

Osseous artefacts from 16-22 Coppergate, York.

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139 artefacts of bone, antler or tooth were submitted by the York Archaeological Trust conservation laboratory between December 1983 and March 1984 for identification of raw materials. Full identifications were made where possible and details were returned to the conservation laboratory on their artefact sample sheets. All the artefacts are thought to date from the late 9th-early 11th centuries AD. This collection of artefacts was not a complete corpus of all osseous artefacts from the site. The objects involved were passing through the conservation laboratory en route to museum display, and a full record of the objects was required.

This report falls into three parts:

- a) a digest of the information obtained on raw material utilisation
- b) a catalogue of the objects examined
- c) an index to the catalogue, giving occurrences of the keywords used to describe raw material and artefact types.

The catalogue and index were prepared using the data management package Famulus, run on the University of York DEC-KL10 computer.

#### Raw material utilisation

Antler combs or parts of combs were the dominant artefact type in this assemblage, comprising 19 objects. Although the form of the combs and their decoration varied somewhat, the manufacture appears to have been fairly consistent. The teeth were cut into a series of rectangular pieces of compacta from beam antler. These pieces were bound on either side by strips of compacta. The source of these strips could not be determined in every case, but a few were definitely pieces of tine. The partial cross-section visible at the squared-off ends of these specimens showed a high ratio of compacta to cortex and indicated the original diameter to have been much too small for beam antler. Two pieces of cattle rib were described as comb fragments (objects 11224 and 11970). Given that no pieces of rib were found on more complete combs, this attribution must be called into question.

Pins and needles were common (10 pins, 13 needles, 3 bodkins). These were mostly made from strips of compact bone. The source of this bone could not usually be identified with certainty, but it is likely to have been obtained from cattle metatarsals or tibiae. Two pins and two needles were made from antler, and it is possible that

this more flexible material was used to make pins for some specific purpose.

Dice, counters, gaming pieces and toggles were variously made from pieces of bone or antler. Of the five toggles, two were made from pig 3rd metatarsals (both of them immature), one from a piece of tine antler, one from a pig first phalanx, and one from a piece of sheep metatarsal. There does not seem to have been any particular selectivity in the choice of material for these small objects.

The seven spindle whorls comprise an interesting group. Five are made from capita cut from cattle femora, a hole being bored through the caput roughly at the point of insertion of ligamentum terens. The remaining two specimens are made from sections of walrus ivory. These are flatter, disc-shaped whorls, with a large central hole, and the ivory has taken a considerable polish, giving an attractive marbled appearance. Differing ratios of primary and secondary dentine (identified on the basis of osteon size and density) indicate one whorl to have been cut from nearer to the crown apex than was the other. Although initially somewhat baffling, the structure and surface appearance of the ivory was very distinctive, in particular the enormous Haversian structures with their very sharply-defined boundary layers.

Apart from pieces of waste antler (sawn off tines, and the like), four objects were rejected as non-artefactual. Two of these were cattle nasal bones which bore deep notches at the rhinal end due to

developmental abnormality. Both had been described as tools used for lucet work (a type of thread-work akin to 'French knitting'), and one had certainly been snapped off square at the nasal end. However, the notches were certainly of natural origin, and there were no signs of polishing or abrasion such as would indicate the bones to have been utilised in any way. They each could have been used for rather coarse lucet work, but could have fulfilled a variety of other roles, bearing a strong resemblance to 20th century wooden chip-forks. Of the other unworked specimens, one was a piece of cattle ilium which had fortuitously broken so as to produce a point, and the other was a cattle horncore. Two pig lower incisors were almost rejected as unworked, but for small cuts made at the root apex so as to produce a sharp point, presumably to facilitate use of the teeth as awls or something similar.

Six horse metapodials were modified for use as skates, three metacarpals and three metatarsals. The standard of workmanship was fairly crude and 'functional', suggesting that these skates were merely utilitarian objects rather than valued pieces of craftsmanship.

One non-osseous object is included in the list (object 4949). This can best be described as a small knob, having a form similar to a chess pawn and with a hole bored in the base. The material from which it was made is a reddish-brown, slightly translucent substance with a curious texture which was hard but slightly waxy. Originally described as antler, the object failed to convince as bone (wrong

texture), amber (too dense and lacking the electrical characteristics) or a mineral (not dense enough). Discussions with conservation laboratory staff, and a visit to Whitby Museum, finally revealed the raw material to be horn, a remarkably well-preserved piece from near the tip of a cattle horn. Apart from its intrinsic interest, the artefact provided a valuable object lesson in macroscopic identification.

