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Evidence of agricultural activity of the later second millennium BC at Rattray, Aberdeenshire

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ABSTRACT

Traces of prehistoric cultivation and a burnt wooden hurdle were found below the medieval dune of the deserted burgh of Rattray and were dated by radiocarbon to 1180±50 BC uncal (GU-2719). The associated flint and pottery assemblages are described and the site is placed in its context as a rare example of later second-millennium agriculture in north-east Scotland.

INTRODUCTION

Between 1985 and 1990, six seasons of extensive excavation took place in the deserted medieval burgh of Rattray, Aberdeenshire, whose site now lies close to the sea at the south end of the Loch of Strathbeg (illus 1). The excavation was directed by H K and J C Murray, financed by the Scottish Development Department and administered by City of Aberdeen District Council.

During the 1988 season, excavation through the medieval dune, in the field near the base of the castle mound, revealed traces of prehistoric ploughing and burnt wood (illus 2). The directors asked Mrs A N Shepherd to visit the site in an advisory capacity and, acting on her advice, dug a further series of trial cuts (1–6: illus 3) through the medieval dune to gain some idea of the extent of the cultivation. Unfortunately, owing to the considerable overburden and the exigencies of the medieval site, this was possible only on a limited scale and within those areas already excavated to the medieval horizons. Flints and some pottery were associated with the features. No similar evidence was found in any other part of the burgh, although some stray flints were found throughout the medieval horizons.

In 1988, Ian Mate (then of the Scottish Development Department's Archaeological Operations & Conservation Unit) took soil samples of the contexts relating to the cultivation; botanical, palynological and thin-section analyses were undertaken and charcoal samples were also sent for identification and for radiocarbon dating.

In this report the site directors describe the excavated features and A N and I A G Shepherd report on the examination of the flint and pottery and consider the significance of the site in the context of the later second millennium BC in Scotland. The main findings of the environmental enquiries are included in the text (see below) and the tables and full reports can be found on the microfiche. The medieval activity on the site will be published separately (Murray & Murray forthcoming).

