

Brotchie's Steading, Dunnet, Caithness: a 19th-century croft house and earlier settlement mound

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ABSTRACT

Brotchie's steading is a ruined croft house that is of particular interest because several large fragments of worked whale mandible were recently recovered from one of the rooms. These were identified as having supported the roof of the building as a pair of cruck blades (a Highland couple).

The excavation programme was initially designed to further examine the role of whale bones as a construction material within the context of the Caithness croft house. Excavations in 2001 revealed a further element of in situ whale bone that enabled an informed reconstruction of the original structure. The investigations on site also identified at least 1.5m of stratigraphy exposed in the bank to the west of the site, indicating at least four phases of building beneath the ruined croft house.

Subsequent trial trenching determined that the bank upon which Brotchie's steading now sits is largely man-made and part of an extensive settlement mound. The base of the sequence, in the southern part of the site, revealed what appears to have been an occupation surface, and material from this provided a date in the range 390–170 BC. At the north end of the site a thick layer of stone rubble associated with a clay- and stone-lined pit and two red deer antler picks was identified. Radiocarbon determination of samples of antler and cow bone indicate further occupation of the site in the first–third centuries AD. The overlying strata supported by a sequence of radiocarbon dates and finds indicate that the site was also a focus of human activity in the fifth, 13th and 15th centuries AD up until the early 20th century. While the full extent of the site is currently unknown, the possibility presents itself that the adjacent knoll, upon which Dunnet Kirk now sits, forms a part of a major archaeological site that has seen almost continuous, or at least regular, occupation for over two millennia.

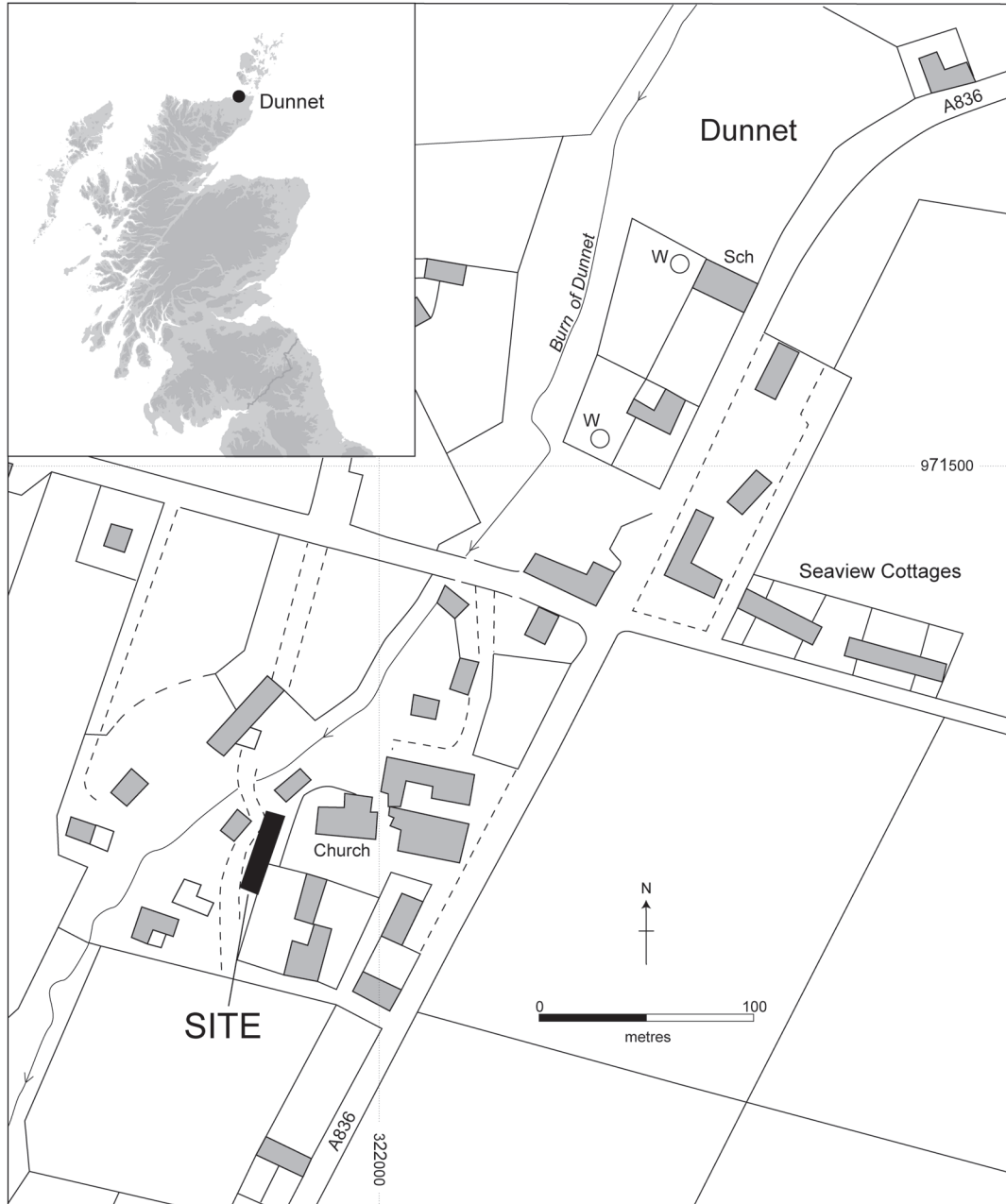
INTRODUCTION

Brotchie's steading comprises a ruined croft house at Kirkstyle, Dunnet – grid ref ND 2195 7115 (illus 1). It is situated on a break of slope adjacent to the west wall of Dunnet kirkyard (illus 2 & 3). The platform on which it now

stands drops away to the west but the steepness of this has been accentuated in recent years following the construction of a bungalow down the slope and landscaping for the drive and gardens.

The ruinous building stood no more than 1m height at any point and until recently several

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ILLUS 1 Location map

large fragments of worked whale jawbone could be seen lying in the north room. These were identified as cruck blades (sometimes called

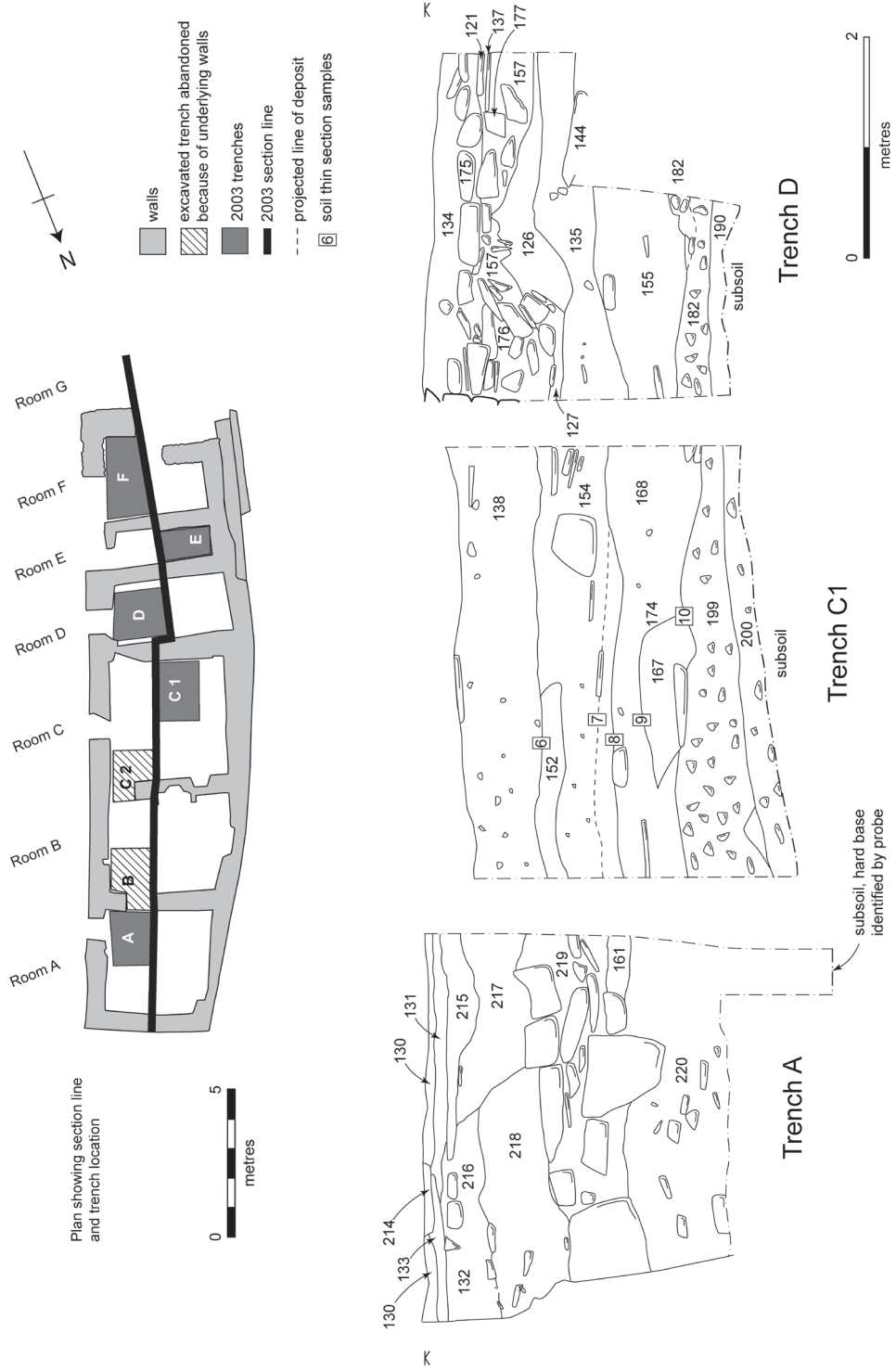
a Highland couple) and would have supported the roof of the building. They were donated by the present owner to the Dunnet Bay Visitor



ILLUS 2 The site from the north-east



ILLUS 3 The site from the south-west, showing its location on the break of slope and the masonry exposed within the slope



ILLUS 4 Location of test trenches and sections along Trenches A, C and D

Centre, and Dr Bruce Walker brought the blades to the attention of Headland Archaeology. At the time of writing (March 2006), they are still on display.

