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BARTON BENDISH, NORFOLK: PLANT AND ANIMAL MACROFOSSILS FROM A RURAL MEDIEVAL SITE.

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Summary

14th-16th century features produced assemblages of carbonised plant material, including remains of Triticum aestivum, Hordeum sp., Secale cereale, Avena sativa, Pisum sativum and Juglans regia. Some of the barley is thought to represent charred malt, and charred bread fragments were also recovered. Charred remains of Cladium mariscus and other fen plants were associated with partly burnt shells of marsh and freshwater snails, perhaps reflecting the use of sedge litter for kindling or fuel. Marine molluscs and bones of marine fish (herring, ?ling, plaice, flounder) indicate importation of foodstuffs from the coast, while the eel and ?pike bones reflect local freshwater fisheries.

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Barton Bendish, Norfolk (BBH 21066)

Introduction

The excavations of 1987/8 at this site provided a rare opportunity to examine medieval deposits from a rural site in Norfolk. Although assemblages of plant remains, bone and shell have been obtained from a number of urban excavations at Kings Lynn, Yarmouth and Norwich (see reports in Clarke and Carter (1977), Rogerson (1976), Atkin et al (1985), Ayers and Murphy (1983), Ayers (1987)) and from excavations at Castle Acre Castle (Coad et al 1987) data from medieval rural sites in this area are sparse. It was hoped that retrieval of biological material at Barton Bendish would provide information on supplies of food and other raw materials to the site and the types of activities involving the processing of plant and animal products taking place within the excavated area.

Methods

Bulk samples were taken from a representative range of contexts, mainly ditches and pits in areas B and D, dating from the 14th-16th centuries. The samples, normally 15 litres in volume, were processed in a flotation/bulk sieving tank using 0.5mm meshes. The residues were sorted completely, without magnification, and the flots were sub-divided where necessary before sorting under a binocular microscope at low power. The distribution of macrofossils

	2001	2002	2003	2004	2005	2006	2007	2008
	B303	B305	B321	B320	B317	B316	B318	B319
Mammal bone	++	+	+	-	++	-	-	-
Small mammal bone	-	-	-	-	-	-	-	-
Bird bone	-	-	-	-	-	-	-	-
Amphibian bone	+	+	+	+	+	-	-	-
Fish bone	-	-	+	-	-	-	-	-
Land/freshwater molluscs	++	++	++	++	++	+	++	+
Marine molluscs	+	+	+	-	+	+	+	+
Avian eggshell	-	-	+	-	-	-	-	-
Cladocerans	-	-	+	-	-	-	-	-
Ostracods	-	-	-	-	-	-	-	-
Charophyta	-	-	-	-	-	-	-	-
Seeds etc.	+	+	+	+	+	+	+	-
Charcoal	+	+	+	+	+	+	+	+
Carbonised cereals	+	+	+	+	+	+	+	-
Other carbonised macrofossils	-	-	-	-	-	-	-	-

Table 1 : The distribution of biota in the samples

	2011	2012	2013	2014	2015	2016	2017	2018
	B328	B325	B329	B551	B341	B398	B330	B391
Mammal bone	-	+	++	+	+	+	+	+
Small mammal bone	-	+	+	-	+	+	-	-
Bird bone	-	-	+	-	-	+	-	-
Amphibian bone	-	-	-	+	+	-	+	-
Fish bone	-	-	+	-	+	+	-	-
Land/freshwater molluscs	+	+	++	++	+	++	+	-
Marine molluscs	+	+	+	+	-	+	-	-
Avian eggshell	+	-	+	+	-	+	-	-
Cladocerans	-	+	-	-	-	-	-	-
Ostracods	-	+	+	-	-	-	-	-
Charophyta	-	+	+	+	+	+	-	+
Seeds etc.	+	+	+	+	+	+	+	+
Charcoal	+	+	+	+	+	+	+	+
Carbonised cereals	+	+	++	+	+	+	+	+
Other carbonised macrofossils	-	+	+	-	-	+	+	-

Table 1 (contd)