Overall, submitting the the artefacts for examination was a valuable exercise from two points of view. First, many of the identifications made 'on site' were corrected, improving the quality of the Y.A.T. finds catalogue and helping towards the appropriate choice of conservation procedures. Second, some assessment could be made of the likely impact of bone-working on the bone assemblages recovered from the site. It was clear in this case that there was not enough of a concentration on the use of any one type of bone as a raw material to produce a significant bias.

T.P.O'C 27-4-1984.

## CATALOGUE

The Catalogue lists each of the 139 artefacts in find number order, giving the find number, context number if known, and a list of keywords describing the raw material and nature of an object. The numbers down the left-hand margin are record sequence numbers attributed by the Faculus program, and are used in the Index.

## F A M U L O U S   E D I T   P R O G R A M

INPUT CARD.../ID/ COPPERGATE BONE ARTEFACTS  
 INPUT CARD.../FIELDS/ (FIND,CONT,KEYW)  
 INPUT CARD.../DESCRIPTOR FIELD/ (KEYW) (,)  
 INPUT CARD.../ORIGINAL/  
 INPUT CARD.../CITATIONS/

IDENTIFICATION OF OUTPUT TAPE  
 COPPERGATE BONE ARTEFACTS  
 FIELDS ARE FIND CONT KEYW  
 THE DESCRIPTOR FIELD IS KEYW

1 2 COPPERGATE BONE ARTEFACTS

INPUT CARD...FIND 85

1	FIND	85	
	CONT	2296	
	KEYW	ANTLER, RED DEER, BEAM, PLATE	
2	FIND	1763	
	KEYW	BONE, INDET, PIN	
3	FIND	2276	
	KEYW	BONE, INDET, PIN	
4	FIND	3041	
	CONT	11789	
	KEYW	IVORY, WALRUS, WHORL	
5	FIND	3404	
	CONT	13454	
	KEYW	BONE, HORSE, METATARSAL, SKATE	
6	FIND	3485	
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	KEYW	BONE, INDET, BODKIN	
7	FIND	3608	
	CONT	13733	
	KEYW	BONE, INDET, NEEDLE	
8	FIND	3663	
	KEYW	BONE, INDET, NEEDLE	
9	FIND	4107	
	CONT	12635	
	KEYW	BONE, CATTLE, NASAL, NATURAL	
10	FIND	4236	
	CONT	15368	
	KEYW	BONE, CATTLE, METATARSAL, SPOON	
11	FIND	4449	
	KEYW	ANTLER, RED DEER, BEAM, COMB	

	12	FIND	4724	
		CONT	18115	
		KEYW	ANTLER, RED DEER, BEAM, ROUGH OUT	
	13	FIND	4949	
		CONT	13902	
		KEYW	HORN, CATTLE, GAMING PIECE	
	14	FIND	5038	
		CONT	6258	
		KEYW	ANTLER, RED DEER, BEAM, ROUGH OUT	
	15	FIND	5280	
		CONT	6437	
		KEYW	BONE, CATTLE, FEMUR, CAPUT, WHORL	
1	3		COPPERGATE BONE ARTEFACTS	
0				
	16	FIND	5331	
		CONT	6424	
		KEYW	ANTLER, RED DEER, BEAM, ROUGH OUT	
	17	FIND	5407	
		KEYW	BONE, ROE DEER, METATARSAL, HANDLE	
	18	FIND	5444	
		CONT	16612	
		KEYW	ANTLER, RED DEER, BEAM, ROUGH OUT	
	19	FIND	5534	
		CONT	14722	
		KEYW	BONE, INDET, NEEDLE	
	20	FIND	5629	
		CONT	6378	
		KEYW	BONE, INDET, NEEDLE	
	21	FIND	5683	
		CONT	6258	
		KEYW	BONE, PIG, MT3, TOGGLE	
	22	FIND	5704	
		KEYW	ANTLER, RED DEER, BEAM, TINE, COMB	
	23	FIND	5734	
		CONT	18744	
		KEYW	BONE, INDET, TUNING KEY	
	24	FIND	5937	
		KEYW	ANTLER, TINE TIP, DISC BEAD	
	25	FIND	6266	
		CONT	8894	
		KEYW	BONE, INDET, DISC	
	26	FIND	6412	
		CONT	20205	
		KEYW	BONE, INDET, DECORATED POINT	
	27	FIND	6456	
		CONT	20277	