Although occasionally referred to in the literature, few houses with whale bone elements have been recorded in detail. Therefore, an excavation in 2001 was designed in order to further examine the role of whale bones as a construction material within the context of Caithness croft house-building traditions. That excavation uncovered the most recent archaeological levels in plan, but the cleaning of an exposed section of walling within the slope, to the west of the building, indicated at least 1.5m of intact stratigraphy and several phases of building beneath the exposed footings.

A second season of excavation in 2003 aimed to further investigate the origins of the croft house by establishing the depth of surviving archaeological deposits, the extent of the occupation on site and by providing a better chronological framework for the identified structures. In that year, the overburden at the south end of the site was removed and the excavations were extended 15m beyond the 2001 limit. The newly exposed area was cleaned down to the first archaeologically significant layers, in keeping with the strategy employed in the previous excavation.

A line was drawn along the full length of the building, approximately bisecting it. The intention was to produce, as far as practically possible, a running section along that line by means of a series of trenches excavated in each room, A–F (illus 4–5). However, in Rooms B and C, initial trenches were quickly abandoned when they encountered the remains of substantial stone walls (as yet undated), measuring *c* 1m wide. Trenches elsewhere in Room C and trenches in Rooms D and F were excavated down to natural subsoil, while those in Rooms A and E were taken down as far as was possible within the limits of safe working.

A portion of the slope to the west of the building, adjacent to Room B, was cleared in

order to investigate further the exposed structural remains.

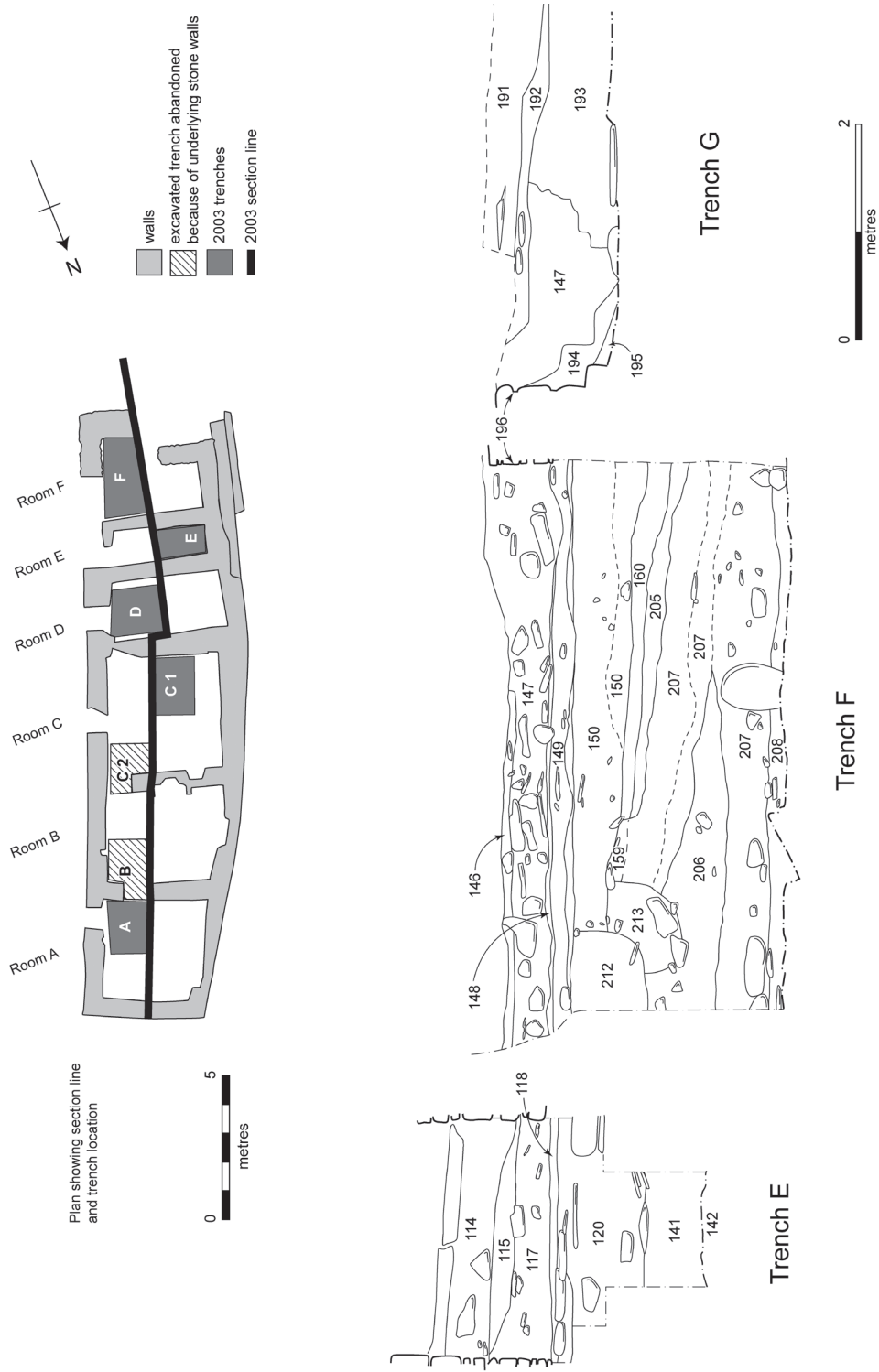
HISTORICAL BACKGROUND

The site occupies a sheltered location between a burn and the parish church, of undoubtedly pre-Reformation origins (RCAHMS 1911; Hay 1957). This would have been an obvious location for pre-19th century settlement. The croft house is one of several located on both sides of the burn on the OS map of 1873.

The site itself is named after the last occupant, Harry Brochie, a seaman, and it is thought to have been in his family for at least two generations. Although used as a steading (including a byre) within living memory, it clearly had been a dwelling house as fireplaces survive in two of the rooms. At least two photographs from the late 19th to the early 20th century show a thatched building with gabled end walls, windows in the west wall of the two most northerly rooms and a chimney between these. The thatch appears to have been of cereal straw, rush or marram. In the second half of the 20th century the building fell into ruin; since then it has been periodically used as a dump. Prior to excavation it was covered with a thick vegetation and its structure was largely obscured.

Local tradition has it that the remains of a broch survive to the north of Brochie's steading. The origin of this theory appears to be the investigations of the antiquarian Sir Francis Tress-Barry who, with his excavations director, John Nicolson, is said to have excavated no fewer than 15 local brochs in the late 19th century. The following extract from Nicolson's papers leaves us with little doubt that there are significant prehistoric remains in the area (Aucam Doc 32, 1903):

As you are aware, the Kirk of Dunnet is built on the site of an ancient broch on the east side of the Burn of Dunnet which runs through a small valley or 'gill'. On both banks are clustered a few thatched cottages, forming what is called



ILLUS 5 Location of test trenches and sections along Trenches E, F and G

Kirkstyle. In one of these cottages there lived at one time a ploughman on the hotel farm. In order to make a path between this house and the farm steading he set about levelling down the brae of the barn and in doing this he had to cut through some ancient buildings close to the wall of the churchyard. These I presume formed the outer wall of the broch. Here he found deer's horns, human bones and the flint pivot.

Other archaeological sites in the vicinity include a possible Norse settlement at Marymas Green (Humphreys 1997) several hundred yards to the north and a late Norse midden within the dunes to the north (Myatt 1992). Both of these sites have revealed finds specific to Norse activity in the area and, in the case of Marymas Green, grass-tempered pot sherds recovered could be comparable with those from the current excavations. Together with Broachie's Steading, these point towards a significant Norse settlement in the area.

IRON AGE DEPOSITS

In contrast to the flat platform the croft house currently sits on, the original ground surface slopes gently downwards to the north and west. Directly over the natural till and apparently

covering most of the site was a layer of sandy silt (Contexts 190, 200, 208, 220) containing ash bone, charcoal and fragments of grass-tempered pottery. The earliest date obtained was from the south end of the site (Room F) where a fragment of sheep bone provided a date of 390–170 BC (GU-13059).

Deeper deposits of essentially similar dark, organic sediments in the north part of the site (Room A) also produced two red deer antler tools, possibly picks or ards, that showed wear patterns from use. A fragment of one of these antlers gave a date of AD 20–230 (GU-13062) and a fragment of cow bone AD 60–250 (GU-13060).

