

The excavation of a souterrain and roundhouse at Cyderhall, Sutherland

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ABSTRACT

The excavation of a newly discovered souterrain on the northern shore of the Dornoch Firth yielded evidence of internal timber supports and a pit dug through the floor. The partial remains of an associated roundhouse and gully represented three occupation levels. Radiocarbon dates ranged from 270±50 BC to 390±50 BC uncal.

CONTENTS

PRINT

Introduction	149
The souterrain	152
The Roundhouse	153
The finds	157
Conclusions and Discussion	158
Radiocarbon dates	159

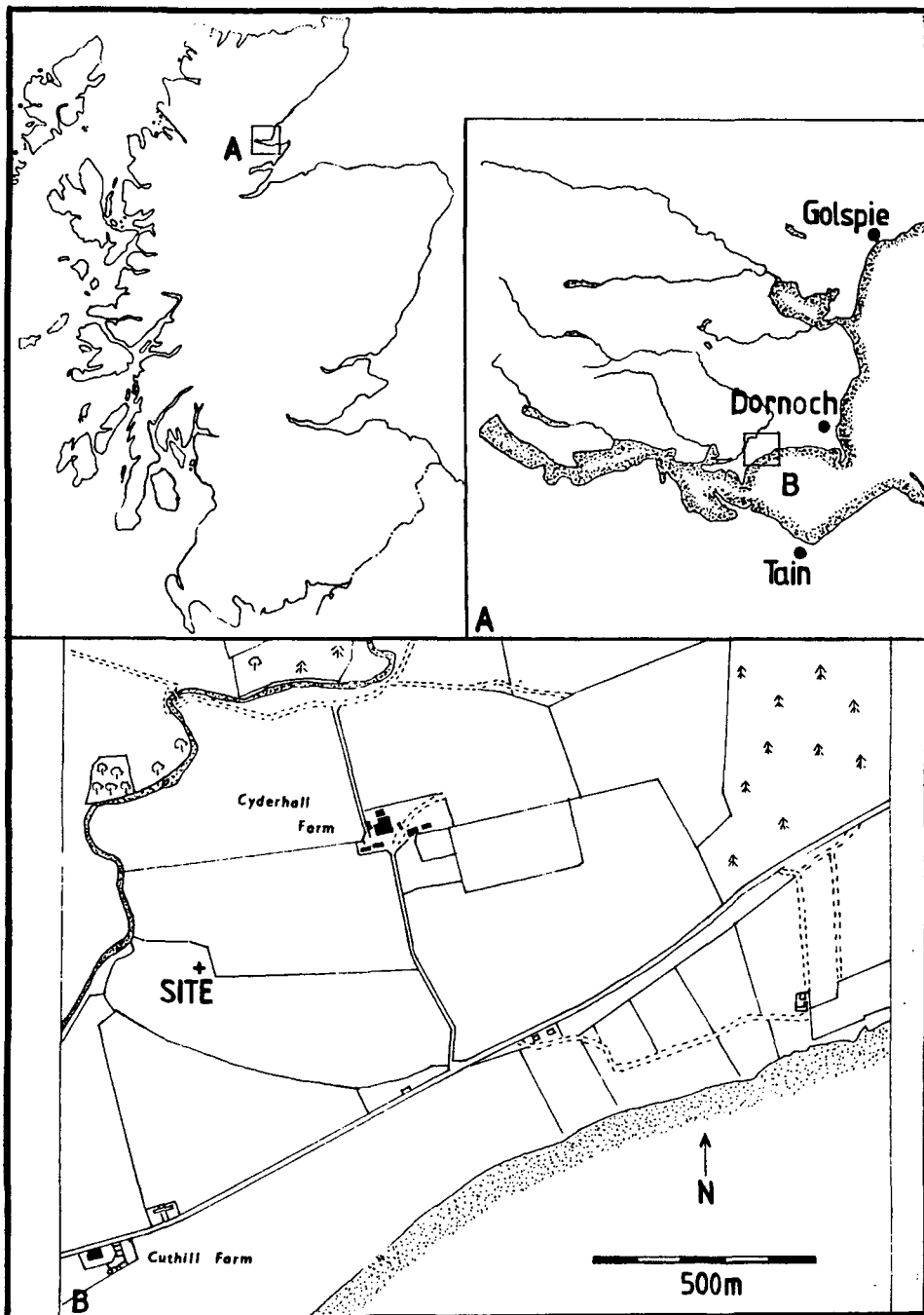
FICHE

The botanical remains from a pit Sheila Boardman	fiche 2: A5–12
The bone Catherine Smith	fiche 2: A13
The charcoal Anne Crone	fiche 2: A14
Investigations into the environment and ethnobotany of the Cyderhall souterrain Brian Moffat	fiche 2: B1–7

