FIRST CENTURY AD SALT-MAKING AT ST GEORGES, WORLE, NORTH SOMERSET LEVELS: SUMMARY REPORT ON ARCHAEOLOGICAL INVESTIGATIONS 2001-2004

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Archaeological recording during construction work at St Georges, North Somerset, produced evidence of early Roman salt making. It is conceivable that production started on the site in the late Iron Age, but in the second half of the 1st century AD there was an intensification of activity using a new technology that required large ceramic pedestals to support the evaporation pans. Traces of one or more probable salterns were revealed. It is possible that the upsurge in salt production was in response to increased demand generated by the presence of the Roman army in south-west Britain. In the 2nd or 3rd century AD a series of drainage ditches was dug which may be associated with the transformation of the site into an embanked freshwater environment. The important collection of briquetage recovered from the site is discussed.

INTRODUCTION

This paper describes a substantial later 1st century AD salt-making site discovered during residential development on the North Somerset Levels 5 km north-east of Weston-super-Mare. This is of significance as St Georges adds to the evidence for salt production further south on the Somerset Levels in the Iron Age and Roman periods, and that found more locally on the North Somerset Levels at Banwell and Puxton (Grove and Brunning 1998; Rippon 2000, 2006). Indeed, the evidence from Brean Down shows that salt production in Somerset dates back to at least the middle Bronze Age (Bell 1990, 165-173). St Georges also contributes to knowledge of later Iron Age and Roman salt production in Britain as a whole (see, for instance, the discussion of the Fenland industry and its wider significance in Lane and Morris 2001).

Between 2001 and 2004 Cotswold Archaeology undertook a programme of archaeological recording associated with extensive residential development at St Georges, Worle, North Somerset on behalf of a consortium of house-building companies. The site lay 8 km east of the Severn foreshore, within the low-lying coastal wetlands of the North Somerset Levels. It was centred on NGR ST 3730 6330 and lay at a height of 5-6 m OD (Figure 1). The development area was bounded on three sides by modern housing and to the north-east by the canalised course of the river Banwell. Prior to development it was agricultural land.

No previously recorded pre-medieval sites were recorded within the development area, although North Somerset Council considered that there was a likelihood that late prehistoric and Roman features might be preserved beneath later alluvial deposits. For this reason a programme of archaeological work was required as a condition of the granting of planning permission. This commenced with trial-trench evaluations of the sites of four farmsteads recorded on 19th century maps, as it was conceivable that these had

Figure 1. Location plans. Reproduced from the Ordnance Survey mapping with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright Cotswold Archaeological Trust 100002109.

considerably earlier origins (Cotswold Archaeology 2003; Cotswold Archaeological Trust 2002a-c). At all four sites medieval and later pits, ditches and fragments of walling were found, but only at Grapevine Farm was a single Roman feature discovered (Cotswold Archaeology 2003). The second part of the archaeological condition required archaeological mitigation work arising out of the evaluations. In the event, limited further excavation only occurred at Grapevine Farm. The third element of the condition required a watching brief during house construction and associated works. These included the excavation of several drainage rhynes and ground reduction within a flood relief area. This monitoring led to the discovery of further late Iron Age and Roman deposits. The wording of the planning condition only stipulated that the developers should provide access for archaeological monitoring, and did not require that funding be made available for any subsequent analysis of the findings or publication. Consequently this report provides a short summary of the most significant discoveries, but in no sense is it a full account.

METHODOLOGY

It is convenient to divide the site into a number of areas marked on Figure 2. In Area A work occurred in two phases. In 2001 evaluation revealed the demolished post-medieval outbuildings of Grapevine Farm, and limited further excavation concentrated on the demolished structures took place in 2002 (Cotswold Archaeology 2003). In 2004 a further two evaluation trenches were excavated short distance to the north-west (Cotswold Archaeology 2005). Following the construction of drainage Rhyne B to the west of the site, the opportunity was provided to record archaeological features exposed in section. Only limited observations were possible in the flood relief area further to the north, and in the sides of Rhynes D and E further east. Elsewhere systematic archaeological monitoring of groundworks associated with the creation of the new streets and other pieces of infrastructure occurred. It was not considered efficient to monitor the excavation of the foundation trenches of individual properties. Monitoring in two areas (Areas B and C) revealed a number of ditches and other features from which fragments of briquetage were retrieved. In the light of these discoveries small areas within the footprint of the new streets were stripped and examined archaeologically. The absence of conclusive evidence for salterns suggested that they might have lain in the adjacent plots within which houses were shortly to be constructed. Accordingly, magnetometer surveys of two plots were commissioned (Stratascan 2002a-b) (Figure 2). The survey in Area C located the site of a possible saltern, and some limited excavation was subsequently undertaken in this area.

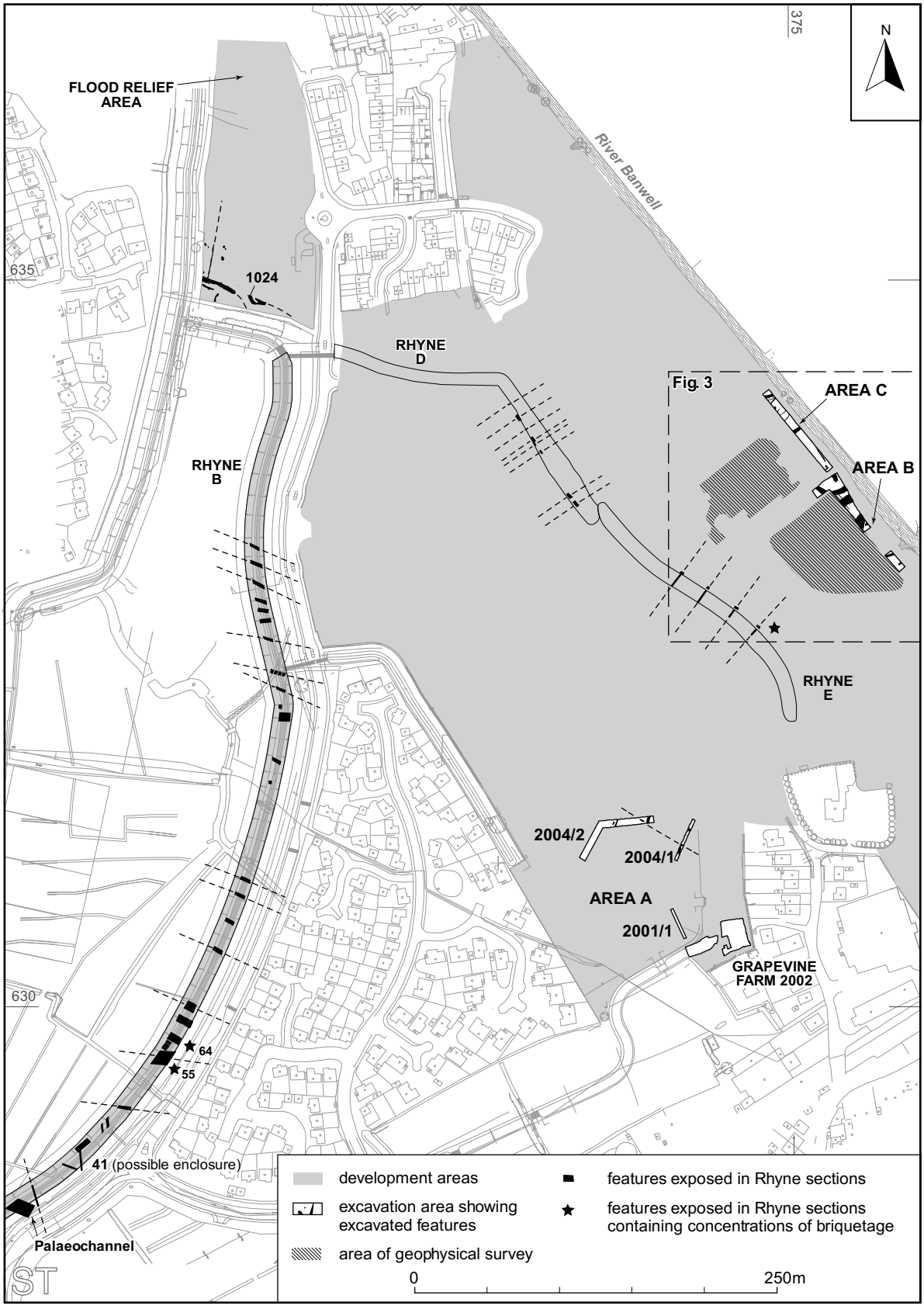

Figure 2. Areas examined. Scale 1:4000. Reproduced from the Ordnance Survey mapping with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright Cotswold Archaeological Trust 100002109.