Overlying the basal deposits in the north half of the site (Contexts 182, 199, 219) was a much deeper deposit containing numerous large flagstones and boulders within a dark silty matrix. This was interpreted as a demolition layer or area of collapse, in amongst which was a stone and clay-lined pit *c* 0.7m wide and 0.5m deep. In the southern trenches (Rooms C–F) the stone inclusions became smaller and more reminiscent of a levelling layer or rough cobbled surface. No significant artefacts were recovered from this layer. However, the layer itself appears to have formed a surface, spanning most of the site, upon which large quantities of organic-rich sediment accumulated.

TABLE 1
Radiocarbon dates

<i>SUERC no.</i>	<i>GU no.</i>	<i>Context</i>	<i>Material</i>	<i>Uncalibrated</i>	<i>Calibrated 2σ</i>
SUERC-6706	GU-13055	205	Barley grain	1155 ± 40 BP	AD 770–980
SUERC-6710	GU-13056	150	Barley grain	710 ± 40 BP	AD 1220–1390
SUERC-6711	GU-13057	167	Barley grain	1520 ± 40 BP	AD 420–620
SUERC-6712	GU-13058	169	Barley grain	1180 ± 40 BP	AD 710–980
SUERC-6713	GU-13059	208	Sheep bone	2205 ± 40 BP	390–170 BC
SUERC-6714	GU-13060	220	Cow bone	1855 ± 40 BP	AD 60–250
SUERC-6715	GU-13061	208	Barley grain	1430 ± 40 BP	AD 550–670
SUERC-6716	GU-13062	220	Red deer antler	1890 ± 40 BP	AD 20–230

DEEP HUMIC SEDIMENTS SPANNING THE FIFTH TO THE 15TH CENTURIES AD

A series of organic-rich sediments began to accumulate across the whole site, reaching up to 0.9m in depth, before the first real evidence for stone structures emerges. The deposits formed showed visible laminae in places but soil thin section analysis indicates that they were, on the whole, very homogeneous (Lancaster 2006). This suggests a high level of biological activity, primarily through earthworms, except where this has been inhibited by the presence of concentrations of fire ash in hearths. The low proportion of mineral material, primarily wind-blown sand, in this horizon is somewhat surprising but this is probably masked by the large quantities of organic material present.

Within the organic-rich sediments below Room C a hearth (Context 167), characterised by numerous thin laminae of ash within a shallow scoop, was identified. Its presence would tend to suggest that this area was located within a building (at some point) for which we now have no structural evidence. The presence of occasional flax seeds and numerous charred cereal grains in and around this hints of small-scale corn drying or food preparation and reinforces the possibility that this was a domestic hearth. The ash could have accumulated quite quickly, with each lamina representing a single day's fire. If this is the case then the current ash layers represent only the final few day's use of a building before its abandonment.

The soil thin section analysis undertaken by Lancaster (2006) suggests that the organic-rich sediment over and around the buildings is dominated by the reworked remains of turf. The deep humic sediments clearly accumulated over many years, as demonstrated by the following dates:

- A hearth in Trench C (Context 167): AD 420–620 (GU-13057)
- A gully (Context 169), cutting Context 167: AD 710–980 (GU-13058)

- A layer (Context 205) mid-way up the profile: AD 770–980 (GU-13055).
- A layer (Context 150) in the upper profile: AD 1220–1390 (GU-13056)

Context 150 also contained large quantities of medieval redware thought to be indicative of the 13th–15th centuries AD.

The accumulation of organic sediments therefore potentially spans the period between the fifth and the 15th centuries AD. During this time we have only a vague notion about what was happening on the site.

THE LATER MEDIEVAL STRUCTURES AND POST-MEDIEVAL CROFT HOUSE

The main emphasis of the initial excavations was on the croft house, and these investigations revealed that this had undergone numerous modifications during its lifetime. It also became clear that a full understanding of how the building developed would require a more thorough area excavation than the one presented here.

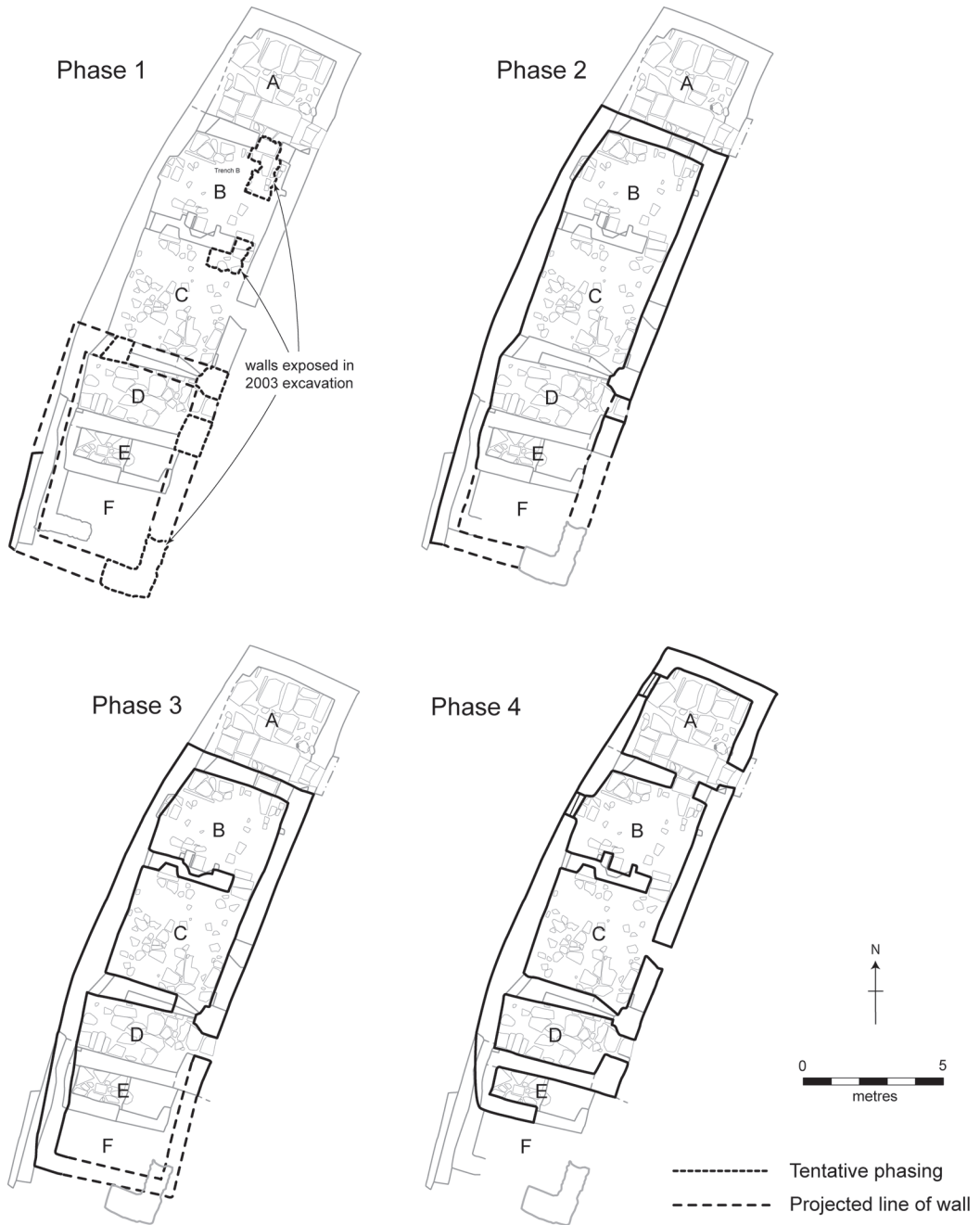
Within the croft house, the entire internal floor surface was exposed, revealing flagstones which had been layered in some areas in order to level the floor surface. The stones used in the north room were thick, sub-rectangular flags, moving to more random and sparsely set flagstones towards the centre of the range and finally giving way to crude cobbles in the animal sheds at the south end.

The excavated sediments comprised dumped material up to 0.75m deep, including agricultural fencing material and other scrap metal, bicycles, a cart-wheel hub, numerous glass beer bottles, jars, broken ceramics and other domestic items. A hoard of leather shoes was found in the hearth of Room B, together with an iron crook and links for hanging cooking pots from the chimney.

All the masonry walls of the current croft house lie directly on a deep series of humic sediments identified at the south end by Contexts 150, 120 and 135 and at the north by 217 and 218.

Cereal grain from Context 150 has been directly dated and provides a *terminus post quem* of AD 1220–1390 (GU-13056) for the walls at the south

end of the site. Context 150 also produced 16 sherds of medieval redware, which is generally thought to date from the 13th–15th centuries AD,



ILLUS 6 The four main phases of the croft house

providing a second line of evidence for their late medieval or post-medieval origin.

The phasing of the building was undertaken primarily from the upstanding masonry but the use of clay-mortared and dry-stone random rubble masonry throughout and the gradual slumping of the west wall down the adjacent slope has hidden or destroyed many important relationships. The following phases (illus 6) are proposed:

Building Phase 1 – Some time after the deposition of the layers dated to the 13th–15th century, the first stone structures were constructed directly onto the underlying organic-rich sediments. The earliest structure is thought to incorporate three stacks of masonry in the upstanding north and east walls of Room D. These are constructed of rounded rubble and are more substantial than the surrounding masonry. Their character is very similar to the excavated foundations between Rooms F and G and the exposed masonry in the bank to the west (illus 3). Together, these wall elements and an intervening rammed clay surface (Contexts 118 and 148) appear to form part of a late medieval rectangular building measuring 8m × 5m.

Somewhat to the north, excavation revealed the returns of two additional walls underneath Rooms B and C. These potentially identify a second building, smaller (5.4m wide but of unknown length) and possibly contemporary.

