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EXCAVATION OF CASTLEHILL OF STRACHAN, KINCARDINE AND DEESIDE

PETER YEOMAN

CASTLEHILL OF STRACHAN P YEOMAN

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TABLE 5

FEATURE DIMENSIONS

Note: ph = posthole; pp = post-pit

GROUP 1 Superstructure Phase I

Context	Shape	Length	Width	Diameter	Depth	Filling
457	oval pit	1.10	1.00	-	1.00	458
280	oval pit	1.10	0.80	-	1.00	467, 281
248	post-pipe	-	-	0.30	0.90	249
295	oval pit	1.50	1.00	-	0.90	223, 296
227	post-pipe	-	-	0.27	0.60	222
284	sub-rectangular	-	0.80	-	0.60	289
285	post-pipe	-	-	0.28	0.40	286
287	sub-rectangular	-	0.80	-	0.50	288
299	sub-rectangular	-	0.88	-	0.40	220
297	sub-rectangular	-	0.80	-	0.70	298

GROUP 2 Superstructure Phase I - Internal

294	double oval cut	1.00	0.38	-	0.24	293
460	sub-circular	-	1.00	-	0.73	467
242	sub-circular	-	0.94	-	0.47	243
453	double oval cut	0.60	0.48	-	0.33	454
32	sub-rectangular	-	0.80	-	0.44	33
224	sub-circular	-	1.05	-	0.50	226, 225
451	circular ph	-	-	0.45	0.30	452
455	oval ph	0.48	0.40	-	0.28	456

GROUP 3 Phase I Partition 1

Context	Shape	Length	Width	Diameter	Depth	Filling
238	oval ph	0.44	0.30	-	0.18	239
236	circular ph	-	-	0.38	0.18	237
234	oval ph	0.47	0.40	-	0.26	235
246	circular ph	-	-	0.30	0.24	247
244	oval ph	0.42	0.34	-	0.15	245
232	oval ph	0.52	0.45	-	0.25	233
230	oval ph	0.36	0.28	-	0.20	231
240	sub-rectangular	0.52	0.44	-	0.12	241
227	oval ph	0.40	0.30	-	0.18	228

GROUP 4 Phase IV Partition 2

Context	Shape	Length	Width	Diameter	Depth	Filling
(60	linear slot	1.98	0.68	-	0.38	61, 86, 87, 88 (stones)
(						
(95	circular ph	-	-	0.40	0.23	96
151	sub-circular ph	-	-	0.45	0.20	188

GROUP 5 Phase IV Internal Structural Repairs

Context	Shape	Length	Width	Diameter	Depth	Filling
57	large oval pp	1.77	1.40	-	0.68	30, 58, 59, 73
154	large sub-rectangular pp	1.66	1.36	-	0.74	155
291	large oval pp	1.18	0.80	-	0.50	292

GROUP 6 Phase IV Internal Alterations

Context	Shape	Length	Width	Diameter	Depth	Filling
26	circular ph	-	-	0.60	0.40	27, 72
34	sub-circular ph	-	-	0.50	0.46	35, 36 (possible post-pipe)
66	sub-circular ph	-	-	0.55	0.29	67
152	oval ph	0.44	0.35	-	0.22	187

FEATURE GROUP 7

Context	Shape	Length	Width	Diameter	Depth	Fillings
270	sub-rectangular pp	1.3m	1.3m	-	0.60m	271
185	sub-circular pp	1.6m	1.4m	-	0.55m	259, 186
268	sub-circular pp	1.3m	1m	-	0.52m	269
191	sub-circular pp	1.25m	1m	-	0.30m	192
469	sub-circular ph	-	-	0.33m	0.44m	470
272	sub-circular ph	1.65m	1.58m	-	0.38m	273, 274

FEATURE GROUP 8

262	stone setting	25cm	25cm	-	24cm	263
182	stone setting	30cm	30cm	-	26cm	257
179	post-pit	77cm	70cm	-	16cm	258
181	slot	1m	36cm	-	9cm	256
183	post-pit	1.48m	1.36m	-	20cm	184

APPENDIX 3: BAKED DAUB SAMPLES

R M Spearman

Introduction

A total of 10.542kg of clay based daub preserved by mild baking was examined from this site. This material was distributed primarily through phases III to VI, although there were a few fragments from a single context in phase I Area III. The surfaces and random clean breaks of the samples were examined with a x10 hand lense and described under the following headings:-

1) Heat damage (oxidation, reduction)
2) Tempering additives (chopped vegetable matter, hair, sand)
3) Internal impressions (withy, squared timber, stone)
4) Surface profiles (flat, concave)
5) Construction (lamina or irregular fracture).

The results of this examination are summarized for each context on table 6.

In view of the size and distribution of the daub fragments, it was not thought to be worth examining the baking temperatures by any quantitive method.

Discussion

Phase I

15g of daub were recovered from the lowest ditch fill of Area III. There was only minimal oxidation of the clay which appears to have been only lightly heated. The sample is notable as the only daub to have been tempered with hair. The fragments are too small to retain any structural details and too poorly fired to indicate any clear fracture pattern.

Phase III

850g of daub were recovered from the general occupation layers of Area I. The pattern of internal reduction and surface oxidation of these fragments suggests that they had either broken whilst hot or had been subsequently reheated. There were no traces of any internal impressions although some uneven external surfaces were noted. While presumably constructional, the firing and surviving surfaces of this group of material clearly distinguish it from the other main groups of constructional daub.

Phase IV

5325g of daub were recovered from three related layers in Area I. A high proportion of the pieces from all three contexts demonstrate straight withy impressions. These impressions range in diameter from 8 to 25mm (1 @ 8mm, 1 @ 10mm, 1 @ 12mm, 10 @ 15mm, 2 @ 18mm, 6 @ 20mm, 1 @ 25mm). Three fragments demonstrate parallel withy impressions while in a fourth example the withies would have crossed. In addition to the withy impressions there were four examples of internal right-angles resulting from larger squared timbers, or possibly masonry, covered by the daub. The external surfaces are usually flat. One larger fragment, c 100mm by 150mm, is slightly concave. Two fragments with parallel external faces demonstrate thicknesses of 27 and 32mm. One surfaced piece with a wedge shaped section tapers from 23 to 12mm. A further piece with a single external surface is over 70mm thick.

The daub had been well baked causing substantial oxidation. Given its similarity of both firing and temper, the daub recovered from this phase may all be derived from a single building operation or even one structure. What evidence there is of form suggests the existence of flat screens or walls. The spacing of withy impressions and presence of internal right-angles implies that a substantial structure was involved, incorporating both dressed timber, or stone, and woven wattle. The various thicknesses of daub would suggest that the building frame had been haphazardly covered.

Phase V

2585g of daub were recovered from this phase. 2010g of this came from the sealing layer in Area I. Several of these fragments demonstrate internal withy impressions ranging from 12mm to 27mm in diameter (2 @ 12mm, 2 @ 15mm, 1 @ 20mm, 1 @ 27mm). The only external surface is flat. Little can be said about the structure or structures involved here other than that a possibly flat frame of withies had been daubed and subsequently lightly baked. 175g of minimally tempered and only lightly baked clay came from the fill of furnace 45 in Area I. The quality is poor and the quantity so small that it is unlikely to have been part of an 'oven' dome. If indeed it is related to the furnace, the clay may instead have been part of a patchy lining or bonding. This clay is quite unlike that recovered from Phase III. (See also 'oven' report.)

No comment can be made about the single small fragment of daub from posthole 199 in Area III.

400g of daub were recovered from the Phase V ditch fills of Area III. This material was well laminated and had been only very lightly baked. One piece was part of a structural corner with two external surfaces at right-angles. This daub appears to have been part of a wall surfacing rather than constructional daub.

Phase VI

1650g of daub were recovered from the sealing layers of Area I. Several of these fragments retain internal withy impressions ranging in diameter from 8mm to 25mm (2 @ 8mm, 1 @ 10mm, 2 @ 12mm, 3 @ 15mm, 1 @ 25mm). The external surfaces were all flat. One fragment with parallel external surfaces is 20mm thick while other pieces are over 35mm thick. The fragments are similar in firing and temper to those from layers 5 and 8 in Area I Phase V. In this case there is slightly better evidence for the structure consisting of flat screens or walls.

