PROCEEDINGS

OF THE

CAMBRIDGE ANTIQUARIAN SOCIETY

(INCORPORATING THE CAMBS & HUNTS ARCHAEOLOGICAL SOCIETY)

VOLUME LXXI

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IMRAY LAURIE NORIE AND WILSON

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Published for the Cambridge Antiquarian Society (incorporating the Cambs and Hunts Archaeological Society) by Imray Laurie Norie and Wilson Ltd, Wych House, Saint Ives, Huntingdon

ISSN 0309-3606

UNIVERSITY PRINTING SERVICES · CAMBRIDGE

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2. LINGEY FEN, HASLINGFIELD

JOYCE PULLINGER

Work began in the Autumn of 1977 in Lingey Fen where up to 5.0m of peat and black clay silts were cut through. (Section, Fig. 1). The dragline operator noticed an alignment of posts and worked timbers under 4.0m of peat. Their destruction was watched daily and when possible timbers were rescued. It was possible to hand-excavate some posts and study the positions of the timbers and it would appear that they were part of a causeway (Plan, Fig. 2). Further south and still under the peat a second causeway was seen and a small part excavated by hand. (*For illustrations see after p. 33*).

Area A Timber causeway (1000-900 BC)

The causeway consisted of a series of posts under 4.0m of peat and black clay silt, which had been driven down through a thin layer of greensand into underlying gault clay. Horizontal timbers and brushwood had been packed between these posts. It was possible to excavate only a little as conditions were often too dangerous and the peat extracted by the dragline was replaced quickly by brick hardcore (see below for description of timbers).

The causeway lay across the shallow basin between the two gravel terraces with the river on the south-east side. It was probably a marshy area with peat beginning to form in the 2nd millenium BC. Only bones were found sealed by the causeway, and many more were recovered from the peat immediately overlying it (see Section, Fig. 3).

Area B

Like the Area A causeway this spanned a low lying area between the river and the gravel terrace to the west and lay 50m approximately to the south of Area A. A small portion of the causeway was excavated by hand. The causeway consisted of large timbers, lying flat, with notches in each end into which were driven stakes to hold them in position (see below, p. 26). A number of shed red deer antlers were found next to this causeway (see below, p. 27).

REPORT ON THE TIMBERS FROM LINGEY FEN, CAMBS

S. V. E. HEAL

Site A

From the brief sighting, this part of Site A, which lay in a sediment-filled depression, appears to have been an area of consolidation across a watercourse or marshy area. Since the visible extent of the structure seen in detail was only 2m by 1m its overall form is far from certain, but the general orientation of the timbers was WNW-ESE, with the exception of a large piece at the south lying NNE-SSW, possibly running along the edge of the assemblage.

Branches and stones lay among the worked wood, with vertical posts and pegs between them. With the exception of three post-ends, the wood submitted for examination (some forty fragments) was all from the spoil deposited by the dragline. No individual piece was complete, thus neither the dimensions of the component parts, nor those of the structure as a whole, are known. Nevertheless something may be said of the woodworking techniques employed on the timbers.

The three post-ends found *in situ* had been driven through peat into the underlying Gault clay, taking with them gravel and flint chips. The effort invested in their preparation and positioning indicates that importance was attached to maintaining the stability of the horizontal elements and to the function of the structure.

The great majority of the pieces examined were oak (Quercus), with some ash (Fraxinus) and hazel (Corylus); due to the fragmentary nature and circumstances of retrieval of these, this sample may well not be representative of the site as a whole.

Both roundwood and splitwood (Heal, 1981) were recorded in examination. Roundwood had been used for vertical posts, mainly ash and some oak, which had been worked for up to 50cm of their lower ends to create points for insertion. The profiles of these points vary from streamlined tapers to much

blunter or obliquely chopped ends. (Pl. 1a-c). There was no evidence of pre-dug postholes and it would seem that all these forms were intended to be driven into the ground; however no post-tops survived to indicate how this was done.

Of the multifacetted posts (which had been chopped all around their circumferences), some had been worked uniformly to form a cone-like end concentric with the heart of the wood; others had been begun irregularly on one side so that the roundwood had been reduced to a segment of the cylinder at the tip, though the heart usually lay at the ultimate point. The oblique ends incorporated two or more cuts within the single face. (Pl. 1c)

The position and intersection of the facets suggest that the first blows were directed from the upper end of the stakes with long shallow strokes exploiting the cleaving properties of the wood; in some cases the facets had been partly cut and partly split. Shorter, rounder 'scooped' facets had been cut to execute the steeper taper of blunter tips (Pl. 1b), alone or in combination with initial long shallow ones. As is inevitable with multiple facetting the intersection of the strokes deforms the trace of the blade in use, but the remnant dimensions and profiles indicate a cutting edge up to 5cm across, the shallowness suggests a flattish-sectioned, metal blade. A narrower blade with a more convex section would have produced the scooped facets. The posts examined seemed to correlate the smaller scooped facets with the working of heartwood of oak, though this may be the artificial product of the sample.

One mid length of a roundwood ?post bore shallow grooves as a result of pressure, possibly from a rope or other lashing .75cm wide wound around it repeatedly. The marks (Pl. 2a) appear only on one side which suggests that whatever was attached was strained in one direction quite forcibly. Whether this was a structural feature or a hitching or mooring post can only be speculated upon.

Smaller roundwood pieces (e.g. small hazel stems) were used for small pegs, sharpened with one two or three simple oblique strokes (Fig. 1a), possibly cut with a knife-like blade rather than an axe. Some pieces of hazel, up to 5cm diameter, showed vestigial remains of the 'elbow' characteristic of coppice or secondary shoot growth from a stump; however the sample cannot justify any claim for positive evidence of woodland management (Coles, Heal & Orme, 1978).