Building Phase 2 – The second phase of the building is more clearly understood and comprises a single long range probably covering the area presently occupied by Rooms B–F. It was constructed on what we now know to be an artificial slope running downhill from north to south. It is unclear whether any of the current internal partition walls were present at that time but, if typical of early croft-houses, a byre at the bottom of the slope and the living end at the top might be suggested.

Building Phase 3 – Following Phase 2, quantities of sediment accumulated, or were dumped, across areas of the site. This was probably a deliberate attempt to level the site before the laying of a rammed clay floor between the south wall of Room F and the north wall of room E (Contexts 115 and 146).

At about this time most of the current internal partition walls were added, dividing up the building into its various rooms: the kitchen – Room B; the bedroom – Room C; the byre – Room D, possibly with further outbuildings to the south. The kitchen (Room B) can be identified by the large open fire with dressed stone surround in the south wall. The fireback had been lined with bricks at some point. An ash pit or lazy-hole was located between two large, dressed stone blocks that held the fire grate. The grate, made from lengths of cartwheel tyre riveted together, was found dumped in Room A.

The bedroom (Room C) also had a fireplace and shared a common flue with that from the kitchen (Room B). This fireplace was, however, much smaller and closer to the corner of the room. A fragment of a cast-iron fire surround was encountered in this room and, together with a second grate made from cart tyres, probably belonged to this hearth.

Building Phase 4 – The walls of the north end of the present range appear less well-built than the core of the building and as a result have suffered significant collapse. This gives the impression that Room A was an addition to the earlier range, or that a significant rebuild was undertaken. Two windows of similar style were constructed: one through the western wall of Room A, and one through the pre-existing western wall of Room B. A doorway connecting Rooms A and B was created, and the wall between the two was partially rebuilt.

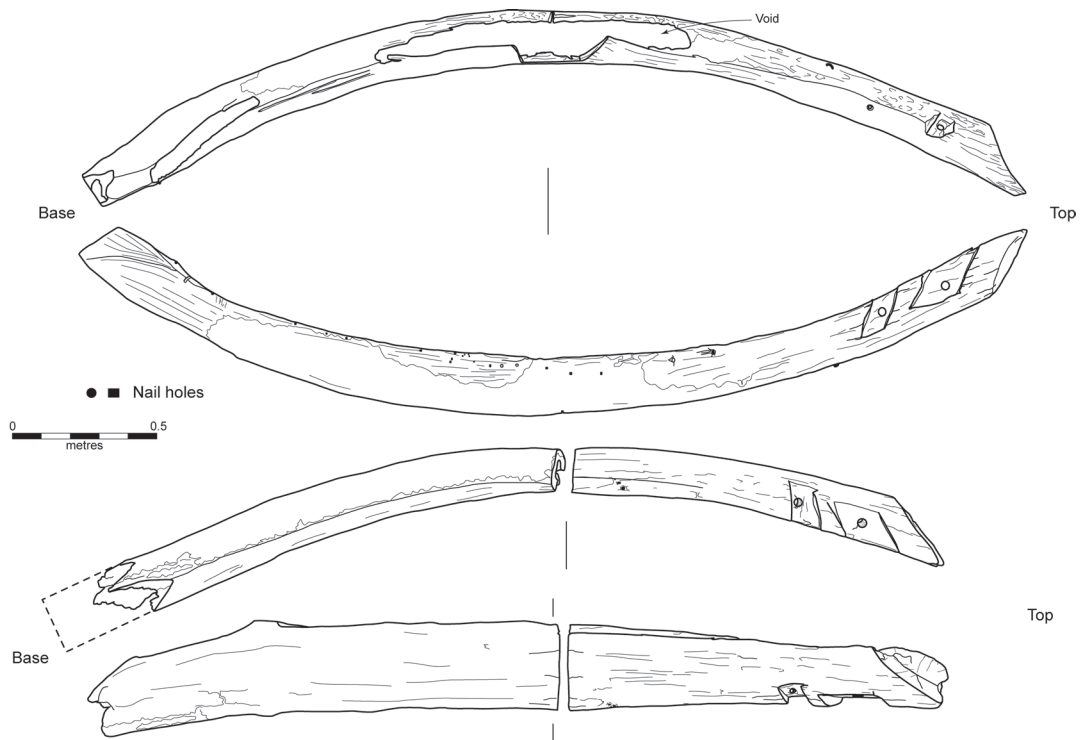
Room A incorporated a cruck made of whale jawbones. The jawbones were seated

in two sockets, one on either side of the room. Several fragments, the largest of which was approximately 0.4m long, were recovered from the eastern slot. The sockets were located at floor level, 0.3m in diameter with a single flattened cobble at the base cutting into the wall. This indicates that the whale bones were also partially set within the wall.

In 1873 the First Edition OS map shows a building that is approximately 20m long, suggesting that these modifications had already been undertaken. A surviving photograph from approximately 1900 seems to show a lean-to at the south end of the building, so it is probably at about this time that the southern room (Room F) was abandoned and replaced with a less substantial structure. The doorway between

Rooms C and D was deliberately blocked during this period, finally separating the byre, and the animals, from the humans. It is likely that most of the floor surfaces and the external metalling exposed during the first season relate to this phase.

Building Phase 5 (not illustrated) – This phase saw minor modifications and repairs to the building relating to its abandonment as a dwelling and its re-use as a steading/outbuilding/animal house. Various areas of wall were rebuilt in quarried stone, mostly to repair the damage caused by the gradual slippage of the west wall down-slope. The entrance to Room A was crudely narrowed at some point and a rough doorway slapped through the eastern wall into Room C. The lean-to at the southern edge was enlarged.



ILLUS 7 Detailed drawings of the whale bone mandibles used as cruck couple

In the later part of this phase, Room A was reputedly used to house Mr Brochie's pet monkey. A number of the features survive here, including a series of large edge-set slabs in the north-west corner and a small stone-lined pit. Their exact function is unknown.

THE WHALE BONE CRUCK COUPLE

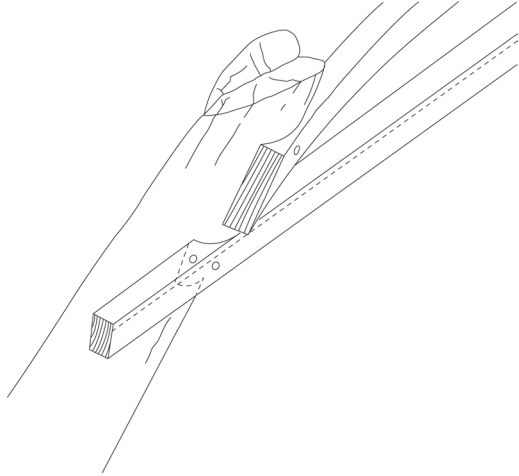
Tim Holden, David Henderson and Bruce Walker

Three large fragments from a pair of matching whale mandibles were identified and removed from the overburden in the north room of the croft house (Room A) prior to Headland Archaeology's involvement on the site. These were housed at the Dunnet Visitor centre and, together with a number of smaller fragments recovered from the excavation, were drawn in detail (illus 7). The bones were generally in good condition although the cortex had, in some places, been eroded. The surface was intermittently pitted with large patches of moss growth that obscured some of the finer detail.

The mandibles were identified as being from a whale of the *Balaenopteridae* family (the rorquals). Due to their size, they are most likely to have come from a Blue whale (*Balaenoptera musculus*) or a Fin whale (*B. physalis*), with a lesser probability that it came from a large Humpback (*Megaptera novaeangliae*) or Sei whale (*B. borealis*).

The largest bone was the complete blade of a cruck couple formed of a single jawbone. Midway along the bone a trapezoidal section of bone had been sawn out, as well as a deep notch adjacent to this. These latter features are thought not to relate to the use of the couple.

The second bone consisted of two large pieces that had been sawn in half. These, together with the fragments recovered during excavation from the eastern of two cruck sockets, formed a second complete blade.



ILLUS 8 Detail showing the detail of the cruck yoke (BW)

Both mandibles had been sawn off at the distal end to bring them to the correct length. Two checks for lapped joints had also been cut into the bone 0.20m and 0.45m respectively from the sawn end. A hole *c* 2.5cm in diameter had been drilled through each of these, presumably to accept a wooden peg or dowel for fixing. These two sawn joints were not at the same angle, either in plan or section, suggesting that there was some complexity in the forming of the yoke (illus 8). If the lower check is treated as a horizontal yoke, parallel with the floor and running across the same plane, the upper checks must form some sort of strut or brace to a king post (crown post). The varying planes of these joints would allow the king post to be fixed to the back of the yoke and be braced on the other side. A king post construction would carry a ridge tree at a height that allowed a constant roof pitch from eaves to ridge over the intermediate purlin (illus 9).

An alternative to the above would be to cross the upper braces, but this would result in a lower ridge and hence a rounded roof form. This would not be consistent with a 19th/20th-century photograph of the roofed building taken from the north. This same arrangement, but with

the ridge supported from the cross brace to the same height as the king post, is another possible but less plausible solution.

