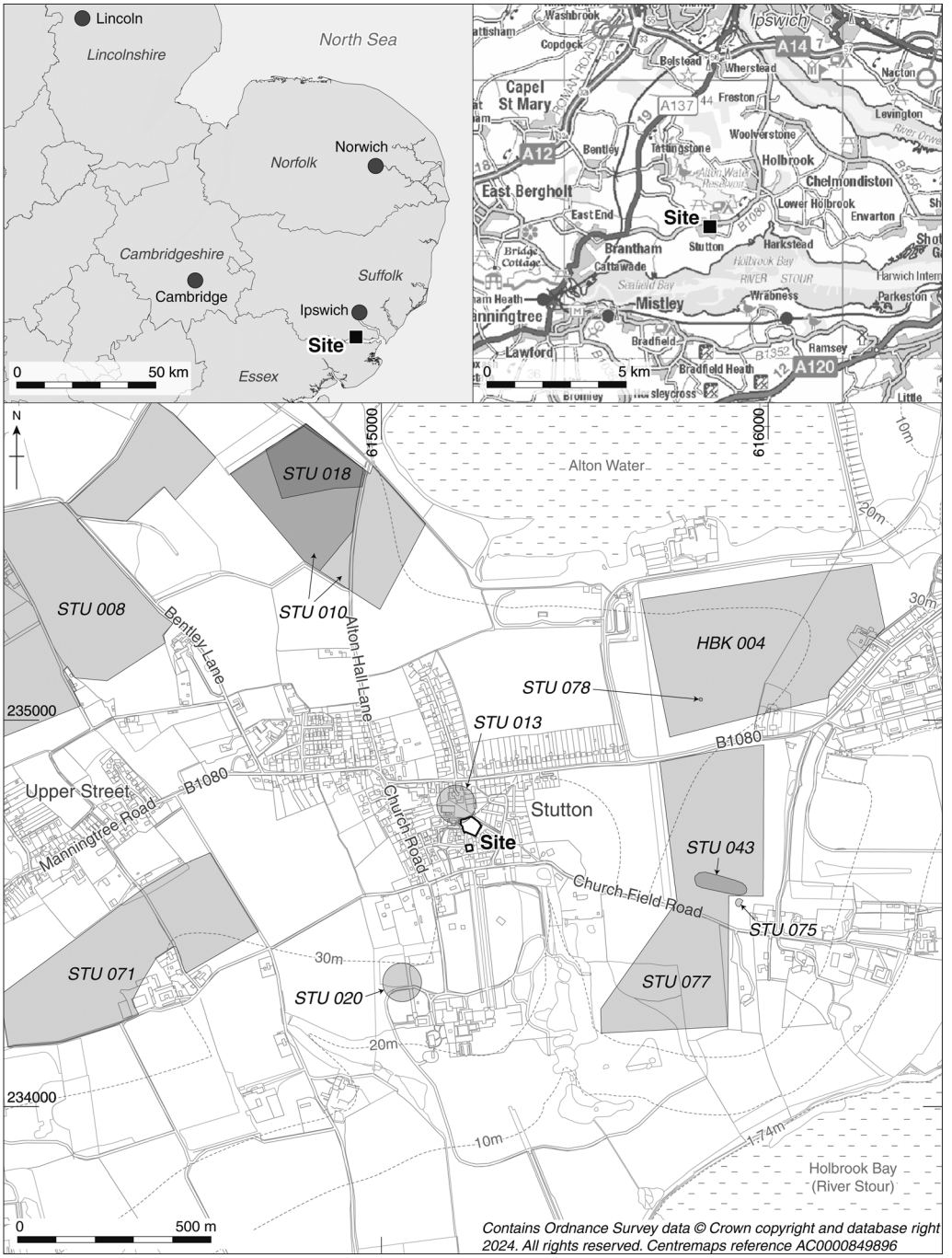

FIG. 197 – Location map.

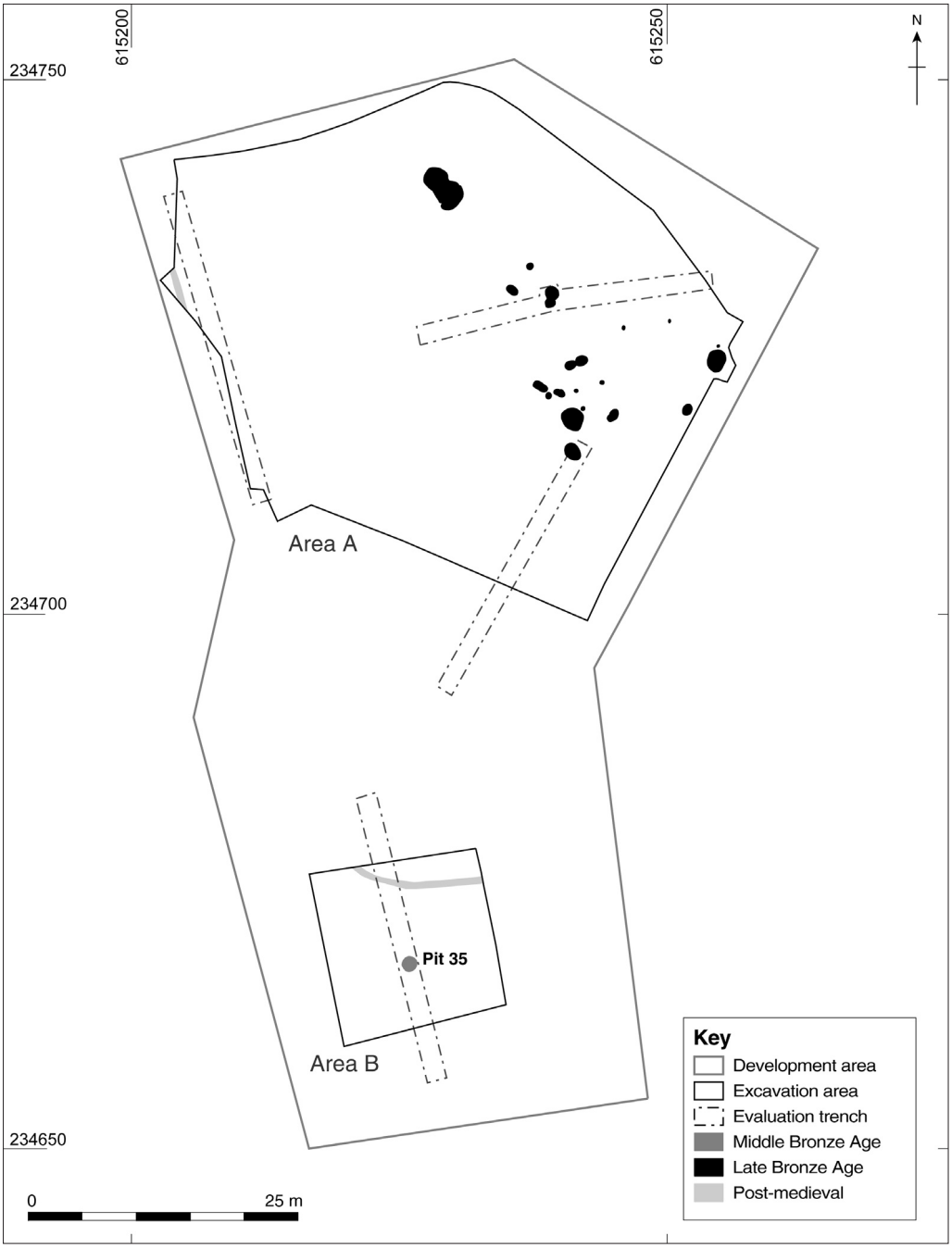

FIG. 198 – Site plan.

a narrow band on the valley side to the south of the site, but on the higher ground is sealed by extensive deposits of glacial sands and gravels (Kesgrave Catchment Subgroup).[2] The weathered top of these sands and gravels was revealed by the excavations as a mid-grey to orange sand with frequent gravel clasts. To the south, as the land drops away into the estuary, the lower slopes of the valley side are blanketed by head deposits and colluvium, whilst the estuary itself is infilled by very thick deposits of intertidal silts and clays, with the main modern channel of the river Stour lying some 1.7km south of the site.

