Chapter 2: Whitecross Farm, Cholsey: A Late Bronze Age Waterfront Site

by Anne Marie Cromarty, Alistair Barclay, George Lambrick and Mark Robinson

INTRODUCTION

by George Lambrick and Anne Marie Cromarty

It has been known for some time that there was a late Bronze Age riverside settlement, sealed under alluvium, on the west bank of the Thames near Whitecross Farm (1.4 km downriver from Wallingford at approximately SU 607 882). Pottery and other finds eroded out of an occupation layer exposed in the bank of the river led to the discovery of the site. Small-scale investigation had been carried out on four previous occasions, the results of which have been synthesised by Thomas *et al.* (1986, 174–5) and are briefly presented here: in 1948–9 E Abery of Wallingford reported pottery, animal bones and bronze artefacts from the riverbank (Collins 1948–9). In 1951 A E P Collins excavated four trenches (Anon. 1952–3, 125), and in 1959 John Wymer excavated three trenches (Anon. 1960, 55–8). In 1980 Mark Robinson took samples for environmental analysis from the eroding riverbank (Thomas *et al.* 1986, 175, 178–84). The first and last of these investigations were concerned with material from the riverbank itself, while the excavations of 1951 and 1959 were located *c* 6 m back from the bank (Fig. 2.1). The site was known only as an occupation layer extending along the riverbank for *c* 37 m, and reaching at least 9 m back from the bank, but its landward limit was unknown, and it was not clear whether it also stretched further along the river but was only visible where the bank had eroded to form a long narrow bay.

As this site lay on the proposed route of the bypass, an evaluation was carried out to establish the extent of the site, its character, and its potential in terms of stratigraphy, finds and organic preservation. The work was carried out in several stages in 1985, 1986 and 1991 (see Chapter 1, Excavation objectives).

Topographical context

The site lies on the western bank of the River Thames below Wallingford, where the river runs through an alluvial floodplain which is 300 m wide at this point. The site is located on an island which forms part of this floodplain, lying at just below 44 m OD. The greatest part of the expanse of the floodplain lies on this western side of the river, the land lying at this level for 250 m to the west before rising to *c* 44.5 m on the edge of the First Gravel Terrace. On the eastern side of the river the floodplain is only *c* 25 m wide. The general character and the topographical and geological situation of the site as it was known before work began is described by Thomas *et al*. (1986, 175–8, although the discovery of the island is also mentioned in the postscript on page 198).

The excavations

In the first stage of the new investigation, a detailed section was drawn of the riverbank exposure, and initial trial trenches were dug to establish that the limits of the site were excavated. Three trenches were dug radially outwards from its known area (trenches I–III, see Fig. 2.1, Pl. 2.1), stripping the superficial layers off by machine until the top of the occupation layer was reached. Its surface was then followed until finds and other signs of its presence clearly seemed to have petered out. Sondages were dug to natural at the ends of these trenches (again by machine). These demonstrated the existence of a buried, north–south orientated, river channel (see Fig. 2.1). A further series of deep sondages (IV, V and XXIII) were excavated by machine and confirmed the existence of channel deposits at least 70 m back from the present riverbank opposite the middle of the known extent of the occupation layer. Additional machine sondages (VI–XVI) were dug along the riverbank, immediately next to the towpath, only down to the surface of the occupation layer to establish its north–south extent along the river. The following spring (1986), trenches XVII and XVIII were dug where these trial pits suggested the occupation layer was ending. Again, deep sondages were dug into underlying charred deposits within the trenches, and at the north end a further series of deep sondages (XIX–XXII) were excavated to establish the course of the buried channel. In the summer of 1986 a larger trench (XXIV) was dug to provide an east–west section across the occupation area and into the river channel. The west end of the trench was enlarged to establish the character of a timber structure revealed by the discovery of two piles in the bottom of the channel in 1985.

This trench (XXIV) revealed evidence of a timber revetment along the eastern edge of the buried channel, 20 m back from the western bank of the modern river. In addition, late Bronze Age pottery (see Figs 3.8–17), worked flint (see Figs 3.4–6), a copper-alloy pin (see Fig. 3.1.1) and much worked wood (see Figs 2.9, 4.7–11) were recovered from the channel silts, indicating that this channel was open at the time of the late Bronze Age occupation.

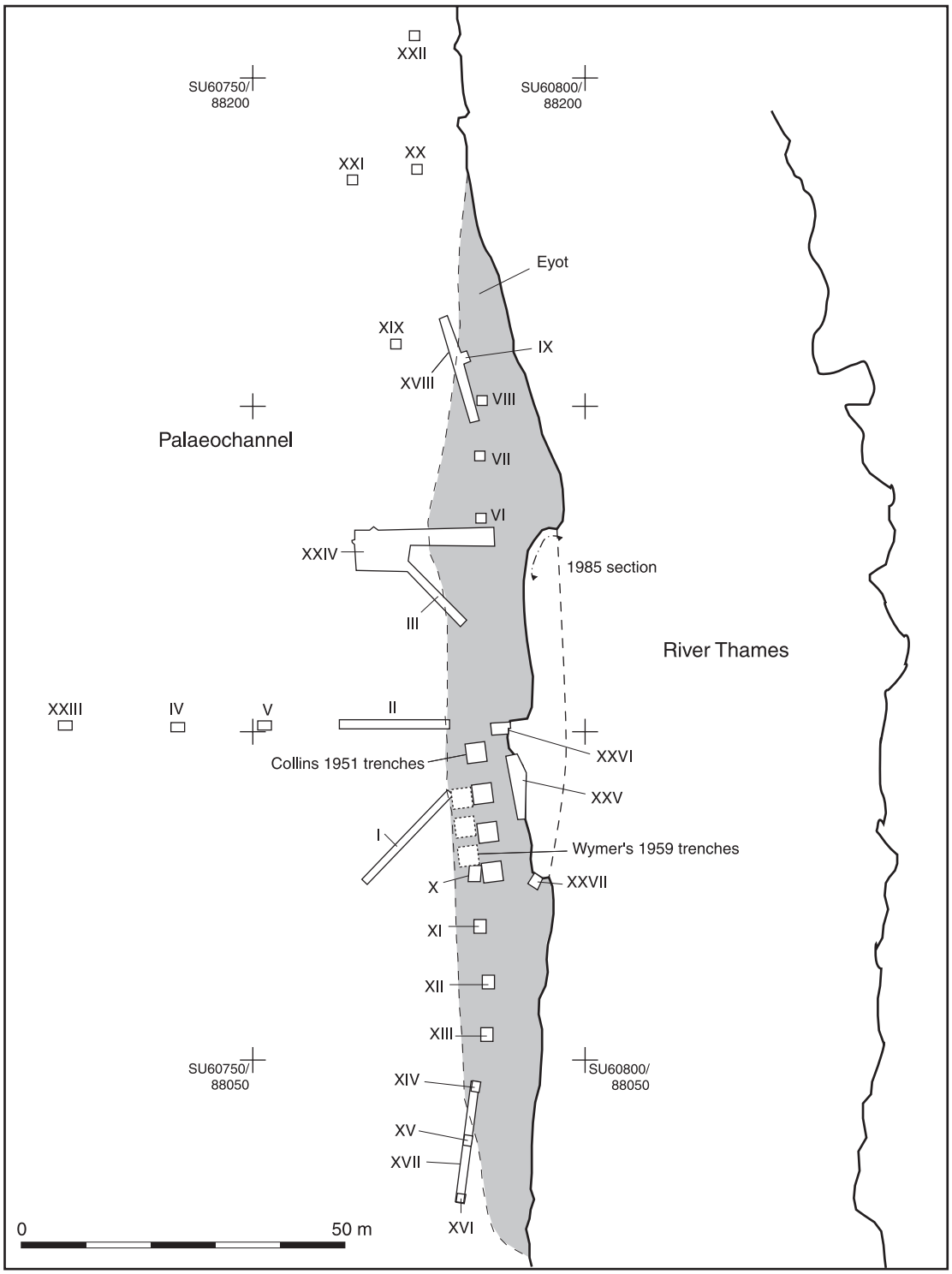


Figure 2.1 Trench location plan showing all trenches and test pits, including the approximate locations of Collins' and Wymer's early trenches, with the inferred extent of the eyot

Plate 2.1 A general view, looking north, of the 1984 trenches and test pits dug to determine the extent of the occupation layer.

Careful examination of a 7 m section at the northern end of the long bay in the modern riverbank showed that the late Bronze Age horizon splits into an upper and lower layer, of which the latter dips 0.7 m downwards towards the present channel, being cut off at about normal water level (Fig. 2.2). The upper layer continues roughly horizontally over an intervening layer of apparently sterile alluvium. The molluscan evidence from this sequence and from the occupation horizon close to present water level at the south end of the bay, suggests that the dipping layers may be associated with the edge of a contemporary channel on a similar line as the present-day river (see Robinson, Chapter 4). Unfortunately these deposits are too truncated for the evidence to be definite, but it is reasonable to suggest that the late Bronze Age occupation area occupied a narrow strip between the channels. The stratigraphy and molluscan evidence (Robinson 1986, and Chapter 4) shows that this strip was formed by riverborne gravel followed by sands and alluvial loam. This upward fining of the sediments and corresponding transition of molluscan fauna from flowing-water aquatic species to those enjoying a terrestrial habitat indicates the gradual stabilisation of this from being an active channel to being dry ground. In the context of a long narrow area between two channels this process is best seen as the formation of a cigar-shaped island or eyot – a familiar feature of many parts of the modern river.

At the southern end of the late Bronze Age occupation area, the buried channel (revealed in trench XVII, see Fig. 2.1) is close to the modern river, and may indicate the approximate southern limit of the eyot. To the north, similarly, the evidence for the buried channel in trench XVIII shows that it is very close to the present river. In this case, however, the modern channel may well have eroded the northern end of the Bronze Age eyot. A line drawn between the outer limits of the bay where the late Bronze Age occupation layer dips to the modern river level should indicate the approximate line of the contemporary channel east of the eyot. The modern riverbank corresponds to this in the south, but to the north the river only adopts this line having swung substantially eastwards from a more westerly course where its bank is more closely aligned on the west side of the eyot, rather than the east side. The occupation horizon is not easily identified north of trench XVIII because of the scarcity of finds or any clear soil differences. However, the deposits in the riverbank further north are still relatively sandy compared with the more clayey upper fill of the buried channel, and the occurrence of two or three animal bones at about the right level may indicate that the eyot did extend much further northwards, but that now only a sliver of its western edge survives.

Having thus established the approximate extent of the late Bronze Age occupation, the bridge to carry the bypass over the river at this point could be designed in such a way as to limit disturbance to the site (see Lambrick below). As a result, only a small part of the riverside edge of the eyot was to be affected where land in the bay was to be reclaimed and on to which a pier to support the bridge was to be set. As a result, three further small trenches (XXV–XXVII), a few metres to the east of Collins' 1951 trenches, were excavated in 1991 in advance of construction.

River channel survey

In addition to the excavations and the work on the riverbank, a survey of the modern river channel was carried out by members of the Oxford branch of the British Sub-Aqua Group under the leadership of Colin Fox. An east–west profile of the riverbed was recorded from each end of the bay, and an area 30 m x 12 m was surveyed in 2 m wide transects aligned north–south towards the northern end of the bay, together with another two 2 m x 25 m transects continuing to the south of the outermost of the first transects. This showed that dredging and erosion have modified the original river profile and no *in situ* structures or deposits which might relate to the late Bronze Age occupation site were found. The only wood found was a single piece of modern timber to the south end of the bay. The riverbed was found to be composed of silt and gravel with some stratified and flaky rock further away from the bank.

Magnetometer survey and surface collection

A magnetometer survey and limited surface-collection survey (see Chapter 1 and details in the archive) were carried out on the areas of gravel terrace adjoining the floodplain either side of the river opposite the site. Alister Bartlett and Andrew David (Ancient Monuments Laboratory) undertook the magnetometer survey in 1986; nothing of archaeological significance was found. The surface survey produced a range of finds but there was little of significance.

BRIDGE CONSTRUCTION AND PRESERVATION OF *IN SITU* ARCHAEOLOGICAL DEPOSITS

by George Lambrick with Anne Marie Cromarty

It was considered essential for the known late Bronze Age settlement at Whitecross Farm lying on the route of the bypass to be protected *in situ*, as recommended by Thomas *et al.* (1986). The evaluations undertaken at Whitecross Farm in 1985–6 revealed that the occupation was restricted to a narrow eyot some 18 m wide, stretching around 170 m along the western bank of the river, with some activity in the form of middens and timber structures stretching out into the broad, completely silted palaeochannel behind for around another 10 m. It was decided that the most expedient method of constructing a river crossing at this point while protecting these archaeological deposits would be

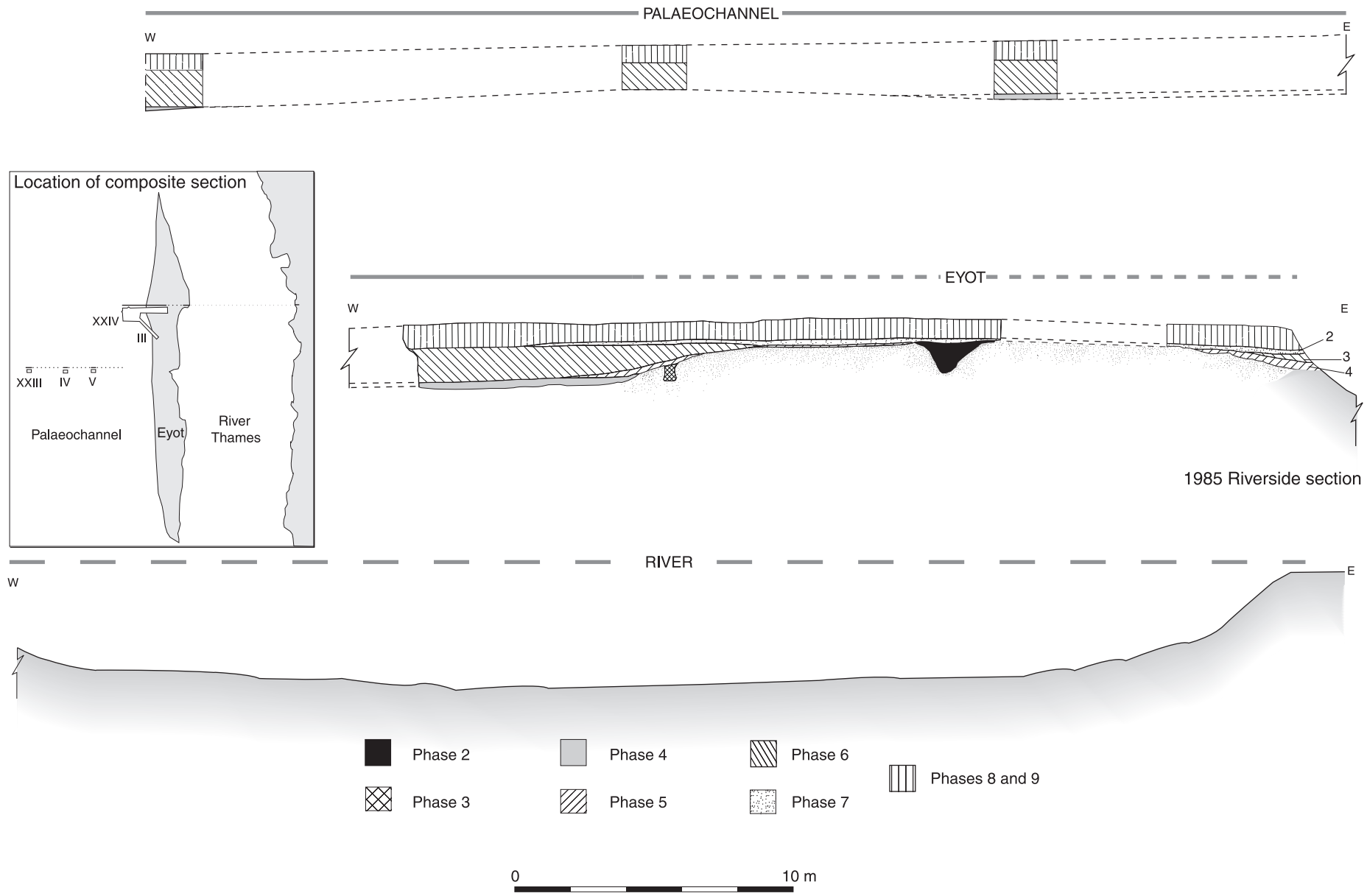


Figure 2.2 Composite section through the palaeochannel, late Bronze Age and modern River Thames, showing the 1985 riverside section

Plate 2.2 Winterbrook Bridge from the air looking north towards Wallingford. The bridge was carefully designed to span the width of the late Bronze Age eyot at Whitecross Farm on the western bank of the modern River Thames as well as the river itself

to design the bridge in such a way that it spanned the site in addition to the river (Pl. 2.2).

As illustrated in Ralston and Thomas (1993, 17, fig. 3), this was achieved by means of the construction of reinforced earth embankments, overlying the palaeochannel to the west and the possible prehistoric settlement site on the eastern side of the river found during the later evaluation undertaken there, to form the foundations of the bridge terminals. This left the topsoil and any underlying archaeology undisturbed in both cases. The bridge was supported by two piers set on reclaimed land at either edge of the river. These were set on sheet piles to limit foundation width and avoid disturbance to the archaeology on the western bank. Trench sheets protected the face of the archaeological site from disturbance. The main part of the eyot was not affected as it was to be spanned by the western section of the bridge, and covered by geotextile separator and granular blanket to protect it during construction.