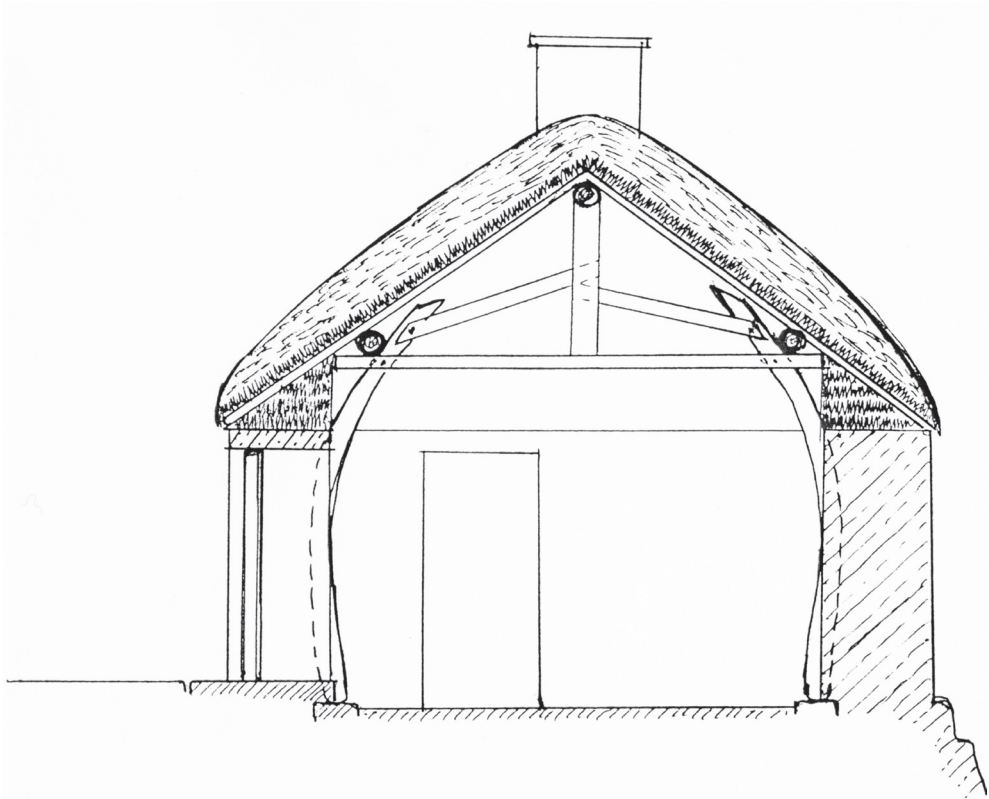
The direct evidence for the substratum to the thatch was not found, but this is likely to have been made up from driftwood, barrel staves, flotsam, old ships' timbers or scrub. The structure this formed could support turves, thatch and simmons roping, although the 19th/20th century photograph seems to suggest chicken wire held down with long, thin pieces of flagstone hooked to the eaves using fence wire round the flagstone.

Along both blades were a series of nail holes. These did not conform to any particular pattern though may have been used to fix a screen of cloth or other lightweight material.

THE USE OF WHALE BONES IN SCOTLAND

Tim Holden

The use of the bones of whales is known from many parts of Scotland both archaeologically and more recently. The vertebrae have, for example, been used as chopping blocks, mallets and ornaments (Redman 1995) but the longer bones, the ribs and mandibles, are most prized for construction purposes in those coastal areas of the north of Scotland and the islands where good timber is rare. Relatively few examples still survive in situ, although a surprising number of ornamental arches formed of whale bones show evidence of cut joints that probably indicate



ILLUS 9 Section through Room A indicating how the cruck couple might have worked (BW)

their use in construction before being erected as follies or curios. At the time of the excavation at Brotchie's Steading, a good example could be seen at the side of the A9 just south of Latheronwheel, Caithness.

The mandibles at Dunnet are from a member of the rorqual family, which includes both the blue and fin whales. The known distribution patterns of these species, particularly before the first quarter of the 20th century, make it impossible to say whether the bones derived from whales washed up on a local beach or, perhaps more likely, from hunted animals. Certainly in the 19th century whale jawbones, which can measure up to 20ft in length, were brought back to land by the whaling fleet; they would be suspended from the masts so that the oil could drain into barrels and the jawbones themselves could also be sold once back in port (*ibid.*).

THE POTTERY

Julie Franklin

GRASS-TEMPERED WARES

There were 56 sherds from hand-formed grass-tempered vessels. The fabric is typically soft-fired, orange buff with a dark grey core, though the surfaces can appear redder or paler buff and are often smoke-blackened. The fabric contains large (1–5mm) mineral inclusions, occasional mica flecks, as well as linear voids, caused by small pieces of vegetable matter which have burnt out during firing. These grass impressions are clearly visible on the surface of the pot, typically about 5mm in length. They appear in varying quantities, almost absent from some, completely covering the surface of others. They are noticeably more common and larger on the handle sherd. Handles, being thicker than the walls of the vessel, are in need of more tempering. The surface of the sherds is lumpy and uneven and there is no particular suggestion of method of construction, such as coil building. The softness and smoke-blackening suggests they

may have been amateurishly fired in the embers of an open fire. Analysis of similar material at Freswick, Caithness, implied that animal dung was kneaded into the clay, though the addition of vegetable matter associated with crop processing could not be ruled out (Gaimster 1995: 137). The small size of voids in the Brotchie's Steading sherds suggests the same.

There is very little evidence for vessel form. The only handle (illus 10b) has a rough semi-circular section, different from the typical medieval strap handle. Some rims are everted, suitable for being suspended over a fire, one appears to be upright (illus 10c). There are two sherds with basal angles. Soot deposits imply that at least some were cooking vessels.

Though the resulting voids in the fabric make the vessel more porous, the addition of dung to clay reduces the risk of cracking during drying and firing, and reduces thermal stress during use for cooking. Unlike mineral tempers, it does this without reducing the clay's plasticity. It makes what was probably already coarse local clay softer and more malleable (Shepard 1956: 25; Batey 1987: 279). To what extent this can be used as a culturally and temporally diagnostic trait therefore remains debatable. Similar wares have been found on a number of sites in the north of Scotland, but few have any kind of secure absolute dating and those that do may be misleading because this type of ware has a long possible lifespan. The following dates are all based on radiocarbon evidence unless otherwise stated.

Early contexts include the broch settlement at Howe, Orkney, where sherds were dated to between the fourth and seventh centuries AD (Ross 1994: 252; Carter 1994: 265). An assemblage from Kirki Geo, Fair Isle, includes similar rim and base forms, though no handles, with a seventh–eighth century date (Carter et al 1995: 469–70), while at Kebister, Shetland, a third-century date is indicated (Dalland & MacSween 1999: 189). Later sites include two nearby Caithness sites, Robert's Haven, John O'Groats, where sherds were associated with

early white gritty ware and two sherds of redware, dated to 1172–1266 (D Hall, unpublished report for James Barrett, University of York; Hall pers comm) and Freswick, just south of John O'Groats, which includes similar basal forms dated to the 11th–13th centuries (Gaimster 1995: 136).

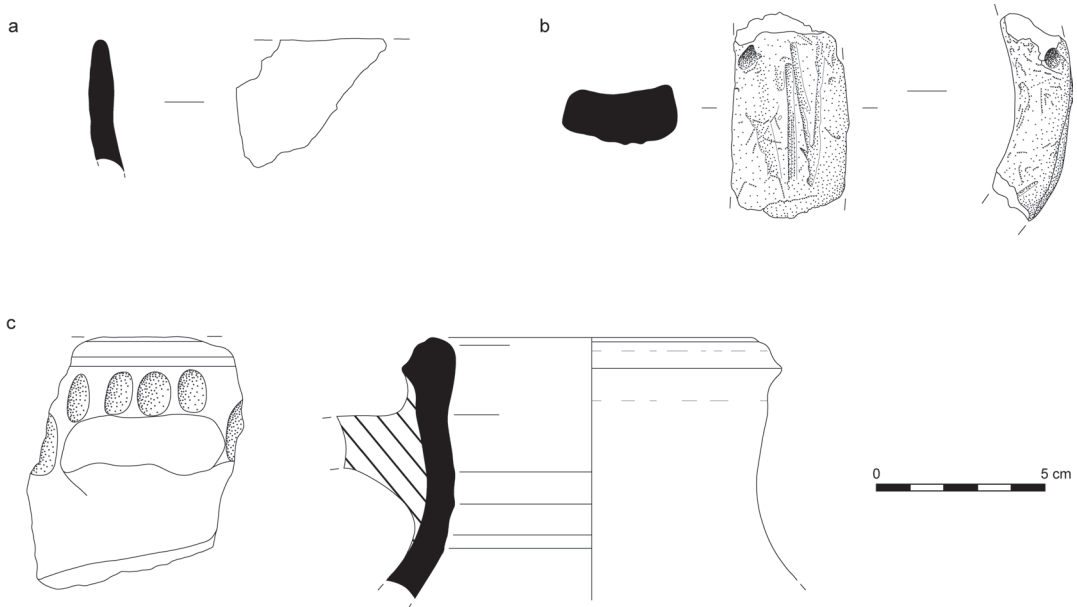
Similar pottery from Jarlshof was also stratigraphically dated to the 12th and 13th centuries (Hamilton 1956: 157) and at Quoygrew, Orkney, was found in association with medieval redwares (Hall pers comm). Meanwhile, there are historical records of hand-made coarsewares or 'craggan wares', produced for the local market in the Western Isles and Hebrides, even into the 20th century (Quail 1979; Holleyman 1947).

In short, but for a possible break during the Norse period, indicated by a lack of ninth and 10th century dates, the grass-tempered coarseware tradition continued essentially unchanged in remote places for 1,000 years or more.

