

## Excavations at Castle of Wardhouse, Aberdeenshire

Peter A Yeoman\*

with contributions by S Boardman, S Carter, P Cundhill,  
K Cuthbert, D Davidson, B Finlayson, B Ford, T Gabra-Sanders,  
D Gallagher, S Hamilton-Dyer, I Máté, F McCormick,  
N M McQ Holmes, M Spearman & R Will

### ABSTRACT

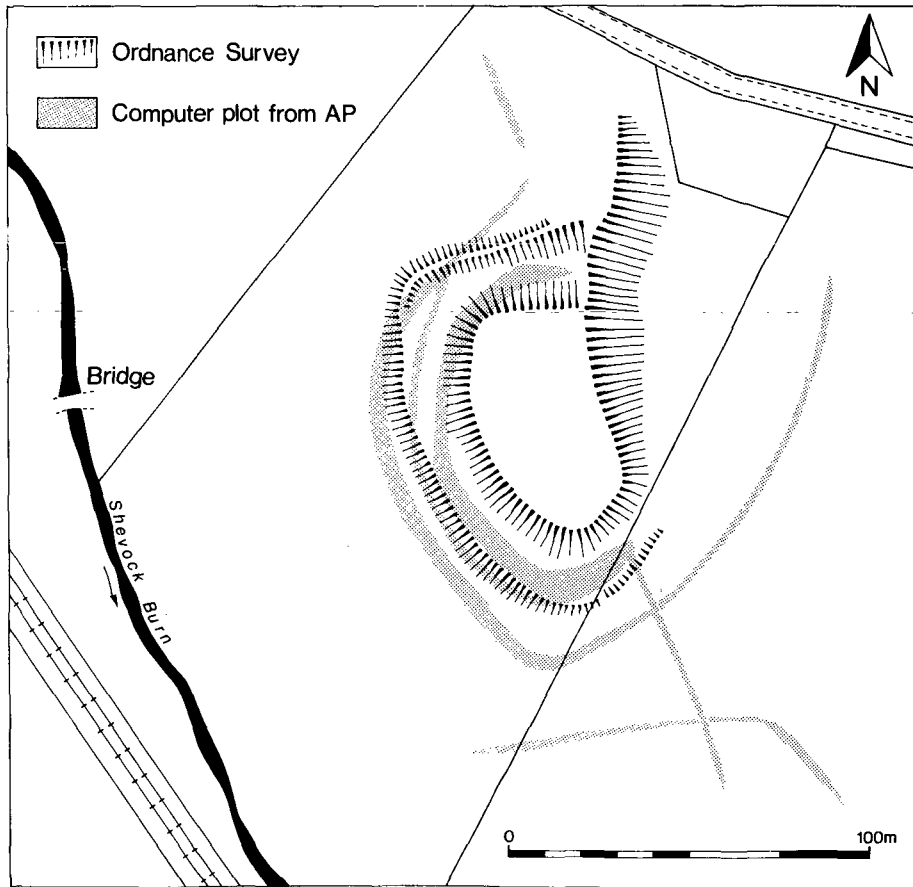
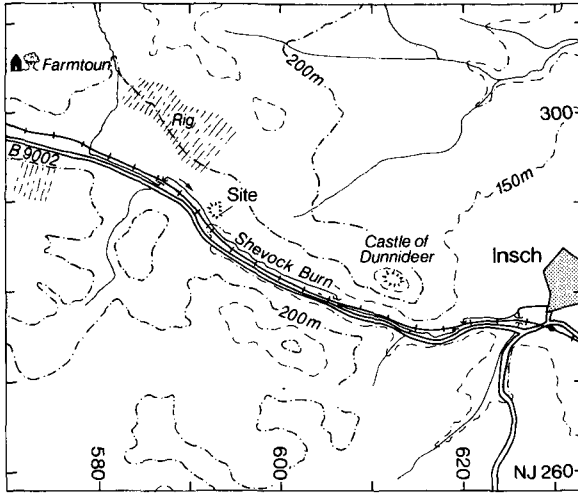
*Advanced plough erosion prompted rescue excavation at the moated site of Castle of Wardhouse in 1988. An integrated programme of work involving aerial photography, field survey, remote sensing, palynological analysis and excavation enabled interpretation of the complex development of the site in its historic environment (beyond this, palynology indicates human intervention in the environs since at least 5000 BP). The defences of the 13th-century moated enclosure were well preserved, although plough damage had removed almost all traces of the buildings on the enclosed platform. Documentary evidence clearly indicates that the later form of the castle was that of a stone tower house. This too has been ploughed away. The project was funded by Historic Scotland.*

### INTRODUCTION

The Castle of Wardhouse (NGR: NJ 593 289) is located in the valley of the Shevock Burn, 4 km west of Inch in Aberdeenshire, and 2 km west of the vitrified hillfort and medieval castle of Dunnideer (illus 1). The site has always been identified as a castle on Ordnance Survey maps, and was brought to prominence by W D Simpson (1935). The writer first examined the site in 1986, as part of a survey of medieval settlement remains in the lordship of the Garioch (Yeoman 1988a). This survey revealed that the site was being seriously eroded by ploughing and, consequently, the Historic Buildings & Monuments Directorate (HBM), the predecessor body to Historic Scotland, agreed to fund a limited rescue excavation. This took place over a four-week period during August and September 1988 and was directed by the writer under the auspices of HBM's then in-house field unit, Archaeological Operations and Conservation. The twin strategy was to assess the condition of the site, while at the same time retrieving data concerning its origins, date and development.

The site stands at approximately 170 m above sea-level. It is surrounded by good agricultural land, with well-drained sandy soils of the Countesswells Association overlying a granitic till (Glenworth 1954). The upstanding earthworks comprise an oval summit platform, 3 m in height and measuring 70 m north/south by 40 m, enclosed by a visible single shallow ditch

\* 37 Bellevue Road, Edinburgh EH7 4DL



ILLUS 1 Location map. (Based upon the Ordnance Survey map © Crown copyright)



ILLUS 2 The moated site with associated cropmark enclosures (*Royal Commission on the Ancient and Historical Monuments of Scotland* © Crown copyright)

and low counterscarp bank. The latter is discontinuous and is interrupted to the east where the side of the natural mound is very steep and the land below quite boggy.

Wardhouse is one of the handful of Scottish moated sites which have been excavated; it belongs to a fairly common type of medieval earthwork or 'earthwork castle' which used to be known as homestead moats. The chief difference between these and the more common mottes is that the area enclosed by the ditch (moat) has not been artificially mounded up. Compared to most mottes, moated sites had the added benefit of offering greater residential space within the enceinte. Both forms, introduced by incoming lords from England and from the European mainland, were first built in Scotland in the 12th century and served primarily as seigneurial residences and as centres of local feudal administration. About 20 moated sites are known in north-east Scotland between Stonehaven and Inverness, compared with perhaps as many as 100

mottes (Yeoman 1988a). More may have existed, but being flatter than mottes they are easier to destroy (*ibid.*, 130). New research is currently under way on these sites in Tayside (Coleman & Perry 1997).

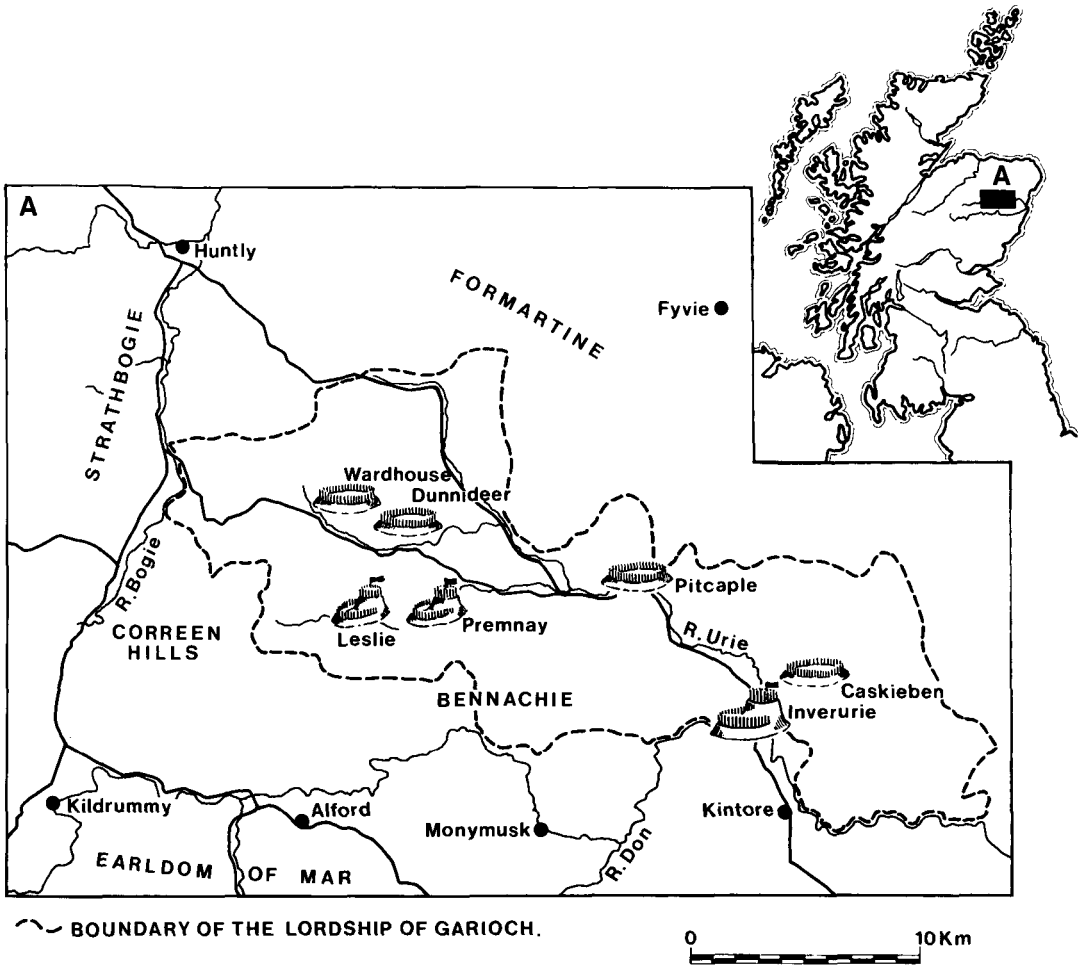
## HISTORICAL BACKGROUND

The site at Wardhouse lay within the area encompassed in the 12th and 13th centuries by the great lordship of the Garioch, which was held by David, Earl of Huntingdon (died 1219), the younger brother of William the Lion (1165–1214) (Lynch 1992, 56). This enormous domain stretched from Kennethmont in the west to beyond Inverurie in the east, encompassing a group of 11 contiguous medieval parishes (Stringer 1985, 91). Inverurie was the *caput* of the lordship, with the earl's motte-and-bailey providing a focus for the royal burgh. Smaller estates were carved out for an incoming class of minor lords, which included English, Normans and Flemings. This helped extend Crown influence northwards, while also creating a strategic buffer between Inverurie (along with the nearby royal castle at Kintore) and the Highlands and Moray which were held by native Celtic lords traditionally opposed to the Crown (illus 3).

A map published by Stringer (1985, 61) charts the 40 or so principal units within the lordship, many — if not all — of which are likely to have been centred on a fortified residence. Survey work, however, has revealed only a few other earthwork castles within the Garioch, apart from those at Wardhouse and Inverurie (there are likely to be remains of another beneath the 13th-century stone castle at Dunnideer): these are at Caskieben (NGR: NJ 788 213), Pitcaple (NGR: NJ 723 262), Premnay/Auchleven (NGR: NJ 622 242), and Leslie (NGR: NJ 599 248) (Yeoman 1987). The fact that Wardhouse occupied an important strategic position overlooking the main highway through the western Garioch to Moray may offer some explanation as to why this site was provided with substantial earthworks which have survived down the ages.

The earliest documentary reference to Wardhouse does not appear until after the death of Earl David. The chartulary of the monastery of Lindores, on the Tay near Newburgh in Fife, contains a deed of Bartholomew the Fleming, dated 1228 x 1239, in which he grants land to the church at Inch and promises that the church shall not suffer 'by reason of his chapel (*De Capella de Weredors*) which he had made by leave of the Abbot and Convent of Lundors for the use of himself and his household' (Simpson 1935, 467). Earl David had granted the income from all the churches and chapels in the Garioch to the monastery. Simpson notes that 'Sir Bartholomew Fleming appears in later writs, one dated 1253; and others of his family — Edward, Everard and Simon — are on record in the same chartulary' (*ibid.*). So it seems highly likely that the fortified residence at Wardhouse was in existence by the early 13th century, as the home of an incoming Flemish lord, and was of sufficient scale to have been associated with a chapel. By this time it would have been remarkable for the chapel to have been built in any material other than stone.

The history of Wardhouse is obscure from this time until around 1465 when it was in the possession of the Balquhain Leslies. They held it for another two centuries during which time a charter was issued from *Wardres* by Sir William Leslie of Balquhain. The site figured briefly in the Wars of the Covenant when it fell into the hands of royalist soldiers. It was subsequently besieged and captured by the famous general, Alexander Leslie, who reported on 25 March 1647 that 'Wardhouse was reduced without much disput, wherein were fourteen Irish and a captain — all of which I caused to be put to death, and left a sergeant there with twenty fyve men' (Simpson 1935, 469). A description of what was probably a tower house on the site was published in the late 18th century. There is no way of assessing the reliability of this account, which referred to a ditch enclosing a ruined 'high house', possibly with a vaulted ground floor (Simpson 1935, 470).



ILLUS 3 Wardhouse and the lordship of the Garioch (after Stringer 1985, 61)

#### PLACE-NAME EVIDENCE

The earliest versions of the place-name occur in the 13th- and 14th-century documents — as *Weredors*, *Wardris*, *Werdris* — and are considered to be Gaelic; this was then assimilated to two Scots elements, *waird/ward* (enclosure) and *house* (S Taylor, pers comm).

