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Excavations on a Roman Salting Site at Cedar Close, March, Cambridgeshire

Tom Lane, Elaine L Morris and Mark Peachey

Evaluation and excavation in advance of housing development revealed an area of features including salting ovens and associated salt production debris. The features lay at the side of an extinct channel, the source of the brine. Earlier, but undated, pits and post holes had been sealed by an alluvial deposit into which the salterns had been cut. The briquetage suggested the possibility of two phases of salting, both occurring in the Roman period.

Introduction

Archaeological Project Services (APS) was commissioned to undertake a scheme of archaeological works ahead of residential development on land off Cedar Close, March, Cambridgeshire. An earlier evaluation, undertaken by Cambridgeshire County Council Archaeological Field Unit (CCCAFU) and comprising eight trenches distributed across the site, revealed a high density of archaeological features including pits and post holes. Many of the features were undated, although it was suspected that these were of Romano-British date (Hickling 2003).

Three further evaluation trenches were excavated by (APS) (site code MCCB 04) within the south part of the development area and a further four (site code MCCC 04) immediately to the north. Evaluation was followed by excavation of two areas (Areas 1 and 2) (site code MCCA 04).

Post-excavation assessment (Peachey 2005) highlighted the significance of the saltern, one of a number known from the island.

Archaeological Background

Situated approximately 38km north of Cambridge and 23km east of Peterborough in the Fenland District of Cambridgeshire (Fig. 1) March occupies a former island within the fenland, lying on the northern tip of a large peninsula between two major embayments of the southern fen. On March island, Boulder Clay till and interglacial gravels overlie the Kimmeridge Clay

bedrock (Hall 1987, 38). While the land surface on the island attains a height of c. 4m AOD in places, the development site lies on its eastern edge at approximately 2m OD. The surrounding fen landscape underwent a series of complex changes during the prehistoric, Roman and later periods, influenced by the peninsula and the constantly changing courses of the major rivers on either side of it (Hall 1987).

The site at Cedar Close, an approximately rectangular area of former allotment gardens covering c. 1.25ha, is located in the northeast of the town at National Grid Reference TL 422 973 (Fig. 1).

Much of the island is covered by modern settlement and prehistoric finds are relatively sparse, tending to be found on the west side of the island. Romano-British activity is better attested by the extensive cropmark evidence of settlement, field systems and droveways identified to the north and east, either side of the Fen Causeway Roman routeway. Recent investigations to the west have revealed remains relating to enclosures and droveways of possible prehistoric date.

Excavations at Norwood (Potter 1981), 2km to the north of the Cedar Close site, identified evidence of occupation and salt production between the late first century and fourth century AD.

Recent archaeological investigations to the north of Longhill Road have also revealed extensive evidence of Romano-British settlement and salt-production (SMR 08445/TL 4185 9939).

Realignment of the River Nene to its present course occurred during the Saxon period allowing March to develop as an inland port. March was given to the monastery of Ely about 1000 AD and at that time was part of the manor of Doddington. However, no Saxon finds have been noted from March itself.

The first (CCCAFU) evaluation at Cedar Close revealed a series of pits and ditches and a deposit of briquetage and ash associated with salting on the higher ground of the northern part of the site. The only dating evidence recovered was a single small piece of Roman pottery from the deposit of briquetage giving a tentative date for the activity (Hickling 2003). Some pits were cut into an 'inundation layer'

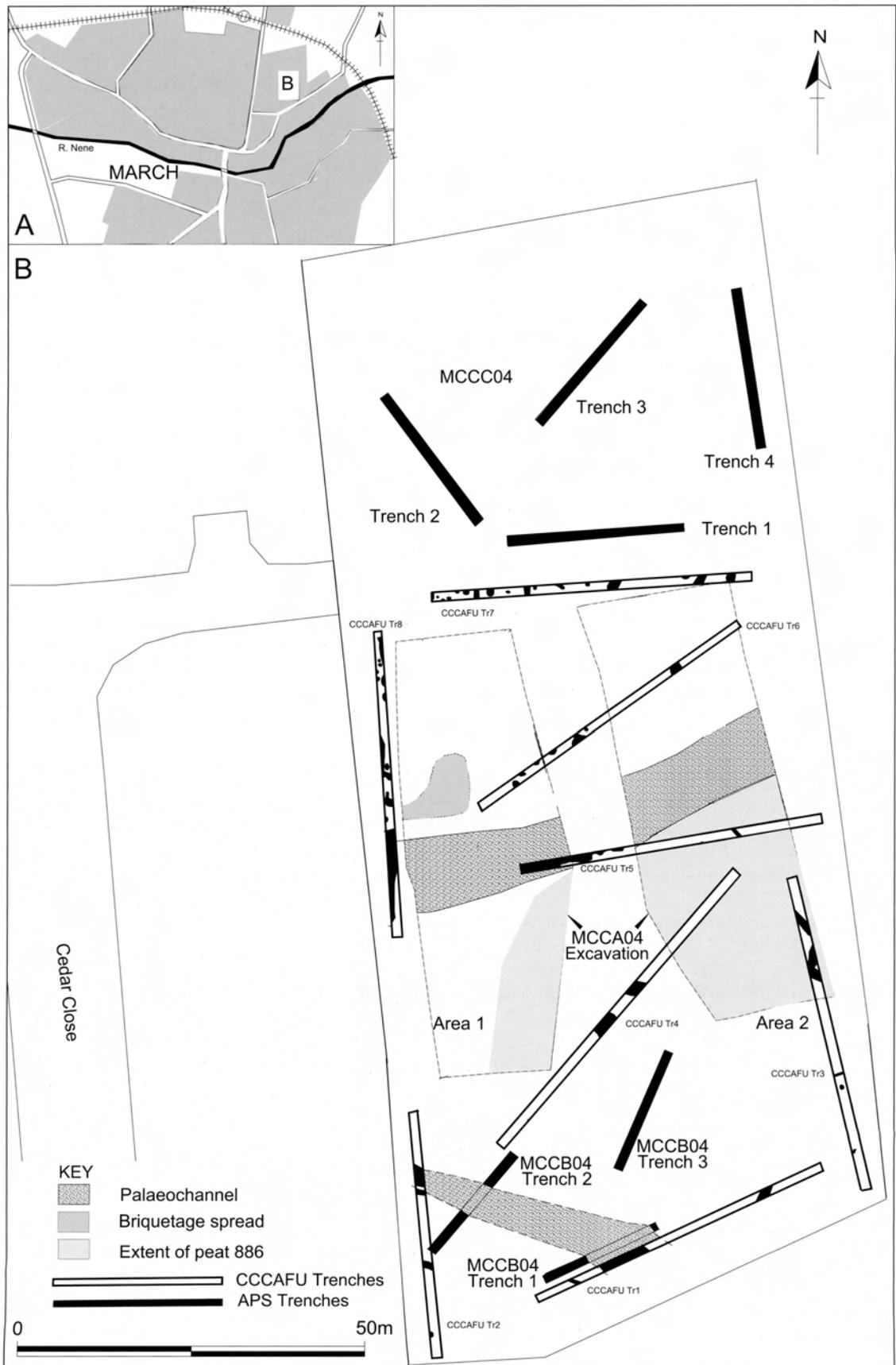


Figure 1. Location plan showing excavated areas.

(*ibid*, 10), while other were either sealed beneath it or were beyond the range of alluviation.

Methodology

Two areas (1 and 2, Fig. 1) were excavated as they formed the main focus for the proposed housing. The baulk in between the areas was not included within the main development, but was topsoil stripped late in the excavation. Features apparent after stripping, including hearth/ovens, were planned but, as the ground was not to be lowered, the features were not excavated. Prior to excavation 10 samples were taken at 3m intervals from a dense spread of briquetage (566) on the advice of the curator.

Results

From assessment of the context records, drawn records and stratigraphic matrices, in conjunction with the spot dating of the sparse pottery and denser briquetage, two broad period divisions were identified:

Period 1: Prehistoric

Period 2: Early to Mid Roman

Period 1 (Figs. 1 and 2)

The major natural feature on the site is a 10m wide palaeochannel [719] running east-west across the centre of both Areas 1 and 2. While this feature re-

mained active in Period 2 it is believed to have origins in Period 1. There is a much higher density of features to the north of it than to the south and it is likely to have demarcated the habitable or usable ground to the north from the more marshy and lower southern part. A similar but smaller palaeochannel was identified in the CCCAFU evaluation in the southwest corner of the site aligned WNW-ESE, but there were no other features of significance in these low lying trenches.

Area 1 (Figs 3, 4)

Some 64 pits or post holes and three linear features were recorded to the north of palaeochannel [719] in Area 1. Most of the features were undated. A layer of peat (886) was present over most of the lower lying area south of the palaeochannel but not to the north of it up the slope on the higher ground. This peat layer sealed ditch [888] (Fig.3). Some of the pits were very irregular and could have been caused by tree root disturbance. Only two sherds of Iron Age pottery, both coarse, hand-made examples, were recovered in Area 1, from contexts 653 (the fill of palaeochannel [719]) and alluvium 720.

Area 2 (Fig 3)

Features on Area 2 were also mainly located north of the palaeochannel and included a shallow depression or possible pond. A slot excavated through this feature revealed a few pits, post holes and linear features, with several of the 'pits', again being the likely

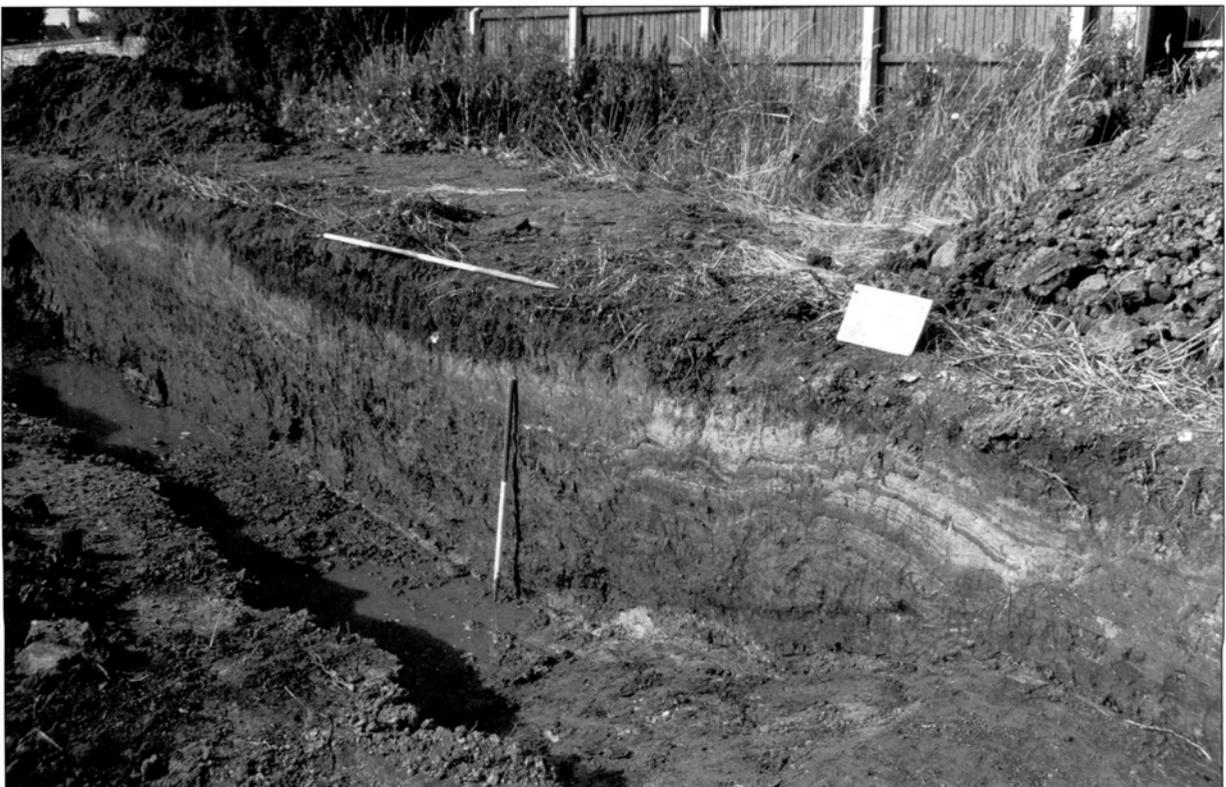


Figure 2. Section of the palaeochannel.