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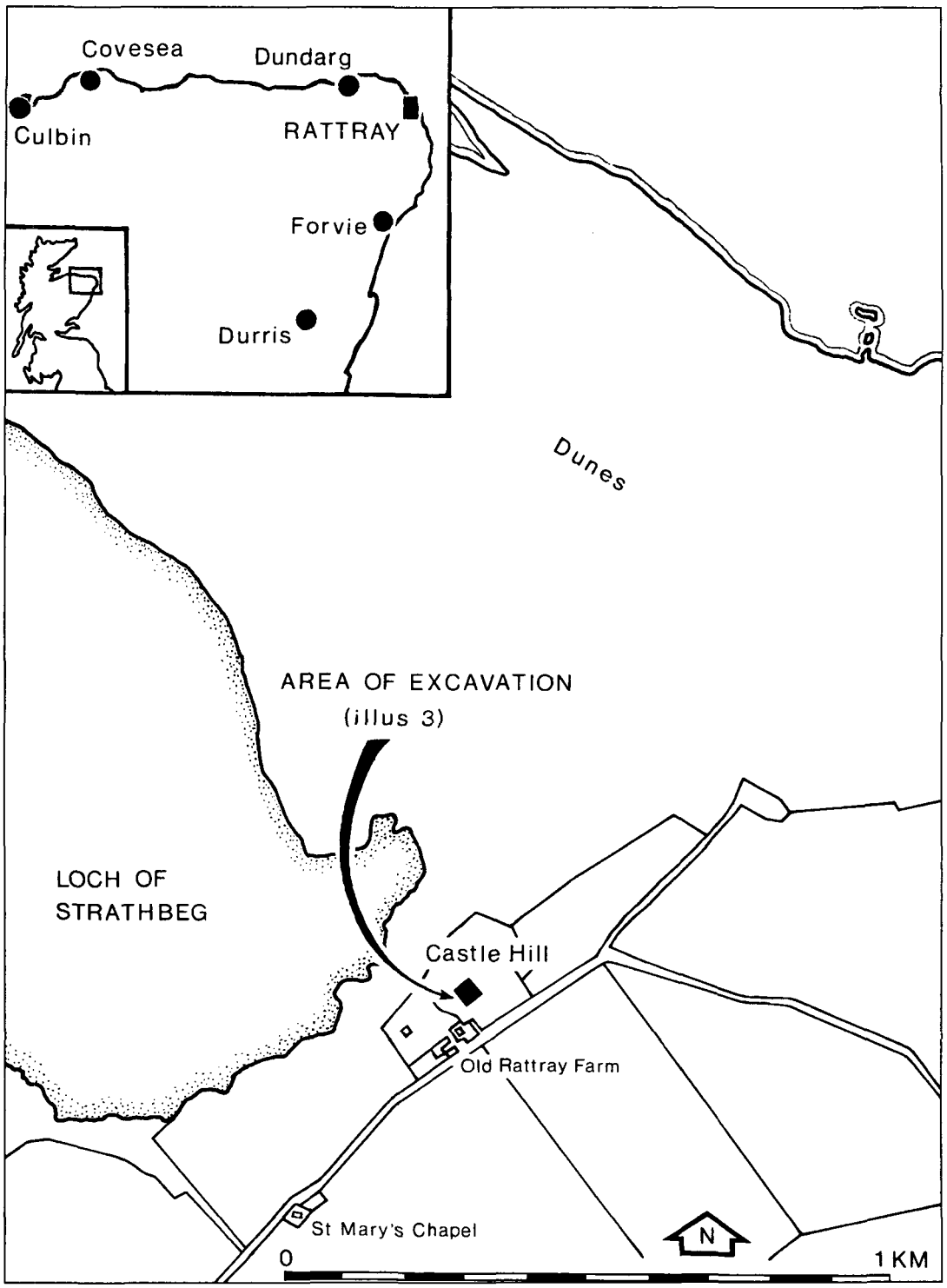
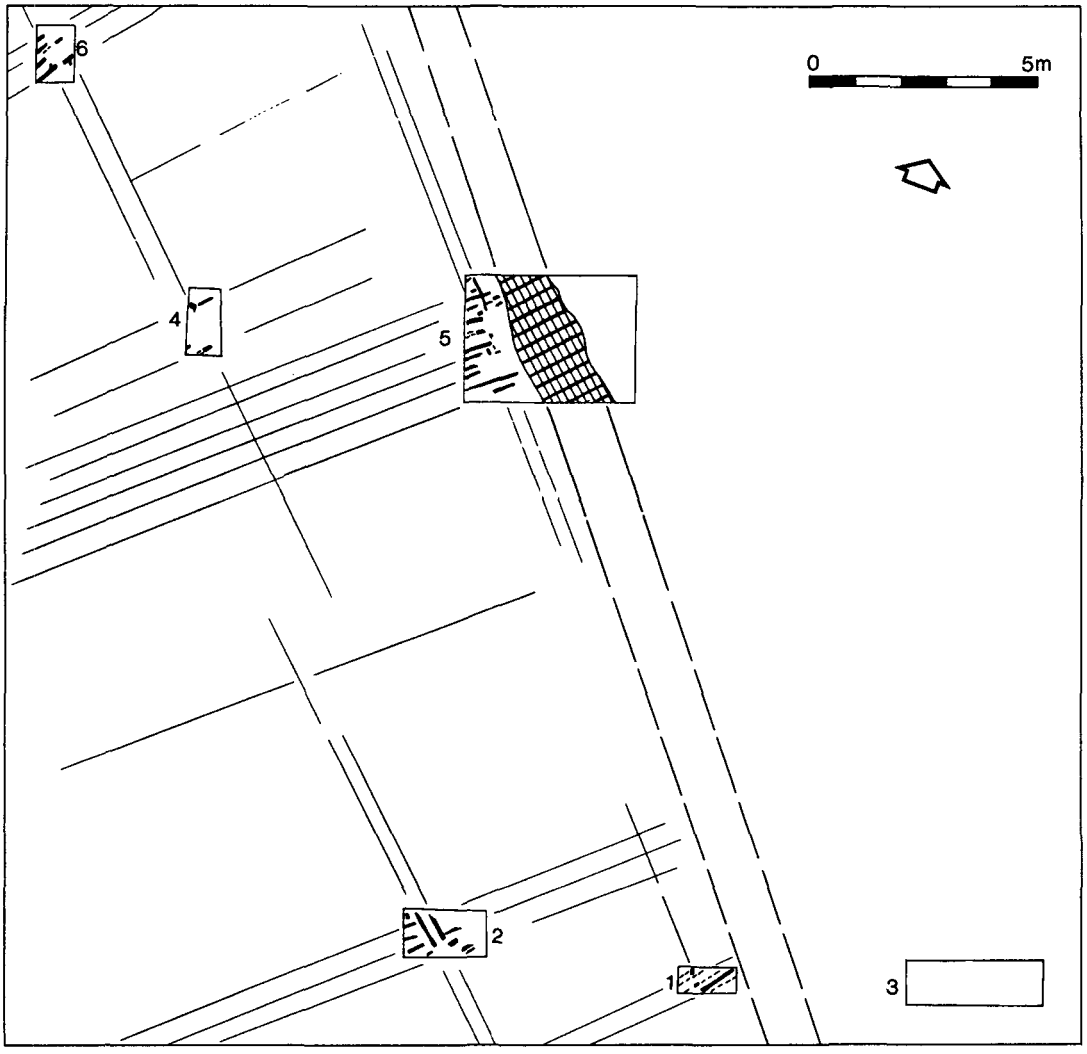