Splitwood was used in quantity: the retrieved pieces were also fragmentary and predominantly oak. Most appeared to be from horizontal elements, an exception being a radially split and obliquely sharpened stake. Tangentially and radially split boards or slats were represented by numerous fragments. Some of these had been split out and used without secondary working, others had been further shaped or trimmed with shallow lengthwise strokes (Fig. 5). None were sufficiently complete to indicate their overall dimensions, but widths up to 23cm were recorded, and thicknesses of as little as 1.5cm.

Only one piece of splitwood bore any other details of specific working; this was a radial split which had been perforated by diagonal holes 2mm by 4mm, running tangentially through the thickness towards the broader edge of the split (Pl. 2b). Its one intact end had been shaped to a curve running up to the thinner straight edge; the final working consisted of three consecutive facets. It was the only utilitarian artefact from the retrieved material.

A few small radially split pieces may have been used as pegs (Fig. 1b), though they would have offered little rigidity. A single piece of wood had a charred groove across its width, but bore no evidence of function. Unlike the roundwood, all sapwood had been removed from the splitwood.

Site B

Site B lay southwest of Site A, and slightly higher up the slope of the same depression. A stretch of the structure c.3m long and c.1.5m wide was seen under the same circumstances as Site A. Planks and stakes were reported, with a basic NNW-SSE orientation; the main timbers, 2m or more long, lay on brushwood and were held in place by vertical and oblique stakes of varying size. A large trunk lay across the north side of the exposed area.

The wood retrieved for examination comprised mainly splitwood, most of which was oak, with some hazel and ash roundwood, a total of fifteen pieces. Both radial and tangential splitting was used and there was more evidence of secondary working than at Site A. Again the material was fragmentary, mainly pieces of slats and boards, but also stakes which had been further shaped, and notched and morticed pieces.

The most notable piece was one end of a rectangular-sectioned tangentially split heavy plank, with a carefully cut notch (Pl. 2c). None of its outer surfaces had been worked after the initial splitting from the oak bole. The notch had been cut by splitting the sides, and two major facets, one from each broad face of the plank to the middle, formed the base. A sloping facet from one surface is all that remains of any earlier

stages of shaping the notch-base. The ends of the arms of the notch had been shaped by a diagonal facet on each outer surface; both have been damaged subsequently.

A piece of ash, a half-split stem, though badly damaged, retained evidence of a mortice cut through its centre and a notch at one side (Fig. 1d). The split surface had not been worked further and the other, curved, face was the natural under-bark surface. The mortice was rectangular in plan on the curved surface, but from the other side it was seen to be cut straight at one end and at a slope at the other; it appears to have been cut unevenly from this surface and finished tidily on the other.

One roundwood piece of ash was part of a shallowly facetted post, and small obliquely cut hazel roundwood pegs were also found (Fig. 1c).

The working traces are comparable with those from Site A, but the more intricately worked timbers (Pl. 2c, Fig. 1d) are similar to elements of the Meare Heath Track, Somerset, which also dates to *c.* 1000bc.

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LINGEY FEN: THE FAUNA

A. J. LEGGE

The floodplain of the upper River Cam is bounded by the 'intermediate' terrace which, from its sparse arctic fauna, is regarded as of last glacial age (Lambert, Pearson and Sparks, 1963). Within these physical limits, the valley is infilled with alluvial sediments of Flandrian age, consisting of peats and peaty muds, with occasional layers or lenses of mineral sediments. The line of the Cambridge western bypass crosses the upper Cam in several places. At the river crossings near Little Shelford and Grantchester the peats in the river valley were removed by mechanical excavation as part of the engineering works associated with the construction of bridge foundations. The crossing point near Grantchester (Lingey Fen) produced, from the base of the peat and from within it, large animal bones which were collected from the excavations by T. and M. Miller and J. Pullinger. I visited the Little Shelford river crossing on several occasions during the excavations and, in contrast with Lingey Fen, this produced few bones. During 1979 an archaeological excavation was also made in the north bank of the Cam about 200 metres downstream of the Little Shelford bypass bridgeworks. This excavation extended from the margin of the intermediate terrace and onto the floodplain of the river for 7 metres. The aim of this excavation was to trace the extent of Iron Age settlement on the adjacent arable fields (see St Joseph, 1965) and to establish the stratigraphic relationship of this site to the valley peats (Alexander, Legge, Trump and Woudhuysen, forthcoming). Again, in this excavation, few animal bones were recovered from the lower levels of the peats. It therefore seems that animal bones occur in the valley sediments in local concentrations.

It should be noted that the bones from Lingey Fen were collected under difficult conditions, mainly from the dragline trench during breaks in work, and also from the excavated spoil. While some stratigraphic uncertainties therefore exist, it was possible to assign most of the bones to one or two broad groupings of *basal peats* and *upper peats*. The bone is well preserved and hard; a few specimens of antler and two pig canines fractured on slow drying. The bone from the lower peat is a dark brown colour and has white encrustations on its surface, while that from the upper peat is of a lighter brown and is without encrustations.

The total identified sample consists of 165 bones, teeth and antlers; a few ribs and vertebrae have not yet been identified to species. Most of the bones are whole or were broken only by the mechanical excavator. The bones generally show some surface scratches, but these appear to be the product of natural forces rather than butchery by man. Exceptions to this are noted below. The species were distributed in the two units in the following way:

Upper Peat	*Number of bones*	*Lower Peat*	*Number of bones*
Dog	2	Dog	5
Horse	10	Horse	9
Pig	4	Pig	6
Roe Deer	2	Roe Deer	0
Red Deer	27*	Red Deer	36*
Cattle	19	Cattle	21
Sheep/Goat	9	Sheep/Goat	12
Birds	3	Birds	1
Man	3	Man	2
		Beaver	1
		Fish	3

* figures include shed antlers

The two faunas do not show significant differences, with cattle and red deer being the most numerous in each. If shed antlers are excluded from the counts of red deer the figures are more nearly equal for the two common species in the upper peat; red deer remain the most abundant animal in the lower peat.