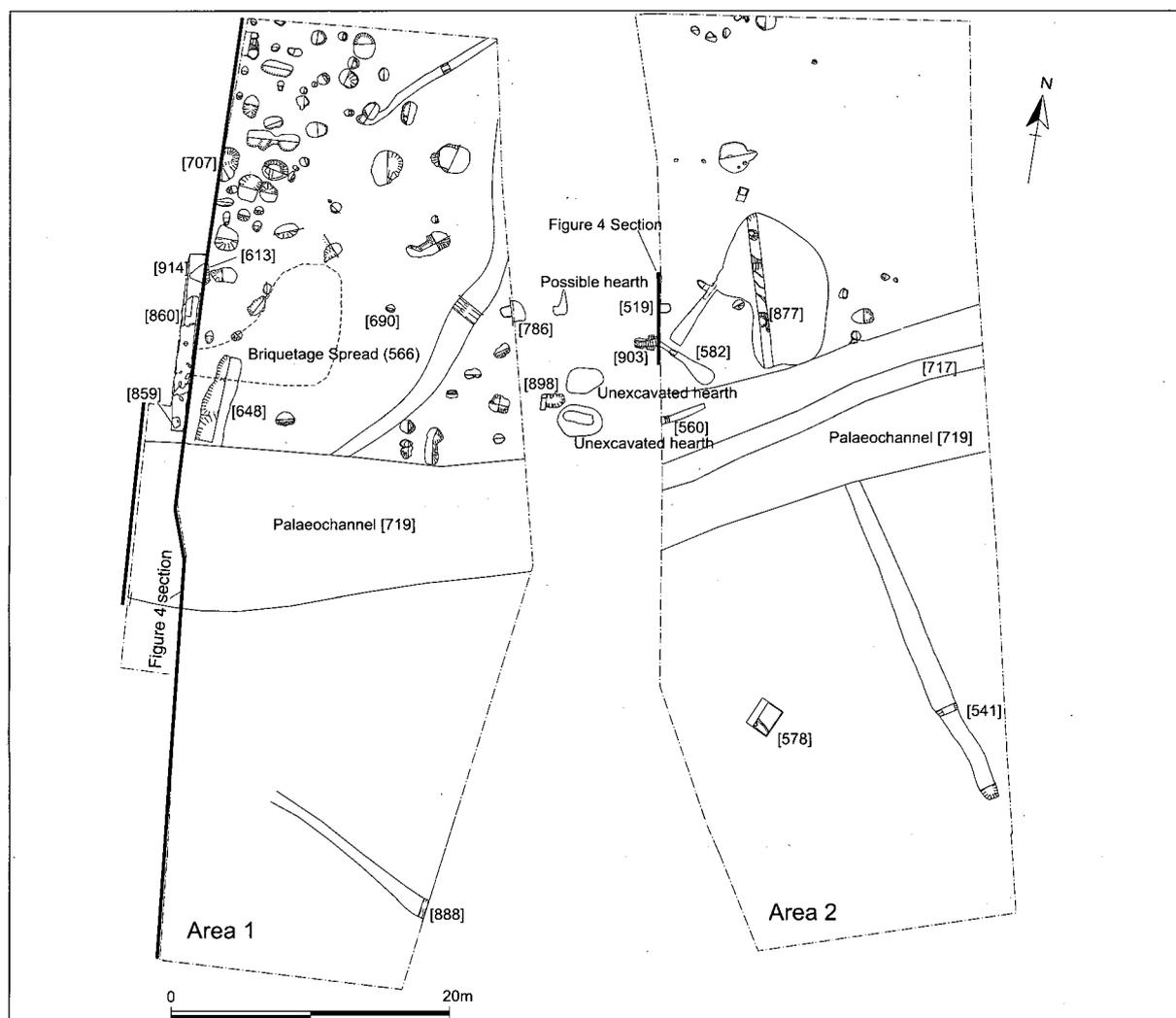


Figure 3. Excavation plan.

result of tree root disturbance. However, fill (878) of pit [877] contained two sherds of coarse, hand-made Iron Age pottery. South of the palaeochannel in Area 2 was a single linear feature [541] and one rectangular pit [578] of undetermined function.

Period 2

Area 1 (Fig 3)

Remains of a number of small hearth/ovens were noted in both the west (Fig 9) and east sections of the area. Those on the western side ([860], [914], [898], and [903], Fig. 11) were excavated while a further five hearth/ovens were cleaned and surface recorded in the baulk between the excavation areas. The zone of hearth/ovens was found to extend about 10m to the north from the palaeochannel and from the western edge of the site to about 3m into Area 2. Each of the hearth/oven recorded in the site baulks was found to overlie or be inserted into a pit, these pits cutting the alluvium (for example [613] and [897]). Other pits, for example [668], [707], were sealed by the alluvium (Fig

4). Initially identified as 'subsoil' on site the deposit is most probably transformed alluvium, the result of overbank flooding from the creek.

The zone of hearth/ovens clearly extends beyond the western limits of the site. The presence of briquetage in some quantity indicates that the heating structures were used in the production of salt. Some of the pits excavated, often of irregular shape (Fig 3), may have been originally dug for clay extraction and then used for brine storage. The briquetage is of the type that has a Roman date on other Fenland sites but only one sherd of Roman pottery has been found (by CCCAFU), that among the briquetage deposit [566] in the upper layers of the site.

Area 2

Gully [560] (Fig.3) was the only feature found to cut the palaeochannel fill, apart from later channel [717]. The gully contained a quantity of briquetage fragments suggesting that salt production was being undertaken when the palaeochannel was already at least partially silted, although it is possible that dis-

with 1:1 sketches of a small sample of each form type and additional notes on Featured Briquetage Record forms.

Fabrics

Analysis revealed the presence of four different fabrics: one which is a naturally-occurring sandy clay containing rare flint, limestone and quartz or quartzite detritus (Q1); two which are made from the same naturally-occurring clay with the addition of either an abundant amount of coarsely chopped, linear organic matter as temper (V1) or a moderate amount of coarsely chopped, linear organic matter as temper (V2); and a very rare fabric type which is organic-tempered and also has pieces of briquetage added deliberately as grog temper or incidentally during this industrial process (V2G). In addition, there are a few fragments which could not be assigned a fabric type description due to their overfired condition (Table 2).

The distinctive size range of quartz sand inclu-

sions and the detritus in fabric Q1 are not similar to other briquetage fabrics from within the Fens which have been interpreted as deriving from Fenland silts (Williams 2001). The sandy clay resource used to make fabric Q1, with occasional pieces of detrital material, is most likely to be found nearby, somewhere on March island itself which is a rise of boulder clay in the Fens left behind after the glaciers receded. The quantities of organic temper added to V1 and V2 are, however, typical of organic-tempered fabrics in Late Iron Age and Roman assemblages in the Fens. If March island had been utilised during this period for crop production, then plenty of chaff from grain processing would have been available to be used as tempering for the V group of fabrics. If this location had not been suitable for growing cereals, then it would have been necessary for bags or baskets of chaff to be brought to the saltern site for this purpose. Evidence for this behaviour is not unknown. At Cowbit (Lane 2001), which is located in the Fens and away from the crop-

Table 2. Briquetage assemblage by class, weight and form.

Class	Form Type	Fabric Type (count)					Total count	Total weight
		NV1	V1	V2	VG1	over-fired		
Containers								
Rims	R3	-	3	-	-	-	3	17
	R4	-	1	-	-	-	1	2
	R5	-	2	-	-	-	2	6
Bases	B1	-	6	-	-	-	6	152
Body sherds	BS1/2	-	350	-	-	-	350	1313
	<i>sub-total</i>	-	362	-	-	-	362	1490
Supports								
Bars	BR1	-	8	14	-	-	22	191
	BR99	-	1	-	-	-	1	3
Stabilisers	CL2	-	1	-	-	-	1	7
	CL4	-	-	1	-	-	1	50
	CL99	-	1	-	-	-	1	13
Pedestals	PD3	-	-	1	-	-	1	28
	PD9	-	1	1	-	-	2	9
	PD14	-	-	5	-	-	5	213
	PD97-99	-	-	64	-	-	64	388
Platforms	PL1	-	-	116	-	-	116	3580
	PL3	-	1	22	-	-	23	246
	PL7	-	1	2	-	-	3	184
	PL12	-	-	53	-	-	53	8215
	PL13	-	-	7	-	-	7	544
	PL14	-	-	1	-	-	1	3525
	PL99	-	-	179	-	-	179	1407
	<i>sub-total</i>	-	14	466	-	-	480	18603
Structural Material								
Wall/Flooring	W/FL1	157	-	-	-	-	157	16446
	W/FL2	1	-	-	-	-	1	226
	W/FL99	1460	-	-	-	-	1460	14841
	<i>sub-total</i>	1618	-	-	-	-	1618	31513
Miscellaneous								
Undiagnostic	FC99	23	149	62	127	14	375	3750
	Lozenge	1	-	-	-	-	1	1
	<i>sub-total</i>	24	149	62	127	14	376	3751
Total		1642	525	528	127	14	2836	55357

producing zone of the fen edge, chaff (Murphy 2001) had been added to local silty Fenland clay (Williams 2001), chaff which must have been transported to that site, a distance of 12km (Morris 2001b, 39). The light-weight chaff would have been worth carrying some distance to March-Cedar Close if the return of effort produced salt effectively. It is interesting to note that the Fen Causeway crosses March island and could have eased the transportation burden of getting chaff to the site as well as distributing the salt out to the regional consumers and beyond. Unfortunately, it is not possible to determine from the poorly preserved environmental evidence whether the rare oat and wheat grains recovered had been grown on the island or brought to it as part of chaff. At least the boulder clay matrix, however, was most likely to have derived from a local, Island source.