	2019	2020	2021	2022	2023	2024	2025	2026
	B344	D592	D603	D577	D611	D582	D553	D578
Mammal bone	-	++	+	+	+	+	+	-
Small mammal bone	-	+	+	+	-	-	+	-
Bird bone	-	+	-	-	-	-	-	-
Amphibian bone	-	-	+	+	+	+	+	-
Fish bone	-	++	+	+	+	+	+	+
Land/freshwater molluscs	+	++	+	+	+	+	+	+
Marine molluscs	-	++	+	+	+	+	+	+
Avian eggshell	-	++	++	-	+	+	-	-
Cladocerans	-	-	-	-	-	-	-	-
Ostracods	-	-	+	-	+	-	-	-
Charophyta	-	+	+	-	+	+	+	-
Seeds etc.	+	++	++	++	++	++	+	-
Charcoal	+	+	+	+	+	+	+	+
Carbonised cereals	+	++	++	++	++	++	+	+
Other carbonised macrofossils	-	+	+	++	+	++	+	-

Table 1 (contd)

	2027	2029	2030	2031	2032	2033	2034
	D579	D636	D647	D759	D758	D761	D763
Mammal bone	+	++	+	+	+	+	+
Small mammal bone	-	+	+	+	+	+	-
Bird bone	+	-	+	-	-	-	-
Amphibian bone	-	+	+	+	-	+	+
Fish bone	+	+	+	-	+	+	+
Land/freshwater molluscs	+	+	++	++	++	++	++
Marine molluscs	++	+	+	+	+	+	+
Avian eggshell	+	+	+	+	+	+	+
Cladocerans	-	-	-	-	-	-	-
Ostracods	-	+	+	-	-	+	-
Charophyta	+	+	+	+	-	+	+
Seeds etc.	++	+	+	+	+	++	+
Charcoal	+	+	+	+	+	+	+
Carbonised cereals	+	++	++	++	+	++	+
Other carbonised macrofossils	++	+	+	++	+	++	+

Table 1 (contd)

in the samples is summarised in Table 1.

Bones of mammals, birds and amphibians were recovered both from the samples and by hand collection during excavation, but the collections obtained are very small and have therefore not been studied in detail. They will be retained and can be incorporated into any more extensive studies of faunal remains from future excavations in the area.

Fish-bones by Alison Locker

Fish bones dating from the 14th to the 16th centuries were recovered by sieving. All the samples were fifteen litres except for 2016 which was thirty litres and 2032 which was three litres.

None of the samples were rich in fish bones and of the bones recovered 62% were unidentifiable. The following species were identified: eel (Anguilla anguilla), herring (Clupea harengus), cf. pike (Esox lucius), cf. ling (Molva molva), plaice (Pleuronectes platessa) and flounder (Platichthys flesus).

Table 2 indicates the fish found in each context. 321, 339, 341, 398 and 553 are all 14th century; the first is a ditch, the rest are pit deposits. 592 (15th/16th), 577, 611 and 582 are 15th century pit deposits and 578, 579, 603, 636, 647, 758, 761 and 763 are from 16th century pits.

Context	Eel	Herr	Pike	Ling	Plaice	Flound	Indet	Tl
2003 321	-	1	-	-	-	-	-	1
2013 339	-	-	-	-	-	1	4	5
2015 341	-	-	-	-	-	-	3	3
2016 398	-	1	-	-	-	-	-	1
2020 592	2	17	-	-	-	-	37*	56
2021 603	-	-	-	-	-	-	4	4
2022 577	-	1	-	-	-	-	1	2
2023 611	-	2	-	-	-	-	-	2
2024 582	-	-	-	-	-	-	2	2
2025 553	-	-	-	-	-	-	2	2
2026 578	-	4	-	-	-	-	1	5
2027 579	-	2	-	1	1	-	5	9
2029 636	2	-	-	-	1	-	4	7
2030 647	1	3	-	-	-	-	6	10
2032 758	-	-	-	-	-	-	2	2
2033 761	-	3	-	-	1	-	4	8
2034 763	-	-	1	-	-	-	2	3
Total	5	34	1	1	3	1	77	122

Table 2 : Fishbones

*probably herring

Herring, plaice and flounder could have been caught locally on the coastline and purchased in King's Lynn, approximately ten miles away. The herring bones from 592 may come from a single individual. The only other marine species identified was ling, which was a tentative identification from a very small cleithrum (total length 22.0mm) indicating an immature individual. Found in a 16th century pit, it might have been part of a catch of fry. The distribution of this species does not extend as far south as King's Lynn, suggesting it was brought down from a more northerly port.