RESULTS

It is impossible to fully understand the discoveries at St Georges without an appreciation of the alluvial and environmental context. A watching brief during developer's groundworks is not well suited to the reconstruction of the alluvial sequence, but it is fortunate that a recent publication has set out a well-researched model for the alluviation and reclamation of the area around St Georges based upon fieldwork in the vicinity (Rippon 2006). The observations of the section exposed by the cutting of Ryhne B and the evaluation works in Area A also allow Rippon's general model to be tested at a local level. The whole of the St Georges site is covered by a thick deposit of blue grey clay known as the upper Wentlooge Formation. This was laid down by marine action in the 1st millennium BC and continued to accumulate into the Roman period. The late Iron Age and early Roman environment of St Georges would therefore have been an inter-tidal salt marsh, its surface drained by a network of creeks.

Observations along the rhyne sections and within the flood relief area

Monitoring during construction of Rhyne B was not feasible, although it was possible to record the exposed section. This was undertaken jointly by Cotswold Archaeology staff and David Jordan in November 2001; the latter produced a short commentary on the exposed stratigraphy and a basic description of a series of monoliths taken from the section (Jordan 2001, 2002). Water filled the rhyne to a depth of about 1.4 m below the modern ground surface, beneath which no observations were possible. Many of the features were only visible in the section as subtle colour variations, which showed up better after two weeks of rain and general weathering. At the base of the sequence lay coarsely banded alluvium. The bands were typically 50-100 mm thick suggestive of rapid annual deposition on a former erosive surface (Allen and Haslett 2006). A number of archaeological features were cut into the alluvium. A series of ditches or pits yielded late Iron Age or early Roman pottery during cleaning, and two adjacent ditches (55 and 64 on Figure 2) produced in addition a small quantity of fired clay briquetage. The remainder of the section was dominated by ditches from which scraps of undiagnostic Roman pottery were recovered during cleaning. These were on a predominantly north-west to south-east alignment and often displayed evidence for recutting on at least one occasion, probably as a result of one or more episodes of flooding. These ditches are probably to be interpreted as a regular drainage system associated with the creation of fields on embanked land. These ditches were sealed beneath a 200 mm-thick horizon of grey/blue compact sandy clay (44) which is interpreted as a former ground surface. This surface was identified at heights of between 4 and 5 m OD along the length of the rhyne. Professor Stephen Rippon informs us that he did not encounter any sandy clay deposits further inland on the North Somerset Levels during his work at Banwell Moor, Kenn Moor or Puxton, and he postulates that the sand component might indicate a storm event with material washed inland from the dunes along the coast, the deposit subsequently forming a stabilised land surface. The sandy clay was covered by a further accumulation of alluvium, up to 0.86 m thick, presumably a product of post-Roman marine transgression. Towards the southern end of the rhyne section a wide ditch (41 on Figure 2) on a markedly different alignment (north-east to south-west) was found, with evidence for a possible return. It is conceivable that this might have defined an enclosure.

Only very limited observations were feasible within the flood relief zone, but these were sufficient to establish that the pattern of drainage ditches continued into this area. A number of areas of burnt and scorched clay were found, but these were not associated with any briquetage. A small quantity of Roman pottery dating to the 2nd century or later was recovered from one of the ditches (1024), which were sealed by post-Roman alluvium. Limited observations were also possible in the sides of Rhynes D and E. Towards the southern end of Rhyne E a spread of briquetage was observed. This appeared to succeed a former ground surface which overlay the blue/grey upper Wentlooge alluvium. Further north a series of cut features were recorded, some seemingly sealed by the buried land surface, others cut through it.

Area A

The two phases of evaluation in this area help to

characterise the nature of activity at the southern edge of the St Georges development. The earliest deposit revealed was an organic-rich sediment in trenches 2004/1 and 2 at an average height of 3.5 m OD. The base of this bed could only be approximately recorded within a machine-excavated sondage in trench 2 where it was *c* 0.5 m thick; it appeared to be of a greater depth in trench 1. This deposit may have formed within a palaeochannel which may explain the lack of features other than ditches in this trench. Small fragments of cut peat were identified within an environmental sample taken from this deposit. They appear to have been cut as they had one flat surface and one curved, which is consistent with peat cutting tools (J.R.L. Allen pers. comm.). This suggests that nearby peat seams, possibly exposed within the edges of tidal creeks or palaeochannels, were being exploited for fuel, perhaps even within the nearby salterns. Burnt peat, presumably used as fuel, has been recovered in association with late Iron Age saltern debris at nearby Banwell Moor (Rippon 2000, 145-7), and from a late Iron Age or early Roman feature at West Wick just to the south of St Georges (Rippon 2006, 54-5). Peat was also used to fuel the Romano-British saltern at East Huntspill further south on the Somerset Levels (Leech *et al* 1983, 77-8).

A ditch could be traced in the two trenches on a north-west/south-east alignment, a similar orientation to the Roman ditches identified in the side of Rhyne B to the west. Spelt glume bases from the ditch fill produced radiocarbon dates of 70-250 Cal AD (Wk-16381) and 130-390 Cal AD (Wk-16380) at 95.4% probability (Table 6). Combined with the ceramic evidence, these dates suggest that the ditch dates to the 2nd or 3rd century, although it is not clear whether this represents a ditched enclosure system used for pasture in a high intertidal saltmarsh, as seen in the early Roman period at Puxton Dolemoor (Rippon 2006, 46-7), or the start of large scale drainage.

A later ditch and associated postholes produced 2nd to 4th century pottery, animal bone and other refuse suggestive of nearby settlement. The work in 2003 further to the south found a single Roman feature in trench 2003/1, a broad cut into the underlying alluvium containing over 20 sherds of 3rd/4th century pottery. It is likely that a focus of late Roman settlement lay to the south or east of Area A, presumably established upon the embanked and drained former saltmarsh. Thin late Roman soil horizons suggestive of stabilised land surfaces were revealed in the evaluation at an elevation of 4.6-5.1 m OD, a similar height to the land surfaces seen in the section of Rhyne B and in an evaluation 300 m further to the south-west at Rose Cottages (see below).

Alluvial deposits up to *c* 0.4 m deep accumulated over the late Roman ground-surface and indicate post-Roman inundation. A single ditch of probable medieval or post-medieval date cut the upper alluvium. Evaluation and excavation in 2001-2002 found two truncated pits containing 14th/15th century pottery, and the remains of post-medieval structures associated with Grapevine Farm (Cotswold Archaeology 2003).

Area B (Jonathan Hart)

Following the discovery of archaeological features in the watching brief, two areas were stripped under archaeological supervision, planned and sample excavated (trenches 3 and 6; Figures 2 and 3). The magnetometer survey in the adjoining residential plot detected a number of geophysical anomalies of possible archaeological origin, and these were tested by evaluation trenching. Positive results were obtained in trench 1. Medieval and later agricultural features identified during the work are not illustrated or discussed.

The upper part of the Wentlooge Formation was exposed within several sondages in trench 6. Above this, thin layers of alluvium containing mid to late Iron Age pottery formed the substrate for the archaeological activity and probably represent one or more stabilised land surfaces at an elevation of 4.90 to 5.08 m OD. Pit 560 and burnt layer 545 cut into, or lay upon, the stabilised land surfaces. Pit 560 was sub-oval in plan with a rounded profile and was filled with burnt red clay silt 559. No dating evidence was recovered from this feature, which was sealed by ditch 566. Burnt layer 545 lay immediately south of pit 560 and contained a broken, but largely complete and burnt, later Iron Age pottery vessel.