Two species are represented which are now extinct in Britain as wild breeding populations; the beaver, and the European Crane *Grus grus*. One of the most interesting features of the fauna is the presence of *Bos primigenius*, an animal now wholly extinct.

The cattle

Two specimens from the lower peat can be attributed to *Bos primigenius* with some confidence on the basis of their large size. These are a well preserved left mandible with an M_3 fully erupted and in wear on all cusps, and a proximal articulation of the left metatarsal. The mandible shows no signs of human interference by way of cut marks or breaks, while the metatarsal is anciently broken by percussion at a point slightly above the mid-shaft; the break is also slightly burnt.

The mandible requires a more detailed comparison with other known specimens than is possible here; the relatively gracile form suggests that it is from a female, while the length of the M_3 exceeds in size those from domestic cattle of the Neolithic period.

Length of M_3 in cattle from six sites, in mm.

Site	*Length of M_3*	*Diagnosis*	*Author*
Lingey Fen	43.3 mm	Bos primigenius	
Lowes Farm*	46.5 mm	Bos primigenius	Shawcross, 1961
Charterhouse Warren Farm	46.0 mm	Bos primigenius	Everton, 1975
Star Carr	46.0 mm	Bos primigenius	Frazer & King, 1954
Windmill Hill**	41.0-42.0 mm	domestic bulls	Grigson, 1965
Hambledon Hill**	40.6-41.4 mm	domestic bulls	Legge (forthcoming)

** 2 specimens from each site. *P_2 congenitally absent in this mandible.

On the basis of these figures the mandible is regarded as that of a *Bos primigenius* female.

The position of the metatarsal bone is more obvious, as this is a very large specimen. The width of the proximal articulation of this bone is compared with other published specimens below:

Width of proximal articulation of metatarsal in cattle from four sites, in mm

Site	*Metatarsal, width of proximal articulation*	*Diagnosis*	*Author*
Lingey Fen	67.4 mm	Bos primigenius	
Lowes Farm	61.0 mm	Bos primigenius	Shawcross, 1961
Star Carr	58.0-66.0 mm*	Bos primigenius	Frazer & King, 1954
Windmill Hill	51.0-58.0 mm**	domestic bulls	Grigson, 1965

* range of 6 specimens
** range of 4 specimens, bulls only given here

From this, the Lingey Fen specimen is substantially larger than the Lowes Farm *Bos primigenius*, which is now known to fall in the early second millenium bc, and is also larger than six specimens from the earlier site of Star Carr (Fraser & King, 1954). In view of the interest in these finds, and their possibly quite late position stratigraphically, it was decided to submit the specimens entire for dating at the British Museum Radiocarbon Laboratory as part of an investigation into the problem of faunal extinction (Burleigh & Clutton-Brock, forthcoming). The results of this test will be published at a later date with further considerations and data on the morphology of the specimens concerned.

The other cattle from the Lingey Fen collection are also of large size, though with dimensions falling within the known range of Neolithic cattle from Southern Britain. At the sites of Windmill Hill (Grigson, 1965) and Hambledon Hill (Legge, forthcoming) the dimensions of the cattle bones show a bimodal distribution when plotted as a histogram of a single measurement (for example, see Grigson, op. cit. fig. 5g). My work on the Neolithic fauna from recent excavations by R. J. Mercer at Hambledon Hill, Dorset, shows that the domestic cattle have a similar distribution of body sizes. Grigson interprets the bimodal distribution as a representation of the two sexes, a point with which I fully agree.

It is difficult to suggest the sex of the Lingey Fen cattle; while they agree closely with the size of large Neolithic cows, they could equally be the males of later cattle, perhaps from the Bronze Age. Iron Age cattle from this area are considerably smaller. None of the Iron Age cattle from Great Shelford (Legge, forthcoming) have metapodial bones with dimensions as large as those from Lingey Fen.

Width of metatarsal in cattle from two sites, in mm

Site	*Metatarsal, width of proximal articulation*	*Diagnosis*	*Author*
Lingey Fen	44.0-49.0 mm	Domestic cattle	
Windmill Hill	42.0-47.0 mm	Domestic females	Grigson, 1965

The canids

Besides some limb bones of dogs, the fauna contains two mandibles and one skull of that species. This small assemblage is marked by a great variety in size. Harcourt's (1974) review of prehistoric dogs in Britain gives a range in size for the length of the mandible tooth row of 64-71mm in Neolithic dogs (six specimens, dimension XV, Harcourt, 1974). The Lingey Fen mandible from the upper peat has a tooth row length of 74.0mm, while that from the lower peat is 76.8mm. However, it should be remembered that dogs are highly variable in later prehistory, and Iron Age dogs are rather larger, at the top of their size range, than those from the Neolithic. Although two mandibles are from large dogs, the skull from the basal peat is very large. Measurement I, after Harcourt (op. cit.) is 219.0mm, which is substantially larger than any dog included in Harcourt's survey with the exception of a few post-Roman specimens. At present the distinction between dogs and wolves in early prehistory is still subject to uncertainties. On the basis of Clutton-Brock's (1969) 'carnassial index' the Lingey Fen specimen falls within the population of dogs; again, a final judgement must await further study.

