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Hunstanton, Norfolk (1396 HUN): Environmental Studies

by Peter Murphy. Small mammal bone identified by John Goldsmith; fishbone by Alwyne Wheeler.

Sampling

Eighteen 4kg. samples of pit-fills were taken for general biological analysis. In addition 2kg. samples from two pits and three 'natural' features were taken specifically for the recovery of land molluscs. Large charcoal fragments and marine mollusc shells were collected by hand during excavation.

Laboratory methods

Charred plant remains were extracted from the 4kg. samples by water flotation in the laboratory, collecting the flots in a 250 micron mesh sieve. The non-floating residues were washed out over a 1mm. mesh sieve. Both flots and residues were dried and sorted under low power of a binocular stereoscopic microscope, extracting charred cereals, weed seeds, charcoal, small vertebrate remains and marine mollusc shell fragments. The 2kg. samples taken for land mollusc analysis were processed by the method described by Evans (1972, 44).

Biological remains recovered were identified using standard reference works and all identifications were confirmed by comparison with modern reference material.

Charred plant remains (Table 1)

Most of the cereal grains in these samples are in extremely poor condition, both distorted and fragmentary, and were not identified. The few wheat grains from 44, 53 and 55 are elongate forms which could be of spelt (*Triticum spelta*) or emmer (*T. dicoccum*). The typical spelt glume bases in 41 and 94 confirm that spelt is present, but most of the glume bases were damaged and not definitely identifiable. Barley is represented by two incomplete rachis internodes, both fairly slender forms with traces of pubescence.

The presence of these scatters of charred cereals in pit fills indicates that the farming economy of the site included cereal production, but this small sample of cereal remains provides no basis for detailed discussion of Iron Age arable farming in the area.

The charcoal, recovered by flotation and hand-collection, is mainly of oak and alder or hazel, with some elm, ash and sloe (?). On ecological grounds the presence of alder is improbable, but the fragments of alder/hazel charcoal were

Context No.		40Q	41	43(a)	43(b)	44	47	48	53	55	66	94	106	112	121	123	124	128
Sample No.		*	1	13(a)	13(b)	17	15	16	4	6	*	5	18	*	12	*	10	-
Cereal indet.	ca	-	2	-	1	2	2	2	5	-	-	15	1	-	5	-	2	-
Triticum sp.	ca	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-
Triticum spelta-type	ca	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Triticum sp.	gb	-	1	1	-	1	-	-	3	-	-	1	-	-	-	-	-	-
Triticum spelta L.	gb	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Hordeum sp.	ri	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-
Rumex sp.	nu	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Corylus avellana L.	ns	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex sp.	nu	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Bromus mollis/secalinus	ca	-	-	-	-	-	-	1	-	-	-	2	-	-	1	-	-	-
Gramineae indet.	ca	-	-	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-
Indet.	s	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp.	ch	-	+	-	-	-	-	-	-	+	-	-	-	+	-	+	-	+
Corylus sp.	ch	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Corylus/Alnus sp.	ch	+	-	-	-	-	-	-	-	-	-	-	-	?	-	+	-	+
Ulmus sp.	ch	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Fraxinus sp.	ch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Prunus sp.	ch	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1: Charred plant remains

An asterisk indicates that no sample was taken, but charcoal was hand-collected.

Abbreviations:
- ca caryopsis
- ch charcoal
- gb glume base
- ns nutshell fragment
- nu nutlet
- ri rachis internode
- s seed

Context No.		41	43	44	53	63	66	94	99	106	121	134
Sample No.		1	13	17	4	7	8	5	14	18	12	11
Microtus agrestis L.	upper incisor	-	-	-	-	-	-	1	-	-	-	-
	cheek teeth	-	-	1	-	1	-	-	1	-	1	2
Small mammal	vertebra	1	-	-	-	-	-	-	-	-	-	-
	sacrum	-	-	-	1	-	-	-	-	-	-	-
	femur	-	-	-	2	-	-	-	-	-	-	-
	tibia	1	-	-	2	-	-	-	-	-	-	-
	long-bone frag.	-	-	-	-	-	-	-	-	-	1	-
Amphibian	long-bone frag.	-	1	1	-	-	1	-	-	1	-	-
Shark (?*Lamna nasus*)	cusp frag.	-	-	-	-	-	-	-	-	-	1	-
Gadoid	otolith frag.	1	-	-	-	-	-	-	-	-	-	-

Table 2: Small vertebrate remains

Small mammal and amphibian bone *det*. J. Goldsmith; fishbone *det*. A. Wheeler.

too small for definite identification.