Within the northern corner of trench 6 an area of burnt debris (616) containing briquetage

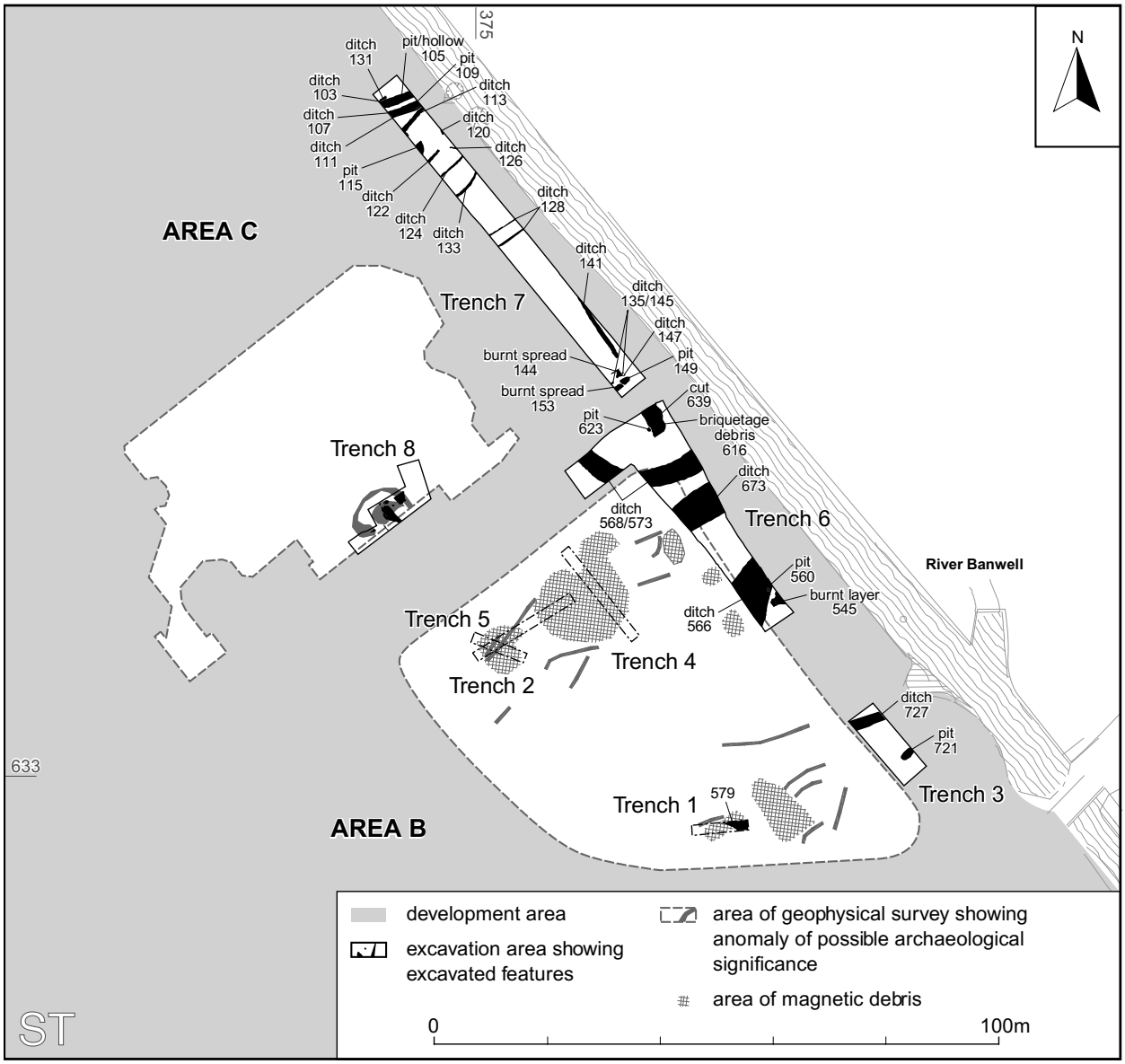

Figure 3. Plan of Areas B and C. Scale 1:1250. Reproduced from the Ordnance Survey mapping with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright Cotswold Archaeological Trust 100002109.

debris of typologically Roman form was found. This had been truncated by cut 639 into which a series of burnt deposits had been dumped. These contained further briquetage debris and late Iron Age/1st century AD pottery. Pit 623, adjacent to these deposits, contained burnt clay with mid to late Iron Age pottery. Although there was no evidence of *in situ* burning, and no structural remains were identified, the presence of briquetage debris alongside burnt clay suggests that these deposits mark the location of a former fire base associated with salt production. If this is so, the fire appears to have been partially enclosed on its southern side by curvilinear ditch 568/573 which was presumably dug for drainage or to serve as a fire break. The ditch was filled with silts from which late Iron Age and Roman pottery and briquetage were recovered, the latter including a number of large fragments of squared and faceted pedestals. A column sample was taken through the infilling of ditch 568/573. Small fragments of fired clay briquetage were recovered in the column sample from 525, a basal silt, and 524 an upper fill. A fragment from each layer was submitted for luminescence dating (see below), although the size of these fragments was insufficient to determine which class of briquetage is represented. It should be observed that as the

results are reported at one sigma standard deviation there is only a 66% probability that the date lies within the reported range. Even then the dates obtained at one sigma are problematic. While the OSL date obtained from the fragment from 524 would be consistent with the 1st century AD date suggested by the pottery, the TL date is barely so. The briquetage lump from the basal silt 525 produced a late Roman OSL date, and an even later TL date, which do not receive any support from the pottery. At two sigma (94%) confidence the dates do not allow any greater chronological precision within the broad Roman period. For these reasons the evidential value of the one sigma luminescence dates has been disregarded in this account, although the possibility that some salt production occurred in the later Roman period should be allowed. Ditches 566 and 673 to the south of the possible saltern site and ditch 727 in trench 3 contained similar finds. Given the presence of briquetage debris within their fills, it is probable that all served as drainage associated with salt production. Pit 721 in trench 3 and cut 579 in trench 1 also contained burnt material. Pottery recovered from Area B included both late Iron Age/1st century AD material and sherds only broadly dateable to the Roman period.

Area C (Jonathan Hart)

A stabilised land surface, into which archaeological features were cut, was exposed within several sondages in trench 7 at *c* 4.8 m OD. Most of the deposits within Area C remained either undated or contained only very small assemblages of pottery. No briquetage was recovered from this area.

Within the south-eastern corner of trench 7 a pit (149) containing burnt material was exposed which is likely to have been associated with the possible fire base found in trench 6. Pit 115 further to the north-west also contained burnt clay along with late 1st to 2nd century AD pottery. Trench 7 also contained a series of ditches, none of which had burnt material or briquetage in their fills, and it is likely that they represent a later phase of drainage and land reclamation. The fills of most of these ditches contained pottery broadly dateable to the Roman period whilst ditches 103 and 123 contained pottery more narrowly assignable to the late 1st to 2nd centuries AD. Pottery of similar date was also recovered from pit 109, which truncated ditch 111, and from pit/ hollow 105, which underlaid ditch 103. As with the ditches, neither of these features contained burnt residues.

The geophysical survey within the adjacent residential plot identified an anomaly which might have been a possible saltern. Accordingly a small trench (trench 8) was excavated to test the nature of this feature (Figure 4). This revealed a fire pit 177 within the centre of the geophysical anomaly at an elevation of 4.85 m OD. The fire pit consisted of a very poorly-defined and irregular cut measuring at least 4 m long and 1.5 m wide. Evidence of scorching around the pit edges demonstrated that *in situ* burning had occurred. The pit was filled with a series of burnt deposits and had been re-cut at least twice to accommodate smaller features (a second fire pit 212 and scorched clay base 246, presumably another fire setting). A number of small spreads of burnt material were found around the fire pit. A single sherd of mid to late Iron Age pottery was recovered from scorched clay fire base 246.

The geophysical survey had also identified a penannular feature enclosing the north-western side of the fire pit. This was confirmed through

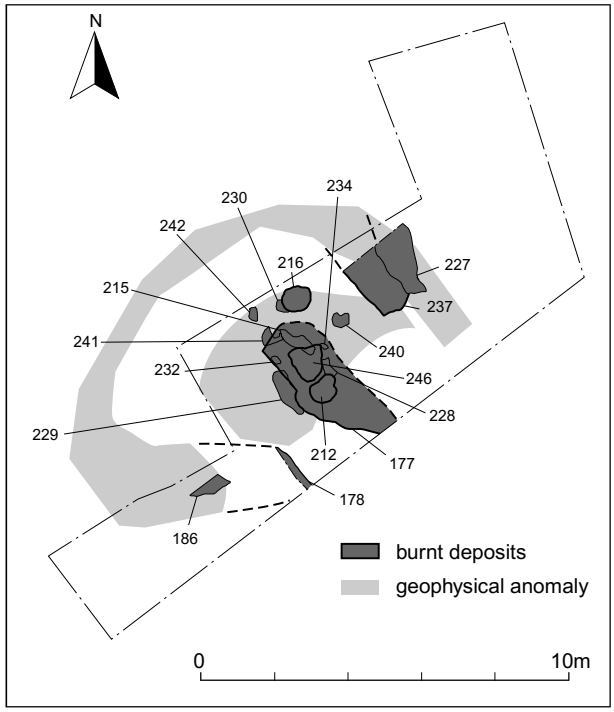

Figure 4. Plan of Area C trench 8. Scale 1:200.