Eels could have been caught in the local river and were a very common part of the diet during the medieval and post medieval period. Pike was tentatively identified from a fragment of dentary and could also have been caught locally.

The sample is too small for more detailed interpretation, but all the species were commonly eaten during this period.

Land and freshwater molluscs

The assemblages of terrestrial and freshwater mollusca from this site are of two types. Most features, particularly in area B, contained assemblages of mainly terrestrial taxa dominated by the Trichia hispida group and Vallonia spp. with occasional shells of other grassland snails, synanthropic species such as Helix aspersa and Limacidae, sometimes with Zonitidae, notably Vitrea contracta and rare shells of Succinea sp and Lymnaea truncatula. These

assemblages have not been studied in detail, but are thought to indicate predominantly grassy vegetation, locally disturbed, with some patches of denser vegetation affording suitable conditions for shade-requiring taxa. The absence of 'obligate' aquatic species indicates that these features did not contain permanent standing water.

Some samples from area B, and most features from area D, produced different assemblages containing shells discoloured to shades of grey to black as a result of burning. Shells from a typical assemblage of this type are listed in Table 3. This assemblage, from a context D603, a small 16th century feature, is one of the larger assemblages of this type but most other features in area D, and also B339, a fill of the 14th century feature 340 contained assemblages composed of a similar range of taxa, sometimes with additional snails, such as burnt Viviparus shells.

The 'burnt' shells from D603 clearly consist largely of freshwater and marsh taxa. There are also shells of such species which are not discoloured by burning, but many of these are in poor state of preservation, heavily encrusted with reddish soil and with abraded and pitted surfaces, sometimes with a brownish tint. The shells of terrestrial snails, by contrast, are quite well preserved, mostly unabraded and white in colour.

It is thought that the well-preserved shells of land snails represent the local resident fauna, consisting mainly of the

	White-Pale Brown	Grey-black
1. Freshwater taxa		
Valvata cristata Müller	20	55
Valvata macrostoma Mörch	2	4
Valvata cf. piscinalis (Müller)	-	1
Valvata sp.	23	37
Bithynia tentaculata (Linné)	-	7
Bithynia sp.	15+op.	18+op.
Aplexa hypnorum (Linné)	2	4
Lymnaea truncatula (Müller)	6	31
Lymnaea peregra (Müller)	-	8
Lymnaea spp.	33	76
Planorbis planorbis (Linné)	-	7
Bathyomphalus contortus (Linné)	1	-
Anisus leucostoma (Millet)	1	7
Gyraulus albus (Müller)	-	1
Planorbidae indet.	8	4
Pisidium sp(p)	2+(2x2)	4+(6x2)
2. Terrestrial/marsh taxa		
Carychium sp	13	16
Succinea sp.	3	27
Cochlicopa sp.	8	-
Vertigo antivertigo (Draparnaud)	-	4
Vertigo sp.	7	25
Pupilla muscorum (Linné)	7	-
Vallonia costata (Müller)	10	-
Vallonia excentrica Sterki	8	-
Vallonia sp.	50	2

Vitrea sp.	1	-
Nesovitrea hammonis (Ström)	1	-
Limacidae indet.	1	-
Euconulus sp.	1	2
Cecilioides acicula (Müller)	+	-
Trichia hispida gp.	66	-
Unidentified	11	15

Table 3 : Freshwater and land mollusca from D603 (Sample 2021)

The high proportion of unidentified and incompletely identified specimens results largely from the effects of partial burning and from soil encrustations