At Brotchie's Steading, the sherds were found in various peaty and silty layers below all the

rooms generally stratified beneath the 13th and 14th century medieval redwares, but there was some conflicting evidence. Below Room A, a grass-tempered rim (illus 10a) is associated with antler tools and a deer bone dated to AD 20–230 (GU-13062), implying an early date. Below Rooms D and F grass-tempered sherds were found in the lowest layer, with radiocarbon dates from these and overlying layers suggesting a date between the fourth and seventh centuries AD, but sherds are also found higher up in the sequence, associated with medieval and occasionally modern sherds (illus 10b). Below Room B, a sherd of redware was found stratified beneath 32 grass-tempered sherds but here it is thought likely that some of the later deposits contain older material upcast during the construction of the substantial 19th-century stone wall 2–3m east of the find location.

The evidence from Brotchie's Steading can be explained away as mixing and redeposition from early layers, particularly in view of the small size of the assemblage, and piecemeal



ILLUS 10 The pottery: (a) Grass-tempered ware rim. Room A, Context 220; (b) Grass-tempered ware handle. Room F, Context 150; (c) Redware (Group 1) jug rim and handle. Room F, Context 150

nature of the excavations. There is considerable variation in the appearance of the sherds, wall thickness, colour, tempering, but no obvious line to draw between sherds from upper and lower contexts. However, if medieval pottery was associated with grass-tempered wares at Freswick and Robert's Haven, why not also at Brochie's Steading? With the exception of the uppermost deposits, there is no reason why all of the sherds cannot be contemporary with the contexts in which they were found.

HAND-MADE GRITTY WARE

There was only one sherd of this fabric, in a gritty, sand-tempered soft-fired redware. It was found in the same context as both medieval redwares and grass-tempered wares. Similar sherds made up a small proportion of the Freswick assemblage. Some of these were stratified with the Late Norse vegetable-tempered wares, some had earlier prehistoric analogies (Gaimster 1995, 138). Unfortunately, this sherd is too small and abraded for further analysis.

MEDIEVAL REDWARE

The redwares were concentrated in the peaty layer below Rooms C, D and F. They could be subdivided into two groups:

Group 1: This is the most distinctive group, accounting for eight sherds from two or three strap-handled jugs, all from Room F (150) (illus 10c). They are unusually thick-walled, typically 10mm, thicker towards the base, with heavy wheel-riling on the interior of the lower walls. Also unusually, they are completely without glaze, without even the spots or dribbles often seen on unglazed vessels where they have shared a kiln firing with glazed wares. They are typically pale orange (7.5YR 7/6), with the exterior surface varying from orange buff to purplish red. The fabric is extremely gritty, containing frequent quartz grits, with

occasional mica, red haematite and large fragments of pale grey stone (in one case 10mm across). The only decoration is in the form of thumbing, both at the base and the top handle junction.

Group 2: This is a more variable group, comprising 11 body sherds from a minimum of nine vessels, again, probably jugs. These are more typical of medieval redwares. The fabric is finer, though with similar colour and inclusions. Several sherds are patchily glazed in either olive green or yellow, and one vessel has been decorated with a raised fingernailed ridge.

Medieval redwares are found all over north-east Scotland from Perth (MacAskill 1987) to Aberdeen (Murray 1982), Elgin (Hall & Crowley 1998; Crowley 2002), Inverness (MacAskill 1982a) and the Northern Isles (MacAskill 1982b; Crowley & Mills 1999), including at nearby Freswick (Batey et al 1984; Gaimster 1995). When found in the far north, it is generally supposed they have been brought in from farther south. A production site has been excavated at Rattray, Aberdeenshire (Murray & Murray 1993), but it is likely there were many more. The variation in the fabric suggests various sources. The redware industry is generally dated from the 13th to the 15th centuries and the forms and decoration represented here are consistent with that. The Group 1 sherds are sufficiently unusual that a more local source is possible. Cereal grain associated with the Group 1 sherds gave a 13th–14th-century radiocarbon date (GU-13056).

MODERN POTTERY

(with thanks to George Haggarty for dating and comments)

The modern pottery relates to the occupation of the house and spans the period mid/late 18th to early 20th century. These included a Staffordshire white salt-glazed stoneware plate sherd, a blue shell-edged dish rim, transfer- and

sponge-printed sherds, a flower pot rim, brown glazed and slip-lined jars and bowls. The modern sherds were scattered through Rooms D and F, but most came from Room G, the southernmost room of the house. The Room G sherds included several reconstructable vessels from a rubble deposit (Context 193). This may represent a partial collapse on top of the pots, or the pots being discarded in an already derelict area.

It is unremarkable pottery in itself, some is of such low quality it may have been sold as seconds, but it is a potentially tight group in terms of dating. The earliest is a pearlware sugar bowl with blue and brown bands, dating to about 1810 at the latest. A small plain pearlware cup or jar is from about 1825, while a moulded Rockingham-type teapot and a pearlware chamber pot both date to around 1830. There was also a 19th century London-manufactured stoneware jar, marked for a supplier in Gravesend, and several utilitarian brown glazed jars, chamber pots and a lug-handled casserole, all of a type produced over a long period, but which could easily be of similar date. Thus the whole Room G collection could have been dumped in the 1830s or 1840s, which seems to give a date, or at least a *terminus post quem*, for the abandonment of the room.

The assemblage does not seem to be representative of the spectrum of ceramics in use in the house. Though the residents clearly had some 'good china', as evidenced from re-deposited sherds from occasional breakages scattered in deposits around the house, very little was found in this in situ collection. The better of the vessels, such as the sugar bowl, are the oldest, and assuming the dump represents one event, would have been 20 or more years old when abandoned. This seems natural, that the better-quality vessels should be more highly valued and have a longer lifespan. There are no fewer than three different chamber pots, in varying condition, which seems disproportionate in a collection of only nine vessels. Each is different in style and in varying condition, a slip-lined

pot is particularly badly stained and has lost patches of glaze on the interior. They may all have been in simultaneous use, if different members of the household had their own pots, though why they might all have been thrown out together is unclear. It is possible that these were in fact the vessels left behind when the house was finally abandoned in about the 1930s. If this is the case, some would have been over 100 years old at the time. If true, it is quite easy to imagine why these vessels, of all the household goods, should have been left behind. It would also urge a note of extreme caution when using pottery assemblages to determine date and function of deposits and areas.

THE CARBONISED PLANT REMAINS

Mhairi Hastie

Fourteen bulk soil samples were taken for wet-sieving and flotation using 1mm and 250 μ m sieves respectively. The majority of carbonised remains were somewhat abraded, with low numbers of identifiable seeds and grains from most samples (Table 2). The largest concentrations of grain and weed seeds were associated with hearths from below Room C (Contexts 167 & 189).

Almost equal quantities of barley and oat were recovered, but poor preservation did not allow more specific identification in most cases. Nevertheless, occasional grains of hulled barley (*Hordeum vulgare*) were identified from four contexts (Contexts 150, 167, 189 & 205). A single grain of oat (Context 167) retained its adherent hulls, enabling its identification as the black/bristle oat (*Avena strigosa*). Occasional culm node fragments were recovered (Contexts 167, 169 & 205), and small fragments of oat lemma/palea and awns were present in Context 167.

The seeds of flax (*Linum usitatissimum*) were identified from contexts associated with hearths below Room C (Contexts 167, 169 & 189) and one occupation layer in Room F (Context 205).

TABLE 2
Carbonised cereal grain and other plant remains (+ = rare, ++ = occasional, +++ = common and ++++ = abundant) (cont)

Latin name	Plant part	Common name	3rd cent BC-6th cent AD				5th cent AD	9th cent AD	9th cent AD	13th cent AD	Norse/Medieval				
			208 A	220	208 B	208 C					167/174	169/173	205	150	186/144
			F	A	F	F	C	C	F	F	C	D	D	F	F
			Layer	Midden	Layer	Layer	Hearth	Gully	Layer	Peat	Hearth	Possible kiln	Possible kiln	Fill	Layer
<i>Gramineae indet</i> (small)	caryopsis	Grass indet.				4									
<i>Carex</i> spp	achene	sedge				9	2	3		1					
cf <i>Scripus</i> sp	achene	club-rush				1									
Crops						7									
<i>Linum usitatissimum</i> L.	seed	flax				6	1	21		3					
<i>Hordeum vulgare</i>	caryopsis	barley	1	8	4	19	25	9	8	4	1	1	1	1	
cf <i>Hordeum vulgare</i>	caryopsis	barley		1								1			1
<i>Hordeum vulgare</i> (hulled)	caryopsis	hulled barley				3		7	3	1					
<i>Avena indet</i>	caryopsis	oat				38	7	7	4	10	2	5	1		
cf <i>Avena indet</i>	caryopsis	oat				8									
<i>Avena strigosa</i>	caryopsis	black oat				1									
<i>Avena indet</i>	hulls	oat				+									
<i>Avena indet</i>	awn frags	awns				+++									
<i>Cereal indet</i>	caryopsis	indeterminate			1	1									
<i>Cereal/grass indet</i>	culm node	straw				+	+	+	+						

Carbonised ‘weed seeds’ were present in low numbers from most samples taken. The largest concentrations were from a hearth below Room C (Context 167) and occupation deposit in Room F (Context 205). The seeds were primarily those associated with arable land, including corn spurrey (*Spergula arvensis*), chickweed (*Stellaria media*), fat hen (*Chenopodium album*), dock (*Rumex* sp), ribwort (*Plantago lanceolata*) and buttercup (*Ranunculus* sp).