Table 1. Summary of pottery by dated type (vessel number; sherd count; weight in grams and rim estimated vessel equivalents).

Area	Late Iron Age/Early Roman				Roman				Total			
	Ves.	*Ct.*	*Wt.(g)*	*EVEs*	*Ves.*	*Ct.*	*Wt.(g)*	*EVEs*	*Ves.*	*Ct.*	*Wt.(g)*	*EVEs*
Rhyne B etc	10	240	1729	2.18	40	79	1049	1.25	50	319	2778	3.43
B	102	169	2888	0.86	9	10	118	0.26	111	179	3006	1.12
C	24	59	991	0.27	27	29	680	0.41	51	88	1671	0.68
Total	**136**	**468**	**5608**	**3.31**	**76**	**118**	**1847**	**1.92**	**212**	**586**	**7455**	**5.23**

excavation, which identified ditch terminus 178 on the south-western side of the fire pit and ditch 237 on the north-eastern side. Both of these were only partially exposed, but ditch 237 contained burnt debris and it is likely that it was dug either for drainage or as a firebreak around the probable saltern. Pit 216 between the fire pit and the penannular ditch also contained burnt material.

Within trench 8 the fire pit and associated deposits were partially sealed by a localised spread of blue to pink alluvium, 193, which contained small quantities of mid to late Iron Age pottery. Similar localised patches of alluvium sealing burnt deposits were noted elsewhere in the trench. None was thicker than 0.05 m.

Evaluation at Rose Cottages

An evaluation was undertaken in 2004 some 300m to the south-west of the main St Georges site at Rose Cottages (Figure 1B, Cotswold Archaeology 2004). Eight trenches were excavated. Two sections of a possible prehistoric or Roman ditch (111/206) were revealed. Environmental samples taken from the ditch contained the remains of waterlogged seeds, wood, fruit stones, mollusca, fish and insects. These indicate that the ditch contained still or slow moving freshwater, and that the surrounding land was under marsh with areas of disturbed ground and woodland. The abundant fruit stones from the final fill of the ditch may be indicative of human occupation nearby. The infilled ditch was sealed by blue/grey alluvium, *c* 0.2 m thick, the upper surface of which probably developed as a stabilised land surface at 4.7 m OD. Sat upon this was a thin localised spread of burnt clay, similar to those found in the flood relief area at St Georges. Ditch 111/206 was cut by a V-shaped ditch which may be comparable to the ditches exposed in the side of Rhyne B. Depressions in the overlying alluvial sequence elsewhere in the trench suggest other earlier cut features below. The burnt clay was sealed by further alluvium *c* 0.3 m thick which was itself covered by a thin layer of alluvium, possibly a stabilised ground surface at 5 m OD, although geoarchaeological assessment could not conclusively establish soil development within these deposits. This is not uncommon on alluvial floodplains, however, where a developed soil horizon may have been removed or altered through post-depositional processes. This layer was sealed by a further 0.6 m thickness of blue/ grey alluvium which was presumably deposited during post-Roman marine inundation. No artefacts were recovered to assist in dating this sequence.

POTTERY

By E.R. McSloy

A total of 586 sherds (7455 g) of Iron Age and Roman pottery was recovered from work on Ryhne B and Areas B and C (Table 1). The small quantity of pottery from Area A is reported in the individual evaluation reports and is not further considered here. The pottery was scanned by context, sorted into fabrics (Tables 2 and 3) and quantified according to sherd count, weight in grammes, number of vessels (context sherd families) and rim estimated vessel equivalents (EVEs). The condition of the pottery is generally good, with surfaces and calcareous or other inclusions well-preserved. Some material, most notably the group from burnt deposit 545 in Area B was heat affected, altering the appearance of fabrics to varying degrees and making identification difficult in some instances.

Late Iron Age/Early Roman

Fabrics

LI: Handmade. Common, moderately sorted sub-

Table 2. Quantification by fabric of late Iron Age/early Roman pottery (Quantification as Table 1).

Fabric code	Description	Ves.	Ct.	Wt.(g)	EVEs
CALC	Handmade calcitic fabric (Allen 1998)	78	239	2180	.85
CALCwt	Wheelthrown calcitic type (Allen 1998)	1	112	575	.25
LI	(Carboniferous) Limestone-tempered	52	105	2784	.77
Org	Organic-tempered	1	1	3	-
Q	Sandy (fine quartz inclusions)	1	1	17	-
Qwt	Fine, wheelthrown sandy	3	10	49	1.44
Total		**136**	**468**	**5608**	**3.31**

Table 3. Quantification by fabric of Roman pottery. Quantification as Tables 1 and 2. † denotes use of NRFRC codes (Tomber and Dore 1998).

Fabric code	Description	Ves.	Ct.	Wt.(g)	EVEs
LOC BS	Coarse, dark-grey/black-firing (including imit. BB)	11	13	214	.42
MSC GW	Greywares, medium-coarse, micaceous	23	29	403	.15
GW MIC	Finer, micaceous greyware	6	15	215	.40
GW grog	Grogged greyware	6	7	378	.20
MSC OX	Sandy oxidised ware	5	5	32	-
DOR BB1†	Dorset Black Burnished ware	5	5	51	.10
SVW OX2†	Severn Valley ware (Shepton Mallet type?)	19	43	552	.65
LEZ SA 2†	Central Gaulish (Lezoux) samian	1	1	2	-
Total		**76**	**118**	**1847**	**1.92**

angular ?Carboniferous Limestone (1-5 mm) with sparse calcite. Irregular fracture with smooth surface feel. Brown exterior surface with dark grey core and interior.

CALC: Handmade or wheel-thrown. Moderate to common angular calcite (0.5-1 mm). Sparse sub-angular limestone. Irregular fracture, generally with smooth surface feel. Typically dark grey throughout or with red-brown internal surface and margin.

Q: Handmade or wheel-thrown. Common, well-sorted quartz (0.1-0.3 mm). Dark grey/black throughout. Finely irregular fracture, generally with sandy surface feel.

Org: Handmade. Common linear voids from burnt-out organic inclusions; sparse quartz (0.3 mm). Irregular fracture, generally with smooth surface feel. Patchy dark grey-brown surfaces with dark grey core.

The larger groups of pottery of this date (between 50 and 177 sherds) derived from ditches, the largest group coming from ditch 64, exposed in the section of Rhyne B, associated with briquetage containers and small pedestals of Iron Age type. The average sherd weight is 12 g, a moderately high figure for a group of this date. For the most part the pottery is highly fragmented, with vessels rarely reconstructable below shoulder level. An exception is a substantially complete (though heat affected) vessel from burnt debris 545 in Area B. Evidence for use in cooking is exhibited by seven handmade vessels, either as internal (burnt food) deposits (5 vessels) or exterior sooting (2 vessels).

The pottery from all three areas is consistent in terms of the range of fabric and forms. Most abundant are handmade limestone or calcitic fabrics with a smaller number of wheel-thrown vessels in calcitic or sandy fabrics (Table 2). A narrow range of vessel forms is represented. Most usual (16 of 25 identifiable) are handmade vessels, probably all jars, with globular or slacker, rounded, profiles and bead-like or short-everted rims. Two vessels from a patch of alluvium 222 which overlay a burnt spread in Area C are

atypical, featuring undifferentiated, simple rounded or squared rims. They possibly derive from jars with a barrel-shaped profile. Base forms where these occur are simple or expanded/pushed out. Wheel-thrown vessels in calcitic and fine sandy fabrics were recovered from Rhyne B ditch 64, which included a mix of wheelthrown and handmade vessels, and from briquetage debris 624 which infilled cut 639 in Area B. All consist of necked vessels, probably bowls, and with single cordons at the base of the neck.

Decoration or surface treatments among the handmade vessels are almost completely lacking: three vessels in limestone-tempered or calcitic fabrics from burnt layer 144 in Area C, and briquetage debris 616 in Area B feature burnished surfaces. One vessel, a bead-rim jar, also from 616, appears to exhibit closely-spaced fingertip impressions to the inner rim. This sherd is small, however, and the 'decoration' may have arisen during the forming of the vessel.