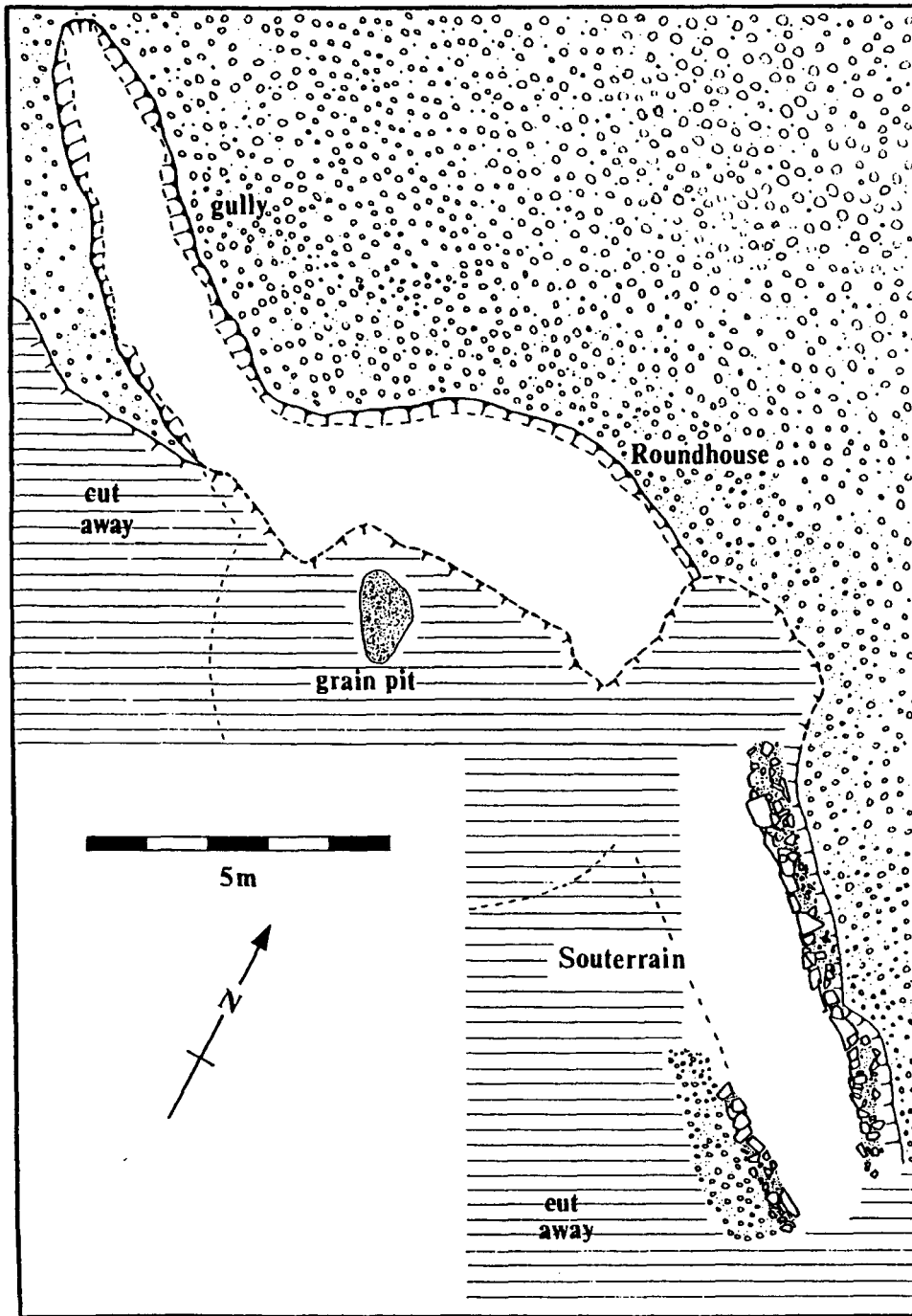
INTRODUCTION

A previously unknown souterrain and associated roundhouse were discovered in November 1987 during gravel-quarrying operations (associated with the new Dornoch Firth road bridge) on the land of Cyderhall or Sydera Farm, by Dornoch (illus 1). The site was first noticed by members of Dornoch Heritage Society. The remains were excavated during December 1987 and January 1988. They had been badly damaged before the