Sample No.	Context No.	Mytilus	Cerastoderma	Ostrea	Other taxa
2001	B303	4	6	-	-
2002	B305	3	4	-	-
2003	B321	2	(+)	-	?Buccinum frag.
2005	B317	(+)	-	-	-
2006	B316	(+)	-	-	-
2007	B318	(+)	-	-	-
2008	B319	(+)	-	-	-
2011	B328	(+)	-	-	-
2012	B325	(+)	(+)	-	-
2013	B339	1	(+)	(+)	Macoma balthica 1 Nucula sp. 1 Littorina sp. 1
2014	B551	1	-	1	-
2016	B398	1	(+)	-	-
2020	D592	1	3	-	Balanus frags
2021	D603	(+)	(+)	-	-
2022	D577	1	1	-	-
2023	D611	2	1	-	-
2024	D582	3	(+)	(+)	-
2025	D553	(+)	(+)	-	-
2026	D578	(+)	-	-	-
2027	D579	11	5	2+1 juv.	Balanus frags
2029	D636	-	1	-	-
2030	D647	2	-	-	-
2031	D759	1	1	1	-
2032	D758	-	(+)	-	-
2033	D761	(+)	(+)	-	Littorina sp.1

2034	D763	(+)	-	-	-

Table 4 : Marine molluscs etc.

Counts refer to numbers of valves/shells

(+) - non-hinge fragments juv. - juvenile

Trichia hispida group and Vallonia spp. - a typical fauna for this site. The 'burnt' freshwater and marsh snails, however, were associated in this feature, as in others, with carbonised remains of Cladium mariscus and other fen species, and are thought to have reached the site with sedge litter which was subsequently burnt.

Marine molluscs

Shells and fragments of mussels (Mytilus edulis) and cockles (Cerastoderma edule) were present in small quantities in most samples. Oyster shells (Ostrea edulis) occurred more sporadically and there were a few winkles (Littorina sp.) and a gastropod fragment probably of a whelk (Buccinum undatum) B339 produced burnt shells of two inedible bivalves, Macoma balthica and Nucula sp. These may have reached the site as chance contaminants of shellfish catches. Presumably these shellfish came from the Lynn area via the River Nar.

Charred plant remains

The range of crop plants identified from carbonised grains, rachis fragments, seeds and nutshells comprises bread wheat (Triticum aestivum), barley (Hordeum sp.), rye (Secale cereale), oats (Avena sativa), peas (Pisum sativum) and walnut (Juglans regia) (Tables 5 and 6). An identical range of taxa is reported by Green (1987) from deposits at Castle Acre Castle. Walnut occurred in only one 14th century

context. Other 14th century features in general contained sparse assemblages dominated by wheat grains, whilst the 15th and 16th century features mostly produced rather larger assemblages in which both wheat and barley are common. Tetraploid wheat, which has been found in samples from rural medieval sites in Essex, at Stansted Airport and at North Shoebury, and from a 13th century context at Ipswich (all, Murphy in prep.) was not noted here.

There is a very marked change in the concentrations of carbonised plant remains in the deposits through time. With one exception 14th century features have cereal grain concentrations in the range 0-1.6 cereal grains per litre of soil; 15th century contexts contained 18.9-27.5 grains/litre; 16th century contexts up to 41.9 grains/litre. These results indicate that most of the early features include only a background scatter of material and suggest that no large-scale cereal processing took place at the site before the 15th century.

Larger assemblages with a high proportion of barley grains came from a single 14th century feature (B339) and from several 16th century features, notably D761. The grains, which are associated with some rachis fragments, are in a very poor state of preservation, badly deformed, though often the embryo areas are enlarged, implying germination prior to carbonisation. This suggests that these assemblages include a component of barley malt, accidentally charred during the parching process prior to mashing and

brewing. The presence of charred fragments of bread (characterised by inclusions of charred cereal peridem) may imply that ovens used for malt parching also served for baking.

