AML Report 4863

4919

Site:	Thetford
County:	Norfolk
Codes:	5756, 5759
Director:	A. Davison (1964-70 excavations)
Type of site:	Urban site including kilns, burnt cellared building, refuse pits etc.
Period:	10th-11th century, mainly.
Geology:	River terrace gravels
Type of material:	Charcoal, carbonised seeds and cereals, mineralised plant remains, avian eggshell.

P. Murphy

Thetford (Sites 5756 and 5759): Plant remains

Methods

Samples collected during the excavations of 1964-6 and 1969-70 at sites 5756 and 5759 were received for examination. Most of these samples consist of large plant macrofossils, predominantly charcoal, collected by hand: no on-site sieving or flotation was undertaken.

The charcoal samples were graded into size fractions by dry-sieving before examination. Charcoal fragments larger than 6mm were identified where possible and the finer fractions were scanned under the microscope, picking out any smaller macrofossils (eg. shoots, seeds and seed capsules) which were present in the sandy matrix adhering to the charcoal. Plant remains were extracted from two small soil samples from building J (F15) at site 5756 (Bag nos. 2274, 2275) by manual water flotation using a 0.5mm collecting mesh.

(a) Building J (F15)

The samples from this cellared building fall into two categories: two small (300g) soil samples and two charcoal samples from the fill of this feature (Bag nos. 2274, 2275, 2260 and 2262) and charcoal samples from post-holes. The fill samples provide some information on the superstructure of the building and where possible all plant remains in these samples have been identified. The post-hole samples were taken specifically in order to establish the types of timber used for the main vertical elements of the structure. Accordingly only charcoal from mature wood in these samples has been identified. Twigs and small branches of various species are also present, and in some cases make up the bulk of the sample, but these are clearly intrusive in the post-hole fills and consequently have not been examined in detail. Carbonised plant macrofossils in samples from Building J are listed in Table .

The soil sample from Bag 2275 was collected from a patch of charred material in the entrance of the cellar. It includes numerous rachis fragments of rye, (*Secale cereale*) with some grains of rye, florets of oats (*Avena* spp), cereal and/or grass culm fragments, seeds of arable weeds, fragments of bracken fronds (*Pteridium aquilinum*) and heather shoots (*Calluna vulgaris*). This assemblage seems to represent rye straw from which the more-or-less completely threshed ears and other contaminants had not been removed, mixed with some bracken and heather. The location and composition of the sample suggest that it could represent charred remains of thatch: traditionally rye was considered the best

straw for thatching, being both long and strong (Brown 1985, 249). Alternatively the sample could be from plant material strewn on the floor.

The charcoal from this sample includes mature wood of ash and oak, (probably fragments of radially-split boards), as well as some hazel twigs, 16mm in diameter, and unidentified fragments. Unlike the other samples from the cellar, however, 2275 also contains some small worked pieces of wood (Fig). These include a lath-like piece of ash, about 24 x 5mm in cross-sectional dimensions, with rounded edges, and a length of unidentified diffuse porous charcoal with a rounded quadrilateral cross-section up to about 20mm across. This wooden object, which was cut from a piece of mature, non-twiggy wood, has a surviving length of about 80mm, though other fragments in the sample, riddled with insect borings, indicate that it was originally longer.

The other soil sample from the cellar (Bag 2274), which came from the burnt layer on the mortar floor, is different in composition. Apart from a few grains and florets of oats (Avena spp) and young shoots of Calluna vulgaris it consists mainly of charcoal: twigs of hazel, 6-15mm in diameter, fragments of ?birch and hawthorn-group charcoals, large fragmentary twigs of oak and large fragments of oak and ash wood. These seem to be fragments of radially-split oak boards and tangentially-split ash boards 20-25mm thick. Similar board fragments of oak were collected by hand from elsewhere in the fill (Bags 2260 and 2262). The charcoal from the lower levels of the cellar fill thus appears to represent fragments of oak and ash floor-boards mixed with hazel twigs, presumably from wattle panels, and with some charcoal of other diffuse porous species, which were also perhaps structural components of the building.

Even after ignoring the twiggy charcoal from the post-hole fills several samples from these features include more than one species. In most samples oak is the main non-twiggy charcoal but samples 2263, 2264 and 2268 include some ash, and samples 2271, 2272 and 2273 contain some birch. It appears that all three species were used as constructional timber, though the post-hole fills evidently include charcoal introduced when the burning building collapsed. The single sample from a 'strut' (2267) was of mature oak wood with some twig fragments.

(b) 1966 Kilnyard

Charcoal samples from contexts F33, F46, F61, F91, F97, F115 and F137 were received for identification. Most of the samples came from the stokeholes and interiors of the kilns and represent the remains of fuel, though charred

fragments of rods forming the framework for the structure of kilns F91 and F115 were also collected. Identifications of fragments larger than 6mm are given in Table . In addition to the identifications listed, most samples include young shoots of heather (Calluna vulgaris) with leaf bases and capsules containing seeds.