Quartz Sand Fabric

Q1 sandy fabric: Moderate to common (15–25%), rounded to subangular, moderately to poorly-sorted quartz, measuring < 0.8mm with the majority < 0.5mm across, with rare (1–2%), angular to rounded, patinated flint and quartz or quartzite, 1–5mm across and rare (<1%), rounded, red, iron pellets, < 0.5mm, and swirls of iron staining in a micaceous clay matrix; dense, laminated fabric; in thin section, there has been some calcite replacement or infilling of the fabric structure; can be very hard fired [structural and miscellaneous material fabric]

Organic-tempered Fabrics

V1 abundantly organic-tempered fabric: Common to abundant (20–40%), linear voids remaining from former, now burnt out, organic matter, <8mm with the majority < 6mm long, in the sandy fabric Q1 described above; well-wedged, irregular texture (never laminated); in thin section, it appears that there has been calcite infilling of the linear voids which may have derived from the nature of the boulder clay or due to the underlying Corallian beds (Chatwin 1961, 12–15) being affected by the salt or other process [container and support fabric]

V2 moderately organic-tempered fabric: Moderate to common (10–20%), linear voids remaining from former, now burnt out, organic matter, up to 15mm long but mainly < 6mm, in the sandy and slightly micaceous fabric Q1 described above with rare pieces of patinated, angular flint detritus up to 15mm across, fossil shell up to 1 mm and swirls of iron staining in the clay; irregularly textured due to the addition of the temper, rather than being laminated as with fabric Q1; in thin section, calcite replacement is a characteristic of this fabric [support and miscellaneous fabric]

V2G organic-tempered fabric with grog: Rare to sparse (1–5%), poorly sorted, sub-rounded to angular crushed fragments of fabric V2 material as deliberate grog temper or as unintentional incorporation, <15mm, into fabric V2 described above; poorly structured, very irregular or hackly texture [miscellaneous fabric].

Classes and Form Types

Quantification of the assemblage by class and form type is presented in Table 2.

Containers

There is a small quantity of rim, base and body sherds derived from briquetage containers used to evaporate water from brine and dry wet salt crystals in the salt-making process (Morris 2001a). Three rim types were identified (Fig. 5, 1–3), all from convex-profile, shallow pans with simple flat bases. Similar rim types have been published from later Iron Age and Romano-British Fenland saltern sites, including Bourne-Morton Canal (Crosby 2001a), Cowbit (Morris 2001b), Helpringham (Healey 1999, fig. 8, 30–39), Holbeach St Johns (Gurney 1999, fig. 40), Market Deeping (Morris 2001c), Morton (Lane 1992, fig. 131, 5; Crosby 2001b), Middleton (Percival 2001a) and Nordelph (Percival 2001b). No cut rim or flared base sherds, typical of middle Iron Age briquetage trough-shaped containers (Morris 2001a), were identified in the Cedar Close assemblage.

Rims

- R3 rounded rim (Fig. 5, 1)
- R4 flat-rounded rim, with channel groove on top (Fig. 5, 2)
- R5 pointed/rounded rim (Fig. 5, 3)

Body Sherds

- BS1/2 straight, flat and curved body sherds; grouped classification (not illustrated)

Base

- B1 simple, flat base (Fig. 5, 4)

Supports

Four different types of supports, used to raise and secure ceramic containers in hearths or within ovens (Morris 2001a), were identified: bars or rods, spacer/clips, pedestals and platforms. Bars or rods are a common form of support on many sites in the region and usually found in later Iron Age and some Roman period assemblages as at Billingborough 21 (Lane 1992, fig. 129, 2), Cowbit (Morris 2001b, fig. 19, 28), Morton saltern (Crosby 2001b, fig. 34, 36), Morton 69 (Lane 1992, fig. 129, 1 & 3–7) and Norwood (Potter 1981, fig. 16, 6). Clips are distinctive but easily broken lumps of fired clay which had been squeezed across the rims of usually two different containers to secure or stabilise them during the brine evaporation process. Clips are often found on saltworking sites of later Iron Age and Roman date as at Billingborough 21 (Lane 1992, fig. 130, 8), Cowbit saltern (Morris 2001b, fig. 17, 9), Hacconby 25 (Lane 1992, fig. 130, 6), Holbeach St Johns (Gurney 1999, fig. 41, 19–30), Morton saltern (Crosby 2001b, fig. 33, 16–25), Morton 13 (Lane 1992, 7 & 9) and the Wrangle-Friskney area (Lane and Hayes 1993, fig. 85, 1–13), but only three fragments were found in the March-Cedar Close assemblage.

In addition, very few pedestal fragments were found in the assemblage. Pedestals are solid, chunky, hand-squeezed pillars of clay onto which troughs and pans were placed. Hand-squeezed pedestals are probably the most distinguishing type of briquetage found on Fenland saltern sites of later Iron Age and

early Roman date such as at Cowbit (Morris 2001b, fig. 21, 45–50), Addlethorpe (Morris, in archive), Morton (Crosby 2001b, fig. 34, 29), and Wrangle (Lane 1993, fig. 84, 1–14). Excavation of the second century AD salt-working site at Norwood, located 2km north of March-Cedar Close, also produced examples of hand-squeezed pedestals (Potter 1981, figs. 16, 1 & 17, 11) but various types of bricks were more frequent finds at that site. Pedestal supports can appear to be extremely overfired on some sites, such as in the Morton and Addlethorpe assemblages, resulting in a very brittle feeling to them. This is also the case for the 64 fragments in fabric V2 from March which are believed to be from pedestals. The severe fragmentation of these pieces makes it impossible to determine their original shapes (PD97–99).

The most significant quantity of supports, however, was platforms. The March-Cedar Close assemblage has an outstanding collection of platform fragments which provides information for a much better understanding of this form type than previously appreciated. Platforms and flooring slabs proved to be rather enigmatic in some publications (Lane and Morris 2001), and it is only the reconstructed image of long discarded examples from Holbeach St Johns (Lincs.) which has recently suggested that this type of support is actually a reality (Gurney 1999, fig. 43, Bi-Biv). No platforms appear to have been identified, for example, in the second century AD Norwood assemblage (Potter 1981). Platforms can best be described as porous, very thick floor tiles having four squared-off side edges and two well-fingered or finger-smoothed parallel, horizontal surfaces. The thickness of the March-Cedar Close platforms ranges from 17–19mm for PL3, 32–38mm for PL7, 47–59 and 63–68mm for PL12, and 58–67mm for PL14. There is a very strong likelihood that the thicker PL12–14 platforms were actually made in a prepared mould, possibly a wooden box, due to the appearance of horizontal lines on the side edges. If platforms were not made in a mould, then they may have been knife-trimmed or severely wiped to provide this effect. In addition, many of the edges with one or more surface still present display a lipped effect rising up from one or both of the flat surfaces due to strong pressure from fingering which creates this lipped appearance during the manufacturing process, again suggesting the possible use of a mould. Platforms were free-standing supports for receiving containers and this is realised because there is salt-bleaching, or white colouring, on both of the surfaces and often down the side edges as well. Unfortunately, many of the fragments of platforms do not have both surfaces present, a very distinct characteristic of platform fragments, one which can lead to their misidentification as probable oven flooring slabs rather than objects used to raise containers above the flue of an oven. In the March-Cedar Close assemblage there is one example which displays the full width and thickness of platforms as well as the lipped construction effect (Fig. 6, 10); it is 265mm wide, 58–67mm thick and more than 200mm long. It seems possible that the thicker, PL12–14 platforms

found at March were likely to have been square in plan. It is hoped that someday a complete Fenland briquetage platform will be discovered, measured and conserved.

Bars or Rods

BR2 roughly smoothed, round cross-section bar or rod fragment (Fig. 5, 5)

Stabilisers (Clips/Spacers)

CL2 cylindrical spacer/clip with lips, fragment (Lane and Morris 2001, fig. 113, 11) (not illustrated)

CL4 flattened spacer/clip (Fig. 5, 6)

CL99 fragment of probable clip/spacer (not illustrated)

Pedestals

PD3 lipped base, angled-top, hand-squeezed pedestal fragment (Lane and Morris 2001, fig. 114, 18) (not illustrated)

PD9 undiagnostic, hand-squeezed pedestal base and stem fragment (Morris 2001b, 43) (not illustrated)

PD14 sub-squared, pedestal base which is very similar to BK1 (Lane and Morris 2001, fig. 118, 37) but with softened edges

PD97 undiagnostic, hand-squeezed pedestal fragment (Morris 2001b, 44) (not illustrated)

PD98 hand-squeezed pedestal stem fragment (Morris 2001b, 44) (not illustrated)

PD99 probable hand-squeezed pedestal stem or base plate fragment (Morris 2001, 44) (not illustrated)

Platforms

PL1 fragment from a platform which has one smoothed flat top surface (Morris 2001b, 44) (not illustrated)

PL3 bevelled-profile, platform fragment (Fig. 5, 7)

PL7 rounded-edge, platform fragment (Morris 2001b, 44, fig. 18, 25) (not illustrated)

PL12 squared-sided, or piece of edge, platform fragment which has 2 (two) smoothed sides, a top surface and an edge surface (which is often wiped or scraped-off; very sharply defined); this profile often displays a lipped-effect to the ridge where side and surface join as if smeared from surface to edge with force; usually PL12 is incomplete with only one true horizontal surface extant and the other side irregular due to the loss of the surface but occasionally, there are both, parallel surfaces present (Fig. 5, 8)

PL13 corner piece of platform which has two wiped sides and one smoothed surface (i.e. it is a PL12 with an additional finished, edge side creating a corner) (Fig. 5, 9)

PL14 total width of platform which has two wiped, edge sides and two parallel smoothed surfaces (Fig. 6, 10)

PL99 irregularly-shaped piece of platform which is probably from a platform but it does not actually have a smoothed top surface so it cannot be called a PL1 (not illustrated)

Structural Material /Oven Lining

The largest class of briquetage in the assemblage is fragments of structural material. This material derives from salt production ovens, partially below ground surface structures made with one or more flues and surrounding clay walls, as well as possible partial domes. Well-preserved, published examples of these structures were found at Cowbit (Lane 2001, plate 2, fig. 12) and Middleton (Crowson 2001, figs. 47, 51, 54,

61; plates 10–12). Ovens with flues provide indirect heating systems for better control of the salt production process by regulating the intensity of heat to the salt pans and, therefore, the pace of evaporation. Slow evaporation results in finer salt crystal production; rapid evaporation results in coarser crystals. Coarser crystals are used for different types of preservation than those of a finer nature. For example, coarse crystals are used to salt and pack fish but finer crystals are for use at the table without a salt grinder.

The fragments of wall/flooring material from the oven structures at March are very distinctive due to their thickness; the thickest fragments measure at least 150mm. The March-Cedar Close ovens had been made in an unusual manner which explains the laminated nature of the fabric Q1 used to construct them. It is believed that a pit was dug into the ground and raw sandy clay poured into it, and then the oven shape was carved out of this feature due to the presence of shovel or knife-cut marks visible on the fire-hardened, inner wall surfaces of structural pieces. The layers of clay poured into the pit were the basis for the very distinctive, laminated character of fabric Q1 oven fragments. Experimental archaeology to investigate these processes and the amount of effort to construct a pit oven is required to explore the actual procedures of construction further.

Wall/Flooring

WFL1 flake fragment of wall/flooring material which has one smoothed surface; the key component here is that this piece must have a flaky structure to it (Fig. 6, 11)

WFL2 square-sided piece of wall/flooring which has two smoothed sides, a top and an edged, without a sharp definition between the two sides in contrast to PL12–14 (Fig. 6, 12)

WFL99 flake fragment from wall/flooring material from the walls/floor of an oven but does not actually have the smoothed surface so it cannot be called a WFL1 (not illustrated).

Miscellaneous

There is a moderate amount of fired clay fragments which could not be assigned to a diagnostic form of briquetage but due to the nature of the firing and evidence of use from salt bleaching (discussed below) were undoubtedly involved in some way with the salt-making process (FC99). In addition, there is a small, complete, oval-shaped piece of fired clay which had been rolled in the hand (Fig. 6, 13). It is likely that this object is the result of testing the texture of the natural clay to determine its plasticity.