archaeological excavation began. Two-thirds of the roundhouse had been removed by the machines, and the stone souterrain which is likely to have

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ILLUS 1 Cyderhall: location. Based upon the Ordnance Survey map © Crown copyright



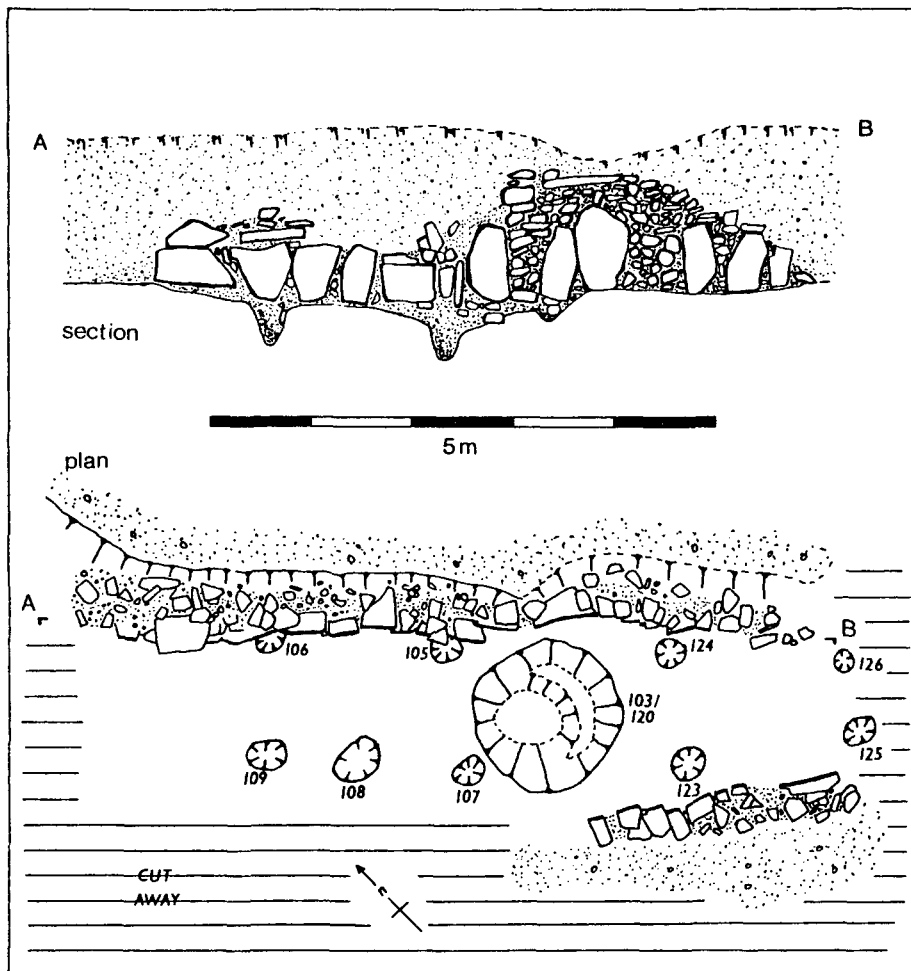
ILLUS 2 Plan showing the relationship of the souterrain, roundhouse, gully and grain pit, and areas cut away by quarrying, before excavation began

