Excavations on Redgate Hill, Hunstanton, 1970 and 1971

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Summary

Early in 1970 road-building to the south of Hunstanton revealed numerous pits, several of them containing rich assemblages of Grooved Ware and associated material, and one of them containing sherds of Collared Urn. Incomplete post-hole alignments were also recorded. These discoveries prompted the excavation of an adjacent area in 1971. Here pits were relatively rare, separate examples containing Peterborough Ware, Grooved Ware, Beaker, and Bronze Age pottery. There were, however, numerous post-holes, amongst which the plans of a large trapezoid enclosure, of post-rows aligned with it, and of several smaller structures were distinguished. A circular hut seems to date from the Early Bronze Age. Scant evidence from the remaining structures suggests that most, including the enclosure, may have been built between the mid third and the late second millennium cal. BC. A six- and a nine-post structure are more readily related to an Iron Age settlement excavated immediately to the west in 1976–77.

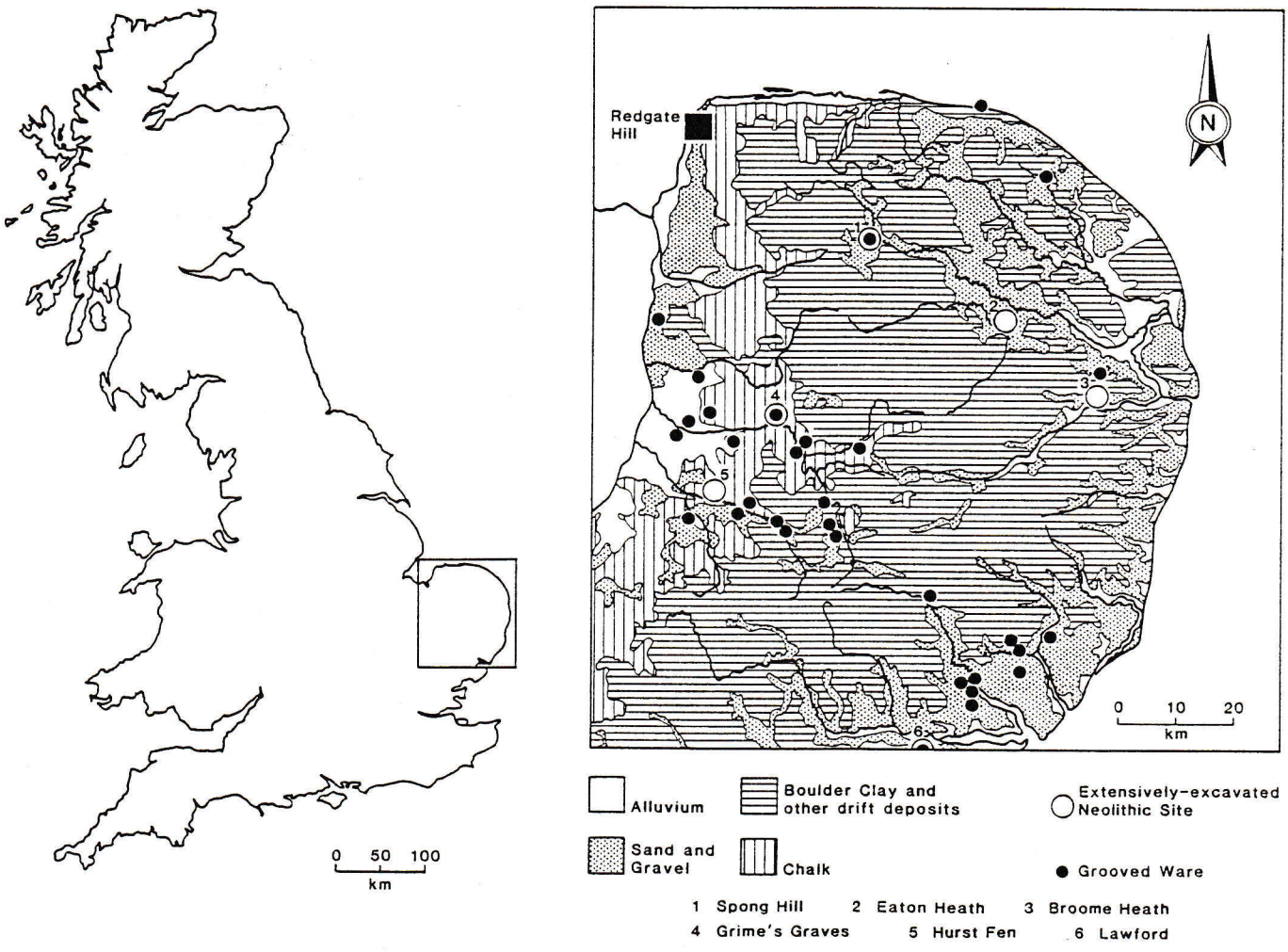

Figure 2 Location of Hunstanton within East Anglia east of the Fens

Chapter 4. Chemical, Zoological, and Botanical Evidence

I. The British Museum Phosphate Survey, 1974

by David Gurney

Introduction

The phosphate survey was carried out and the samples were analysed by Dr M. Cowell of the British Museum Research Laboratory in 1974. The area of the survey (Fig. 47) has maximum dimensions of 200m north-west to south-east by 60m north-east to south-west. The eastern third of the survey area bordering the road was sampled on a 5m grid, and the rest of the area was sampled at 10m intervals. Up to three samples were taken from each sampling point, at depths of 0–20cm, 20–40cm and 40–60cm.

The survey area coincides in part with the 1976 geophysical survey, the 1976 trial excavations and the 1977 excavations (Wymer 1986, fig. 2), and includes an area where in 1976–7, a number of Iron Age pits were excavated (Fig. 47: inset B; after Wymer 1986, fig. 3).

The method of analysis was developed by the British Museum Research Laboratory, and is based on the molybdenum blue method of Murphy and Riley (1962). For details see Craddock *et al.*, 1985, 363–4. Results are expressed in milligrams of phosphorous per 100 grams of soil (hereafter mg P/100g).