The two samples from the centring of the flue arches of kilns F91 and F115 are of hazel and hazel/alder. Charcoal samples from the stokeholes and the interiors of kilns consist predominantly of heather (Calluna) and broom/gorse (Sarothamnus/Ulex) with relatively small amounts of hazel, oak and ash twigs and oak wood.

(c) Kiln N19 F7

Six small charcoal samples from layers c and e were collected for identification. The stokehole had been dug away by later pits and thus all samples came from the interior of the kiln. Identifications of fragments larger than 6mm are given in Table .

Compared to the 'kiln-yard' samples, tree charcoals, including oak wood and hazel, oak and ash twigs, are relatively more abundant. Heather charcoal is, however, present in three of the samples.

(d) F48 (M22) Bag 1057

This sample from the topmost fill of a pit of 13th-14th century date consists of 130 acorn cotyledons and fragments (Quercus sp) and a few small pieces of Calluna charcoal. The cotyledons are preserved in a mineralised state. Since only the largest macrofossils from the deposit were collected interpretation is difficult, but it is possible that the acorns had been collected for their tannin content, for use in tanning leather or for some other industrial activity.

Discussion

The development of the Late Saxon town of Thetford would have resulted in a considerable demand for constructional wood and for fuel, both for domestic purposes and for use in the pottery industry. However, evidence from pollen analysis and other sources (Sims 1978, Bennett 1983) indicates that there were extensive prehistoric woodland clearances in the Breckland and it can be assumed that by the Late Saxon period large heaths existed in this area. The predominance of Calluna (heather) and Sarothamnus/Ulex (broom/gorse)

charcoals in the pottery kiln samples implies that sufficient fuel could not be obtained from local woodlands and indicates that the fuel requirements of the industry were met, at least in part, by collecting heather and broom/gorse in heathland areas. Whether the fuel was supplied as wood or as charcoal (produced perhaps in heathland clamps) cannot be determined. This activity would have had ecological effects of greater or lesser magnitude, depending on its scale: removing woody vegetation would have prevented regeneration of scrub on the heaths whilst any disturbance of the soil surface associated with this fuel collection could have resulted in instability and wind-blowing.

Interpreting the charcoal and other carbonised plant remains from the cellared building, F15, in terms of their structural functions inevitably raises problems since clearly much of this plant material was not in situ but lay where it fell when the building burnt down. The following tentative interpretation may, however, be proposed:

Roofing.	Thatch of rye straw, perhaps mixed with some bracken and heather (Sample 2275).
Walls/partitions.	Wattle panels, mainly of hazel (Samples 2260, 2262, 2274, 2275).
Floor-boards (ceiling of cellar).	Radially and tangentially split boards of ash and oak (Samples 2260, 2262, 2274, 2275).
Main vertical posts.	Oak, ash and birch (post-hole samples).
Struts/braces.	Oak (Sample 2267).

Abundant rye straw would have been available for thatching. The crop is known to have been widely cultivated in the Breckland from at least Early Saxon times onwards (Murphy 1983).

Hazel rods were also used as part of the framework for the kilns. The acorns from the 13th-14th century pit F48 give some indication of the uses of other woodland products.

References

Bennett, K.D. (1983) 'Devensian Late Glacial and Flandrian Vegetational History at Hockham Mere, Norfolk, England. 1. Pollen Percentages and Concentrations'. New Phytologist 95, 457-487.

Brown, R.J. (1985) English Farmhouses. Arrow Books: London.

Murphy, P. (1983) 'Iron Age to Late Saxon Land Use in the Breckland', in Jones, M. (ed) 'Integrating the Subsistence Economy' BAR International Series 181, 177-209.

Sims, R.E. (1978) Man and Vegetation in Norfolk, in Limbrey, S. and Evans, J.G. (eds) 'The Effect of Man on the Landscape: the Lowland Zone' CBA Res. Rpt. No. 21, 57-62. London.

		Samples from fill			
Bag number		2260	2262	2274	2275
Cereal indet. (caryopsis frags)		-	-	-	+
(caryopses)	(a)	-	-	-	32
(rachis nodes)		-	-	-	3
Cereal/grass (culm bases)		-	-	-	2
(culm nodes)	(b)	-	-	-	19
(culm & leaf frags)		-	-	-	+
Secale cereale L. (caryopses)		-	-	-	13
(lemma keel frags)		-	-	-	+
(rachis nodes)	(c)	-	-	-	278
cf. *Hordeum* sp. (rachis nodes)		-	-	-	3
Avena sp. (caryopses)	(d)	-	-	3	41
(awn frags)		-	-	-	+
(floret bases)	(e)	-	-	-	10
(florets with grains)	(e)	-	-	-	2
Avena fatua-type (floret base)		-	-	-	1
Avena cf. *sativa* (upper floret bases)		-	-	-	2
Avena cf. *strigosa*-type (floret bases)		-	-	1	5
Pteridium aquilinum (L) Kuhn (frond frags)		-	-	-	+
Agrostemma githago L.		-	-	-	1
Chenopodium sp. (testa frag)		-	-	-	1
Potentilla sp.	(f)	-	-	-	1
Calluna vulgaris (L) Hull (stems with leaf bases)		-	-	+	+
cf. *Anthemis cotula* L.	(f)	-	-	-	1
Centaurea cf. *cyanus* L.		-	-	-	1
Carex sp.		-	-	-	1
?Cyperaceae (stem frag)	(g)	-	-	-	+
Gramineae indet	(h)	-	-	-	10