Deer

The faunal collections from both the upper and lower peats contain more remains of red deer than any other species. This remains so even when antlers and fragments of antlers are removed from the counts; the lower peat contains seven antlers or fragments and 29 limb bones and skull fragments. Of the antlers, four antler bases are present, of which three are unshed, showing that these came from animals dying or killed during the time of full antler growth. Most of the limb bones are present in the collection, probably from several different animals. The bones are mostly complete and do not show cutting or working marks. Areas of scratching or abrasion on the bones appear to have come from the conditions of deposition. Roe deer are not present in the lower peat.

Pig

The pig is represented by a few bones in each of the units, and by some isolated teeth. The bones are seldom whole, being either broken or from juvenile animals. A pair of canine teeth in very poor condition come from the lower peat, and are very large, though their poor condition prevents measurement. They need not be larger than those from a domestic boar, and there is nothing in the collection besides these teeth which could suggest the presence of wild pigs.

Horse

The horse is of interest in being moderately well represented in both units. Horse bones make up slightly less than 12% of the total identified samples, which is a high percentage for later prehistoric material from Britain. From the upper peat, the metacarpal, metatarsal and tibia are well preserved and can be measured; they suggest a small horse of the size known from the British Bronze and Iron Ages.

Length of Metapodial bones of horse from three sites, in mm

	Lingey Fen	*Grimes Graves*	*Ashville*
Metacarpal	207.2	227.2	204.0-231.0*
Metatarsal	259.0	249.2; 244.4	233.0-258.0**

* sample of 3: ** sample of 4. (Wilson, 1978). These are specimens from the Iron Age, while those from Grimes Graves are from middens of the Bronze Age (Legge, 1981).

The metatarsal from Lingey Fen falls within the range of three specimens from the Ashville Trading Estate excavations (Wilson, 1978), as does the Middle Bronze Age specimen from Grimes Graves. The Lingey Fen metatarsal is rather larger than the Iron Age specimens from Ashville. Wilson (op. cit.) calculates shoulder heights of from 1.20m to 1.42m for the Ashville horses, using Keiswalter's factors, though with some reservations (pp. 117-118). The few comparisons that can be made with the Lingey Fen material suggest, from this site, a horse or two of similar size to those from Grimes Graves.

Other species

The lower peat contains several specimens of less common animals. The beaver, *Castor fiber*, is represented by a single left tibia, showing a recent break at the proximal extremity, and an ancient break at the distal extremity. The Crane, *Grus grus* is represented by a left tibiotarsus in the lower peat. This species occurs now only as an occasional visitor to Britain. Fish remains, as might be expected, are rare in the collection, in spite of the proximity of the river. The Pike, *Esox lucius*, is present in the lower peat, represented by two dentaries (jaws) and a preoperculum. The bones are strongly ossified and well preserved. They come from a large fish, of at least 5 kg in weight.

Man

A few human bones were found in the assemblage, belonging to the upper peat in most cases. Two gracile parietal bones from the upper peat come from two separate skulls; one of these joins with an occipital bone. All of these are from females. The very open skull sutures argues for no great age in the individuals concerned. From the lower peat, a more robust proximal femur may be from a male, and a left fibula possible from a female.

General considerations

Extensive settlements of the Iron Age are known upstream of Lingey Fen, at Hauxton, and Great and Little Shelford. These settlements are situated on the intermediate terrace of the Cam which flanks the peats from which the bones described here were recovered. The site at Great Shelford has been excavated from 1975-1979 (J. Alexander, A. Legge, D. Trump, and M. Woudhuysen, report forthcoming) and the occupation has proved to be largely of the early Iron Age, late Iron Age, and Romano-British periods. A recently discovered crop mark upstream of Hauxton Mill is situated on the valley floor, and a first season of excavation has shown this to be of Iron Age and Roman date, though earlier phases cannot yet be excluded. The nature of the faunal remains at Lingey Fen argues that a pre-Iron Age settlement must have provided the bulk of the bones, at least in the lower peats. At Great Shelford, the cutting made into the valley alluvia showed that early Iron Age levels were stratified 1.5m above the *lowest* levels of the peat over the gravel bedrock near the terrace edge. This would argue, if the stratigraphy 1km or so downstream is similar, that the bulk of the faunal material is of pre-Iron Age date, in coming from the lower part of a deeper peat stratigraphy. The size of cattle was shown to decline from the Neolithic to the Iron Age by Jewell (1962), and my own recent work on Neolithic and Bronze Age faunas from Eastern Britain confirms this observation. The local Iron Age cattle from Great Shelford, Wandlebury and Barley are of very small size; the cattle from Lingey Fen are large, and closer in size to cattle from the Neolithic period. In the lower peat, *Bos primigenius* is also present. The 'early' nature of the fauna is also suggested by the

number of red deer bones. Examination of the excavated material from Great Shelford shows that red deer is very rare indeed at that site; at Iron Age sites generally in Southern Britain red deer is scarce. For example, Wilson (1978) records only two antler fragments among a sample of 3438 bones of the Bronze and Iron ages at the Ashville Trading Estate excavations. Certainly the faunal remains from sites of the Iron Age argue for an open landscape much as now, with few local wooded and other refuge areas. On the other hand, the presence of horses at 12% of the fauna is unlikely at a date much before the Bronze Age; at this time, harness fittings suggest domestication. Grigson (1966) has reviewed the distribution of horse finds within the British Neolithic, and while there may be some argument for the introduction of horses in the Neolithic period as domestic animals, their remains in sites are exceptionally rare. In the Middle Bronze age faunas from Grimes Graves which I have examined, horse reaches 6.0% of the fauna on post-cranial bones, though only 1.1% of the total faunal sample. Correction of the faunal totals to allow for the under representation of horse crania at this site puts their abundance at about 3.3% of the site fauna from this phase. Of course, it must be remembered that the fauna of Lingey Fen is not the normal type of archaeological assemblage, and only a minority of the bones appear to have been deposited after butchery. Indeed, most of the bones show little human interference, and even dog gnawing is not common. It seems likely that many of the animals represented may have died some distance upstream and fell (or were thrown) into the river to be floated downstream until coming to rest at the obstruction offered by the timber construction crossing the river at this point.