Small vertebrate remains (Table 2)

The presence of vole and amphibian bone in the pit samples is most easily explained by assuming that the disused storage pits at the site acted as traps for these animals. The short-tailed vole, *Microtus agrestis*, represented by teeth in six samples from pits, is typically found in rough grassland (Southern 1964, 284). The amphibian bone is thought to represent the remains of migrating individuals.

The samples produced only two fishbone fragments: part of a gadoid otolith (cod family) and the upper part of the cusp of a shark, possibly a porbeagle (*Lamna nasus*). Small specimens of *L. nasus*, up to 40kg. in weight, come sufficiently close to be caught from the shore (Wheeler 1969, 51) and many species in the cod family live in shallow and coastal waters (ibid, 255). There is thus no evidence at all for deep-water fishing: these bones could reflect coastal fishing or may merely be from stranded fish.

Marine molluscs etc. (Table 3)

The pit fills included valves of *Mytilus edulis* (mussel), *Ostrea edulis* (oyster), *Chlamys* sp. (scallop) and fragments of *Cerastoderma* sp. (cockle), with a columella fragment of *Buccinum* or *Neptunea* (whelk) and an operculum probably of *Littorina* (winkle). Shells collected by hand during excavation are listed in Table 3.

41. *Ostrea* Lower valve with central perforation. 2 upper valves.
    Chlamys cf. *varia*. Valve (beak damaged).
44. *Ostrea* Upper valve fragment.
48. *Ostrea* Upper valve and frag. of lower valve.
    Mytilus 2 frags.
54. *Mytilus* 2 frags (one of beak).
58. *Ostrea* 1 upper valve.
64. *Ostrea* 1 frag.
89. *Ostrea* 2 upper valve frags.
91. *Ostrea* 1 upper and 1 lower valve frag.
94. *Ostrea* 3 lower valve frags.
97. *Ostrea* 1 upper valve.
100. *Mytilus* 1 frag.
112. *Ostrea* 1 upper and 1 lower frag.

117. Ostrea 1 lower valve frag.
     Mytilus 1 frag.
118. Ostrea 1 lower valve (burnt).
123. Mytilus 1 frag.
124. Ostrea 1 valve.
126. Mytilus 1 frag.
130. Ostrea 1 upper valve.
166. Buccin um/Neptunea sp.
     Columella frag.
181. Cerastoderma frag.
203. Ostrea 1 upper valve frag.
238. Mytilus 1 frag.
254. Ostrea 1 frag.
297. Mytilus 1 frag.

Table 3: Marine molluscs collected during excavation.

In addition, small shell fragments were extracted from the 4kg. soil samples: Mytilus fragments were present in 18 samples, Ostrea in 8, Cerastoderma in 3 and a Littorina (?) operculum in 1. A single fragment of unidentified crustacean carapace and a fragment of serpulid worm tube were also present.

Mussels are found from the high intertidal zone to depths of a few fathoms, the best beds being in sheltered estuaries. They are easily gathered at low tide. The coast around Hunstanton is one of the main modern mussel grounds in East Anglia (Harden Jones 1976). The oyster is present from low water to depths of about 45 fathoms, and in the 1870's extensive beds were still dredged in the Wash (Buckland 1875). The more accessible beds in shallow water were no doubt the first to be exploited. The rarity of cockles at this site is at first sight surprising since the Wash is nowadays one of the main cockle fisheries. The most productive beds are on intertidal sandflats in the shallow areas of the Wash (Harden Jones, ibid.). During the Iron Age, however, the northern part of the Fenland was subject to a marine transgression (Churchill 1970) and this must have been accompanied by changes in the distribution of sandflats and the nature of sedimentation in the Wash. Conditions may not have been suitable for the development of extensive cockle beds in this area.

Land molluscs (Table 4)

Samples of the Iron Age pit fills produced very few land mollusc shells,

	Context No.	41	53	55	63	66	82	83	
	Sample No.	1	4	6	7	8	2	3	19
	Feature-type	Pit		Pit			Natural features		
Open country snails	Pupilla muscorum (L)	10	12	7	-	3	3	4	122
	Truncatellina cylindrica (Férussac)	-	-	-	-	-	-	-	25
	Vallonia costata (Müller)	1	1	1	-	-	-	6	146
	Vallonia excentrica (Sterki	8	11	10	3	4	2	13	126
	Vallonia sp. (v. immature/ fragmentary)	-	-	-	-	-	-	4	47
	Helicella itala (L)	2	4	2	-	cf.1*	(1)	1	18
Catholic snails	Cepaea sp.	-	-	1	-	-	2	(1)	1
	Trichia hispida (L)	-	-	1	-	-	-	-	48
Shade snails	Carychium tridentatum (Risso)	1	1	-	-	1	1	2	-
	Clausiliidae*	-	1	-	-	-	-	1	-
	Punctum pygmaeum (Draparnaud)	-	-	-	-	-	-	-	15
	Discus rotundatus (Müller)	-	-	-	1	-	1	6	-
	Vitrea contracta (Westerlund)	-	-	-	-	-	-	1	-
	Oxychilus sp.	-	-	-	-	-	-	3	2
	Vitrina pellucida (Müller)	-	-	-	-	2	-	-	7
Burrowing	Cecilioides acicula (Müller)	29	104	52	14	52	62	146	49