DISCUSSION

The deeper, prehistoric, contexts contained noticeably lower proportions of charred grain than in the more recent deposits. At this depth, the plant remains comprised barley grain with rare weed seeds. The species recovered would be in keeping with a prehistoric date, but the direct dating of a single barley grain from Context 208 indicated a date between AD 550–670 (GU-13061). This is at odds with the date of 90–170 BC (GU-13059) obtained from a fragment of sheep bone from the same layer, so there is therefore a strong possibility that the grain in the earlier layers is intrusive.

The main concentration of cereal grain was from the area around the fifth–seventh-century AD hearth (Context 167) (GU-13057). Barley grain, some of it hulled, oat grain, oat awn fragments and a small number of flax seeds were all recovered from this feature, along with a small assemblage of largely agricultural weeds. The presence of charred grain suggests that it may periodically have been used to dry cereal grain, and it would seem plausible that this hearth and other similar features, yet to be identified, could be the source of much of the grain recovered on the site. Given the evidence for significant invertebrate working of the sediments provided by the soil thin section analysis, all of the plant remains predating the fifth century AD must therefore be considered with caution.

At Brotchie’s Steading both barley and oats were recovered, and these were the main

cultivars in Scotland throughout the medieval period. Oats, however, are much less common in the Iron Age deposits. Those oat grains that have been previously identified from prehistoric sites are generally considered to be weeds of other cereal crops (Boyd 1988). However, sites at Freswick (Huntley 1994), Howe (Dickson & Dickson 2000), Birsay (Bond 1998) and Pool (Bond 1998), suggest that both hulled barley and oat were being cultivated as crops in this area of Scotland from the Pictish/Norse period onwards. At the pre-Norse site of Freswick, equal amounts of hulled barley and common oats (*Avena sativa*) were recovered and elsewhere the common or black/bristle oat had clearly become the dominant cereal by the late Norse period (eg Pool, Sanday; Beachview, Birsay and Earl’s Bu, Orkney (Dickson & Dickson 2000)). This combination continued until the recent past with, for example, the *Statistical Accounts of Scotland* (Jolly 1791–9) describing bear (barley) and black oat as the only cereals grown in the Dunnet area during the 18th–19th centuries. The climate was not suitable for cultivating the more valuable wheat.

Flax seeds (linseed) were recovered from four deposits, the majority from Context 205 (occupation material). Other examples comparable to Brotchie’s Steading include the Late Norse strata at Freswick and from Pool, Sanday, where Bond suggested that the cultivation of flax was introduced to the area by the Vikings (Bond 1998). Flax is typically cultivated in cool, damp climates on well-drained fertile soil and would, in all probability, have been cultivated locally. The *Statistical Accounts of Scotland* for Dunnet Parish (1791–9) record that a number of women were still employed in linen production so it would seem that this activity had a long tradition in the area.

Most of the weed seeds identified are common on nitrogenous rich soils and often found as impurities of cereal and other crops. Chickweed is widespread on moist arable land

and corn spurrey is commonly associated with light sandy soil. Dock, ribwort and buttercup all readily regenerate from the rootstock and were troublesome weeds of agricultural land. The weed seed flora identified would be entirely in keeping with local cultivation.

A SHORT NOTE ON THE FAUNAL REMAINS

David Henderson

A total of 210 items of faunal bone were recovered, both by hand collection and soil-sample sieving, from five contexts. Of these, 153 (72.9%) were non-identifiable fragments and all but four identified items derived from Context 220. Contexts 190 and 219 only produced small fragments of burnt bone. As the paucity of the material precludes any detailed conclusions being drawn from the assemblage, this report will be confined to descriptive comments. A full descriptive record of the assemblage is held in the site archive.

SPECIES PRESENT

The assemblage contained the remains of nine species: cattle, sheep/goat, pig, horse/donkey, dog, red deer, frog, probable domestic fowl and a small fish of the cod family (*Gadoides*). Both the fish- and the bird-bone were represented by a single vertebra. Further evidence of the presence of dog was recorded in the form of seven gnawed cattle bones. The frog bone was recovered from Context 208.

In Context 220, one of the basal deposits dating to the first/third century AD, the most common species was cattle, with 31 items of bone, deriving from all parts of the skeleton (ie both consumption and butchery waste) and from both calves and mature animals; eight bone fragments showed marks of butchery, fine cuts as well as chops made by a heavy blade. Sheep/

goat bones accounted for nine items, from the head and body.

Two bones each of pig, horse and dog were recovered. A horse first phalanx came from a very small animal (GL = 65.9mm, BP = 38.6mm), consistent with a typical native pony of the Iron Age. The dog bones (a fourth metacarpal and a radius fragment) were from large, robust animals. Estimates of the length of the complete radius gave a shoulder height of between 70cm and 75cm.

Hunting of red deer was indicated by the presence of a radius fragment, with a cut-mark, two upper molar teeth and a first phalanx with possible skinning marks on the plantar surface.

THE ANTLER TOOLS

Two substantial antler fragments were recovered from Context 220, both naturally shed. These had been modified to produce tools and a sample submitted for radiocarbon dating produced a date in the range of AD 20–230 (GU-13062). The antler was lightly abraded, but without any marks of gnawing, suggesting it had been collected when fairly fresh, in late winter.

The left antler (maximum length 0.53m) was from a 10 or 12 point stag, with the bez and trez tines sawn off. The 'crown' at the end of the main shaft (the beam) had been cut off with a bevelled edge, which shows polishing from wear. Many indentations and hack-marks were noted on the posterior surface of the beam, near the burr, suggesting use of the antler as a mallet. The brow tine was broken in antiquity, but shows some surface wear towards the tip.

The right antler had come from a younger, six or eight point, stag and has a maximum length of 0.43m. The trez tine and the beam distal to it were broken off in antiquity. Two areas of wear polish were observed on the beam (at the broken end and 0.15m along the shaft) and the brow-tine was worn smooth and had a worn-down tip. In both cases the form suggests conversion of the antlers into picks or ards, with probable hand wear on the shaft of the smaller piece.

DISCUSSION

The project at Brotchie's Steading began with a series of modest objectives very much designed to inform us about the use of whale bone as a construction material in Caithness and the development of this particular building. We now know that the croft house sits on top of an artificial mound on what appears to be the edge of a very old and extensive archaeological site around the kirk at Dunnet. The basic stratigraphy and a sequence of eight radiocarbon dates, backed up by artefact chronologies, certainly indicate periodic, and possibly continuous, occupation from the second–fourth centuries BC up to the first half of the 20th century.

There is good evidence for an Iron Age settlement with later medieval deposits which are probably contemporary with the earliest kirk. Brotchie's Steading therefore potentially falls into a category of site encountered elsewhere in Orkney and Caithness, where there are strong associations between Iron Age settlement mounds and later ecclesiastic sites (see Lowe 1998).

The earliest deposits comprise a shallow topsoil, compacted by the weight of overlying sediments and the gradual leaching out of humic materials. That this horizon lay close to a human settlement is revealed by the presence of handmade grass-tempered coarseware pottery and animal bone that provided a date of 390–170 BC (GU-13059). The exact nature of the human settlement at this stage is unknown but down-slope, on the original ground surface and towards the north end of the croft, deeper sediments began to accumulate. Two antler tools were discarded. Both showed evidence of wear and one had evidently been used as a mallet and the other as a pick or ard. One of these antlers and a fragment of bone from the same deposits provided dates between AD 20 and 250 (GU-13062 and GU-13060), but again no archaeological features that would further illuminate the nature of the human occupation were encountered.

In the north part of the site the Iron Age deposits were sealed by a thick layer of dark humic sediment incorporating, towards its base, a stone- and clay-lined pit. Higher up in the sequence large boulders and fragments of flagstone were the dominant element. The size and concentration of the stone inclusions gradually decreased towards the south and this has been interpreted as a layer of collapsed stonework or demolition debris, grading into a levelling deposit to the south. It seems likely that the focus of settlement, possibly incorporating a substantial stone structure, lies outwith the excavated area some short distance to the north or up-slope to the north-east. This hypothesis is supported by the observations recounted in John Nicolson's papers from 1903 (Aucam Doc 32), where large quantities of building rubble were encountered along with 'deers' horns', human bone, flint and a crucible close to the kirk wall on the east side of the burn. The supposition that Brotchie's Steading lies close to the site of the 'ancient broch' discussed in these papers is therefore not unreasonable.

In the central and southern parts of the site a sequence of organic sediments began to accumulate, reaching a depth of 0.9m below the south room. Radiocarbon dates from these, barley grain in all cases, indicate a date range from the fifth/seventh centuries AD through to the 13th/14th centuries. Grass-tempered pottery was encountered throughout, but in the upper deposits medieval redwares were also recovered. As with the earlier deposits, there were few structural features associated with these layers, but a repeatedly used hearth below Room C is likely to have been located within a building. This hearth is associated with a quantity of burnt grain, suggesting that subsistence-scale corn drying was being undertaken close by.

The analysis of soil thin section slides from these organic-rich layers (Lancaster 2006) concluded that the most likely explanation for their accumulation was that they derived primarily from turf, with minor inclusions of wind-blown sand, ash and charcoal. The

current interpretation is therefore that these deposits represent the bringing of turf to the site for construction purposes, primarily as walling and roofing material. The depth of the deposit is thought to be a reflection of repeated construction, demolition and levelling, followed by many years of re-working of sediments by both human and biological agents.