#### SURVEY AND EXCAVATION

##### AERIAL PHOTOGRAPHY

Aerial photographs taken in 1976 (illus 2; NMRS neg AB/6092/CN) revealed an impressive series of buried outer defences with what appeared to be three sets of banks and ditches. The outer ditch appears to continue to the north to enclose the boggy area to the east of the platform. An alternative interpretation is that this much narrower cropmark, along with a mirror-image one to

the south (creating a 'hornwork' or funnel shape), and two linear cropmarks, one each to the north and south of the platform, may represent more ancient boundary features of unknown date. The information contained in these photographs was instrumental in forming the excavation strategy, by raising the possibility that the site had developed in pre-medieval times and was more complex than appeared on the surface.

#### GEOPHYSICAL SURVEY

The excavation strategy was further informed by the results of a pre-excavation geophysical survey carried out by Geophysical Surveys Ltd (Gater 1987). Resistivity was employed to detect possible stone structures within the enclosed summit area, and magnetometry was used to investigate the nature of the ditch network. Both techniques worked well, even though the igneous bedrock was close to the surface in places. Areas of high resistance on the platform were identified as the possible remains of stone buildings and surfaces and, consequently, Area 2 was laid out to investigate these (illus 4). The line of a curtain wall or rampart was also recorded, curving around the summit edge.

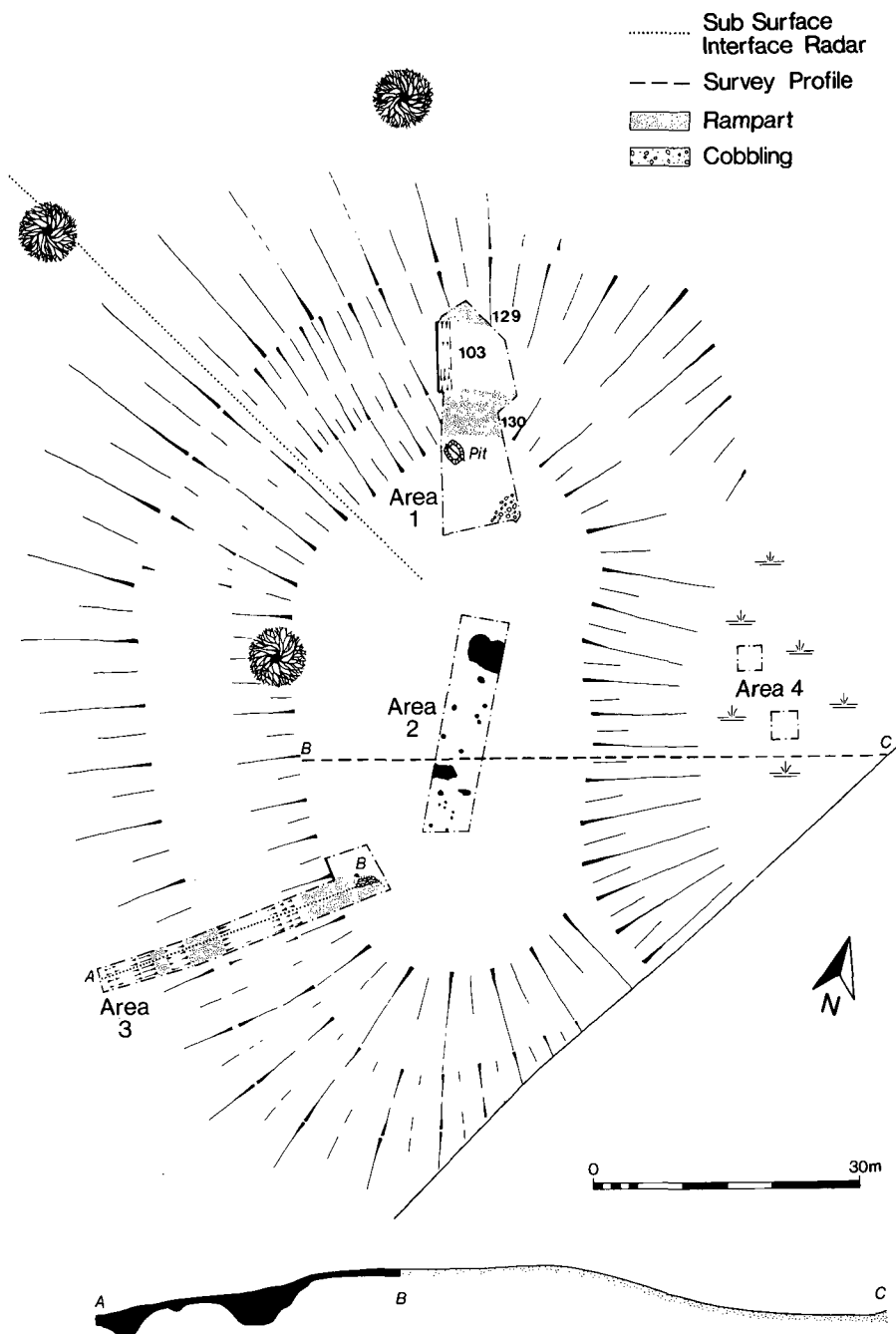
The magnetometer survey located the triple set of main enclosing ditches already seen on the aerial photos. Additional possible concentric outer ditch lines were also recorded, especially to the north-west. These have not been tested by excavation, and the only other evidence for them is outlined in the radar report below. A complicated and confused pattern of ditches was indicated to the north and highlighted as a possible entrance, including a terminal of the inner ditch; Area 1 was fixed here to investigate this possibility. A large feature was indicated running across the contours on the south-west summit edge; the upper part of Area 3 was laid out on top of this and a section across the three ditches was included (illus 4).

#### SUBSURFACE INTERFACE RADAR (SIR)

This was the first application of this technique in Scotland, thanks to sponsorship from Oceanfix Geotechnical Services Ltd. Two transects were surveyed, producing a trace representing a vertical slice through the site, displaying all major interfaces (not illus).

A transect (illus 4) was laid out over a span of 35 m along Area 3 during excavation, to test the results of SIR against the evidence recovered from the aerial photos, the geophysical survey, and from the excavation itself. A second transect (illus 4) was laid out from the summit running north-west over a length of 70 m, across the defences, including the possible outer ditches identified in the magnetometer survey. As well as displaying the profiles of the three ditches investigated in Area 3, the SIR also provided a section through a fourth ditch, which was 2.5 m wide by 1.2 m deep. This transect produced the only evidence of a curtain wall located on the summit edge, just inside the inner ditch. Unfortunately time did not allow any trial holes to be opened to test these results.

There was a very close correlation between the results of the SIR and geophysical surveys; SIR, however, provided indications of depth, as well as displaying individual layers and fills, which cannot be produced by standard geophysics.



ILLUS 4 Locations of excavation trenches and SIR profile lines



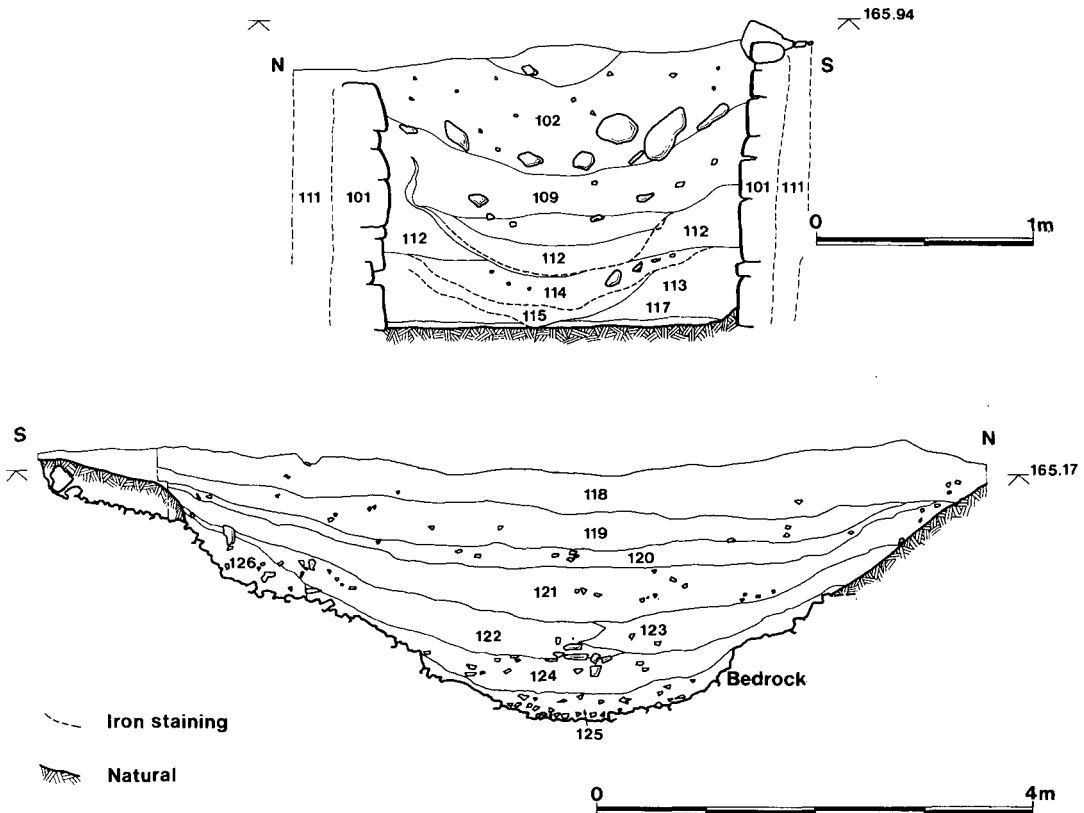


ILLUS 5A SIR survey of Area 3 in progress (from north-east)



ILLUS 5B The survey results: SIR profile through the fills of the main ditch (302)





ILLUS 6 Area 1: sections through inner ditch (103) and stone-lined pit (101)

EXCAVATION RESULTS

This report supersedes all earlier accounts (ie Yeoman 1988b).

*Area 1 (illus 6)*

A trench, 25 m north/south by 9 m in width, was stripped from the top of the platform north to the base of the mound, an overall drop in height of around 2 m. This identified a segment of the inner ditch and, on the summit, two large pits and an area of paving with a stone-built drain.

**Inner ditch (103)** A broad band of lighter-coloured soil at the north end of the trench was immediately recognized as the infilled inner ditch. This feature was continuous through the area, and did not terminate as suggested by the geophysical survey. Only a narrow (0.8 m) slot was fully excavated, in the north-west corner of the area. The ditch cut (103) was 8.8 m wide and was cut through friable granitic rock, to a depth of 2.26 m, with a fairly symmetrical, flattened V-shaped profile. The bedrock had angled bedding planes which would have eased quarrying. Heat discoloration and fracturing were observed in the base of the cut. The inner lip was very eroded, effectively increasing the uppermost ditch span by an extra metre.

Broad bands of upcast loamy soil were found beneath the plough-soil to the north and south of the ditch; the full extent of these were revealed only to the south, where a deposit 6 m in width extended east/west band just below the edge of the summit.

One of the latest events observed in Area 1 was the infilling of the inner ditch. The fills comprised seven dark brown loamy layers with little variation between them. These were generally free of stones, although two of the lower layers (122, 124; *illus 6*) contained some stones (c 0.2 m) together with lumps of mortar.

**Large pits (101, 127)** Immediately south of the ditch and upcast soils, just within the summit of the mound, a stone-lined rectangular pit (101) measured 1.7 m long, 1.3 m wide and was 1.3 m deep. This had been formed by lining a large pit (110) with roughly dressed blocks of stone, bonded with soft, yellow-grey mortar. The gaps between this cut and the stone lining were filled with clean, dark redeposited soils (111). A sequence of pit fills (*illus 6*) comprised dark brown loamy soils, fairly stone-free, with some patches of yellow clay and charcoal. The fills contained c 120 sherds of pottery of 14th- to 15th-century date. These were mainly large sherds representing a handful of vessels, chiefly jugs (see Will, below). Different layers of fill produced conjoining sherds, indicating that the pit had filled in rapidly. The infill generally contained abundant charred cereal grains, c 1840 in total; one layer (113) alone contained 600 uncharred bramble seeds (see Boardman, below).

A shallow sub-rectangular scoop (127; not *illus*) was found 4 m to the east of the stone-lined pit. This was 1.2 m long with a maximum depth of 0.15 m. This feature showed signs of being severely truncated by ploughing and produced no finds.

**Paved areas (105, 107) (not *illus*)** A poorly preserved stone surface was uncovered 6 m to the south of the shallow scoop, within the summit area. The visible fragment of this hard-standing was 3 m wide, though more was preserved unexcavated beyond the southern edge of the trench. The paving consisted of two separate areas, divided by a central gutter (106). This was made with rectangular cobbles (each c 0.3 m long) and took surface water from the upper enclosure to drain away off the side of the mound to the north. The paving remnants on the west side of this consisted of slabs laid in an irregular manner (105); on the other side were small, rounded cobbles, sealed by areas of stone and slate (107).