Results

The results of the phosphate survey are illustrated in Figure 47, and summarised in Table 34. The full results are included in the site archive.

In Figure 47, the results from each sampling depth are illustrated separately. Values below the mean are indicated by an open circle, while values above the mean are indicated by blacked circles of three gradations. These represent values from the mean to the maximum value at intervals of two standard deviations.

			mg P/100g	
Sampling depth	No. samples	Range	Mean	St. Dev.
0–20cm	205	40–190	73	19
20–40cm	193	25–162	68	22
40–60cm	67	36–144	68	23

Table 34 Summary of the Phosphate Survey Results

Conclusions

The results from the three sampling depths are broadly comparable, with similar distributions of higher phosphate values. The area of the Iron Age pits excavated in 1976–7 has a few higher values (Fig. 47 and inset B), but these do not appear to coincide with or relate to the underlying features.

To the south-east of the area excavated in 1976–7, and at the southern end of the survey area, phosphate values are consistently above the mean at all three sampling depths. Of 110 samples taken from the southernmost 25m of the survey area, eighty-four provided a value above the mean, in contrast with the rest of the survey area where higher and lower values are more evenly distributed. This then suggests a possible area of enhancement at the southern end of the survey area. This area has not been excavated, but the results of the phosphate survey do suggest that further evidence of either early prehistoric or Iron Age settlement on Redgate Hill might be found there.

II. The Animal Bones

by Gillian G. Jones

Animal bones of Later Neolithic and Early Bronze Age date were recovered, mostly from the 1970 excavations. Later Neolithic bones were of domestic pigs and cattle, with goat and perhaps sheep also present. Remains of wild animals were confined to red deer (mostly antler), roe deer, and cat, dolphin and mouse (*cf. Apodemus*). Most of the bones from the single Early Bronze Age pit (*34*) were from goat or sheep. The assemblage is typical in the dominance of pig in the Later Neolithic, with some evidence that caprines were more numerous than pig by the Early Bronze Age. The material is summarised in Table 35.