Manufacturing - Correlation of Fabrics and Forms

Certain fabric types were made to be used primarily for a single class of briquetage (Table 2). All container sherds were made from fabric V1. Nearly all supports, such as pedestals and platforms, were made from fabric V2. In addition; however, there are some support fragments which may derive from disintegrating and often overheated pedestals which were also made from V1 fabric which is highly porous; however, this

cannot be proven unreservedly due to the fragmentation of the support pieces. Clearly, the manufacture of the two different organic-tempered fabric variants, one to make containers and the other to make most supports, was deliberate. It is likely that different degrees of porosity were the main requirements for these objects to fulfil their functions and that the salt-makers were well-aware of this difference.

This is in contrast to all structural material which was made from the un-tempered fabric Q1, indicating that porosity was not a major criterion for the building and use of saltmaking ovens. The absence of tempering of any kind in fabric Q1 is intriguing. It might have been expected that, as this fabric was used to make ovens for heating the brine, a form of tempering would have been required to provide thermal resistance. However, this was clearly not the case and it may be that the form of these ovens with their flues could have been well-controlled, and that the salt-makers would have been able to gradually bring the heat of the structures up to the required temperature so that there would have been no thermal shock to resist. Undoubtedly, reconstruction of a March-Cedar Close oven could provide insight into the role this untempered fabric performed.

Fabric V2G, a grog-included organic-tempered fabric, appears to have been a non-specific fabric which may have been the result simply of casual incorporation of old pieces of platforms or pedestals into clay being worked for new objects. The miscellaneous lumps which have this grog present are quite non-specific in shape or intension for use.

Evidence of Use

One of the striking aspects of the platforms, wall/flooring fragments and container sherds is the amount of salt-bleaching effect they display. 74% of the container fragments are white-buff in colour throughout, 22% have only the exterior or exterior and interior surface bleached, and only 4% are unbleached. The orange-red firing Fenland clay used to make the containers loses its iron-rich colouring after repeated contact with the chlorine in saltwater. The more a container is used, the more bleaching takes place. Therefore, the majority of containers used at March-Cedar Close were used for extended periods of time or repeatedly. This phenomenon is quite common amongst the late Iron Age and Roman briquetage assemblages but much less so amongst earlier prehistoric collections such as at Cowbit (Morris 2001b, 41, plate 4a), Langtoft (Morris 2001e) and Market Deeping (Morris 2001c). It is likely that the extreme bleaching is a result of intensification of salt production during the late Iron Age and Roman periods (Morris 2006). This is supported at March-Cedar Close, in particular by the presence of bleaching of the thick platforms on one or both sides with up to 15mm bleached zonation and up to 60mm bleached zonation of some wall/flooring pieces (Fig. 7, 4–7). How much time and brine are required to produce these effects is not known but undoubtedly experimental reconstruction and use of ovens could help to identify this level of

Class	Site Assemblage													
	Langtoft		Market Deeping		Cowbit		Morton		Addlethorpe		March		Middleton	
	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt
Container	96.2	53.6	95.5	84.2	83.1	38.6	64.1	53.9	30.9	4.7	12.8	2.7	0.2	<0.1
Support	2.7	42.4	1.7	11.6	5.4	31.6	5.7	23.7	36.7	69.2	16.9	33.6	3.8	12.8
Structural	-	-	0.1	0.2	1.6	15.7	1.0	5.6	9.9	17.0	57.1	56.9	69.3	72.5
Miscellaneous	1.1	4.0	2.7	4.0	9.9	14.1	29.2	16.9	22.4	9.1	13.3	6.7	26.9	14.7
Total (actual)	4426	24948	4031	46296	5619	24505	6598	35090	1127	26545	2836	55357	11039	480179

Table 3. Percentage of briquetage by class from published sites - Addlethorpe (Morris, in archive), Cowbit (Morris 2001b), Langtoft (Morris 2001e), Market Deeping (Morris 2001c), Middleton (after Percival 2001a), and Morton (Crosby 2001b).

salt production intensity and in particular determine how the firing conditions relating specifically to oven [898] resulted in glazed miscellaneous material, and overfired structural material with bubbles preserved on the surface while the container fragments are in normal, salt-bleached condition.

Dating Evidence

Assessment of the range of material in the March assemblage by class and by form type can provide a better indication of the likely date for this assemblage compared to other Fenland assemblages from Lincolnshire, Cambridgeshire and Norfolk within the broad period of organic-tempered briquetage use. What is important is the relative frequency of each class in this sizeable assemblage compared to other quantified assemblages found in the region (Table 3) and the range of form types present or absent.

To start with, however, there are no container sherds of shell-gritted briquetage and no fragments from the very distinctive pyramidal pedestals (Morris 2001a-c & d) in the March-Cedar Close assemblage. Therefore, there is no evidence for middle Iron Age or earlier salt production at this location. All of the container and support fabrics are organic-tempered which indicates that the assemblage dates from at least the late Iron Age period or later (Morris 2001a, 2006). In addition, the cumulative percentage frequency of measurable container sherds by thickness category for the March sherds (Table 4) is not at all similar to the frequency ranges of the middle Iron Age assemblages recovered from Langtoft and Market Deeping (Morris 2001a, table 91, fig. 120).

Table 4. Quantification of measurable container sherds by thickness category.

Thickness category	Count	% within class	Cumulative percentage frequency
2 (<7mm)	53	18.6	18.6
3 (7-9.9mm)	166	58.2	76.8
4 (10-12.9mm)	59	20.7	97.5
5 (13-15.9mm)	5	1.8	99.3
6 (16-18.9mm)	2	0.7	100
Total	285	100	

The March assemblage is characterised by: (1) a small quantity or proportion of container fragments (12.8% by count; 2.7% by weight), none of which are cut rims and all of which were made from organic-tempered fabric; (2) a moderate proportion of supports (16.9%; 33.6%), which are dominated by thick, removable and reversible platforms (Table 2) that may have been made in moulds and a very small amount of other support types; and (3) a very large proportion of structural material (57.1; 56.9).

The March assemblage is extremely different from the middle Iron Age assemblage from Langtoft with its massive proportion of shell-gritted containers (96.2; 56.6), its very solid, pyramidal pedestals (2.7; 42.4) and the virtual absence of any evidence for an oven structure (Morris 2001e). March is also different from the Market Deeping assemblage for similar reasons (Morris 2001c). The later Iron Age assemblage at Cowbit, where an oven was discovered, should have some similar characteristics to the March assemblage but comparison of their proportions by class clearly shows that this is not the case. In particular this is because there are very significant quantities of both shell-gritted and organic-tempered container fragments including 31 cut rims, 60 stabilisers which are mainly clips and 119 pedestals or fragments from Cowbit, as well as a significant presence of platform fragments (Morris 2001b, table 4). Two virtually indistinguishable second century radiocarbon dates, with a weighted mean of 185-95 cal BC, were determined from charcoal found in the oven (Bayliss and McCormac 2001). Therefore, the March assemblage is very likely to date from after this period based on comparison of briquetage assemblages.

The very fragmented assemblage from the Morton saltern (Lincolnshire) had an unusual array of material, primarily because there is so much which was undiagnostic and assigned to the miscellaneous category of class (Crosby 2001). If some of this material was in fact disintegrated pieces of structure, based on the presence of possible ovens on the site (Trimble 2001), then the proportion of structural material would be significantly greater. The dominant forms of supports are clips and bricks rather than pedestals or platforms (Crosby 2001a, table 26). Precious (2001) has shown that the pottery from the latest levels at Morton probably date to the early to middle second

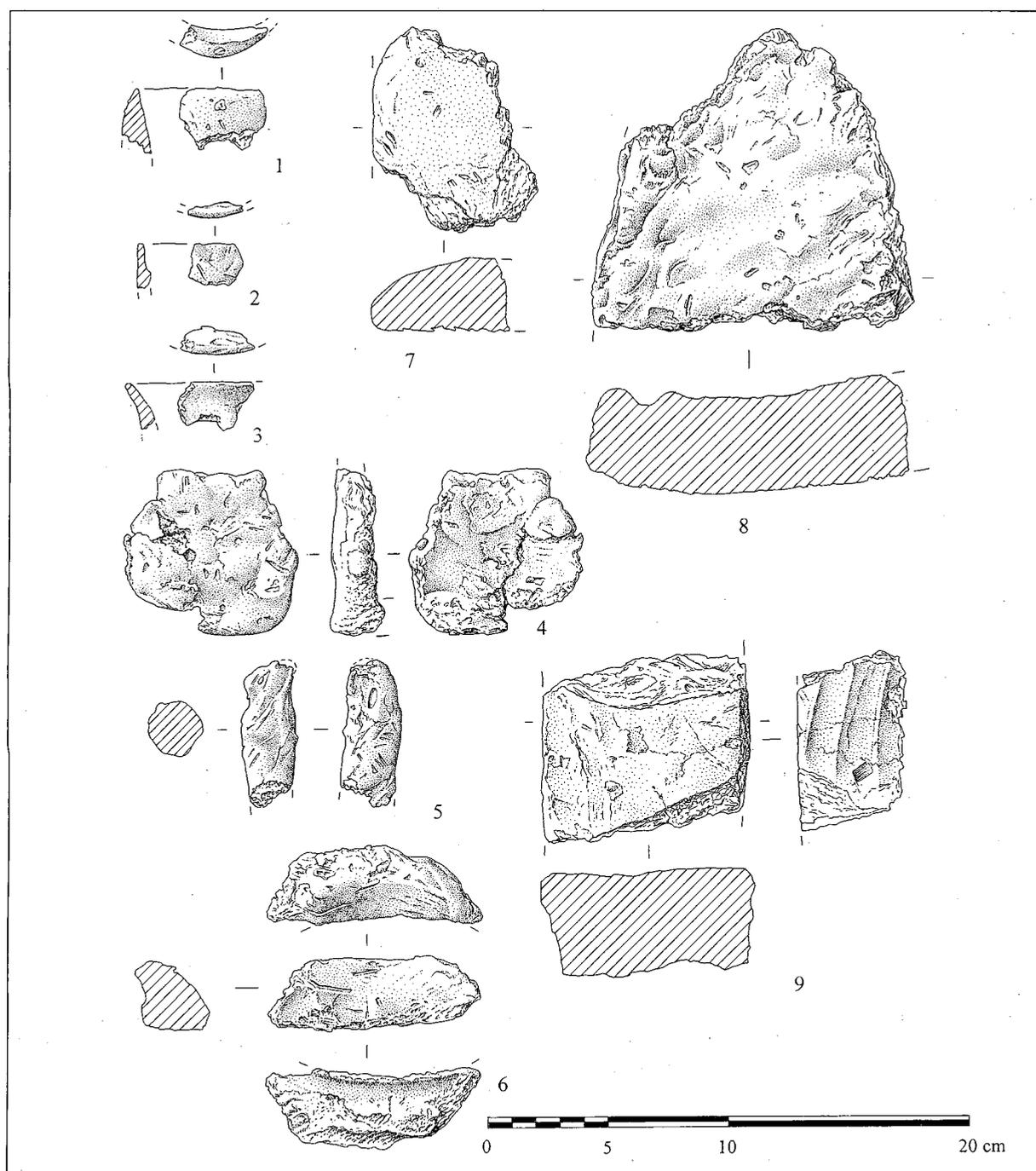


Figure 5. Briquetage.