been contemporary with the house had been cut away at both ends (illus 2). Nonetheless, significant structural information was recovered. The site was set on well-drained sandy gravel at c 17 m OD.

SOUTERRAIN

This was set into a slight slope above the roundhouse, and was aligned NW/SE. The surviving trench for the souterrain measured 7.2 m long (NE side), 2.7 m long (SW side), 2.25 m wide and 1.74 m high. The sides of the cut were almost vertical. It is likely that this trench had been dug and the walling built in short lengths at a time as the sandy gravel it cut through was so unstable.

The walling was principally of large reddish sandstone blocks, roughly dressed and set with their long axes vertically, with their flatter faces to the interior of the souterrain. Smaller rounded



ILLUS 3 Section drawing of the remaining part of the walling of the souterrain (north-east side), and a plan showing the internal features

stones from the local gravel had been used as packing between these blocks and formed areas of walling in their own right in places (illus 3). The interior width between the built walls was c 1.7 m. It is not likely that the maximum surviving height of the walls corresponded to the original height, and no direct evidence of the original roofing technique survived.

Cutting a very thin trampled construction deposit were one single and four paired post-holes (illus 3, feature nos 105–9, 123–6). Five of these had packing stones in place, defining post diameters of c 0.2 m. The opposite pairs of post-holes had a transverse distance of 0.8–0.95 m between them, except for the south-east pair which had a gap of only 0.45 m between them. This, and a slight tapering in of the walls, suggests that the souterrain may have ended about here. If this is so, the presence of the roundhouse at the other end, unfortunately separated from the souterrain by a bucket scoop, indicates the souterrain would have had a maximum length of only 10 m. The function of the posts set at intervals may have been torevet the walling, possibly with the addition of lateral timbers, and to support the roof. The stone walls themselves were not sufficiently rigid to support a stone roof safely, but may have done so with the additional buttressing of timber posts. However, no slabs of sufficient length were found during the excavation, and a timber roof is more likely.

The floor surface of the souterrain consisted of grey silty gravel, and this was extensively sampled. (For the very informative results of the analysis of the samples, see fiche 2: B1–7.) This layer sealed the post-hole packing stones, making it likely that the internal posts were a primary feature and not a later response to slumping walls. The floor surface layer was 0.05–0.09 m deep; despite slow and careful excavation and sieving of the whole deposit no finds were recovered.

A pit, 103/120, had been cut through the floor surface to a depth of 1.05 m. The pit was round and 1.5 m in diameter. This would have made access up and down the interior of the souterrain very difficult, unless it was covered over by planking, and the purpose of such a unique feature is not clear, unless it was simply to create an extra volume of storage space. The fill of the pit was sandy gravel with several large sandstone blocks which had fallen in from the south-west wall.

It was not possible to determine whether the souterrain collapsed, perhaps when the supporting timbers rotted, or was intentionally destroyed, but no silting was noted on the transverse section or during excavation of the interior deposits, and the souterrain had been deliberately infilled with a homogenous dump of loose grey-brown sandy gravel 100/115. This fill survived to a maximum depth of 0.9 m. Above that were thick dumps of earth and gravel which had been dragged there by the machine bucket during the stripping of the topsoil before gravel quarrying began.