Table 4: Land snails from archaeological and natural features. (grouped for ecological interpretation).

Non-apical fragments noted in parenthesis. Badly eroded specimens indicated by asterisk.

117. Ostrea 1 lower valve frag.
     Mytilus 1 frag.
118. Ostrea 1 lower valve (burnt).
123. Mytilus 1 frag.
124. Ostrea 1 valve.
126. Mytilus 1 frag.
130. Ostrea 1 upper valve.
166. Buccin um/Neptunea sp.
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Land molluscs (Table 4)

Samples of the Iron Age pit fills produced very few land mollusc shells, probably because these features were back-filled over a short period, allowing little opportunity for colonisation by mollusca. Discounting the intrusive shells of the burrowing species Cecilioides acicula, the commonest snails in these samples are Pupilla muscorum, Vallonia costata, Vallonia excentrica and Helicella itala, all characteristic of dry grassland habitats (Evans 1972). The remaining species, indicating more shaded and intermediate habitats, occur at very low frequencies. It therefore appears that the shells in these features are derived from the surrounding area, rather than representing a resident pit fauna. The snail samples are thought to indicate a local environment of grassland, ~~probably including some bare ground and grass tussocks~~.

Samples from three 'natural' features were also examined to determine their approximate dates, and, if possible, their mode of formation. These were 82, a small oval feature possibly representing a tree-root hollow; 83, a curving linear feature; and __, which was detected in the geophysical survey and subsequently exposed in a sondage. Apart from Cecilioides shells, 82 and 83 produced few snails, but since these include 'shade' species (Carychium tridentatum, Clausiliidae, Discus rotundatus, Vitrea contracta and Oxychilus sp.) a periglacial origin for these features is ruled out. However, on the basis of the small snail samples from these features attempts at detailed palaeoecological reconstruction are inadvisable. The third feature, __, produced a larger assemblage indicating a generally open environment. The open-country species present in the pits are abundant in the sample from this feature, and an additional open-country xerophile is Truncatellina cylindrica. This snail is characteristic of dry exposed habitats, including maritime turf, but it was absent from Britain in the late Devensian. (Kerney and Cameron 1979, 68; Evans 1972, 141). The fill of this feature must therefore have formed during the postglacial in a fairly open environment.

Conclusions

The types of context available for sampling at this site were of limited value for palaeoecological reconstruction. However, the land molluscs from the Iron Age pits are thought to indicate a local environment of grassland. The predominance of Microtus agrestis amongst the small vertebrate remains provides some support for this interpretation. The presence of some oak, hazel, elm, ash and sloe (?) in the vicinity is indicated by charcoal. The extent of deforestation on the chalklands of N.W. Norfolk at this period is unknown, but by analogy with the chalk of Southern England a generally cleared landscape may be suggested (Evans 1972, 365-6); this of course can only be tested by further probably because these features were back-filled over a short period, allowing little opportunity for colonisation by mollusca. Discounting the intrusive shells of the burrowing species *Cecilioides acicula*, the commonest snails in these samples are *Pupilla muscorum*, *Vallonia costata*, *Vallonia excentrica* and *Helicella itala*, all characteristic of dry grassland habitats (Evans 1972). The remaining species, indicating more shaded and intermediate habitats, occur at very low frequencies. It therefore appears that the shells in these features are derived from the surrounding area, rather than representing a resident pit fauna. The snail samples are thought to indicate a local environment of grassland, ~~probably including some bare ground and grass tussocks~~.

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The charred remains of spelt and barley from samples of pit fill provide evidence for cereal farming in the vicinity. These two crops are very characteristic of Iron Age agriculture, and appear to have been widely cultivated irrespective of soil type.

The importance of marine resources in the economy of the site is difficult to assess. Marine molluscs were evidently consumed, but the quantities of shells recovered are not large. Fishbone was still rarer, and indeed need not indicate more than line fishing from the shore or even just the collection of stranded fish. It is clear that large scale bulk sieving will be required at future excavations of comparable sites in order to obtain more informative collections of fishbone.

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