ILLUS 1 Location map of the Burgh of Rattray, showing the area of these excavations and comparative sites in north-east Scotland. *Based upon the Ordnance Survey map © Crown copyright*

ILLUS 2 General view of Cut 5 from east with Old Rattray Farm in background

THE EXCAVATION

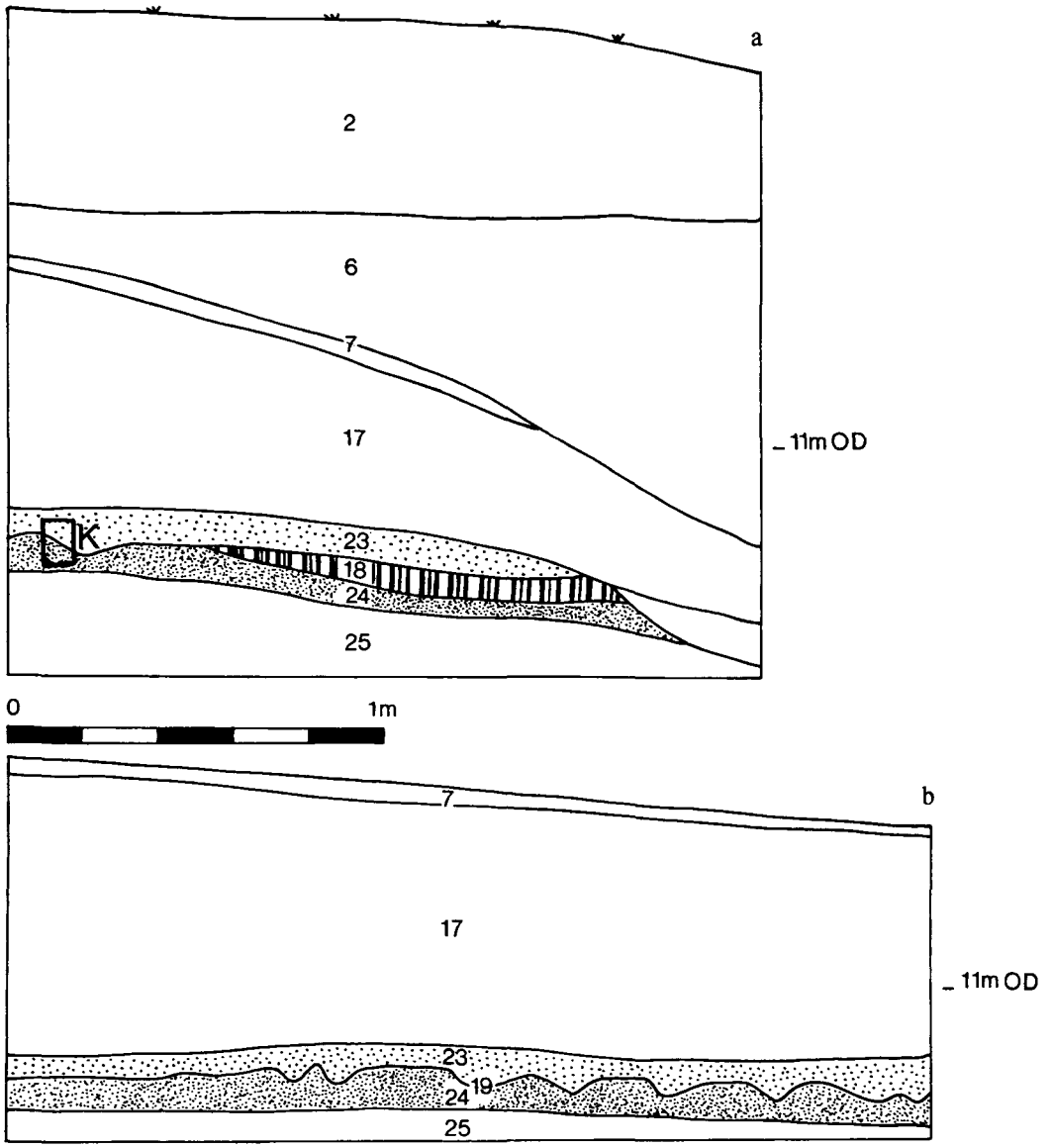
The north and west sections of Cut 5 (illus 4a & b) display the major features of the stratigraphy of the excavated area. Below the topsoil, various medieval features lay on or cut into a dune (6). Excavation of this dune revealed a turf-line (7) sloping steeply down to the east. This turf-line lay on an earlier dune formation (17) of pale clean sand with a few lens lines. This dune also sloped down to the east, becoming thinner and almost tapering to nothing by the edge of the excavated area.