THE GRAVEL EYOT AND THE EARLY CHANNEL FILL: PHASE 1

This section of the bypass crosses an area of the Thames floodplain which was found to have once been a narrow gravel eyot, with a wide channel of the river, as it was then, to the west. The underlying geology in this area is composed of gravel. This level was not reached during the excavations as the gravels are overlain by fluvial silty clays, sands and gravels. In the few of the test pits and trenches where these fluvio-glacial deposits were reached, it was evident that the eyot was composed of several overlying layers. For example, in the main trench XXIV (Fig. 2.3) the natural, 2410, a yellow very sandy clay silt mottled with dark brown iron pan and pale grey sandy clay, which formed the surface of the eyot, was overlain on the western edge by waterlain sand and gravel with strong iron panning (2448) around intrusive feature 2422. This in turn was overlain by a thick (*c* 0.5 m) deposit of sands and clays (2426=2427). The light brown-grey sand with silty clay bands through it became less clayey to the east away from the channel. Overlying this to the east was 2447, a grey clay sand mottled with yellow and with occasional gravel and charcoal flecks, and to the west 2446, a lens of fine pale blue-grey silt. These successive layers indicate that the eyot accumulated over a period of time, with successive depositional episodes.

The natural deposits were not fully investigated, as the excavation was primarily concerned with the archaeology of the area. However, accumulation of sediment as a result of eddying round an irregularity in the bed of the river began probably early in the Holocene, and continued, forming a braid within the river. The channel to the east of this braid became, for whatever reason, the preferred channel for flow which would have decreased as the ice receded and conditions became drier during the Boreal. Flow within the western channel – the palaeochannel discovered during the excavation – eventually slowed to the point where it silted up entirely.

The original bed of the palaeochannel was not reached during these excavations. The earliest fill of the feature excavated in trench XXIV was 2446, a lens of fine pale blue-grey silt 0.1 m deep, on the slope of the western edge of the eyot. This silt lens was found to be overlain by a deposit (2406) which appeared to have been laid while the channel was still, at least relatively, active.

Channel fills of a similarly early date to 2446 were not recorded in the other trenches which cut the edge of the eyot (I, II, III, IX and XVIII). Some of the lower deposits recorded within the test pits dug in the palaeochannel may be of a similar phase though not matching the description of this deposit. The deposits within these test pits were recorded at depth intervals, but how they related to the deposits on the edge of the eyot could not be determined by the limited nature of this type of excavation.

In test pit XXI to the north-west of the eyot, the lowest deposit recorded at 2.5 m below ground level was described as a dark grey gravel, succeeded by dark grey silty sand or gravel at 2.3 m. The latter may be a similar deposit to 2406, but the lowest gravel may have related to an early phase of the channel bed. A similar sequence was recorded in test pit XX to the north of the eyot. Test pit XX was excavated only to the level of sandy silt and gravel at 2.2 m, which is likely to be equivalent to the deposit at 2.3 m in test pit XXI and relate to 2406, particularly as it is described as organic.

To the west of the eyot, in what is likely to have been mid channel, the test pits (IV, V and XXIII) were dug only to the level of the dark grey sandy deposit recorded in the more northerly test pits as overlying early gravels. No signs of human activity were found during the excavation of these test pits unlike the trenches nearer the shore of the eyot.

EARLY OCCUPATION: PHASE 2

It is not clear when the eyot was first used by humans but one feature earlier than the general occupation layer on the eyot was identified in trench XXIV (Fig. 2.4). This feature was either a large ditch, a gully or a long pit orientated north–south along the long axis of the eyot. It contained several fills (see Fig. 2.3): 2413/A/4, the primary fill, consisted of very silty clay; overlying this was a light brown-grey sandy silt (2413/A/3) with a high proportion of grit/gravel; above this 2413/A/2 consisted of light brown-grey sandy loam and extended down the western side of the feature; the final fill (2413/A/1) was grey silty loam very similar to the earliest layer of soil and occupation debris, 2403/2 (Pl. 2.3). Each of these fills yielded finds of flint, shell and animal bone, with

the exception of the primary fill (2413/4) from which no flint was recovered. None of these finds is very closely datable, so the main evidence for the date of this feature comes from stratigraphy. The relationship of this feature to others recorded from other parts of the site is not clear. Though a test pit (VI) to the north of this trench, roughly where a continuation of this feature might be expected, was dug in the previous season (1985), the feature was not seen. It may be that the feature terminated just to the north of the 1986 trench, or that the feature did continue to the north but was not recognised due to the similarity of its top fill to the surrounding occupation layer.

If this feature is indeed a ditch, then it would seem likely that it belonged to either an enclosure or a barrow. Its date is at least late Bronze Age, but it could be somewhat earlier. Unfortunately, not enough of this feature was revealed to determine its true character and the only dating evidence to come from it was a single flint of probable Neolithic date (see Brown and Bradley, Chapter 3).

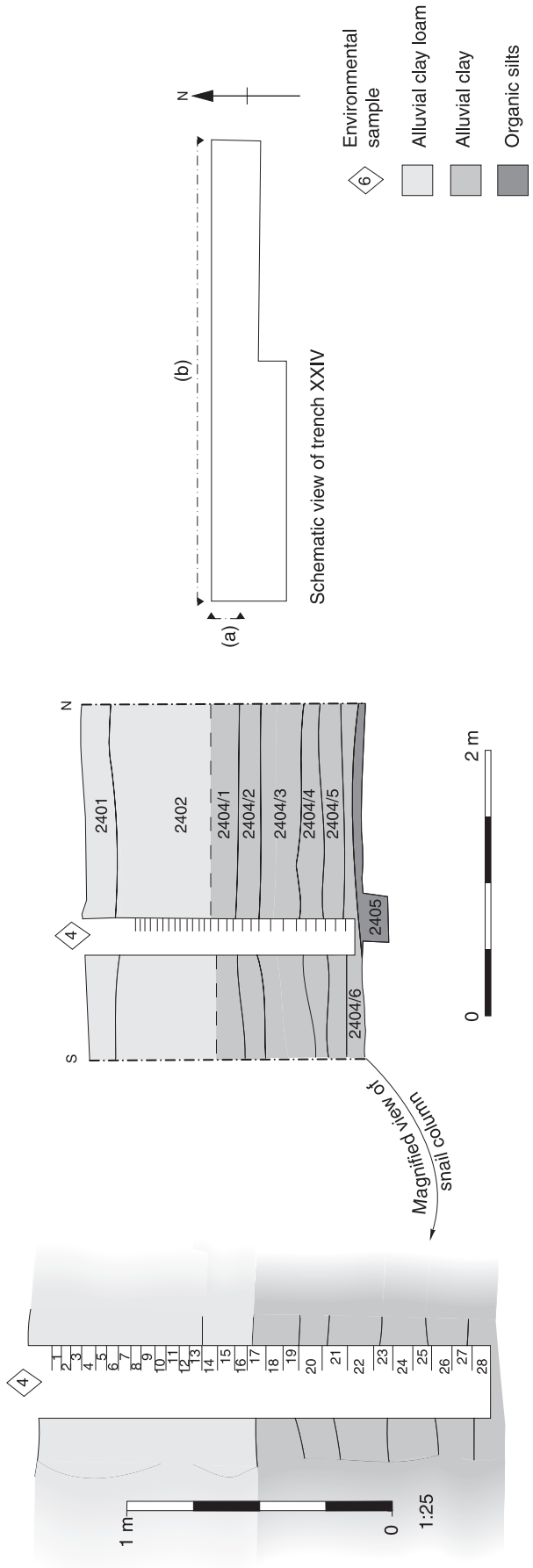
STRUCTURES IN THE CHANNEL AND THE PALISADE: PHASE 3

Two wooden uprights embedded in the channel bed were found within the palaeochannel deposits excavated in trench III in 1985 (308=2429 and 307=2432). These were left *in situ* and a larger area within the palaeochannel was excavated round them in the next season (trench XXIV). Several more similar wooden uprights were found during the course of this excavation (2430–1 and 2433–43, see Fig. 2.4). The timbers are interpreted as piles. These may represent two jetties or other waterfront structure(s). No piles or postholes were found in any of the other trenches which were excavated through the palaeochannel.

On the sloping bank of the eyot evidence of another structure was found. This was a trench or slot running parallel to the edge of the eyot with regularly spaced postpipes within it. This may represent some sort of revetment or palisade. It is not clear if the construction of this feature is contemporary with the structures within the palaeochannel, as no absolute dates were obtained from it and there is no stratigraphic relationship between this feature and the structures, except that all three were sealed by the same midden deposits, but it does seem likely that they were in some way related. However, the feature could be earlier, and possibly even related to the early ditch.

The wooden structure(s) in the channel *(Fig. 2.5)*

The wooden structure or structures within the palaeochannel consisted of 16 timber uprights embedded in the base of the channel (2406). These were preserved within waterlogged organic deposits (2405) in the channel up to 0.28 m above the bed of the channel as excavated.



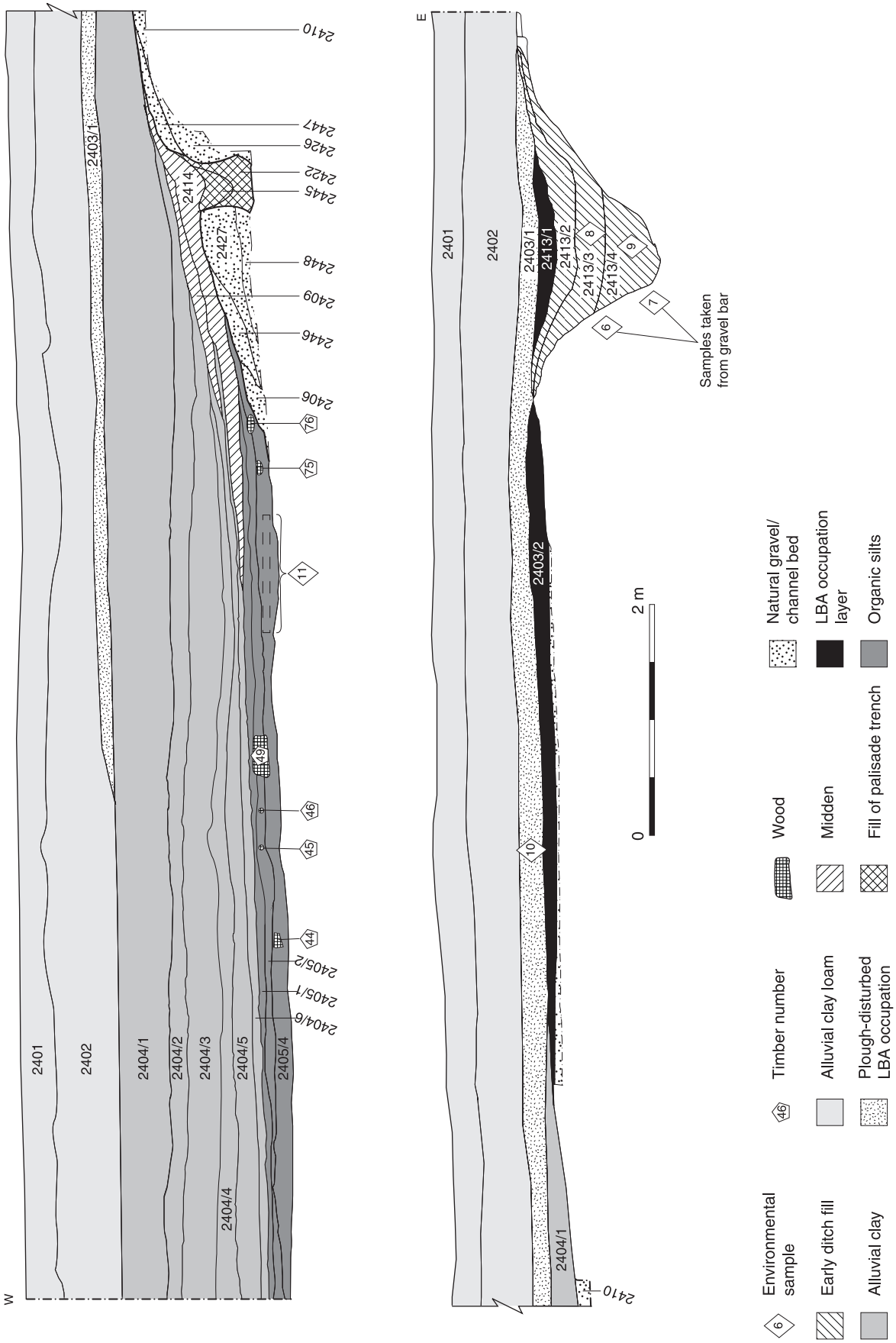


Figure 2.3 (and facing page) East–west section through the palaeochannel and late Bronze Age eyot in trench XXIV, showing location of environmental samples and waterlogged wood in section

Figure 2.4 Plan of trench XXIV with phased section

Plate 2.3 The south-facing section of the early ditch 2413 in trench XXIV, showing overlying plough-disturbed late Bronze Age occupation layer

Due to the restricted nature of this investigation it was deemed best to leave these timbers *in situ* as the structures may extend beyond the excavated area, so the exact length of the piles is not known. However, evidence from contemporary structures would suggest that they probably had axe-sharpened points and that they were somehow driven into the gravel of the underlying channel bed. Clear facets interpreted as sharpening of the points were observed on two of the piles (2429 wood sample 95; and 2431 wood sample 97). This does not prove anything about the length of the piles below the surface. From contemporary structures it is likely that the sharpened points were about 0.5 m long, but this is not certain to be the case as neither showed any sign of tapering, and the sharpening must have begun some way up the timber to bring it to a point. It is probable that the other piles were also sharpened in a similar way though no trace of this was observed above the surface.

Little is known of the original height of the piles above ground either, but one pile (2430 wood sample 96) was observed to have been shaped at its upper end (see Taylor *et al.*, Chapter 4). This suggested that this had been the full height of the pile and that another timber had fitted on to it at this level. The other piles were not well enough preserved to say whether the same was true for them also. The tops of two other timbers were recorded in the field as having been seen in layer 2428=2405/2 (ie 0.2 m above the surface), but it is unclear if this was merely the top of the pile as it survived rather than the original top. (These timbers were not sampled for analysis.)

All the piles were roughly circular, with diameters in the range 0.13–0.2 m. Of the four sampled (2429–31 and 2439; wood samples 95–8 respectively) all were *Quercus* (oak); two were observed to have 35 annual rings (97 and 98) and the others 30 rings (95 and 96). Three had been trimmed to remove the bark and some sapwood, while the other had been worked to form an elongated point. Broad bands of late wood growth were present in all four indicating that they were from fast-growing trees. As these included the piles of the largest diameters, it is likely that the others were of a similar age or slightly younger when felled. Together this would suggest that there was some degree of forest management to produce this amount of quickly grown, relatively regular timber for construction.

One group (2429–35) seemed to be in regularly spaced (*c* 1.7 m apart) pairs (from 1.6 m apart tapering to 1.2 m at the western end) to form possible Structure A. This extended at least 2.5 m west into the channel from 0.5 m out from the base of the sloping edge of the gravel eyot below the

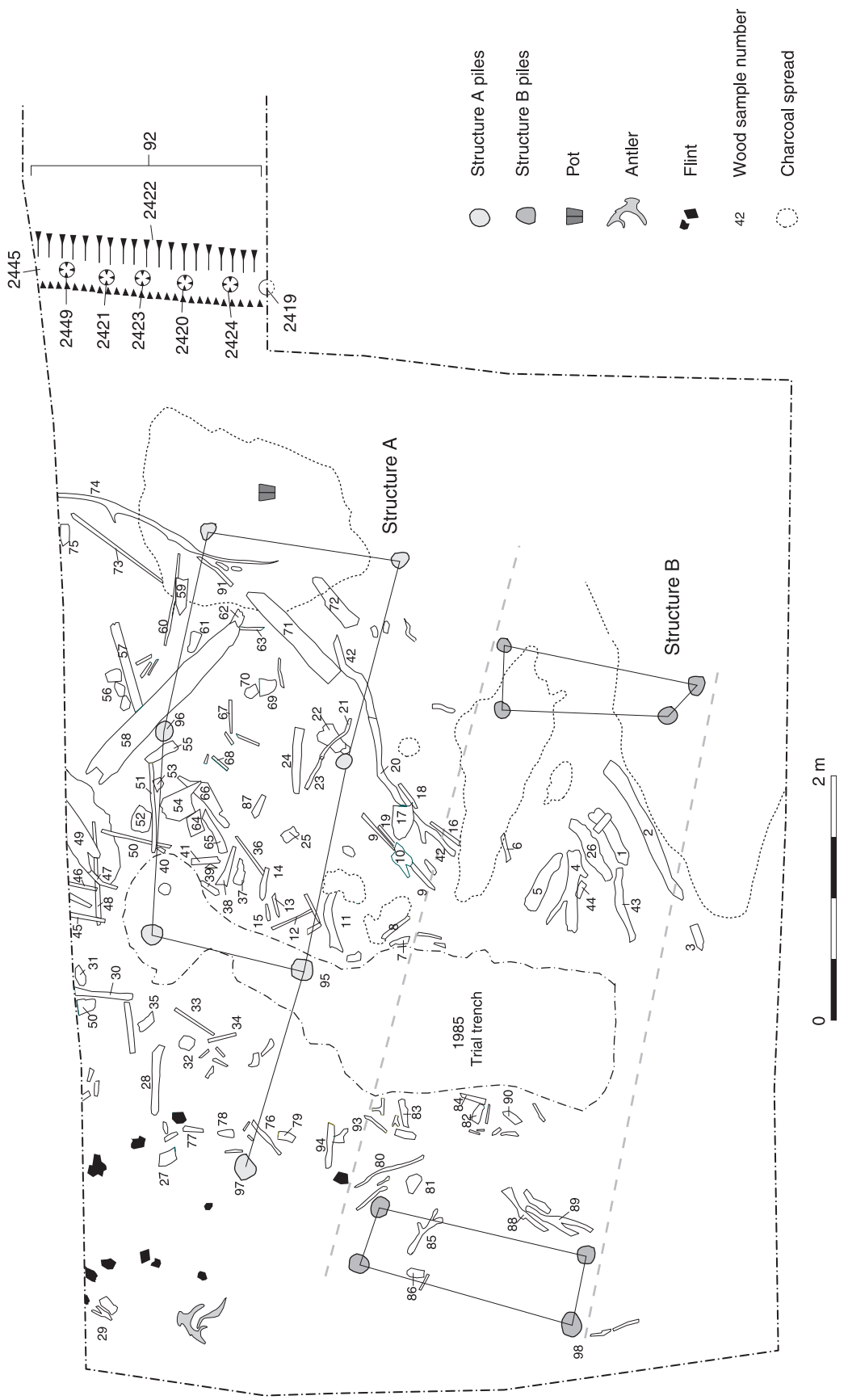


Figure 2.5 Detail plan of the palaeochannel in trench XXIV showing possible structures and special deposits

Table 2.1 Piles forming possible Structure A

Context	2435	2434	2430	2433	2432	2429	2431
Sample			96			95	97
Diameter (m)	0.14	0.15	0.17	0.15	0.17	0.17	0.2
Radiocarbon date							2736±45 BP (UB-33141)
Annual rings	-	-	30	-	-	30	35
Charred	N	Y	N	Y	N	N	N
Grid reference	153/507	151/507	153/509	151/509	153/511	151/511	153/513
Paired with	2434	2435	2433	2430	2429	2432	-

possible revetment or palisade (see Fig. 2.5). These piles are described in Table 2.1.