These organic layers are deep and, as far as we can tell, cover a wide area. In this respect then they resemble the so-called 'farm mounds' that are found on Sanday and North Ronaldsay (Davidson et al 1986) and which have been identified in areas of Norse settlement in the North Atlantic. The composition of these mounds varies somewhat from site to site. At Brotchie's Steading and the sites of Westbrough, Beafield and Tofts on Sanday, turf was the predominant element (Lancaster 2002; Lancaster & Simpson 2003) whereas at St Boniface Church, on Papa Westray, Orkney (Lowe 1998), large quantities of ash were present. Other authors have suggested that byre debris formed a significant part of the accumulated sediment (eg Bertelsen & Lamb 1993). The factors that cause considerable depths of sediment to accumulate on farm mounds are unclear. Certainly, in most traditional agricultural communities in most parts of the world, collapsed building turf, thatching materials, hearth ash and byre debris would all be seen as a valuable source of manure that would, periodically, be taken to the fields for spreading. That this manure was not required or not valued, and was not being taken to the fields around the 'farm mound', seems to be the most important point. The dumping of these materials potentially reflects the same underlying cultural phenomenon, though it would not be surprising to find that the composition of mound sediments varied across individual sites and through time.

THE BUILDINGS

Phases 2–4 proposed for the development of the upstanding masonry of the croft house broadly

agree with the three stages of development suggested by Stell (1982) in his research on the houses of Latheron Parish c 50km south of Dunnet. At Brotchie's Steading, we see fragments of the earlier buildings (Phase 1) incorporated into what appears to be a house-byre dwelling with no evidence of any partitions between the living areas and the assumed byre area down-slope. The following years gradually saw a compartmentalisation of the building into kitchen, room and byre/outbuilding, a pattern that was seen in many parts of Caithness during the 19th and 20th centuries (Stell & Omand 1976). The only substantive point of difference between the development of this site and Stell's basic sequence would be that the bedroom appears to have been adjacent to the byre rather than the kitchen. This pattern is, however, also seen at Mary-Anne's Cottage Museum in Dunnet, perhaps suggesting that by Phase 3 there was, in fact, no permanent doorway between Rooms C and D.

There is no evidence for the date of the earliest stone buildings at the site. It is possible that they are as early as the 14th/15th century AD and, in terms of size and layout, appear to be quite different from the 'longhouse' structure that forms the basis of the later croft house. As for the croft house itself, the glazed pottery and other finds provide evidence of occupation in the late 18th or early 19th centuries through to the late 20th century. Of course, the earliest of these dates could just identify the point where mass-produced crockery was first brought to the site, but the current thinking is that the early croft house is probably associated with this glazed pottery and that the Phase 2 'longhouse' style of building is at least as old as the glazed pottery, and potentially somewhat older.

Phase 4 saw the construction or major rebuild of Room A, which most probably happened in the later part of the 19th century. Phase 5 saw a series of minor modifications primarily concerned with consolidating the deteriorating buildings and it was finally abandoned for human habitation some time in the first half of the 20th century.

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REFERENCES

- Batey, C E, Morris, C D & Rackham, D J 1984 'Freswick Castle, Caithness: report on rescue excavations carried out in 1979', *Glasgow Archaeological Journal* 11 (1984), 83–118.
- Bertelsen, R & Lamb, R 1993 'Settlement Mounds in the North Atlantic', in Batey, C, Jesch, J & Morris, C D (eds) *The Viking Age in Caithness, Orkney and the North Atlantic*. Edinburgh.
- Bond, J M 1998 'Beyond the fringe? Recognising change and adaptation in Pictish and Norse, Orkney', in Mills, C M & Coles, G (eds) *Life on the Edge, Human Settlement and Marginality*, 81–90. Oxford.
- Boyd, W E 1988 'Cereals in Scottish Antiquity', *Circaea* 5 (1988), 101–10.
- Carter, S P 1994 'The Radiocarbon Dates', in B Ballin Smith (ed) *Howe: Four millennia of Orkney prehistory, excavations 1978–82*, 264–6. Edinburgh.
- Carter, S P, McCullagh, R P J & MacSween, A 1995 'The Iron Age in Shetland: excavations at five sites threatened by coastal erosion', *Proc Soc Antiq Scot* 125 (1995), 429–82.
- Crowley, N 2002 'Medieval and Post-Medieval Pottery', in Lewis, J & Pringle, D (eds) *Spynie Palace And The Bishops Of Moray: History, Architecture and Archaeology*, 125–32. Edinburgh.
- Crowley, N & Mills, S 1999 'The Medieval and Post-Medieval Pottery', in Owen, O & Lowe, C (eds) *Kebister: the four-thousand-year-old story of one Shetland township*, 200–6. Edinburgh.
- Dalland, M & MacSween, A 1999 'The Coarse Pottery', in Owen, O & Lowe, C (eds) *Kebister: the four-thousand-year-old story of one Shetland township*, 178–200. Edinburgh.
- Davidson, D A, Lamb, R & Simpson, I A 1986 'The formation of farm mounds on the island of Sanday, Orkney', *Geoarchaeology* 1, 45–66.
- Dickson, C & Dickson, J 2000 *Plants and People in Ancient Scotland*. Gloucestershire.
- Gaimster, D R M 1995 'The Pottery', in Morris, C D, Batey, C E & Rackham, D J (eds) *Freswick Links, Caithness: Excavation and Survey of a Norse settlement*, 136–48. Inverness.
- Hall, D W & Crowley, N 1998 'Pottery', in Hall, D W, MacDonald, A D S, Perry, D R & Terry, J (eds) 'The archaeology of Elgin: excavations on Ladyhill and in the High Street, with an overview of the archaeology of the burgh', *Proc Soc Antiq Scot* 128, 762–804.
- Hamilton, J R C 1956 *Excavations at Jarlshof, Shetland*. Edinburgh.
- Hay, G 1957 *The Architecture of Scottish Post-reformation Churches, 1560–1843*, 50–1. Oxford.
- Holleyman, G A 1947 'Tiree Craggans', *Antiquity* 21, 205–11.
- Jolly, T 1791–99 'Parish of Dunnet', in Sinclair, J (ed) *The Statistical Accounts of Scotland*, Vol 11.
- Humphreys, P D 1996 'Marymas Green, Dunnet (Dunnet Parish) Norse Settlement', *Discovery and Excavation* (1996), 62.
- Huntley, J P 1994 'Some botanical aspects of a Norse economy in northern Scotland', *Botanical Journal of Scotland* 46, 538–41.
- Lancaster, S J 2002 *Invertebrate faunalurbation of archaeological sites: assessing the impact on archaeological stratigraphy*. Unpublished PhD thesis, University of Stirling.
- Lancaster, S J & Simpson, I A 2003 'Assessing and modelling faunalurbation', in Robson Brown, K A (ed) *Proceedings of the Archaeological Sciences Conference, University of Bristol 1999*, 64–85. Oxford: BAR International Series 1111.

- Lancaster, S J 2006 *The thin section soil analysis*. Unpublished technical report on the samples from Brotchie's Steading, Headland Archaeology Ltd.
- Lowe, C 1998 *St Boniface Church, Orkney: Coastal erosion and Archaeological Assessment*. Edinburgh.
- MacAskill, N L 1982a 'Pottery', in Wordsworth, J (ed) 'Excavation of the settlement at 13–21 Castle Street, Inverness, 1979', *Proc Soc Antiq Scot* 112 (1982), 355–68.
- MacAskill, N L 1982b 'The Pottery', in MacGavin, N A 'Excavations in Kirkwall, 1978', *Proc Soc Antiq Scot*, 112 (1982), 405–13.
- MacAskill, N L 1987 'Pottery', in Holdsworth, P (ed) *Excavations in the Medieval Burgh of Perth 1979–81*, 89–120. Edinburgh.
- Murray, J C 1982 'The Pottery', in Murray, J C (ed) *Excavations in the Medieval Burgh of Aberdeen 1973–81*, 116–76. Edinburgh.
- Murray, H K & Murray, J C 1993 'The Pottery'. in 'Excavations at Rattray, Aberdeenshire. A Scottish Deserted Burgh', *Medieval Archaeology* 37 (1993), 148–69.
- Myatt, L J 1992 'Marymas Green, Dunnet (Dunnet parish)', in *Discovery and Excavation* (1992), 40.
- Pollard, T 1995 'Marymas Green, Dunnet (Dunnet Parish) Norse Settlement', in *Discovery and Excavation* (1995), 38.
- Quail, G 1979 'Craggan ware', in *Scot Pottery Soc News* 4 (1979), 39–46.
- RCAHMS 1911 *Caithness* No. 61, 21–2. London.
- Redman, N 1995 'Whalebones in Orkney' in *The Orkney View* No. 57 (Dec 1994/Jan 1995), 11–14.
- Ross, A 1994 'Pottery Report', in B Ballin Smith (ed) *Howe: Four millennia of Orkney Prehistory, Excavations 1978–1982*, 236–57. Edinburgh.
- Shepard, A O 1956 *Ceramics for the Archaeologist*. Washington (1985 reprinting).
- Stell, G & Omand, D 1976 *The Caithness Croft*. Laidhay.
- Stell, G 1982 'Some small farms and cottages in Latheron Parish, Caithness', in Baldwin, J R (ed) *Caithness: A Cultural Crossroads*. Edinburgh.

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