ILLUS 3 Plan of Cuts 1–6 showing direction and extent of ardmarks (black) and area of burnt wood (cross hatched)

This dune (17) overlay a grey, charcoal-flecked sand (23). The later, clearer, series of ploughmarks (19), identified in Cuts 1, 2, 5 and 6, and possibly 4 (illus 3), had cut through this, dragging charcoal out of an underlying burnt wooden structure (18) and pulling it through the top of the underlying sand (24). This upper, later, episode of cultivation post-dated the burnt timbers which appeared to have belonged to a hurdle (see below) extending NW/SE; they were found only in Cut 5.

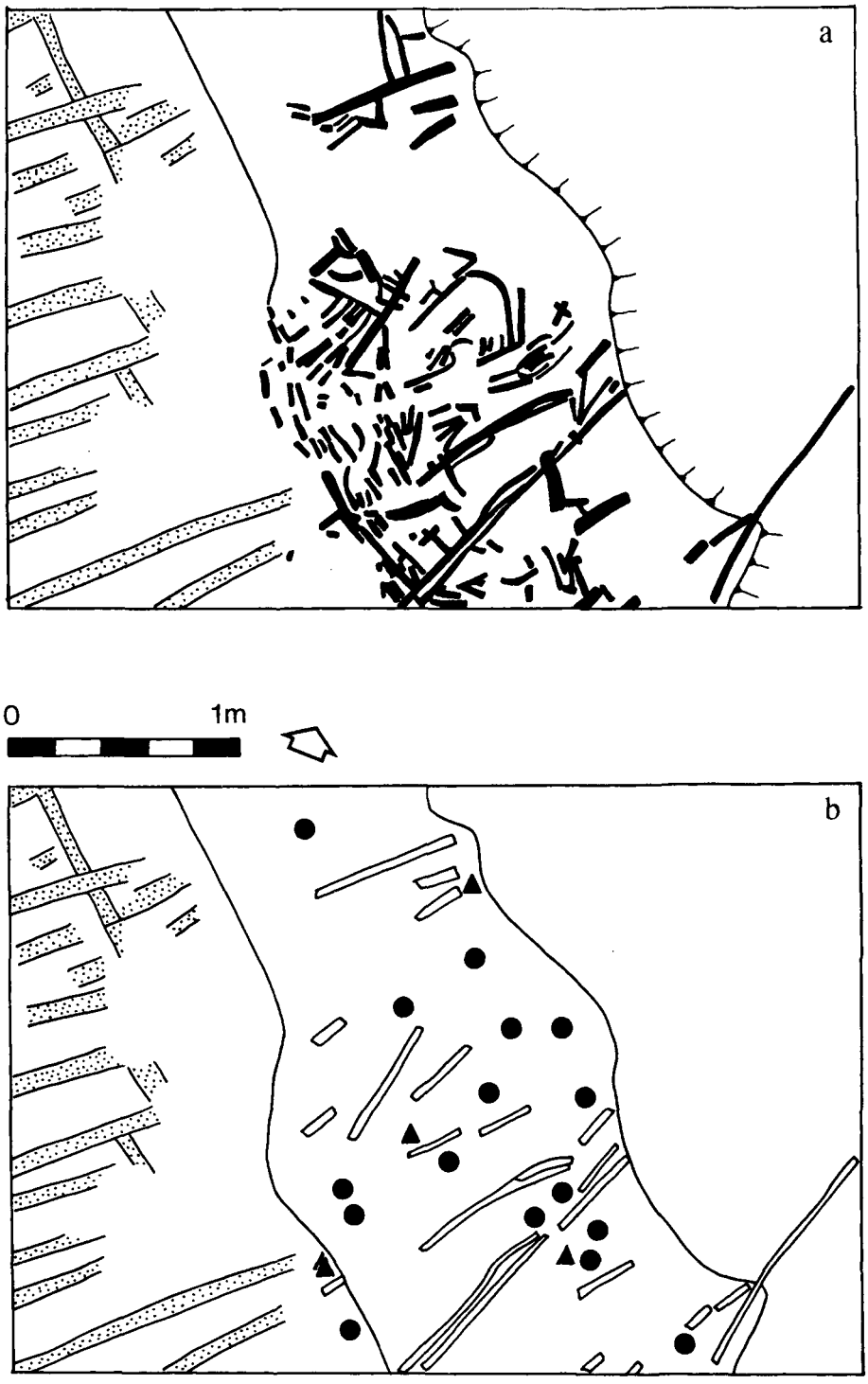
Below the charcoal, mottled sand (24) appeared to represent an earlier cultivation period with a lower series of ardmarks cutting through it, into the top of the underlying sand (25). This lower cultivation was observed clearly only in Cuts 1 and 4 and less clearly in Cut 5.