TABLE 6

DISTRIBUTION AND DESCRIPTION OF DAUB SAMPLES

Phase	Context	Description	Weight	Oxidation		Reduction		Temper			Impressions		Surfaces			Fracture		Phase
								Veg	Hair	Sand	Withy	Square	Flat	Concave	Lamina	Block		
I	207	Ditch fill	15g	Min	Ext				*									I
III	76	Layer	550g	Min	Ext	Int		*		*				?	*	*		III
	78	Layer	300g	Min	Ext	Int		*		*						*		
IV	43	Layer	150g	Maj		Min	Int	*		*	*					*		IV
	55	Layer	175g	Maj		Min	Int	*		*	*			*	*	*		
	90	Layer	5000g	Maj		Min	Int	*		*	*	*	*			*		
V	5	Layer	10g	Min	Ext	Min	Int			*								V
	8	Layer	2000g	Ext		Min	Int	*		*	*		*			*		
	44	'Oven' fill	175g	Min	Ext	Min	Int			?					*			
	199	Posthole	2g			Int		*							*			
	200	Ditch fill	300g	Ext				*		*					*			
	206	Ditch fill	100g	Min	Ext			*		*			*		*			
VI	2	Layer	1500g	Ext		Min	Int	*		*	*		*			*		VI
	4	Layer	150g	Ext		Min	Int	*		*	*		*			*		
	300	Ditch fill	100g	Ext				*		*						*		
U/S	42	?	15g	Ext				*					*		*			U/S?

Min = Minimal
Ext = External
Int = Internal

100g were recovered from the final ditch fill of Area 3. No impressions or surfaces were noted but the temper and fracture of this daub make it more comparable to other daub from this phase and layers 5 and 8 than the previous daubs from the ditch.

Conclusions

This is a collection of fairly small fragments of lightly baked daub. The vast majority of it was recovered from general layers, and where individual features have been involved (ie contexts 44 and 99) the quantities were small and their association with daub probably misleading. The phase I hair tempered daub while distinct and interesting is too scarce and fragmentary to suggest any function. The phase III material had received an unusual baking but unfortunately retained little structural evidence. The larger groups of material from phases IV and V/VI contain several small surface fragments which were most probably derived from flat screens or walling. The framework for these structures consisted of withies normally of 12-15mm diameter. In the case of the phase IV debris these withies had been woven and incorporated with withies of 20mm diameter as well as dressed timber, or stonework. It seems likely therefore that the different daubs from phases IV and V/VI represent the demolition/destruction of two possibly consecutive buildings.

APPENDIX 6: ANIMAL REMAINS

Catherine Smith and G W I Hodgson

Summary

The animal remains came from the thirteenth- and fourteenth-century levels of midden deposits in the N summit area of the motte and the backfill of a ditch around the motte base. The bones and teeth come mainly from domestic animals which, in the absence of evidence as to animal based industries, are presumed to be the remains of carcass dressing and of meals.

The relative frequencies of species present are estimated by weighing and by counting methods. The material reported on is very friable, having in all cases been burnt and often calcined. The physical condition of the remains is taken as evidence of the destruction of the site by fire rather than of crude cooking procedures.

Methodology

The animal remains were identified by direct comparison with modern material. Ribs and vertebrae other than the first two neck vertebrae were not identified as to species and are, therefore, not recorded. The single fish bone found was not identified as to species. Measurements were taken in accordance with the scheme proposed by Driesch (1976, 19-100).

Because the bone material was in a uniform state of preservation, irrespective of the contexts from whence it came, it was decided to investigate the relative frequencies of species by weighing as well as by counting methods. The advantages of the weighing method are discussed elsewhere (Uerpmann 1973, 310-11), but with fragmented material the main advantage of such a method is that it avoids overestimation of the species present.

The samples

The animal ramains reported on are dated from mid-thirteenth to mid-fourteenth century. These samples may reflect man's interaction with the animals which were all domestic in origin. In the absence of any clear evidence as to industrial or commercial waste, these remains are presumed to be those of animals which were eaten. The bones recovered from this site were in a state of extreme fragmentation; most of them were either burnt or calcined, thereby making identification difficult.

Size of sample

The samples presented for examination weighed 1542.2g (air dry weight). Of these, 451.6g of bones and teeth were identified as to species. In all, only 36 bones weighing 188.3g were identified. The bones came from the following species: cattle - 19, sheep - 15, pig - 1, fish - 1. Fragments of single teeth were present: these were mainly husks of enamel which were apparently shattered by heat.

Relative frequencies of species

The relative frequencies of species were estimated on the bases of total number of identified bones of each species present, and total weight of identified bone. The table gives percentages of bones derived by these methods.

TABLE 7

PERCENTAGES AND WEIGHTS OF IDENTIFIED BONES, ESTIMATED BY NUMBER AND WEIGHT (EXCLUDING FISH)

	% based on no of bones	% based on weight	Total weight of bone (g)
Cattle	54.3	84.8	382.9
Sheep/goat	42.9	5.8	26.1
Pig	2.9	9.4	42.5

Estimates/

Estimates of the relative frequency of species present vary with the method used: by weight the order is cattle, pig, sheep/goat: by counting it is cattle, sheep/goat, pig. The sample is small and this may account for the absence of deer, horse, dog, cat, bird and vermin bones, all of which would have been expected to appear at a site like this.

Ages of animals on death

On the basis of fusion of distal epiphyses, there is no evidence to suggest that young cattle, sheep or pigs were present. However, one unworn bovine molar tooth indicated the presence of a young ox.

Butchery and carcass analysis

(a) Butchery

The fragmented and calcined nature of the samples obscures the butchery techniques used. It is assumed that the physical nature of the remains is due to the burning of the site rather than the butchery or cooking practices used.

(b) Dispersal of parts of carcasses

A comparison of the numbers of limb bones (high meat yielding) shows a high percentage of low meat yielding bones: this may be due to the meat rich bones (joints of meat) being removed from this part of the site and, after further butchery and cooking, being discarded elsewhere as the remains of meals. Alternatively, it may simply reflect the fact that low meat yield bones are less liable to be butchered and, therefore, more likely to be identified.

A high proportion of the remains from cattle, sheep/goat and pigs are either single teeth or tooth fragments. Noddle (1975) has argued that such samples are indicative of slowly accumulated deposits. The destruction of the site by fire may have shattered jaw bones, thereby increasing the number of single teeth and tooth fragments.

APPENDIX 8: SMALL FINDS REPORTS

H B Duncan and R M Spearman

The artefacts are divided into five groups according to material. With the exception of nails, each catalogue entry is numbered consecutively and their phase, area location, context number, excavation accession number and SDD lab number are included. The excavated contexts have been grouped into six phases:

Phase I: c 1250
Phase II: c 1255-85
Phase III: c 1265-80
Phase IV: late thirteenth century
Phase V: c 1308-20
Phase VI: plough-soil

For the discussion of the finds see the printed part of this report, Appendix 8.

IRON (Illus 25)

H B Duncan

1 Knife blade and tang with straight back and cutting edge, tapering to a point. Pronounced shoulders. The blade is triangular in cross-section. The cutting edge has been reduced by whetting. Tapering tang of rectangular cross-section. Length 120.2mm; width of tang 8.4mm; width of blade 8.4mm; thickness of tang 6.4mm; thickness of blade 6.8mm. Phase IV, Area I (43, 43), SDD lab no 810801.

2 D-shaped buckle made from a rod of rectangular cross-section (5.3 by 8.4mm). Looped tongue of rectangular cross-section (6.7 by 6.8mm) tapering to a wedge shaped point. The rod thins at the point of attachment of the tongue. Damaged/

Damaged and split along the straight edge. Buckle length 37.5mm; breadth 47.3mm; tongue length 48.4mm. Phase V, Area III (200, 60). SOD lab no 810918.

3 Rectangular buckle made from a rod of rectangular cross-section (10.4 by 7mm). Looped tongue of roughly rectangular cross-section (12 by 7.8mm) tapering to a wedge-shaped point. The rod thins at the point of attachment of the tongue. Buckle length 54.7mm; breadth 66.9mm; tongue length 63.9mm. Phase III, Area I (186, 40). SOD lab no 810989.

4 Padlock key with loop-shaped ward and ring-shaped bow. The shank tapers toward the bow. Length 165mm; width 18.7mm; thickness 8.7mm. Phase V, Area I (27,49). SOD lab no 810907.

5 Padlock key minus bow. Roughly Y-shaped ward. The bit is set laterally to the shank. Length 108.7mm; width 12.5mm; thickness 7.3mm. Phase V, Area VII (302, 67). SOD lab no 810925.

6 Key with plain oval bow (damaged) and tubular shank which tapers toward the bow. Heavy bit. LMMC type III. Length 116.8mm. Phase VI, Area VII (300,62). SOD lab no 810920.

7 Small key with plain oval bow and tubular shank which tapers toward the ward. For a chest or casket. LMMC Type III. Length 36.2mm. Phase V, Area III (200, 65). SOD lab no 810923.

8 Mount fitting for a box or chest. Shank of rectangular cross-section (8.2 by 5mm) both ends of which are flattened. One end is oval in plan, the other trefoil in plan. Both ends are perforated with small rivets <u>in situ</u>. Length 71.7mm. Phase V, Area VII (302, 67). SOD lab no 810925.

9/

9 Strap-end hook of rectangular cross-section, tapering in width toward hooked end. The opposite end retains about half of a rounded perforation. Total length 54.6mm; width 25.9mm; thickness 7.6mm. Phase IV, Area I (55, 47). SDD lab no 810905.