ARCHAEOLOGICAL BACKGROUND

At the beginning of the Holocene (*c.*9600 BC), the river Stour would have passed through a broad and relatively deeply incised valley, flowing into the now submerged palaeolandscapes of the North Sea. A rise in sea level during the early and middle Holocene led ultimately to the inundation of this landscape and the initiation of estuarine conditions in inland parts of the river valleys. There have been few detailed studies of Holocene sedimentation of the Stour Estuary, but in line with evidence from other East Anglian rivers, it is thought likely that estuarine conditions would have been in place by *c.*6000–5000 BC, meaning that by the time of the Bronze Age occupation at Stutton Close, the topography, drainage and tidal regime of the area would have been broadly comparable to that of the modern landscape.[3] However, this would have been with reduced infill of intertidal sediments in the valley bottom and a somewhat lower tidal limit, with relative sea level at *c.*1000 BC in south-east Suffolk and north-east Essex lying at around -2m to -1.5m OD.[4]

Although the area has seen relatively little modern, large-scale, archaeological investigation, there is a rich record of prehistoric activity along the estuary of the Stour. Evidence for activity at the very beginning of the Holocene is provided by an important assemblage of Terminal Palaeolithic ('Long Blade') flintwork from Wrabness on the southern side of the estuary,[5] whilst findspots of Mesolithic and Neolithic date are also widely distributed on the lighter soils on the valley sides.[6] A sense of the scale and intensity of prehistoric land use in the area by the Early Bronze Age (*c.*2400–1500 BC) is provided by the dense distribution of ring-ditches and round barrows on the higher ground of the Shotley peninsula to the north of the estuary, and on the Tendring peninsula to the south.[7] Equally, later Bronze Age field systems are known from parts of the Middle and Lower Stour Valley and the Tendring peninsula,[8] while there are major concentrations of Bronze Age metalwork along either side of the estuary.[9] In all, this suggests intensive activity in an area well placed to take advantage of seaborne routes of communication and exchange along the south-eastern coastline.

In the immediate environs of the site (Fig. 197) prehistoric activity is represented by a few finds of Neolithic worked flint (STU 013; STU 020), whilst examination of aerial photography has revealed cropmarks of field systems, boundaries and possible trackways in several areas surrounding the village (STU 008, 010, 018, 043, 071, 075, 077, 078, HBK 004). Although most of these remain undated, some may be of later prehistoric date. More relevant in the context of the salt working activity recorded at Stutton Close is a group of probable Iron Age finds — including pottery, possible briquetage and animal bone — found in the 1930s in a pit or depression exposed by tidal erosion on the edge of the estuary, a little over 2km to the south-east.[10]

MIDDLE BRONZE AGE PIT (AREA B)

First revealed during the evaluation trenching, and subsequently exposed in the centre of Area B, was a single isolated pit (Fig. 198, pit 35). Subcircular in plan, up to 1.4m wide and 0.55m

deep with steeply sloping sides and a concave base, it contained a single brownish-grey silt sand. Three conjoining sherds (52g) of Middle Bronze Age pottery were recovered from its fill, whilst sampling produced a moderate volume of charcoal, and seeds of bramble and cleaver.

LATE BRONZE AGE SETTLEMENT REMAINS (AREA A)

A swathe of discrete features revealed across the eastern part of Area A, comprising twenty pits and six post-holes, have been attributed to the Late Bronze Age, although in some cases individual features did not produce datable finds (Fig. 199).

Post-built structure(s)

A group of six subcircular post-holes was exposed over an area of approximately 11.5m by 6.5m in the eastern corner of Area A (Structure 1). Three of these post-holes formed an arc to

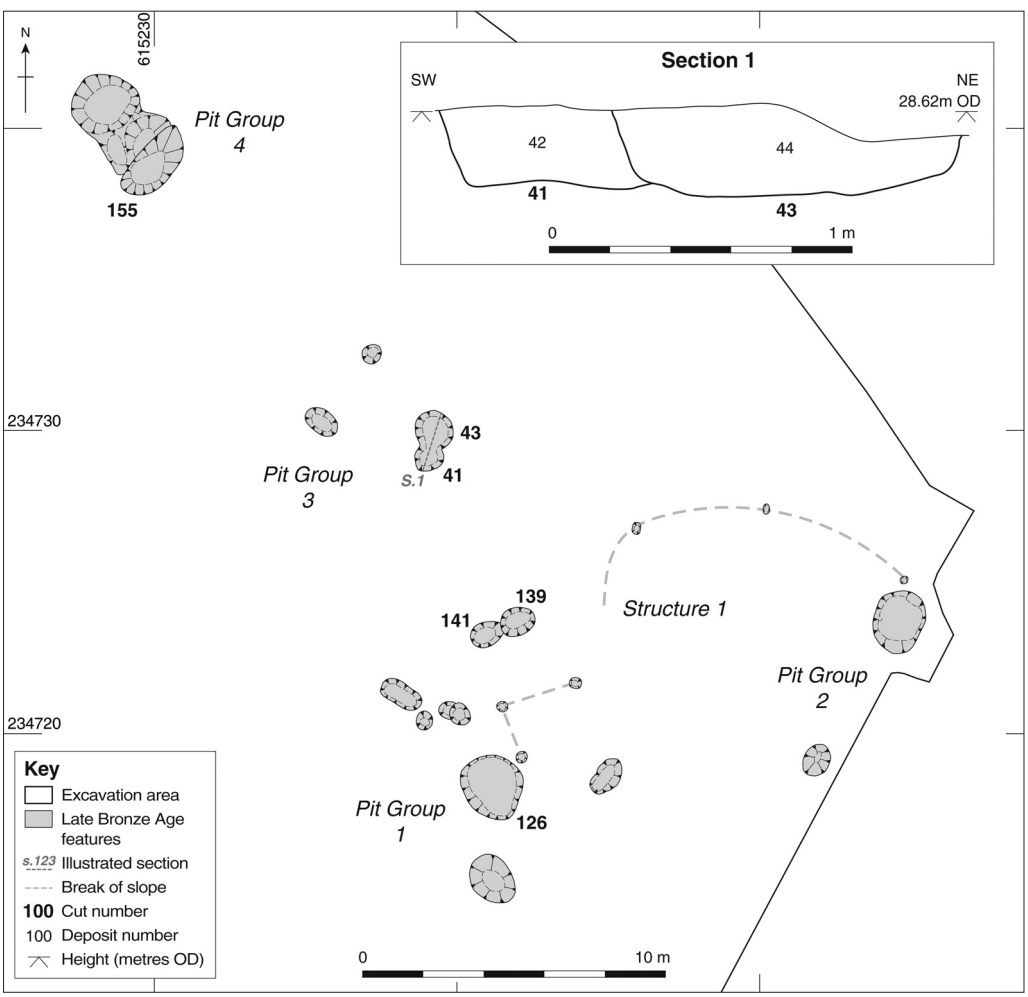

FIG. 199 – Plan of Late Bronze Age features.

FIG. 200 – Photo of Pit Group 4.

the north and three further post-holes lay to the south-west, arranged in an 'L'-shape. These features were consistently circular/subcircular in plan, measuring between 0.25–0.4m in diameter and up to 0.17m deep, with single mid-grey silty sand fills. The only find recovered was a tiny fragment of fired clay, whilst sampling of the fills of one post-hole produced only a very small volume of charcoal.

Pits

The twenty pits revealed in Area A were broadly divided into four main groups (Pit Groups 1–4). The first (Pit Group 1) consisted of nine features clustered around the 'L'-shaped arrangement of post-holes at the south-west end of Structure 1, with a further pair of pits (Pit Group 2) lying to the east, adjacent to the edge of excavation. To the north of Pit Group 1 a cluster of four features (Pit Group 3), including two intercutting examples, was exposed. Finally, some 20m north-west of Structure 1, a series of five intercutting pits was revealed (Pit Group 4).