The large cattle, and the high proportion of deer, point to a pre-Iron Age date for the assemblage. The stratigraphy at Great Shelford supports this point. The fauna argues for a less intensely cultivated landscape than would be suggested by the animal remains from the nearby Great Shelford excavations (Iron Age and Romano-British). A high frequency of red deer, the survival of Bos primigenius and beaver indicate some refuge areas in the valley bottoms. On the other hand, the single roe deer antler, although unshed, does not argue for the woodlands preferred by this species. The number of horses in Lingey Fen fauna, combines with the relatively large size of the cattle, is most likely to be found in the Bronze Age. The British Museum radiocarbon dates will add much to the understanding of the bone assemblage.

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	UPPER PEAT							LOWER PEAT						
	Cattle	Pig	Horse	Sheep/Goat	Red Deer	Roe Deer	Dog	Cattle	Pig	Horse	Sheep/Goat	Red Deer	Dog	Beaver
Skull								2		2				
Mandible	3		2	3	1		1	4	1	2	2	1	2	
Scapula	3	1	2	1	2			2		1		3	1	
Humerus	1		1					2	1		1	1		
Radius	2			1				1	1	1	1	6	1	
Ulna										1		2		
Radius/Ulna								2				1		
Metacarpal	1		1	2	2			1			1	3		
Pelvis	2				6			1		1		1		
Femur	1			2	2				1	1	4	3	1	
Tibia	2	2	2		2			3	1		3	6	1	1
Astragalus					1									
Calcaneum	1							1						
Metatarsal	3		1				1	1				1		
Antler unshed					4	1						3		
Antler shed					3							1		
Axis/Atlas					2							1		
TOTALS	19	3	9	9	25	1	2	20	5	9	12	33	6	1

Sample = 154

Table 1. Distribution of bones from eight species in the upper and lower parts of the peat sequence. The numbers do not imply that all bones are entire, but represent specimens sufficiently complete to eliminate double representation of broken bones. Note that loose teeth are not included in the above counts.

FOOTNOTE

The bones submitted to the British Museum Radiocarbon Laboratory have now been dated, and have given the following results:

BM-1707	*Bos primigenius* mandible	4630 ± 50 b.p.
BM-1708	*Bos primigenius* proximal metatarsal	6370 ± 70 b.p.

BM-1709	*Equus* tibia	2050 ± 50 b.p.
*BM-1711A	*Cervus elaphus* antler	2620 ± 40 b.p.
*BM-1711B	*Cervus elaphus* antler	2560 ± 45 b.p.

*Collagen extracted by two methods.

The above dates confirm some of the interpretations placed upon the animal bones described above. It is evident that the specimens of *Bos primigenius* pre-date the peats in which they were found, especially in the case of BM-1708. This specimen showed more evident signs of human modification than the other bones in the collection, and presumably was derived from a Mesolithic context. The *Bos primigenius* mandible must also be derived and, though a relatively late date for the survival of this species, dates of more than 1000 years later than this specimen have been obtained (Burleigh and Clutton-Brock forthcoming). By implication, the large (but probably domestic) cattle also from the lower peats must also be derived from earlier sediments.

The Equus tibia from the upper peats gives a date that would place the specimen within the Iron Age; the horses from Lingey Fen seem therefore to belong to a period of prehistory when the horse was a relatively common domestic animal. From the base of the sequence, two dates from one antler were obtained using different methods for the extraction of collagen. The dates are very similar by either method. The antler was taken from the 'black clay peat' at the base of the section, from the level associated with the timber constructions (J. Pullinger pers. comm.). The dates are somewhat later than those obtained from timbers at the same level, but not to the extent that the dates are contradictory.

The radiocarbon dates therefore confirm the interpretation that the lower levels of the alluvia within the valley of the upper Cam contain a mixture of bones which were derived from different contexts. Some of these are from re-worked earlier sediments. This explains the apparently 'early' nature of a fauna, with large cattle and many red deer bones, being found with significant numbers of horses. The date of the horse tibia from higher in the sediments suggests that the bones from the upper levels are likely to be contemporary with the sediments. It may be remembered that the valley stratigraphy a short distance upstream at Great Shelford appears to have been stable and not to have suffered significant erosion, at least from the early Iron Age.

ACKNOWLEDGEMENTS

I am grateful to Mr .R. Burleigh of the British Museum Radiocarbon Laboratory for the radiocarbon dates on the Lingey Fen Bones. Dr T. Molleson of the British Museum (Natural History) kindly gave an opinion on the sex of the human bones.