10 Damaged horseshoe, partially cleaned, consisting of a portion of one side with two rectangular perforations and two further rivets in situ. The outer edge of the shoe is broken off. The caulking do not survive. Maximum width 25mm; thickness 8mm. Phase I, Area VIII (462, 84). SDD lab no 810942.

11 Tweezers consisting of two rods of rectangular cross-section joined at one end to form a flat, tapering handle. The tips of the tweezers taper in thickness and are rounded in plan. Length 85.5mm; width 6mm; thickness 0.9mm. Phase IV , Area II (113, 36). SDD lab no 810894.

12 Narrow chisel or spike of rectangular cross-section. Both ends taper to form wedge-shaped tips in opposite planes. Length 177mm; width 8mm; thickness 8.7mm. Phase VI, Area I (4, 46). SDD lab no 810902.

13 Portion of a chisel of rectangular cross-section. The chisel tapers toward both ends which are broken. Length 71.9mm; width 12mm; thickness 11mm. Phase VI, Area I (4, 44). SDD lab no 810902.

14 Approximately half of an annular ring of oval plan (14.6 by 13mm). Plano-convex in cross-section. Width 5.1mm; thickness 9.3mm. Phase VI, Area I (4, 44). SDD lab no 810902.

15 Annular ring of rectangular cross-section with rounded edges. Oval in plan. Breadth 14.1mm; length 15mm; width 3mm; thickness 2.8mm. Phase V, Area III (200, 65). SDD lab no 810923.

16 Hook of rectangular cross-section. The opposite end is missing. Length 30.6mm; breadth of hook 12.6mm; width 7mm; thickness 6.2mm. Phase IV, Area I (55, 47). SDD lab no 810905.

17 Portion of a curved rod of rectangular cross-section. Both ends are missing. Part of a hook? Length 67mm; width 8.6mm; thickness 7.6mm. Phase VI, Area I (4, 44). SDD lab no 810902.

18 Portion of a rod of rectangular cross-section, one end bent. Both ends are missing. Possibly a nail shank. Length 22.9mm; width 8.2mm; thickness 7.2mm. Phase IV, Area I (43, 51). SDD lab no 810909.

19 Portion of a rod of rectangular cross-section, one end bent. Both ends are missing. Possibly a nail shank. Length 24.6mm; width 5.9mm; thickness 4.9mm. Phase IV, Area I (43, 51). SDD lab no 810909.

20 Portion of a rod of rectangular cross-section. The rod is slightly curved and both ends are missing. Possibly a nail shank. Length 20mm; width 8mm; thickness 6.5mm. Phase IV, Area I (43, 51). SDD lab no 810909.

21 Portion of a rod of triangular cross-section. Both ends are missing. Length 19.5mm; width 6.9mm; thickness 6.8mm. Phase IV, Area I (43, 51). SDD lab no 810908.

22 Portion of a rod of square cross-section tapering to a point. The opposite end is missing. Probably a nail shank. Length 25.7mm; width 4.8mm; thickness 4.8mm. Phase IV, Area I (56, 52). SDD lab no 810910.

23 Portion of a rod of rectangular cross-section. Both ends are missing. Length 10.6mm; width 10mm; thickness 8mm. Phase IV, Area I (56, 52). SDD lab no 810910.

24/

24 Portion of a rod of rectangular cross-section tapering toward one end. One end is missing, the other is distorted by corrosion. Length 40.9mm; width 19mm; thickness 15mm. Phase VI, Area I (4, 44). SDD lab no 810902.

25 Portion of a rod of rectangular cross-section tapering in thickness toward one end. Both ends are missing. Possibly a nail shank. Length 33.4mm; width 6.9mm; thickness 7.3mm. Phase IV, Area I (55, 47). SDD lab no 810905.

26 Portion of a rod of rectangular cross-section tapering in thickness toward one end. Both ends are missing. Length 21.4mm; width 6.3mm; thickness 6.2mm. Phase IV, Area I (55, 47). SDD lab no 810905.

27 Portion of a rod of rectangular cross-section, bent and twisted, tapering toward one end. Both ends are missing. Length 17.2mm; width 5.3mm; thickness 4.7mm. Phase V, Area III (200, 65). SDD lab no 810923.

28 Portion of a tapering rod of plano-convex cross-section, slightly curved. Both ends are missing. Length 43mm; width 9.4mm; thickness 6.2mm. Phase , Area (42, 5). SDD lab no 810863.

29 Portion of a badly damaged tapering rod of oval cross-section. Both ends are missing. Length 28.9mm; width 7.3mm; thickness 7mm. Phase I, Area VIII (463, 83). SDD lab no 810941.

30 Portion of a tapering rod of rectangular cross-section. One end forms a wedge-shaped point which is slightly bent. The opposite end is missing. Possibly a nail shank. Length 30.4mm; width 7mm; thickness 5.2mm. Phase III, Area I (76, 38). SDD lab no 810896.

31 Rod of sub-triangular plan tapering sharply in width toward one end which is broken. Rectangular in cross-section/

section. Length 32mm; width 15mm; thickness 12.9mm. Phase V, Area VIII (302, 67). SDD lab no 810925.

32 Portion of a sheet of rectangular cross-section. Sub-triangular in plan. None of the existing edges is original. Length 38.7mm; width 43.3mm; thickness 5mm. Phase VI, Area II (101, 15). SDD lab no 810873.

33 Portion of a thin sheet of rectangular cross-section, sub-rectangular in plan. None of the edges is original. Length 31.9mm; width 27.3mm; thickness 1.6mm. Phase VI, Area II (108, 18). SDD lab no 810876.

34 Portion of a fairly thick sheet or blade, roughly sub-rectangular in plan and cross-section. One edge and one end are missing. The opposite end is partially thickened and bevelled. One edge is bevelled. Length 120.3mm; width 64.5mm; thickness 6.8-9.9mm. Phase VI, Area II (101, 33). SDD lab no 810891.

35 Very badly damaged sheet of rectangular cross-section, partially covered in corrosion. No original edges appear to survive. Length 82.6mm; width 51mm; thickness 2.8mm. Phase VI, Area II (108, 17). SDD lab no 810875.

36 Portion of a sheet bent at about a 90 degree angle, damaged. The sheet tapers toward one end which retains a portion of a base. The opposite end is missing. Purpose uncertain (leg of iron vessel?). Length 49.3mm; height 20.3mm; width 17.6mm; thickness 8.7mm. Phase VI, Area II (101, 34). SDD lab no 810892.

37 Portion of a strip of flat, rectangular cross-section. Both ends are missing and one edge is broken. Length 14.3mm; width 6.4mm; thickness 3mm. Phase IV, Area I (43, 51). SDD lab no 810909.

38 Portion of a strip of rectangular cross-section. Both ends are missing. Distorted by corrosion. Length 13.8mm; width/

width 14mm; thickness 8.6mm. Phase VI, Area I (4, 44). SDD lab no 810902.

39 Portion of a strip of rectangular cross-section. Both ends are missing. Length 21.3mm; width 9.7mm; thickness 4.6mm. Phase IV, Area I (55, 47). SDD lab no 810905.

40 Portion of a strip of rectangular cross-section, sub-rectangular in plan. Tapering in width toward one end. Both ends are missing. Length 22.9mm; width 11.9mm; thickness 4.8mm. Phase V, Area III (200, 65). SDD lab no 810923.

41 Portion of a strip of rectangular cross-section, triangular in plan. Tapering in width toward one end. Both ends are missing. Length 22.1mm; width 10.7mm; thickness 2.5mm. Phase V, Area III (200, 65). SDD lab no 810923.

42 Damaged and corroded cylindrical 'tin can', now flattened. Base attached. Height 70mm; estimated diameter 75mm. Phase V, Area III (201, 59). SDD lab no 810917.

43 Totally corroded fragment of sub-rectangular plan, presently plano-convex in cross-section. One end is missing, the opposite end is covered in corrosion but has a curving outline. Length 26.8mm; width 28.9mm; thickness 13.3mm. Phase V, Area III (100, 65). SDD lab no 810923.

NAILS (Illus 26)

R M Spearman

Of the 100 nail fragments (nos 44-143) recovered, 78 nails and two staples (nos 144, 145) retained recognisable features. A further six fragments, included in the preceding catalogue, may be nail shanks. These were X-Rayed and given/

given a basic cleaning followed by detailed cleaning and conservation of specific examples. Their attributes are considered under the following headings: over-all length; horizontal and vertical section of head; horizontal and vertical section of shank; and weight (for complete results see archive). All of the nail shanks are either rectangular or square in horizontal section. The following nail types are therefore established largely on the basis of head type and then length.

44-84 Flat-headed nails (illus 26, nos 44-8)

This is the commonest type of nail from the site, with 41 examples recovered. The heads are of a sub-rectangular form between 15 and 25mm square. Their shanks are approximately square, although a few rectangular examples occur. Thirty-six of the nails range in over-all length between 20 and 50mm with individual examples at 58, 65, 67, 90 and 140mm. For the majority therefore the length of the nail is 1.4 to 2 times the width of its head.