Another timber upright was found within this area (2440 grid ref. 153/511), but it was of slightly smaller diameter (0.14 m) and was inclined to the north-west. It was not sampled so it is uncertain if it was also of oak, but it was observed to have been heavily charred. It is not seen as having been part of the same structure as those described above unless in the capacity of a support to the nearby pile 2432 towards which it was roughly inclined. No other supports were observed, and no horizontal timbers were found *in situ.*

Pile 2432 was slightly out of the alignment formed by the other two piles (2435 and 2430) in the northern row of this structure. Pile 2440 may have been a support intended to compensate for the slight misalignment of pile 2432. If it is accepted that the alignment of the structure is that indicated by 2435 and 2430 – more closely parallel with those of the southern row – then this may explain why no pile was found to pair with 2431; it would have been located outside the excavated area. However, that no piles were found west of 2431 makes it impossible to say whether the structure continued further into the channel.

The other eight upright timber piles (2436–9 and 2441–4) may form another linear structure (B) projecting out to the west, into the channel, from the bank of the eyot *c* 1 m to the south of Structure A (see Fig. 2.5). These are grouped into two groups of four: 2441–4 1.2 m out from the base of the sloping edge of the eyot; 2436–9 some 4.2 m further west. These may be seen as being paired in the same way as in Structure A, but this is less certain. Again no horizontal timbers were found associated with these uprights. Almost all these piles seemed to have been charred but it is not clear if this occurred before use or after. It is possible that they were charred before use to help preserve them in the water as the variable water level within this channel would have tended to cause fairly rapid deterioration of any wood not continuously under water, but it is more likely to have resulted from destruction of the structure by fire. The idea of charring as a method of preserving wood has now been discredited.

The structural interpretation discussed above is only one of several possibilities: they form part of the same structure as A; they form two separate structures projecting from Structure A; they form linear structures parallel to the eyot rather than projecting out from it. Because of the limited area excavated as part of this evaluation it is not known whether or by how far these structures extend beyond the excavated area. It is very possible that they do as they were not known before excavations began and no other trenches were dug in the immediate vicinity.

The two radiocarbon determinations obtained for these structures are statistically indistinguishable and when taken together place the structures to within the period 1000–800 BC of the late Bronze Age (see Appendix 1).

Discussion of pile-built structures

At Whitecross Farm, not enough of the channel was dug to ascertain if the structure(s) continued across the whole width of the palaeochannel, and the full width of the palaeochannel is not known for certain. It would seem to have been fairly wide from the fact that the deposits within trench XXIII were still clearly palaeochannel fill, with no evidence of human activity such as was found nearer the bank of the eyot, in its lower fills. The structure was very narrow for a bridge, and would have been a foot bridge, if at all. If the piles did not significantly exceed the suggested height of 2430, it seems doubtful if the structure would have been much above the water level most of the time and possibly below during flood. It would seem unlikely that late Bronze Age society had the infrastructure to build and maintain such a structure over a major channel of the Thames as this seems to have been, and it is not clear why this would have been needed at a time when the main and easiest mode of transport would have been by boat. A more likely interpretation is that it was some sort of jetty, where boats could be brought in, and which would provide easier and safer access to the water than afforded by the, probably fairly marshy, bank of the eyot.

Several parallels for these structures have been identified in the Thames Valley. Further downriver, in the Middle Thames Valley, at the Eton Rowing Lake site, Dorney, Buckinghamshire, several crossings of the river have been identified comprising paired wooden uprights driven into the bed of a palaeochannel of the Thames (Allen and Welsh 1997, 32, fig. 10). These are thought to represent a

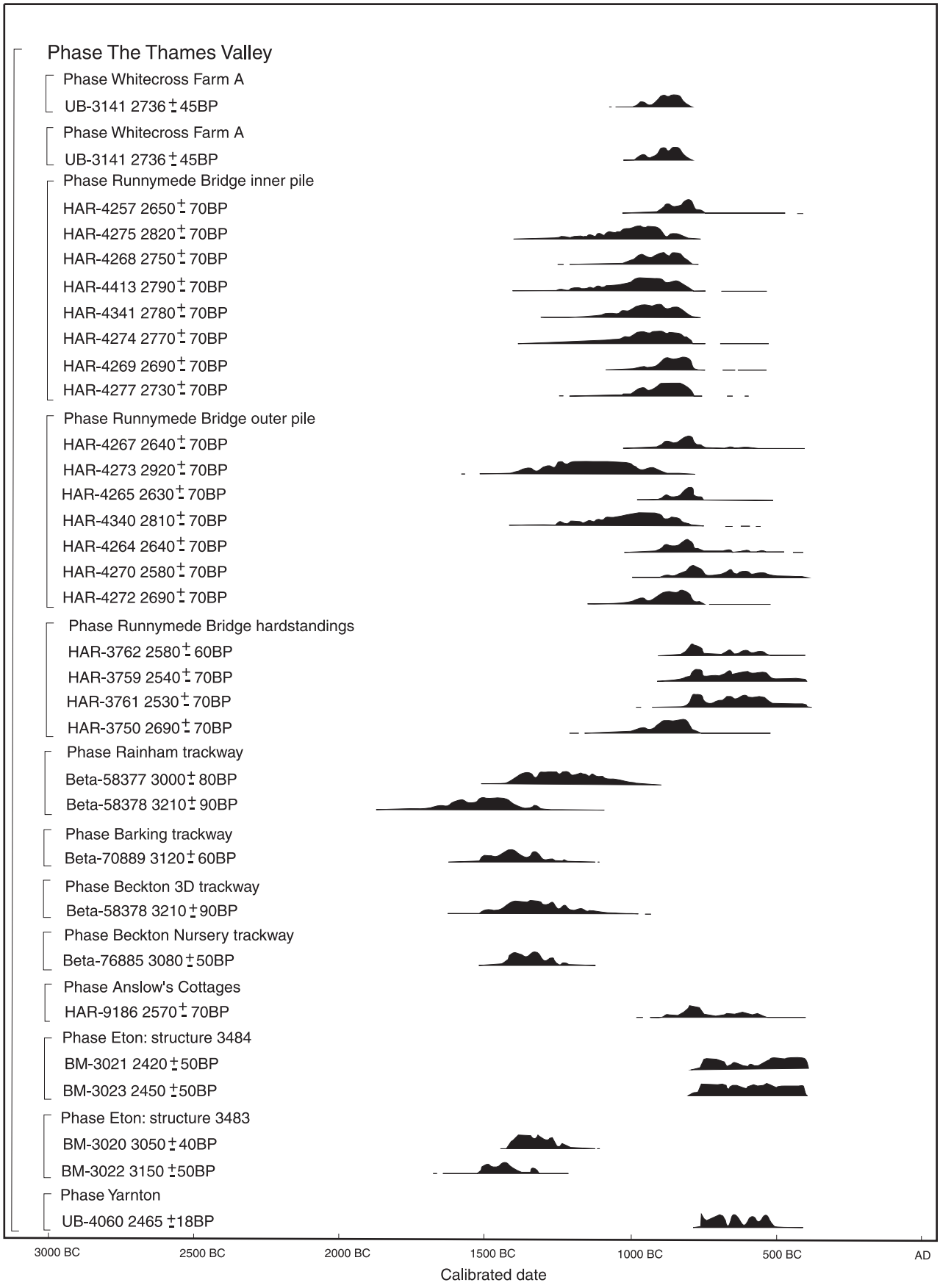


Figure 2.6 Radiocarbon determinations from Bronze Age timber waterfront sites in the Thames Valley

sequence of bridges or some form of river crossing, and dates have been obtained for two of these so far (Fig. 2.6). One bridge is thought to date to the middle Bronze Age (structure 3483) while the others appear to date to the early Iron Age (eg structure 3484, ibid., 33). The piles of the Bronze Age structure are larger than those recorded at Whitecross Farm while those of the later one are slighter. The widths of these structures are also greater than those recorded at Whitecross Farm, though the Iron Age one does narrow towards the middle of the channel. As such, these structures may not be the closest parallels for the Whitecross Farm structures.

Another possible river crossing of two parallel rows of upright timbers *c* 1 m apart has been found further upstream in the Thames Valley at Yarnton, Oxfordshire (Hey *et al*. 1993, 84–5, fig. 14; Hey in prep.). This structure is not of paired timbers as at Whitecross Farm and is judged not to have been substantial enough to support a bridge. The upright timbers are of smaller diameter than those at Whitecross Farm. It is thought it could have retained a brushwood trackway across the partially silted-up channel. Two radiocarbon dates have been obtained for wood from this structure which have placed it in the early Iron Age (770–410 cal BC), later than those at Whitecross Farm (see Fig. 2.6). This type of trackway has parallels further downstream around the river estuary (Meddens 1996). However, it seems unlikely that the structures at Whitecross Farm represent this type of trackway. Unlike the site at Yarnton the timbers are carefully paired and the nature of the channel is very different.

Perhaps the closest parallel for the Whitecross Farm Structure A is from outside the Thames Valley at Caldicot, Gwent in the Severn estuary (Nayling and Caseldine 1997). Here there are two parallel lines of paired substantial oak and, in two cases, ash piles at regular *c* 2 m intervals into or across a channel. These piles varied in diameter but were all in a range fairly similar to those at Whitecross Farm. A radiocarbon date of 2940±70 bp (CAR-1214) was obtained for one of these oak piles. Between and among these piles small stakes (0.02–0.08 m) of ash and hazel had been driven into the channel bed. Nothing parallel to these was found at Whitecross Farm but the spread of wood pieces in the surrounding fills has similarities with Whitecross Farm. A jetty structure or a bridge are the most favoured interpretations for this structure.

The palisade or revetment

Halfway up the sloping edge of the gravel eyot a slot (2422) was found cut into the natural deposits. This feature, some 0.3–0.4 m at its widest extent, 0.54 m deep, and extending across the full width of the 2 m trench in which it was located, was found to contain seven features (2419–21, 2423–4, 2445 and 2449) fairly evenly spaced *c* 0.3 m apart. These were roughly circular in plan and varying in diameter from 0.14 m to 0.3 m (though mostly around 0.15 m). On excavation they were mainly found to be voids within the silt clays that made up the fill of cut 2422 and extending to its full depth in most cases. One did contain a few wood fragments, which were not identified or kept, and 2445 (seen in section, Fig. 2.3, Pl. 2.4) was filled with silty clay similar to 2422/2. These features were interpreted as postpipes of posts which had decomposed *in situ* or had been removed by pulling them out.

These posts were sunk to a depth of only 0.54 m, suggesting a height above ground of only around a metre, assuming that there was a third of the length of the post in the ground to make it stable as an upright (although taller posts could have been braced). This would have brought them to only slightly above the height of the ground surface at the top of the slope into which the late Bronze Age features on the eyot are cut. It is uncertain how effective this would have been as a fence for keeping livestock in, or to keep out people arriving from the river.

The feature was observed only in trench XXIV, so it could not have extended very far to the south, as it was not observed in trench III, and does not seem to have been present at the north end of the eyot (in trench XVIII). It would seem that it was in some way connected with the structures in the palaeochannel and/or the adjacent late Bronze Age features on the eyot. Assuming it to be contemporary with Structure A in the palaeochannel it seems very unlikely to have been intended to impede access to the river at this point and does not seem to have been such that it could have seriously impeded access by intruders from the river; it cannot have been intended as a barrier. Its actual function is difficult to determine from this very short section.

A few parallels can be suggested from other sites within the Thames Valley which are roughly contemporary. Two rows of stakeholes were found along the edge of the gravel terrace at Eton Rowing Lake. These have so far not been dated, and need not be contemporary. These stakeholes have been interpreted as fences, perhaps like that found collapsed, but intact, from another part of that site. However, they do not provide very close parallels for the Whitecross Farm example, as these stakeholes are much smaller – only *c* 0.08–0.1 m in diameter.

A closer parallel may be the timber waterfronts at Runnymede Bridge further downriver (Needham 1991). Here two parallel rows of closely spaced piles were found along the edge of the gravel island. Four of these piles from each of the outer and inner rows have been dated and have yielded radiocarbon dates in a very similar range (generally 1200–700 cal BC, ibid., 346, table 64) to the piles from the structures within the palaeochannel at Whitecross Farm (see Fig. 2.6). The piles at Runnymede Bridge were sharpened at the points as is suggested for the piles that form these structures, and were driven much

deeper than those in the possible palisade at Whitecross Farm and did not appear to have been set in a post trench in the same way. Due to the depth the piles at Runnymede Bridge were driven, it was thought that they could have supported a fairly substantial superstructure forming some sort of platform or walkway (ibid.). A similar though less substantial structure may have been present at Whitecross Farm. Any timbers from such a structure would have disintegrated so it is not surprising that they were not found. There was no evidence observed for where any platform may have rested or been supported further up the slope, as possible posthole 2418, the nearest feature at the top of the slope of the eyot, is too far away to be part of the same structure.