These assemblages also included grains and rachis fragments of other cereals and peas, and some 15th-16th century contexts had a higher proportion of wheat than barley. The activities which resulted in the carbonisation of these other grain and pulse crops are uncertain.

Carbonised seeds and fruits of weeds are uncommon, but include Raphanus raphanistrum, Silene sp., Agrostemma githago, Chenopodium album, Atriplex sp. Malva sp., Medicago lupulina, Rumex sp., Urtica dioica, Lithospermum arvense, Hyoscyamus niger, Anthemis cotula and Bromus sp. The rarity of weed seeds indicates that the batches of cereals which became carbonised were semi-cleaned, containing only a relatively small proportion of contaminants such weed seeds and some large rachis fragments.

Remains of wetland taxa are,however, unusually common, and are often associated with burnt shells of marsh and freshwater snails (see above). Plants identified include Charophytes, Oenanthe sp., Menyanthes trifoliata, Eleocharis palustris/uniglumis, Cladium mariscus and Carex spp., and there are also many indeterminate fragments of monocotyledonous stems, leaves and rhizomes, which may also be from marsh and fen plants. Historically ,marsh

vegetation has been cut for a variety of purposes to provide litter, thatch and marsh hay. Godwin (1978, 148) also notes the collection of dead Cladium leaves for use as kindling material. The abundance of carbonised remains of wetland plants in deposits containing probable charred barley malt and charred bread does seem to suggest that fuel or kindling for ovens is represented here. The presence of rhizomes, and biota of freshwater origin, may indicate that fen litter was collected for this purpose rather cutting stands of fen vegetation.

Sample no.		2001	2002	2003	2004	2005	2006	2007	2008	2011	2012	2013	2014	2015	2016	2016	2017	2018	2019
Context no.		303	305	321	320	317	316	318	319	328	325	339	331	341	398(1)	398(1)	330	391	341
Cereal indet.	ca fr	+	+	+	+	+	+	+	-	+	+	++	+	+	+	+	+	+	+
Cereal indet.	ca	2	-	-	-	-	-	-	-	1	-	84	4	3	-	10	-	10	-
Triticum sp.	ca (a)	1	2	2	4	2	1	2	-	-	-	-	-	1	-	5	1	7	1
Triticum sp.	rn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Hordeum sp.	ca	-	-	-	-	-	-	1	-	-	-	60	-	1	-	1+1cf(e)	-	1	-
Hordeum sp.	rn	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Avena sp.	ca	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-
Pisum sativum-type	(b)	2fr	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-
Juglans regia L.		-	-	-	-	-	-	-	-	-	-	fr	-	-	-	-	-	-	-
Characeae		-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	+	-
Raphanus raphanistrum L	(c)	-	-	-	-	-	-	-	-	-	-	fr	-	-	-	-	-	fr?	-
Cruciferae indet		-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Silene sp.		-	-	-	-	-	-	1	-	-	-	3	-	-	-	-	-	-	-
Caryophyllaceae indet.		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Chenopodiaceae indet.		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Leguminosae indet.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Rumex sp.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Menyanthes trifoliata L.		-	-	-	-	-	-	-	-	-	-	fr	-	-	-	-	-	-	-
Galium aparine L.		-	-	-	-	-	-	-	-	-	-	1+1fr	-	-	-	-	2	-	-
Eleocharis palustris/uniglumis		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Cladium mariscus (L) Pohl.		-	-	-	-	1	-	-	-	1	-	2	-	-	-	-	-	1	-
Carex spp.		1	-	-	-	-	-	-	-	-	-	26	-	-	-	-	-	1	-
Bromus mollis/secalinus		-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Gramineae indet.		-	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	-
? Gramineae indet.	cn	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
Monocot. stem and leaf frags	(d)	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-
Monocot. rhizome frags		-	-	-	-	-	-	1?	-	-	-	5	-	-	-	1	-	-	-
Indeterminate		-	-	-	2	-	-	1	-	-	1	9	-	-	-	2	-	2	-
Sample volume (litres)		15	15	15	15	15	7.5	15	7.5	15	?	15	15	15	15	15	15	15	15
% flot sorted		12.5	50	50	100	50	100	50	100	100	100	50	25	25	25	100	100	100	100

Table 5 : Carbonised plant remains from Area B

Taxa are represented by fruits or seeds except where indicated.