85-92 Splay-headed nails (illus 26, nos 85, 86)

Only eight examples of this type were recovered. The 'heads' of these nails appear only as a slight expansion of their square or rectangular shanks. They vary in length from 16 to 155mm.

93-115 Fiddle-key headed nails (illus 26, nos 93, 94)

Twenty-three examples of this type of nail were recovered. The head is trapezoidal in vertical section, similar to a fiddle key. Eighteen of these nails are between 27 and 35mm in length with individual examples at 38, 40, 44 and 45mm. All have fine square or rectangular shanks with elongated points.

116-7 Triangular-headed nails (illus 26, no 116)

Only two examples of this type are present. They have a rectangular shank with a small head which is slightly triangular in vertical section. They have an over-all length of c 45mm.

118 Rectangular-headed nail (illus 26, no 118)

Only one possible example of this type of nail was noted. It has a rectangular shank with a head formed by a slight extension to one side of the shank. This example was 38mm in overall length.

119 Dome-headed nail (illus 26, no 119)

A single fine dome headed nail is present. Its shank had a square horizontal section with an overall length of 14mm.

120-2 Chamfer-headed nails (illus 26, no 120)

Two nails of this type were recovered. Their heads are square and chamfered on each face. Both nails are 100mm in length with square horizontal sectioned shanks.

144-5 Staples (illus 25, no 144)

Two incomplete staples were recovered. The larger of the two has a 7,5mm square horizontal section. The second staple is rectangular in section, 5 by 7mm.

BRONZE (Illus 27)

H B Duncan

146 Cast stick-pin with disc head and fillet. The head is roughly oval in plan and rectangular in cross-section. Twelve incised notches decorated the outer edge of the head. The shaft is oval in cross-section, swelling slightly at mid-section and then tapering to a rounded point. Length 109,6mm; width head 11mm; shank width 4,3mm; head thickness 2mm; thickness shank 4mm. Phase I, Area VIII (462, 267), SDD lab no 810958.

147 Portion of a handle or buckle consisting of a rod of/

of oval cross-section tapering toward both ends and curved in a C-shape. Both ends are missing. Length 47mm; width 4.6mm; thickness 4mm. Phase IV, Area I (43, 260). SDD lab no 810951.

148 Backing plate or mount of rectangular cross-section and roughly rectangular plan. In plan the ends of the plate have a semi-circular extension, each containing a circular perforation, 2.6mm in diameter. One of the perforations still contains a rivet with a globular head, and the remains of a washer. At mid-point on the edges of the plate is a rectangular notch, 3mm in length. One end is damaged. Length 43.7mm; width 16mm; thickness 1mm. Phase V, Area III (200, 263). SDD lab no 810954.

149 Portion of a backing plate of rectangular plan and cross-section. One end is damaged and has a V-shaped notch on its surface. The opposite end has two parallel circular perforations, 2.5mm in diameter. This end is broken. Length 22.3mm; width 14.5mm; thickness 1mm. Phase V, Area III (200, 261). SDD lab no 810952.

150 Three fragments of a thin sheet of rectangular cross-section. All three fragments appear to be from the same object and all are sinuous in side-view. Fragment A retains one original edge, which appears to be an everted rim. Fragment B has a rectangular perforation, 5.5mm by 2mm, on its lower surface. The edges of this perforation are folded over on the reverse face. Length A 21mm, B 24.9mm, C 8mm; width A 26mm, B 31.9mm, C 17.5mm; thickness A 0.8mm, B 0.7mm, C 0.7mm. Phase V, Area VII (302, 265). SDD lab no 810956.

151 Fragmented sheet, in three main pieces, of rectangular cross-section, very thin. None of the fragments appears to have original edges and all are curved. Length A 25mm, B 20mm, C 28mm; width A 27mm, B 17.5mm, C 9mm; thickness A 0.6mm, B 0.8mm, C 0.6mm. Phase V, Area III (200, 262). SDD lab no 810953.

152 Portion of a flat sheet or plate of rectangular cross-section and sub-rectangular plan. Only one edge appears to be original. Length 41mm; width 13.7mm; thickness 1.7mm. Phase V, Area VII (302, 266). SDD lab no 810957.

153 Binding strip of flat rectangular cross-section. One end is missing. The opposite end is slightly splayed and contains one complete circular perforation (2mm in diameter) and about half of a second. This end is also damaged. The strip is presently bent round to form an irregular oval. Length 196mm; width 11.5mm; thickness 1.7mm. Phase V, Area III (200, 264). SDD lab no 810955.

154 Portion of a thin, flat strip of rectangular plan and cross-section. Both ends are missing. Length 17.6mm; width 5.2mm; thickness 0.5mm. Phase V, Area III (200, 262). SDD lab no 810953.

155 Portion of a thin strip of rectangular cross-section which is folded over. Length 12mm; width 7.6mm; thickness 2.5mm. Phase V, Area III (200, 262). SDD lab no 810952.

SILVER (Illus 28)

156 Small stick-pin, in two pieces, with a squat circular head. Attached to the head is a wire of rectangular cross-section. It is curved and the end broken off. The shaft is circular in cross-section tapering to a damaged point. Length 24mm; head width 3.3mm, shaft 1.4mm; head thickness 3.3mm, shaft 1.4mm. Phase V, Area III (200, 281). SDD lab no 810947.

157 Portion of a spiral (?) finger-ring, retaining only one spiral. The ring is made from a wire of circular cross-section. About half of the ring has decorative notching, achieved by incising circles on the circumference of the wire. Both ends are missing. Internal dimensions/

dimensions of ring 19mm by 18mm; diameter of wire 1.7mm. Phase V, Area III (200, 280). SDD lab no 810948.

158 Half of a silver long cross penny of Henry III, second issue. Phase I, Area I (261, 282). SDD lab no 810948.

GLASS

159 Small globular bead of pale yellow vitreous paste, unperforated but with a roughly rectangular depression on its upper surface. In poor condition with laminating surface. Height 7.1mm; width 8.7mm; thickness 8mm. Phase V, Area III (200, 290). SDD lab no 810950.

STONE (Illus 29)

160 Small sub-rectangular whetstone of rectangular cross-section. The stone is perforated in two places, near either end. One perforation is cylindrical (4mm in diameter) and the other is hourglass (4.5mm in diameter). The stone tapers toward one end, which is damaged. Length 60mm; width 10mm; thickness 7.7mm. Phase V, Area III (200, 270). SDD lab no 810949.

The discussion of the small finds is in print, Appendix 8.

APPENDIX 8: GEOMORPHOLOGICAL REPORT

Alastair M D Gemmell

The hill appears to be composed of a mass of poorly sorted and bedded sand and gravel, probably a kame which would have formed at roughly the end of the last glacial period to affect the district, ie c 15000 years BP. Kames are formed by the infilling of potholes or tunnels in the glacier by sand and gravel left as a mound which often possesses quite steep sides, 30 to 40 degrees. Thus a natural defensive site would have been available throughout post-glacial time, further enhanced by the presence of a stream on the E side possibly cutting away the base and steepening the slope.

The top of such a mound could be naturally flat enough to build on, but that is the exception, and it would seem more likely that some shaping of the top would be required. Evidence for this is contained in the layer of gravel overlying what appears to be a former turf layer. Although the gravels in the kame are naturally not very cohesive, this gravel layer has a slightly different texture and pattern which is commensurate with the idea that it is made ground. The flanks of the mound show some evidence of slippage, particularly on the SE side, and the resultant breaks in the vegetation cover reveal evidence of wash of sand and fine gravels down the flanks. This washing is a natural process, but it is only really effective where there is no vegetation cover, so that the soil can be attacked directly by rainfall. As the natural state of the kame for most of its history would be vegetation covered, it is quite possible that the wash deposits were laid down at a time when the turf had been broken by such actions as levelling the top of the mound, though it is also possible that it could be a slightly more recent phenomenon.

Around the foot of the mound of the Castlehill, and particularly to the south of the motte, a shallow winding depression/

depression is visible in the fields. A study of the aerial photographs (illus 30) of the area revealed that it was probably the line of a former course of the Feugh Burn. The interpretation is slightly complicated by the presence of another channel joining the depression from the N, immediately to the W of the Castlehill. This latter channel leads down to the floor of the Feugh valley by way of a series of mounds of what appear to be fluvioglacial materials, and is therefore considered to be a meltwater channel, possibly dating from the deglaciation of the basin some 13500-15000 BP.

The origin of the channel to the south of the motte is rather more difficult to interpret. It has a shallow gradient, shows signs of rather gentle and subdued meandering, and starts and stops in positions adjacent to the present course of the River Feugh. It therefore seems likely that it is a former channel of that river, but one which might date from a period much closer to the date of occupancy of the motte than did the channel from the N. The possibility remained, however, that it was a line of defence associated with the motte, possibly a ditch.