The pottery assemblage compares in most respects to other groups in the region which span the late Iron Age/early Roman transition (1st century BC and 1st century AD). The (Carboniferous) Limestone-tempered and calcitic fabrics manufactured in the Bristol/Mendips area are characteristic in the region of the Middle and late Iron Age and 'earliest Roman' periods. The provenance and distribution of calcite-tempered wares of this type have been discussed previously (Allen 1998, 38). Aspects of the assemblage, including the absence of decoration, and the presence of well-formed 'bead' or simple upright rim forms are characteristics shared by late groups in the regional Iron Age tradition, suggesting that activity may be confined to the 1st century AD. Further indications that this is the case are the instances of wheel-thrown forms from some deposits, with the likelihood being that such 'Belgic'-influenced vessels date to the decades following AD 43 (Webster 1976, 41). The association of wheel-thrown forms with fragments of briquetage containers and other material of earlier type, suggests that this activity probably dates to the mid 1st century AD.

Roman

The composition of the small Roman assemblage by fabric is set out in Table 3. Average sherd weight is high for a Roman group at 16 g, mainly as the result of large joining sherds recovered from some ditch fills. The larger part of the assemblage consists of greywares and coarse, dark -grey firing, fabrics. Identifiable forms in these fabrics are confined to jars and include everted-rim forms clearly influenced by Dorset Black-Burnished ware. No opportunity was afforded to compare fabrics with major excavated Roman assemblages from the region, for example those from Sea Mills or the kiln groups from Congresbury. It is probable that most material is local and may include some material from the kilns at Congresbury, only 7 km distant. A necked jar in a grogged greyware fabric (GW grog) was the only Roman pottery noted in association with the 'massive' briquetage pedestals from ditch 568/573 in Area B. The vessel form is unhelpful in terms of dating and the fabric, though distinctive, cannot be sourced with confidence. The fabric may correspond with types described from Sea Mills (grog/clay pellet-tempered type E12) and considered of '3rd to 4th' century date (Timby 1987, 84).

Severn Valley wares are reasonably well-represented, occurring as tankard forms and one hemispherical flanged bowl. Three tankards were recovered from ditch 25 in the flood relief area. All were of straight-walled form, with lattice or other scored decoration and probably date to the late 1st or 2nd centuries (Webster 1976, 31). The fabric is in all instances untypically pale compared with Severn Valley wares which dominate coarse pottery assemblages from the north Gloucestershire and Worcestershire region. An alternative source in the area of Shepton Mallet, Somerset, where in the 2nd century production is attested of tankards in forms comparable to those represented at St Georges is likely (Webster 1976, 38). A second oxidised (buff orange-firing) fabric is represented as base sherds from a probable Gallo-Belgic platter copy of 1st century AD date from ditch 103 in Area C. This vessel is of note in featuring an (illiterate) maker's stamp to its upper face. Copies of Gallo-Belgic platters and butt-beakers occur at Sea Mills (*ibid*. fig 40, nos. 43 and 59) and a common source is possible.

Non-local British wares are confined to Dorset Black-Burnished wares. A (jar) rim sherd with burnished wavy line decoration and a body sherd with acute-angled lattice decoration

Table 4. Quantification of the briquetage.

Class/Form	Fabric Types				Totals	
	Fabric 1		Fabric 2			
	Count	Weight	Count	Weight	Count	Weight
Containers						
body sherds	-	-	1	6	1	6
Supports - pedestals						
faceted	10	32,850	-	-	10	32,850
rounded	4	848	-	-	4	848
squared	76	50,035	-	-	76	50,035
class sub-total	***90***	***83733***	***0***	***0***	***90***	***83733***
bar or rod	-	-	1	18	1	18
Structural						
oven fragments	110	48,040	-	-	110	48,040
Miscellaneous						
undiagnostic	528	38,125	13	109	541	38,234
Total	**728**	**169,898**	**15**	**133**	**743**	**170,031**

probably date to the mid/later 2nd century. Continental wares present are restricted to one bodysherd of Central Gaulish samian of 2nd century date.

The small size of the Roman group precludes detailed discussion. Whilst the pottery does not clearly demonstrate continuity from the mid 1st century AD activity testified by the earlier pottery, there is a clear emphasis on earlier Roman material. Evidence from the pottery for late Roman activity in Areas B and C is slight

BRIQUETAGE

By Elaine L. Morris

A total of 743 pieces (170,031 g) of briquetage was collected during the excavations and watching brief (Table 4). All four classes of briquetage defined for coastal salt production assemblages (container, support, structural and miscellaneous) were represented (Morris 2001a). Several significant fragments of very large support pedestals were identified, including faceted, round-sectioned, and square-sectioned examples as well as large quantities of broken fragments from oven structures, all resulting from the salt production industry typical of the Roman period in Britain. The pedestals would have been used to support large brine-evaporation pans over the heating source, pans which were most likely to have been made from lead. In addition, at least one small, hollow bar or rod fragment and a sherd from a salt-evaporation ceramic container, more typically associated with late Iron Age-early Roman production of the 1st century AD, were also found which indicates that there were at least two different technological, and possibly chronological, phases of salt production at this location. The briquetage fabrics are distinctive and very different from the associated pottery.

Condition of the Material

The briquetage is in very good condition with several major pieces of the large pedestals surviving; the two largest single-piece examples weigh 8.0 and 7.3 kg respectively. The structural material, which derives from more than one salt-drying oven, is fragmented as it was not recovered entirely *in situ* but usually found as material dumped into other features. The most distinctive aspect of the large pedestals and structural debris is the presence of thick deposits of hard white scum on the exterior surfaces of these pedestals and the upper surface of the structural remains, as well as a thin white skin on some examples. Exposure to saltwater and subsequent bleaching of the natural iron in the clay matrices during the heating episodes has resulted in a remarkable colour range of pink, lavender, white, pale purple-grey, and deep purple-red. The length of time that

these pedestals and the oven structure were heated and the constant presence of the saltwater resulted in these colour changes reaching well into the inner cores of the thicker pedestals and deep into the structural material surface.

Fabrics
(Descriptions provided by E.R. McSloy)

Two fabric types were defined (Table 4). Fabric 1 is the commonest, representing 99.9% of the material by weight. It is softly-fired, with a smooth feel and finely irregular fracture, and appears to be inclusion-free or has rare red-brown iron oxides present. It was used to make all of the major pedestal types (faceted, round-sectioned, and square-sectioned) and the oven structures as well as nearly all of the miscellaneous fragments. Fabric 2 briquetage was only found in ditch 64 exposed in the section of Rhyne B. It is softly-fired, with a smooth feel and irregular or laminated fracture, and has a common amount of linear voids from former, well-chopped, organic temper measuring typically 2-4 mm long. This fabric was used to make the single container sherd recovered, an unusual and relatively slender rod or support bar fragment with a hollow cross-section and a small quantity of miscellaneous material. Organic-tempered fabrics are commonly recorded amongst the briquetage assemblages from late Iron Age and Roman salt production sites in the Brue Valley of Somerset but, in contrast, untempered clays were used to make briquetage pedestals recovered from the North Somerset Levels (Rippon 2006, 45). The use of cereal waste from wheat and barley processing has been identified as at least part of the tempering components of briquetage in the Fenland region (Murphy 2001a, 2001b), and it would be of both regional and national significance if this was also the case for salt production in the Bristol Channel region. The presence of wheat cereal processing waste being used to temper briquetage was unexpected in the Fenland study because this plant does not favour saline conditions and, therefore, was likely to have been brought to the salt production locations.

It is not known why organic temper had been added to create fabric 2 but subsequently was not required for the majority of briquetage supports and structural material made from untempered fabric 1. One possibility is that the oven structures used to heat the brine to evaporate the water were built in a style which made it suitable for controlling the heating temperature so that a tempered fabric was not required. This technological skill would have been similar to that applied to the production of untempered or ungritted, fineware Roman pottery.