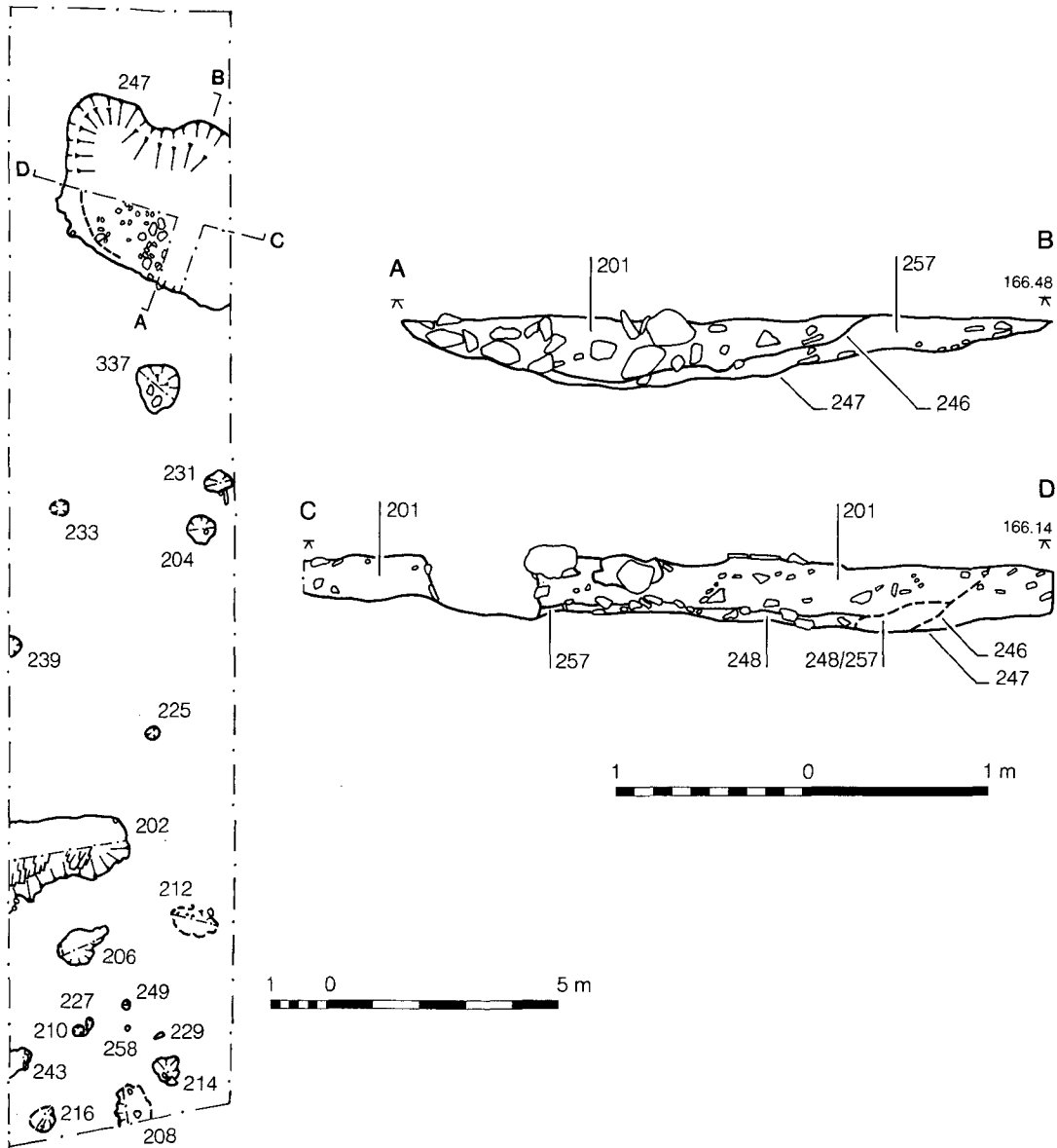
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### *Area 2 (illus-7)*

The results of the geophysical survey had indicated the possibility of surfaces and stone buildings surviving in the central part of the summit area. A large trench was laid out here, aligned north/south and measuring 24 m by 5 m. The topsoil was fairly rich in finds of all periods, ranging from prehistoric flints to post-medieval pottery and bottle or window glass. This was removed to reveal a considerable number of cut features — including two shallow trenches and numerous post-holes — all of which were severely truncated by ploughing; recent plough furrows were observed throughout the area. There were two possible hearth sites, but no stone surfaces or stone structures survived. Almost all the infilled features had been modified by burrowing animals.

**Trenches (247, 202) (*illus 7*)** The largest single feature was a long flat-bottomed pit, or trench (247), located towards the north end of Area 2. This was 0.3 m deep and 3.5 m wide on average; it was excavated over a length of 3.8 m but its total length is unknown as it extended beyond the limit of excavation to the east. The base was filled with a thin layer (0.07 m) of light brown gravel loam, with some mortar, plaster, small stones, sherds of window glass, stone roofing slates and 17th-century clay pipe fragments (see Gallagher, below). This was sealed by a much thicker (0.25 m) fill of a similar composition (201), but with a large quantity of mortared masonry rubble, bottle glass sherds and other domestic debris, including further 17th-century Dutch pipe stem fragments (see Gallagher, below). This feature is interpreted as the robber trench of a substantial wall.

Only one other substantial linear feature was revealed in this area. This second, much narrower trench (202) was found 14 m to the south of the first. It was 1.3 m wide and 0.16 m deep. It was excavated over a length of 2.6 m, but again continued beyond the limit of excavation on the west side. The trench had been



ILLUS 7 Area 2: general plan with sections of features 202 and 247

cut partly into outcropping bedrock. Animal burrowing had significantly altered the fill (203). This was largely stone free — in notable contrast to the fills of the larger trench — but contained two struck flints (see Finlayson, below).

**Post-holes (illus 7)** A concentration of post-holes was found in the southern end of Area 2; several others were dispersed throughout the middle of the area. These varied considerably in size and depth, from 0.3 m

to 1 m in diameter and from 0.4 m to 0.16 m in depth. One substantial post-hole (237) is notable as its fill is overspread by the burnt deposits described as a possible hearth site (below). Many of the post-hole fills had clearly been disturbed by animal burrowing.

**Hearth sites (not illus)** As described above, the central fills of one large post-hole (237) in the southern part of the trench were sealed by a thin layer (0.1 m) of pink, scorched soil with frequent small stones. A second burnt feature in the same area consisted of a heavily burrowed shallow depression, up to 0.09 m in depth, which contained fire-reddened soil with a layer of charcoal at the base.

### *Area 3 (illus 8, 9 & 10)*

This area was laid out across the contours on the south-west side of the mound, to provide a transect through the defences and into the interior. The trench was 38 m long (NE/SW) by 3.3 m in width, with the upper part — on the shoulder of the mound — enlarged to 6 m in width. Four stratigraphic phases could be identified in this area, representing an old ground surface (OGS) consisting of tilled soil, followed by two separate episodes of earthwork construction and, finally, the infilling of the ditches.

**OGS (Phase 1)** A layer of dark brown silty loam (326, 340) sealed an iron-panned sandy glacial till and was itself cut by later features on the slope and summit of the mound. This layer varied in thickness from 0.16 m to 0.20 m and contained large amounts of charcoal and burnt stone chips, but no artefacts. In places the interface between this OGS and the overlying layers of upcast ditch spoil also showed slight traces of iron panning.

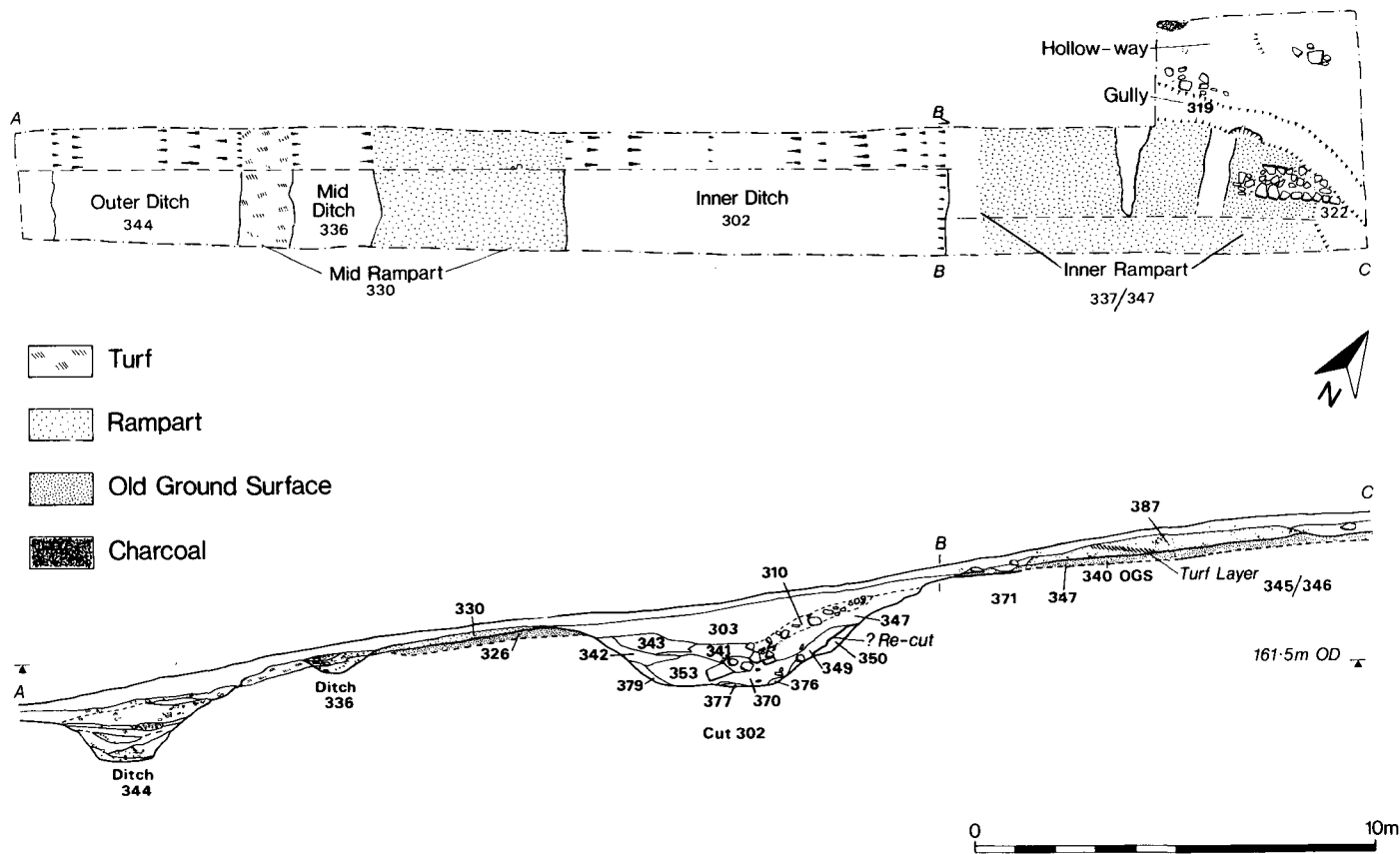
**Primary earthwork (Phase 2)** Part of the east side of the inner ditch (302) appeared to be a remnant of a primary ditch which was subsequently re-cut. This was observed as an irregular ledge, appearing half-way down the inner face of the ditch, and filled with orange-brown gritty silt (350) which clearly derived from subsoil weathering from the sides. Immediately upslope, the OGS was cut by a shallow trench (371) lying parallel to the inner edge of the ditch. This was filled with yellow clay (318) and measured 1.1 m wide by 0.2 m deep, with gently sloping sides. The trench defined the western or outer edge of a soil deposit (347), 3.3 m wide (east/west) by 0.2 m deep, consisting of dark brown loam with inclusions of redeposited sandy subsoil and stone. Sealing this deposit was band of looser grey-brown loam 0.03 m thick (345/346). These successive soil deposits are interpreted as upcast ditch spoil — possibly a rampart remnant — sealed by an *in situ* turf layer (see Carter, below).

A large post-hole (362) was found to the east of the soil deposits described above (the complete extent of this was not seen, although it appeared to be oval and c 0.8 m wide). The dark surface fills of at least two more possible post-holes were identified in this upper end of Area 3, but time did not allow their investigation.

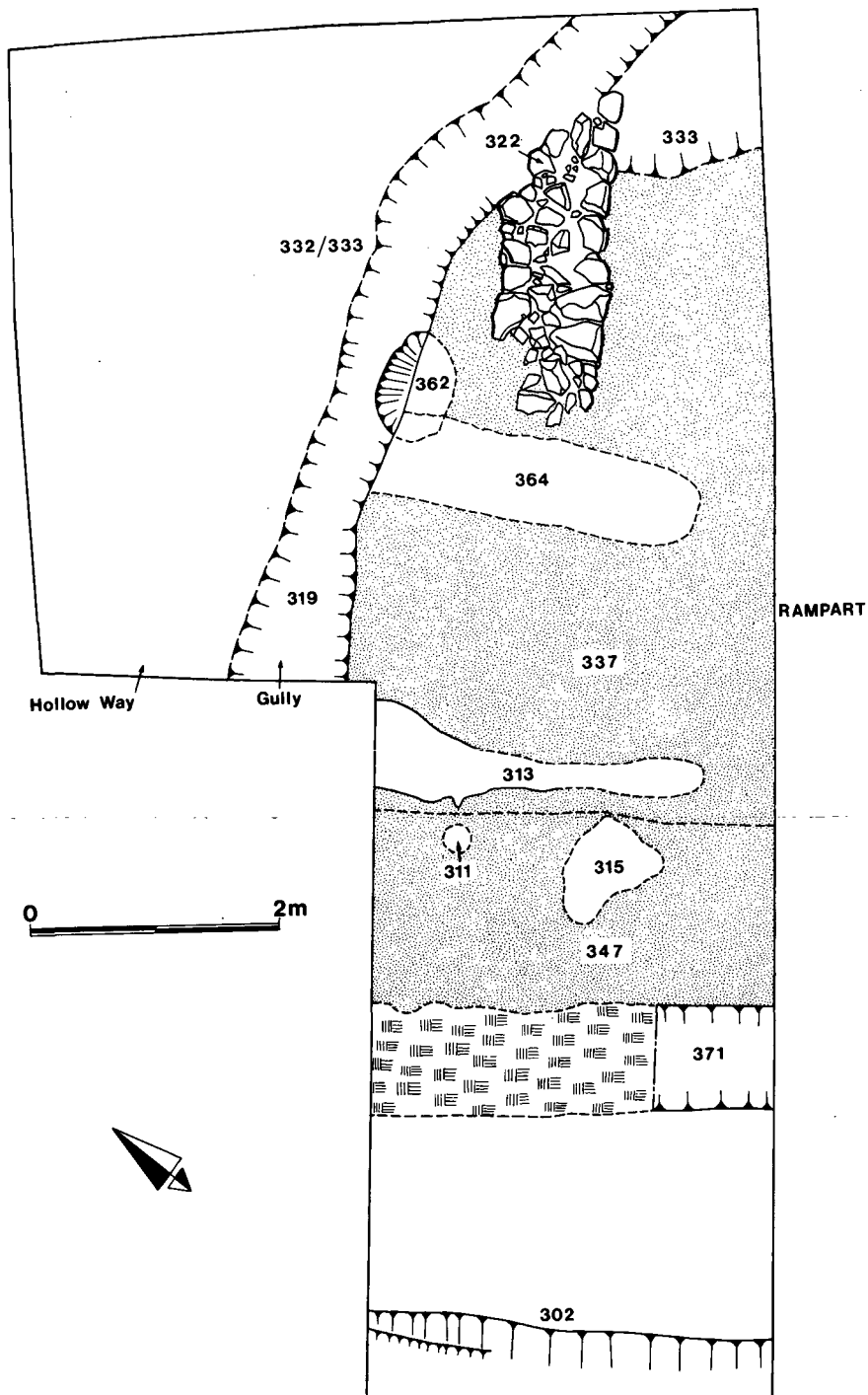
**Main earthworks (Phase 3)** The main inner ditch (302) was found just below the shoulder of the summit. The upper part was cut through solid, iron-panned orange subsoil; the lower two-thirds were cut through solid bedrock. The sides sloped at 45° and the bottom was flat. The ditch was 9 m wide at the top and 2.75 m wide at the base. Small deposits of silt were found on the base (376, 377, 378).