At Anslow's Cottages, Burghfield (Butterworth and Lobb 1992) 10 or 11 vertical, pointed wooden stakes were found on the edge of a palaeochannel of the River Kennet, a tributary of the Thames. These were arranged in two parallel rows 0.5 m apart and with distances of 0.15–1.15 m between

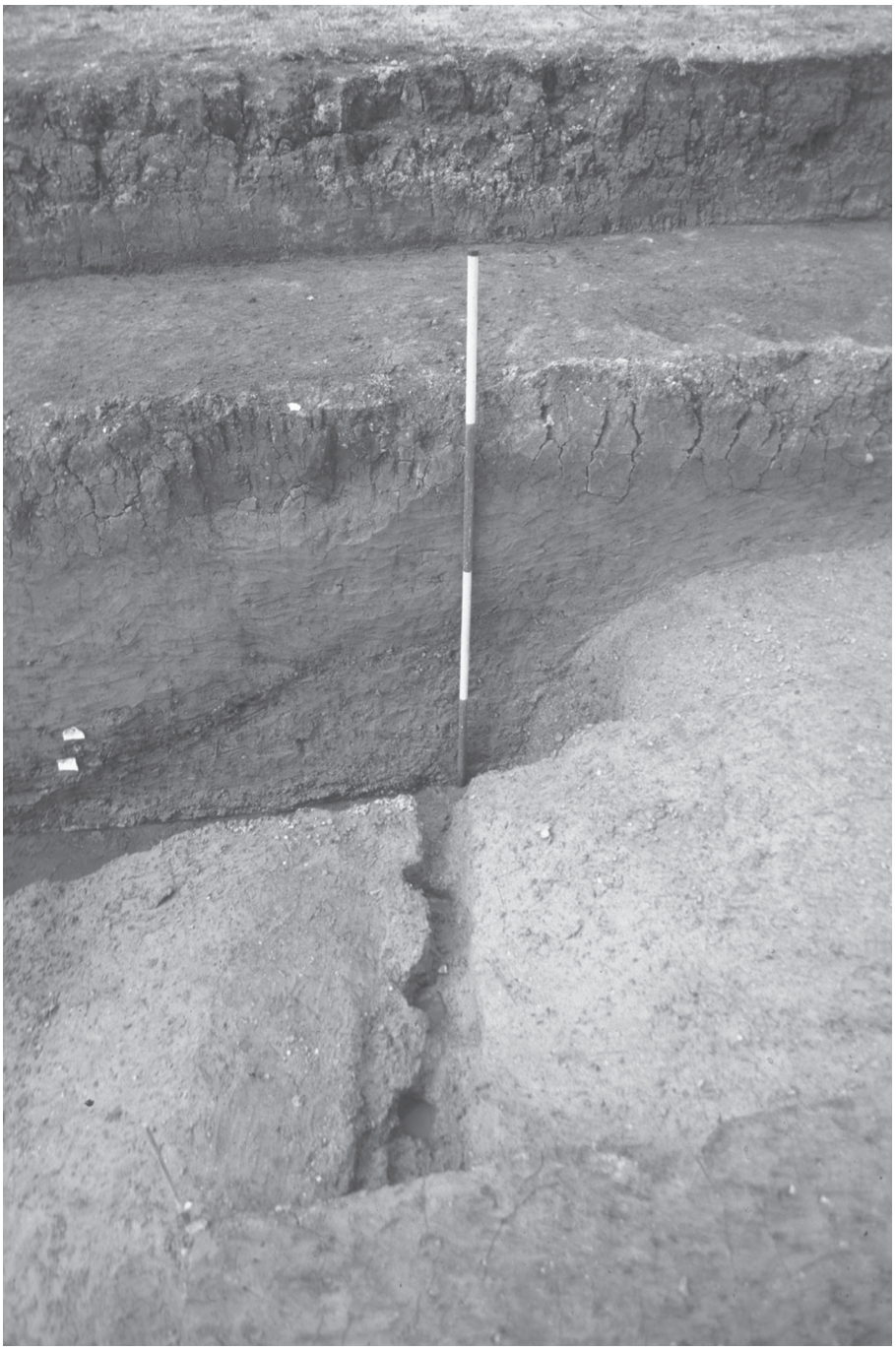


Plate 2.4 The palisade trench 2422 within trench XXIV, partially excavated with its profile sealed by the dark layer of the phase 5 midden clearly visible in the background

them. They were dated to 2570±70 BP (HAR-9186), only slightly later than the Whitecross Farm structures (see Fig. 2.6). These stakes were somewhat smaller in diameter than the Whitecross Farm postpipes and were merely driven into the gravel rather than set in a trench. Some horizontal timbers were found between and near the stakes though not attached to them. This structure was interpreted as a landing stage, or possibly a revetment to prevent erosion. An alignment of close-set postholes was also found 2 m back from this structure. The usual distance between these postholes (0.2–0.4 m) was very similar to that between the postpipes at Whitecross Farm, and the diameter of the postholes (0.25–0.35 m) does not necessarily indicate that the posts were much bigger than the posts set within the post trench at Whitecross Farm. This arrangement of a landing point on the river backed by a line of close-set posts may be the closest parallel to the features at Whitecross Farm though it is not entirely clear what the function of this line of upright posts was in either case, or, in fact, if they were contemporary with the other features.

The suggestion that the waterfront structure at Anslow's Cottages may have been some form of revetment may hold true for the post alignment at Whitecross Farm, but there is little evidence to suggest a very erosive environment at this section of the bank. Indeed there is some indication from the environmental evidence (see Robinson, Chapter 4) that the water near the bank was relatively shallow and slow moving though the channel was active all year round and did contain species indicative of faster-flowing water further out. There is no marked discontinuity in the sediment sequence to indicate any period of significant erosion. Thus a revetment to prevent erosion does not seem very plausible.

TIMBER DEPOSIT AND REMOVAL OF THE PALISADE: PHASE 4

The next phase of this site is represented by the build-up of organic silts on the active channel deposits (2406) in the base of the palaeochannel, with a large deposit of timber in the channel around the timber Structures A and B and the probable removal of the palisade/revetment structure (Pl. 2.5). It is a phase of renewed activity on and around the eyot as the channel begins to silt up.

The active channel-bed deposit was overlain by a fairly thick deposit (2405) of waterlogged organic silts which also contained much wood, lenses of dense charcoal, peaty deposits and snail-rich deposits. The wood included split beams/planks and smaller branches and twigs. Much of this was charred, and some were worked (mainly from 2405/2). This is discussed below (see also Taylor *et al.*, Chapter 4). Radiocarbon dates have been obtained from two pieces of this wood and were found statistically not to be significantly different in date from the wood from the structures (see Appendix 1). This has given late Bronze Age dates for the wood which roughly tie in with the dates from the finds. Finds from this deposit were not kept by layer but included flint nodules, some of which were burnt, as well as daub, late Bronze Age pottery sherds, shell and animal bone, including one fragment of burnt bone. The 179 pieces of animal bone included cattle, pig, sheep, one piece of red deer antler and a possible wild boar canine (see Chapters 3 and 4, and Figs 2.4–5).

Though the finds were not recorded by layer the whole deposit was separated into several layers: 2405/5 consisted of very dense charcoal mainly underlying 2405/2, but also sometimes interstratified with it and with 2405/4; 2405/4 was a dark grey-brown organic silt with wood fragments beneath 2405/2, mainly in the eastern part of the trench but probably also beneath 2405/3 which was not fully excavated; 2405/3 consisted of dark grey sand and silt with very dense snail shells, up to 0.15 m at the western end of the trench; it interfluved with 2405/2, which was a dark grey-brown organic silt with peaty lenses and much wood; and 2405/1 was brown organic silt with occasional wood and charcoal flecks. Within this a yellow-grey gravel lens was recorded between 2405/1 and 2405/4 (the relationship with 2405/2 was not clear and it may be that it represented part of this layer). Two of the wooden piles which make up Structure B (2442 and 2443) were found within 2405/2 and another (2444) was found within 2428. It was not clear if these originally protruded through 2405/1. They may have done so, but this was not recognised when this layer was dug. It is possible that the soft sediments which make up this layer slumped down into the voids left by rotting of these timbers.

Similar deposits were found in the other trenches cutting the eyot's western edge. In trench III, which in part cut across the area later to be excavated as trench XXIV, a deposit of dark grey sandy gravel with some silt (306) overlay the layer of yellow sandy silt mottled with brown and grey, 310, which can be correlated with 2406. Layer 306 was in turn overlain by one of organic silt, 305, described as dark grey sandy silt with abundant charcoal, wood (some with cut marks), shell and bone. These layers clearly correspond to 2405. In the trenches to the south (II and I) similar sequences of deposits including organic layers were also recorded (204–6 and 105–7) with several finds of stone, flint, shell, animal bone and charcoal together with some rotten wood in 105. This wood deposit was not on the same scale as that found in trench XXIV.

In the trenches further away from the eyot such as XXII there was a dark grey silty sandy clay layer (2208) containing very abundant molluscan fragments, bone and burnt flint, which is correlated with 2405 though lacking the wood found nearer the shore of the eyot.

The wood deposit

Within the lowest fill of the palaeochannel (2405) was a fairly large deposit of wood (Figs 2.5 and 2.7–9). This did not form any discernible structure. Much of it was sampled for analysis as to species identification and for signs of woodworking (see Figs 2.8–9). It was found to contain a number of species including oak, hazel, alder, ash, blackthorn, wild cherry and a group containing hawthorn, apple, whitebeam and mountain ash (see Fig. 2.8). Oak and hazel were the most numerous of these species. They were also the largest component among the worked wood and the charred pieces. The other species occurred mostly as driftwood or were not charred. The tool marks recorded on several pieces of this wood suggest the use of late Bronze Age socketed axes (see Taylor *et al*., Chapter 4). This accords well with

Plate 2.5 Trench XXIV, as excavated, looking east towards the modern river channel over the gravel eyot from the early palaeochannel. The large flint hearthstones deposited from the end of the jetty, wood deposit and timber uprights that make up the jetty structures can be seen on the palaeochannel bed in the foreground

Figure 2.7 Detail plan of the palaeochannel in trench XXIV showing charred timbers present in the wood deposit

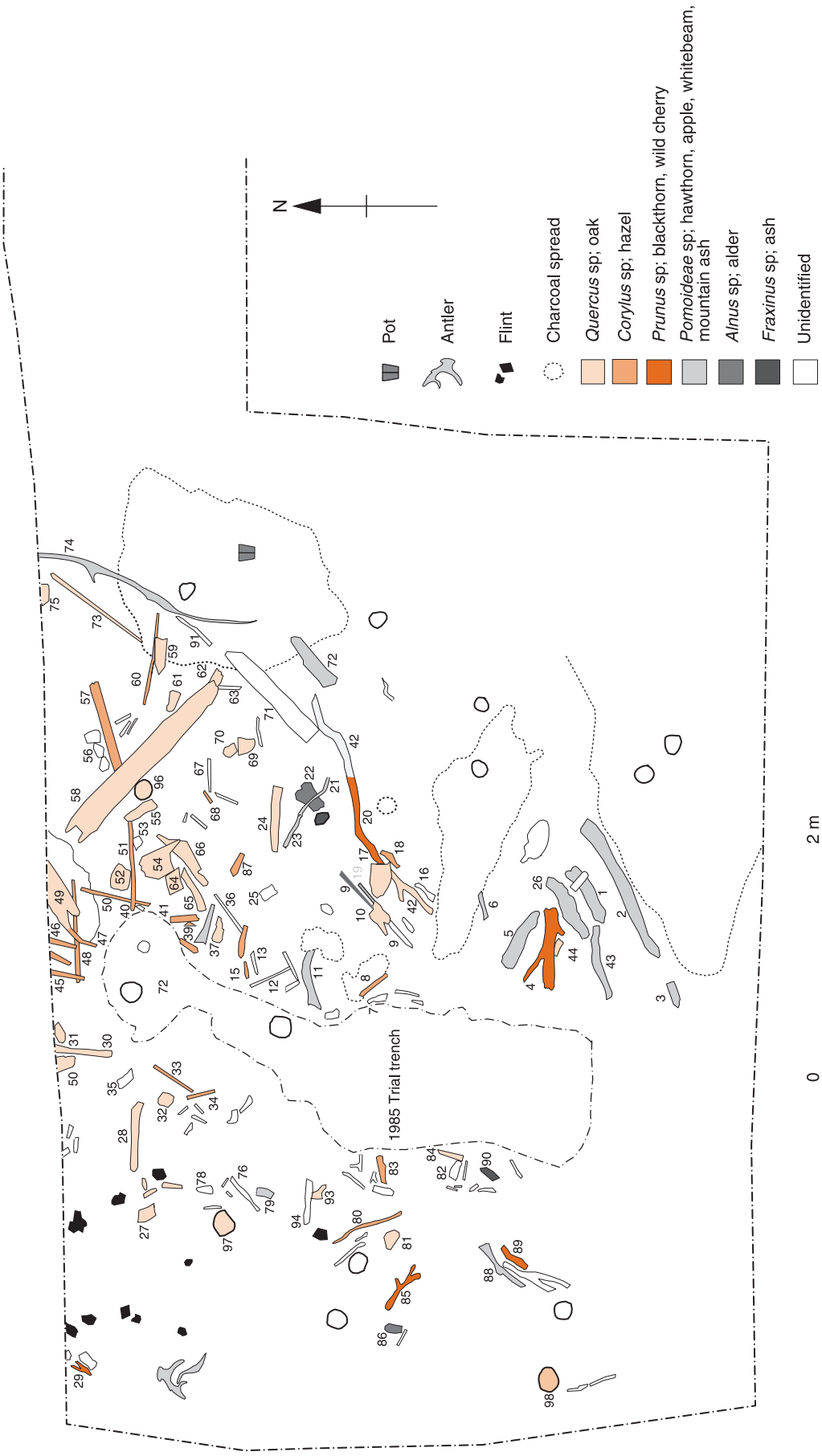


Figure 2.8 Detail plan of the palaeochannel in trench XXIV showing the wood species present in the wood deposit

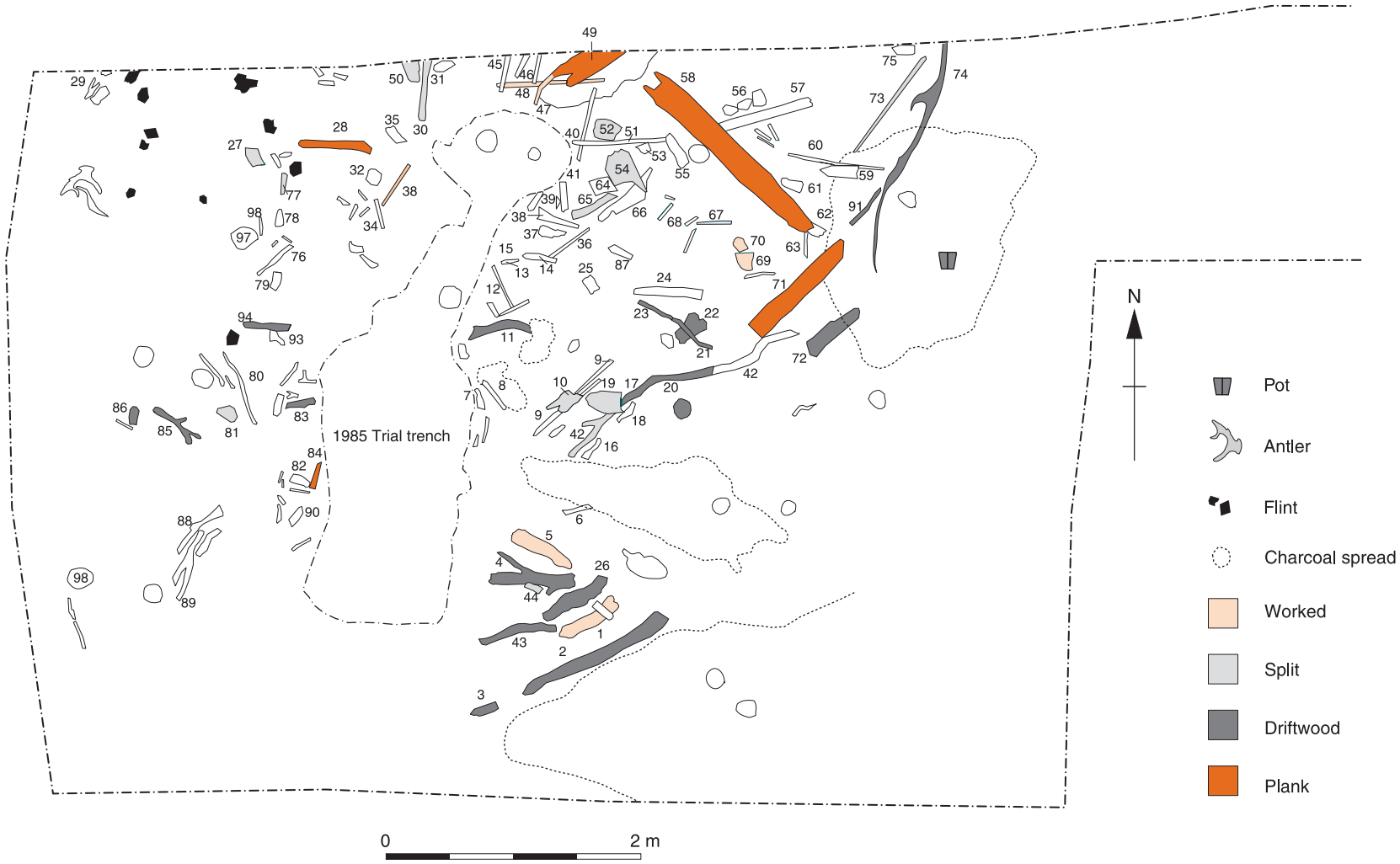


Figure 2.9 Detail plan of the palaeochannel in trench XXIV showing worked and driftwood among the wood deposit

the two radiocarbon determinations obtained for this deposit of between 1000–800 BC (see Appendix 1).

Figure 2.8 shows the distribution of species, while Figures 2.7 and 2.9 show the distribution of charred and worked pieces. From this it would seem that most of the oak occurred in the area around and just upstream of Structure A. The few pieces of oak away from this group have largely been identified as offcuts rather than structural timbers (see Taylor *et al.*, Chapter 4). Most of the hazel rods occur in this area too. Several of these were worked, and many of them were charred. The driftwood by contrast cannot be said to be concentrated in any particular area, though it made up a large proportion of the wood towards the southern side of the excavated area downstream from Structure A.

The quantity of worked pieces among this deposit, but the fact that no woodchips, indicating woodworking, were recovered, suggest that the debris is from a nearby structure, or possibly dismantled material being reused or discarded here. These large oak timbers and hazel rods may have formed a superstructure to Structure A, but it is more probable that they came from a structure located nearby on the island. The quantity of charred pieces may suggest that the structure was burnt and dismantled and then discarded into the stream. That they occur upstream of Structure B suggests that they could not have fallen into the stream from there. The spreads of charcoal possibly representing disintegrated charred wood occur to the east of Structure A, between Structures A and B and among the piles of Structure B, making this last suggestion less certain as such disintegrated material could not have been transported without dispersal and must have been deposited more or less where they were observed.

Among the wood scattered in the area of Structure A, a split oak plank was found adjacent to pile 2430. This plank (wood sample 58, see Figs 2.4, 4.7.4, Pl. 2.6) had a square notch in one end and from this notch it measured 1.68 m long. This corresponds to the distance between the centres of piles 2430 and 2435 or 2432. This may be purely coincidental, but it may very well be part of the structure. Some charring was observed on this plank; the other end may have originally been similarly notched, but this did not survive. Another similar timber nearby (71) had been burnt so severely that only charcoal remained and it could not be lifted or identified as to species. A third (49) was only seen projecting from the northern baulk nearby, but was also of oak and may have been of a similar length.