In order to test the hypothesis that it was a ditch, a simple screw auger was taken to the site and a section of the channel was augered. The resultant analysis covers a depth of c 1.5m. Within this 'core' the predominant material is fine silt/clay sediment, particularly near the surface. This material is interrupted by thin layers of rather coarser material, mainly sand and fine/medium gravels, the proportion of fines diminishing with depth. At c 1.5m a coarse gravel was encountered which could not be penetrated with the auger.

As a check on the results, attempts were made to auger at two other sites, one on the open low ground adjacent to the 'channel' in which the core described above was taken, and the other near a small stream which debouches on to the valley floor just to the E of the motte. In both cases, these bores could only be taken to very shallow levels as a result of encountering coarse gravels virtually at the surface.

The sediments encountered in the core from the floor of the depression are of a character which is in accordance with the depression marking the line of a former course of the Feugh. The gravels encountered near the base of the core are similar to those forming the present bed of the stream. The overlying finer material, interrupted by thin bands of coarser material, is interpreted as backwater deposits, probably laid down as the course of the stream changed and the former channel abandoned to give quiet-water conditions. The coarser layers probably mark periods of flood, or at least very high discharge, at which time the depression might have become a temporary channel of the Feugh. Once the waters receded, however, only the fine muds and silts would be likely to be deposited there.

The fact that the other sites augered did not reveal a similar stratigraphy shows that the depression is not just a topographic 'crinkle' in the floor of the Feugh valley but is actually different from the rest of the flood plain. The evidence also tends to rule out an artificial origin for the form, for a ditch cut into flood-plain gravels is not likely to contain the relatively delicate stratification and fine sediments described above. Instead, one might expect it to be largely filled with fairly coarse gravels, with few layers of finer materials. Such a ditch would have been cut directly into the gravel forming the majority of the valley floor, and if floods brought a flow of water along that ditch, the walls would probably have collapsed, filling the ditch with a mixture of coarse gravel and finer material. No such layer has been discovered.

The conclusion of the research carried out is that the depression cutting across the valley floor to the south of Castlehill of Strachan marks the line of a former course of the river Feugh.

APPENDIX 10: POLLEN ANALYSIS

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Samples for pollen analysis were taken from a 20cm deep profile at the bottom of the long N-S orientated section which ran from the motte summit to Area VIII. The profile was positioned on the N lip of the motte. The upper 10cm is composed of the thirteenth-century primary occupation deposit and the lower 10cm is apparently a buried pre-occupation soil for which no precise date can be given. Standard techniques were used to prepare the samples (Faegri & Iversen 1974; Moore & Webb 1978) and results of the analysis are presented as percentages of total pollen in illus 31.

The pollen spectrum of the pre-occupation soil is dominated by tree pollen. Betula and Alnus are the principal tree taxa, only low values being recorded for the other broad-leaved trees and Pinus. This suggests an abundance, at least locally, of birch and alder woodland. The very low pine values indicate that the pollen spectrum from this soil represents a period beginning no earlier than 2000 BP (before present). Calluna values are comparatively low but are consistent with the suggested local abundance of birch and alder woodland. Several of the herb taxa are ruderals (eg Artemisia, Compositae, Plantago lanceolata, Ranunculaceae), generally associated with ground disturbance mostly due to cultivation and tree clearance. The low amounts of ruderal pollen and the correspondingly high tree pollen values, however, indicate that neither cultivation nor tree clearance was a major feature in the immediate vicinity of the site during the time represented by the pre-occupation soil.

The primary occupation deposit contains a pollen spectrum similar to that of the pre-occupation soil; however, the percentage values of a number of the taxa differ substantially. In the primary occupation deposit there is significantly less tree pollen owing to a halving of the Betula values/

values. In addition, the Calluna pollen content greatly increases and the amount of ruderal pollen almost doubles. These features suggest that at or around the time of primary occupation there was a period of birch clearance. Heather could have replaced birch in part of the cleared area, especially if it was present in the woodland ground flora. Clearance was probably associated with increased agricultural activity, although some of the ruderal pollen could have come from areas disturbed during the primary occupation of the site.

APPENDIX 11: PALAEOBOTANICAL REPORT

W E Boyd

Samples E2 and E3

This report presents the results of the identification of a small number of seeds and other botanical remains submitted to the author. This report should be considered in conjunction with the report on the botanical remains from sample E8.

Sample E2 Area I context 43, midden

Definite fossils:

1 Cereal caryopsis, broken and carbonized. Further identification not possible.
2 Hordeum vulgare (6-row barley) caryopsis, probably hulled; almost entire, condition poor, carbonized and puffed; size 4 x 3 x 2mm.
3 Corylus avellana (hazel) 5 nut fragments, carbonized.

Probable modern contaminants:

1 Rumex sp (sorrel), 4 flowers with fruit, 1 fruit; all uncarbonized.
2 Fungal fruiting bodies, 7 plus 3 fragments.

Sample E3 Area I context 44, fill of furnace 45

Definite fossils:

1 Hordeum sp (barley), caryopsis, hulled, but not possible to determine whether 2-row (H distichum) or 6-row (H vulgare) is present. 5.5 x 3 x 2.5mm, c 5/8 complete; carbonized.
2 Polygonum aviculare agg (knotgrass) fruit, with remnants of the carbonized flower; c 3mm long x 1.3mm wide.

Possible fossil:

Chenopodium album (fat hen), 2 broken seeds, c 1.25mm diam.

Probable modern contaminants:

1 Rumex sp (sorrel), 2 flowers with fruit and 2 fruit.
2 Rubus sp (bramble), 1 seed.
3 Fungal fruiting bodies, 1 plus 2 fragments.

Comments

Hordeum vulgare has been recorded at Castlehill of Strachan in sample E6 and the comments in that report suffice (see below). Polygonum aviculare agg and Chenopodium album are both weeds of cultivated and waste ground.

Sample E6 Area III context 200, ditch fill

Introduction

This wet-sieved residue sample (c 75ml) was examined under a low-power (to x 25) binocular microscope, and the presence of identifiable plant remains recorded. Where necessary, identification of specimens was made under a high-power (x 250) binocular microscope, and was by reference to a collection of plant remains held in the Department of Botany, University of Glasgow.

The bulk of the sample comprises wood charcoal, with occasional unburnt or semi-burnt wood and bark fragments. Nearly 100 other carbonized plant remains were identified. Details are given in table 8, and discussion follows.

Avena strigosa (bristle oat) Two almost complete primary florets fall into the size range of A strigosa (cf Jessen & Helbaek 1944, 49-50; Renfrew 1973, 92ff). There are the remains of occasional hairs on the lemmas, and although the floret bases are damaged, one of the specimens appears to have a narrow base (c 4mm), typical of A strigosa. The distinctive 'suckermouth' base of A fatua (wild oat) is absent, and the more or less parallel edges of the florets contrast the typically more rounded ones of A sativa (cultivated oat). There is the possible remnant of a rachilla base/

base in one of the florets. One caryopsis fragment and one floret fragment are identified as Avena cf strigosa; the suggestion of straight edges and the absence of a wide V-shaped ventral furrow (typical of A fatua) indicates that the caryopsis fragment may be A strigosa, whereas the tentative identification of the floret fragment is founded on the presence of a narrow (c 4mm) base. Two fragments are identified as Avena sp. on the basis of the general shape and, on one, the presence of hairs.

Avena strigosa is a cultivated oat which was grown extensively during historical times throughout Scotland, often in marginal sites on the poorest soils. It is presently grown as a crop only on the northern and western islands of Scotland, especially on sandy alkaline soils, and in some of the Outer Isles, notably the Uists, most of the oats grown are still A strigosa (Bland 1971, 126-7). Despite its former widespread historical presence in Scotland, it is poorly represented in the archaeological record. The only other medieval records are at the probable medieval site at Camp Hill, Glasgow (Jessen & Helback 1944) and possibly at Perth (D E Robinson pers comm).

Hordeum vulgare (six-row barley) Five caryopses are identified as H vulgare. On three, fragments of the glumes are present, on which the microscopic spines, typical of hulled barley (Korber-Grohne & Piening 1980), can be seen. Three of the caryopses show the characteristic elongate ridges and angular cross-section of hulled barley, whereas two are less angular in section, being tightly enclosed in their glumes. All five are twisted, indicating that six-row barley is present (Van Zeist 1970, 50). The Hordeum sp caryopsis is a very poorly preserved, slightly puffed specimen. However, there is sufficient remaining detail to identify it as being hulled, and it probably is also from six-row barley.

Barley is an early maturing grain which, although is not ideally suited to growth conditions in Scotland, is better/

better adapted than other cereals to grow in the marginal agricultural conditions found in Scotland (Bland 1971; Harlan 1976), and consequently was an important cereal in prehistoric and historic Britain. Six-row barleys, such as 'bere' barley, are primitive cultivated cereals which have been superceded by two-row varieties, and at present are grown only on some of the western and northern islands of Scotland; six-row barley was formerly grown extensively throughout upland Scotland (Bland 1971). Barley is the most commonly occurring cereal in Scottish archaeological contexts, although it has not been recorded very frequently at medieval sites. Six-row barley has been found in medieval Aberdeen, Perth and Elgin (Fraser 1981) and in Glasgow (Jessen & Helbaek 1944).