Abbreviations: ca - caryopsis; cn - culm node; fr - fragment;
rn - rachis node.

Notes:
(a) Short hexaploid-type grains
(b) No hilums
(c) Siliqua fragments
(d) Including leaf fragments with internal air-spaces cf. Cladium mariscus
(e) Germinated grains.

Sample no.		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Context no.		592	603	577	611	582	553	578	579	636	647	759	759	762	763
Cereal indet.	ca fr	+	+	+	+	+	+	+	+	+	+	+	+	++	+
Cereal indet.	co	23	38	50	38	30	9	2	9	46	74	86	9	128	3
Cereal indet.	rn	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cereal indet.	br fr	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Triticum sp.	ca (a)	7	12	37	25	38	3	1	6	6	7	-	2	6	3
Triticum sp.	rn	-	1	-	1	-	-	-	-	3	-	-	-	39	-
Triticum sp.	ri fr	-	2	-	-	-	-	-	2	1	-	-	-	5	-
Triticum sp.	brith	-	-	-	-	-	-	-	-	-	-	-	-	5	-
Triticum aestivum L.	ri (c)	-	-	-	-	-	-	-	1	-	-	-	-	2	-
Triticum aestivum L.	rn (d)	-	-	-	-	-	-	-	-	1	-	1	-	37	-
Secale cereale L.	ca	3	-	1	-	1	-	-	1	1	1	-	-	2	-
Secale cereale L.	rn	1	-	-	-	-	-	-	1	3	2	1	-	4	-
Hordeum sp.	ca	1cf(q)	1	15	5	6	1	-	5	10	16(r)	74(q)	13	171(q)	11(q)
Hordeum sp.	rn	-	-	-	1	-	-	-	2	3	5	11	-	20	2
Hordeum sp.	bra	-	-	-	-	-	-	-	-	-	-	3(s)	-	5(s)	1
Hordeum sp.	ri	-	-	-	-	-	-	-	-	-	-	-	-	2(t)	-
Secale/Hordeum	rn (e)	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Avena sp.	ca	-	-	-	3cf	1cf	3cf	-	1cf	3cf	3	-	3	7(q)	-
Avena sp.	fb	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Avena sativa L.	fb	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Pisum sativum L.	(f)	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Pisum-type	(g)	1	2+fr	1s+1co	4s+6co	1s+8co	-	-	-	-	1	-	3+1co	-	-
Chenopodiaceae indet.		+	+	-	-	+	+	-	-	-	+	+	-	+	-
Ranunculus acris/repens/bulbosus		-	-	-	-	-	-	-	-	-	1	1	-	-	-
Raphanus raphanistrum L.	(h)	-	-	-	-	-	-	-	fr	-	-	-	-	-	-
Silene sp.		-	1	-	1	fr	-	-	-	-	-	-	-	2	-
Agrostemma githago L.	(i)	-	-	-	-	5	-	-	-	-	-	-	-	-	-
Caryophyllaceae indet.		-	-	-	-	-	-	-	-	1	-	-	-	-	-
Chenopodium album L.		-	-	-	-	-	-	-	-	-	-	1	-	2	-
Chenopodium sp.		-	-	-	-	-	-	-	-	-	-	5	-	-	-
Atriplex sp.		-	-	-	-	-	-	-	-	-	-	1	-	1	-
Chenopodiaceae indet		-	-	-	-	-	-	-	-	-	-	-	-	1	-
Malva sp.		-	-	-	-	-	-	-	-	-	1	-	-	-	-
cf. Linum sp.	(j)	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Medicago lupulina L	(k)	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Leguminosae indet.		-	-	-	-	-	-	-	-	-	-	-	-	3	-
cf. Potentilla sp.		-	-	-	-	-	-	-	1	-	-	1	-	-	-
Oenanthe sp.		-	-	-	-	-	-	-	-	-	-	-	-	1	-
Rubus sp.		-	-	-	-	-	-	-	23	-	1	-	-	-	-
Urtica dioica L.		-	-	-	-	-	-	-	-	-	-	1	-	-	-
cf. Primulaceae indet.		-	-	-	1	-	-	-	-	-	-	-	-	-	-
Menyanthes trifoliata L.	(l)	-	-	-	1	-	1	-	-	-	-	3	-	3	-
Lithospermum arvense L.		4	-	3	-	1	-	-	-	-	-	-	2+fr	1	-
Hyoscyamus niger L.		-	-	-	-	1	-	-	-	-	-	-	-	-	-
Sambucus nigra L.		-	-	-	-	-	-	-	-	-	-	9	-	4	-
Anthemis cotula L.		-	-	1	-	1	-	-	-	-	-	-	-	-	-
Centaurea sp.		-	-	-	-	fr	-	-	-	-	3fr	1	fr	1	-
Compositae indet.		-	-	-	-	-	-	-	1	-	-	-	-	-	-
Eleocharis palustris/uniglumis		-	-	-	-	-	-	-	-	-	-	-	-	1	-
Cladium mariscus (L) Pohl.		5	-	-	-	-	-	-	5	-	-	3	-	-	-
Carex spp.	(m)	5	4	1	4	4	fr	-	17	5+fr	3+fr	58	-	31	-
Bromus mollis/secalinus		1	1	-	-	-	-	-	-	-	-	-	-	-	-
Gramineae indet.		2	7	3	4	1	2	-	8	3	5	4	-	15	1
? Gramineae indet.	cn (n)	6	1	1	1	1	-	-	8	-	2	14	1	15	-
Monocot. stem and leaf frags	(o)	+	-	+	+	+	-	-	+	+	+	+	-	+	+
? Dicot stem frag.		-	-	-	-	+	-	-	+	-	-	-	-	-	-
Monocot. rhizome frags		-	3	8	2	8	-	-	5	1	6	42	1	25	2
Tuber		-	-	-	-	-	-	-	-	1	-	-	-	-	-
? Moss stem frags		-	-	-	-	-	-	-	+	+	-	-	-	-	-
Charred bread frags	(p)	-	-	-	-	-	+	-	-	-	-	-	-	+	-
Indeterminate		6	3	8	3	5	2	-	14	8	13	14	2	15	3
Sample volume (litres)		15	15	15	15	15	15	15	15	15	15	15	3.5	15	15
% flot sorted		25	100	25	25	25	100	25	25	50	50	50	100	50	100