Plate 2.6 Detail of part of the wood deposit, showing worked planks, wood samples 58 and 49, split oaks 52 and 54, hazel rods 40 and 50–1, and timber upright 96 with notched end

Removal of the palisade

There is little direct evidence for the removal of the palisade, or whatever structure the series of postpipes within slot 2422 relate to, but this seems very likely. Very little wood was found within these postpipes despite the fact that they extended to a similar level to that in which the wooden piles and wood deposit were preserved within the palaeochannel close by. There was no cut to suggest that the posts had been dug up, but they could have been pulled out to leave the postpipes that were observed. The surrounding packing, 2422/2, was observed to have slumped inwards to partially fill these watery voids. A depression was left at the tops of these voids which was filled by the later midden deposits (2422/1), rather than this having slumped in as the posts decayed *in situ*, as was initially thought.

MIDDEN AND OCCUPATION: PHASE 5

After the phase of disuse and destruction of the waterfront structures on the eyot, there was a phase of occupation and deposition of midden material into the edge of the silting palaeochannel. It is not certain if the midden is contemporary with the occupation, or if the features are all contemporary.

The midden

Overlying the remains of the palisade structure and extending down the slope of the eyot and out across the palaeochannel for some 2–3 m – sealing the waterfront structures and the organic silt layer (2405) which incorporates the wood deposit – was a layer (2414) of mid dark grey sandy clay with large red-brown mottles, some gravel and abundant large charcoal flecks, flint (Fig. 3.4.1), shell, animal bone, late Bronze Age pottery (see Fig. 3.11) and a copper-alloy pin (Fig. 3.1.1). The estimated 340 pieces of bone included cattle, pig, sheep and some duck. It may be that the deposit represents material eroded from the eyot but this is judged to be unlikely due to the high proportion of charcoal and domestic refuse. It is thought more likely that it represents rubbish dumped in the edge of the channel. This implies that late Bronze Age activity continued after the revetment and waterfront structure(s) went out of use.

Above this wet layer of midden material was a layer (2409) of pale grey-brown sandy clay mottled with red-brown and with a sandy lens at the bottom. This was situated at the interface of the upper channel fill and the slope of the eyot. This deposit yielded flint, stone, charcoal, shell, animal bone and late Bronze Age pottery sherds. The 91 pieces of animal bone included a similar mix of cattle, pig, sheep and red deer, represented by antler, but with the addition of goat and horse. This would also appear to be deliberately dumped midden material, and is likely to be part of the same feature, as the mix of material is similar and joining sherds were found from the two contexts (see Barclay, Chapter 3). The lower layer merely appeared darker due to waterlogging.

The occupation deposits

In the eastern part of trench XXIV through the gravel eyot, the natural (2410) was overlain by loam (2403) which contained occupation deposits. This loam was divided into two layers. The lower layer (2403/2) consisted of yellow-grey slightly sandy silt which merged with 2410 below. This layer may constitute the original soil surface of the eyot, derived from 2410 (the presence of some late Bronze Age material within this layer may be due to worm sorting, but no clear horizon of worm-sorted material was observed at its base). Most of the archaeological features cut this layer, with the exception of the earliest feature, ditch 2413 (described above). Though layer 2403/2 was not recorded as extending across this feature, the similarities between its top fill, 2413/1, and 2403/2 suggest that the soil does in fact continue across this early ditch.

Cut into this final fill of 2413 were two postholes, 2411 and 2415 (see Fig. 2.4). The first of these was situated towards the north-east corner of the trench on the eastern side of ditch 2413. It appeared as a dark stain 0.15 m in diameter within fill 2413/1. This feature yielded flint, daub and late Bronze Age pottery. The second posthole was larger (0.26 m in diameter and 0.16 m deep), and was located at the southern side of the trench. It was filled by dark grey-brown clay loam with occasional gravel and small charcoal flecks. This fill yielded flint, shell and animal bone. The late Bronze Age date of the former of these features indicates that ditch 2413 is of late Bronze Age or earlier date.

Three other postholes (2416, 2417 and 2418) were identified in this trench towards the slope down to the palaeochannel and cutting 2403/2 (see Fig. 2.4). Feature 2416 was the truncated base of an oval posthole (0.32 m x 0.22 m orientated WSW–ENE) with many rounded cobbles packed into the bottom. One, possibly utilised, flint was also recovered from this feature. A second feature, 2417, *c* 0.2 m to the west of 2416, was also oval with its long axis 0.3 m, filled by very grey sandy silt and packed with pebbles. The third posthole in this group, 2418, was circular with a diameter of 0.38 m and filled by friable light brown-grey clay loam with some grit and gravel. Flint, animal bone and late Bronze Age pottery were recovered from this feature.

A little to the east of these postholes was a small slightly oval pit or large posthole (2412; maximum diameter 0.56 m). The fill of this feature was grey-brown clay with patches of orange sand and stones protruding up into 2403/1 (it is unclear if this was cut into layer 2403/1 and intruding into 2403/2, or merely into 2403/2). The fill of this feature produced some animal bone, but no datable finds.

Overlying all these features (with the possible exception of 2412) and extending over 2404, at least

as far as 2422, was a layer (2403/1) of gritty grey-brown sandy loam with some gravel. This layer produced flint, stone artefacts, daub, shell, animal bone, late Bronze Age pottery and a piece of copper corrosion, and is interpreted as an occupation layer that has been disturbed by ploughing (see phase 7, below). This was sealed by the alluvial layer 2402 that covered the whole area. This layer produced a piece of metalworking waste (see Northover, Chapter 3).

Another posthole was located in trench XVIII to the north. The feature, 1805, was *c* 0.23 m in diameter and 0.25 m deep; it was cut into the sandy clay natural (1804). It was filled with dark grey sandy clay with charcoal flecks and red-brown mottles. This was overlain by a layer (1803/1) of dark grey loam with charcoal and lenses of yellow-brown clay loam. This produced finds of animal bone and late Bronze Age pottery and corresponds to the occupation layer 2403/1 in trench XXIV.

Fairly similar sequences were recorded from the other trenches on the eyot. Going south along the eyot, trenches III, II and I all contained a layer of gritty grey-brown loam with some gravel, charcoal flecks and iron pan nodules. This material yielded finds of flint, stone artefacts, daub, shell, animal bone and late Bronze Age pottery. A dark translucent green glass bead was also recovered from layer 103 (see Fig. 3.3, Pl. 3.2). No features on the gravel eyot were recorded in any of these trenches; 303 occupied a hollow in the underlying deposit 309, but this was judged to be a natural feature rather than an archaeological one.

On the eastern side of the eyot, in trench XXVI a possible posthole (2606) was identified cutting the alluvium below and possibly the bottom spit of the occupation layer (2605). The posthole was *c* 0.3 m in diameter and 0.15 m deep with a U-shaped profile. Its fill was very similar to 2605 though slightly darker. Layer 2605 comprised mid dark grey-brown clay loam with shell; it produced some pottery, animal bone, flint and worked stone, and clearly corresponds to 2403/1 on the western side of the eyot. Similar deposits, though no features, were recorded in the other two trenches on the riverside of the eyot (contexts 2505 and 2705). This corresponds to layer 4 seen in the eroding riverbank section recorded by the OAU in 1985.

SILTING OF THE CHANNEL: PHASE 6

Another layer of alluvium or channel fill sealed the midden deposits on the western side of the eyot and can be compared to a layer visible in the eroded riverbank section on the eastern side. This layer consisted of pale brown-grey silty or sandy clay mottled with yellow and orange iron-staining, becoming bluer with a higher proportion of clay with depth (107, 204, 304, 1704, 1804 and 2404). This material had certain similarities with layer 3 in the north end of the riverbank section. This layer was very similar to the deposits found near the base of the palaeochannel, where brown-grey mottled yellow silty sand to sandy clay (5, 104, 207 and 309) overlay the pale grey-brown silty sand and fine gravel that formed the natural in the bed of the channel (310, 403 and 2406).

Within the main trench, XXIV, this layer was broken down into a series of alluvial deposits: 2404/6 (immediately overlying 2405) consisted of light blue-grey clay silt with fine sand lenses and containing snail shells; 2404/5, above this, was similar material without the lenses; 2404/4 was light grey-brown sandy clay mottled with iron pan and merging with 2404/3 above; 2404/3 consisted of light brown-yellow coarser sandy clay with a higher sand content and more snail shells; 2404/2 was similar to 2404/4; 2404/1, the uppermost of these layers, consisted of grey-brown silty clay mottled with orange iron pan. This was overlain by 2403/1 along the eastern edge and sealed by the alluvial layer 2402 which overlaid the whole site.

PLOUGHING: PHASE 7

It is suggested that an episode of ploughing disturbed the occupation spread 2403. This layer (2403/1) extended horizontally across the eyot and over the channel silt deposits (see Fig. 2.3). It is likely that the occupation layer 2403/2 was disturbed and truncated by this activity. On the eyot, finds from the underlying occupation layer had become mixed into the ploughsoil.

Plough disturbance was recorded in the upper layers of the occupation horizon in trenches XVIII, XXV, XXVI and XXVII, together with the riverbank section (1803, 2403/1, 2504, 2604, 2704 and 2). It was not recorded in the trenches and test pits further south on the eyot but this may be because it was not distinguished from the main occupation layer. It does, however, represent a later phase from the evidence recorded in trench XXIV and the riverbank section. In trench XXIV, the plough-disturbed horizon 2403/1, described as gritty brown sandy loam with some gravel and iron pan nodules, extended out to the west over the phase 6 alluvial deposits, while the earlier loam layer 2403/2 did not extend beyond the eyot. Though both 2403/1 and /2 were recorded as fading indeterminately into alluvial deposit 2404, it seems likely that the latter precedes phase 6, as this alluvial phase seals the midden which is thought to be contemporary with occupation on the eyot, while the former is later. In the riverside section (see Fig. 2.2) layer 2, described as dark grey clay turning to sandy silt with some gravel, may relate to this phase of ploughing and clearly overlies alluvial layer 3 at the riverward side, merging with occupation layer 4 to the west and south.

In the former palaeochannel, evidence of this phase is less clear and it may not in fact have extended far beyond the limits of the former eyot as the ground in the area of the former palaeochannel may still have been too wet for ploughing.

However, at 0.9 m below the surface in trench XX, a stony horizon (2004) was recorded. This may have related to ploughing.

One sherd of flint-tempered pottery was recovered from this layer, while layer 2504 produced a small amount of pottery and bone. Similarly, pottery, animal bone and flint were recovered from 2403/1. It is difficult to date this phase of activity as the finds are likely to be residual.

ALLUVIUM AND TOPSOIL: PHASES 8 AND 9

Alluvium: phase 8

A layer of yellow-brown silt or clay loam, which has been interpreted as alluvium, could be traced through all trenches (102, 202, 302, 402, 1702, 1802, ?1806, 2202, 2402, 2503, 2603 and 2703). Layer 2402 yielded several finds of flint, daub, stone, shell, animal bone and prehistoric pottery, including a flint scraper, several possible quernstone fragments, copper-alloy slag and waste, and an iron horseshoe. It is difficult to date this layer; it may be Iron Age or later.

Topsoil: phase 9

A layer of dark grey-brown, humus-rich, loam topsoil (1, 101, 201, 301, 401, 1701, 1801, 2201, 2401, 2502, 2602 and 2702) overlies the whole area.

DISCUSSION

by Anne Marie Cromarty and Alistair Barclay

Why settle on an eyot?

A small narrow eyot within a river appears to be an unlikely choice for settlement, offering very limited space and resources for occupation and agriculture. In some respects the river would have been an obstacle for movement, the land would have been prone to flooding, especially during the winter, and insects would have been a problem during the summer months. However, such sites also had advantages. The river provided a means of transport and links to other areas. The eyot would have been a naturally safe and exclusive place encircled by the river, which would have restricted access and allowed any access to be monitored and controlled, though the size of the eyot would have restricted the size of the settlement or population that could have occupied it.

There is little evidence for the use of eyots in general, of which there are a considerable number in the Thames, until the late Bronze Age when several eyots are known to have been occupied by high-status sites, for example Runnymede (Needham 1991) and Bray (Wymer 1960). The choice of eyots for such sites would have been linked to the river for the reasons outlined above, but more important was the ritual use of the river during this period. Many votive deposits were made in the river at this time, including fine bronze metalwork of the kind found a little way upstream from the Whitecross Farm eyot at Wallingford, and human remains, particularly skulls (Bradley and Gordon 1988).

Early use of the eyot

Little evidence for early use of the eyot has emerged from these and earlier excavations on the site. The environmental evidence suggests that the eyot was Neolithic or more recent in origin (see Robinson, Chapter 4). The earliest artefacts on the eyot are nine pieces of worked flint of Neolithic or early Bronze Age character, although most were residual within later deposits. Only one feature can be attributed to this phase – a ditch or pit, the fills of which produced only one piece of probable Neolithic flint. This limited evidence suggests that some use was made of the eyot prior to the late Bronze Age occupation when dry open conditions prevailed, though activity was probably at a fairly low density.

The single flint was the only dating evidence for the pre-late Bronze Age ditch. The ditch had almost fully silted up before the postholes were cut into it, suggesting that a considerable length of time separated the features. The limited area excavated means that little is known of the form of the ditch, other than its profile in this short section. It is not known if, or how, the feature extends beyond the area investigated. It is possible that the feature is not a ditch, merely a pit, but assuming it is indeed a linear feature it seems unlikely that it would have functioned as a field boundary, given its apparent orientation down the long axis of the eyot as known today.

Given that the riverbank eroded significantly during the 20th century alone, it seems likely that the eyot would have been wider in antiquity, but it is not clear how far it originally extended to the east. Exploration of the modern river channel revealed a step in the bed which could indicate an earlier alignment of the riverbank. This was roughly in line with the eastern edge of the 1985 section. This section shows the occupation layer sloping down towards the river, suggesting both that the site was indeed on an eyot with the modern river channel open at this time, and that the available area did not extend much beyond this. Finds of three complete Mortlake Ware bowls and a stone axe from the present river at the end of Grim's Ditch opposite the eyot (Holgate 1988a, 283, 304) provide evidence that the present channel was open at this time.

It seems more likely that the ditch forms part of some kind of enclosure or boundary, the nature or exact location of which is uncertain. It could have formed the western boundary of an enclosure that extended to the east of trench XXIV, or the eastern boundary of an enclosure that was formed with the channel bank. The possible palisade trench at the bank of the channel, included tentatively in the next

phase here, may have been associated with this enclosure as no dating evidence was retrieved from it and the feature could not be related with any other stratigraphically, except in that it was sealed by late Bronze Age midden deposits. Timber revetments or palisades are known from earlier Neolithic contexts, where they are often associated with mortuary structures. Alternatively, a number of late Neolithic timber structures and palisades are known (Kinnes 1992; Whittle 1997).

If the ditch does not belong to an early late Bronze Age phase, it would seem likely that it could be of Neolithic date, and it may be that these two features – the ditch and the timber structure – represent a mortuary enclosure with some sort of wattle screen associated with it. This would fit with the low level of activity indicated by the low proportion of early flints within the fairly sizeable assemblage from the site overall. This may only have been of local significance, relating to the Neolithic settlement on the eastern bank of the river suggested by other excavations as part of the bypass project (see Chapter 5). This interpretation of the early activity on the site, and this feature in particular, is tentative, as not enough evidence was recovered from the excavations for any more definite conclusions to be drawn.

Late Bronze Age use of the eyot

The main body of the archaeological evidence recovered by these excavations dates from the late Bronze Age. This evidence is mainly composed of a group of timber uprights, and a spread of artefacts within a layer of organic loam continuing as a midden into the waterlogged organic-rich silt layer with preserved wood within the palaeochannel. These deposits were sealed by alluvium, forming a fairly closed deposit with some later plough disturbance. There is little evidence for Iron Age and later activity on the eyot.

Dating of this activity to the late Bronze Age is fairly secure, based on an agreement of alluvium-sealed, artefact-rich stratified deposits and radiocarbon determinations. A few distinct phases of activity are evident, but these all may have occurred within a fairly short period of time, approximately 900–700 cal BC. The structures within the channel represented by the timber uprights would appear to have gone out of use before a substantial deposit of wood was dumped in the channel at this point. The timing of these events could not be separated by the radiocarbon dates obtained on the two samples from each phase, although it is likely to have happened sometime before 830 cal BC. The deposition of the wood was succeeded by the accumulation of midden material in the edge of the channel at a time when it was still open. How this sequence relates to the occupation layer on the eyot is not clear from the observed stratigraphy, but the pottery indicates that it is broadly contemporary, at least in part, with the midden. Some of the observed features and occupation layer may relate to the earlier phases in this period.

A few pits or postholes were found cut into the gravel of the eyot. These are dated to the late Bronze Age period, but little could be determined of their relationship or function from the very small trenches and test pits that were excavated. They are likely to have been associated with buildings. A large enough area was opened in trench XXIV, around the timber uprights, to suggest that these formed some sort of jetty or landing stage, which would have allowed access between the eyot and the river on the eyot's central west side. This structure is such that it suggests that this access was important, at least for a limited period, and important enough to merit the expenditure of a significant amount of time to construct and probably involved specially managed oak woodland to produce the wood for the structure. Why this access was needed is less clear. The finds recovered from the midden and occupation layer provide most of what is known about the activity on the site during this period.