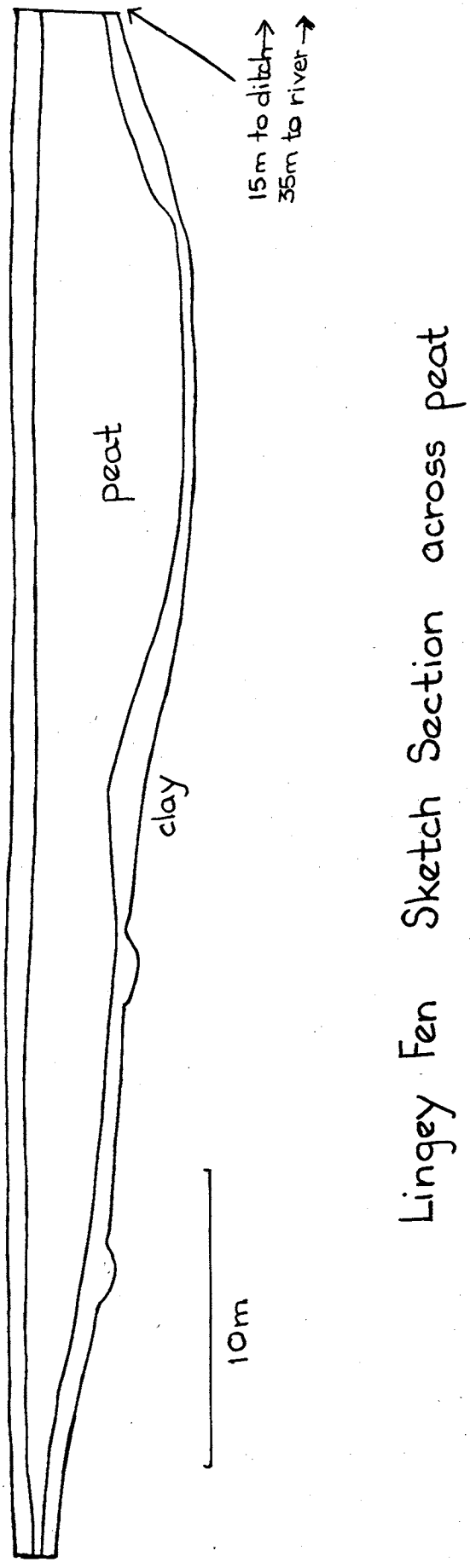

Fig. 1. Lingey Fen, Area A.
Section across peat.

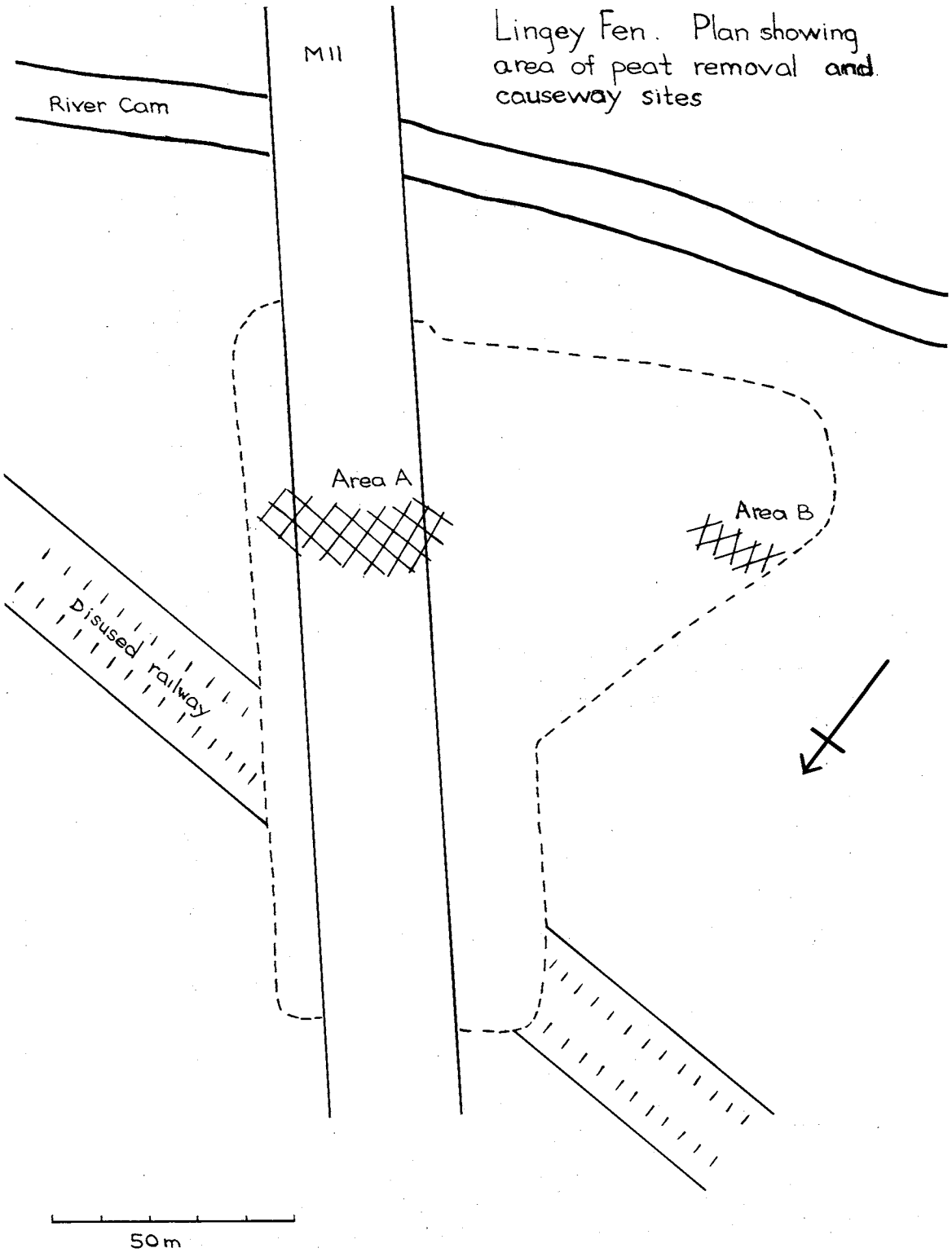

Fig. 2. Lingey Fen.
Plan of causeway sites.