1. Container rim; R3, class C, fabric V1; not bleached; context 566, layer, BRN 1108.
2. Container rim; R4, class C, fabric V1; bleached throughout; context 683, pit 682, BRN 1138.
3. Container rim; R5, class C, fabric V1; bleached on top edge; context 683, pit 682, BRB 1137.
4. Container base; B1, class C, fabric V1; bleached throughout; context 789, oven 860, BRN 1191.
5. Bar or rod; BR2, class S, fabric V1; bleached on exterior; context 562, gully 560, BRN 1091.
6. Stabiliser clip; form CL4, class S, fabric V2; bleached on exterior (both upper and lower surfaces); context 566, sample 1, layer, BRN 1244.
7. Bevel-edged platform with full thickness; form PL3, class S, fabric V2; white, salt-bleaching effect on upper and lower surfaces to 6mm in depth at the most; context 566, sample 1, layer, BRN 1224
8. Platform fragment with lipped, side edge and one surface present; form PL12, class S, fabric V2; white, salt-bleaching effect on one surface only to a depth of 6mm; context 566, sample 1, layer, BRN 1225
9. Corner platform fragment; form PL13, class S, fabric V2; bleached on both surfaces; context 566, sample 1, layer, BRN 1227.

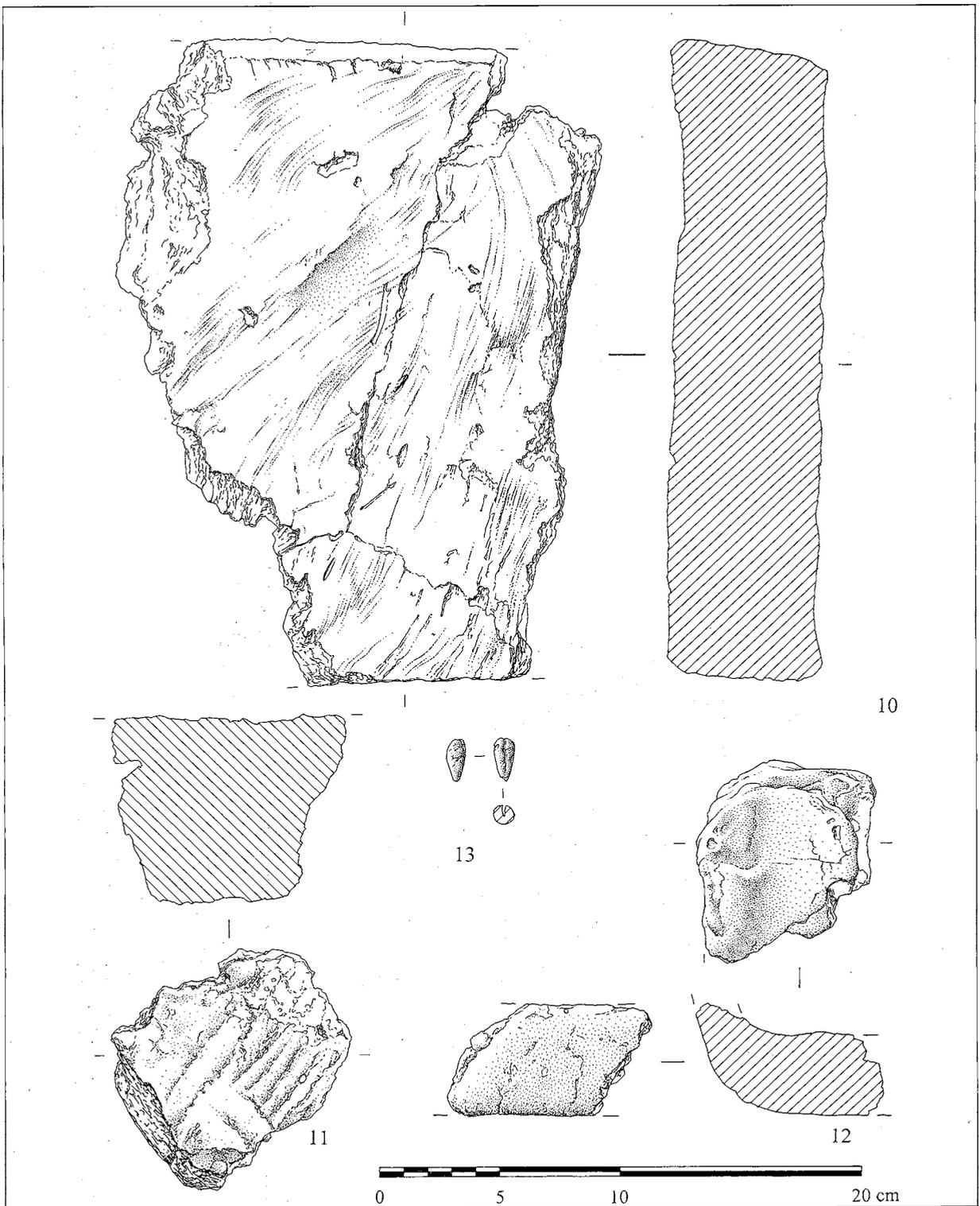


Figure 6. Briquetage

10. Platform fragment with two lipped, side edges, two parallel surfaces and complete width present; form PL14, class S, fabric V2; bleached on both surfaces; context 566, sample 1, layer, BRN1200.
11. Wall/flooring fragment; form W/FL1, class ST, fabric NV1; bleached on surface into wall up to 40mm; context 566, sample 8, layer, BRN 1057.
12. Square-sided wall/flooring edge fragment; form W/FL2, class ST, fabric NV1; bleached on surface into wall up to 25 mm; context 649, pit 648, BRN 1121.
13. Lozenge; class M, fabric NV1; context 905, oven 903, BRN 1302.

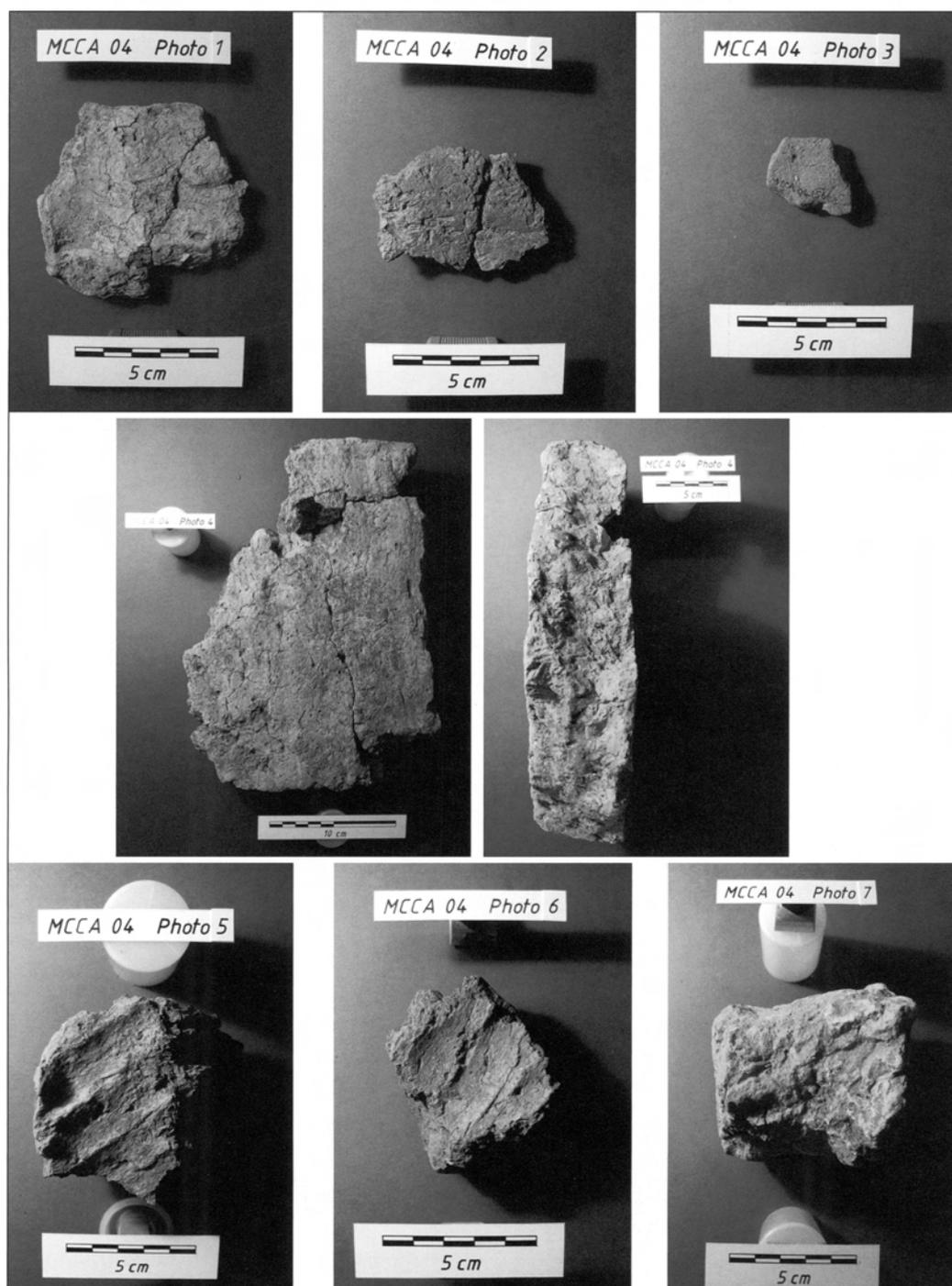


Figure 7. Selected briquetage.

1. Container base, completely bleached due to prolonged use as salt production vessel; form B1, class C, fabric V1; context 789, oven 860, BRN 1191.
2. Container body sherd, bleached on exterior surface by salt bleach; form BS1/2, class C, fabric V1; context 910, oven 672, BRN 1309.
3. Container rim, unbleached; form R3, class C, fabric V1; context 566, layer, BRN 1107.
4. Full width and full thickness platform displaying evidence of use; form PL14, class S, fabric V2; white, salt-bleaching effect 8-20mm in depth; one edge side well-scraped or wiped; context 566, sample 1, layer, BRN1200
5. Platform fragment displaying pronounced manufacturing by fingers and thin line of bleached surface from use; form PL12, class S, fabric V2; context 566, sample 1, layer, BRN 1232.
6. Platform fragment displaying pronounced manufacturing by fingers and thin line of bleached surface from use; form PL1, class S, fabric V2; context 566, sample 1, layer, BRN 1233.
7. Wall/flooring fragment displaying deep bleaching into wall; form W/FL1, class ST, fabric NV1; context 566, sample 8, layer, BRN 1057.

century AD and the lowest to the later first century, if not the mid to late first century.

The unpublished assemblage from Addlethorpe (north Lincolnshire) has a moderate amount of container material (30.9; 4.7) a moderate to large amount of supports (36.7; 69.2) and a moderate amount of structural material (9.9; 17.0) (Morris, in archive). This assemblage, unfortunately, was found (just like March-Cedar Close) with no directly associated pottery to help date the salt production activity, although Roman pottery was found on the site.

The early second century AD saltern at Norwood (Cambs.) (Potter 1981) might have been a suitably dated assemblage to compare the March assemblage to but for one major drawback – no platform fragments were reported from this site which makes comparability difficult. A similar problem lies with the assemblage from the late second to early third century AD saltern at Denver (Norfolk) (Gurney 1986).