The individual pits exhibited considerable variability in terms of their morphology and size: circular, subcircular or oval in plan, they measured 0.25–2.25m in diameter/length and although most had simple, shallow, bowl-shaped profiles — often less than 0.2m deep — with moderately or gently sloping sides (Fig. 199, Section 1), others had steeply sloping sides and flatter bases, such as the pits of Pit Group 4, three of which were close to 0.5m deep (Fig. 200). Many of the pits contained single brown/grey sandy fills, which in most instances seemed to represent deliberate backfill deposits, although three pits contained multiple fills. Generally, the thin lower fills represented material eroded from the sides of the features, and these were overlain by deliberate backfills.

All but four of the twenty pits produced finds, including Late Bronze Age pottery, fired clay, burnt flint and stone. The finds recovered from the four pit groups are summarised in Table 1,

Group	No. of features	Pottery	Briquetage	Spindle whorls	Other fired clay (including loom weight fragments)	Burnt stone/ flint	Worked flint	Other
1	9	210 (2856g)	4 (8g)	2 (85g)	29 (3463g)	696g	4	Flint 'quern'
2	2	17 (151g)	-	-	2 (82g)	-	-	-
3	4	273 (4496g)	106 (1762g)	-	61 (3173g)	21g	2	Quern stone
4	5	122 (1347g)	5 (21g)	-	29 (294g)	655g	8	-
Totals		622 (8850g)	115 (1791g)	2 (85g)	121 (7012g)	957g	14	-

TABLE 1 – Summary quantification of finds from the Late Bronze Age pit groups.

although it should be emphasised that this breakdown masks considerable variability in the quantities and range of material recovered from individual features. The most notable feature was pit 43 (Pit Group 3), which contained almost half of the Late Bronze Age pottery from the site (257 sherds, 4194g) and the vast majority of the briquetage (91 fragments, 1736g).

Overall, the features produced significant assemblages of pottery (622 sherds, 8850g) and fired clay, the latter including briquetage (115 fragments, 1791g), two spindle whorls (both from pit 141, Pit Group 1), fragments from five loom weights and more amorphous pieces (7012g). A small assemblage of worked flint was also recovered, including an end scraper and a retouched flake, although the vast majority, if not all, appears to represent residual (Neolithic/lEarly Bronze Age) material. More abundant was unworked burnt flint and stone (1372g). Other notable finds included a large fragment of a sandstone saddle quern from the aforementioned pit 43 (Pit Group 3) and, unusually, several fragments of a flint quern stone from another finds-rich pit (126, Pit Group 1).

Due to poor preservation, only two specimens of animal bone were recovered from the Late Bronze Age features: a fragment of skull from a medium-sized mammal (pit 43, Pit Group 3) and a sheep/goat tibia (pit 139, Pit Group 1). Bulk samples targeting the more finds-rich

Laboratory Code	Radiocarbon Age BP	$\delta^{13}C$ relative to VPDB	Material	Context	Calibrated date at 95% confidence
BRAMS-4075	2762±25	-22.9 ‰	Charred legume (*Vicia faba;* Celtic bean)	Fill (44) of pit 43, Pit Group 3	990–820 cal BC
BRAMS-4076	2726±25	-28.8 ‰	Charred grain *(Triticum dicoccum/spelta;* emmer/spelt wheat)	Fill (130) of pit 126, Pit Group 1	920–810 cal BC

TABLE 2 – Radiocarbon dates from Late Bronze Age features. Dates calibrated using the program OxCal v4.3 and the IntCal20 data set (*Sources: OxCal v4.3, see Bronk Ramsey 1995, 2001 and 2009; IntCal20 data set, see Reimer et al. 2020*).

deposits of the pits produced small assemblages of charred plant remains, including cereal grains — mostly emmer or spelt wheat (*Triticum dicoccum/spelta*) with some barley (*Hordeum vulgare*) — as well as legume fragments (*Fabaceae*), occasional fragments of unidentifiable carbonised material and small volumes of charcoal. Two samples of short life charred plant material were submitted for radiocarbon-dating and returned date ranges covering the ninth and tenth centuries cal. BC (Table 2).

FINDS

Detailed specialist reports, covering analysis of all the finds and environmental remains recovered during the excavation can be found in the full excavation report. Here, abbreviated reports on the major assemblages of prehistoric pottery and fired clay are presented, which incorporates the results of thin section petrographic analysis undertaken by Patrick Quinn.[11]

PREHISTORIC POTTERY

by Matt Brudenell

The investigations yielded 625 sherds of prehistoric pottery (8902g) dating to the Middle and Late Bronze Age, with the vast majority being of Late Bronze Age origin. All of the pottery has been fully recorded and quantified following the recommendations of the Prehistoric Ceramics Research Group.[12] Later Bronze Age vessels have been classified using a form series devised by the author,[13] and the class scheme created by John Barrett.[14]

The fabric series:

Flint fabrics
F1: Moderate to common coarse burnt flint (mainly 2–4mm in size).
F2: Sparse coarse burnt flint (mainly 2–4mm in size).
F3: Common to abundant medium burnt flint (mainly 1–2mm in size).
F4: Moderate to common medium burnt flint (mainly 1–2mm in size).
F5: Moderate to common fine burnt flint (mainly <1mm in size).

Flint and vegetable matter fabrics
FVE1: Moderate to common medium burnt flint (mainly 1–2mm in size) and moderate to common linear voids from burnt out vegetable matter.

Flint and sand fabrics
FQ1: Sparse medium burnt flint (mainly 1–2mm in size) and common quartz sand.

Flint and grog fabrics
FG1: Moderate to common coarse burnt flint (mainly 2–4mm in size) and sparse to moderate medium to coarse grog (mainly 2–4mm in size).

Sand fabrics
Q1: Moderate to common quartz sand.

Middle Bronze Age pottery was restricted to three conjoining sherds (52g) from a Deverel–

Rimbury type vessel, from pit 35 (Area B). The sherds are thick-walled in fabric F3 and include part of a fingertip decorated girth or neck cordon (one sherd, 27g).

A much more substantial assemblage (622 sherds, 8850g) of Plainware Post-Deverel–Rimbury (PDR) Late Bronze Age pottery, with a high mean sherd weight (MSW) of 14.2g, was recovered from fourteen pits in Area A (see Table 1). As is typical for pottery of this date, fabrics with calcined flint inclusions dominate (Table 3): by weight, 97 per cent of the pottery recovered has burnt flint inclusions, with 87 per cent classified as 'coarse' fabrics (fabrics F1–2), 7 per cent 'intermediate' (F4) and 3 per cent 'fine' (F5). The remaining pottery in the assemblage belongs to minor fabric groups, with flint and vegetable matter (FVE1, 2 per cent), flint and sand (FQ1, 1 per cent), flint and grog (<1 per cent) and sand (<1 per cent) being present. Thin sections were prepared from three sherds of the Late Bronze Age pottery (in fabrics FVE1, F1 and FG1) and were subject to petrographic analysis, essentially confirming the veracity of the macroscopic characterisation of the fabrics and highlighting the difference between the pottery fabrics and that of the briquetage (see below).

Based on the total number of different rims and bases identified, the assemblage is estimated to contain fragments from a minimum of fifty-seven different vessels: forty-two separate rims, fourteen bases and one complete vessel profile. Jar, bowl and cup forms typical of the PDR tradition are present, with a total of eighteen vessels being sufficiently intact to allow ascription to form (117 sherds, 2452g; 18.8 per cent of the assemblage by sherd count, or 27.7 per cent by weight). Of these, twelve are unburnished coarseware jars (Class I) in fabrics F1, F4 and FG1 (92 sherds, 2339g), including eleven jars with round (Form F, seven vessels, Fig. 201.1–5

Fabric Type	Fabric Group	No./Wt. (g) sherds	% fabric by Wt.	No./Wt. (g) burnished	% fabric burnished	MNV	MNV burnished
F1	Flint	487/7558	84.9	3/24	0.3	32	-
F2	Flint	7/144	1.6	-	-	-	-
F3*	Flint	3/52	0.6	-	-	-	-
F4	Flint	56/603	6.8	9/67	11.1	10	-
F5	Flint	51/291	3.3	50/282	96.9	11	10
FG1	Flint & grog	1/9	0.1	-	-	1	-
FQ1	Flint & sand	5/40	0.4	-	-	1	-
FVE1	Flint & veg	14/201	2.3	2/10	5.0	2	-
Q1	Sand	1/4	<0.1	-	-	-	-
TOTAL	-	*625/8902*	*100*	*64/382*	*4.3*	*57*	*10*