Above the ditch, on the edge of the summit, the upcast soils (347) and turf layer (345/346) described above were overlain by a further deposit of rampart material with frequent stones (337), also upcast from the ditch. This was 5.3 m wide (east/west) and was mounded to a depth of 0.35 m with gently sloping sides. The outer or downslope edge of this deposit was 4.1 m from the inner edge of the ditch.

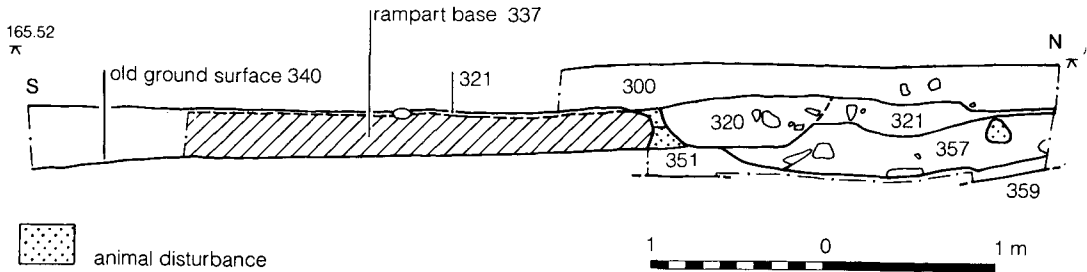




ILLUS 8 Area 3: general plan and section through ditches



ILLUS 9 Area 3: east end of trench showing rampart features



ILLUS 10 Area 3: section through rampart and 'hollow way' features

An outer ditch (344) was identified 7.7 m downslope from the inner ditch. This was smaller than the first and was 4.65 m in width by 1.5 m in depth, with a very similar profile. The flat bottom was 1.3 m wide and was overlain by one thin layer of silt (375).

The OGS between the two ditches was sealed by a single, substantial deposit (326/330) of mid brown sandy silt which covered the entire area. This varied in thickness from 0.2 m to 0.26 m and contained angular stones (evidently quarried from the bedrock) along with charcoal flecks.

**Other features (Phase 3)** A number of poorly defined features were found within, and contemporary with, the soil deposits of the Phase 3 rampart. Two possible post-holes (311, 315) and a linear slot (313) were identified, but not excavated, within its western or outer edge (post-hole diameters 0.22 m and 0.50 m; slot diameter 0.25 m). A second, larger slot (364) lay within the inner part of the rampart; this was 0.88 m wide by 0.27 m deep.

At right angles to this and extending from the inner edge of the rampart was a foundation or wall remnant (322), bonded with yellow clay; it was 0.86 m in width and survived to a length of 2.4 m (east/west), at which point it was truncated by a later feature.

The area beyond the inner edge of the rampart was sunken or depressed (322) over a span of at least 3 m (north/south). This is likely to have been the result of erosion within an entranceway and the feature is interpreted as a sunken track or 'hollow way' (illus 8). At some later date, a substantial layer of dark brown silty loam (333/357) accumulated within this feature to a depth of 0.3 m. This contained frequent stony rubble, but no finds apart from one sherd of medieval pottery.

**Earthwork infilling (Phase 4)** This phase saw the infilling of the ditches, with the original process of quarrying being reversed. Not surprisingly, the strongest tip-lines were from the upslope (eg 310, illus 8), supporting the suggestion that there had been a bank or rampart on this side. The fill layers of both ditches were fairly homogeneous and produced a handful of medieval pot sherds, but post-medieval finds occurred only in the uppermost fills. An upper fill of the outer ditch produced a sherd of 15th- to 16th-century stoneware (see Will, below).

**Other features (Phase 4)** The part of the summit exposed in Area 3 was covered with an extensive occupation layer (321); this contained 22 sherds of medieval pottery, one clay tobacco pipe fragment and an iron chisel and at least one concentration of large stone (334). The occupation layer was cut by a narrow, U-shaped ditch (319) which curved about the inner edge of the rampart (337) described in phase 3, above. The ditch was 1 m wide by 0.3 m deep and was filled with a fine black silty loam (320). This can be positively identified with a feature identified in this location in the magnetometer survey.

#### *Area 4 (illus 4)*

A persistently wet area exists at the base of the naturally steep east side of the mound. The farmer had described the discovery of waterlogged timbers here during drainage operations. Two

trenches were mechanically excavated (ie by JCB), each 3 m square and 4 m deep. Thick organic mud was revealed below the topsoil at a depth of 0.7 m, but proper sampling was thwarted because the trenches filled rapidly with water. Some of the organic material was collected, however, and was analysed soon after the excavation was completed; it was found to contain sufficient pollen to justify further investigation. The author returned in 1989 with Peter Cundhill of St Andrews University to retrieve a pollen core (see Cundhill, below) which revealed a deposit of lake mud lying 2 m deep beneath the topsoil.

## PALAEOENVIRONMENTAL ANALYSES

### SOILS

Stephen Carter, Kate Cuthbert, Donald Davidson & Ian Máté

Soil descriptions were made on site by Ian Máté and some Kubiena tin samples were taken. The most significant of these were taken from the section through the old ground surface (340) sealed by the primary rampart (347) (illus 8 & 10). Subsequent analysis revealed that the buried soil had no evident B horizon between the A and the Cx horizons. This implies that the site underwent ploughing and considerable erosion before the building of the ramparts.

Soil micromorphological analysis was also concentrated on the buried soil (340), along with a thin sealing layer, interpreted during the excavation as a turfline (346). Thin sections were produced to examine the nature and history of the buried soil and to determine the duration of the hiatus in rampart construction represented by the possible turfline. The A-C profile of the buried soil (340) and the presence of charcoal and burnt stone suggest that it was a cultivated soil with 340 itself as the Ap horizon. A thin continuous iron pan was noted close to the top of this horizon. Iron mobilization in this situation probably resulted from the reducing conditions created by the microbial breakdown of vegetation on the former soil surface. The presence of vegetation would indicate that the soil was not cultivated immediately before it was buried by the rampart dump.

Thin-section analysis revealed that the putative turfline (346), which represented two temporary vegetated surfaces, did develop on a dump of subsoil (ie the primary rampart, 347), before being sealed itself by another similar dump (the secondary rampart, 337).

### PLANT REMAINS

Sheila Boardman

The majority of plant species of medieval origin were from the fill of the stone-lined pit in Area 1 (101, illus 6), with some coming also from the ditches.

#### *Species represented*

The cereals included barley (*Hordeum* sp), oats (*Avena* sp), one grain of wheat (*Triticum* sp), and a few fragments of possible rye (cf *Secale cereale* L). A few grains were also identified as *Triticum/Hordeum*, hinting that the wheat may have been more widespread. The presence of oat chaff (florete bases) allowed identification of the cultivated oat (*A sativa* L) and bristle oat (*A strigosa*). The wild edible plants included hazel (*Corylus avellana* L) and raspberry/bramble (*Rubus ideaus/fruticosus*). One fill layer (112) alone of the pit produced 1840 cereal grains, 82% of which were oats.



The remaining finds were seeds of wild species. These represented a variety of habitats including cultivated fields, disturbed and waste places, grassland and damp ground. Uncharred seeds of many species were also recovered. Subsamples from the stone-lined pit were assessed for the survival of waterlogged plant macrofossils but none was found. Subsequent bulk sieving of one fill layer from here (113), however, produced some 600 uncharred bramble (*Rubus idaeus* agg.) seeds. Pollen was also recovered from this context (see below) so it is possible that the seeds survived from antiquity.

### *Origins of the cultivated plants*

Charred cereal grains, even when still surrounded by floret bases (in the case of oats), do not necessarily indicate local cultivation, since crops may have been imported in this form. Straw nodes and the chaff (rachis internodes) of free-threshing cereals (barley and bread wheat) may provide better grounds for asserting local crop growth and processing. Whole cereal plants are bulky and difficult to transport, and the straw and rachises are normally separated from the grain by the first threshing and winnowing (Hillman 1981). This picture is complicated both by the possible existence of a trade in straw in the past, and also by preservation biases: cereal grains are more likely to survive charring than are cereal chaff and straw (Boardman & Jones 1991).

At Wardhouse, chaff and straw were largely confined to one deposit (112) from the stone-lined pit. There were no chaff fragments from free-threshing cereals and the number of straw nodes was very low in relation to the grain. The few non-grain fragments present may simply reflect inefficient or partial crop cleaning. Threshing and winnowing may have taken place in other parts of the site, or away from the site closer to the cultivated fields.

The stone-lined pit also provided the bulk of the non-cereal remains, many of them probably being weeds of cultivation. All are likely to have been present within the local vegetation, no more than one mile from the site. Thus, while local cultivation cannot be proven, it remains a strong possibility.

### *Function of the stone-lined pit*

The paucity of remains from most deposits prevents detailed discussion of their origins and also of crop-related activity across the site and through time. In the case of the stone-lined pit, grain storage is one possible function. This explanation, however, seems unlikely to account for the large number of charred grains or the many non-cereal remains. The material may represent a variety of activities, including the deposition of refuse after the original function of the structure had ceased.

The on-site pollen spectra from the pit exhibit only low levels of cereal pollen (see below). Cereal plants have poor pollen dispersal but their pollen can adhere to cereal chaff (Robinson & Hubbard 1977). The presence of cereal pollen in archaeological deposits may indicate local crop processing or local cultivation. Large-scale crop processing seems unlikely, in view of the quantities of cereal pollen present, but uncharred cereal plants do seem to have been handled locally.

Cereal ears are often parched prior to threshing and winnowing, or the grains parched prior to grinding. The latter is particularly true of oats in Scotland, as the grains do not granulate easily if damp (Fenton 1977, 93). Such operations at Wardhouse may have led to the deposition of charred cereal grain in the fills of the stone-lined pit. Where floret bases were present (112), heating may originally have been intended to ease removal of the chaff.

### *Conclusions*

Overall, the charred plant remains probably represent a mixture of activities including crop processing, cooking accidents, and possible grain parching. The crop economy was probably based upon oats, and barley to a lesser extent. Despite uncertainty about which, if any, of the crops were locally cultivated, there is no evidence of the importation of grain or fruits from

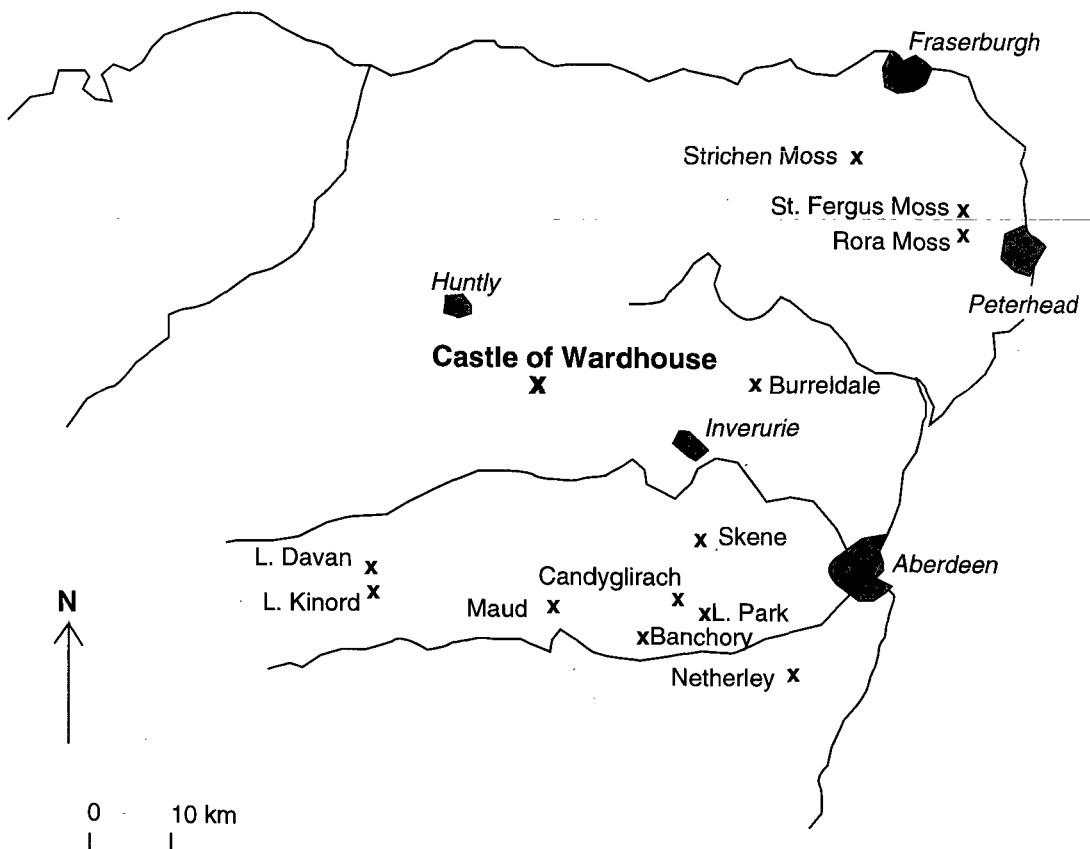
farther afield. Cereals may have been grown locally on the lighter, sandy soils, although some damper, low-lying ground may also have been tilled. Light woodland and heath areas seem to have been exploited for wild edible fruits and heather.