ILLUS 4 (a) north and (b) west sections through Cut 5 showing periods of dune formation (6, 17), level of burnt wood and charcoal (18), ardmarks (19) and periods of cultivation (23, 24)

THE ARDMARKS

Both the earlier and later series of ardmarks ran approximately NW/SE and NE/SW (illus 3), ie at right angles to each other. Where the marks crossed one another, it appeared that the NW/SE lines were later as they disrupted the line of the more common NE/SW marks. The marks were observed as slightly greyer lines in yellow sand. In most cases the upper series of marks were clearer as they contained charcoal. In Cut 5 (illus 5, 6), this charcoal clearly derived from the wooden structure and



ILLUS 5 (a) Detail of Cut 5 showing ardmarks (stippled) and hurdling (black); (b) Cut 5 showing relationship of flints (circles) and pottery (triangles) to ardmarks and hurdling (main members outlined)

ILLUS 6 Cut 5 showing cultivation traces and hurdle, from west

this is probably true of the other cuts. Where the marks were sufficiently clear to examine in detail, they appeared to be c 70 mm wide, although this represents the width of the cut into the underlying layer and may not indicate the full width of the implement used. The marks, generally, were roughly U-shaped in section, with a rounded base. The depth of the marks (cut into the underlying sand and, therefore, not necessarily the full original depth) was 60–70 mm. In general, it was not possible to tell if there was an inclination to one side or the other, but in the west section of Cut 5 (illus 4b) ardmarks 2 and 5 perhaps inclined slightly to the north at the base, whereas 3 possibly inclined to the south at the base. The spacing of the (observable) marks was irregular; in Cut 5 their centres were between 100 and 300 mm apart, with slight alterations of alignment, suggesting a simple ard.

The total extent of the ardmarks excavated (illus 3) covered an area of c 20 m (N–S) by 15 m (E–W), but the full extent of the cultivated area was not revealed. The excavation, however, does appear to have cut along one edge of the field, bordered in the earlier phase by the wooden structure suggesting its likely interpretation as a fence (18). No ardmarks were found east of the line of the 'fence' in either cultivation period. If this line was extended to the south-east, it would have passed between Cuts 1 and 3; it is notable that, whereas Cut 1, to the west of this line, revealed two phases of cultivation, Cut 3, to the east, had no ardmarks at all. It is reasonable, therefore, to suggest that the field edge extended south-east from the fence. This line coincides with the sloping edge, not only of the later dune (17) but also of the earlier dune (25).