The Middleton (Norfolk) assemblage, which dates from 'perhaps the mid to late third running into the fourth century' based on the significant collection of associated Roman pottery (Darling 2001, 216), has virtually no container sherds (0.2; <0.1), a small quantity of very distinctive extremely large, shaped pedestal supports (3.8; 12.8) with their bases found *in situ* around an oven (Crowson 2001, plate 9) and a tremendous amount of structural material (69.3; 72.5). It is thought that by the late Roman period lead containers were used in place of ceramic vessels for evaporation.

Therefore, it seems that the range of briquetage from March-Cedar Close lies somewhere between those of undated/Roman Addlethorpe, later first to second century Morton, and late Roman Middleton. The most similar assemblage is actually from Holbeach St Johns excavated in 1961 by Ernest Greenfield and published recently by David Gurney (1999). Direct comparison of this assemblage to that from March is hampered, however, by the realisation that much of the 1961 Holbeach briquetage was discarded after original descriptions were recorded. Nevertheless, it is the quantities of platforms as well as oven debris which make the briquetage from this Lincolnshire saltern site appear to have been contemporary with the activity at March. The associated pottery ranges from the late first century to the early third century, with the bulk belonging to the mid-second to early third century. Therefore, if March and Holbeach St John's had been contemporary or near contemporary for at least some of the time, this would fit comfortably into the chronological position between Morton/Addlethorpe (mid-late first to early second century) and Middleton (mid-late third to fourth century). This interpretation, however, assumes that there was a chronological development in the methods, in particular the types and relative frequency of supports, used to make salt from brine in the Fenland region during the Roman period, and this has not yet been proven.

Phases of Production

Table 5 presents the quantification of briquetage by class and summarized form types for all features by area. Oven [860] has no pieces of platforms, 29 pedestal fragments and 34 container sherds. In contrast, layer (566) had 310 platform fragments, only 21 pieces of pedestals, a clip and 42 container sherds, as well as masses of structural material from demolished ovens. There is every possibility that this variability amongst the different ovens and their activity zones is a reflection of different phases of salt production at this location. There are quite a number of ovens present in a small area and there is every reason to suspect based on the infrequency of pedestals, clips, and bars compared to platforms that this location was witness to a change in technological methods of salt-making during the Roman period.

Platforms are quite significant in their massiveness compared to hand-squeezed pedestals and appear to have replaced pedestals and stabilisers as the principal support material during the Roman period. This suggests that there may have been two closely dated phases of salt production activity at March-Cedar Close; one which is probably slightly earlier Roman in date and more similar to the evidence from Morton (Lincs) and one which is later based on these changes in the technology of manufactured ceramic equipment used to win salt from seawater in the Fens that were probably contemporary with the briquetage evidence from Holbeach (Lincs). It is possible that Norwood and Cedar Close, both located on March island, were not directly contemporary in date due to the strong differences between the majority of the briquetage supports from these two sites, or it may be that these differences were simply personal saltmakers' preferences. It is absolutely vital that additional saltern sites of this period and stage in technology should be excavated with a primary purpose of gathering all possible dating evidence, whether organic for radiocarbon dating, *in situ* fired clay structures for archaeomagnetic dating, or artefacts for material culture dating, to assist in our understanding of these changes in technology and the impact on salt production during the Roman period. In addition, variations in the types of supports recovered need to be tested to determine if there are technological advantages amongst them or whether these are simply reflective of individual saltmakers.

The Environmental Remains

Val Fryer

Introduction

Samples for the extraction of the plant macrofossil assemblages were taken from across the excavated area, and twenty eight were submitted for assessment.

Methods

The samples were processed by manual water flotation/washover, collecting the flots in a 500 micron mesh sieve.

Area	Feature	Context	Containers	Supports				Structural	Miscellaneous	Total count	Total weight
				Bar/Rods	Clips	Pedestals	Platforms				
2	pit 519	520	6	-	-	-	-	-	1	7	13
2	pit 539	540	-	-	-	-	-	-	2	2	9
2	gully 560	562	22	2	-	-	20	50	1	95	1051
1	layer	566	42	-	1	21	310	1114	138	1626	45008
1	subsoil	569	-	-	-	-	5	11	2	18	68
1	pit 609	608	-	-	-	-	1	1	-	2	20
1	pit 626	630	-	-	-	11	-	-	-	11	30
1	pit 641	640	1	-	-	-	-	-	-	1	1
1	pit 648	649	-	-	-	-	1	1	-	2	257
1	palaeochannel 654	653	-	-	-	-	1	-	-	1	10
1	oven construction	673	1	3	-	-	1	119	-	124	1314
1	pit 682	683	138	8	-	-	4	3	17	170	678
1	pit 690	689	12	1	-	1	-	6	15	35	205
1	pit 713	712	-	2	-	-	-	7	-	9	145
1	oven 860	722	34	-	-	29	-	6	-	69	109
1	pit 750	748	2	-	-	-	-	-	-	2	6
1	pit 770	769	1	-	-	-	-	-	-	1	5
1	faunal skeleton	771	-	-	-	-	-	-	5	5	4
1	palaeochannel 719	775	-	-	-	-	-	-	7	7	16
1	layer	788	17	1	1	10	-	5	1	35	254
1	oven 860	789	14	-	-	-	-	26	1	41	273
1	pit 859	791	3	-	-	-	1	-	4	8	38
1	layer	820	-	-	-	-	11	78	-	89	2382
baulk	oven 898	899	16	-	-	-	-	21	12	49	191
baulk	oven 904	904	3	-	-	-	-	111	-	114	437
baulk	oven 903	905	18	6	1	-	7	199	17	248	2432
1	oven 672	909	22	-	-	-	18	-	2	42	261
1	oven 672	910	7	-	-	-	1	9	-	17	123
baulk	gully 911	912	3	-	-	-	1	-	2	6	17
		Total	362	23	3	72	382	1767	227	2836	55357

Table 5. Quantification of briquetage by feature.

As the matrix of some samples consisted of a very stiff grey clay which resisted all attempts at manual dis-aggregation, a mild bleach solution was employed during processing. Whilst designed to cause minimum impact, some slight deterioration of both plant remains and mollusc shells may have occurred. The dried flots were scanned under a binocular microscope at magnifications up to x 16. Charred, mineral replaced and waterlogged plant remains were recorded. Modern contaminants including fibrous roots, seeds and arthropods were present throughout.

The non-floating residues were collected in a 1mm mesh sieve and sorted, when dry, for the retrieval of artefacts/ecofacts. Most residues were entirely composed of briquetage fragments.

Results of assessment

Plant macrofossils

With the exception of charcoal fragments, plant macrofossils were extremely rare. Preservation was generally poor, with severe puffing and fragmentation of most grains and seeds. Individual grains of oat (*Avena* sp.) and wheat (*Triticum* sp.) were recorded from the fill of channel [719] hearth/ovens [860] and [898]. A spelt wheat (*T. spelta*) glume base was noted in the fill of Pit [682]. Weed seeds were also rare, with specimens of segetal and/or grassland weeds including brome (*Bromus* sp.), black bindweed (*Fallopia convolvulus*) and large grasses (Poaceae) occurring in only eight samples. Wetland plant macrofossils were marginally more common, with nutlets of club-rush (*Scirpus* sp.) and saw-sedge (*Cladium mariscus*) recorded from seven assemblages. A single hazel (*Corylus*

avellana) nutshell fragment from the fill of Ditch 888 was the sole tree/shrub macrofossil.

Charcoal fragments were present in all assemblages, although they were rarely abundant. Other plant macrofossils were rare, although charred root/stem fragments and indeterminate culm fragments and nodes were present throughout, the latter more especially in samples from the hearth contexts.

Other materials

Other material types consisted largely of black organic concretions, pieces of burnt or fired clay (probably briquetage) and vitrified/siliceous globules, the latter possibly fuel ash slag resulting from the super heating of organic materials in the evaporation hearths. The fragments of black 'cokey' and tarry material are further possible residues of the combustion or organic remains at very high temperatures.

Molluscs

Mollusc shells were not generally common, but did occur in eleven assemblages. Fresh water species (namely *Bithynia* sp. and *Lymnaea truncatula*) were most common although brackish water taxa (*Hydrobia ulvae* and *Phytia myosotis*) and rare dry land species were also noted.

Discussion

Pit assemblages

Ten samples were taken from pit fills. Plant macrofossils were rare throughout although fills of pit [682] (which contained briquetage), [853], and [729] had a slightly higher density of charcoal fragments. All samples contained a moderate to high density of mineralised concretions, possibly indicating that all contained standing water at some stage. The presence of a spelt glume base within Sample 9 possibly confirms a Romano-British date for these deposits, although a single specimen is far from conclusive, as it may be either residual or intrusive within the feature.

Hearth/oven assemblages

Twelve samples were taken from deposits within five hearths. Plant macrofossils were again very rare although hearths [860] and [898] did contain moderate densities of charcoal fragments. This lack of plant remains may largely be due to the high temperatures of combustion which occurred in the hearths, as witnessed by the abundance of globules of vitreous fuel ash slag. Mollusc shells occurred in eight of the hearth assemblages, with freshwater taxa being most frequently recorded.

Other contexts

In Sample 5, from fill (775) within palaeochannel [719], plant remains were not common, but black organic concretions were abundant, and it is tentatively suggested that these may be derived from deposits of peat or highly organic mud.

In summary, with rare exceptions, the assemblages are very small (<0.1 litres in volume) and contain a

low density of plant macrofossils. In part, this may be due to the very high temperatures of combustion, which were obviously being used during the evaporation processes of salt production. The few plants that are present appear to be derived from the local fen habitat, from grassland herbs and possibly from cereal processing debris. Contemporary evidence suggests that this latter debris may have been imported on to the site as fuel, and there is certainly nothing to indicate that crop processing was occurring on or near the site. The presence of abundant concretions of black organic material may indicate that peat or similar compressed matter was being used as fuel, although this has yet to be verified.

Discussion

Landscape and Environment

The presence of the suitable raw materials for salt making – brine from the tidal channels, peat from the fen and clay from the island – made the March area ripe for salt production in the Late Iron Age and Roman periods. A substantial number of saltern sites of Roman date are present to the north and east of March island and the Cedar Close site formed one in a relatively dense pattern of such sites (Fig. 8; Lane and Morris fig. 2).

March is located on a low-lying island within the surrounding extensive peat land and would have always been an important focus of settlement and industry within the region. While much of the island is presently covered by the urban area of March and therefore inaccessible for field survey, the fringes and adjacent fenland were the subject of surveys as part of the Fenland Project (Hall 1987). This work revealed numerous Roman period sites, many of them engaged in salt production. The presence of tidal rivers flanking the island enabled salt to be made by means of heating brine in shallow containers in hearths or ovens. The major contemporary rivers/creek systems have been mapped (*ibid.* fig. 23) and smaller channels linking into those major systems would have been equally useful for supplying brine. Two such small channels were revealed on the south side of the Cedar Close site (Fig. 1) where the land surface dipped gently towards an indentation in the island's perimeter through which an alternative and artificial course of the River Nene was dug during the Saxon period (*ibid.*, 46). Most probably the fuel source for the salt making would have been the peat that surrounded the island. There is evidence of extensive Roman peat cutting little over a kilometre to the south of Cedar Close (Hall 1996, fig. 102) and within 5km to the east of the site (Palmer 2002, fig. 4). However, a surviving shallow, interrupted remnant peat on the south side of the Cedar Close site may be medieval in origin.