Classes of briquetage

Containers

One body sherd derived from a briquetage container was found in ditch 64 and made from fabric 2. Salt evaporation vessels usually take the form of flared vases (Morris 1985, figs 3-4 and 7-8), half-sliced cylindrical troughs (Farrar 1963, fig 1 and 1975, figs 8a-b; Cleal 1991, fig 64; Morris 2001b, fig 92), or sub-rectangular, shallow ceramic pans/trays (Foster 1990, figs 118 and 120; Crosby 2001a, figs 126-131; Miles 1975, fig 12) on later prehistoric and early Roman production sites. These containers can be made from a variety of fabrics including quartz sand-rich, fossiliferous shell-gritted or calcined flint-tempered but the majority of examples are organic -tempered (cf Morris 2001a, 2001c, table 98). Sherds of broken containers are the most common class of briquetage recovered at later prehistoric and early Roman production sites in Britain (Bradley 1975; 1992; Crosby 2001b, table 21; Hawkes 1987, table 26; Morris 1985; 2001b, table 59; 2001d, table 1; 2001e, table 54; Morris and Percival 2001; Rees 1986; 1992; Sawle 1984). The only published later Roman production site, however, has virtually no examples of containers; only two sherds (38 g) from containers were identified amongst 11,039 pieces (480,179 g) of briquetage at the Middleton (Norfolk) late Roman saltern (Percival 2001, table 40). Therefore, the presence of a single container sherd at St Georges, where nearly a third as much briquetage was recovered, strongly suggests that there may be a similarity in technology between these two salt production sites.

Supports: pedestals

There are three main types of pedestals: faceted, round-sectioned or cylindrical, and squared all made from fabric 1. Squared pedestals may be square, sub-square or rectangular in cross-section and flat-topped (Figure 5, 1-3 and Figure 7). They measure about 140-145 mm across at the base, are slightly tapered, and likely to have been at least

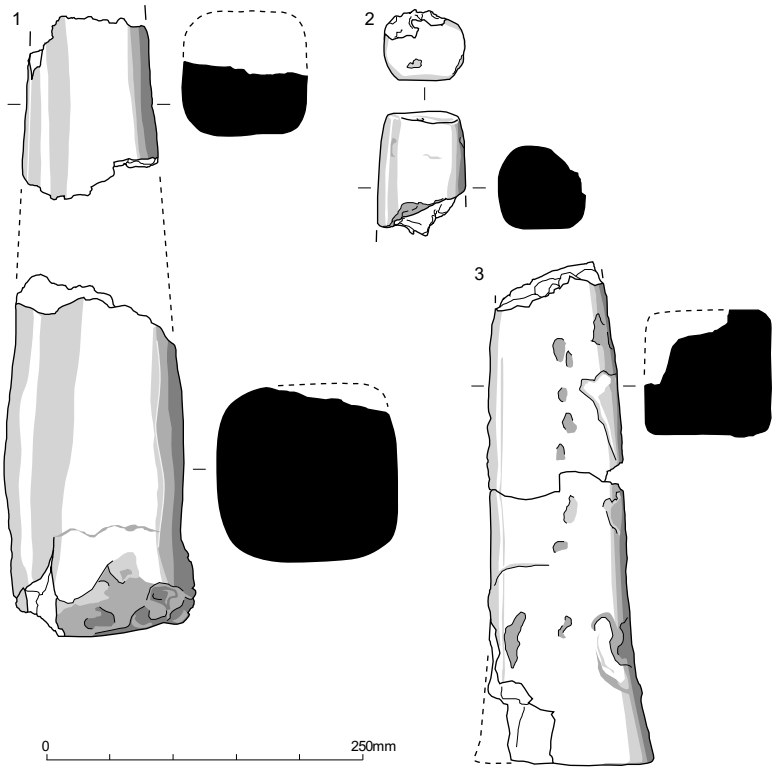

Figure 5. Squared briquetage pedestals nos 1-3 recovered from Area B. Scale: 1:4. (1) Squared pedestal, fabric 1. 556, briquetage spread sealing possible saltern in Area B; (2) Top end, squared pedestal, fabric 1. Area B 526 (fill of ditch 568/573); (3) Squared pedestal, fabric 1. 556, briquetage spread sealing possible saltern in Area B.

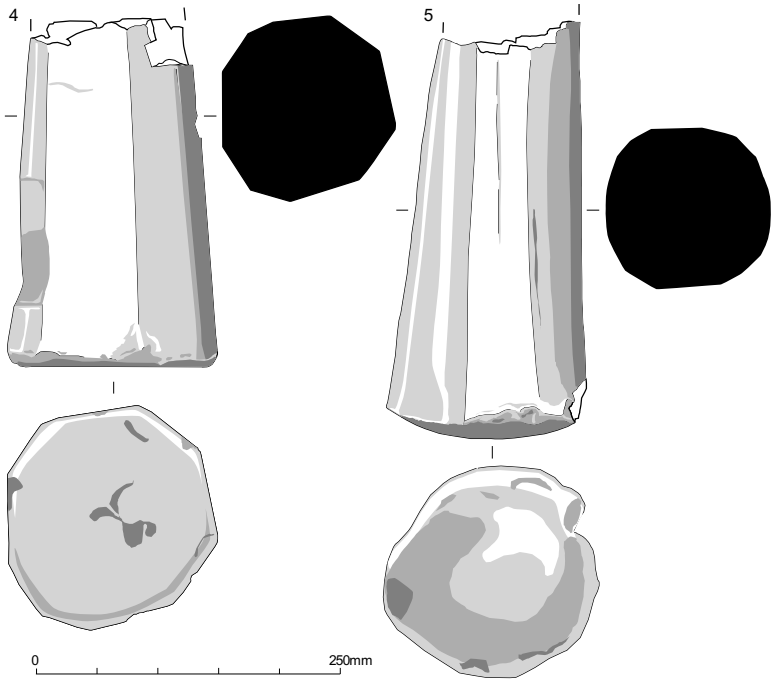

Figure 6. Faceted briquetage pedestals nos 4-5 recovered from Area B. Scale 1:4. (4) Faceted pedestal, fabric 1. Area B 524 (fill of ditch 568/573); (5) Faceted pedestal, fabric 1. Area B 524 (fill of ditch 568/573).

Figure 7. Squared briquetage pedestal.

500 mm long. At least one example was recovered from the late Iron Age-early Roman saltern at Puxton Dolemoor, east of St Georges which similarly measured 120-135 mm across at the base (Rippon 2006, fig 4.3, 4). Faceted pedestals look like tapered building columns with several flat surfaces around the circumference, which may have been knife-trimmed (Figure 8). At least eight examples were identified, measuring 145-175 mm in diameter at the base, less than 120 mm in diameter at the broken or damaged top end and more than 330 mm tall. This type of pedestal appears to be unique in Britain. The faceted and squared pedestals are similar in size and very substantial in nature. Rounded pedestals are round in section, tapered from the base up to the flat top and have smooth surfaces (not illustrated). Only three were identified in the assemblage, one each from Rhyne B ditch 55, the fill of ditch 568/573 in Area B and a post-medieval subsoil in Area B, but no size details were recorded. Three fragments of rounded pedestal-type were recovered at Puxton and at least one of the fragments is clearly tapered (Rippon 2006, fig 4.3, 1-3). These 'curved' examples are usually *c* 100-120 mm in diameter. Iron Age and Romano-British pedestals from the Brue Valley sites are considerably smaller in size than those found at St Georges and Puxton, with diameters of approximately 30-40 mm (Rippon 2006, 45).

Supports: bar or rod

There is one hollow-sectioned, fragmented, piece of briquetage support which may be a bar, rod or even a possible pedestal (not illustrated). It was recovered from the same ditch (64) as the container sherd and is in the same fabric. Thirteen pieces of undiagnostic briquetage material, all made from fabric 2, were also found in this context.

Structural elements

Many fragments in the collection (110 pieces; 48 kg) derive from destroyed saltern ovens, and are characterized by the presence of a single broad, flat surface to each piece. The surface represents the interior of an oven or salt-drying facility. All of the structural fragments had been made from fabric 1. Fragments from oven structures were also identified at the Puxton saltern (Rippon 2006, 4-5).

Miscellaneous

A large amount of miscellaneous briquetage was found in the St Georges collection (541 pieces; 38 kg). These fragments are identified by their fabric and the method of their manufacturing technique

Figure 8. Faceted briquetage pedestal no 4.

but are not diagnostic of any particular class.