KEYW BONE, HORSE, METACARPAL, SKATE  
28 FIND 6700  
CONT 6932  
KEYW ANTLER, RED DEER, CROWN, OFFCUT  
29 FIND 6906  
CONT 19320  
KEYW ANTLER, RED DEER, BASE, OFFCUT  
30 FIND 7075  
CONT 20181  
KEYW BONE, PIG, MT3, TOGGLE

1 4 COPPERGATE BONE ARTEFACTS  
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31 FIND 7284  
CONT 20793  
KEYW ANTLER, RED DEER, COMB CASE  
32 FIND 7332  
CONT 22104  
KEYW ANTLER, RED DEER, TINE TIP, GAMING PIECE  
33 FIND 7343  
CONT 22110  
KEYW BONE, HORSE, METACARPAL, SKATE  
34 FIND 7356  
CONT 23095  
KEYW ANTLER, RED DEER, TINE TIP, BEAD  
35 FIND 7360  
KEYW BONE, HORSE, METACARPAL, SKATE  
36 FIND 7391  
CONT 23235  
KEYW BONE, SHEEP, TIBIA, KNIFE HANDLE  
37 FIND 7408  
CONT 17532  
KEYW ANTLER, RED DEER, TINE, THREAD PICKER  
38 FIND 7505  
CONT 23364  
KEYW BONE, INDET, RING  
39 FIND 7557  
CONT 22358  
KEYW BONE, CATTLE, ILIUM, NATURAL  
40 FIND 7589  
CONT 23456  
KEYW BONE, INDET, BEAD  
41 FIND 7592  
CONT 23080  
KEYW ANTLER, RED DEER, TINE TIP, GAMING PIECE  
42 FIND 7611

	CONT	23080	
	KEYW	ANTLER, RED DEER, TINE TIP, GAMING PIECE	
43	FIND	7620	
	CONT	22433	
	KEYW	BONE, CATTLE, METATARSAL, POINTED THING	
44	FIND	7722	
	CONT	23618	
	KEYW	BONE, HORSE, METATARSAL, SKATE	
45	FIND	7766	
	CONT	22593	
1	5		COPPERGATE BONE ARTEFACTS
0		KEYW	BONE, CATTLE, GAMING PIECE
46	FIND	7805	
	CONT	22560	
	KEYW	BONE, CATTLE, FEMUR, CAPUT, WHORL	
47	FIND	7932	
	CONT	22714	
	KEYW	ANTLER, RED DEER, BEAM, TINE, COMB	
48	FIND	8016	
	KEYW	BONE, CATTLE, RIB, ROUGH OUT	
49	FIND	8033	
	CONT	22845	
	KEYW	ANTLER, RED DEER, BEAM, TINE, COMB	
50	FIND	8169	
	CONT	20462	
	KEYW	ANTLER, RED DEER, TINE, GAMING PIECE	
51	FIND	8437	
	CONT	25340	
	KEYW	ANTLER, RED DEER, BEAM, TINE, COMB	
52	FIND	8445	
	CONT	24870	
	KEYW	ANTLER, RED DEER, BEAM, COMB	
53	FIND	8468	
	KEYW	ANTLER, RED DEER, BEAM, TINE, COMB	
54	FIND	8481	
	CONT	25371	
	KEYW	ANTLER, RED DEER, COMB	
55	FIND	8769	
	CONT	19620	
	KEYW	BONE, CATTLE, COUNTER	
56	FIND	8835	
	CONT	26564	
	KEYW	ANTLER, RED DEER, BEAM, TINE, COMB	
57	FIND	8928	