On-site features

The east facing section of the excavation (Fig.4) demonstrates that two phases of archaeology were present

separated by two distinct layers of transformed alluvium. As the original ground surface sloped up to the north that end of the site was not affected by the flooding, with the result that the pits and postholes recorded beyond the spread of alluvium are not datable to phase. However, the dense distribution of the pits and the lack of intercutting suggests that those features in the north were probably contemporaneous and, given the rarity of such features on salterns elsewhere in the Fenland (Lane forthcoming), may well have predated the saltern phase. With the exception of Pits [641] and [626], which contained briquetage, none of the northern features yielded finds and, given the density of briquetage present on salterns, such material would most probably have found its way into any contemporary open features.

Two phases of salting within the Roman period were suggested (E.L. Morris above) by comparing

the briquetage forms with dated examples elsewhere in the region. It is entirely plausible, although not proven, that the alluviation occurred in the Roman period between those dates. Further east along the Fen Causeway Roman features were recorded above and below a flooding layer and was linked with a period of flooding in the first half of the third century AD (Silvester 1991, 115). However, only a small quantity of the briquetage came from secure deposits in features sealed beneath the alluvium at Cedar Close.

Some pits definitely belonged to the post-alluvial phase. Some may have been dug to accommodate the hearth/ovens (eg 860, Fig. 4), possibly to minimise the amount of superstructure to be built.

The dense briquetage spread (566) outlined by CCCAFU in the original evaluation probably represented smashed hearth/ovens aligned along the higher, landward, edge of the palaeochannel and built

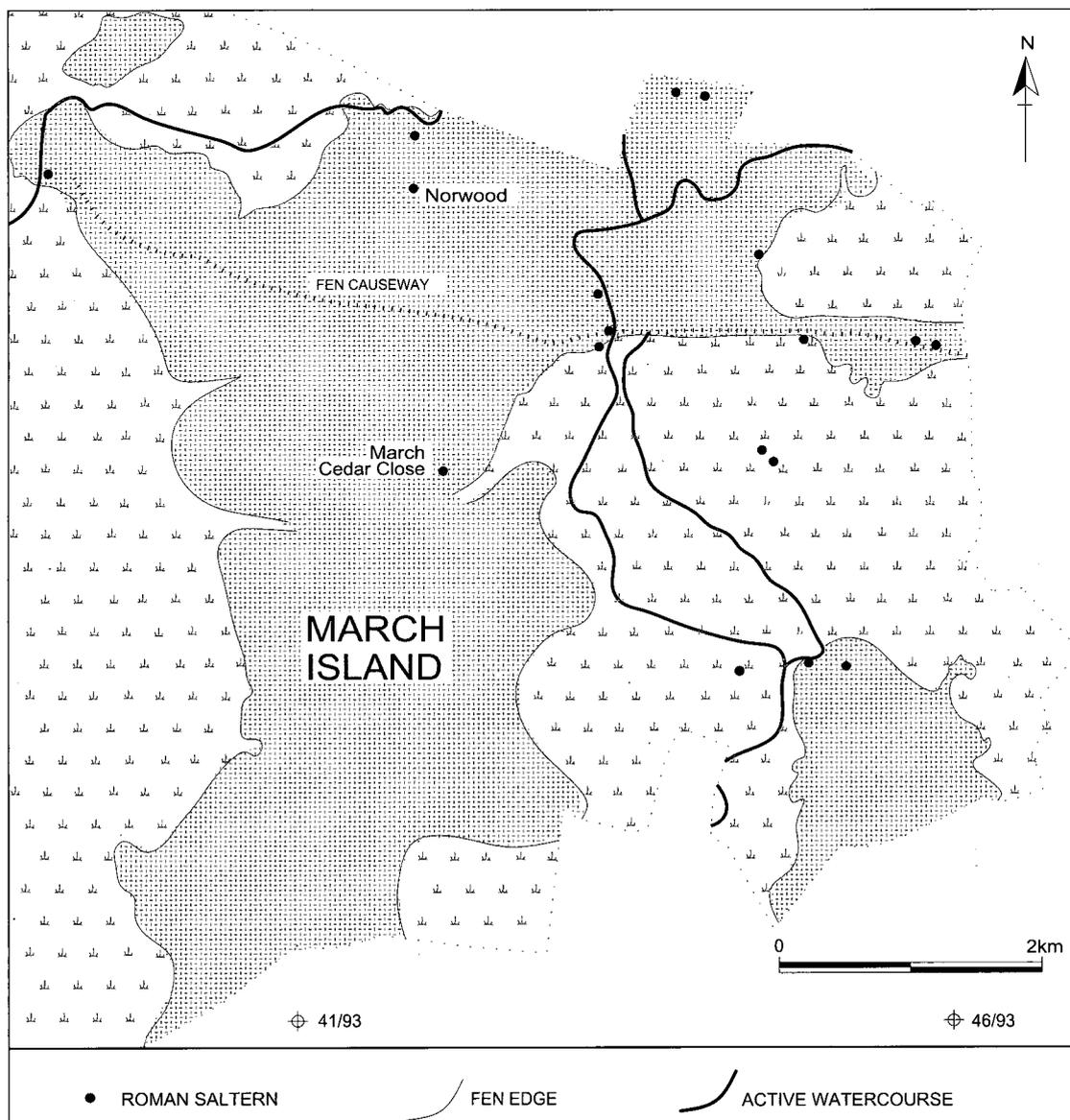


Figure 8. Location of Cedar Close in the Roman Fens (after Hall 1995).

following the period(s) of alluviation. Those hearth/ovens in pits or depressions have partially survived later episodes of agriculture, although no superstructure remains *in situ* other than on [903]. Two hearth/ovens, [903] and [898] (Fig. 9), were broadly rectangular in plan in keeping with other Fenland examples. Hearth/oven [903] (Figs. 9, 10 and 11) was probably the best preserved example on the site. Aligned east-west, it was situated 0.5m north of the edge of the palaeochannel [719] and measured 1.5m long by up to 1m wide by 0.17m deep. The feature was set into the firm blue/grey clay fill of pit [901], itself cut into alluvium. The sides of the hearth/oven were 'composed of briquetage', probably clay fired *in situ*, although the base was described as yellow clay. It was filled with ashy material containing a lens of briquetage.

Few of the pits appeared to be clay-lined, a characteristic that might be expected if serving a brine storage function, although the clayey nature of the natural into which they were cut may have precluded the necessity for lining. None was rectangular, as is the common form on salterns such as Norwood (Potter 1981) and elsewhere in the Fenland (Lane 2005, fig. 4). Only one pit, [648] (Fig. 3), sited at the northern edge

of the palaeochannel in Area 1, resembled the 'settling tanks' common on Fenland salterns. Briquetage was present in the fills suggesting a chronological link with the saltmaking. Although heavily truncated, [Pit 648] appeared to have more than one 'compartment', reminiscent of the Late Roman examples from Middleton, Norfolk (Crowson 2001).

Aside from the lack of rectangular clay-lined 'settling' tanks another variation from the usual range of Fenland saltern features is the presence of several ovens on the same site. With the exception of the two-oven site at Middleton, Norfolk (Crowson 2001) (but with the ovens in separate phases) excavations elsewhere have revealed only a single heating structure at each site, although in many cases this has been re-used many times (eg Spalding Wygate Park). At Cedar Close a minimum of nine ovens were located and the 10m by 10m dense briquetage spread is likely to have resulted from the destruction by agriculture of a number of others. All of these are above the alluvial deposits.

On the north of the island the saltern site at Norwood underwent partial excavation in the late 1950s and early 1960s (Potter 1981). Following the

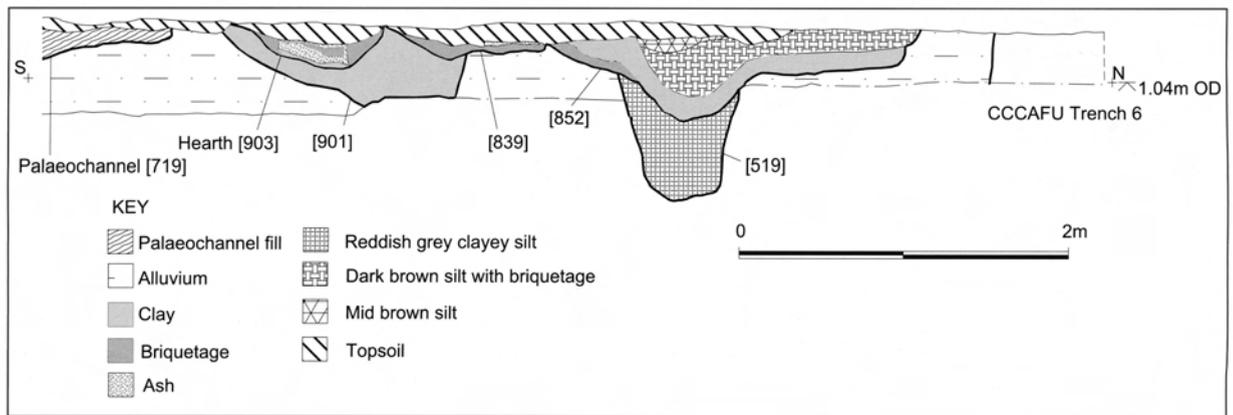


Figure 9. Part of east facing section Area 2 showing hearth [903] and associated features.

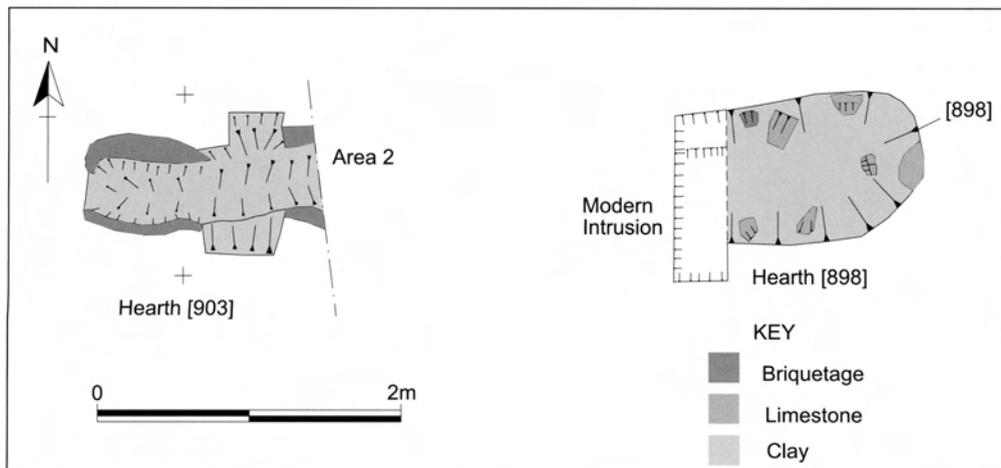


Figure 10. Hearth plans.