Dating

The small hollow bar, rod or pedestal fragment and the ceramic sherd from an evaporation container were recovered from ditch 64 in association with eight sherds (110 g) of handmade late Iron Age-early Roman calcite-tempered pottery. This range of briquetage is found on saltern sites in eastern England during the same period where organic-tempered ceramic containers and a variety of supporting objects were utilized to evaporate water from brine (Lane and Morris 2001). While the container sherd is a dull, off-white colour with tinges of pink and orange, the bar/rod has little salt bleaching effect from use. This suggests that the scale of production during that phase of production at St Georges was moderately intensive and was similar to the scale of production taking place in the Fenland salt production region during the middle-late Iron Age (Morris 2007). There is only a slight amount of other, undiagnostic, miscellaneous briquetage debris from this ditch. There is too little of this material to suggest whether a salt-drying oven or just a hearth existed during this phase. It may be that the majority of evidence was located beyond the excavated area or had been completely removed by subsequent salt production.

The massive support pedestals, the large quantities of structural debris, and the complete absence of any organic-tempered briquetage container fragments from the rest of the assemblage, indicate an intensity of production similar to that found at the late Roman saltern at Middleton in Norfolk where very large pedestal supports were recorded including both squared and rounded examples similar in size to those from St Georges (Percival 2001, figs 65-6 and 69), and two phases of ovens were identified (Crowson 2001, pl 9).

The luminescence dates recovered from two fragments of briquetage within ditch 568/573 at Site B have already been discussed, and doubt has been cast by the excavators on the reliability of the late Roman date obtained from one fragment. If all the salt production at St Georges testified by the briquetage in fabric 1 dates to the 1st century AD, as the pottery suggests, this would indicate that the use of faceted pedestals is a result of variation in personal style developed by an individual saltmaker at St Georges, and one which was contemporary with the manufacture of squared and rounded types. Alternatively, if the later Roman date is accepted then the variation could be a product of chronology with the faceted pedestals dating to later in the sequence.

The Romano-British saltmaking site at Huntspill in the Somerset Levels also had no examples of evaporation containers or crystallization vessels (Leech *et al* 1983, 77, table 10) but the range of pedestals and other supports, the size of the pedestals, and the paucity of structural debris suggest that a less intensive method of salt production was taking place there compared to St Georges. The contrasting evidence between St Georges and Huntspill seem to show that salt production was not uniformly organized throughout Somerset during the Roman period.

Evidence of use and salt production

The evidence presented by the larger pedestals and structural fragments is extremely important, not only for understanding the salt production industry in Somerset but also for Britain. The type of production debris and the size and nature of the ovens or hearths present at a saltern, as well as the degree of saturation or bleaching of the briquetage can reveal whether salt was being produced on a large, industrial scale or on a more modest scale (Lane and Morris 2001; Morris 2007). The super-saturation or complete bleaching of the clays throughout the thick pedestals found at St Georges clearly occurred through extensive use of these objects repeatedly for long periods of time.

Certain thick fragments of the debris with one smooth surface were clearly flooring to either the flues of the ovens or a raised floor above the flues. The extremely thick salt scum deposit on the one smooth surface of these fragments is assumed to be from the direct and constant splash of brine into pans and dripping down onto the floor zone and suggests intensive production. The undersides of these fragments are rough, rather than smoothed and often the thickest examples appear to be nearly unfired. Many examples are extremely hard-fired with a deep purple-red colour common. Walls of the oven structure are

Table 5. Luminescence dates.

Sample type	Context	Lab Code	Age (a)	1 σ error 66% confidence (a)	Calendar Age Range
Briquetage	524	GL04031 TL	1618	229	157-616 AD
Briquetage	524	GL04031 OSL	1911	75	17-168 AD
Briquetage	525	GL04032 TL	1308	269	427-966 AD
Briquetage	525	GL04032 OSL	1662	67	275-409 AD

suggested by the rough, almost unfired nature of one side of other thick fragments with one smooth surface, but there is only slight salt scum or a thin skin of white irregularly visible on the smooth surface side. It appears that these fragments derive from the sides of the oven because they were further removed from the high heat zone.

Salt-drying ovens allowed better control of the brine-heating process than an open hearth. When the heating of brine is slower and evaporation takes place at a regular or controlled rate, it is possible to create a more uniform type of salt crystal. Production of salt at St Georges was undoubtedly industrial in scale based on the presence of several ovens and the intensive use of massive briquetage supports.

Significance

The assemblage of salt production debris at St Georges is of great interest as it is the largest quantity of salt production debris of any date from Somerset and is in very good condition. Most importantly it testifies to an intensive 1st century AD industry in north Somerset affording a major quantity of quality sea salt. The quantity of salt produced at these sites would have been far beyond that needed by local people for their daily requirements, and some must have been designated for export. The salt could have been transported to markets in a variety of containers such as leather bags, baskets lined with leather or other materials, or even barrels, carried by pack animals or even in boats. The possibility that pots were used as salt transportation vessels cannot be ruled out. The similarity in the types and sizes of pedestals, presence of oven fragments, lack of containers and absence of organic-tempering in the primary briquetage fabric used for all but a fraction of the collection, as well as the date range and types of pottery identified at both sites, indicate that salt production at St Georges was contemporary with that at Puxton Dolemoor.

LUMINESCENCE DATING

By Phillip Toms

Small lumps of fired clay briquetage were submitted for a programme of scientific dating by the determination of Thermoluminescence (TL) and Optically Stimulated Luminescence (OSL) at the University of Gloucestershire (Table 5). The briquetage lumps were recovered from a monolith column taken through the fill of ditch 568/573 in Area B. Luminescence ages date the last exposure to sunlight or heat in excess of 350°C of naturally occurring minerals which resets their time dependent signal (OSL in the case of direct sunlight exposure, OSL and TL in the case of heating in excess of 350°C). This signal then reformulates through exposure to natural ionizing radiation existent within the surrounding sediments and emanating from the cosmos. The age calculation requires quantification of the total dose (D_e) absorbed and the rate of dose absorption (D_r), the age being derived from D_e/D_r. D_e was quantified from isolates of fine silt sized (5-15 micron) quartz taken from the core of reddened sections of each piece of briquetage, and established through calibrating the TL and OSL signals from separate sets of aliquots (sub-samples) using known laboratory doses. D_r was calculated through quantifying the local radionuclide concentrations of potassium, thorium and uranium by Neutron Activation Analysis, the attenuation effects of moisture content and establishing cosmic dose rate premised upon geographical position and overburden thickness. The standard error on the reported luminescence age estimates is quoted at 1 sigma confidence (66%) and is premised upon the propagation of both systematic and experimental (1 sigma) standard errors associated with those parameters contributing to the calculation of D_e and D_r Values.

*Table 6. AMS radiocarbon dates, * 2σ 95.4% confidence.*

Laboratory No.	Context no.	Description	Material	Radiocarbon Age (BP)	Calibrated date range*
Wk-16380	Ditch 190 Area A	Fill of ditch	Spelt grain	1756+/-34	130–390 cal. AD
Wk-16381	Ditch 190 Area A	Fill of ditch	Spelt glume base	1851+/-36	70–250 cal. AD

RADIOCARBON DATING

Two AMS radiocarbon dates were obtained from a spelt grain and glume base contained within a ditch of probable Roman date in Area A (Table 6). The samples were processed during 2005 at the University of Waikato Radiocarbon Dating Laboratory, Hamilton, New Zealand. For details of the methods and equipment used see University of Waikato 2006. The results are conventional radiocarbon ages (Stuiver and Polach 1977) and simple calibrations of the results are given in Table 6. The results were calculated using the calibration curve of Reimer *et al* (2004) and the computer program OxCal 3.10 (Bronk Ramsey 2005). Date ranges cited in the text are those at 95% confidence level. Ranges are derived from the probability method (Stuiver and Reimer 1993).

DISCUSSION

There is no doubt that the features recorded and material recovered during these investigations represent evidence of what was in the 1st century AD a significant salt production industry which spanned many generations and seemingly was of at least two distinct phases. However, the restricted nature of the site investigation and funding for subsequent analysis combine to pose more questions than answers in understanding the salt-making technology employed at St Georges in the late Iron Age/early Roman period, its organisation, and its interaction with the local economy and environment.

The earliest identified material is middle to late Iron Age pottery associated with the possible saltern in Area C and the thin layers of alluvium and possible land surfaces in Area B, the latter sealed by a burnt layer which contained most of a burnt and broken later Iron Age pottery vessel. late Iron Age/1st century AD organic-tempered briquetage associated with pottery of similar date from ditch 64 in Rhyne B attests to a mode of salt production comparable to contemporary activity in the Brue Valley in Somerset and elsewhere in southern Britain, and contrasts with the other material recovered at St Georges and elsewhere on the North Somerset Levels (Rippon 2006, 46). An intact saltern complex has yet to be fully excavated on the North Somerset Levels, so any attempt to understand the technology involved is hindered by our poor understanding of the plan form of such structures. The possible salterns in Areas B and C offer our first hints of how these structures may have functioned, and possibly of how the technology may have evolved over time, and offer limited scope for comparison with more fully excavated salterns elsewhere.