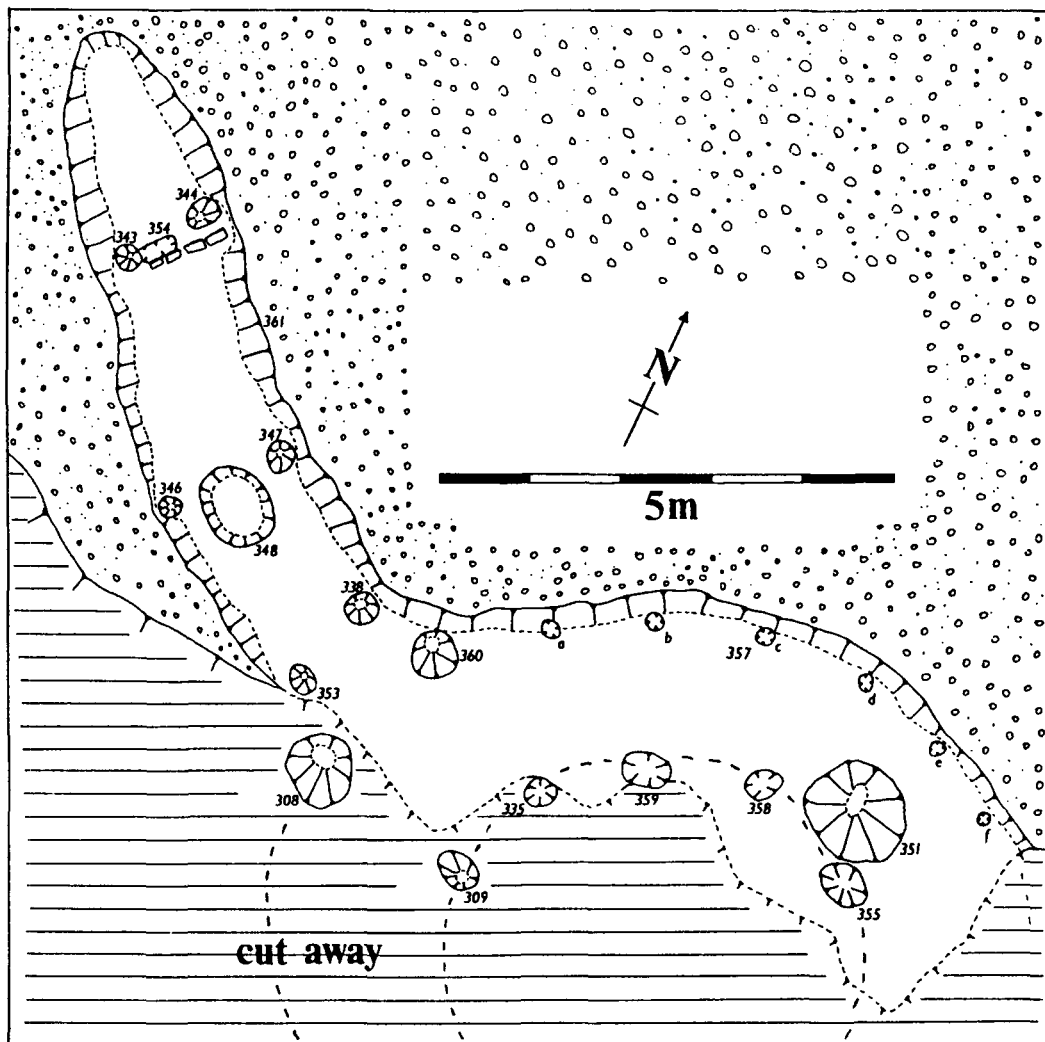
THE ROUNDHOUSE

The surviving one-third of a roundhouse with a sunken floor lay immediately west of the souterrain. Leading off from the roundhouse at its western side was a straight-sided gully, with some similarities to the souterrain. Three phases of use of the roundhouse were identified.

PHASE 1 (ILLUS 4)

The edge of a cut into the natural sandy gravels defined the shape of the surviving area of the house. The level of the floor was 0.22–0.44 m below the machine-stripped surface. The indicated diameter of the roundhouse was 9 m.