The material was very fragmented, only 29% being identified. Fragments less than 1cm long were not counted. The surface of the bones was eroded, often with none of the original surface surviving. Few butchery marks were preserved. Of the unidentified bones, two-thirds were of pig(sheep)-size and one third of cattle-size, which is similar to the identified portion. Ribs and fragmentary vertebrae are included in the unidentified. Some of the bones in pit *12* were burnt (three of pig, nine unidentified). One other fragment was burnt, from pit *32*.

The minimum number of individuals was calculated for each pit. The method was appropriate for this site: there was evidence from the likely relationship of bones, *e.g.* several pits where loose teeth appeared to belong together, long bones were likely pairs, and upper and lower jaws probably matched, that the minimum number figure may be close to the actual number of animals whose remains have been found.

A few bones of uncertain date are also shown in Table 35. They were from pits *23/24*, the 'dwelling area', the 'complex' and area A. Four bones of vole (*cf. Clethrionomys/Microtus*) labelled 'small mammal remains from Neolithic Rubbish pits at H.1970', are likely to have come from pits containing Grooved Ware.

Cattle

The few measurements are shown in Table 37 (microfiche). Later Neolithic cattle are known to have been larger than more recent domestic cattle (Grigson 1984; Legge 1981b) and the measurements from Hunstanton agree in this. For example, an astragalus is at