The evidence for habitation on the eyot

Although no structures could be reconstructed as dwellings, examination of the artefacts and environmental evidence provides clear indications of habitation on the site. The wood deposit found within channel fill 2405 is largely made up of structural timbers. These are likely to come from a nearby structure which was accidentally or deliberately destroyed by fire. This may or may not have been associated with the pits or postholes found on the eyot nearby, but the finds and environmental remains indicate human activity and settlement.

The presence of small quantities of daub among the finds suggests that there were at least some structures, probably ovens, on the eyot, possibly representing a settlement. Other evidence for settlement on the eyot includes hearths and the quantities of potboilers recovered from the margins of the eyot. A deposit of large, burnt flint nodules was found in the channel at the end of jetty Structure A, in trench XXIV (see Fig. 2.5). These have been interpreted as hearthstones. Small to moderate quantities of charcoal were spread throughout the occupation layer, and a single feature filled with frequent charcoal fragments was found in Collins' trench D (Thomas *et al.* 1986) close to the northern end of the recent trench XXV. Wilson (1986, 194) suggests on the basis of the bone assemblage from the earlier excavations, including that by Collins, that the bones had accumulated within *c* 20 m of a hearth.

Weeds indicative of nitrogen-rich disturbed ground, such as occurs around settlements, were identified from the eyot. In the later samples from waterlogged layer 2405 a higher percentage of certain terrestrial Coleoptera which feed on foul organic matter were found than would be expected

independently of human activity. These samples also contained high numbers of beetles which favour manure. Puparia of the housefly and beetles favouring old damp hay, thatch and stable litter were also present, together with other species to suggest that domestic and agricultural refuse, crop-processing waste and manure were being dumped on the channel bank. The insects present suggest that though the refuse being dumped was of the sort which accumulates around settlement, it was not accumulating within buildings. The buildings are likely to have been a little removed from this dump of material, to the north or the south of the eyot (see Robinson, Chapter 4).

The environmental evidence also suggests that the vegetation of the eyot consisted of short turf with trampled patches. The extent of trample is unlikely to occur merely as a result of refuse being brought from the surrounding area to be dumped on the edge of the eyot. The eyot was obviously used fairly intensively for settlement, with animals possibly being kept on the eyot at times, from the evidence of dung beetles and bracken apparently brought to the eyot from outside the immediate area, presumably for animal bedding. Grazing would have been limited on the eyot. Parts of the eyot were obviously not grazed at all, the vegetation dominated by tall herbs, possibly with some shrubs and trees around the water margins. The Coleoptera evidence suggests that the surrounding area was characterised by grazed pasture far more than the eyot itself. Any herbivores kept by the occupants of the eyot were probably pastured in the surrounding area (see Robinson, Chapter 4). Other types of animal, particularly pigs, may have been kept on the eyot, the riverside location providing a suitable environment.

The high numbers of pig represented within the animal bone assemblage (see Powell and Clark, Chapter 4) may also be an indicator of permanent settlement with a low element of pastoralism as would be appropriate for settlement on such a small eyot. There is a noticeable similarity between the proportions of the main species and mortality rates for pig and sheep/goat for this site and that at Runnymede Bridge (Done 1991). It is not clear if this is typical of late Bronze Age settlements or if the apparent emphasis on pig is real and a feature of these island settlements, perhaps a reflection of high status, and an indicator of feasting occurring at these sites.

Cattle do not seem to have been particularly dominant, making up the lowest proportion of the main species from this site (see Powell and Clark, Chapter 4). Among the cattle present are elderly individuals in complete contrast to the sheep/goat and pigs, few of which survived beyond their second year. It is not certain if the cattle were kept for secondary products, such as milk, as much as for meat. That some were consumed is clear from the butchery marks identified on a cattle vertebra. Leather may also have been an important secondary product on the basis of evidence for skinning and the presence of tools which could be used for leatherworking among the metalwork from this site (see Powell and Clark, Chapter 4, and Northover, Chapter 3).

Hunting of wild animals may have been a relatively significant activity, with wild boar, red and roe deer, goose and duck being represented in addition to fox and wild cat. These species would have been naturally present in the surroundings of the eyot, the environment being well suited to these species, and the eyot population are likely to have taken advantage of this. It is possible that their status gave them hunting rights over areas off the eyot.

The finds

The finds recovered include most classes of artefact and indicate a wide range of such activities as flint knapping, crop-processing, woodworking, textile manufacture, skinning and butchering of animals, leatherworking and possibly metalworking.

One metal chisel found on the site was of a type used for leatherworking but could have been used for other purposes (see Northover, Chapter 3). Some of the flints could also have been used in leather-working, though the level of analysis used here was insufficient to tell if this was the actual use of these pieces (see Brown and Bradley, Chapter 3).

The metal finds indicate that bronze was melted, though no moulds or crucibles were found to suggest that the kinds of bronzes found on site, or from the river, were being produced here. Woodworking is also likely given the quantity of worked wood found, though there was little waste indicative of this (see Taylor *et al*., Chapter 4). Some worked bone and worked stone were also found.

The pottery from the site includes both coarse-wares and finewares. The overall fineness of the pottery and metalwork, together with a single piece of gold found during the earlier excavations (Anon. 1960, 58) – though this may have been intrusive – and a glass bead of late Bronze Age date from the midden may be indicative of a fairly high-status site.

The evidence for textile manufacture was limited to spindlewhorls; no loomweights were found. This together with the lack of older sheep/goat perhaps suggest that animals were kept for consumption rather than for wool production, and it may be that textile production was not a particularly important aspect of the activities practised at this site.

The quernstones among the worked stone suggest the processing of cereals. This accords well with the environmental findings which include evidence for crop-processing and cultivation. Cereals are represented among the charred plant remains and the pollen. The main cereal species are emmer and spelt wheat, but other crops present include barley and flax. Cereals were processed on this site, or at least crop-processing waste was being

dumped here. The composition of this material suggests that it had been burnt as rubbish rather than that it was the accidental or deliberate burning of stored wheat. If cleaned wheat was imported to the site and stored it is unlikely to have included this level of waste. Transportation of the cereal would also have been much easier if the wheat was cleaned of waste material first. The weed species identified were also indicative of spring-sown cereals, together with root crops.

Wheat, barley and flax are common finds on other sites, suggesting that in some aspects the activity at Whitecross Farm did not vary significantly from other contemporary sites. One aspect of the Whitecross Farm environmental assemblage which is unusual is the presence of opium poppy. This does not seem likely to have occurred merely as a weed in cereal due to the quantity of seeds recovered. It is more likely that a stand of poppies grew in the vicinity, whether wild or cultivated. It is not unknown for this species to have been cultivated for its edible seeds or medicinal/drug properties on Neolithic and Bronze Age sites in Europe, and Iron Age sites in Britain (Renfrew 1973, 161–2; Waterbolk and van Zeist 1966, 575–6; Robinson 1989, 83; G Campbell pers. comm.). It may have been deliberately grown at Whitecross Farm, though this is unusual for the late Bronze Age in Britain. This may be another indication of the status of Whitecross Farm with links to outside influences making it more liable to adopt such innovations than the small open settlements more characteristic of the Upper Thames Valley at this time.

It is not entirely certain if the eyot was used for permanent occupation, rather than just the disposal of refuse from an adjacent settlement. Further downstream at the Eton Rowing Lake site, sandbanks are known to have been used for ritual deposition with no occupation occurring (Allen and Welsh 1997, 34), but this is not a very close parallel for Whitecross Farm. The material at Whitecross Farm is clearly mainly refuse with clear indications of settlement close by. The nature of the flint finds, including waste, cores, chips and flakes, suggests that flint was worked on site rather than being transported from another site. It is unlikely that all this debris together with the finished pieces would have found their way to the eyot from elsewhere.

Settlement on the eyot

Features indicating settlement or activity of some kind within midden material are known from other sites, particularly Potterne (Gingell and Lawson 1985), but also at Castle Hill (Hingley 1979–80). At Potterne it would appear as if this activity took the form of organised totting, with people living on the huge tip, processing the refuse. There is insufficient evidence to say this was also occurring, albeit at a smaller scale, at Whitecross Farm.

The size of the settlement at Whitecross Farm would have been limited by the size of the eyot, and it may be possible to infer the size of this settlement by comparison of the settlement area available on the eyot with other late Bronze Age island sites. The area of the eyot as it is known today is in the order of 1960 m^2, and would have been only slightly larger at around 2272 m^2 before 20th-century erosion of the riverbank (based on the 1913 edition OS map and the ledge observed during the riverbed survey). The island at Runnymede was much larger, over 2 ha – almost ten times the area of the Whitecross Farm eyot. Though only a small proportion of the Runnymede Bridge site has been available for archaeological investigation due to the built-up nature of this area, several structures including a possible shrine have been identified together with clusters of postholes which may also represent structures (Needham 1992, 56, fig. 5). The settlement on the Whitecross Farm eyot could not have been on nearly such a large scale as this, restricted by the much smaller size of the eyot. The Runnymede example does indicate that settlement on this type of site may have been fairly dense, but other parallels were sought to give an indication of what size of settlement was likely in an area the size of the Whitecross Farm eyot.

The eyot may be compared with enclosure sites of this date, with the river acting as an enclosure ditch. It is possible that there are close parallels in the way the two were regarded. Special deposits and refuse were placed in enclosure ditches and the same appears to be true of the river around the eyot at Whitecross Farm (see below). Bronze Age enclosures known within southern England show a considerable range in size. At the upper end of the size range is the Rams Hill enclosure which is thought to span the middle–late Bronze Age transition (Needham and Ambers 1994) and encloses an area in the region of 6125 m^2. Towards the lower end of the range are ring forts, for example Mucking North Ring. This ring fort is around 1257 m^2 (Bond 1988) in internal area. The area enclosed by the inner ditch of the late Bronze Age settlement enclosure at Lofts Farm (Brown 1988), also at the lower end of the size range, is around 1330 m^2. The inferred extent of the Whitecross Farm eyot is slightly over a third of the size of the Rams Hill example, and around 1.8 times and 1.7 times the size of the two smaller enclosures respectively. The Mucking North Ring seems to have enclosed up to two houses in its first phase and only one in its second, while Lofts Farm contained only one house structure, one possible byre or barn and several two- and four-post structures. The enclosure at Rams Hill has not been fully excavated, so it is not known how many dwellings were contained within it at any one time. Slightly over a quarter of the area has been excavated, and the approximately 1920 m^2 of this within the interior is close to the extent of the Whitecross Farm eyot. This area was found to contain up to four structures (Bradley and Ellison 1975, A–D). These are not necessarily all contemporary. Structure A is thought to date to the 13th

century BC and is therefore much earlier than the Whitecross Farm site. The other structures are likely to be later, though it is not clear if these are all contemporary.

Fencelines partitioned off parts of each of the smaller enclosures cited here. These appear to divide the structures from the other parts of the enclosures, though it is not known whether they represent purely functional aids to livestock management, or had some greater significance in screening off the occupational areas from other areas of the enclosure and restricting views of the interior of the enclosure. It is not clear from the available evidence that any part of the area was cordoned off and not used for settlement. It may be that there was some division of the space on the eyot and different areas had different functions. If this was the case, it is likely that these areas changed through the period as finds were found distributed throughout all the trenches excavated. This is discussed more fully below.

As the eyot was slightly larger than the excavated area within the Rams Hill enclosure, around three or four dwellings might be expected within the area on this basis. It is almost twice the size of the smaller enclosures, and as activity seemed to be fairly dense on the Runnymede Bridge site, which may be one of the closest parallels for the Whitecross Farm site, it seems likely that the settlement on the eyot would have been twice the size of that within these enclosures. This would still not have been very large, again between two and four dwellings at any one time during the life of the settlement. The eyot settlement was not self-sufficient, as is evident from the presence of bracken, and probably other commodities, brought in from outside, and would have had ties with others in the surrounding area. Extramural activity was evident around the Mucking North Ring enclosure and this could have been the case for the Whitecross Farm eyot, though no evidence has been recovered to date in the immediate surroundings with the exception of that *c* 300 m to the east at Grim's Ditch (see Chapter 5) and the settlement at Bradford's Brook around a kilometre away on the western side of the river (see Chapter 6).

Midden and occupation layer

The midden and occupation layer form a major part of this site. It was hoped that the evidence could contribute something to the understanding of the formation of midden deposits, refuse management and changes in the function/activity on the site. Unfortunately the method of excavation – being primarily aimed at determining the extent of the settlement in order to design the bypass in such a way as to minimise damage to the site – was not ideal for in-depth analysis of the midden. Finds were merely recorded by context and 2 m square. This was not tightly controlled enough to analyse the dispersal of finds within the depth of the deposits, and thus to determine different phases in the build-up of the layer and midden as was done at Potterne (Gingell and Lawson 1985) and Runnymede (Needham and Sørensen 1988).

Stratigraphy/vertical differentiation *(Table 2.2)*

During excavation it was thought that the midden deposit could be separated into two distinct layers: a wet one (2414) and a dry one (2409), suggesting that some stratigraphy could be observed within this feature (see Fig. 2.3). Analysis of the finds recovered from these two contexts showed that this was not the case. Finds were similar and joining pottery sherds were found from the two contexts (see Barclay, Chapter 3). This apparent stratification may have been the result of slumping and differential wetting and drying. This leaves the midden as an apparently homogeneous deposit, but as is clear from the examples at Potterne and Runnymede, such features can on closer inspection be found to contain a more subtle structure relating to different episodes of dumping.

Little stratigraphy was observed within the occupation layer either. Early observations of this layer assumed it to be homogeneous, and it was recorded as one single layer within most of the trenches excavated as part of this project. Only in trench XXIV, where a much larger section was revealed, did it become clear that it was really composed of two distinct parts. Most of the depth of the occupation layer had been disturbed presumably by ploughing which dragged some of the occupation material out over the phase 6 alluvium. This disturbance is likely to have led to a loss of data here and within the other smaller trenches, though this plough disturbance was not recognised during excavation. Features within the archaeological deposits will have been destroyed and their fills scattered.

It is not clear when in the sequence the features recorded within trenches XXIV, XVIII and Collins' trench D (Thomas *et al*. 1986), together with the possible feature in trench XXVI, were cut. The features in trench XXIV were only recognised after removal of the uppermost, plough-disturbed part of the occupation layer (2403/1), but in one instance (2412) there is some suggestion that the feature was actually dug into that layer though not recognised as such at the time of excavation. It may be that other features may also have existed in this archaeological deposit, but it is only where they cut the gravel that they are clearly visible.

Spatial patterning of finds *(Fig. 2.10a–j)*

The finds were scattered throughout the midden and the occupation layer in all trenches excavated across the eyot, so each class of find was plotted by the 2 m square in which it was found on a plan of the eyot to see if any spatial patterning was apparent, possibly indicating the organisation of

Table 2.2 Summary of the stratigraphic sequence in the main excavation trenches across the Whitecross Farm eyot

Eyot	*West side*								*East side*				
Trench	*I*	*II*	*III*	*XXIV*			*IV*	*XVII*	*XVIII*	*XXII*	*XXV*	*XXVI*	*XXVII*
Topsoil	101	201	301	2401			401	1701	1801	2201	2501	2601	2701
Alluvial layers, some disturbance from ploughing	102	202	302	2402			402	1702	1802	2202	2502	2602	2702
	103	203	303	2403/1(plough-disturbed alluvium/occupation layer)					1806	2203	2503	2603	2703
Channel fills, cultural deposits and features	104	204	309	2404/1–5 alluvium	2409 dry midden	2403/2 occupation layer		1703	1807=1803	2204	2504	2604	2704
	105	205	305	2404/6	2414 wet midden	postholes (2412, 6–8) ditch 2413		1704	1805 (posthole)	2205	2505	2605, 2606 (posthole)	2705
	106	206	306	2405/1–5 organic silts, wood deposit and piles	2445, 2422 palisade (2419–21, 2423–4, 2449)					2206			
Natural sands and gravels		207	310	2406 active channel bed 2410, 2426–7, 2446–8			403	1705	1804	2207 2208	2506		2706

space on the eyot during this period with different areas used for different activities. These plots (Fig. 2.10a–j) were only of limited use to this end as most types of find were distributed throughout. A finer resolution might have brought out more detail but this was impossible due to the on-site recording strategy employed. However, some possible patterns have been identified from these plots (see relevant finds reports in Chapter 3) and are discussed further here.

That the greatest activity was occurring on the eyot rather than the channel is evident in all cases and is not very surprising, but it does lend support to the idea that the waste was generated on the eyot rather than having been brought from outside and dumped to be washed away by the river. Among the flint assemblage it was found that the majority of the struck flint came from the area of the eyot. Such pieces were densest in the parts of the site where cut features were located, but were spread across the whole eyot (Fig. 2.10f). Examination of the used pieces suggests that there was a concentration of boring tools in trench XXIV, while traces of cutting/whittling and scraping are fairly evenly distributed across the land area of the eyot as known from these excavations (Fig. 2.10g). A higher proportion of preparation and trimming flakes were found in the midden than in the occupation soil and a markedly higher density of burnt stone was found here and on the edges of the eyot than in the interior in general. The exception to this are the densities of burnt stone in trenches XXV–XXVII, which would have been in the interior of the eyot before the collapse of the riverbank. The difference may be due, in part at least, to the types of collection strategies employed by the excavating teams, although the distribution is so striking that this alone cannot account for the pattern.