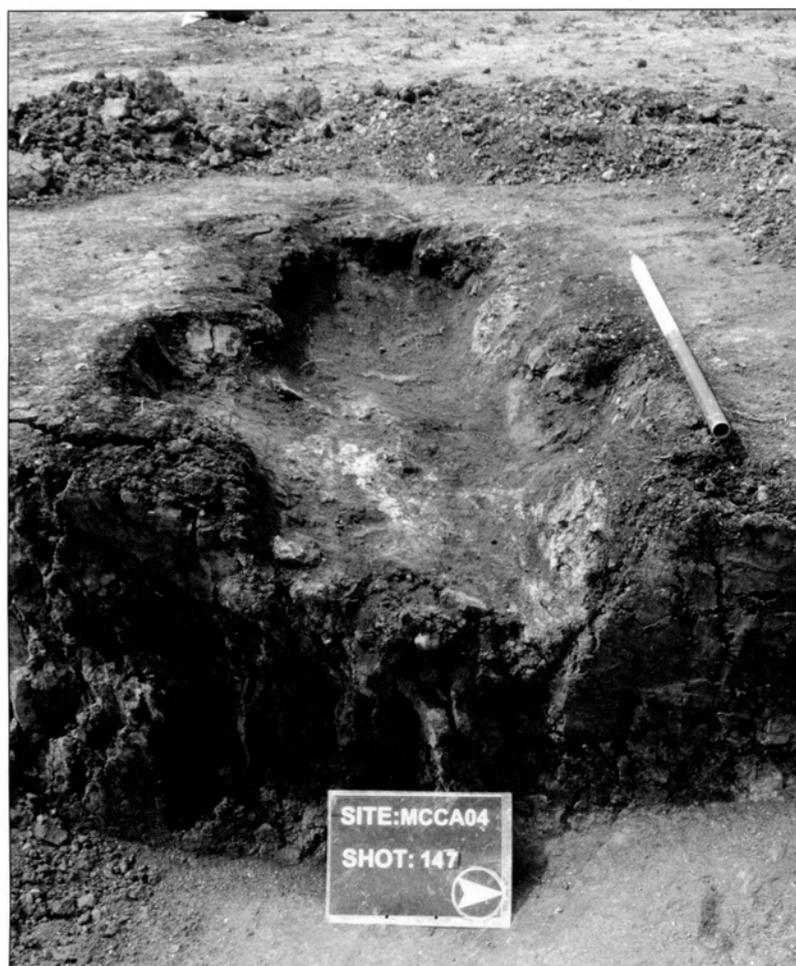


Figure 11. Hearth/Oven [903].

discovery of clay-lined 'tanks' during dyke cutting, a small scale excavation revealed a series of pits, one of which had a narrow end interpreted as a stokehole. Large amounts of briquetage were present, including pedestals and container fragments. Fuel used on this site was thought to have changed from wood in the early stages to peat. If that was the case (and Potter [*ibid*, 106] stated clearly that no analysis had taken place to confirm the suggestion) it may indicate diminishing supplies of wood growing on the island and infers a preference for wood over peat as saltern fuel.

Aside from the local presence of raw materials many of the salterns in the March area would have benefited from the presence nearby of the major west-east trans-fen routeway, known as the Fen Causeway, linking Peterborough to Denver and East Anglia (Hall and Coles 1994, 107). Crossing March island a kilometre to the north of Cedar Close the routeway started life as a canal east of March and subsequent to infilling later became a road. This communication link would have eased the passage of goods, perhaps bringing in peat from the known turbaries adjacent to the road further east and enabling the outward movement of salt either west or east.

Dating

Only a few sherds of pottery were found during the excavations. All were from coarse, hand-made vessels of probable Iron Age date. None were associated with saltmaking features, the sherds coming from a fill of the palaeochannel, the alluvium [720] and from the fill of Pit [877] in Area 2. In addition, the CCCAFU evaluation yielded a single sherd of Roman date from the spread of briquetage [566]. Therefore, the dating is limited and relies on the briquetage typology.

Morris (above) has discounted a pre-Roman date for the saltern based on that typology and suggests that the site operated somewhere between the mid-late first to early second century and the mid-late third to fourth century. A limited amount of briquetage was present in a few pre-alluvial features but the suggestion by Morris of two closely dated phases of briquetage production cannot be correlated to the two stratigraphic levels separated by the alluviation. The earlier, Period 1, activity takes the form of pits and possibly post holes that are generally devoid of finds with which they may be dated. Some are separated stratigraphically from most of the saltern-related features by probable transformed alluvial deposits of varying thickness. Figure 4 indicates the relationship of features to the alluvial deposits in the section on the western side of the site.

Following the alluvial deposition salt production took place alongside the palaeochannel. As stated above, a period of alluvial deposition has been dated to the first part of the third century further east and it is quite possible that the salting commenced around the time of that deposition. However, despite the Fenland Project's generalised environmental maps (Waller 1994, fig. 5.22) indicating marine deposits extending almost to March island in the Late Iron Age and Roman periods such depositions are known to be diachronous across the region and notoriously difficult to date precisely on a local level. Gurney (1987, 68) notes that where dating evidence has been recovered during fieldwalking from salterns in the March area the dates are usually 'Antonine', broadly mid-second century.

Site Status

Clearly an industrial complex the site is one of many in the area. As with salterns elsewhere in the Fenland issues of ownership and control are not resolved. Whether these sites existed to meet the requirements of a single family/farm or whether the product was traded is not proven. Gurney (1987, 68) suggests the salterns may have had quotas to fulfil and that control may have been by the state. Situated only 3km from the major Roman centre at Stonea the March saltmakers may not have been far from a centre of control or a market. Salt production was often state controlled in the Roman world and Jackson and Potter (1996, 688) state that it is reasonable to regard the 'Fenland industry' as part of this set-up. While the proximity of the March area salterns to the Roman centre at Stonea adds weight to the argument for these salterns being state-operated it need not follow that the many hundreds of others in remote areas of Lincolnshire, many kilometres to the north, should be under the same regime.

The salting is indicated by the presence of hearth/oven structures and the remains of brine containers, and the supports that stabilised the containers during the heating process. Other saltern-related features included at least one possible brine storage pit. The extent of the industry (if that is what it was) locally is not known. Of significance is the higher than normal number of hearth/ovens, although whether elsewhere the same single oven was refurbished and re-used on a regular basis while at March the salterns invested regularly in new plant is again not determined.

Despite the attentions of the Fenland Management Project the number of salterns excavated within the Fenland overall is limited. While this is the case the attention to detail during analysis of the briquetage remains a prime method in moving studies further on. Each site tells us a little more but there are still some major gaps in our knowledge about these common but enigmatic sites.

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References

- Bayliss, A and McCormac, G, 2001 Radiocarbon Dates from Cowbit, in Lane 2001, 89–90
- Bell, A, Gurney, D and Healey, H, 1999 *Lincolnshire Salterns: Excavations at Helpringham, Holbech St Johns and Bicker Haven*. EAA 89
- Chatwin, CP, 1961 *British Regional Geology East Anglia and Adjoining Areas*. H.M.S.O.
- Crosby, A, 2001a 'Briquetage' (Bourne-Morton Canal), in Lane and Morris (eds) 2001, 290–301
- Crosby, A, 2001b 'Briquetage', in Trimble 2001, 106–133
- Crowson, A, 2001 'Excavation of a Late Roman Saltern at Blackborough End, Middleton, Norfolk', in Lane and Morris (eds) 2001, 162–249
- Gurney, D, 1986 'Chapter 3. A Salt-Production Site at Denver; Excavations by Charles Green 1960', EAA 31, 93–146
- Gurney, D, 1987 'The Briquetage', in Hall, 1987
- Gurney, D, 1999 'A Romano-British Salt-making Site at Shell Bridge, Holbech St Johns: Excavations by Ernest Greenfield, 1961', in Bell, Gurney and Healey 1999, 21–6
- Hall, D, 1987, *The Fenland Project, Number 2: Cambridgeshire Survey, Peterborough to March*, EAA 35
- Hall, D, 1996 *The Fenland Project, Number 10: Cambridgeshire Survey, Isle of Ely and Wisbech*, EAA 79
- Hall, D. and Coles, J, 1994 *Fenland Survey. An Essay in Landscape and Persistence*, English Heritage Archaeological Report 1
- Haselgrove, CC and Moore, T, (in press), *The Later Iron Age in Britain and Beyond*. (Oxford: Oxbow Books)
- Hayes, PP and Lane, T, 1992, *The Fenland Project No. 5: Lincolnshire Survey, The South-West Fens*. EAA 55
- Healey, H, 1999 'An Iron Age Salt-making Site at Helpringham Fen', in Bell, Gurney and Healey 1999, 1–20
- Hickling, S, 2003 *Land East of Cedar Close, March, Cambridgeshire: An Archaeological Evaluation*. Unpublished CCCAFU Report A234
- Jackson, RPJ and Potter, TW, 1996 *Excavations at Stonea, Cambridgeshire 1980–85* (London: British Museum Press)
- Lane, T, 1993 *The Fenland Project No. 8: Lincolnshire Survey, The Northern Fen-Edge*. EAA 66
- Lane, T, 2001 'An Iron Age Saltern in Cowbit Wash, Lincolnshire', in Lane and Morris (eds) 2001, 18–97
- Lane, T, 2005 'Roman and Pre-Roman Salt Making

- in the Fenland of England', *Salt Work and Salinas: The Archaeology, Conservation and Recovery of Salt Making Sites and their Processes*, Lion Salt Works Trust Monograph Series, Research report No 2
- Lane, T, forthcoming, 'The Fenland of Eastern England and the Production of Salt', in Weller O, Dufraisse A. and Pétrequin P, *Sel, eau et forêt, hier et aujourd'hui*. Actes du colloque de la Saline d'Arc-et-Senans, Besançon : Presses Universitaires de Franche-Comté (collection Les Cahiers de la MSH Ledoux)
- Lane, T. and Morris, EL (eds) 2001 *A Millennium of Saltmaking: Prehistoric and Romano-British Salt Production in the Fenland*. Lincolnshire Archaeology and Heritage Reports Series No 4
- Morris, EL 2001a 'Briquetage', in Lane and Morris (eds) 2001, 351-76
- Morris, EL 2001b 'Briquetage', in Lane 2001, 33-63
- Morris, EL 2001c 'Briquetage (Market Deeping)', in Lane and Morris (eds) 2001, 265-79
- Morris, EL 2001d 'Briquetage and Salt Production and Distribution Systems', in Lane and Morris (eds) 2001, 389-404
- Morris, EL 2001e 'Briquetage (Langtoft)', in Lane and Morris (eds) 2001, 252-61
- Morris, EL, (in press), 'Making magic: later prehistoric and early Roman salt production in the Lincolnshire Fenland', in Haselgrove and Moore (eds) 2006.
- Murphy, P, 2001 'Plant Macrofossils', in Lane and Morris (eds) 2001 85-6.
- Peachey, M, 2005 *Archaeological Assessment Report: Land at Cedar Close, March Cambridgeshire (MCCA04)*, Unpublished APS Report 38/05
- Percival, S, 2001a 'Briquetage', in Crowson, 2001, 182-202
- Percival, S, 2001b 'Briquetage from Nordelph', in Lane and Morris (eds) 2001, 308-11
- Potter, TW, 1981 'The Roman Occupation of the Central Fenland', *Britannia* 12, 79-133
- Precious, B, 2001 'Roman Pottery', in Trimble 2001, 133-46
- Rice, PM, 1987, *Pottery Analysis; a Sourcebook*. (Chicago: University of Chicago Press)
- Silvester, RJ, 1991 *The Fenland Project Number 3: Norfolk Survey, The Wissey Embayment and Fen Causeway*. EAA 52
- Trimble, D, 2001 'Excavation of an Early Roman Saltern in Morton Fen, Lincolnshire', in Lane and Morris (eds) 2001, 101-61
- Waller, M, 1994 *The Fenland Project, Number 9: Flandrian Environmental Change in Fenland*, EAA 70
- Williams, DF 2001 'Sources of the fabrics', in Lane and Morris (eds) 2001, 37