TABLE 3 – Quantification of prehistoric pottery by fabric. MNV calculated as the total number of different rims and bases (42 different rims, 14 different bases and one complete profile).
* denotes Middle Bronze Age fabrics

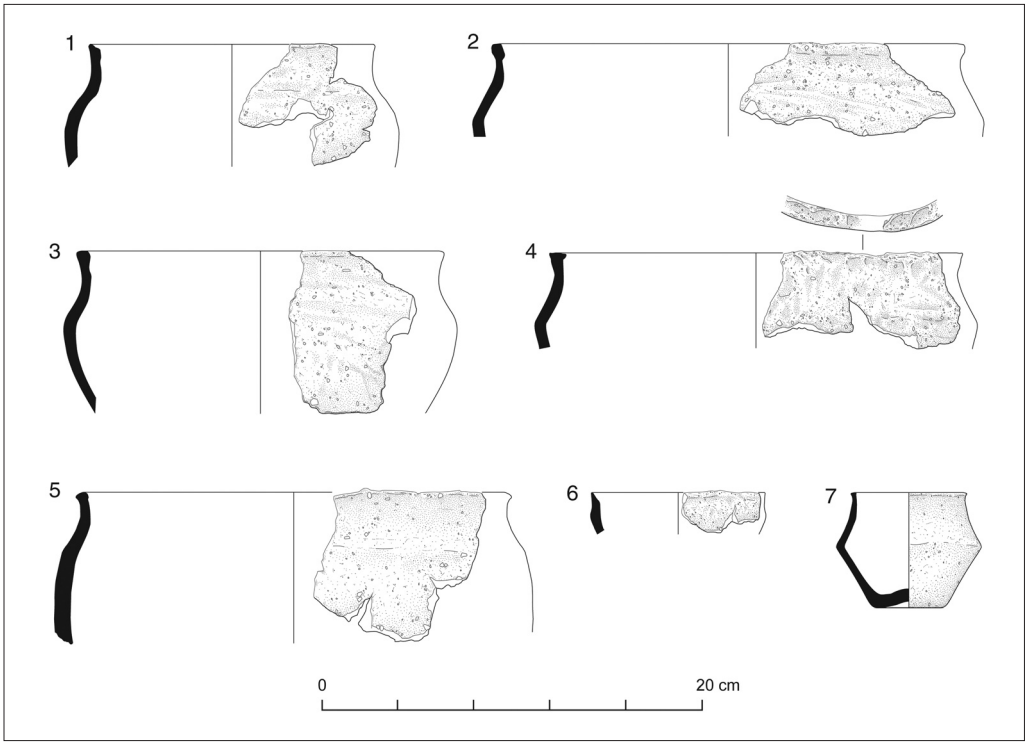

FIG. 201 – Pottery illustrations.

and Fig. 202.8) or weakly defined shoulders (Form G, four vessels, Fig. 202.9), and one jar with a bulbous body (Form A). Most of these have flattened, rounded or externally lipped rims, with measurable mouth diameters ranging from 18–30cm. Three of these are also decorated: one Form F jar has a cabled rim-top (Fig. 201.4), whilst fingertip impressions adorn the rim top of the Form A jar and the shoulder of one other Form F jar (Fig. 202.8).

The only other unburnished form-assigned vessel in the assemblage is a fragment of a bipartite Class III bowl (Form M, one sherd, 19g) in fabric F5, decorated with fingernail impressions on the rim top.

The remaining five form-assigned vessels comprise fineware bowls (Class IV, two vessels, two sherds, 43g) and cups (Class V, three vessels, twenty-two sherds, 91g). These vessels are in fabrics F5 and FQ1 and have finely moulded features such as thin-walled everted necks or tapered and internally bevelled rims. The bowls include a single burnished round-bodied vessel with everted neck (Form K, mouth diameter 14cm), and a burnished shouldered bowl with a hollowed neck (Form L). The cups are small-mouthed vessels (<10cm in diameter) and comprise fragments of two hemispherical cups (Form R, Fig. 201.6) and the complete profile of a 6cm high bipartite cup (Form U, Fig. 201.7) with a small, dimple-like omphalos base.

Surface treatment and decoration are closely linked to vessel class, vessel size, and the categories of coarseware and fineware in the PDR tradition. Indeed, the latter are primarily defined by the presence of smoothed, burnished or lustrous surfaces. In all, there are sixty-four sherds (383g) that are burnished in the assemblage, most of which display dark grey surfaces. Combined, these comprise 10 per cent of the Late Bronze Age sherds by count or 4 per cent by weight — frequencies typical of Plainware assemblages in eastern England.[15] Clear patterns can

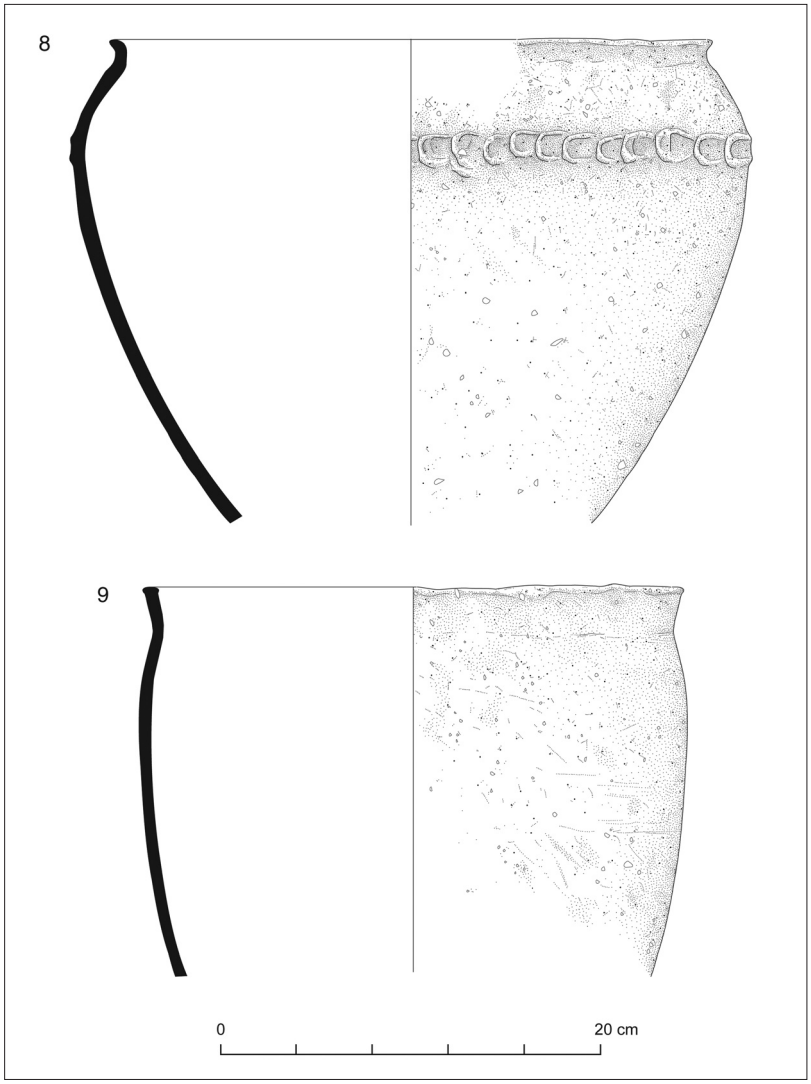

FIG. 202 – Pottery illustrations.

be observed in the fabric of vessels selected for burnishing. Though sherds in a range of fabrics are treated, this finish is only common on vessels with 'fine' flint fabrics, namely F5.

The type and frequency of decoration is also closely related to the class of vessel and is consistently low in Late Bronze Age assemblages. This is true of the Stutton Close group, with decoration present on just twelve sherds (455g, 2 per cent of the assemblage by sherd count, or 5 per cent by weight), representing a maximum of five different decorated vessels. Four of these are coarsewares, with decoration created by finger and nail marks, used to impress and cable the rim top or shoulder (*e.g.* Figs 201.4 and 202.8). More unusual, however, is the fact that one of the burnished sherds (24g) has a red oxidised finish and is possibly haematite-coated. Such sherds are rare in Early Iron Age assemblages in eastern England, and very unusual in Late Bronze Age contexts in this region.