The remains of a possible fire base in trench 8, Area C, surrounded by a curving ditch *c* 8 m in diameter, bear comparison in plan with an Iron Age saltern at Cowbit Wash, Lincolnshire (Lane 2001, 13-97; site COW 25), where a pennanular ditch of *c* 10 m diameter surrounded an oven structure which yielded an associated calibrated radiocarbon date of 185–95 Cal BC (UB-4026 and UB-4027; 2098±15 BP). The oven at Cowbit Wash may have succeeded an earlier phase of saltmaking associated with the pennanular ditch, comprising a simple hearth arrangement which left no trace (ibid., 33). Evidence of Iron Age salt -heating structures is rare (ibid., 92), and it is possible that the fire-base in trench 8 represents a repeatedly utilised hearth, rather than an oven structure providing indirect heat. Indeed it could conceivably be associated with the manufacture of briquetage rather than salt as such. Either way this feature has the potential to be an earlier and smaller-scale version of the area at the north-east corner of Area B defined by curving ditch 568/573 which contained briquetage debris, including the large pedestal fragments, and 1st century AD pottery. Interpretation of the features in Area B is severely hindered, however, by the limited plan view and scope for detailed examination afforded during the watching brief. Typologically the large pedestal fragments from Area B compare more closely to those used at the later Roman saltern at Middleton, Norfolk (Crowson 2001, 162–239), than to 1st century AD production elsewhere in Britain, suggesting large scale production at St Georges at this time.

At Middleton a central oven structure was once again enclosed by a ditch, this time a segmented sub-rectangular ditch, supplied with salt water by two feeder channels and interpreted as a feature for the capture and holding of salt water for the evaporation process (ibid., 169). There was a large clay-lined settling tank immediately adjacent to the oven. In a later phase three further close pairings of oven and settling tank were identified. It is possible therefore that the briquetage-rich ditches and pits in Area B represent the remains of a similar complex of water management features, including feeder channels, capture ditches and settling tanks, but without more comprehensive investigation interpretation of form, function and chronology is severely compromised. If this speculative interpretation is correct it is likely that the oven structures in which the massive clay pedestals were used lay just beyond the limit of excavation in these areas, with the most likely oven site being just north or east of cut 639. At Middleton the ovens comprised twin stoke-holes linked by a central flue, flanked by the pedestals which would have supported the evaporating vessels (possibly lead pans) within a surrounding superstructure of fired clay constructed on wattle frames (ibid., 240). The presence of similar fragments of oven superstructure at St Georges suggests a similar technology was in use, but none of the cut features could be interpreted as flues or stoke-holes, and no *in situ* pedestals or superstructure were found. No evidence was recovered for the form of the evaporation pans supported by the pedestals. By analogy with salt industries elsewhere in Roman Britain it might be assumed that lead vessels were used, and there was certainly a plentiful supply of this metal locally available on Mendip. Late Roman lead pans used in the Cheshire salt industry were flat bottomed (see, for example, Penney and Shotter 1996), and this is the most likely form at St Georges as Morris observes that some squared and rounded pedestals preserved their flat tops. Not one piece of lead was recovered from the site, however, to support this notion and in the absence of diagnostic fragments of ceramic evaporation vessels, the only other likely alternative would be wooden vessels. The obvious risk of such vessels catching fire, however, makes the use of lead pans the most likely option, not withstanding the absence of lead dribbles or off-cuts from the relatively small number of features excavated.

The evidence from St Georges indicates an intensification of salt production in the 1st century AD, although the briquetage from ditch 64 suggests that salt making had commenced in the locality somewhat earlier. The 1st century production utilised a new technology characterised by large pedestal supports which is quite distinct from the earlier material and is suggestive of production on a scale commensurate with export rather than satisfying the needs of local communities. It is not possible to ascertain whether this upsurge in production occurred before or after AD 49, the date by which Rome had assumed control of lead extraction on Mendip (Todd 2007, 65). It is at least a possibility that the upsurge in production at St Georges was in response to a demand for salt generated by the arrival of the army in south-west Britain. It is quite possible that some of the salt from the North Somerset Levels may have been destined for the legionary fortress which was established at Caerleon in the Flavian period on the opposite side of the Severn estuary. Certainly no evidence has come to light so far for salt production on the Wentlooge and Caldicot Levels of south Wales. The pottery assemblage from St Georges gives no support for a military or official involvement in salt manufacturing as it lacks the imported wares which would typify this, and are, for instance, present at the 1st century AD works depot at Charterhouse-on-Mendip (ibid.). Intensification in production is therefore likely to have been an indigenous initiative.

Overall the evidence from St Georges fits well with Rippon's model of landscape modification in the early Roman period, and transformation into an embanked freshwater environment by the late Roman period (Rippon 2006, 64–72). The evidence for 1st century AD saltmaking activity is comparable to, if somewhat larger in scale than, that at Banwell and Puxton (Rippon 2000, 188; 2006, 66), whilst the network of V-shaped drainage ditches of seemingly 2nd or early 3rd century date is comparable to the enclosure complex forming the relict landscape seen on Puxton Dolemoor (Rippon 2006, 46–7). As at Puxton, the absence of later Roman pottery from the site suggests abandonment of the ditch system in the 3rd century. More work is required, however, in order to fully understand the stratigraphical and chronological relationships between the drainage system and the saltmaking.

Did the salterns sit on an open salt-marsh or on an embanked marsh with salt water brought to the site through a natural creek or made-man channels controlled by a sluice? If the marsh was not embanked then salt making could only have occurred in the summer months when the vegetated platforms between creeks were not submerged. On an embanked marsh the activity could have been year round. It also remains to be understood whether salt-making was a specialist activity or one part of a mixed economy which also involved pastoralism. If the V-shaped ditches are associated with the drainage of the embanked marsh this may also suggest a slightly earlier start to this process at St Georges than the mid 3rd century date proposed by Rippon.

Many questions remain unanswered from the work at St Georges: what form did the salterns take; what fuel were they using; what were the evaporation vessels made of; who controlled the St Georges saltmaking industry; what grade/s of salt were they making and for whom; when did salt production cease and why? Further analysis of the site archive may provide further definition to the account presented here. For instance a further programme of scientific dating may refine the chronology of salt production, and the unanalysed animal bone assemblage might shed further light on the interaction between the saltmaking industry and local economy, and how that changed over time. Greater precision on the chronology of salt production would certainly be valuable. In the account given above it is proposed that the industry dates to the 1st century AD, conceivably with an origin in the late Iron Age. It remains the case, however, that a later Roman OSL date was obtained from a small unfeatured lump of briquetage from ditch 568/573 in Area B. The significance of this date is weakened, however, by the fact that it is reported at one sigma (66%) confidence, and that at the more standard two sigma (95%) confidence range it would not necessarily preclude an earlier Roman date. This same ditch also produced a necked jar in a grogged greyware fabric. Unfortunately the date of this vessel is uncertain, although McSloy (see above) does note the possibility that this fabric might correspond to one dated to the 3rd and 4th century at Sea Mills. Physical comparison of this vessel with material from Sea Mills and neighbouring sites might provide further confidence in its dating. Morris also observes that the faceted briquetage pedestals are not represented in the late Iron Age/early Roman assemblage from Puxton and it is conceivable that the faceted form is somewhat later in date than the rounded and squared varieties. The possibility that salt production continued into the later Roman period cannot be discounted entirely at present, therefore, and further work will undoubtedly provide further clarity on this matter. Finally we might also note that later Roman salt production at St Georges, if confirmed, would also require revision of the currently accepted model that the saltmarsh was embanked and drained sometime around the 3rd century.

Understanding the relationship of the potential salterns in Areas B and C to earlier tidal creeks and channels (such as the Bourton and Grumblepill Rhynes) would also be highly desirable, and the undeveloped land to the north-east of the canalised River Banwell offers potential for future geophysical survey (which proved at least partially successful at St Georges) and fieldwork to locate former salterns and creeks, and to establish an invaluable plan view. The archive also contains a modest amount of information on the development of medieval settlement around St Georges which has not been considered in this report.

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