CONT 26228  
 KEYW BONE, INDET, SPOON  
 58 FIND 9133  
 CONT 26491  
 KEYW BONE, CATTLE, RIB, OBJECT  
 59 FIND 9329  
 CONT 26792  
 KEYW BONE, INDET, PIN BEATER  
 1 60 FIND 9427 COPPERGATE BONE ARTEFACTS  
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 KEYW ANTLER, RED DEER, TINE, COMB FRAG  
 61 FIND 9531  
 KEYW BONE, INDET, NEEDLE  
 62 FIND 9616  
 CONT 21764  
 KEYW ANTLER, RED DEER, BEAM, STRAP END  
 63 FIND 9835  
 KEYW ANTLER, RED DEER, DISC BEAD  
 64 FIND 9931  
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 KEYW ANTLER, RED DEER, TINE, OBJECT  
 65 FIND 9887  
 CONT 3625  
 KEYW ANTLER, RED DEER, TINE, COMB FRAG  
 66 FIND 10041  
 CONT 27560  
 KEYW ANTLER, RED DEER, TINE, OBJECT  
 67 FIND 10063  
 CONT 28125  
 KEYW TOOTH, PIG, LOWER INCISOR, POINTED THING  
 68 FIND 10120  
 CONT 25934  
 KEYW ANTLER, RED DEER, BASE, WASTE  
 69 FIND 10163  
 CONT 26902  
 KEYW ANTLER, RED DEER, CORTEX, OBJECT  
 70 FIND 10209  
 CONT 25994  
 KEYW ANTLER, RED DEER, TINE, OBJECT  
 71 FIND 2700  
 CONT 1404  
 KEYW IVORY, WALRUS, WHORL  
 72 FIND 10214

CONT 25994  
KEYW ANTLER, RED DEER, PIN

73 FIND 10306  
CONT 30002  
KEYW BONE, INDET, PIN

74 FIND 10479  
CONT 21903  
KEYW BONE, CATTLE, METATARSAL, POINTED THING

1 7 COPPERGATE BONE ARTEFACTS

0 75 FIND 10515  
CONT 29156  
KEYW BONE, INDET, NEEDLE

76 FIND 10542  
CONT 29263  
KEYW BONE, INDET, NEEDLE

77 FIND 10574  
CONT 30134  
KEYW BONE, CATTLE, METATARSAL, POINTED THING

78 FIND 10619  
CONT 27921  
KEYW BONE, CATTLE, HORNCORE, BORED OBJECT

79 FIND 10623  
CONT 30157  
KEYW ANTLER, RED DEER, BEAM, BASE, WASTE

80 FIND 10627  
CONT 28197  
KEYW TOOTH, PIG, LOWER INCISOR, POINTED OBJECT

81 FIND 10660  
CONT 29263  
KEYW BONE, SHEEP, METATARSAL, TOGGLE

82 FIND 10664  
KEYW BONE, INDET, PIN

83 FIND 10770  
KEYW ANTLER, RED DEER, TINE TIP, GAMING PIECE

84 FIND 10787  
CONT 28128  
KEYW ANTLER, RED DEER, TINE, HANDLE

85 FIND 10974  
KEYW BONE, CATTLE, RIB, OBJECT

86 FIND 10985  
CONT 29156  
KEYW BONE, INDET, PIN

87 FIND 11053  
CONT 28333

	KEYW	ANTLER, RED DEER, BASE, WASTE
88	FIND	11054
	CONT	28489
	KEYW	ANTLER, RED DEER, BASE, WASTE
89	FIND	11106
	CONT	31165
	KEYW	ANTLER, RED DEER, BASE, WASTE
1	8	COPPERGATE BONE ARTEFACTS
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90	FIND	11146
	KEYW	BONE, INDET, PIN
91	FIND	11154
	CONT	26967
	KEYW	ANTLER, RED DEER, TINE, OBJECT
92	FIND	11165
	KEYW	ANTLER, RED DEER, TINE TIP, TOGGLE
93	FIND	11174
	CONT	3764
	KEYW	ANTLER, RED DEER, OBJECT
94	FIND	11175
	CONT	29772
	KEYW	BONE, INDET, NEEDLE
95	FIND	11187
	CONT	31177
	KEYW	ANTLER, RED DEER, OBJECT
96	FIND	11207
	CONT	28896
	KEYW	ANTLER, RED DEER, TINE, OBJECT
97	FIND	11224
	CONT	22670
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98	FIND	11297
	CONT	30286
	KEYW	ANTLER, RED DEER, TINE, WASTE
99	FIND	11459
	CONT	31061
	KEYW	ANTLER, RED DEER, NEEDLE
100	FIND	11467
	CONT	31061
	KEYW	ANTLER, RED DEER, TINE, NEEDLE
101	FIND	11470
	CONT	31061
	KEYW	BONE, INDET, NEEDLE
102	FIND	11582
	CONT	14999