A very thin (0.02 m) primary occupation deposit inside the roundhouse consisted of compact sandy gravel. Associated with this were nine post-holes. Six were around the outer edge of the



ILLUS 4 Phase 1 roundhouse and gully features

house (357a-f), and had depths in the range 0.14–0.28 m. Three others, much more substantial (355, 358 & 359), formed part of an inner arc. Two other post-holes encountered outside the surviving house in the area cut down by the machines, namely 309 and 335, also form part of this inner arc. All five together form almost a semicircle. The depth of these five post-holes varied from 0.63 m to 0.69 m, and most of them had large packing stones *in situ*. The indicated diameter of the posts was 0.21–0.28 m. The inner ring would have carried the roof, with the outer ring being part of the low outer wall which would have carried the ends of the roof timbers. A possible storage pit 351 also cut the floor to a depth of 0.72 m.

Two further major post-holes, 308 and 360, were located where the roundhouse and gully conjoined. These were c 0.55 m deep. The posts here may have formed part of a portal to allow access through to the gully.

At the east end, the floor level of the gully was the same as that of the roundhouse. The gully 361 had a similar alignment to the souterrain, but curved very slightly to the north. It was 7.4 m long, 1.8 m wide and sloped gently upwards to the rounded north-west end. The occupation surface was a thin layer of silty gravel. The sides of the gully were steep, and three sets of paired posts may have helped torevet the unstable sandy gravel, in the same way as the walls of the souterrain were supported. The post-holes, 338 and 353, 346 and 347, 343 and 344, had depths of up to 0.52 m. Post-pipes were differentiated by being filled with silty sands, indicating posts of c 0.2 m in diameter. These would have been easily substantial enough to carry a roof. In the case of 343 a piece of carbonized oak post remained *in situ*, and gave a radiocarbon date of 380 ± 50 BC (GU-2650). At the north-west end of the gully between post-holes 343 and 344 was a transverse slot 354, and on the south-east side of this was a linear setting of four rectangular stones. These features may be the remains of blocking for the end of the gully, or the foundation for an entrance gate. A shallow roundish feature 348 cut the floor of the gully to a depth of 0.28 m. It had a perfectly level bottom surface. The fill was of grey sandy gravel with patches of ruddy oxidized clay with charcoal. The function of this feature is not known.

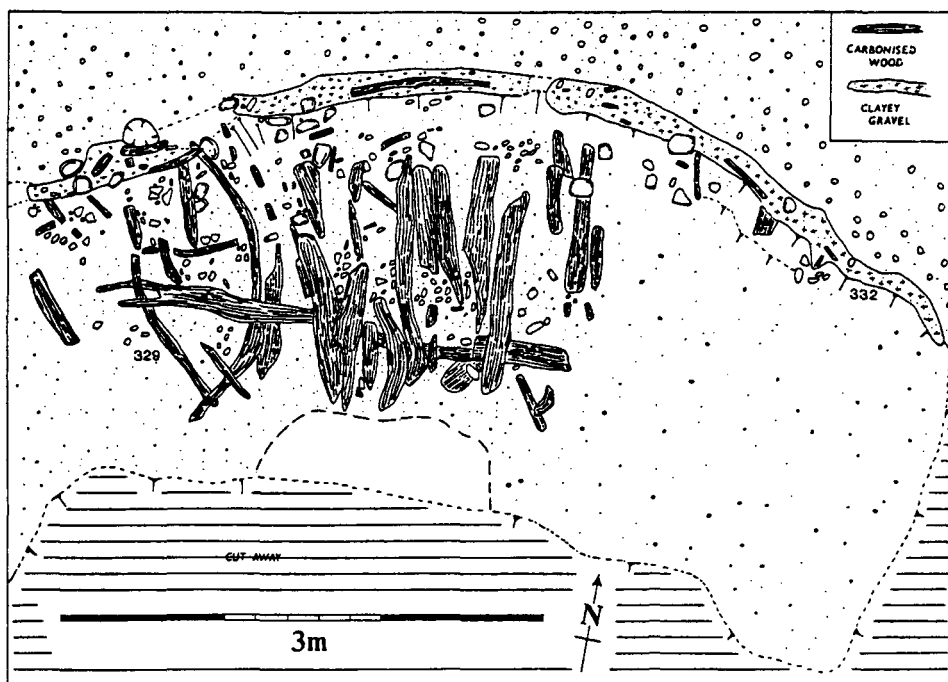
The phase 1 house and gully superstructure burned down. Overlying the roundhouse features described above was a destruction layer 350 consisting of black clayey silt with lumps of carbonized wood and gravel, and a piece of clay daub. This layer was also sampled for dating, and the result was 280 ± 50 BC (GU-2631).