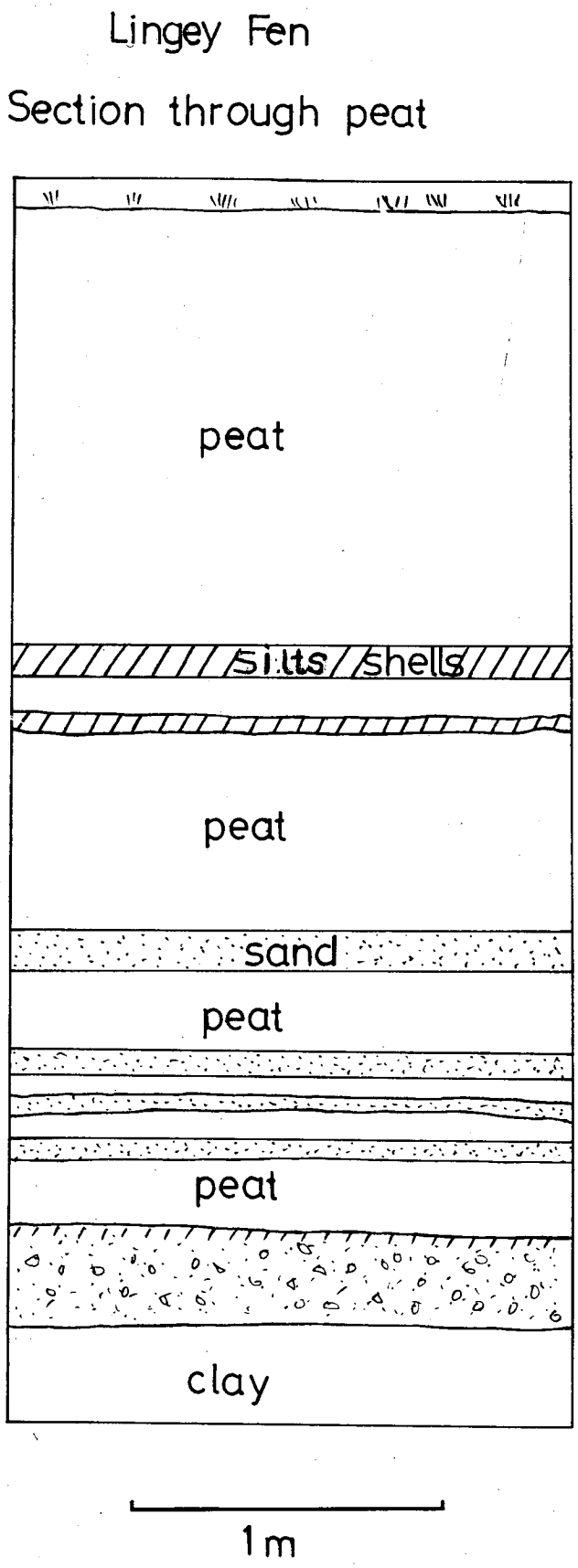

Fig. 3. Lingey Fen.
Section through peat layers.