	KEYW	BONE, CATTLE, FEMUR, CAPUT, WHORL
103	FIND	11630
	CONT	30352
	KEYW	BONE, INDET, NEEDLE
104	FIND	11639
	CONT	29150
	KEYW	ANTLER, RED DEER, BASE, WASTE
1	9	COPPERGATE BONE ARTEFACTS
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105	FIND	11687
	CONT	2740
	KEYW	TOOTH, HORSE, LOWER INCISOR, PENDANT
106	FIND	11716
	KEYW	BONE, CATTLE, NASAL, FORKED, NATURAL
107	FIND	11782
	CONT	25999
	KEYW	BONE, CATTLE, TIBIA, TRIAL PIECE
108	FIND	11796
	CONT	30000
	KEYW	BONE, PIG, PH1, TOGGLE
109	FIND	11937
	CONT	27915
	KEYW	BONE, CATTLE, HORNCORE, NATURAL
110	FIND	11966
	CONT	31683
	KEYW	BONE, INDET, PIN
111	FIND	11970
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	KEYW	BONE, CATTLE, RIB, COMB FRAG
112	FIND	12048
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	KEYW	ANTLER, RED DEER, BEAM, DIE
113	FIND	12102
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114	FIND	12166
	CONT	26610
	KEYW	ANTLER, RED DEER, TINE, OBJECT
115	FIND	12227
	CONT	22807
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116	FIND	12249
	CONT	21618
	KEYW	ANTLER, RED DEER, TINE, COMB FRAG
117	FIND	12286
	CONT	31760

	KEYW	BONE, INDET, DIE
118	FIND	21406
	CONT	30735
	KEYW	ANTLER, RED DEER, TINE, COMB FRAG
119	FIND	12595
	CONT	31924
1	10	COPPERGATE BONE ARTEFACTS
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	KEYW	ANTLER, RED DEER, TINE, COMB FRAG
120	FIND	12698
	CONT	20747
	KEYW	BONE, INDET, BODKIN
121	FIND	12745
	CONT	32189
	KEYW	BONE, INDET, BODKIN
122	FIND	12760
	CONT	19625
	KEYW	BONE, INDET, NEEDLE
123	FIND	12884
	CONT	19738
	KEYW	ANTLER, RED DEER, BEAM, TINE, COMB CASE
124	FIND	12923
	CONT	30930
	KEYW	BONE, INDET, GAMING PIECE
125	FIND	12969
	CONT	34196
	KEYW	ANTLER, RED DEER, BEAM, TINE, OBJECT
126	FIND	12987
	KEYW	ANTLER, RED DEER, BEAM, COMB
127	FIND	13105
	CONT	24240
	KEYW	BONE, CATTLE, FEMUR, CAPUT, WHORL
128	FIND	13114
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	KEYW	BONE, INDET, PIN
129	FIND	13165
	CONT	32520
	KEYW	ANTLER, RED DEER, BEAM, OBJECT
130	FIND	13353
	CONT	29926
	KEYW	ANTLER, RED DEER, TINE TIP, DISC BEAD
131	FIND	13529
	CONT	35118
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132	FIND	13619

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133 FIND 13679  
CONT 34496  
KEYW ANTLER,RED DEER,BEAM,GAMING PIECE

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134 FIND 13818  
CONT 32740  
KEYW ANTLER,RED DEER,BEAM,TINE,COMB

135 FIND 14001  
CONT 32917  
KEYW BONE,HORSE,METATARSAL,SKATE

136 FIND 13840  
CONT 33174  
KEYW BONE,INDET,GAMING PIECE

137 FIND 13846  
CONT 32740  
KEYW BONE,INDET,GAMING PIECE

138 FIND 14052  
CONT 36377  
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139 FIND 14132  
CONT 34878  
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0

THERE ARE 139 CITATIONS ON THE OUTPUT TAPE.  
PROCESSING IS COMPLETE.



## INDEX

The Index lists each occurrence of every word used in the keyword field of the Catalogue, giving for each a list of record sequence numbers for the appropriate records. Some of the object descriptions are as given by the original site records (e.g. disc bead) whilst others have been devised of necessity (e.g. pointed thing).

26-Apr-84

F A M U L U S I N D E X P R O G R A M

INPUT CARD.../ID/COPPERGATE BONE ARTEFACTS  
INPUT CARD.../NEW ID/ARTEFACT INDEX  
INPUT CARD.../DESCRIPTOR FIELD/ (KEYW) (,)

0  
0

IDENTIFICATION OF INPUT TAPE  
COPPERGATE BONE ARTEFACTS  
FIELDS ARE FIND CONT KEYW  
THE DESCRIPTOR FIELD IS KEYW

IDENTIFICATION OF INDEX OUTPUT  
ARTEFACT INDEX  
FIELDS ARE FIND CONT KEYW  
THE DESCRIPTOR FIELD IS KEYW

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