Looking at some of the other distributions, there are also differences in these trenches from the rest of the area. There is a slightly higher density of all pottery in these trenches, particularly trench XXV, than in the other parts of the eyot and this is almost as high as the density in the midden (Fig. 2.10a). The difference is only very slight, and may not by itself be particularly significant. However, if the number of decorated sherds (Fig. 2.10b–c) is examined these trenches have the highest densities, possibly indicating that the activity in this area is somewhat later than in other areas, or at least of a different character. This contrasts with the midden where decorated sherds were few, and refired or overfired sherds and a repaired vessel were found (Fig. 2.10b–d). The two notched sherds, possibly used as fishing weights, both came from the edge of the channel, as might be expected from their interpretation (Fig. 2.10d).

The assemblage of fired clay is too small for anything much to be said of it, other than that the spindlewhorls from these and earlier investigations of the site all came from the area around trench XXV (Fig. 2.10j), again suggesting that activity may have

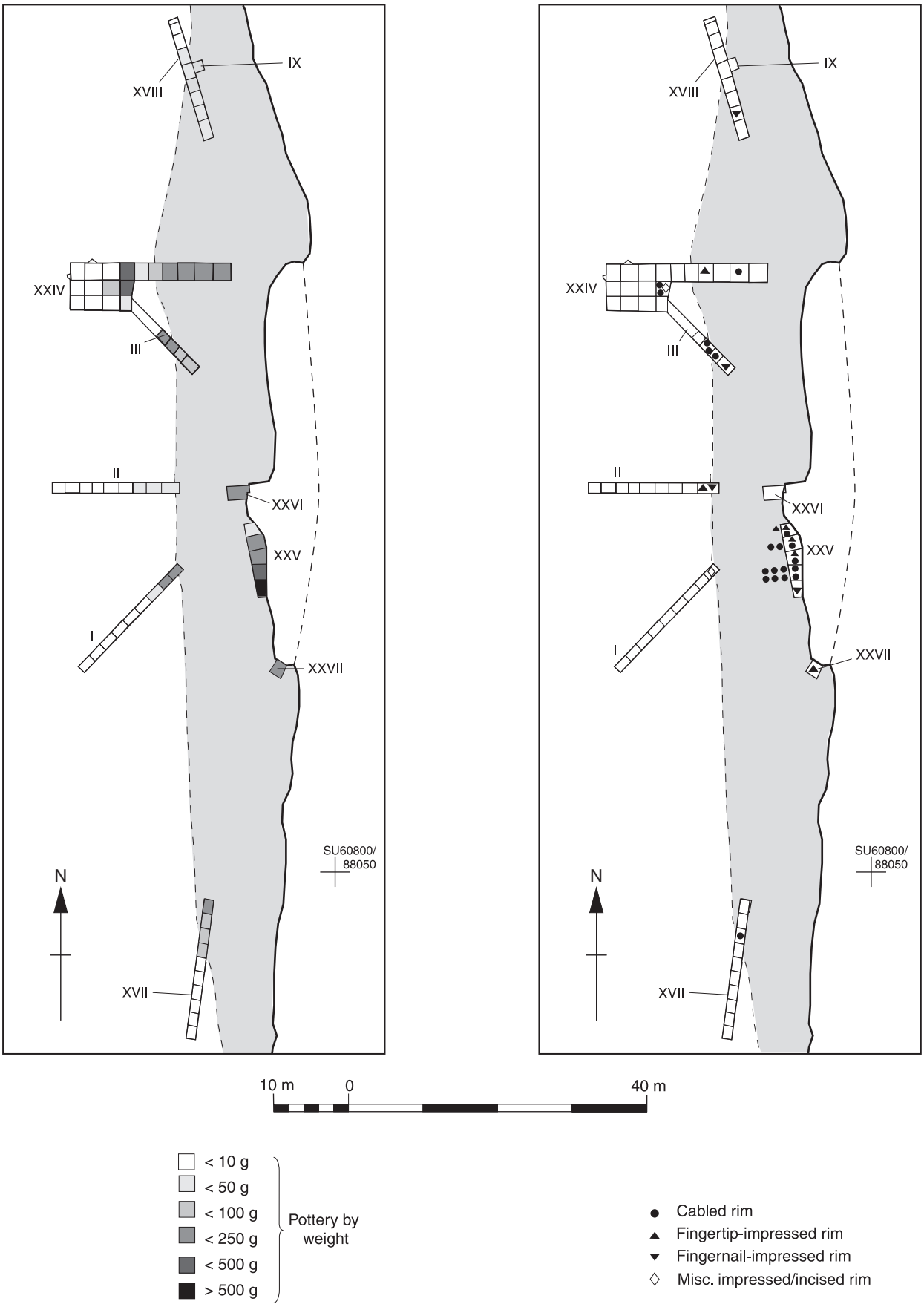


Figure 2.10 Finds distributions across the eyot: a: pottery sherds

Figure 2.10b Decorated rim sherds

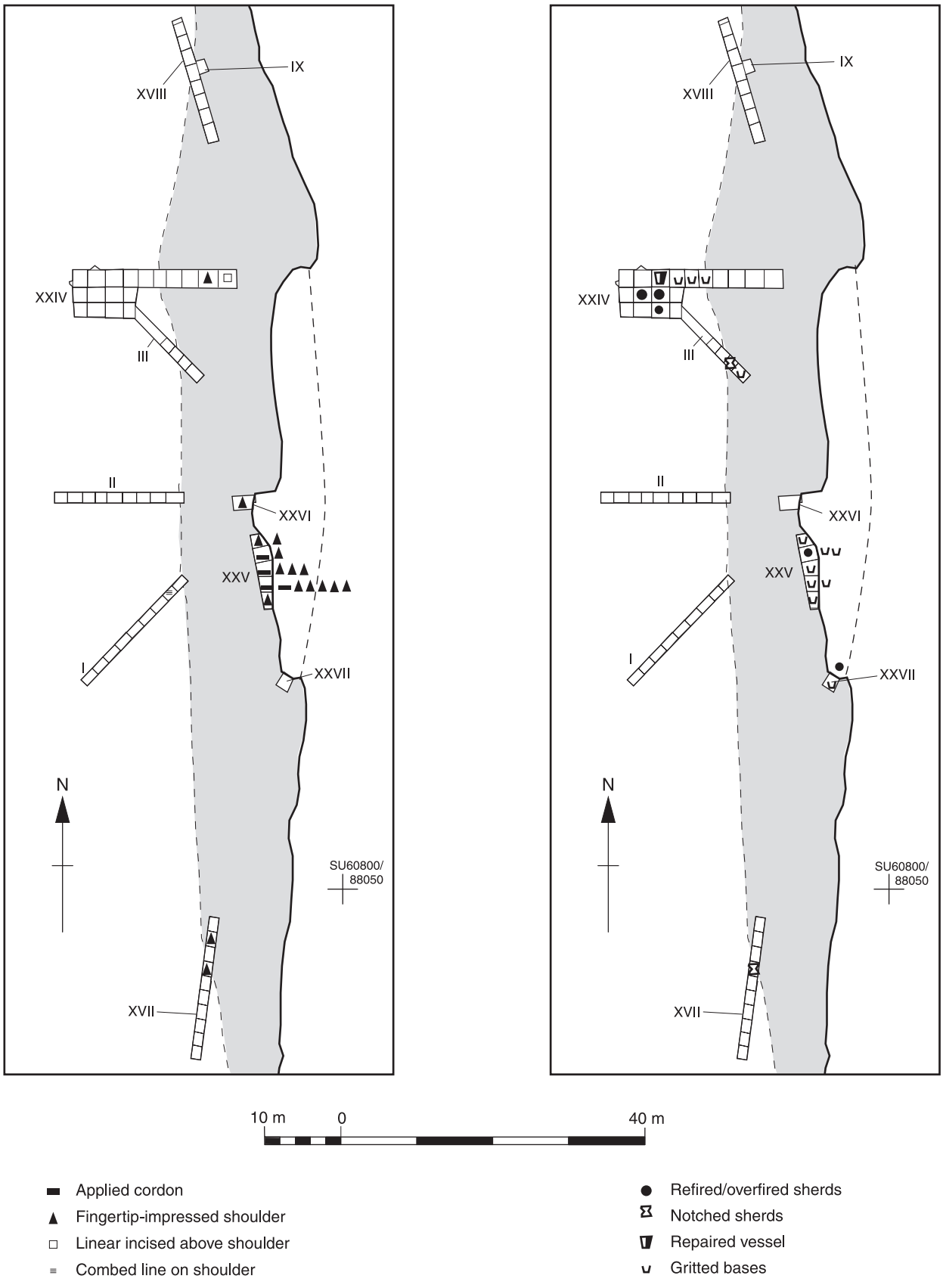
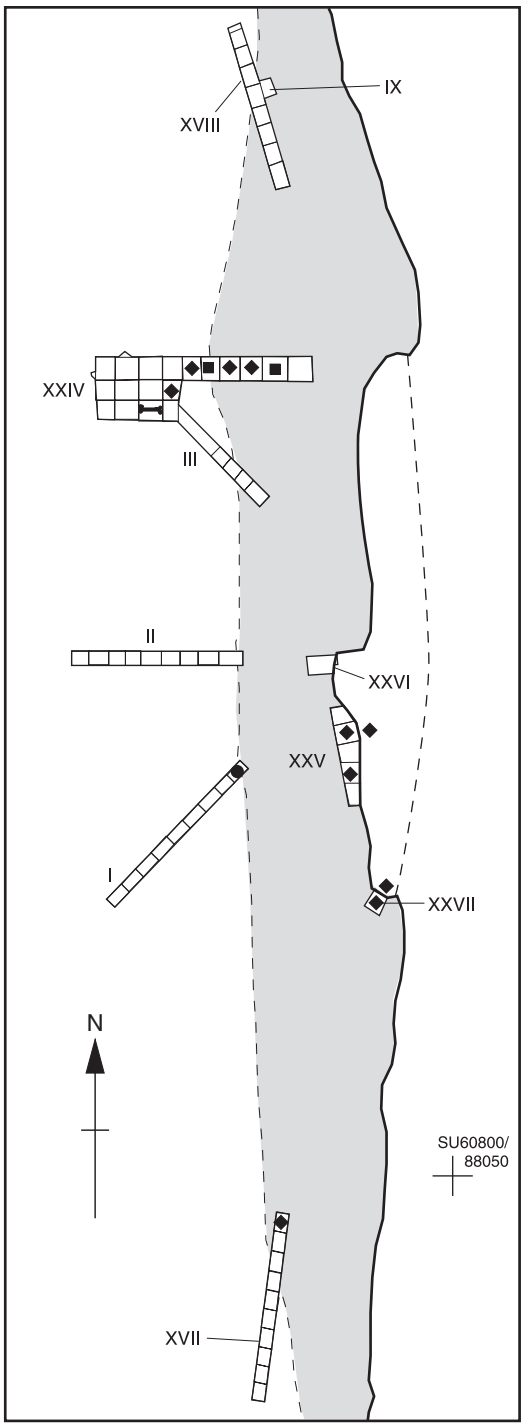
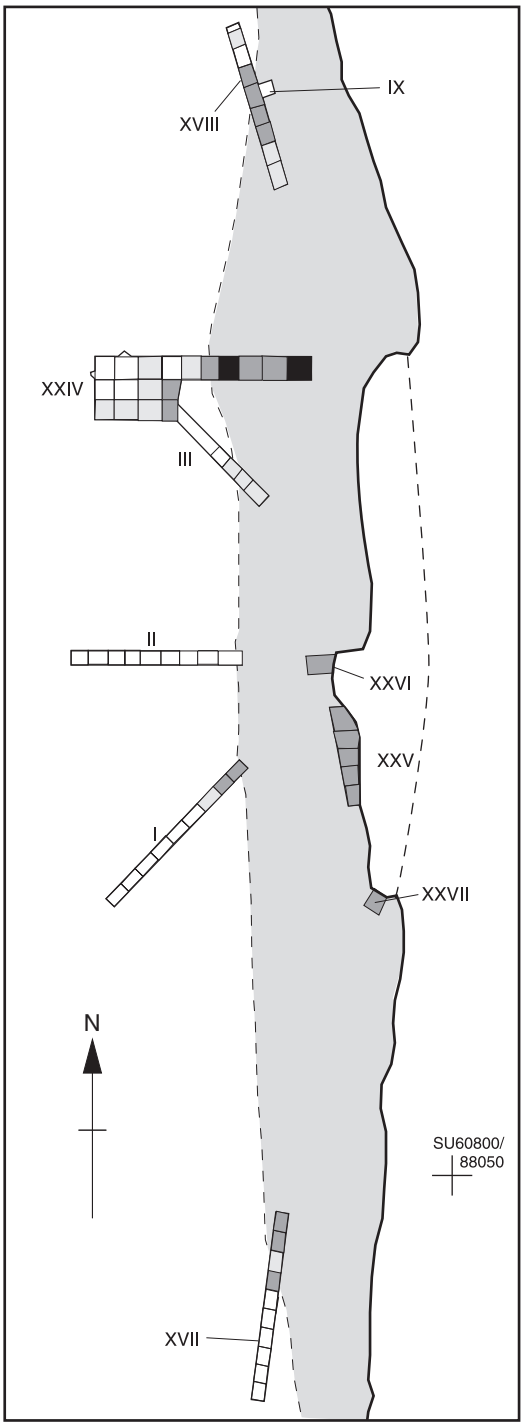
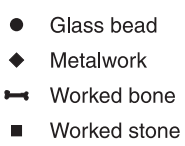


Figure 2.10c Cordoned sherds and decorated shoulder sherds

Figure 2.10d Miscellaneous categories of featured sherds







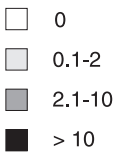
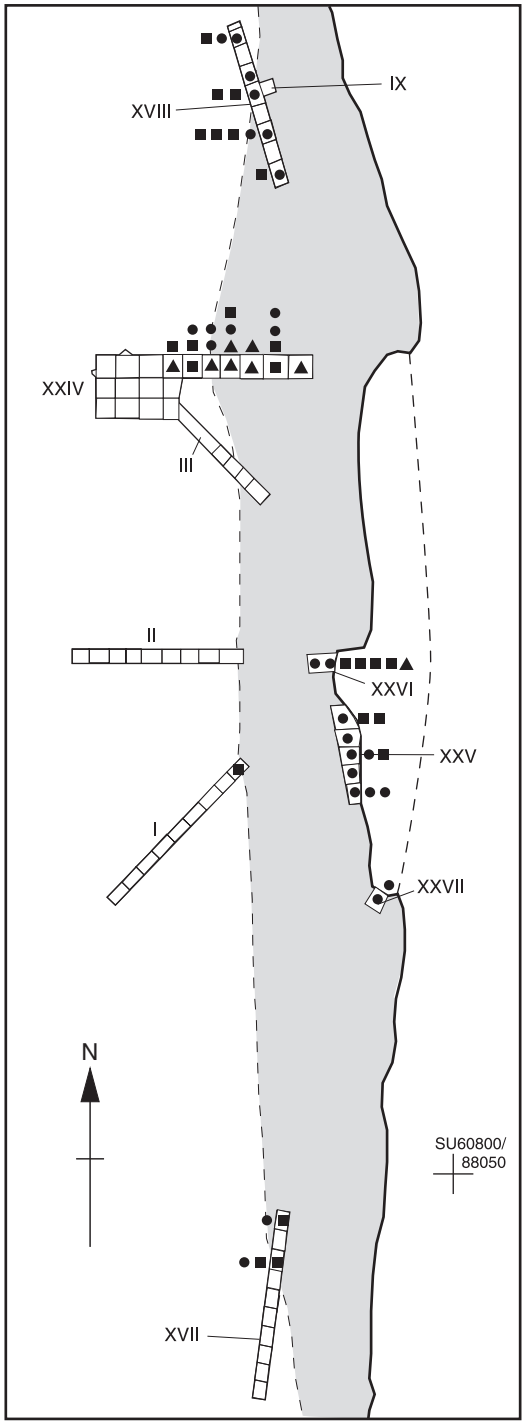
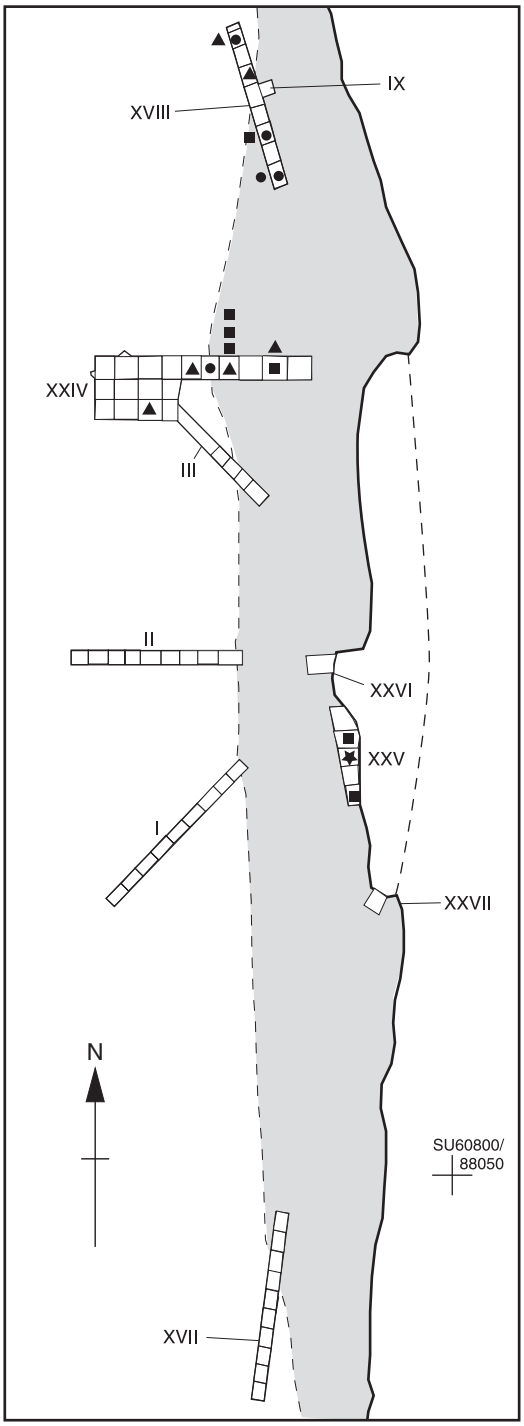
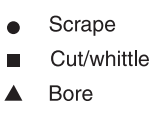