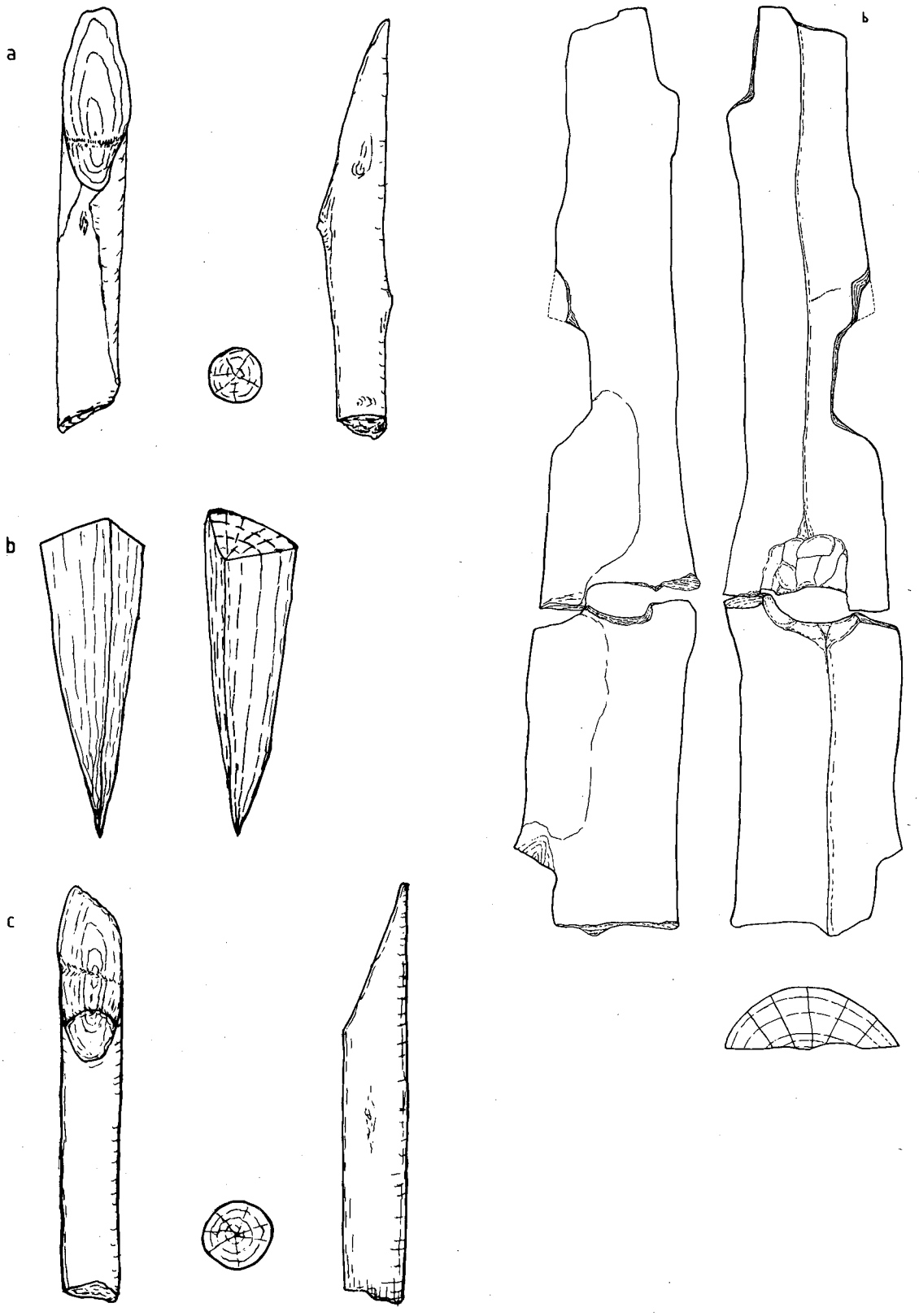

Fig. 4. Lingey Fen.
Worked timbers from causeway.
a. Roundwood peg, Site A.
b. Splitwood peg, Site A.
c. Roundwood peg, Site B. a-c. Scale ½.
d. Mortised and notched splitwood, Site B. Scale ¼.

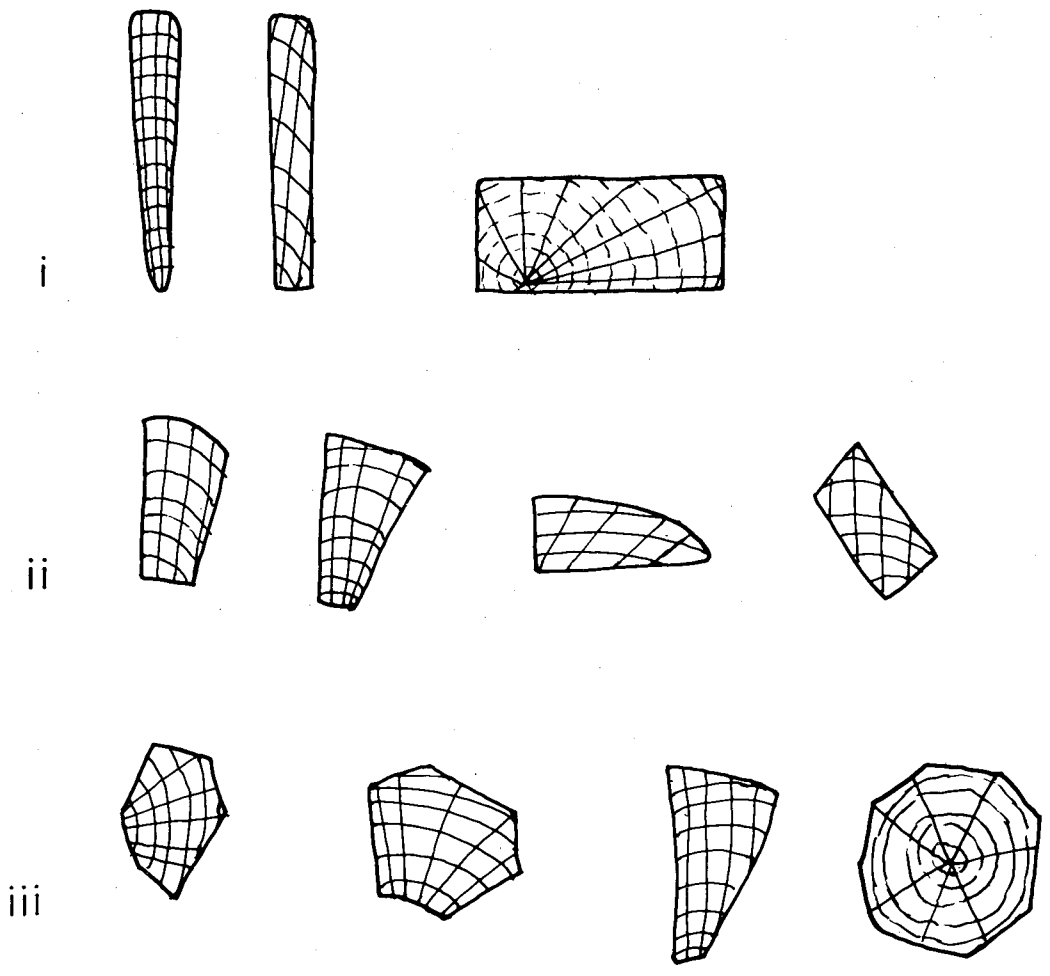

Fig. 5. Lingey Fen.
Worked timbers from causeway.
Sections of splitwood, Sites A and B, not to scale.
i. planks and boards.
ii. slats.
iii. posts and stakes.

a.

b.

c.

Plate 1. Lingey Fen.
Timbers from causeway.
a. Post, Site A. Length 31cm. Diameter 9.5cm.
b. Post, Site A. Length 25cm. Diameter 13cm.
c. Post, Site B. Length 19cm. Diameter 7cm.

b.

c.

a.

Plate 2. Lingey Fen.
Timbers from causeway.
a. Post with grooves, Site A. Grooves .75cm. wide.
b. Splitwood artefact, Site A. Length 5cm Width 4cm. Thickness 2cm.
c. Notched plank-end, Site B. Length 22cm. Width 27cm. Thickness 8cm.

PROCEEDINGS OF THE CAMBRIDGE ANTIQUARIAN SOCIETY

VOLUME LXXI

1981

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