Triticum sp (wheat) The identification of Triticum is difficult. The two caryopses recorded here have the typical pericarp cell patterns of Triticum (Korber-Grohne & Piening 1980), and although they are drop-shaped, a characteristic regarded by Van Zeist (1970, 52-3) as highly diagnostic of carbonized T dicoccum (emmer), the ventral face and cheeks appear to be more rounded than is common in T dicoccum.

Wheat cultivation has a general east-coast distribution in Scotland, although it is not widespread (Bland 1971). T aestivum (bread wheat), compactum (club wheat) and dicoccum (emmer) are all represented at pre-medieval archaeological sites throughout Scotland, but only T aestivum is recorded in medieval contexts, at Perth, Aberdeen and Elgin (Fraser 1981).

Herbs The Chenopodium seeds are all burnt, often having lost their outer layers. However, many of them are sufficiently well preserved to be identified as Chenopodium album (fat hen), and it is probably that those identified as Chenopodium sp are also C album. The identification of Brassica and Sinapis seeds is difficult, and identification to species level may not be possible with certainty (D E Robinson pers comm). The seeds identified here were differentiated on the basis of overall size as well as the size of the palisade cell luminae measurements/

measurements of the latter size here for Brassica sp are c 12 m in diameter, and for Sinapis sp, c 6 m. The coarse reticulum frequently of use in specific identification is not present in these specimens. The Polygonum lapathifolium (pale persicaria) fruit is burnt and slightly broken, but generally in good condition, whereas the Rumex sp (sorrel) fruits and the Spergula sp (spurrey) seed have corroded surfaces.

All the herbs are weeds of arable and disturbed ground. The Brassica and Sinapis species include both wild and cultivated turnips, cabbages, rape, charlock and mustards, and may represent the cultivation of such plants. Chenopodium album has a history of use, possibly having been specifically cultivated in the past (Fraser 1981, 57). All the herbs recorded here are common in archaeological contexts, and have occurred frequently at medieval sites (Fraser 1981).

NB A further 20 environmental samples retrieved during the excavation still await specialist attention.

TABLE 8

DETAILS OF IDENTIFIABLE PLANT REMAINS FROM SAMPLE E6

		sizes (mm)			
		length	breadth	thickness	fragment
Avena strigosa					
florets	1	5.5	1.5	1.5	
	2	5.5	1.5	1.5	
A. cf strigosa					
caryopsis		2.0	1.25	1.5	c 1/3
floret		4.5	2.0	1.25	c 1/3
Avena sp					
caryopsis	1	3.0	1.5	1.00	c 1/2
	2	2.5	1.5	1.00	c 1/4
Hordeum vulgare					
caryopsis	1	4.5	2.5	2.0	
	2	5.0	2.0	1.5	
	3	5.0	2.5	2.5	
	4	5.0	3.0	2.25	
	5	5.0	3.0	2.0	
Hordeum sp					
caryopsis		4.5	2.75	2.25	end lost
Triticum sp					
caryopsis	1	4.5	2.25	2.25	c 3/4
	2	4.0	2.5	2.0	

Chenopodium seeds	C album	C sp
entire	11	11
almost entire	10	14
half	7	4
less than half	0	18

Brassica sp 2 seeds 1.7mm diameter

Sinapis sp 2 seeds 1mm diameter

Polygonum lapathifolium 1 fruit

Rumex sp 2 fruits

Spergula sp 1 seed

APPENDIX 12: REPORT ON THE CHARCOAL SAMPLES

W E Boyd

Introduction and methods

Forty-one samples were submitted for examination. These varied considerably in size and composition; several samples contained abundant large fragments whereas, at the other extreme, several samples contained few fragments most of which are below a practical size for identification. Consequently, an arbitrary sampling system was devised, which is considered to provide the principal characteristics regarding species content and size data of the original wood represented in each sample. In each sample, an examination sub-sample consisting of all the larger fragments was selected. Large fragments are defined loosely as being larger than c 5 x 5 x 5mm, although in certain cases smaller fragments were examined. Generally a sub-sample defined in this way represents 20% or more of the total number of fragments in each sample. Unlike other plant macrofossil assemblages (such as seeds and fruits), the composition of charcoal fragments not only reflects the original proportions of species, but also, and more importantly, the degree to which the original charcoal has broken up. The overall proportions of species in one sample may therefore reflect factors such as the tendency for wood to fragment during burning and post-depositional fragmentation and preservation. The presence and (less importantly) absence of species in each sample is therefore more important than the relative abundance of fragments. The examination sub-sample must not be regarded as an entirely random sample, and it is possible that species which tend to fragment into very small fragments may have been biased against. However, given the relatively small proportion of the original wood which has survived and been collected as charcoal, it is considered that the sampling system used here has provided the principal characteristics regarding the species represented.

There are several exceptions to this sampling system. Sample 7 is a particularly large sample, consisting mainly of/

of large fragments, and only 10% of the fragments were examined. In samples 9, 12 and 46, which consist only of Quercus, only a few of the larger fragments were identified in detail, and the rest, mostly large fragments, was scanned under low power magnification to confirm that the entire sample consisted of Quercus. Finally, sample 45 consists of tiny slivers of charcoal (less than 1mm broad and 0.5mm thick) and consequently only one fragment out of c 100 was examined; likewise, sample 30 consists of over 30 very small fragments, of which only two were identified.

Each fragment was measured along three perpendicular axes (not necessarily perpendicular to the structural axes of the original wood), and their minimum or maximum diameter was estimated by comparison with a series of templates of known diameter. The 'minimum diameter' recorded represents the minimum diameter of the original wood (branch) from which the charcoal fragment comes. The 'maximum diameter' is, likewise, the maximum diameter of the original branch, and is recorded where part of the outer surface of the original wood is present. This represents the original wood or branch dimensions and does not imply anything regarding artifact dimensions. Where the minimum diameter is recorded, it must be remembered that this is the minimum thickness, and that in the case of, for example, posts, the outer parts may have been entirely removed during burning.

Each fragment was examined under low (to x25) and medium (x250) power microscopes, and the characteristics of the wood anatomy compared with reference material held in the Department of Botany, University of Glasgow, and data presented by Godwin (1956, Table 1) and Greguss (1959).

A summary of the results is presented on table 8 and the detailed results are documented on tables 10 to 12. From table 8 it is clear that Alnus is by far the most abundant species at this site, being used in more than twice as many contexts as any other species. All the species represented here, with the exception of Carpinus (see below) are trees which/

which grow in NE Scotland, and probably were natural components of both managed and unmanaged medieval woodland in this area. The charcoal identified as Alnus, Ilex, Carpinus and Corylus represent wood of the only British species of these genera, ie Alnus glutinosa (alder), Ilex aquifolium (holly), Carpinus betulus (hornbeam) and Corylus avellana (hazel) respectively. The anatomy of both Quercus and Betula is indistinguishable at species level (Jane 1970, 315 & 392), and the charcoal identified as such may represent one or both of the British species in each genus, ie Quercus robur and Q petraea (oak), and Betula pendula and B pubescens (birch) respectively. On the basis of the British distributions of Crataegus, Sorbus and Populus species, the charcoal of these genera recorded here probably represent Crataegus monogyna (hawthorn), Sorbus aucuparia (rowan) and Populus tremula (aspen).

For the purposes of discussion, the samples are loosely grouped according to their archaeological contexts, and the following groups are used:

Possible structural features: samples 7, 46 & 47; table 10.
Associated with midden deposits: samples 8 & 10; table 11.
Miscellaneous postholes from summit area: samples 9, 11 & 12; table 12.
Palisade: samples 13 to 18; table 13.
Miscellaneous postholes, pits etc: samples 20 to 45; table 14.

Samples associated with possible structures on motte summit (table 10)

Sample 7. This is a sample of charcoal from a slot containing a large amount of charcoal. The slot is very important as it may be one of very few surviving structural remains of the motte summit building. The sample contains the widest diversity of species in any sample. Much of the charcoal recorded here is unlikely to represent structural timber. Crataegus is the most common species, although all the charcoal may be from a single original fragment. Crataegus is and has been/

been widely used to provide both living hedges and dead-wood fences (Pollard et al 1974), but according to Rackham (1980, 353) there are no historical records of its use as timber. All the Alnus fragments and one of the Quercus fragments indicate contorted growth, in contrast with most of the other charcoal examined from this site. Finally, the presence of Ilex and Carpinus is interesting. Ilex has a sap-rich, close-grained wood which, while occasionally being used for small carpentry items, is generally not used for constructional purposes, and its history of use is primarily as an animal fodder plant (Rackham 1980, 345). Carpinus, represented only in this sample, is unusual, being the only non-native tree to north Britain which is represented by charcoal at this site. Carpinus grows naturally in SE England and is regarded as an introduction elsewhere in Britain (Clapham et al 1981). Although there are Carpinus pollen records during the last several thousand years in Aberdeenshire (Strichen Moss: Fraser & Godwin 1955), these are sporadic and may represent long-distance pollen, possibly from the European mainland, where Carpinus is common. Its wood anatomy is distinctive, and there is no doubt regarding the charcoal identification. This opens two possibilities. First, that the charcoal represents imported or drift wood, or, secondly, that Carpinus had been introduced by this period to NE Scotland. As a useful wood, it has little potential and is easily mistaken for other trees (Rackham 1980, 221). Consequently, it may have been collected and used unintentionally.