To summarize, it would appear that the cultivation extended along the landward edge of the dune slope, but did not extend down the seaward side of the slope.

THE BURNT WOODEN FEATURE

The charcoal and associated material (18) appeared to represent the remains of a burnt hurdle lying horizontally. Parts were disturbed, but in several sections the original structure was visible (illus 5a, 7). There was one series of wooden pieces/lengths (A) lying NE/SW and a second series (B) lying at right angles to them. Both were of round-sectioned branch material but the A series appeared to be generally thicker in diameter (up to 40–75 mm) while the B series were thinner (average 10–15 mm). The B series lay under and over the A series. It is reasonable to interpret this as a wattle construction, with the A series forming the contructional uprights and the B series the horizontals. The A series were 300–400 mm apart and, where observable, they tapered with the thick ends lying to the east, suggesting that this had been the original base of the hurdle when constructed. Identification of the charcoal (Crone, in fiche 1:E2) showed that rowan, willow and hazel had all been used for the verticals and hazel for the horizontals.

It is probable that all these trees were available on the landward fringe of the site as hazel was identified in the pollen record (Coles, in fiche 1:B2–D12) and both the willow and hazel in the botanical analysis (Boardman, in fiche 1: D13–E1). The original hurdle height would appear to have been 1.21–1.25 m and some 2.5 m of the length was excavated.

A charcoal sample of one of the verticals (*salix* sp) was sent to the Scottish Universities Research & Reactor Centre at East Kilbride for dating; a date of 1180±50 BC uncal (GU-2719. δ^{13} C=27.8‰α) was provided.

ILLUS 7 Detail of hurdle, from north

As this length of hurdling bordered the field, it is possible to interpret it as a collapsed, burnt, wattle fence. However, in the absence of vertical stumps remaining *in situ*, or of observed postholes, it is worth while examining the possibility that this was a trackway rather than a fence. In favour of this interpretation is the scatter of artefacts in or directly over the hurdle (illus 5b). If these derived simply from midden manuring it appears strange that no artefacts were found in relation to any of the other areas of cultivation. There would appear to have been little obvious need for a pathway along the dune edge, unless it acted as some form of early duck-boarding to limit erosion; a fence might have reduced wind erosion of the crop. Whatever the case, the hurdling does appear to have formed a boundary along the seaward side of the cultivation.

THE ENVIRONMENT OF THE FIELD

The botanical evidence from the upper cultivated soil (19) (Boardman, fiche 1: D13–E1) suggests a period of damp, predominantly open, conditions, but with shrubs or trees such as willow or hazel growing nearby. Although there were no cereal grains or other obvious cultigens, the herb seeds, such as knotgrasses and dock, could have been derived from in and around cultivated fields. Equally possible is that they arrived via grassy material collected as animal fodder, or as a result of any number of 'accidents'. A mixture of origins seems most likely and this picture is supported by the hazelnut-shells which probably constitute food refuse, possibly harvested systematically (cf Moffet *et al* 1990).

The palynological analysis of the palaeosol (Coles, fiche 1: B2–D3), supported by thin-section analysis (Coles, fiche 1: D4–12) of samples drawn from the section covering both upper and lower cultivation episodes (illus 10), suggests an initial period of open grassland conditions, resembling modern grazed machair, followed by a period of arable agriculture with evidence for cereal cultivation. Low frequencies of tree pollens, especially pine and birch, imply that trees were growing not at the site but were possibly present along the inland edges of the machair. The later partial clearance of this open woodland is hinted at by the reduction in the frequency of birch and heaths.

The agricultural phase associated with the creation of the ardmarks and the burning of the wattle fence was followed by the deposition of the overlying context (23). This context has a similar pollen assemblage but with some evidence for more unstable soil conditions, possibly reflecting continuing agricultural activity. Later sands overlying both contexts record a similar picture of machair grassland, with evidence for the rapid accretion of blown sand in response to poor vegetation cover. The upper assemblage is marked by the occurrence of several aquatic and marginal aquatic taxa indicating the local presence of standing water or dune marsh.

THE SMALL FINDS

The small finds consisted of a scatter of pottery and flint (illus 5b) within the soil (18) in and overlying what has been interpreted as burnt hurdling.