## POLLEN ANALYSIS

Peter Cundhill

### *Introduction*

A relatively large number of pollen sites has been examined in north-east Scotland (eg Fraser & Godwin 1995; Durno 1957; Vasari & Vasari 1968; Edwards 1979; Edwards *et al* 1976) and the results of many of these have been summarized by Gunson (1975). The distribution of sample sites (illus 11) indicates that studies have been concentrated close to the coast, or in the straths of the Dee and the Don. Initially, many of these studies depended on the sampling of peat mosses, although from the 1960s onwards lake sites were recognized as being of greater value. These studies generally aimed to produce a vegetation history of the north-east and succeeded in identifying two distinctly different vegetation sequences in the north-east during the Flandrian: a



ILLUS 11 Palynological sampling of sites in north-east Scotland

'highland' (inland) pine/birch forest and a relatively broad coastal zone of deciduous forest dominated by oak (Gunson 1975).

The first study to be carried out in north-east Scotland adjacent to, and in connection with, an archaeological excavation was by Ewan (1981) in Strath Dee. At Castle of Wardhouse, a further attempt has been made to link palaeoecological and archaeological evidence in an area with no previous 'regional' pollen site.

**Field collection of samples** Numerous samples were collected from ditches and pits exposed by the excavation (Areas 1–3). In one instance, a column of material was sampled in boxes extracted from the vertical faces of the main ditch (302) and from these subsamples were extracted for pollen analysis.

The depth and nature of the organic deposits in the low-lying wet area to the east of the site (Area 4) was explored through the use of a hand-operated Russian pattern peat sampler (Jowsey 1966) and a core 2.82 m deep was extracted for analysis. A description of the stratigraphy at this site is outlined in Table 1; the principal organic mud deposits were laid down within a lake.

TABLE 1

A description of the stratigraphy of the material obtained by coring in Area 4

Depth (cm)	Stratigraphic description
0–70 cm	Surface soil and 'made ground'; bright red in colour and well drained, although becoming sandy and blue-grey in colour below 60 cm.
70–84 cm	Coarse blue-grey sand.
84–282 cm	Mid brown fine lake mud matrix with frequent coarse plant fragments and occasional wood remains.
282+ cm	Impenetrable clay.

### *Analysis*

Only 12 of the samples from features excavated on the mound were analysed for pollen content. Half were from the fills of the main ditch (302) and the remainder from the fills of the stone-lined pit on the summit (101). The core from the former lake site was sampled at 10 cm intervals. All samples were prepared using standard chemical and sieving techniques (eg Faeri & Iversen 1989), although the lake samples did not have hydrofluoric acid treatment because of their low inorganic content, and a *Lycopodium* tablet (Stockmarr 1972) was added to each of these samples to enable pollen concentrations to be calculated. All samples were mounted in silicon oil, and the samples from the excavations were also stained with safranin.

Counting of pollen was carried out under a Nikon research microscope at a magnification of x600. Two different pollen sums were adopted; the lake samples were counted until a total of 500 dry land pollen had been identified, while the excavation samples were counted to a total of 300 dry land pollen. The samples were mostly highly polliniferous (some of the lake samples contained concentrations in excess of one million  $\text{cm}^{-3}$  although one level (depth 278 cm) at the lake site and two samples from excavated features (113 and 350) were less polliniferous and total counts did not reach the pollen sum. However, all samples had in excess of 200 pollen and fulfilled the criterion, therefore, for minimum counts advocated by Dimbleby (1985) as well as being higher than totals counted by Vasari & Vasari (1968). During counting a note was made of the state of pollen preservation through the identification of two broad categories: undamaged and damaged/deteriorated. This technique is not as detailed as others that have been used (eg Cushing 1964; Lowe 1982) but still provides a simple and useful check of the state of pollen preservation (Whittington *et al* 1990).

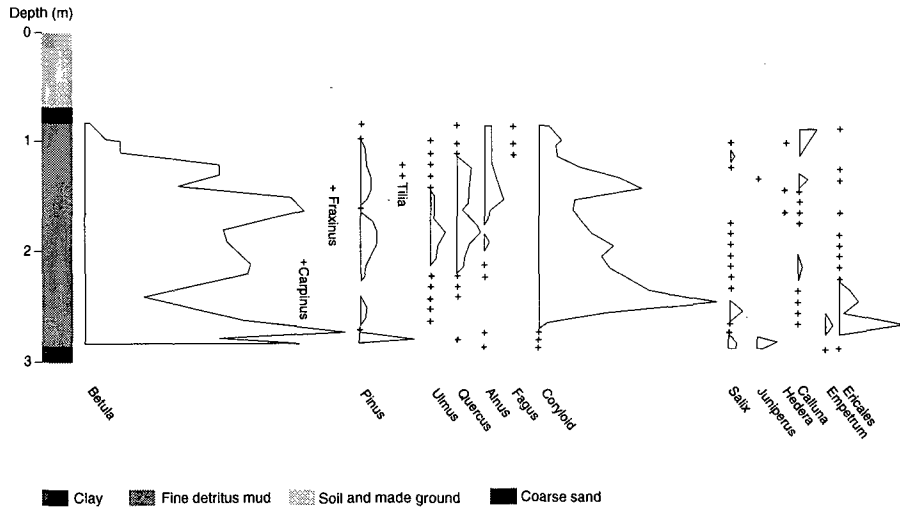


TABLE 2 (A) Results of pollen analysis of a peat core taken in Area 4

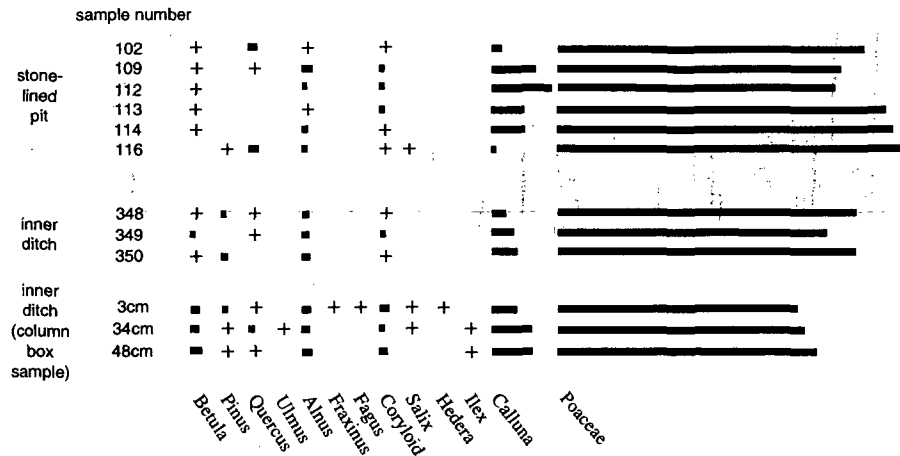


TABLE 3 (A) Results of pollen analysis of samples from excavated features

*Results*

Two separate pollen diagrams were constructed from the results. The styles of presentation are different as the excavation samples (Table 3) were not taken sequentially down a single narrow exposure and it would have been misleading, therefore, to present these results in a conventional ‘saw-edge’ style diagram (eg Faegri & Iversen 1989). Both diagrams are based on relative pollen values (percentage of the total dry land sum).

The diagram for the lake sediments (Table 2) has been subdivided subjectively into a series of pollen assemblage zones on the basis of the major pollen taxa (Table 4). It is also possible to



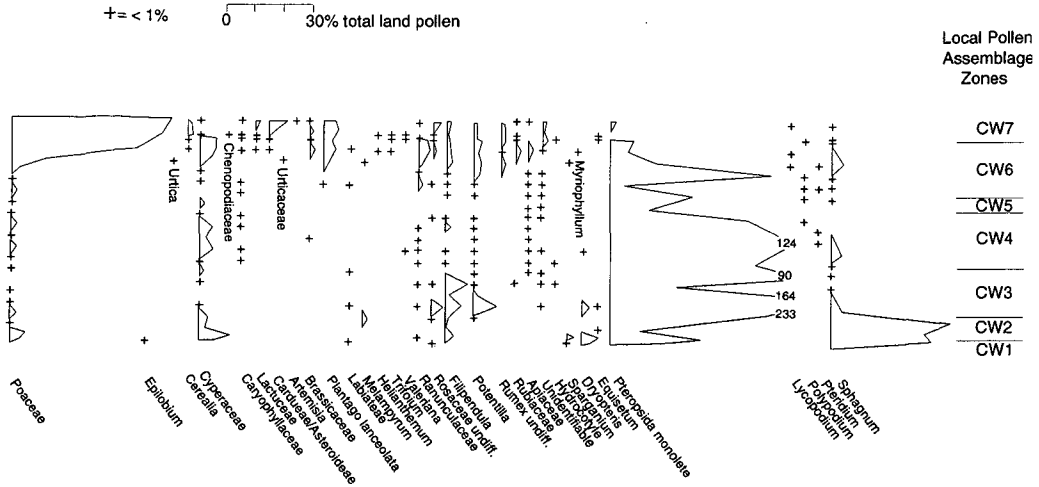


TABLE 2 (B) Results of pollen analysis of a peat core taken in Area 4

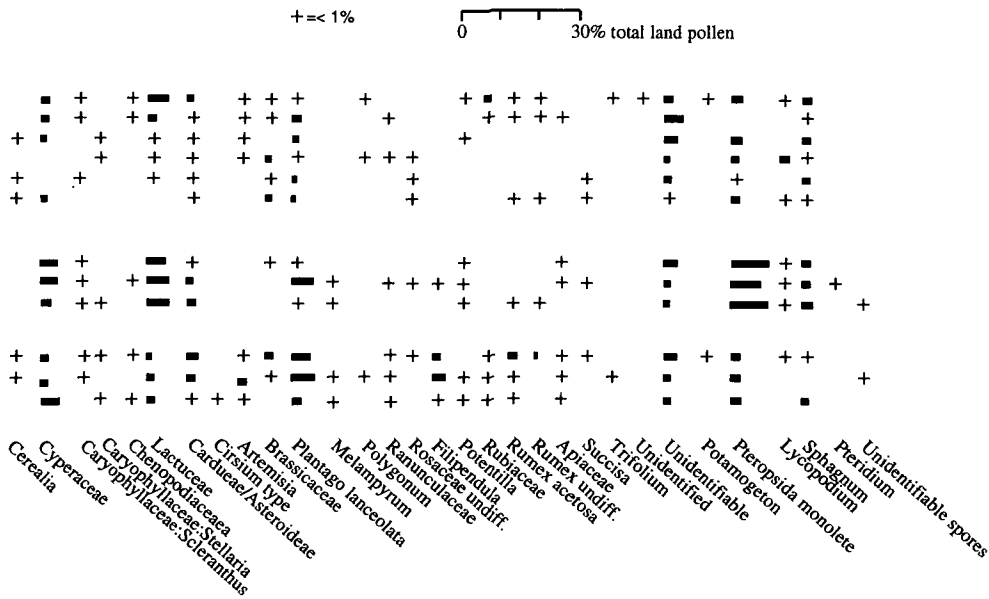


TABLE 3 (B) Results of pollen analysis of samples from excavated features

make an estimate of the age of some of the changes on the basis of events which must have been identified and dated elsewhere in Scotland. This form of correlative dating must be regarded as tentative in the absence of absolute dates from the site.

*Discussion*

The discussion will contain separate consideration of the results from the excavations and those from the lake sediments before any attempt is made to compare them.

TABLE 4

Pollen assemblage zones derived from the core obtained from Area 4

Zone	Description of vegetation
1	<i>Betulus-Pinus-Juniperus</i> zone. An open woodland environment with little soil disturbance (lack of ruderal pollen). Dated to immediately after 10,000 years BP.
2	<i>Betula-Ericales-Sphagnum</i> zone. Birch forest but/ with some heathland development, perhaps in openings in the woodland where soils were poorer.
3	Coryloid- <i>Filipendula</i> -Ferns zone. Invasion of hazel into the area forming a hazel woodland. Meadowsweet indicative of the development of herb-rich vegetation probably around the small loch which was present in this area at that time.
4	<i>Betula-Ulmus-Quercus</i> -Coryloid-Ferns zone. Development of mixed deciduous woodland dominated by birch and hazel but with a local presence of small numbers of oak and elm.
5	<i>Betula-Alnus</i> zone. Main appearance of alder at about 7000 years BP which invaded the existing mixed deciduous forest.
6	<i>Betula-Quercus</i> -Coryloid-Poaceae zone. A reduction in the range of deciduous trees caused by elm decline at the beginning of the zone (dated to about 5000 years BP) and a gradual change through the zone to a more open landscape created by the farming activities of prehistoric cultures. Evidence for the influence of farming is to be found in the appearance of ruderal pollen taxa indicative of disturbed ground (eg <i>Plantago lanceolata</i> , <i>Rumex</i> , <i>Ranunculus</i> ).
7	Poaceae- <i>Plantago</i> -Lactuceae/Carduaceae/Asteroidae zone. An open landscape with a great deal of disturbance (ruderal pollen taxa) and the growth of cereals indicating farming activities. There may be a hiatus between zones 6 and 7 because there is a sharp change in the pollen record at this point.