Most of the Quercus and Crataegus fragments are derived from moderately thick branches or stems (to 180mm minimum diameter) and some of these may represent substantial timbers, if they represent timbers. However, the mixture of species and general constructional unsuitability of those present (other than Quercus) suggest that the charcoal represents either a moderately crude construction (perhaps a woven fence or screen) rather than an item of carpentry, or the burning of mixed wood in a fire.

Sample 46. This sample is from burnt, possible timber remains/

remains which perhaps represent collapsed plank flooring, from the central motte summit area. The sample is one of three samples containing only Quercus, and it is probable that all the charcoal is derived from one original fragment. Most of the fragments are broken radially, ie along the wood rays, but given the nature of Quercus wood anatomy, this probably represents natural breakage on burning rather than artificial shaping of the wood. There is little evidence from this sample alone to suggest the original artifact dimensions, let along suggest that the charcoal represents collapsed plank flooring.

Sample 47. This sample contains charcoal from possible large timbers from an early possible construction phase deposit on the north motte summit slope. Most of the sample consists of Alnus, which is generally in a poor, rather soggy state of preservation. The preservation contrasts that of the other samples, which is generally good. The charcoal is derived from at least two sources. One of the Quercus fragments appears to be squared-off, resembling an artefact, and is probably derived from timber or other carpentered wood. In contrast to this, the Alnus charcoal, mostly from twigs and small branches, is probably not derived from constructional timbers, although the twigs and small branches may have been used in wover hurdles, fences or screens.

Samples associated with midden deposits (table 11)

Sample 8. This is a small random sample taken from a low midden deposit in the E summit area. The entire sample consists of Alnus, with the original outer surface surviving on most of the fragments. It is possible, therefore, to measure the maximum diameter of the original branches, and in this case, the original wood is notably small. Several fragments may have formerly constituted one larger fragment. It seems improbable that this wood was used for construction purposes, and the charcoal may represent hearth waste.

Sample/

Sample 10. This is part of the charcoal from a possible midden layer in the N part of the motte summit. This sample, mostly containing *Alnus*, also contains the only recorded fragment of *Sorbus*. Although the original *Quercus* and *Sorbus* wood was moderately thick, the *Alnus* consists almost entirely of fragments of twigs and small branches. Fragments 4 to 7 may be from one original fragment. The charcoal possibly represents hearth waste rather than burnt construction timber, although it may be the burnt remains of a woven screen of some kind.

Miscellaneous postholes from the summit area (table 12)

Samples 9 & 12. Sample 9 consists of all the charcoal from the fill of posthole 151, on the W part of the summit, and sample 12 is from the fill of posthole 152 in the same area.

These are two of the three samples containing only *Quercus* and in both cases, the fragments examined are derived from moderately thick original wood (sample 9, to 190mm minimum diameter; sample 12, to 200mm minimum diameter). The entire sample in each case probably derives from a single original post or timber, burnt *in situ*.

Sample 11. The sample consists of charcoal from the fill of a small possible posthole in the NW summit area, and contains the only *Populus* charcoal recorded at this site. This is in notable contrast to the charcoal in other postholes associated with the palisade (samples 12 to 19) in which *Alnus*, *Quercus* and *Crataegus* is present. Although the fragments in sample 11 are small, and the minimum diameter is therefore difficult to assess, at least one of the fragments represents a middle-sized original branch, and probably represents a post. Along with *Alnus* (see below), *Populus* had a special value during medieval times as one of a few non-coniferous softwoods, and was used for construction purposes (Rackham 1980, 342).

Samples associated with the palisade (table 13)

Sample 13. This is all of the charcoal from the fill of posthole 184, part of the palisade on the east motte summit. The sample consists of Alnus, probably derived from more than one original fragment. The fragments are notable in that their growth rings are very irregular, and the estimation of minimum and maximum diameters was therefore difficult. Nevertheless, fragment 2 represents a twig whereas at least fragment 1 represents somewhat thicker original wood.

Sample 14. This is the total charcoal from the fill of posthole 170, part of palisade 150. The sample consists mainly of very small fragments, so only a small proportion of it could be identified. This fragment derives from at least a medium-sized original piece of wood.

Sample 15. This is all the charcoal from the fill of a slot, possibly associated with the palisade. Like sample 14, this sample contains only very few sufficiently large fragments for identification, and therefore only a small proportion of the entire sample was identified. This contains three species, and therefore is derived from several original fragments. Of particular note is the large size of the original Crataegus wood (to 200mm minimum diameter).

Samples 16, 17 & 18. Sample 16 is the total sample of charcoal from posthole 182, in line with three to the W of palisade 150, and which may be linked to the palisade by slot 181. Samples 17 and 18 are from the fills of postholes 163 and 165, both being part of the palisade. These samples all contain only a few small fragments, probably all being Crataegus, and possibly all derived from moderately small original wood.

Assuming that the charcoal recovered from the palisade postholes and slot represents the wood used for the palisade construction, the principal wood used was Alnus and Crataegus, and/

and it appears that mainly small branches and twigs were used. Crataegus is principally recorded in samples associated with the palisade, and this clearly illustrates its use in the construction of a defensive structure, a use to which its spininess is well suited. Most of the charcoal probably represents the small wood of the horizontal rods of woven fences or, less probably, wooden packing for the main uprights, whereas the thicker Crataegus charcoal in sample 15 probably represents one of the vertical upright posts probably placed in each posthole.

Sample 19. This sample contains charcoal from the fill of posthole 268, one of a series of postholes 283, situated to the W of the palisade, and which may be earlier than the palisade. The entire sample examined consists of Crataegus charcoal, some of which originates from moderately large (220mm minimum diameter) original wood. These fragments may be from a single original fragment, and probably represent the post which infilled posthole 268.

Charcoal from miscellaneous postholes, pits etc on the motte summit (table 14)

Samples 20 to 45. These consist of a large number of small samples from postholes, pits and pipe fills in the motte summit Area I. These are possibly all from the destruction of posts and other items which stood in these features.

Alnus is the most common species, occurring in all except one (sample 27) of the samples, and being considerably more abundant than the other species. Alnus makes poor building timber, although it has a documented history of use, especially for the provision of small timber and items of temporary carpentry, having had a special value as a commonly available non-coniferous soft wood during medieval times (Rackham 1980, 305 ff). In this report it is interesting to note that one of the only two possible artefacts found amongst the charcoal samples is a fragment of Alnus (sample 38) which resembles a shaved sliver or chip of wood. The abundance of Alnus/

Alnus at this site may reflect either its local natural abundance, or possibly some local form of woodland management to provide a ready supply of the easily worked alder wood. (It should be noted that however probable it is that local woodland management occurred, there is no direct evidence of such management in the charcoal evidence presented here). Quercus is the other common species used, presumably deliberately, as a building timber. The other three species present (Betula, Ilex and Corylus) may represent the sporadic use or availability of these species, or even their inadvertent use. However, it must be borne in mind that the total charcoal sample examined to reach such conclusions is only a tiny proportion of the total wood that must have been used at a site such as this, and therefore the use of these latter species may have been more widespread than is indicated by the sparseness of their charcoal in these samples. Most of the charcoal in this group of samples is derived from original wood of small dimensions, and indeed, some of the charcoal must have been derived from twigs and small branches (eg the Alnus in samples 20, 25, 29, 32, etc, and the Ilex in sample 39). There are a few fragments which have a moderately large minimum diameter (80-120mm) but nothing in this group approaches the proportions of wood used in the construction of, for example, the palisade. Although this may be due to the more efficient burning of the original wood, it is probable that the charcoal in samples 20 to 45 generally represents items of light construction such as woven screens and non-weight-bearing frames and walls.