THE POTTERY

Some eight sherds were found as part of the scatter. Two basic fabrics are represented, in the main unabraded. One is thin (c 7 mm thick) and comparatively well fired. It has a buff-pink outer surface and a dark grey-brown inner one and contains small granitic inclusions (Nigel Trewin pers comm; fiche 1: E4). One sherd (illus 8a) has a possible cordon or very deep rilling. The second

fabric is much thicker (c 15 mm), poorly fired and very crumbly (illus 8b). It is dark brown throughout with larger granitic inclusions and very little surviving internal or external surface.

No reconstruction of the vessel forms was possible.

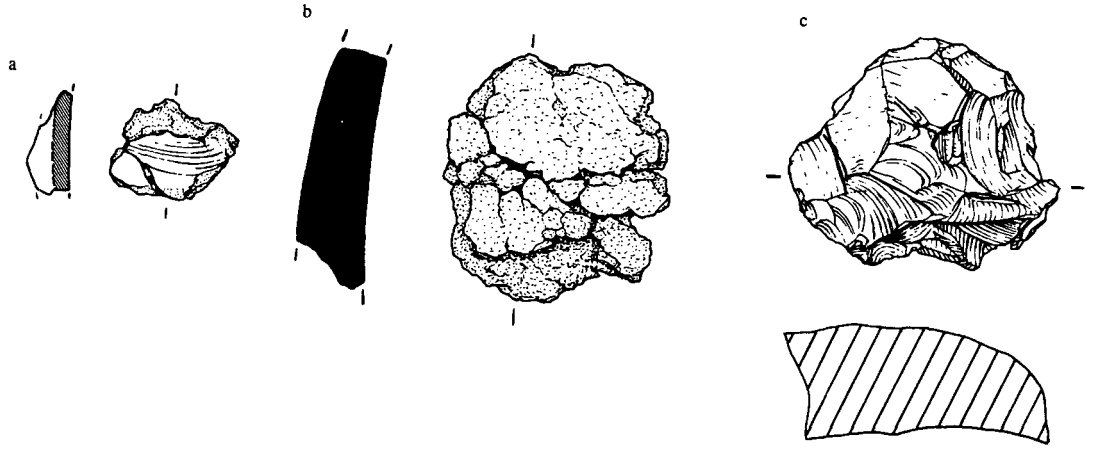
Both fabrics are consistent with the (notoriously heterogeneous) range of pottery bracketed under the heading of flat-rimmed ware whose *floruit* was the later second millennium BC (Hedges 1975, 68–70, 92–3), with the possibility of an even longer currency (Coles & Taylor 1970, 97). The radiocarbon date for this site would suggest a position towards the later end of this range.

The Rattray pottery is very similar to the material deriving from a midden associated with ardmarks underlying kerb cairns at the Sands of Forvie, Aberdeenshire (Ralston 1980) and from one of the two midden layers on the Culbin Sands, Moray, excavated by Coles and Taylor (1969, 94, fig 4). Pottery of this type was also incorporated in the lowest levels of the Sculptor's Cave, Covesea, Moray (Shepherd & Shepherd 1979).

THE FLINT

The flint scatter comprised 20 pieces. The flint is of varied colour and quality, the range being consistent with a local source available from beach pebbles or the deposits at nearby Boddam. The pieces represent mostly small flakes, chips and chunks consistent with the débitage of tool manufacture. Apart from one example, a possible core (illus 8c), they do not demonstrate any evidence of secondary working or utilization. A significant proportion of the pieces has been affected by fire; this would appear to relate to the post-depositional burning of the area of the hurdle rather than to any part of the manufacturing process.

No piece is entirely diagnostic but all can sit quite happily in the late second-millennium context indicated by the radiocarbon date for the site. The very small number of pieces would be consistent with only a short episode of working in the immediate area. A similar range of flint material from within the later, medieval, levels at Rattray is further evidence of a prehistoric focus nearby.



ILLUS 8 Flint and pottery from the area of the hurdling: (a) SF 936; (b) SF 938; (c) SF 765; scale: (a & b) 1: 2, (c) 1: 1

DISCUSSION

The date of 1180±50 BC uncal from the uprights of the possible wooden fence places the prehistoric activity at this site in the late second millennium. The artefactual scatter, as indicated above, is consonant with such a date. In particular, the pottery has been compared to flat-rimmed ware from three other north-east coastal sites, one also with ardmarks. The dates from Midden 1 at Culbin of 1259±75 BC uncal (Q-990: Coles & Taylor 1970, 90) and from the basal layer 2 ardmarked midden at Sands of Forvie of 1120±140 BC uncal (GU-1827) show an interesting consistency with that from Rattray although the temptation to place too much reliance on single dates must be resisted.