Direct evidence for vessel use is registered by the presence of sooting and traces of thick, carbonised food crusts adhering to the surfaces of sherds. Residues are recorded on twenty-seven sherds (659g), representing just 4.3 per cent of the Late Bronze Age assemblage by count or 7.4 per cent by weight. Restricted to the coarsewares, carbonised residues are mainly found on the interior of sherds and the exterior areas around the rim, neck and shoulder of vessels — zones where soot gathered, or foodstuffs bubbled over and became burnt.

When examined by feature, most pottery groups can be classified as small (1–100g) or medium (101–500g) in size, with almost 80 per cent of the assemblages from individual features weighing under 500g. The majority contain fewer than fifteen sherds, and probably derived from a 'background' scatter of ceramic debris, which was unintentionally caught in dumps of soil during backfilling or had naturally eroded into open features.

Of note is the assemblage from pit 126 (Pit Group 1), which is the largest medium-sized group (489g) and included the bipartite cup (Fig. 201.7). This can be considered a key group, especially as the upper fill (130) is associated with a radiocarbon date (Table 2). The three largest feature assemblages from the site (from pit 43, Pit Group 3; pit 139, Pit Group 1; and pit 155, Pit Group 4) are significant by merit of their size. Combined they yielded over two-thirds of the Late Bronze Age pottery (685 sherds by count, 81 per cent by weight), including 70 per cent of vessels (by MNV count), and all the form-assigned vessels (except for the cup from pit 126), although individually each pit assemblage has a varying ceramic composition. The material from pit 155 is the most fragmented (MSW 16.3g), with no refitting sherds. By contrast, the assemblage from pit 139 is largely comprised of refitting fragments belonging to the upper profile of two coarseware jars (Form F and G; Fig. 202.8–9) and has a high MSW of 23.1g. Finally, the largest group derives from pit 43, with sherds from numerous different pots represented (at least thirty different vessels) in varying states of fragmentation and abrasion (MSW 16.3g; Fig. 201.1–6). Importantly, this assemblage is also associated with a radiocarbon date (Table 2).

Illustration catalogue (Figs 201–202)

1. Class I Jar, Form F, fabric F1. Pit 43, context 44.
2. Class I, Form F, fabric F1, internal rim diameter 24cm. Pit 43, context 44.
3. Class I, Form F, fabric F1, internal rim diameter 18cm. Pit 43, context 44.
4. Class I, Form F, fabric F1, weakly cabled rim top. Internal rim diameter 18cm. Pit 43, context 44.
5. Class I, Form F, fabric F1, internal rim diameter 20cm. Pit 43, context 44.
6. Class V, Form R, fabric FQ1. Internal rim diameter 9cm. Pit 43, context 44.
7. Class V, Form U, fabric F5, burnished exterior and omphalos base. Height 6cm, internal rim diameter 7cm. Pit 126, context 130.
8. Class I, Form F, fabric F1, fingertip impressed shoulder. Internal rim diameter 30cm. Pit 139, context 140.
9. Class I, Form G, fabric F1. Internal rim diameter 27cm. Pit 139, context 140.

FIRED CLAY

by Matt Brudenell

A total of 241 fragments of fired clay (8904g) was recovered from the combined evaluation and excavation. The material derived largely from Late Bronze Age features in Area A, with a very small quantity occurring residually in the fills of a post-medieval ditch. The fired clay can be divided into briquetage (fired clay equipment used in salt making) and other fired clay material; the latter mainly belonging to a series of fragmented loom weights. The two categories of fired clay are discussed separately below. All the fired clay has been counted, weighed, catalogued, and assigned to a fabric group.[16]

The fabric series:

Flint fabrics
F4: Moderate to common medium burnt flint (mainly 1–2mm in size).

Flint, crushed quartz and sand fabrics
FQIQ1: Moderate coarse burnt flint (2–4mm in size), moderate coarse to very coarse crushed quartz pea gravels (2–12mm in size), and moderate to quartz sand in a powdery clay matrix.

Sand fabrics
Q1: Moderate to common quartz sand with rare flint (1–4mm in size).
Q2: Moderate to common quartz sand, sparse to common medium to very coarse voids (2–7mm in size) and sparse subrounded pea gravel quartz inclusions (2–10mm in size) in a slightly powdery clay matrix.

Sand and void fabrics
QV1: Common quartz sand and common subrounded linear voids (3–30mm in size). Similar to Q2, but with more voids.

Vegetable matter and sand fabrics
VEQ1: Fine, slightly sandy clay matrix with common to abundant linear voids from burnt out organic matter (2–5mm in size).

The fired clay includes a sizeable, regionally significant assemblage of Late Bronze Age briquetage, comprising 115 fragments (1791g), all made in fabric VEGQ1 and deriving from the Late Bronze Age pits in Area A (see Table 1). The vast majority came from pit 43 (Pit Group 3), which yielded ninety-one fragments (1736g), representing 79 per cent of the material by fragment count or 97 per cent by weight. With the exception of one bar fragment from pit 41 (also Pit Group 3), this context also yielded all the diagnostic pieces, consisting of bar fragments, pedestal fragments and pedestal terminals (Fig. 203.1–8).

Long rectangular bar fragments dominate the briquetage assemblage (forty-eight fragments, 814g). None of the bars are complete, but several have refitting pieces, with the most intact measuring 140mm in length. Away from the terminals, the bars are rectangular in cross-section and measure between 32–52mm in width, and 9–16mm in thickness. The terminals have square ends, slightly tapered ends, or slightly rounded ends (Fig. 203.1–3). Nine fragments (254g) are salt affected with a thin, patchy pale grey residue on the surface.

Only seven fragments of pedestal shaft were present in the assemblage (317g), all of which

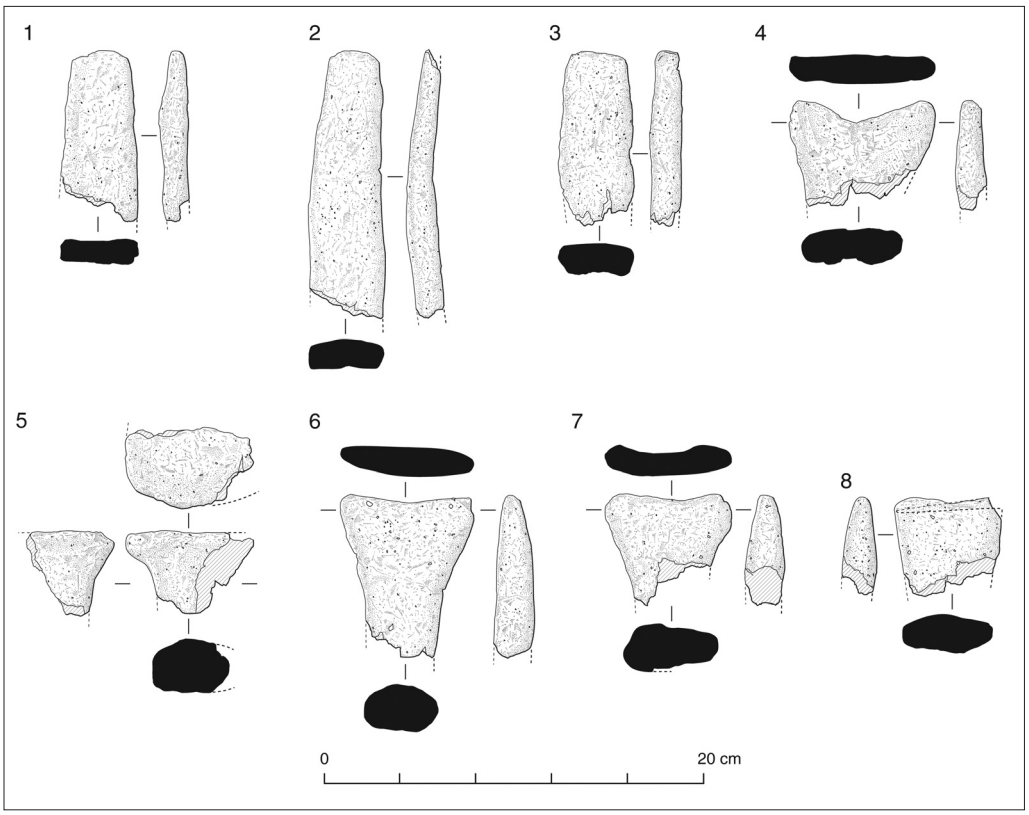

FIG. 203 – Fired clay illustrations.