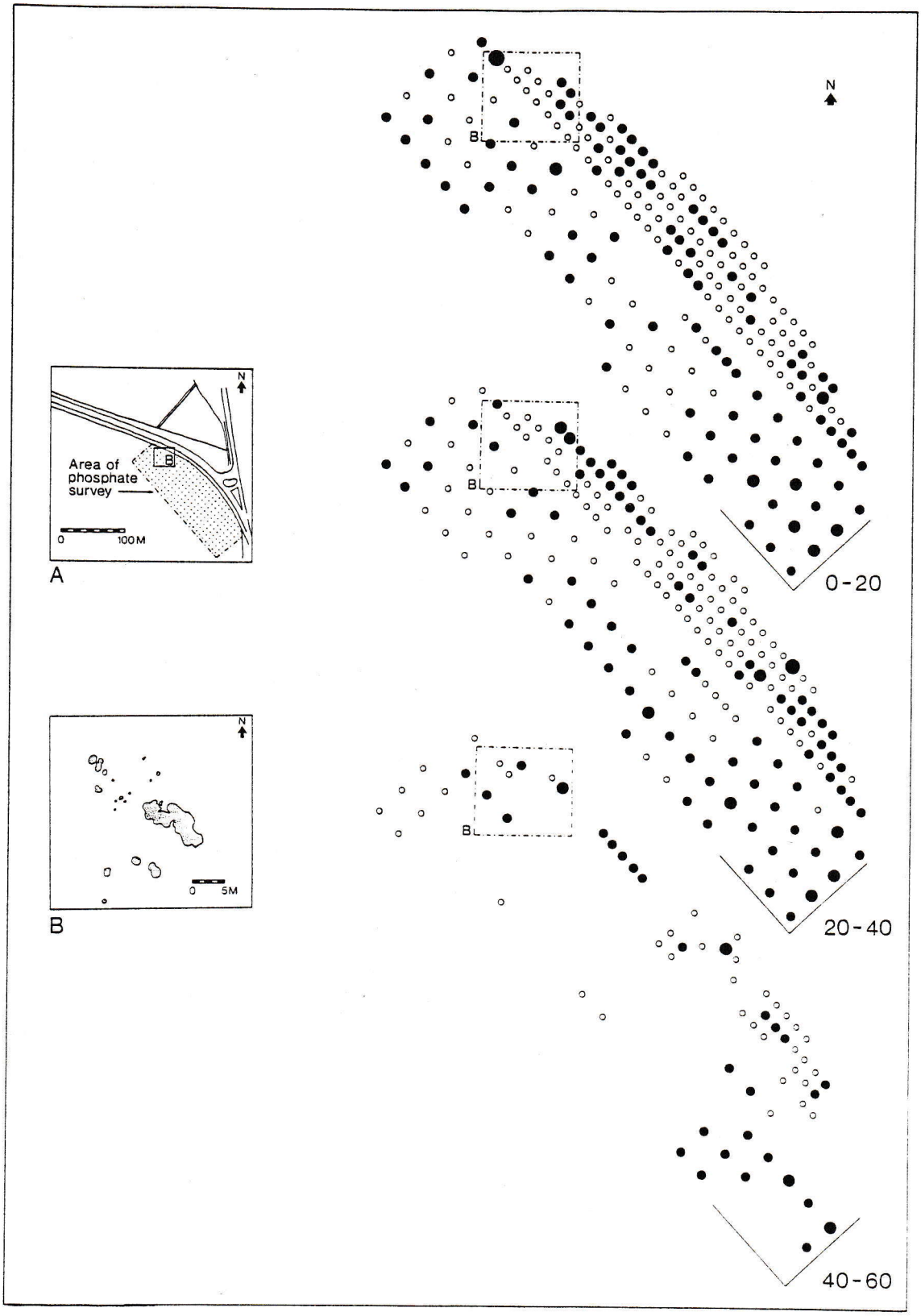

Figure 47 Redgate Hill, Hunstanton. The British Museum phosphate survey 1974

the upper end or just beyond the range usual at Iron Age and Romano-British sites in England (*e.g.* Maltby 1981). It is much smaller than wild aurochs (Grigson 1983, fig. 16).

The teeth were recorded and studied in an attempt to assess ages at slaughter, particularly in view of the suggestion that Neolithic cattle husbandry was primarily a dairy system, most adults being female, with most males being killed at young ages (Grigson 1983, Legge 1981b). Assuming each pit to hold the remains of distinct animals, the teeth were at the following stages:

	Cattle		Goat/Sheep	Goat	Pig		Deer		Other	Total Ident.	% Ident.
	BN	(MN)	BN (MN)	BN (MN)	BN	(MN)					
Later Neolithic	77		15	1	182		red 6	+13a	cat 2	305	*29%*
Total	*25%*		*5%*		*60%*		roe 5		dolphin 1		
									mouse 3		
Pit 1	—		—		3	(1)				3	
Pit 12	35	(2)	—		59	(3)	red 2 (1)		cat 2 (1)	104	
							roe 5 (1)		dolphin 1		
P10 (prob.=pit 12)	—		—		1					1	
Pit 20	20	(2)	5 (1)		15	(3)	cf. red 1a			41	
Pit 21	5	(1)	—		49	(2)	red 1a		mouse 1	56	
Pit 22	17	(2)	8 (1)	1 (1)	52	(5)	red 3 (1)		mouse 1	83	
							+1a				
Pit 32	—		2 (1)		3	(1)	red 1+9a			15	
Pit 260	—		—		—		red 1a s		mouse 1 s	2 s	
Early Bronze Age											
Pit 34	2	(2)	23 (1)	?2 (1)	3+1 sk	(2)	red 2 (1)			35	*26%*
							+2a				
Structural Contexts											
Main enclosure											
&/or structure E											
Post-hole 309	1 s									1 s	
Structure E											
Post-hole 302				1 s						1 s	
Post-hole 303				1 s						1 s	
Later pit cutting main enclosure											
305	1 s				1 s					2 s	
Misc. (see text)	4		3		1				vole +(1)	12	

Notes: BN = number of bones; MN = minimum number of individuals; Sk = partial skeleton; a = antler; s = sieved, 1971 contexts; all other bone is hand-collected from the 1970 excavations.

Table 35 Summary of Animal Bone

calf 1 (dp_4 enamel wear only)

young or sub adult 3 (M^1 or M^2 at Grant stage g and still high-crowned, two M_3's in wear, posterior cusp unworn)

sub adult or adult 2 (P_4's at Grant stages f and g)

adult 1 (M^3 worn, cf. Grant stage j) (Grant 1982)

(None of the long bones were from calves).