**Lake sediments** A very clear development is seen in the lake sediments. The initial vegetation at the site during zone 1 was dominated by birch (*Betula*) woodland, although there appear to have been elements (eg *Juniperus*, Poaceae and Cyperaceae) characteristic of a more open landscape. This zone probably dates to the period early in the Flandrian immediately after the cessation of the cold conditions of the Loch Lomond stadial (eg Gunson 1975). During zone 2, birch woodland continued, although some open areas existed with the presence of heathers (Ericaceae) perhaps growing on poorer soil. After this period there is a classic sequence of changes, starting with the arrival of hazel (Coryloid), which reached such high values during zone 3 that it may have formed pure stands in places. This was followed by the appearance of elm (*Ulmus*) and oak (*Quercus*) which joined the existing birch and hazel to form a mixed deciduous woodland. Alder (*Alnus*) invaded the woodland at the beginning of the zone 5 to form a typical mid Flandrian woodland, although levels of oak, elm and alder do not appear to be as high as those in the south of Scotland (eg Hibbert & Switsur 1976). A clear decline in elm occurs at 140 cm depth and this is accompanied by a rapid rise in grass (Poaceae) and the appearance of ribwort plantain (*Plantago lanceolata*). This indicates that the woodland at the site started to become more open in nature from this time onwards. Such changes are usually attributed to the farming activities of prehistoric communities (eg Buckland & Edwards 1984) and the last two pollen zones (6 & 7) are dominated by declining tree and shrub pollen values and increasing grass and ruderal pollen. If the interpretation and dating of the elm decline at the site is correct then it follows that only 55 cm of sediments represents 5000 years of post-elm decline vegetation history. It seems unlikely that sediments would have accumulated at such a slow rate and therefore it is suggested that the record is incomplete, either having been affected by drying out or by removal of sediments. In general terms, the changes in pollen described from the site are similar to those reported by Vasari & Vasari (1968) at Loch of Park in Strath Dee.

**Excavated features** The results obtained from features within the excavation site demonstrate the vegetation both during the occupation of the mound and immediately after its abandonment (as this is the period in which the ditches would have been infilled with sediment). The pollen pattern is dominated by grass (Poaceae), although all samples contain significant amounts of heather (*Calluna*). The environment represented by the pollen spectra is an open one with a high degree of soil disturbance, indicated by the substantial numbers and range of ruderal pollen taxa.

Any attempt to correlate the results from the excavated features with those from the lake sediments is fraught with difficulties. For example, the two types of sediment are very different and the pollen, therefore,

may have been subjected to different processes before (ie in its transportation to the site) and after its incorporation into these sediments. This is especially true of the 'drier' contexts (ie ditch and pit fills). Nevertheless, there is still remarkably close agreement between the pollen spectra of the excavated features and those from zone 7 of the lake sediments.

**Pollen preservation** The data gathered about the condition of the pollen indicates that the majority of pollen at both sites were in a damaged or deteriorated state, although the lake sediment samples frequently contained lower proportions of deteriorated pollen than did the samples from excavated features. This probably reflects the greater chances pollen being preserved intact in a lake compared with a ditch of other infill situation. The samples from the excavated features show almost uniform levels of deteriorated pollen at 90% or more of total land pollen. However, these samples still contain good variety of pollen taxa and relatively few unidentified pollen (ie damaged beyond possible recognition) were observed.

Two other observations may be made about the samples from the excavated features: there are no clear signs of decrease in numbers of taxa (or total numbers of pollen) with depth in either the pit or ditch situations; and there are few indications of differential pollen preservation of the kind described by Havinga (1984). This leads to the conclusion that these samples have not undergone the kind of changes that are frequently seen in soil pollen analyses (eg Dumbleby 1985) and, therefore, that soil forming processes have not influenced the history of pollen at the excavation site.

**Human indicators** There are many obvious signs of human activity in both sets of results, although these are not confined to the upper 55 cm of the lake sediments (ie there are no obvious human interference features prior to c 5000 years BP at the site). The major pollen taxa indicative of human activities are the ruderal and Cerealia types. In addition, high values of Poaceae, *Calluna* and Cyperaceae (sedge) are typical of open habitat situations created by woodland destruction for farming purposes. All these features are readily observable in both sets of samples and at such intensity as to indicate major disturbance to the local environment of the site.

Probably the presence of Cerealia pollen is the most obvious feature of farming and such pollen is found in five out of the 12 excavation samples and four out of the seven post-elm decline horizons in the lake sediments. This indicates that disturbance of the environment was for arable as well as for pastoral purposes.

**Age of samples** Some of the drawbacks in providing dates for the analyses have been discussed already in connection with the interpretation of the vegetation history from the lake samples, though crude pre-elm decline dating can be achieved with a reasonable degree of confidence (Table 4). However, there are considerably greater difficulties in deriving dates for post-elm decline situations, partly because of problems of correlating the very variable nature and rate of change produced by human activities across a region, and partly because of the few absolute dates that are available in north-east Scotland for this period of time (although see the detailed study of Edwards 1979). These reasons, together with the obvious differences between the lake sediments and samples from excavated features, makes it impossible to positively correlate the pollen spectra from zone 7 with that obtained from the excavated sites, even though superficially the two appear to be similar.

### *Conclusions*

Pollen analysis has illustrated the vegetation history of the area around Castle of Wardhouse from the end of the last glacial stage until historic times. The data from the lake sediments show no signs of human occupation in the surrounding area during the period up to c 5000 BP. Although there are difficulties with the interpretation of events after this time, the available pollen data appear to indicate considerable and sustained interference with the woodland environment

until few traces of the formerly extensive mixed deciduous forest were left. There are no indications of regrowth of trees at any period after the elm decline, although such regeneration may not be apparent because of the possible gaps in the pollen sequence. The data from the excavation demonstrates that during or immediately after the medieval occupation of the site, the surrounding landscape was very open and was dominated by grassland with some crop growing. This is a similar picture to that which can be seen in the area today.

#### FAUNAL REMAINS

Finbar McCormick & Sheila Hamilton-Dyer

The excavation produced only a very small animal bone assemblage. The largest collection of bones, and those in the best condition, came from the fills of the stone-lined pit in Area 1 (101). Amongst these were bones representing a foreleg of pork, with some of the bones articulated on discovery. The bones were from a semi-mature individual, and one had a knife mark in the humerus shaft immediately below the point of breakage. Bones representing two cats were also found in the pit fills; one was a mature individual, and the other a kitten. The pit fills also produced bones of domestic fowl, along with bones of sheep or goats.

#### FINDS

Full catalogues of all classes of finds have been deposited with the archive of the project records at the National Monuments Record of Scotland (RCAHMS). The following are summaries of the main points.

#### POTTERY (NOT ILLUS)

Robert Will

The assemblage consists of 187 medieval sherds and 49 sherds of 18th- and 19th-century pottery. Most of the medieval sherds appear to be of local manufacture, dating from the 14th or 15th centuries. Imports from the north of England and the Low Countries are also present.

The assemblage was examined for 'joins' (ie joining sherds); a large number of these were found, particularly between sherds from different features, which must reflect the disturbed nature of the site. The sherds from Area 1 and 3 seem to be the least disturbed, as the sherds were larger and less abraded than in Area 2 where the site had suffered severe plough damage.

The sherds mainly represent jugs, although this is probably a reflection of the small size of the assemblage and sherd survival; only 13 base sherds, 10 handles and four rim sherds were recovered, the rest being body sherds. The jugs appear to be partly glazed, with clear glaze on the neck and shoulders, and with some occurrence of applied pellet and strip decoration.

**Local fabrics** Most of the sherds belong to two main fabric types: Fabric 1 is orange in colour with a high level of sand or mica inclusions. This type of fabric is quite common throughout Scotland, and fabrics similar to this have been identified at Rattray (Murray & Murray 1993), Inverness (MacAskill 1982), and Aberdeen (Murray 1982). Fabric 2 is a variation of Scottish East Coast White Gritty Ware (SECWGW) as identified by Haggarty for Fife, Lothian and the Borders (Haggarty 1984). The colour varies from white to buff through to orange/pink, but is largely identified by the large gritty quartz inclusions that sometimes break the surface of the sherd.

**The pit group** Seventy sherds from two vessels were recovered from the stone-lined pit in Area 1 (101). Vessel 1 was a flat-bottomed jug in SECWGW-type fabric, which had been reduced in the kiln to a light grey colour on the inside. The outside of the pot is decorated with a green/yellow glaze, while the shoulders have applied pellet decoration with brown glaze. The rim and neck of the pot are undecorated, and there is an indication of a pulled spout. Vessel 2 was not as complete as the first vessel and represents the neck, shoulder and upper body of a jug with a rod handle. This vessel was also in SECWGW type fabric, and is well made with the walls being only 3–4 mm thick. The vessel has been badly burnt on the outside although the section containing the rod handle is unburnt; it is hard to say whether this is the result of the vessel being used to heat liquids, or else the result of a post-deposition fire, especially as the base section is missing.

**Imported vessels** Four sherds of Scarborough ware were recovered from Area 1, including one sherd with part of an animal scene from a ‘knight’s jug’. The other three sherds consisted of a base sherd, a body sherd and a small rod handle, possibly the arm of the knight on the jug. Three sherds from a bichrome jug were also recovered. These sherds have a white/buff, well-mixed fabric and yellow glaze, with pellet decoration in brown glaze. These jugs were made in Yorkshire in the 14th and 15th centuries. One body sherd of Langerwehe stoneware, from Germany, was found. There is little that can be derived from one body sherd, but its presence would push the date of that context (329) into the mid 15th century. The presence of these imports would date the assemblage to within the 14th or 15th centuries. These wares were commonly traded along the east coast, and large quantities have been found in Inverness, Aberdeen, Perth and Edinburgh. It is presumed that the pots found at Wardhouse came from Aberdeen by way of an inland trade route.

**Post-medieval and modern vessels** These sherds were found in the ploughsoil and upper fills and are probably the result of manuring the fields with domestic refuse in the last century. A wide range of domestic vessels were represented. Ten sherds of slip-lined red earthenware were recovered. This type of ware was used to make large shallow bowls. These were used to separate milk and cream, and are common on both rural and urban sites in the 19th century. These were made at a number of potteries throughout Scotland, one of which has been excavated at Cupar, Fife (Martin & Martin 1996). Thirty-one sherds of white earthenware with a variety of both hand-painted and transfer-printed designs were found. These represent standard domestic plates and bowls, and were made at a number of potteries throughout Britain; unfortunately, none of these sherds was large enough to be able to identify the exact factory. Four sherds of industrial stoneware were found, which probably represent jars or ink bottles. Again, these were made at various factories, but these were probably from Gray’s factory in Aberdeen. Four sherds of red earthenware with brown glaze were recovered. This type of ware was commonly used for teapots at a number of potteries throughout Britain.

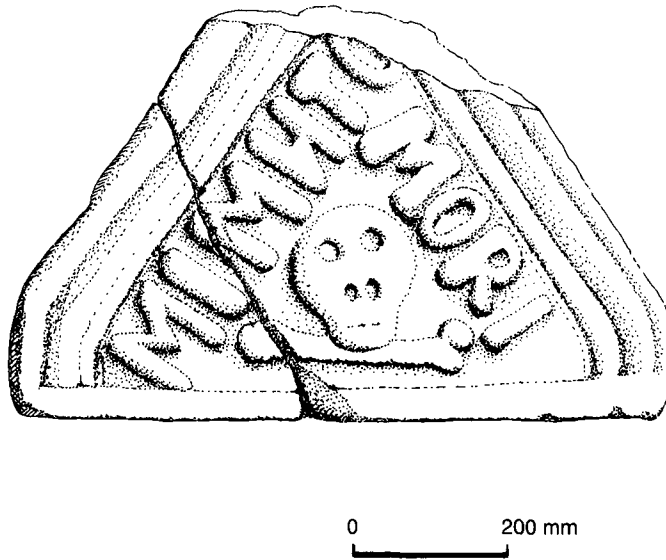
#### SCULPTURED STONE (ILLUS 12)

An unusual discovery was made in the dyke surrounding a modern house, 300 m north-east of the site. Incorporated into the dyke is a stone displaying a skull and single longbone, framed by the crudely cut letters spelling *MIMNTO MORI*. The ‘N’ is reversed, indicating that this is probably the work of an illiterate stonemason. The stone measures 0.82 m by 0.55 m. The image is commonly found on tombstones of 17th-century date, although this is considered more likely to be from a window pediment of the tower house (I Fraser, pers comm).

#### CHIPPED STONE (NOT ILLUS)

Bill Finlayson

Nine pieces of flint and a large number of pieces of quartz were recovered.



ILLUS 12 *MIMTO MORI* stone: a possible window pediment

The flint is all worked, probably by hard hammer direct percussion. Two pieces had been retouched into boring/drilling tools, one of which is possibly a fragment like the larger, complete tool. None of the material is chronologically significant.