are salt affected. These are oval to subrectangular in cross-section, measuring 21–41mm wide. Twelve fragments of pedestal terminal were also recovered (495g), deriving from a maximum of ten different pedestals. Nine terminal fragments (373g) are salt affected. Four different terminal end types were identified: triangular terminals with tapered cross-section;[17] triangular terminals with splayed edges; 'fishtail' terminals, triangular in form with splayed edges and concave tops; and, finally, cupped subrectangular terminals.[18]

Aside from these pieces, the briquetage assemblage includes forty-eight miscellaneous fragments (165g) comprising small amorphous pieces. Some of the pieces are likely to be fragments of bars, whilst others are thin walled (6–7mm thick) and may be pieces of containers/salt vessels. However, no container rims or bases were identified.

Petrographic analysis of thin sections taken from four samples of the briquetage confirmed the use of abundant vegetable matter as temper, whilst the absence of flint inclusions provides a clear contrast with the pottery fabrics (see above). Traces of lamination in some of the thin sections may suggest the use of estuarine clay for the production of the briquetage.

The remainder of the fired clay was dominated by fragments from five different loom weights, recovered from features in Pit Groups 1 and 3. The weights are all partial, survive to different degrees, and vary in their dimensions and fabric: two are in fabric QV1, and single examples are in fabrics Q1, Q2 and FQIQ1, with the presence of flint and sand in the fabrics having been confirmed by petrographic analysis of thin sections taken from three of the loom weights.[19] Although fragmentary, the weights are typical of Late Bronze Age forms from

elsewhere in the region, being of trapezoidal/pyramidal shape with perforated holes surviving in the upper half of three of the refitted examples. The most complete example measures 116mm in height and 98mm wide at the base (Fig. 204.9).

Alongside the loom weights, two complete circular/ovoid spindle whorls in fabric F4 (a common potting fabric, see above, pottery report) were recovered from pit 141 (Pit Group 1). They measure between 41–44mm in diameter and 22–300mm thick, with central perforations 9–12mm wide (Fig. 204.10–11).

The remainder of the fired clay consists of amorphous lumps or small pieces with single flat surfaces that lack any impressions or other diagnostic traits (fabrics Q1, Q2 and QV1). Some of the pieces with flat surfaces potentially belong to other broken loom weights or they may be fragments of oven lining or pieces of daub.

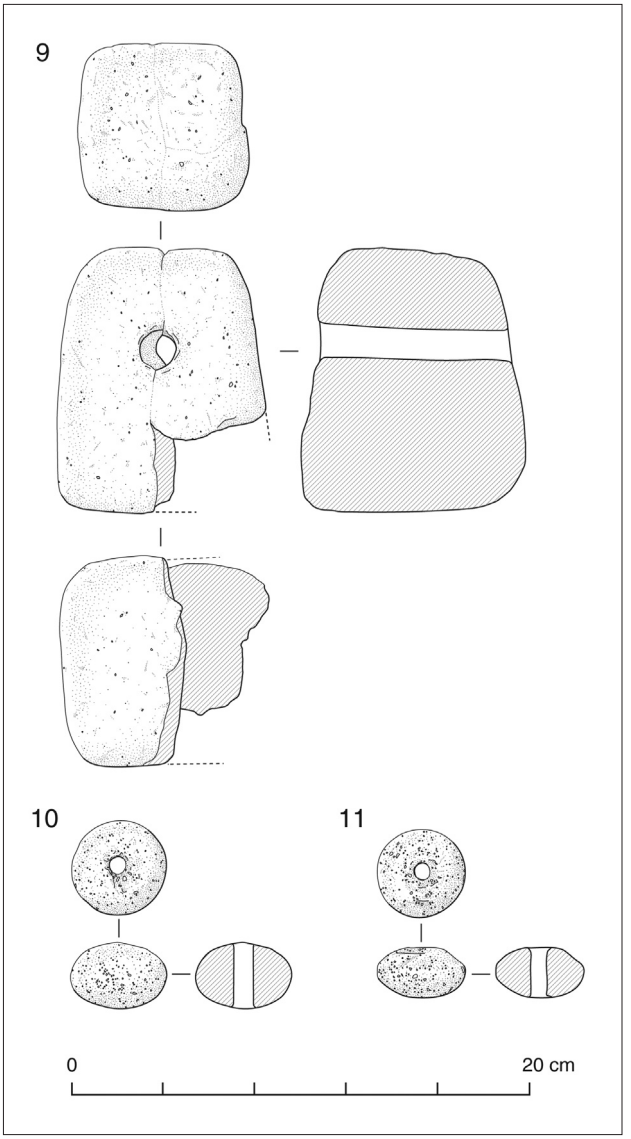

FIG. 204 – Fired clay illustrations.

Illustration catalogue
(Figs 203–204)

1. Bar terminal 1.
   Pit 43, context 44.
2. Bar terminal 2.
   Pit 43, context 44.
3. Bar terminal 3.
   Pit 43, context 44.
4. Fishtail terminal.
   Pit 43, context 44.
5. Dish terminal. Pit 43, context 44.
6. Triangular terminal 1. Pit 43, context 44.
7. Triangular terminal 2. Pit 43, context 44.
8. Wedge terminal. Pit 43, context 44.
9. Loom weight. Fabric Q1, height 116mm, width 98mm. Pit 107, context 109.
10. Spindle whorl 1. Fabric F4, diameter 44mm, height 30mm. Pit 141, context 142.
11. Spindle whorl 2. Fabric F4, diameter 41mm, height 22mm. Pit 141, context 142.

DISCUSSION

Introduction

Despite some indication for earlier activity (in the form of small quantities of residual Neolithic flintwork) and later land-use (evidenced by several post-medieval field boundaries), the only major episode of occupation at the site appears to have taken place during the Late Bronze Age. It is more difficult to assess the character and scale of activity associated with the single Middle Bronze Age pit discovered in Area B. Yielding just a few sherds of pottery from a single vessel, and lacking any other finds, this may relate to a short period of settlement or perhaps just a very short-lived, task-specific, episode of activity. Whilst there is no secure evidence for contemporary activity in the immediate environs of the site, it is possible that some elements of the extensive, undated, cropmarks surrounding the modern village (see Archaeological Background, above) may relate to Middle Bronze Age field systems and enclosures of the kind which are increasingly well-documented in eastern parts of the county.[20] In this regard it seems likely that the Late Bronze Age settlement remains discussed below took place in a landscape with a long history of clearance and agricultural land use.

Late Bronze Age settlement

'Open' or unenclosed settlements have long been recognised as a characteristic feature of the later prehistoric period in Suffolk.[21] Although the excavations at Stutton were of limited scale, there is little doubt that the settlement remains fall into this category, with no evidence for surrounding ditches, paddocks or contemporary boundaries. Instead, the remains comprise a spread of pits and post-holes, clustered in the north-east corner of the site, on ground slightly higher than the immediate surroundings.

Comprehending the pattern of such features on 'open' prehistoric settlements is notoriously difficult, especially when the excavation window is relatively small. Feature scatters can be extensive, and in this setting it is possible that the pits and post-holes lay towards the edge of a wider swathe of occupation extending beyond the site to the north and west, although the scale and character of the artefact assemblages indicate that this was a 'busy' and active part of the settlement complex.