Interpretation of such a small sample is unwise, though it can be noted that most of these individuals were more than one year old, but only one was certainly adult.

Goat and Sheep

There was direct evidence, unusual on a British archaeological site, for the presence of goat in the Later Neolithic and probably also in the Early Bronze Age, with no certain evidence for sheep. A mandible from Pit *22* was identified as from a young goat on the basis of six of Payne's distinctions and the measurements of dp_4 (mature-wear stage, height 7.3, depth 6.8 index 1.07) (Payne 1985). The first molar is at Grant (1982) wear stage e; M_2 is unworn, that is, *c.* 8–12 months old (Deniz and Payne 1982).

From Early Bronze Age Pit *34*, a fragmentary loose dp_4 shows the distal enamel margin and basal swelling characteristic of goat, and a first molar, probably from the same individual, has an interlobar pillar 7.5mm long, also suggestive of goat. (M_2 is also present, with two cusps only in wear, *i.e. c.* 11–15 months).

The remains may therefore be of goat or of goat and sheep. Goats, being browsing animals, would have been better suited than sheep to a woodland environment.

The sample suggests that caprines were of minor importance in the Later Neolithic. They formed only 5% of the bone, and were present in only three of the eight pits.

Evidence from other sites suggests that by the Bronze Age this position would have changed, with sheep the commonest domesticate and the implication of widespread land clearance, as, for example, at Grime's Graves (Legge 1981a). Goat/sheep bones are much more numerous than pig or cattle in Early Bronze Age pit *34* (although the minimum number of individuals is two for all three species); of the 100 unidentified fragments, three were cattle-size and of the rest, most had more the appearance of sheep than of pig.

Pig

All methods of calculation show the importance of pig in the assemblage. Pig bones were more numerous than cattle in all the pits except pit *20* (and in this pit the minimum number is higher). Proportions based on jaws plus loose teeth gives: (N90) cattle 19%, caprine 2% and pig 79%; and based on more-complete bones (the 'zone' list, employed for material from Late Saxon Thetford (Jones forthcoming) gives: (N187) cattle 24%, caprine 3% and pig 73%.

Ageing data for pigs is shown on Table 36 (microfiche). Presence of two piglet bones suggests that pit *20* was open during the early summer, if a late spring (March/April) birth is assumed (Grigson 1982). The general age structure is comparable with late Iron Age Bierton (Jones, 1986) in the low proportion of young (M_1 unworn) and adults (M_3 in wear on all cusps). Both are presumed to be self-sufficient subsistence economies.

Canine teeth were from two sows and two males. The lower first permanent premolar was present in one mandible.

Measurements were taken on all pig molar teeth, and the lower posterior deciduous premolar, following the work of Payne and Bull (1988), producing a useful