Figure 2.10e Other finds

Figure 2.10f Total worked flint







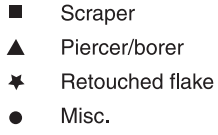


Figure 2.10g Used pieces

Figure 2.10h Retouched forms

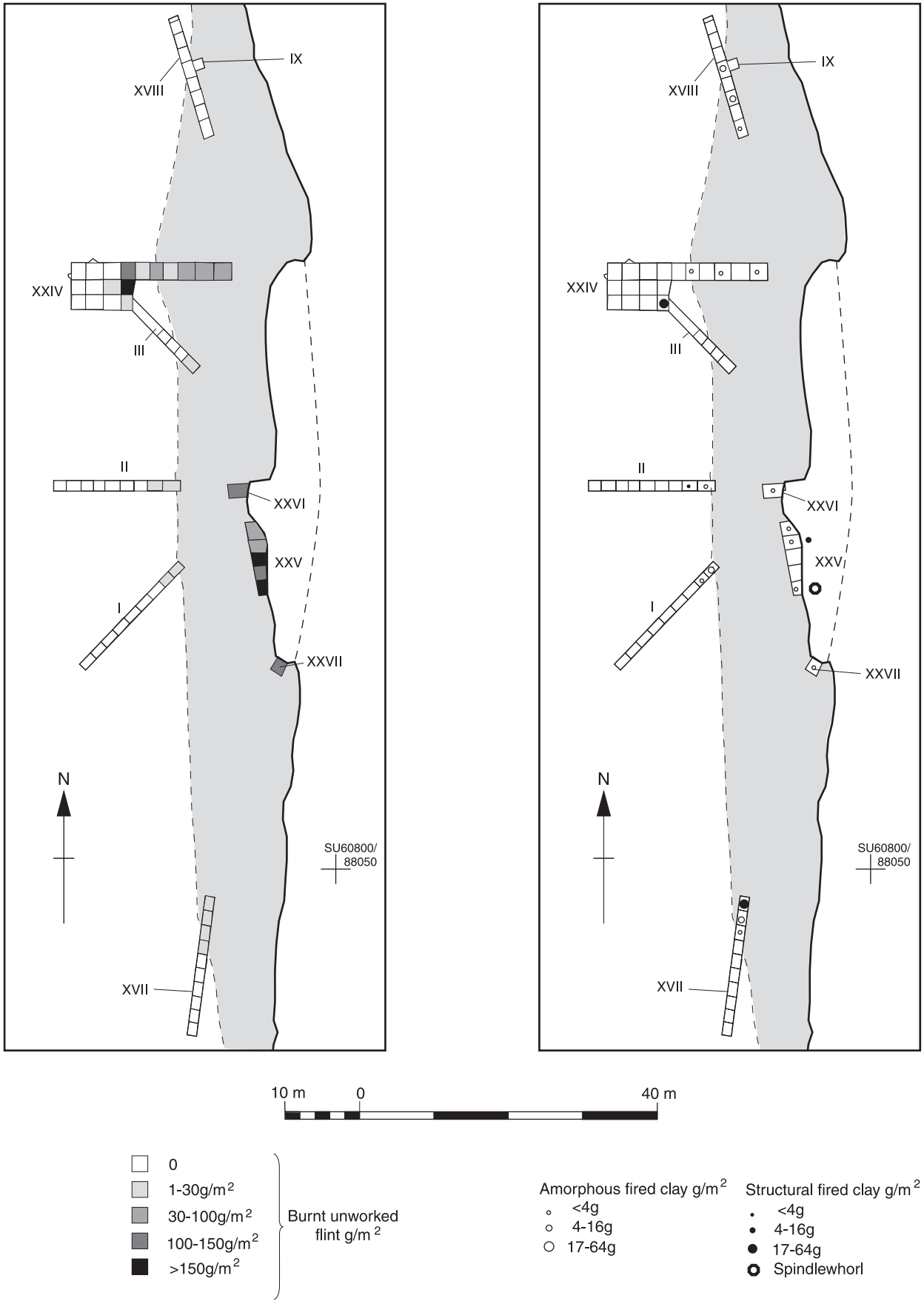


Figure 2.10i Density of burnt unworked flint

Figure 2.10j Fired clay

been different in this area. All four of the fragments of worked stone came from the area of the eyot. The metalwork assemblage recovered from these excavations is also very small and was mostly found in the land area of the eyot with the exception of one copper-alloy pin from the midden (Fig. 3.1.1). The pieces from the latest excavations are mainly restricted to a few small fragments of slag or waste, an unidentified object and a possible awl and piece of copper-alloy strip. A large bronze knife/razor was also found in trench XVII (Fig. 3.1.2). This assemblage on its own is too small to say very much about the distribution of this class of finds, but the results of the earlier investigations suggest that most of the metal also comes from the eastern side of the eyot around trench XXV (Fig. 2.10e). The earlier finds included some broken tools grouped together, possibly as a founder's hoard (see Northover, Chapter 3).

From this then it may be suggested that waste with little further use such as pottery wasters, burnt flint and small flint flakes are more likely to be found on the margins of the eyot, while the tools and better pieces of pottery were found on the land area of the eyot. Within the eyot some activities such as metalworking and textile production may have been grouped towards the centre of the eyot on the eastern side around trench XXV, or at least this was the area in which refuse from these activities was deposited, together with the later decorated pottery and the four human skull fragments found during earlier excavations. How these patterns may have arisen needs to be considered.

Mechanisms of deposition

Needham and Sørensen (1988) discuss various mechanisms for the formation and alteration of occupation layers with reference to the deposits found on the site at Runnymede Bridge. Those described for Runnymede that seem to be most applicable to the eyot at Wallingford are as follows. Regular churning under damp conditions and intermittent occupation over the whole site with midden-formed soil (mechanisms 4, 7 and 2) seem the most likely explanations for the observed distribution of finds spread fairly evenly across the whole area of the occupation layer, but other mechanisms such as *in situ* groups in shallow features which are archaeologically invisible (mechanism 5) are entirely possible. Also possible are a midden-formed soil mechanism whereby organic matter, deliberate soil cover and further inorganic rubbish are dumped in a midden area which shifted during occupation and was disturbed sporadically by trampling, and possibly by dogs, rodents or pigs to an unknown degree. If such middens were formed on the eyot it seems likely that they could not be protected at least from pig disturbance given the likelihood of pigs being kept on the eyot. This kind of mechanism particularly combined with shifting occupation, which may be suggested by the concentration of later decorated pottery in a restricted area of the site, and probable churning, given the low-lying nature of the eyot, could very easily account for the organic-rich soils with frequent finds scattered throughout an apparently homogeneous layer.

Unfortunately, the supposed plough disturbance at Whitecross Farm has destroyed any traces of the microstratigraphy that may have existed within the occupation layer and thus any traces of the mechanisms involved in the formation of the deposit. Though the material has probably not been transported far from its place of deposition by this action, some movement obviously occurred to form the spread of material (contexts 2 and 2403/1) stretching out over the phase 6 alluvium (contexts 3 and 2404), evident in both the riverbank section to the east and trench XXIV to the west of the eyot. This movement makes it impossible to say with any certainty which, if any, of the possible mechanisms suggested fit this site. The level of detail at which the finds were recorded may also contribute to this uncertainty.

Something more of the mechanisms involved in the formation of the midden should be able to be discerned on the site as this deposit was sealed and protected from later disturbance by alluvium (2404). No real stratigraphy was observed within this deposit, and finds were apparently fairly evenly dispersed through its depth. The finds distributions suggest that there may have been a relatively significant deposit of pottery concentrated in the area of the midden overlying the land end of earlier Structure A, but in general the finds would seem to be fairly evenly distributed through the deposit (see Fig. 2.10a and Chapter 3, Late Bronze Age pottery). It may be that the deposit was formed by a single dump of material, but it is more likely to have been built up gradually, and several mechanisms could have been involved which would have destroyed any stratification within it. Churning is very likely as this area would have been very damp or wet for most of the time. This is likely to have been caused by human and animal trampling and animal burrowing and digging among the midden material. There is evidence to suggest that pigs were kept on the site which would have led to considerable disturbance in the middens, and the animal bone assemblage shows signs of canine and rodent gnawing (see Powell and Clark, Chapter 4). Alluviation may also have been involved and a fairly rapid episode of alluviation is the most likely explanation for context 2408 which overlies the main body of the midden. This context, which is principally alluvial silts, also contains a certain amount of midden material, though this episode may have occurred after the midden had ceased to be active.

Movement of refuse

The movement of refuse after its initial discard to its incorporation in archaeological contexts is also

considered by Needham and Sørensen (1988). Consideration of this aspect of the midden material and refuse incorporated in the occupation layer at Whitecross Farm may shed some light on the formation of these deposits. It seems that some form of refuse management was being practised since the distribution plots of finds from this site suggest that the debris from the preparation and trimming of flakes in flint knapping makes up a higher proportion of the flint assemblage from the midden than from the occupation layer; the burnt flint was concentrated around the margins of the eyot, and the tools were generally retrieved from the area of the eyot.

It is likely that several of Needham and Sørensen's (1988, 125) four broad categories of reasons for the accumulation and movement of refuse – rubbish clearance, expedient use, midden as resource, and incidental movement – apply to the material at Whitecross Farm. The collection and movement of the flint waste to the midden on the edge of the eyot beyond the settled area is clear evidence for rubbish clearance, while the apparent retention of most of the tools on the eyot surface may have been deliberate retention of refuse viewed as a resource. This last applies to the group of bronze tools found in the earlier investigations of the site and possibly representing a founder's hoard, but may also apply to other types of finds such as the flint. There is some evidence of reuse of flint tools, and the two notched sherds may indicate the reuse of pottery sherds. The discard of burnt stone may have followed the same pattern as the worked flint, although its distribution near the edge of the eyot might be expected if its use was associated with burnt-mound-related activities. Other materials, some of which would not be viewed as a resource today, may also have been reused in ways we do not appreciate now.

Incidental movement of material due to churning in wet ground and animal disturbance, particularly given that pigs were probably kept on the eyot, is likely to have been a factor during the formation of the occupation layer and the midden deposit. Post-depositional disturbance (eg ploughing) is also likely to have had an uncertain influence on the underlying stratified deposits.

There is less evidence for expedient use of rubbish on this site as there are no instances of, for example, deliberate make-up of wet patches or irregularities in the ground with refuse, and as no buildings were recorded from the limited and discontinuous area dug, nothing can be said of possible expedient use of refuse as infill. Expedient use of rubbish in ritual would be much harder to discern especially given the disturbed nature of most of the occupation layer, but it is possible that some of the metal tools and the four fragments of human skull incorporated into the occupation layer (Thomas *et al*. 1986) may have been used in this way.

Human remains

The human skull fragments found within the occupation layer during the course of earlier excavations (Thomas *et al*. 1986, 195) may have had a particular resonance for the occupants of the eyot and were specially deposited within that context. As Brück (1995) points out, burials are rare from this period, but human bone has been found to occur on various sites that would not be considered appropriate from the 20th-century perspective, including settlement sites. These bones do not appear to have been deposited randomly, however. The bones are only included in certain types of context within settlements. This includes middens, and it is often skulls or fragments of skull as at Whitecross Farm. A large amount of, mainly fragmentary, human bone was found within the 9th–8th-century BC midden at Runnymede Bridge (Needham 1992); 32 skull fragments, some of which had been worked, were found scattered through the midden at All Cannings Cross, Wiltshire (Cunnington 1923, 40); a number of skull fragments have been found within the midden dating between the 11th and 7th centuries BC at Potterne (Lawson 1994); 13 pieces of human bone, including 9 skull fragments, 1 of which had been worked into an amulet, were found from the occupation layers and a posthole at the hillfort at Ivinghoe Beacon (Cotton and Frere 1968); an incomplete perforated disc, possibly originally suspended by the perforation, made from a fragment of human skull was recovered from the fill of a waterhole at the late Bronze Age settlement excavated at Reading Business Park (Brossler *et al*. 1994); three cranial fragments were found within the occupation layer, or midden, at Wittenham Clumps, Berkshire (Hingley 1979–80) around 6 km north-west of Whitecross Farm; and a parietal bone was found at Bray which may be the closest parallel for Whitecross Farm (Anon. 1963–4).

These bones obviously had some significance, particularly those pieces showing evidence of having been worked, and must have been specially chosen for incorporation in these contexts rather than undergoing whatever were the normal, archaeologically invisible, procedures for dealing with the remains of the dead at this time. The skull fragment found at East Chisenbury, Wiltshire, apparently placed on a prepared surface within the midden, together with a group of pottery and a small fragment of sarsen, supports the idea that the skull fragments were of special significance. The midden itself at this site, constructed to be a particularly prominent landscape feature, probably held special significance for the community which created it (McOrmish 1996), and this significance may have been increased or re-emphasised by the incorporation of the skull fragment. The plough disturbance at Whitecross Farm has destroyed any evidence for any special placing of the skull fragments, but it is still likely that their deposition in this area of the site – which was identified as slightly different from the distributions of other types of find – might be significant.

Other special deposits

A few other finds which had not been subjected to incidental movement in this way were identified as possibly having been specially deposited in a structured manner. These were retrieved from the base of the channel where subsequent alluviation had sealed and protected them from further disturbance. Principal among these is a semi-complete jar found at the base of the organic silt layer 2405 at the landward end of the jetty Structure A (see Figs 2.4, 3.10.1). That this jar was almost complete distinguishes it from the other sherds found within the later midden layers and suggests that it was specially placed within the channel (see Barclay, Chapter 3). Other distinctive deposits within this context, beyond the wood deposit, are large burnt flint nodules which may represent hearthstones and two shed red deer antlers (see Fig. 2.5). Why the hearth was dismantled and apparently dropped into the middle of the channel from the end of the jetty is not clear and may have been related to ritual, as might the deposition of the antler in a similar position.

As Needham (1992, 60) states, a range of different depositional practices of broadly ritual character existed in the early 1st millennium BC. Many of these rituals were associated with the dead and the entrances and margins of sites. Both were probably related to transition between different states and may be represented at this site. The human remains found are discussed above; the depositions around the jetty may be compared to the rituals surrounding entrances and margins. The jetty is certainly marginal to the settlement on the eyot and may be regarded as an entrance to the enclosure formed by the river around the settlement area. A broad range of deposits have been recovered from the entrances of enclosures of this date, including pottery. These deposits probably helped to draw attention to the boundaries and enhance the status of the residents within the enclosure, particularly the deposition of serviceable items such as this jar and the hearthstones. This would be within the tradition of votive deposits of prestige items such as fine bronze metalwork like that found from this stretch of the river (see Northover, Chapter 3).

The end of the late Bronze Age settlement and later use of the eyot

It is not clear exactly when the settlement was abandoned, but occupation was ongoing until, at least, the Ewart Park, or possibly the later Llynfawr, phase on the grounds of the metalwork recovered from the occupation layer (see Northover, Chapter 3). The pottery confirms this dating (see Barclay, Chapter 3). Around this time the environment on the eyot began to deteriorate. During the late Bronze Age the eyot had been dry, experiencing no, or very infrequent, flooding, but now it became wetter as the climate deteriorated and changes in river flow occurred. The channel was silting up. From an active channel with fast-flowing water, it was now only seasonally active with increasing areas of seasonally exposed mud.

In time, alluviation of the channel was almost complete and the site became one of meadow or pasture with occasional winter flooding, though possibly slightly better drained than some areas of the Thames Valley floodplain. This may have prompted the attempt to bring the area of the eyot into cultivation by ploughing during a relatively drier period, possibly during Roman or later times, and disturbing the late Bronze Age deposits. A 4th-century AD Romano-British coin has been found from the site. The molluscan assemblages from this layer in the channel area were not typical of cultivation, so it may be that cultivation was restricted to the area of the former eyot, or that the area was ploughed only once and then reverted to meadow as it was found to be unsuitable for cultivation. After this the area again became wetter, and experienced a further phase of alluviation. The area was never used for occupation again, and its use is likely to have been restricted to meadow, pasture and recreation, as it has been in post-medieval and modern times. The later finds, such as the bronze ring dated to the later middle ages (see Northover, Chapter 3) and the recent horseshoes, can be explained by accidental loss (see Allen, Chapter 3).