Indeterminate	(seeds)		-	-	-	9
Indeterminate	(shoot)		-	-	-	+
Unidentified charcoal	(twigs)	(i)	-	-	-	-
Unidentified charcoal	(wood)		+	-	+	+
Corylus sp.	(twigs)		-	-	+	+
Corylus/*Alnus*	(twigs)		+	+	-	-
Betula sp.	(wood)		-	-	?	-
Quercus sp.	(wood)		+	+	+	+
Quercus sp.	(twigs)		-	-	+	-
Crataegus-group	(wood)		+	-	+	-
Fraxinus sp.	(twigs)		-	-	-	-
Fraxinus sp.	(wood)		+	-	+	+

Table : Carbonised plant remains from building J (F15)

Taxa are represented by fruits or seeds except where indicated.

Notes: (a) Including fragments with embryo area. (b) Very variable in size. (c) Including sections of rachis with up to 3 nodes; also 6 basal rachis internodes with top of culm. (d) Very small grains, mostly sprouted. (e) Articulations missing/damaged. (f) Surfaces abraded. (g) Stem node, triangular in cross-section. (h) Small *Poa*-type. (i) Including twigs of *Fraxinus*, *Corylus*/*Alnus*, *Ulex*/*Sarothamnus* and *Calluna* etc, but not closely examined; see text.

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-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
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-	+	+	+	+	+	+	+	+	+	-
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+	+	-	-	-	+	-	-	-	-	-

Charcoal samples from post-holes

2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-

	Layer no.	c	c	c	e	e	e
	Location	'W. half'	-	-	-	-	'E. half'
	Bag no.	-	165	-	169	186	-
Wood	Quercus	-	-	-		+	-
Twigs	Indet. diffuse porous	+	-	+	-	-	+
	Corylus	-	-	-	-	-	+
	Corylus/Alnus	+	-	+	-	-	-
	Quercus	-	+	-	+	-	++
	Calluna	-	-	+	+	++	-
	Fraxinus	-	-	+	-	-	-

Table : Charcoal from kiln F7 (N19)

Quantities indicated as in Table.

		Structural wood		Charcoal from kiln interior			Charcoal from stokeholes				
	Grid square	D16	D16	D16	D16	E16	D16	D16	E16	D16	D16
	Kiln no.	F91	F115	F137	F137	F33	F61	F97	F33	F46	F115
	Bag no.	3103	3104	3105	3106	1743	1621	1622	1743	1784	3101
Wood	Quercus	-	-	-	-	-	+	++	-	-	-
Twigs/ stems	Sarothamnus/Ulex	-	-	-	+	+	++	++	++	+	++
	Corylus	-	+	-	-	-	+	-	-	-	-
	Corylus/Alnus	+	-	+	-	-	-	-	-	-	-
	Quercus	-	-	-	-	-	+	-	-	-	-
	Calluna	-	-	++	++	++	+++	+++	+	+	+++
	Fraxinus	-	-	-	-	-	-	+	-	-	-

Table : Charcoal from the 'kilnyard'

Only fragments larger than 6mm. identified. An indication of the relative abundance of charcoal from different taxa is given as follows: +++ - abundant, main component of large sample; ++ - fairly common, indicating large fragments; + - present, few or small fragments. Bag 1743 contained two further bags of charcoal from the stokehole and interior of F33 respectively. The broom/gorse charcoal is mostly ring porous and a few fragments retain their bark and have angular stems. Broom is thus certainly present, though some of the smaller fragments could be of gorse.

Miscellaneous samples

Site 5756

'Old ground surface'. K22. Layer g

Sample of structureless dry brown sand; stony, with rounded to angular flint and quartzite pebbles up to 35mm. Without seeing the complete profile of the buried soil at this site it is impossible to define the type of soil represented. However soils on river terraces in the Breckland are typically coarse and stony with relatively stone-free upper horizons (Corbett 1973, 65ff). The stony character of this sample might perhaps imply some truncation prior to burial.

(b) M23 F101 Bag 894

Sample of avian eggshell fragments from a 15th-16th century pit.

Site 5759

(a) F223 Bag 1554

Sample of desiccated and deformed plant stem and fibre fragments - probably unidentifiable.

(b) F47 Bag 868

Small carbonised fragments of a cotyledon from a large-seeded species of Vicia or Pisum.

Corbett, W.M. (1973) Breckland Forest Soils Soil Survey, Special Survey No. 7. Harpenden.