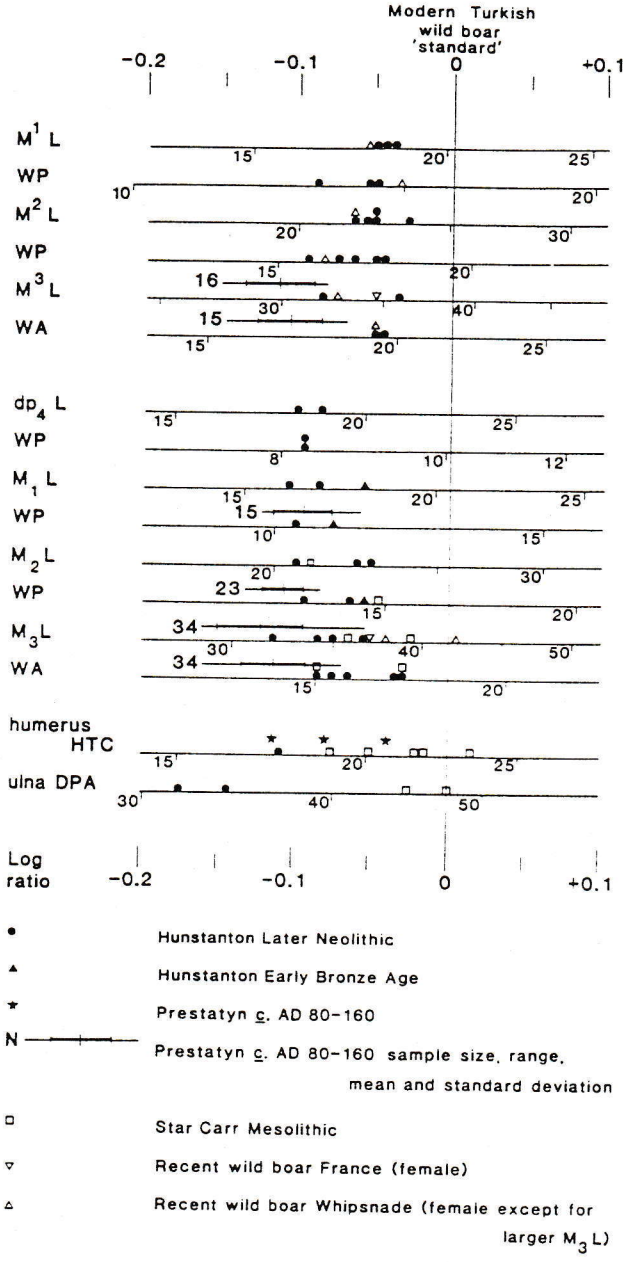

Figure 48 The size of Hunstanton pigs in relation to modern Turkish wild boar, Mesolithic wild boar from Star Carr, Seamer, Yorkshire, Romano-British pigs from Prestatyn, Clwyd, and recent wild boar from France and from Whipsnade, Bedfordshire

number of results (forty-nine) for a bone sample of this size (from at last ten pigs, assuming each pit to have contained different individuals, six taking the bones as one group). The results are presented in Figure 48 in relation to the estimated size of an average adult wild boar from Kizilcahaman, Turkey. Individual measurements are expressed as a log ratio of the Turkish standard. For example, the M^1 length 18.0/standard 20.3mm gives the ratio 0.887 and the log -1.052, plotted at -0.05 (Payne and Bull in press; Simpson, Roe and Lewontin 1960, 340–342, 356–358). Both humerus and ulna are incomplete and may be from immature pigs. None of the measurements are from pigs of known sex.

The Hunstanton pigs are smaller than the standard by very similar proportions, which suggests that they are from a single population. It is suggested that they are domestic pigs, of a size intermediate between wild pigs and the small Romano-British domestic pig, exemplified by those from Prestatyn, Clwyd (Jones 1989). The three Early Bronze Age measurements from Hunstanton are no smaller than the Later Neolithic ones.

Measurements for the upper teeth are closer to the standard than those for the lower teeth and there is less overlap with the Prestatyn data, but the sample size is very small.

Most of the measurements from Mesolithic Star Carr, Yorkshire (Payne pers. comm.) are towards the upper range of the Hunstanton ones, but there is no clear separation on the dental measurements. None of the three Hunstanton long bones were definitely mature, so that the separation apparent for the humerus and ulna may or may not be meaningful.

The wild sows from Whipsnade appear to be of similar size to the Hunstanton pigs.

Other Species

Bone and/or antler of red deer were present in all the Later Neolithic pits and in the Early Bronze Age pit, and the species was probably no less important than goat or sheep. The antler remains included some large pieces, *e.g.* tines 20 and 24cm long.

No bones from either horse or dog were found, though possible gnawmarks on a cattle tibia may be from a dog.

Pit *12* contained the largest quantity of bone and the greatest range of species which included roe deer, cat and dolphin. The roe deer was a young animal less than a year old (deciduous premolars still present). It is presumed that the cat is a wild cat; measurements are larger than late medieval domestic cats from, for example, Aylesbury (Jones 1983). The dolphin bone, kindly identified by M.C. Sheldrick (British Museum, Natural History) is a mature, thoracic vertebra. Its size is comparable with a Bottle-nosed or Risso's dolphin (*Turslops truncatus, Grampus griseus*). The site at Hunstanton is 1km from the sea, and may have been closer to it in the Later Neolithic (Ch. 5).