In terms of identifiable architectural components, one possible structure was identified in the excavation (Structure 1). Its original form is hard to reconstruct; one possibility is that the surviving six post-holes belonged to a single subcircular structure, with the arc of post-holes to the north forming part of a circular ring and the 'L'-shaped arrangement to the south representing the remains of a south-west facing porch. With a projected diameter of 11m, the form and size of such a structure would be consistent with other Late Bronze Age roundhouses in eastern England. Alternatively, the features may represent the remnants of two separate structures, the arrangement and spacing of the 'L'-shaped group possibly representing the partial remains of a four-post granary building (another type of structure widely encountered on Late Bronze Age sites in the region).

Regardless of the precise form of the building(s), the surrounding pits — in Pit Groups 1–3 — contained the vast majority of the site's artefactual evidence (the more distant cluster of intercutting pits in Pit Group 4 lying 20m to the north-west of the building). Leaving aside the briquetage, discussed in more detail below, the pits in this zone yielded a full spectrum of finds typical of domestic sites of the period: pottery, querns, loom weights, spindle whorls and burnt stone and flint.

The pottery assemblage is firmly rooted in the region's PDR ceramic tradition and comprises

a range of coarseware jars, with a smaller number of fineware bowls and cups. The fabrics and forms are typical of settlement-associated assemblages in eastern England, with the preponderance of coarseware vessels being characteristic of 'domestic' sites.[22] These coarsewares were everyday cooking vessels, which were frequently used (as evidenced by sooting on their exterior surfaces), resulting in greater levels of damage than their fineware counterparts, and subsequently, a high visibility in waste contexts. The small number of burnished sherds belong to the tableware component of the vessel repertoire and include one fragment with a red oxidised finish, which is very rare prior to the Early Iron Age.

Other artefacts speak of commonplace activities on settlement sites. Fires and cooking are evidenced by burnt stones and calcined flints, often caught up in Late Bronze Age features. Hot stones could be cooked on directly, or used indirectly to heat water. Hearths and fire settings are also the source of the carbonised plant remains, namely cereals and legumes. The presence of five loom weights and two spindle whorls indicate that textile production was being undertaken in the settlement, whilst the recovery of querns attest to cereal processing and grinding activities associated with culinary activities (the presence of carbonised emmer wheat spikelet forks also being suggestive of on-site cereal processing).[23] The finding of fragments from a flint quern, as well as a more typical sandstone quern, is notable; flint querns are a distinctive feature of prehistoric assemblages from the Norfolk and Suffolk Breckland and adjacent areas of the fen edge, where they have been found associated with Early and Middle Bronze Age pottery.[24] However, the Stutton example can be related to the recent recovery of several examples from the Late Bronze Age settlement at Must Farm, Cambridgeshire, on the western fen edge, indicating that these unusual artefacts may have had a longer currency and have been more widely distributed than previously suspected.[25]

Overall, the pits yielded a range of finds which relate to food preparation, cooking, consumption, weaving and crop processing — activities central to domestic life in the Late Bronze Age. Save for the faunal remains, which have survived poorly in the site's acidic sandy soils, what is surprising is the sheer quantity of material (and the condition of some artefacts), given the limited scale of the excavation. Several of the pits were very rich in finds and contained a mix of refuse generated from varying activities. These represent generalised occupation 'refuse', probably drawn from a localised surface midden where material accumulated over time. One such focus might have been around Structure 1, with debris generated and dumped around the exterior during its occupation or after abandonment. Periodic 'clearance' events here may have resulted in the burial of some of the spent materials.

Detailing these dynamics further is difficult, not least because the excavation window is restricted. However, the overall imprint of settlement appears fairly typical for Suffolk. In general, it is similar to that of the nearby settlement excavated at Days Road, Capel St Mary, located 7.5km to the north-west, where a number of shallow pits and a possible post-built rectangular structure were revealed.[26] More broadly, it can be compared with other Late Bronze Age open settlements in the county, including those excavated at Flixton Quarry, Flixton; Hartismere High School, Eye; and Bloodmoor Hill, Carlton Colville.[27]

Late Bronze Age salt production

Against this background of what could be considered typical evidence for settlement-type activity, the most remarkable aspect of the Late Bronze Age remains was the substantial assemblage of briquetage recovered from several of the pits. An assemblage of considerable significance, it provides the earliest securely dated evidence for salt production yet known in the county. Lying on the north side of the Stour Estuary, the site lies within the later, major area of Late Iron Age and Romano-British salt production, well known from the numerous 'red

hills' saltern sites that occur widely along the Suffolk and Essex coast and the Thames Estuary.[28] Although much scarcer, evidence for Late Bronze Age salt working is known from briquetage assemblages from a number of sites further south in this zone (Fig. 205), most notably from Woodham Ferrers ('Crouch Site 2') and Burnham-on-Crouch on the lower reaches on the river Crouch, and Mucking, on the Thames Estuary.[29]

Some elements of the briquetage from Stutton Close can be closely paralleled with these other Late Bronze Age assemblages, particularly in terms of pedestal form (see fired clay report, above). More unusual, however, is the absence of any definite fragments of the vessels/containers which would have been supported by these pedestals and in which the brackish water/brine would have been heated to extract and dry the salt residue. In other contemporary assemblages from the region, such container/vessel fragments are very common,

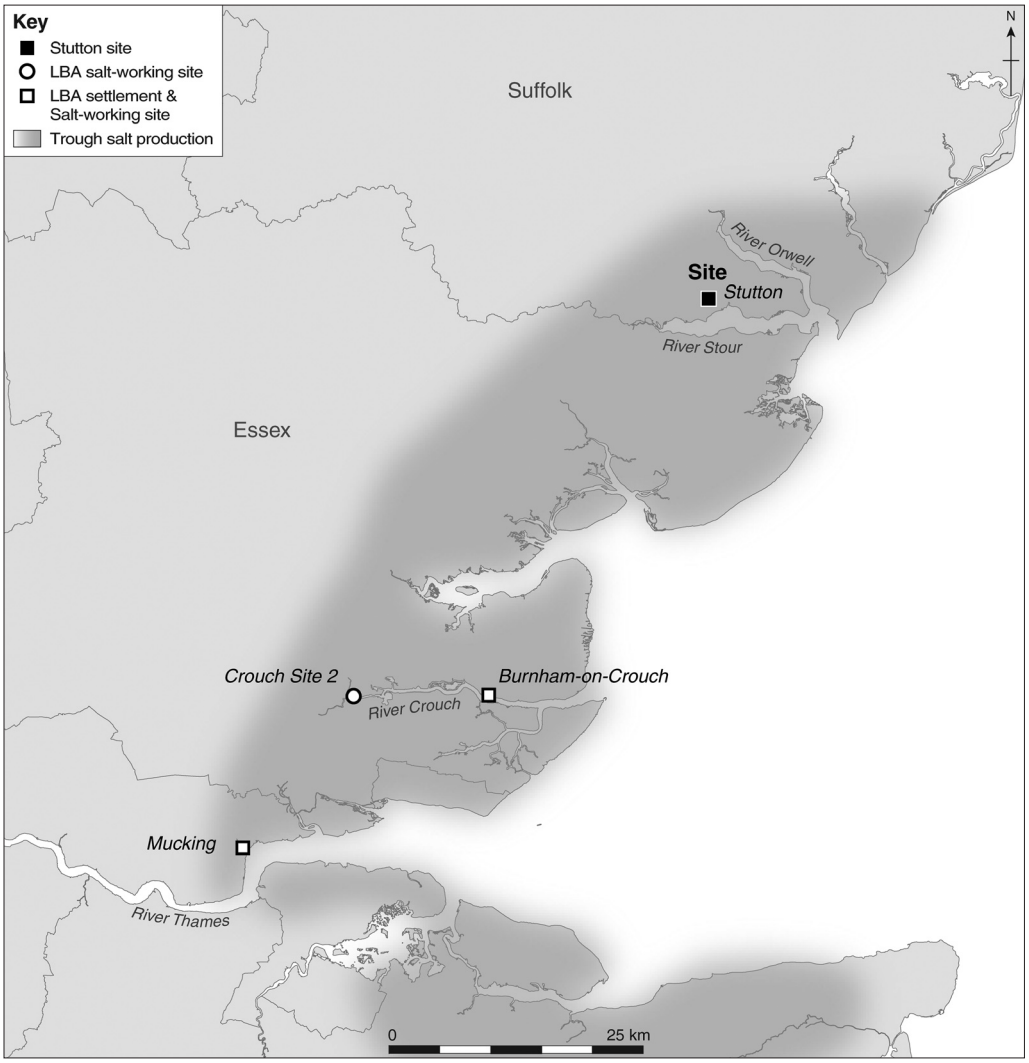

FIG. 205 – The Suffolk and Essex coastline, showing extent of later prehistoric (Late Iron Age) trough salt production and sites with evidence for Late Bronze Age salt production (*Source: Champion 2007, fig. 4.29*)

invariably outnumbering pedestal fragments by a ratio of around 2:1.[30] Their underrepresentation at Stutton may, however, simply reflect the fact that most of the briquetage derives from a single, specific, depositional event (the backfilling of pit 43), which may have drawn on a relatively restricted range of material but is not fully representative of all the salt making equipment used at the site. A further unusual aspect of the Stutton assemblage is the frequency of bar fragments — a form which is absent from many other Late Bronze Age assemblages in the region, aside from the North Ring at Mucking, where a single fragment was recorded.[31]