TABLE 9

SUMMARY	Number of contexts species present in	
	All samples	Samples 20-45
Alnus	31	24
Quercus	13	6
Crataegus	8	-
Betula	3	3
Corylus	2	2
Ilex	2	1
Pomoideae	2	-
Sorbus	1	-
Carpinus	1	-

TABLE 10

CHARCOAL SAMPLES ASSOCIATED WITH POSSIBLE STRUCTURES ON MOTTE SUMMIT

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diameter (mm) min	max	Notes
7	61	c 10%	Alnus	1	53	56	46	-	-	contorted fragment
				2	47	35	28	-	-	slightly contorted
				3	29	29	24	-	-	with knot
			Quercus	1	59	35	36	-	-	contorted fragment
				2	42	39	30	180	-	
				3	45	32	17	160	-	
			Crataegus	1	26	21	15	70	-	
				2	37	24	17	70	-	
				3	27	23	16	-	-	
				4	40	25	9	70	-	
				5	26	29	19	40	-	
				6	45	32	17	160	-	
				7	42	18	14	140	-	
				8	52	22	13	-	-	
				9	27	27	23	50		contorted fragment

TABLE 10 (cont'd)

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diameter (mm) min	max	Notes
			Crataegus	10	30	19	22	40	-	
				11	32	27	17	-	-	
				12	35	22	16	80	-	
			Ilex	1	55	19	11	-	40	
				2	33	27	24	30	-	
			Carpinus		29	24	20	-	-	contorted fragment
46	459	c 5%	Quercus	1	25	19	5	-	-	
				2	18	20	9	-	-	
				3	19	18	6	60	-	
				4	18	20	10	60	-	
		100%	+ c 100		-	-	-	-	-	sample scanned: probably all Quercus
47	462	21%	Alnus	1	80	22	13	30	-	twig fragment
				2	51	13	19	-	20	" "
				3	27	20	24	-	-	
				4	41	12	12	-	12	" "
				5	41	18	7	-	-	

TABLE 10 (cont'd)

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diameter (mm) min	Diameter (mm) max	Notes
			Alnus	6	38	12	12	-	12	
				7	33	19	9	60	-	
				8	40	14	12	30	-	
				9	20	16	13	-	-	
				10	42	8	8	-	8	
				11	23	14	25	-	-	
			Quercus	1	45	26	15	130	-	artefact
				2	25	45	22	-	-	

TABLE 11

CHARCOAL SAMPLES ASSOCIATED WITH MIDDEN DEPOSITS

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diam. (mm) min	max
8	78	100%	Alnus	1	45	32.5	25	60	-
				2	30	25	25	-	30
				3	30	20	15	-	30
				4	15	12.5	12.5	-	30
				5	20	12.5	7.5	-	20
				6*	20	20	12.5	-	60
				7	22.5	12.5	10	-	30
10	76	25%	Quercus		40	22.5	25	100	-
			Alnus	1	25	20	15	-	50
				2	20	22.5	12.5	-	-
				3	40	10	10	40	-
				4	22.5	12.5	7.5	-	15
				5	15	10	10	-	10
				6	20	10	10	-	10
				7	12.5	7.5	10	-	12
				8	17.5	15	10	-	-
			Sorbus		32.5	17.5	15	120	-

*slightly unburnt

TABLE 12

CHARCOAL SAMPLES FROM MISCELLANEOUS POSTHOLES FROM THE SUMMIT AREA

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diameter (mm) min	Diameter (mm) max	Notes
9	151	c 5%	Quercus	1	95	75	20	190	-	
				2	45	43	8	-	-	
				3	28	24	18	110	-	
				4	28	21	14	130	-	
		100%	+ c 100 others		-	-	-	-	-	sample scanned; probably all Quercus
11	226	66%	Populus	1	17.5	12.5	12.5	60	-	
				2	10	15	6	-	-	
12	187	20%	Quercus	1	45	45	27.5	180-200	-	
				2	27.5	20	15	60	-	
				3	20	30	10	80	-	
				4	20	13	11	40	-	
		100%	+ c 20 others		-	-	-	-	-	sample scanned; probably all Quercus

TABLE 13

CHARCOAL SAMPLES ASSOCIATED WITH THE PALISADE

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diam. (mm) min	Diam. (mm) max
13	195	50%	Alnus	1	20	15	17.5	100	-
				2*	25	15	12.5	-	15
				3	15	12.5	10	20	-
14	250	17%	Alnus		12.5	6	7.5	60	-
15	181	13%	Corylus						
				1	22.5	17.5	15	140	-
				2	25	20	15	200	-
			Alnus		20	17.5	10	60	-
			Quercus		20	15	5	-	-
16	257	20%	Corylus		-	-	-	-	-
17	194	50%	Corylus						
				1	10	12.5	3	-	-
				2	10	7.5	6	20	-
18	198	20%	Corylus		10	15	10	60	-
19	269	20%	Corylus						
				1	12.5	15	15	100	-
				2	25	15	15	80	-
				3	30	20	17.5	80	-
				4	30	20	12.5	80	-
				5	-	-	-	180	-
				6	-	-	-	220	-

*with bark

TABLE 14

CHARCOAL SAMPLES FROM MISCELLANEOUS POSTHOLES, PITS ETC ON MOTTE SUMMIT

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diam. (mm) min	max
20	193	22%	Alnus	1	15	15	11	-	-
				2	17	12	13	-	18
				3	11	14	9	40	-
				4	16	10	9	40	-
				5	9	8	13	20	-
21*	81	16%	Quercus		15	15	15	80	-
			Alnus	1	17.5	14	15	50	-
				2	16	12.5	8	150	-
				3	15	14	9	30	-
				4	10	17	10	60	-
				5	15	14	9	40	-
22	261	100%	Quercus		24	24	12	100	-
			Alnus		11	13	6	-	-
23	263	27%	Quercus		10	16	7	-	-
			Betula		8	8	10	40	-
			Alnus		11	7	5	40	-
24	257	30%	Alnus	1	21	20	16	80	-
				2	17,5	18	9	-	-
				3	15	14	9	-	30
25	155	100%	Alnus	1	15	8	8	-	8
				2	17	11	7	30	-

*All the fragments in this sample are particularly brittle.

TABLE 14 (cont'd)

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diam. (mm) min	Diam. (mm) max
26	285	17%	Quercus	1	15	12	5	24	-
				2	9	12	7	-	-
27	42	17%	Corylus		17	20	10	-	-
28	251	33%	Alnus		12	11	15	40	-
			Betula	1	12.5	20	7	60	-
				2	15	10	9	-	-
			Corylus		7.5	11	15	20	-
29	194	25%	Alnus	1	13	17	10	-	20
				2	15	14	7	-	-
				3	10	15	10	-	20
				4	18	11	12	40	-
30	192	7%	Alnus	1	27.5	20	12.5	60	-
				2	25	10	10	-	10
31	189	100%	Alnus	1	10	10	15	-	40
				2	20	12.5	15	-	-
32	188	26%	Alnus	1	41	22	13	-	25
				2	30	22	17	-	25
				3	36	28	13	80	-
				4	35	23	15	-	-
				5	30	18	15	-	-
				6	30	24	7	80	-
				7	30	21	10	-	-
				8	22	23	10	22	-
33	273	20%	Quercus		27.5	25	12.5	70	-
			Alnus	1	15	12.5	12.5	40	-
				2	20	17	11	20	-
34	78	21%	Alnus	1	28	24	10	60	-
				2	23	22	18	-	-
				3	18	17	11	-	-

TABLE 14 (cont'd)

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diam. (mm) min	max
35	254	13%	Alnus	1	22	14	15	50	-
				2	24	16	10	60	-
				3	21	13	10	-	-
38*	269	29%	Alnus	1	34	27	20	120	-
				2	35	14	10	110	-
37	288	10%	Alnus		9	8	21	-	9
38	95/96	30%	Alnus	1	25	32	15	-	40
				2	21	35	13	-	40
				3	36	15	5	30	-
				4	21	11	9	-	10
				5	32	13	10	30	-
			Quercus	1	27	24	19	70	-
				2	30	17.5	10	70	-
				3	25	22	9	80	-
				4	20	16	8	60	-
39	81	38%	Alnus	1	43	42	31	130	-
				2	33	21	18	50	-
				3	20	17	19	60	-
				4	31	23	15	120	-
				5	28	23	10	90	-
				6	28	21	13	-	-
			Ilex	1	35	28	12	-	50
				2	31	18	17	-	40
				3	32	17	18	-	40
				4	24	18	18	5	-
				5	22	27	18	8	-
			Betula	1	25	18	10	-	-
				2	23	15	20	60	-

*artefact

TABLE 14 (cont'd)

Sample No	Context No	Examination sub-sample (% of total sample)	Charcoal identification		Dimensions (mm)			Diam. (mm) min	max
40	461	17%	Alnus	1	12	17	7	80	-
				2	19	11	9	80	-
				3	15	14	6	40	-
41	225	17%	Alnus	1	15	13	6	-	-
				2	9	13	5	-	10
				3	8	9	7	10	-
				4	7	15	4	-	-
42	243	19%	Alnus	1	21	16	17	70	-
				2	24	19	15	100	-
				3	21	18	16	80	-
				4	15	15	13	110	-
				5	16	12	12	100	-
43	282	20%	Alnus	1	15	15	12.5	30	-
				2	15	12.5	7.5	-	-
				3	15	7.5	5	80	-
				4	10	15	6	20	-
44	193	16%	Alnus	1	20	18	17	40	-
				2	28	24	15	50	-
				3	18	8	10	-	20
				4	15	17	13	-	15
				6	23	14	15	30	-
				8	20	14	13	-	30
				7	15	13	11	-	20
45	288	1%	Alnus		13	4	2	-	-