Single bones from mouse, *cf. Apodemus* (a broken incisor and two tibiae) came from three pits.

III. Mollusca and Plant Macrofossils

by Peter Murphy

Introduction

The excavation provided the only opportunity, during recent years, for extensive retrieval of biological remains from a Late Neolithic or Bronze Age domestic site in Norfolk. The site is thus of considerable regional significance. Unfortunately there are problems of chronology, in that many features produced no dateable artefacts, and of contamination, since the features were usually shallow and unsealed, directly underlying the modern ploughsoil. Consequently intrusive modern biological material had been introduced, presumably via soil cracks, worm and other animal burrows, and root channels. The effects of these problems are discussed in more detail below. Clearly they limit the value of the material recovered, but in view of the dearth of

Table 36 (microfiche). Age Data for Pigs (Later Neolithic)

	All jaws and loose teeth		Mandibles only	
M1 in wear M2 unworn (less than 7-13 months)	3	1		1
M2 in wear, M3 unworn (7-13 months to 17-22 months)	4		2	
M3 in wear, posterior cusp unworn (17-22 months to nearly 3 years)	3		2	
M3 in wear, all cusps (more than c.3 years)	1			

Pit 20 contained 2 piglet bones (very immature, proximal radius unfused).

Notes. For pigs, wear is taken to begin when wear is visible on the enamel of the tooth. It was assumed that each pit contained distinct individuals. Age estimates from Bull and Payne 1982.

Table 37 (microfiche). Tooth and bone measurements (1)

Later Neolithic (Grooved Ware)

Cattle

M<->3<=> max. anterior-posterior L (c. 1 cm above base of crown) 39.5, 41.4
astragalus GL1 65.6, GLm 59.7, Bd 43
second phalanx GL (measuring box) 42, Bp 30.1

Goat teeth (see text)

Goat/Sheep metatarsal shaft diameter 10.3

Pig - letters denote measurements of teeth found in jaws; '?' denotes loose teeth probably from one individual.

Lower Teeth	dp<->4<=>			M<->1<=>		M<->2<=>			M<->3<=>				
			b	a	a	?c	b	a	?c	?c			b
L	18.1	18.6	16.7	16.0	-	20.2	22.6	22.2	31.9	-	34.3	35.1	36.6
WA			9.7	9.7	10.9	13.6	13.8	14.0	15	15.4	15.7	16.9	17.0
WP	8.2	8.2	-	10.3	-	13.2	14.2	-					

Upper Teeth	M<+>1<=>				M<+>2<=>				M<+>3<=>			
	d	?e	?e			d	?e				?e	
L	18.0	18.2	18.4	21.6	22.4	22.4	22.3	23.4	-	31.8	35.8	
WA	13.5	14.4	14.4	15.9	16.1	16.8	18.2	18.3	-	19.3	19.5	
WP	13.2	14.3	14.5	15.6	16.7	16.5	17.3	17.5				

atlas BFcr 52, H37
humerus HTC 17.5 (Payne and Bull in press)
ulna DPA 31.6 33.7 (olecranon missing)

Red deer

antler circumf. of burr c. 210 (eroded), above burr c. 203
metacarpal Bp 45.2, SD 23.6; SD 21.2

Cat

mandible cheek both row L 21.3, M<->1<=> L 8.0, M<->1<=> B 3.9, mandible height at P<->3<=> 9.7, mesio-distal length of diastema 4.4

Early Bronze Age

Pig

M<->1<=>, L 18.0, WA 10.9, WP 11.0, ; M<->2<=> (same individual), L 23.4, WA 14.1, WP 14.5

Notes. Measuring points follow von den Driesch 1976 and, for pig, Payne and Bull in press.