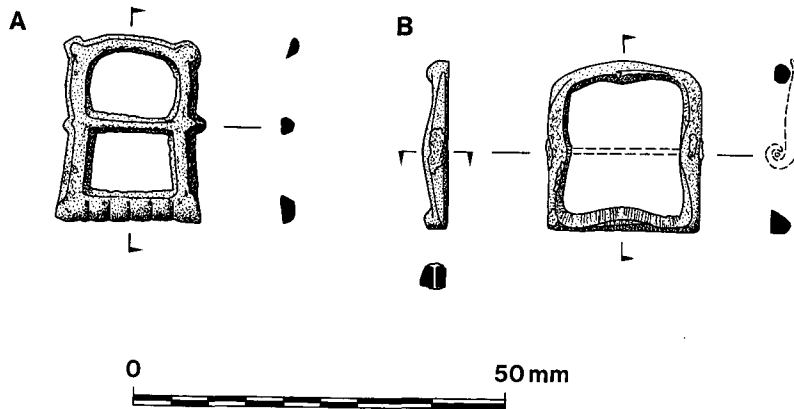
Nearly all the quartz was less than 10 mm in maximum dimension (including pieces described as 'pebbles' which are simply small rounded pieces, as opposed to the angular chunks), and included a wide variety of types of quartz. The small size makes it even more difficult than is usual with quartz to determine whether the quartz was worked or naturally fragmented. Only one piece has flaking that is marginally convincing as deliberate working. As all this is retent material (ie the coarse residue of sieved soil samples), it is possible that much of the damage is the result of processing. The heterogeneity, lack of large pieces and absence of any clearly worked pieces make it seem unlikely that any of this material is worked.

#### COPPER-ALLOY OBJECTS (ILLUS 13)

Barbara Ford

with a note on a copper-alloy lace end with fabric attached by Thea Gabra-Sanders

A total of seven copper-alloy objects was recovered. These include two buckles, both of which are small and double sided. Double-sided buckles became popular from the 15th century onwards, with the change in fashion towards narrow belts (Fingerlin 1971). The ridge decoration of no 2 is the same as that on an example from Colchester found with pottery dated to the 17th century (Crummy 1988, fig 19, 1754). Number 3 is a button probably from the sleeve of a coat or jacket. It is typical of the type of military button used in the late 18th and 19th centuries. Pins such as no 4 — with twisted wire heads and drawn wire shanks — were very common in the 18th and 19th centuries and were most likely used in dress making. Number 5, a small triangular fragment, is probably a waste piece from cutting up a sheet. Numbers 6 and 7 are both lace tags. Oakley & Webster in their study of tags from Northampton classified them into two types. Number 6, of



ILLUS 13 Copper-alloy buckles

type 1, was not found at Northampton before the mid 16th century. Number 7 corresponds with their type 2 (Oakley & Webster 1979, 262–3). The buckle, button, sheet and tag (nos 1, 3 5 & 6) all came from topsoil or unstratified contexts. The remaining objects, the buckle, pin and tag (nos 2, 4 & 7) all came from trench fill 201 where they were found in association with a Charles I or Charles II copper turner minted in 1642–50 or 1663.

- 1 **Buckle (illus 13)** Length 24 mm, width 22 mm. Cast, D-shaped double-sided frame with convex sides. The iron central pin bar with square cross-section is now missing. U/S. SF no 1.
- 2 **Buckle (illus 13)** Length 25 mm, max width 20 mm. Cast, elongated D-shaped double sided buckle. One side of the frame is square with ribbed decoration. The other is rounded with protrusions at the two corners. The upper surface has bevelled edges, the underside is flat. The pin is missing. Area 2; F201; SF no 8.
- 3 **Button** Diameter 16 mm, thickness 1 mm. Cast, a casting scar with a central pit left by the loss of the loop is visible on the rear. The disc is slightly domed and the upper surface is decorated with a crown within a raised border surrounded by an inscription now illegible. Area 3; F300; SF no 12.
- 4 **Pin** Length 45 mm, thickness 1.5 mm, thickness of head 3 mm. Drawn from a wire with circular cross-section. Striations are visible on the shaft. The head is formed by twisting a wire two complete turns around the end of the shaft then hammering to secure it. Area 2; F201; SF no 3.
- 5 **Sheet** Length 51 mm; thickness 0.5 mm. Triangular cut fragment. U/S. SF no 10.
- 6 **Tag** Length 32 mm; thickness 3 mm. Made from a small sheet rolled around with edges butting. Tapers to a point at one end. The top has been pinched to secure the leather thong, part of which is still in place. Area 2; F200; SF no 5.
- 7 **Tag** Length 17 mm; Diameter 3 mm. A tag or lace tag made from a thin sheet rolled or folded into a tapered cylinder. The edges have been turned inwards to grip the lace. The cylinder is open ended at both ends and holds some fabric (see Gabra-Sanders, below). Area 2; F01; SF no 9.

#### *Lace tag with fabric attached (not illus)*

Thea Gabra-Sanders

The fabric remnant which remained attached to a copper-alloy lace tag (no 7, above) is an example of tabby (plain) weave and is woven from single Z-spun yarn in both systems. The systems are designated 1 and 1 as the warp and weft cannot be identified. The direction of the spin of the yarn is indicated by the letter Z (for clockwise, if a yarn is held vertically, the twisted fibres

slope in the same direction as the centre portion of the letter Z). The number of threads per 10 mm is 12 in system 1 and about 15 in system 2. Microscopic examination of the pale beige fibres showed the characteristic cross striations or nodes of bast fibres supporting the identification as probably flax. There is no evidence of dye.

#### IRON OBJECTS

Barbara Ford

##### *Horse equipment (not illu)*

Two horseshoes were found on the site. Number 1 is complete and from a very small horse; no 2 is a very corroded fragment. Both shoes have rectangular nail holes for nails (like nos 3 & 4, below) with shanks which expand in both front and side views to a flat head. Horseshoes with this type of nail hole date from a period later than the mid 14th century (Clark 1986) and continued in use into the post-medieval period. Number 1 is probably of a 17th- or 18th-century date.

- 1 **Horseshoe** Width 65 mm Complete. Small horseshoe with five rectangular nail holes. Area 3; F300.
- 2 **Horseshoe** Thickness 21 mm. Corroded fragment with two rectangular nail holes. Area 3; F333.
- 3 **Horseshoe nail** Length 36 mm. Rectangular cross-sectioned shank expands in both front and side views to a flat head. Area 2; F201.
- 4 **Horseshoe nail** Incomplete with rectangular flat head and shank with rectangular cross-section. Area 3; F300.

##### *Leather and textile-working equipment (not illu)*

Number 5, recovered from topsoil, is an awl used to pierce leather to prepare a hole for the thread. It has a circular cross-section and reduced shoulders similar to an example from London of a 13th- to mid 14th-century date and another from Waltham Abbey dated to c 1540 (Henig 1974, 191, fig 38.59; Huggins 1972, 124). Number 6 is a fragment of a tooth from a heckle used to prepare wool and flax for spinning. Number 7 is the lid from a box iron, with brass fittings probably from a substantial household. Hot ashes would have been placed inside the steel box which is now missing. The lid was attached by engaging a lug which projected through the hole in the centre of the lid and was held in place by the swinging catch of which only the acorn headed pivot still remains. Irons of this type date from the 18th to early 19th century.

- 5 **Awl** Length 107 mm, max diameter 8 mm. Shaft with circular cross-section tapering towards a point, tip missing. There is a step between shaft and tang against which the handle butts. Part of the wooden handle still remains. Area 1; F100.
- 6 **Heckle tooth** Length 98 mm, diameter 4 mm. Circular cross-section. Broken at tip. Area 2; F257.
- 7 **Smoothing iron** Length 150 mm, height 94 mm. Part of a box iron. Ovoid lid with a lip on the under surface. The lid has a circular perforation (diameter 26 mm) with a copper-alloy stud to one side with part of a copper-alloy swinging catch attached. Two S-shaped copper-alloy brackets attached with iron rivets support the turned wooded handle. An iron bar passes through the centre and is attached to the brackets with two copper-alloy studs. One is now missing. U/S.

##### *Structural ironwork (not illu)*

Number 8, which was found in the ditch fill, is a fitting probably for strengthening timber. Numbers 9–11 are all V-shaped staples; no 10 came from topsoil and no 9, which is still attached



to wood, came from a layer of well infilling. Number 11 came from the fill of pit 247. Staples of this type were common throughout the medieval and post-medieval periods.

- 8 **Fitting** Length 66 mm, width 16 mm. Iron strip with a flattened blunt shape curving towards pointed sides, now broken. The lower surface is flat with five nail shanks protruding, three are complete. The upper surface is rounded with no traces of the nail heads. Area 1; F104.
- 9 **Staple** Width 18 mm. V-shaped staple, the arms have a rectangular cross-section. Arms imbedded in wood. Area 1; F113.
- 10 **Staple** Length 31 mm. V-shaped staple. The arms have an irregular cross-section. COW; Area 3; F300.
- 11 **Staple** Length 75 mm, width 27 mm, thickness 8 mm. V-shaped staple. The arms have a rectangular cross-section. Area 2; F248.

### *Nails (not illus)*

A total of 46 nails was recovered of which 11 are complete. They have been identified by head and shank type following the classification of nails by Ford & Walsh (1987 and forthcoming). Five types are present:

Type A (18 examples)	Flat head; shank of square or rectangular cross-section.
Type B (2 examples)	Domed head; shank of square or rectangular cross-section.
Type C (1 example)	Flat head; shank of circular cross-section.
Type G (2 examples)	Flat figure-of-eight head; shank of square or rectangular cross-section.
Type I (2 examples)	Faceted head; shank of square or rectangular cross-section.

The largest number of identifiable nails are of type A which is commensurate with most other assemblages in Scotland. Types A, B and C are common general woodworking nails. Type G is most often thought to be a slating nail. Type I with its pyramidal head was probably used for a decorative effect such as on doors or chests. Seven of the nails came from pit 102, nine from pit 201 and five from robber trench 247. Ten nails came from the infill of the lined pit and two from the inner ditch area. The remaining 13 nails came from plough or topsoil.

### *Miscellaneous (not illus)*

Number 13, from a layer of pit infilling is a spectacle buckle, a common post-medieval form. A similar example can be seen at Colchester (Crummy 1988, 17, 1762) and other more elaborate examples in copper alloy are common finds from 16th- and 17th-century contexts (Goodall 1984, fig 190, 81–5). Number 14 is a large woodworking chisel, which shows little sign of use. It came from a mixed (occupation?) layer infilling a possible entranceway through the earthworks. It is similar to one from Criccieth Castle, Caernarfon, from a context dated to the late 15th to early 16th century (O'Neill 1945). Number 12, a bar, came from the inner ditch area; no 15, a ring, and no 16, a wire fragment, came from pit fills.

- 12 **Bar** Length 77 mm, max width 16 mm. Rectangular cross-section. Area 3; F303.
- 13 **Buckle** Length 63 mm, width 45 mm, thickness 9 mm. Slightly curved 'spectacle buckle' with expanded rectangular shaped ends. The pin bar has a circular cross-section with iron pin attached. Traces of tinning on the frame. Area 1; F114.
- 14 **Chisel** Length 282 mm. Blunt end has circular cross-section tapering to a rectangular cross-section ending with a flat tip. Area 3; F321; SF no 20.
- 15 **Ring** Diameter 41 mm. In three fragments. Area 1; F102.
- 16 **Wire fragment** Length 80 mm, diameter 1.5 mm. Circular cross-section. Area 2; F201.

## COINS (NOT ILLUS)

Nicholas M McQ Holmes

Two coins were recovered from trench fill 201 in Area 2.

**Charles I** or **Charles II** copper turner (1642–50 or 1663 issue): 19 mm, 1.69 g, die axis c 30; slightly bent; extremely worn; SF no 4.

**Charles VII-François I** (France) copper double tournois (probably c 1436–1540): 14 mm (horizontal) 0.32 g, unc. die axis; legends illegible; three fleurs-de-lis within trefoil on obverse; reverse design indistinguishable; incomplete; much corroded; SF no 7.

## GLASS

Dennis B Gallagher

The assemblage included 95 fragments of wine bottles but few diagnostic forms, there being no complete bases and only one rim, an 18th-century form. Vessel glass included a fragment decorated with mould-blow bosses, probably part of a beaker of a type common in the Netherlands in the 17th century (Charleston & Vince 1984, 87 & 89, fig 45.12).

There were 29 fragments of window glass, including some soda glass. Two clear pale green pieces with heat-sealed thickened edges, straight in one case and concave in the other, are fragments of crown glass. The presence of two edge pieces in such a small assemblage suggests that the glass supplied was not of the highest quality.

The majority of both the bottle glass and the window glass was from Area 2 suggesting a concentration of occupation and/or rubbish deposit in the central part of the platform in the post-medieval period, some of which may be associated with the 'high house' described in the 18th century (Simpson 1935, 469–70).

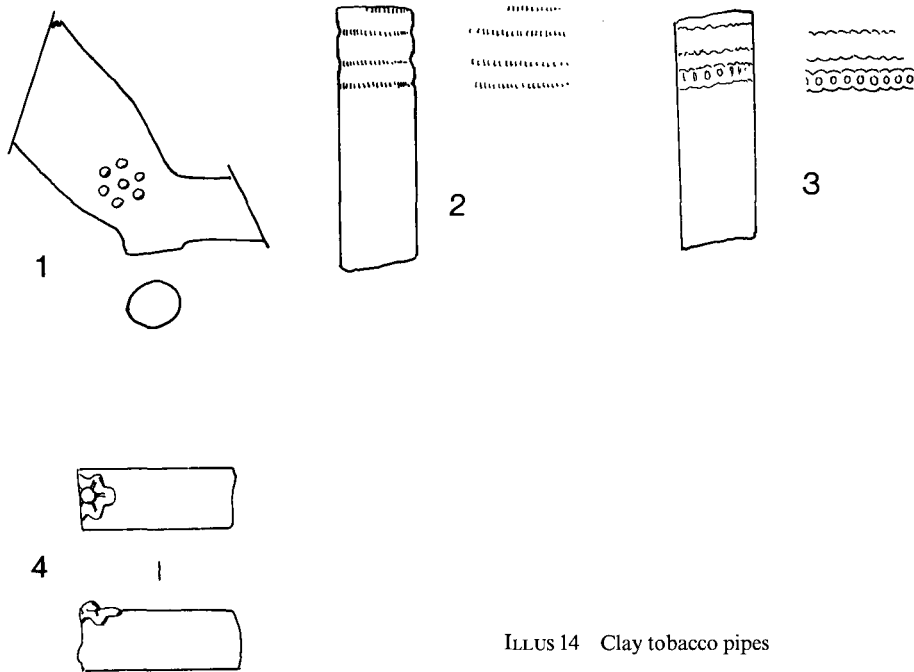
## CLAY TOBACCO PIPES (ILLUS 14)

Dennis B Gallagher

Only 26 fragments of clay tobacco pipes were found during the course of the excavation. Only two of these fragments were from Area 1, compared with 15 fragments from Area 2 and nine from Area 3. These numbers, although extremely small, may indicate that occupation and/or rubbish deposition continued to be concentrated in the region of Area 2, the central part of the platform, during the 17th century.