Away from the typological composition of the assemblage, the context of the briquetage from Stutton Close is similar to most of the comparable Late Bronze Age assemblages noted above: it derived from an area of settlement removed from the channels and marshes of the estuarine rivers where the brine/brackish water used in salt production would have been sourced. In the case of Stutton, the site lies well over 1km from the shoreline of the Stour Estuary. Elsewhere in the region, only the small assemblage of briquetage recovered from beneath intertidal sediments in the Crouch Estuary at Woodham Ferrers, at a height of *c.*1m OD, seems to relate to Late Bronze Age salt production occurring at or close to the water's edge. In large part this pattern must reflect the effects of subsequent rises in sea level, with sites lying close to the contemporary shoreline having since been destroyed through tidal erosion or deeply buried by intertidal sediments, although it does indicate that at least certain stages of salt production were undertaken in 'inland' locations. At Mucking, it has been suggested that the large assemblage of briquetage related to the later stages of salt production, which took place in the context of extensive domestic settlement on the gravel terraces overlooking the Thames. It involved the drying and final processing of salt obtained following large-scale evaporation of brackish water at sites on the edge of the estuary to the south.[32] This model is appropriate for other sites such as Stutton, with the final stages of production taking place in a settlement context away from 'primary' production sites. Whilst this interpretation does not account for the absence of container/vessel fragments at Stutton, it is notable that the pedestals and bars that dominate the assemblage may represent the more portable elements of salt making equipment, those which could have been transported between the settlement and putative estuarine sites.

There is no doubt of the value and importance of salt for later prehistoric communities, principally for allowing the preservation of foodstuffs, but our understanding of the scale and organisation of its production and exchange in the region during the Late Bronze Age remains rudimentary.[33] The evidence from Stutton and elsewhere, such as Burnham-on-Crouch, suggests salt production was taking place on otherwise unremarkable sites, which produce typical evidence for Late Bronze Age domestic and agricultural activity.[34] The same appears to be true of many of the sites with evidence for Middle to Late Bronze Age salt working from the Cambridgeshire and Lincolnshire fenlands, and in most cases it is difficult to argue for any kind of elevated or specialised status for the communities involved in this activity.[35] Nonetheless, the evidence for salt production and settlement at Mucking was associated with a pair of major Late Bronze Age ringworks — impressive earthwork monuments which may have served as elite residences, hosting episodes of large-scale conspicuous consumption and potentially high-status activities such as metalworking — suggesting that, at least in some areas, the production and exchange/redistribution of salt may have been coordinated or mediated by politically and socially powerful individuals and communities.[36]

Even at Mucking it is clear that salt working was taking place alongside other domestic and craft activities, probably on an episodic/seasonal basis by communities otherwise engaged in the mixed farming regimes typical of the period. The significance of salt production as a distinct practice with its own set of conventions and traditions is, however, indicated by macroscopic and microscopic analysis of the briquetage fabrics (see above), which has shown them to be

remarkably homogenous, the makers employing a slightly sandy clay with abundant organic matter that burnt away during firing. Comparison with the other fired clay objects and pottery indicates that this recipe was specific to the briquetage, meaning particular clays and tempering ingredients were sought out and specially prepared for the equipment's manufacture. This is significant as it suggests that briquetage production was organised and executed differently to that of other kinds of ceramic, and may have been learnt, practiced, and coordinated along different age and/or gender lines to potting. These fabric 'recipes', and the typological forms of briquetage (especially pedestals) were also evidently widely shared along the coastal and estuarine zones of the region. Such connections in form, fabrics and 'style' point to shared understandings of the appropriate ways to fashion and use these specific artefacts over large parts of eastern England. This uniformity is perhaps less surprising when considered against the consistency in the conventions of producing contemporary pottery, which has an even broader geographic reach. Equally, it emphasises the conservative nature of 'domestic' material traditions in the Bronze Age, and the absence of overlapping ways in which things were made and used. This is not only evidenced at Stutton in the different choice of clays and tempering ingredients used to make briquetage and pottery, but by the fact that the latter was not involved in the salt making process at all. Although pots could have easily been deployed for drying salt, none of the vessels from Stutton have signs of being salt affected (unlike the briquetage). As such, these artefacts seem to have been made, used and conceived of in very different and exclusive ways in the Late Bronze Age.

CONCLUSIONS

The small-scale excavations at Stutton have provided important evidence for Late Bronze Age settlement and early salt production within the Suffolk coastal zone. Although the preservation of environmental remains was relatively poor, the finds assemblages, especially the pottery, are significant additions to the regional corpus, particularly given their association with a set of precise, high-quality radiocarbon dates. Alongside other recently excavated sites, the remains at Stutton serve to benchmark the character of Late Bronze Age domestic settlement in the county. At a local level, the evidence for salt working is highly significant, but it can be seen in the wider context of Late Bronze Age salt production along the coastline of East Anglia and south-east England, emphasising the potential for further work in the county to recover comparable evidence.

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NOTES

1 Cox 2021: https://eprints.oxfordarchaeology.com/6040/.
2 https://www.bgs.ac.uk/map-viewers/geology-of-britain-viewer/.
3 Brew *et al.* 1992.
4 Bradley *et al.* 2011.
5 Barton and Roberts 2019.
6 Jacobi 1980, fig. 6; Billington 2016, fig. 2.17.
7 Lawson *et al.* 1981; Ingle and Saunders 2011, figs 2.1, 2.25.
8 Yates 2007, 78–80; 2012, 33.
9 Yates 2012, fig. 1; Martin 1989.
10 Clarke 1939a, 20–3; 1939b; Scott 1984; Suffolk Historic Environment Record SUT 022.
11 Quinn 2021.
12 PCRG 2011.
13 Brudenell 2012.
14 Barrett 1980.
15 Brudenell 2012.
16 Following PCRG 2011.
17 See Evans *et al.* 2016, 139, fig. 3.9, no. 2.
18 See Barford 1988, 40, fig. 27, no. 22.
19 Quinn 2021.
20 See *e.g.* Clarke 2019; Woolhouse 2013; Sommers 2011; Meredith 2015.
21 See *e.g,* Clarke 1939a.
22 Brudenell 2012.
23 Craven 2021.
24 *e.g.* Healy 1996, 62; Clark 1936; Herne 1991.
25 Knight *et al.* 2019.
26 Tabor 2014.
27 Flixton Quarry: Boulter 2022; Hartismere High School: Caruth 2012; Bloodmoor Hill: Heard 2013.
28 Fawn *et al.* 1990; Biddulph *et al.* 2012.
29 Burnham-on-Crouch: Wilkinson and Murphy 1995 and Collie 2018; Mucking: Bond 1988, Jones 1977 and Evans *et al.* 2016.
30 Barford 2016, 197.
31 Barford 1988, 41.
32 Barford 1990; Evans *et al.* 2016, 138–41; *cf.* Jones 1977.
33 See Harding 2013; Kinory 2012.
34 Collie 2018.
35 Lane and Morris 2001; Lane 2018; Evans 2015.
36 Evans *et al.* 2016, 185–8, 211–17, 513–16.

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