Table 6 : Carbonised plant remains from Area D

Taxa are represented by fruits or seeds except where indicated.

Abbreviations: br - bract; bri - basal rachis internode; brs - basal rachis section; ca - caryopsis; cn - culm node; co - cotyledon; fb - floret base; fr - fragment; ri - rachis internode; rn - rachis node; s - seed.

Notes:
(a) Short hexaploid-type grains
(b) Elongate internodes with quadrilateral cross-section
(c) Internodes with clear 'shield' shape
(d) Nodes with deciduous glumes, no swellings below glume inset, strongly veined fragmentary internodes (usually)
(e) Immature
(f) Well-defined short elliptical hilums
(g) Pisum-size but hilums missing or obscured
(h) Siliqua fragments
(i) Fragmentary crushed seeds
(j) Deformed with 'blistered' testa
(k) One specimen retains part of pod
(l) Numbers estimated from fragments
(m) A range of bi- and tri-facial outlets
(n) Range of sizes, up to Phragmites-size
(o) Some samples include leaf-fragments with internal air spaces cf. Cladium mariscus
(p) Vesicular 'cokey' material including charred scraps of cereal peridrm with rows of transverse cells - Secale/Triticum-type
(q) Sample includes germinated grains
(r) Includes asymmetrical lateral grains
(s) Rachis sections from base of ear comprising up to three internodes
(t) Two complete elongate internodes, glumes not strongly

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