The discovery of ardmarks on the most easterly point of the Scottish mainland means that evidence for prehistoric cultivation has now been recorded in machairs from Cornwall to Shetland, and from Benbecula to Buchan. In Grampian a number of Bronze-Age settlements exploited the resources of the light, well-drained soils of the coastal plain (illus 1). At Rattray, the cultivation evidence represents the remains of fields which spread presumably along the landward edge of the sloping sand-plain. Similar evidence has recently been recorded on Deeside at Wardend of Durris (Russell-White 1989, 23).

The detailed attributes of the Rattray ardmarks are entirely consistent with discoveries throughout prehistoric Britain. In particular, their spacing and depth can be compared with evidence from several other second-millennium sites (Fowler 1983, 113). The technique of cross-ploughing itself (to prepare the seed-bed) is also typical, being found 30 km to the south of Rattray, at the Sands of Forvie (Ralston 1978) and at Rosinish in Benbecula (Shepherd & Tuckwell 1977, 111), and Gwithian in Cornwall (Megaw *et al* 1961), among several other locations. The slight evidence of asymmetry in the sections of ardmarks in Cut 5 suggests that the stilt of what may be presumed was the bow ard had been angled during its pass, perhaps in an attempt to raise a slight ridge. Clear evidence of such angling of the stilt was seen in beaker-period ardmarks at Rosinish, Benbecula (Shepherd 1976, 214, fig 11.4).

No second-millennium BC ard survives from Britain, but the Milton Loch wooden ardhead and stilt, with a date of 400±100 BC uncal (K-1394: *Tools & Tillage*, 1, 2 (1969), 128) from Kirkcudbrightshire, and, much nearer to Rattray, the (presumably late first-millennium BC?) ard-share, also of wood, from Dundarg, New Aberdour (Rees 1983), provide clear indications of the type of implement likely to have been responsible for the Rattray evidence.

The other important prehistoric discovery at Rattray was the hurdle. Wattle has not been extensively recovered from Scottish prehistoric sites, although its use may have been ubiquitous. The early Bronze-Age round barrow at North Mains, Perthshire, covered evidence of wattle work-divisions (Barclay 1983, 233, fig 41), while the Bronze-Age house excavated by John Barber on the Isle of Arran had a wattle screen lining the walls (Fojut 1983, 69). At the Sculptor's Cave, Covesea, the west entrance passage had evidence of partitioning, possibly with hurdle screens, during the late Bronze Age (Shepherd & Shepherd 1979), while the Celtic wooden figure from Ballachulish, Inverness-shire, 'may have been found in some sort of structure with wattled walls' (Piggott & Allen 1970, no 83).

However, the closest parallel to the Rattray hurdle comes from Somerset in the form of the early Bronze-Age Eclipse track on Meare Heath (Coles *et al* 1982, 29, figs 26–9). The spacing of the verticals ('sails'), at 300–350 mm apart, was similar, as was the placing of the thicker ends consistently to one side, which suggests that this side had been woven first (*ibid*, 29). Rattray, however, does not show the projection of the sails beyond the edges of the outermost rods, an unusual practice which may have been related to the boggy location of the Eclipse track.

Some further corroboration of the tentative suggestion, made above, that the Rattray feature was a track rather than a fence, comes from comparison with early Irish fences, as described in law tracts written down in the later seventh century AD but relating to much earlier practices. The *nochtail* or *felmad* post-and-wattle fence had the paling posts set much closer (200–225 mm) than the Rattray or Eclipse sails, while the overall height of the structure (c 2 m) was greater (O Corráin 1983, 247–8).

The final question which must be considered is why was the hurdle burnt? Was it a casualty of an early version of weed- or stubble-burning as possibly demonstrated by evidence of burning on the field area of the earlier Bronze Age site at Rosinish, Benbecula? This and further explanations must remain for future speculation.

ACKNOWLEDGEMENTS

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DISPOSAL OF OBJECTS AND ARCHIVE

The finds and a copy of the archive have been lodged with Aberdeen Art Gallery and Museums; an additional copy of the archive has been deposited in NMRS.

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