All the identifiable material is of 17th-century Dutch manufacture. The pipes range from the bowl with the rose dot decoration (no 1), a type of low-quality product produced in many centres in the western Netherlands over a long period, to the higher quality stems bearing roller-stamp decoration. Number 4, although a very small fragment of relief decoration, is likely to be part of a Dutch 'baroque' stem of a type with decoration only along the top of the stem (Duco 1981, 251 & 384).

Pipe-making in 17th-century Scotland was concentrated in Glasgow, Edinburgh and, on a smaller scale, Stirling; there is no documentary evidence at this date for any pipe-makers based north of the central Lowlands. The present group reflects the reliance on imported material noted in other excavated groups from north-east Scotland, for example at Aberdeen (Davey 1982; Atkin 1987) and Elgin (Davey & Gallagher 1987).



ILLUS 14 Clay tobacco pipes

*Catalogue of diagnostic fragments*

- 1 Bowl with mould-imparted dot rose, rim mostly missing, battered and finely milled; western Netherlands, c 1640–70, cf Duco 1981, 244.32; F303.
- 2 Stem fragment with roller-stamp decoration in single lines; Dutch, c 1650–90 (cf Martin 1987, 217–18.56–60 for similar examples from the Dutch East Indiaman *Kennermerland*, wrecked 1664); F201.
- 3 Stem fragment with roller stamp decoration incorporating a 'ring-of-pearls' motif; Dutch c 1650–1700 (cf Duco 1981, 246.46); F257.
- 4 Burnished stem fragment with flower in high relief; Dutch, c 1635–60; 5/64'; F300.

## RESIDUAL IRON-WORKING DEBRIS

Mike Spearman

The excavations produced small quantities of iron-working debris from 35 contexts. There are 145.4 g of tap slag from the topsoil contexts in Areas 1 and 2; fragments of 'prill' (ie droplets of slag) and small pieces of cindered soil and sand were recovered from the sieving of samples from a further 32 contexts scattered across all three areas. (Two other samples presented were in fact fragments of narrow iron rods — perhaps nail shanks.)

The evidence is slight but it seems likely that iron-smithing took place on the site and that the lighter waste products from the smiddy — the hammerscale and small droplets of prill thrown out when forging hot iron — were transported around the site. Not unusually the fragile slivers of iron hammerscale appear not to have survived as well as the more robust prill.

A few pieces of tap slag that were recovered need not necessarily be a waste-product of such a smiddy. Pieces of slag are extremely robust and may even have been imported to the site at a

later date. In any case the quantity of proper slag is so slight that either all the debris was imported (which given the distribution of the prill and cinder seems unlikely) or the suggested smiddy was using previously prepared wrought iron — perhaps on a repair-and-maintenance basis.

## EXCAVATION INTERPRETATION

### AREA 1

The lack of medieval pottery, indeed the lack of almost any finds in the fills of the large inner ditch (103), suggests that the base of the ditch was cleaned out on a regular basis to retain its effectiveness. The nature of the fills indicates that the ditch ultimately filled in quite rapidly. The heat reddening observed in the ditch base could either reflect fire setting to fracture the rock and thereby ease quarrying, or else represent a later event when part of a burning structure collapsed into the ditch. The broad bands of soil to the north and to the south of the ditch were probably all that remained of two earthen ramparts formed from the upcast of this and the outer ditches. There was no evidence to show whether the rampart was retained with stone or timber. As the top of the inner rampart would have been level with the upper platform, then the construction of this would have effectively extended the edge of the upper enclosure. This would have presented a much steeper face to any attacker than the gentle slope which is seen today. The rampart material was eventually thrown down into the inner ditch.

The stone-lined pit (101) may have had an original function as a cold-store for meat or dairy products. This was completely filled in a very purposeful way; the associated plant remains — including bramble seeds and cereal-processing debris — suggest that this happened during the autumn.

The paved area and drain (106) in the north part of the summit is believed to be a relatively late feature of the 16th or 17th century. Probably part of an external courtyard surface, this would originally have been more extensive, presumably covering much of the ground between the tower house and other principal buildings which existed at this time. A slightly thicker depth of ploughsoil had protected this fragment. The eastern cobbling (107) was sealed by demolition material from a stone building, including roofing slate. Slate has been quarried locally from Foudland Hill, some 4 km north of Warehouse, over a long period of time.

### AREA 2

The long, broad trench (247) at the north end of this area contained quantities of mortared masonry in the top fill (201) and evidently represents the robbing of a substantial wall which had been aligned approximately east/west. The date of the infill of the robber trench was provided by late 17th-century tobacco pipe fragments and bottle glass. This could have been part of a barmkin wall, although in this fairly central location it is more likely to have been a main wall of a tower house or else part of the putative chapel, the existence of which is derived from the documentary evidence (see Introduction, above).

The hearth (238) so neatly positioned over the empty and infilled post-hole (237) to the south of the robber trench is somewhat of a conundrum. It could be that the wider, upper depression, formed when the post was pulled out and the pipe infilled, proved suitable as a temporary ground hearth. It is possible that both hearths in this area were originally within some kind of superstructure which is now ploughed away, leaving only the heat-penetrated bases to be revealed by excavation.

The rest of this area is characterized by concentrations of cut features, which might represent the remains of one or more timber buildings. Alternatively, these might simply represent fence-lines or scaffolding of unknown periods. The history of the site suggests that the summit would have supported an arrangement of medieval timber or timber-and-stone buildings, but it is not possible to derive building plans from the available evidence.

### AREA 3

The primary topsoil (340) buried beneath the inner rampart represents pre-castle cultivation over an unknown length of time. The iron pan at the interface between this layer and the overlying layers of ditch upcast which formed the rampart show that the tilled soil had been left fallow for a period of some years before the rampart was constructed (see Carter, above).

The first event associated with the laying out of the primary rampart was the construction of a facing trench filled with sticky clay (318). This can be interpreted as a toe-hold for the softer, looser upcast soils of the rampart, preventing their gradual collapse downslope towards the ditch. Alternatively, the clay could have provided a foundation for a stone facing to the rampart. The layer of tumbled large stones found in the inner ditch fill (310) could represent the demolition of such a structure. The post-holes glimpsed immediately within the rampart may represent part of a timber structure, even a gatehouse. It is possible that the primary defences here were levelled at the end of Phase 2, along with this putative timber structure. Alternatively, construction may have been abandoned for a year or more, after the rampart base had been laid down. The evidence for this hiatus is the thin layer (345/346) of *in situ* turf which developed over the primary rampart but which was then sealed by the secondary rampart deposits (see Carter, above) in Phase 3.

Phase 3 saw the construction of massive earthworks, with two new ditches cut and two ramparts formed from the upcast. These defences were formidable and almost certainly enclosed the mound on all but the east side. The inner ditch seen in this area (302) is the same as that excavated in Area 1 (103), where it was found to be only marginally smaller. Standing in the bottom of the inner ditch, an attacker would be confronted by a ditch-and-rampart obstacle with a combined height of about 6 m.

The surviving outer limit of the main rampart deposits is misleading as this does not represent the full span of the earthwork, but is simply an edge created when the structure was slighted and subsequently eroded more gradually by modern ploughing. Thus, the clay band (318) which was a feature of the earlier or primary rampart may still be regarded as defining the foot of the main rampart. The two possible post-holes, the two parallel slots and the short east/west fragment of masonry foundation all appeared to be contemporary with the construction of the main rampart. There is no way of knowing whether the foundation supported a stone or timber superstructure. The cut features may have supported timbers which formed part of an internal frame for the rampart. Alternatively, some or all of this group may have formed part of an entrance gateway and been given strength and stability by the embrace of the rampart terminal. The ground to the north was deeply hollowed and probably formed the surface of a sunken track or 'hollow way' (332) within the entrance.

The evidence suggests that the ditches and ramparts were slighted in a devastating and rapid single event. A handful of 14th- or 15th-century pottery sherds provide the only clue to the date of this. Following this event, a drainage gully (319) was dug to take surface water off the summit and down the slope; the fact that this followed the curve of the levelled rampart terminal suggests that the earthwork persisted in some reduced form. An alternative explanation may be

that the edge of the entrance hollow way was still visible and the gully was simply dug to follow this 'line of least resistance'.

#### AREA 4

The limited excavations here confirmed that the boggy nature of this area obviated the need to provide a complete circuit of ditches, which certainly existed on the other three sides of the mound. A large part of the lands uphill, to the north of the site, would have drained into this area. For much of the year it would have been under standing water, although the aerial photographs indicate that at some time in the past there was a water channel running to the east which would have drained much of this away.

#### DISCUSSION

The pollen data indicate that large-scale clearance of woodlands in the vicinity of the site for agricultural purposes was underway by at least 5000 years ago and so it is possible that the environs of the site could have been attractive to prehistoric farmers from the Neolithic period onwards. During later prehistory these farmers would have lived in the shadow of the great hillfort of Dunnideer which was a long-established centre of power, administration and security. Some of the cropmark ditches, especially the narrower ones, may well be field boundaries which pre-date the time of Bartholomew the Fleming. This interpretation might be appropriate to the 'horn-work' to the south and to the straight lines to north and south. The Gaelic origin of the place-name, meaning *enclosure*, reinforces this view, as does the discovery of a small quantity of chipped stone, some of which at least is of probable prehistoric date.

The moated 'earthwork castle' of Wardhouse was probably constructed in the early 13th century. Only a handful of such sites survives in the lordship of the Garioch from a documented total of 40 or so principal units which formed the lordship in the 12th and 13th centuries. It can be suggested, therefore, that a class of middle status defended residences of this period is largely missing from the archaeological record. These were the homes of Earl David's *rentier* class of men such as Bartholomew the Fleming. Evidence from Area 3 indicates that there was a hiatus, of unknown length, following the start of work on the inner ditch and rampart. It may be that this work was originally begun in hasty response to a threat from the Highlands which never materialized, resulting in a more leisurely approach to its completion.

The aerial photographs show no interruption on the south-west side which would coincide with the possible rampart terminal found in the excavations. An entrance here would have faced the main route through the western Garioch to Moray, which would have been on much the same line as that of the modern B9002 road. The site is separated from the road by the Shevock Burn, and the extant 17th-century bridge may mark the position of a more ancient crossing aligned on a western entrance. Access to the summit via this entrance could either have been from a timber flying bridge which oversailed the ditches, or else from a causeway which approached from the north and then gradually wound around the west side to a gateway within the rampart terminals.

There was a close correlation between the pollen spectra from the upper organic level in Area 4, the fill of the stone-lined pit (110) and the fill of the inner ditch (302). This indicates that the surrounding landscape in the late medieval period was chiefly given over to animal husbandry, but with a significant proportion of arable fields, much as can be seen in the Garioch today.

No trace was found of the 13th-century chapel glimpsed in the documentary evidence. The discovery, however, of mortared stone rubble in the ditch fills clearly shows that one or more

stone buildings did exist within the moated enclosure. While it is considered that the *MIMNTO MORI* stone is more likely to have come from a window pediment in the tower house, there is some chance that this was a 17th-century tombstone. If this was the case, then it must be considered possible that a graveyard, now lost, did exist close by. Perhaps this was located in an outer enclosure, serving as an adjunct to a private chapel, a persistent feature of the late medieval tower house complex.

The few datable finds from the ditches suggest that they were slighted in later medieval times, possibly in the 15th century. This can be coupled with the documentary evidence to suggest that a tower house was built in the later 15th century by the new owners, the Balquhain Leslies. This house was probably ruinous by the end of the 18th century.

## ACKNOWLEDGEMENTS

The author is indebted to the late John Middler, farmer and landowner, for the considerable co-operation and assistance received during the excavation. I am also grateful to the Society of Antiquaries of Scotland and to former Grampian Regional Council for supporting the field survey programme which led to this rescue excavation. Patrick Ashmore of Historic Buildings and Monuments (now Historic Scotland) was of great help in arranging the Warehouse survey and excavation works. Thanks are also due to Andy and Davy Henderson of Inch for their invaluable assistance. The success of the project was ensured by the expertise of the whole team of excavators, notably Steve Driscoll, and specialists whose efforts have resulted in this publication. The radar survey would not have been possible without the kind sponsorship provided by Oceanfix Geotechnical Services Ltd. Finally I am pleased to acknowledge the encouragement received from Olwyn Owen of Historic Scotland, who has managed the post-excavation programme and made me finish this. The aerial photograph of the site (illus 2) was taken by John Dewar in 1976 and is reproduced here with the kind permission of the Royal Commission on the Ancient and Historical Monuments of Scotland. The illustrations are by Keith Speller and Alan Braby. The project was funded by Historic Scotland.

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*This paper is published with the aid of a grant from Historic Scotland*