PHASE 2

After the fire, dumps of gravel 331 were thrown in on the roundhouse floor, and also into the eastern end of the gully. These dumps were from 0.1 m to 0.4 m thick in the roundhouse, and 0.5 m to 0.6 m thick in the gully. Evidence for the reconstruction of the roundhouse was found in a reddish-brown clayey gravel 332 which bounded the edge and may be derived from wall cladding. This deposit respected the line of the earlier building. Evidence of only two posts associated with this phase of use was found, both set into the clayey gravel. No well-defined occupation surface could be found in the roundhouse, but overlying the thick gravel dumps was another destruction layer 329 (illus 5). This consisted of fragile carbonized oak beams lying in an open pattern, giving the impression of connected roof members which had collapsed together. No pegs, nails or joints were recorded. Most of the timbers radiated to the edge of the house, with one longer timber, probably a tie-beam, interlaced at right angles. One of these carbonized timbers gave a radiocarbon date of 390 ± 50 BC (GU-2630).

Overlying 329 was a deposit of grey-brown silty clay with charcoal. This varied from 0.01 m to 0.39 m thick. Deposit 329 and the silty clay are likely to be associated. The silty clay may be derived also from the roofing of the house, which fell with the timbers, so sealing and protecting them. Since it is suggested from the analysis of the grain pit (see below) that the practice was to harvest the straw separately from the heads of grain, it may be that the roundhouse had a two-layered turf and thatch roof, a very well insulated and waterproof arrangement, still in use in this century for houses in some parts of the British Isles.

Gravel dump 331 foreshortened the gully into a steep-sided trench 5.8 m long, 1.08 m wide and 0.7 m deep at the western end, sloping upwards to become only 20 mm deep within 1 m of the roundhouse. This may have been done to allow access around the house while still utilizing part of the gully trench – a silty deposit with charcoal lay within the trench. The west end of the gully below the western lip had been closed transversely by large rounded stones taken from the glacial gravels, packed behind which were thin sandstone blocks up to 0.5 m long and 0.2 m deep.



ILLUS 5 Phase 2 roundhouse carbonized timbers, probably collapsed roof members

No good evidence for a gully superstructure was found in this phase. Further thick gravel deposits which incorporated carbonized pieces of timber indicate the levelling up of the gully after the destruction of the phase 2 house.

PHASE 3

Another house had been erected in exactly the same location, though only the lower deposits remained to be recorded during the excavation, the upper ones having been scraped away during the stripping of the soil from the field before gravel quarrying began.

The sunken flooring of the earlier houses did not exist here. Grey sandy gravel formed a patchy floor surface, and the gully layers were similar – the gully now formed only a slightly sunken walkway, 310. The diameter of the house became slightly greater, as evidence for the outer walls was found in a series of six round post-holes bordering the edge of the house. These were 0.3–0.4 m in diameter and up to 0.34 m deep. The roof supports were of a different character to the phase 1 house – in this case there survived one hole for a massive internal post. Only part of this post-hole survived – it had been cut away to the south by the machine – but it was fully 1.61 m deep and 1.4 m in diameter. There was no good evidence of a post-pipe and the silty gravel fills are likely to be refill after the post was removed for re-use. A post here, perhaps with two or three others, could easily have functioned as the main roof support. The machined surface to the south of the main excavation area was cleaned back over the projected original diameter of the roundhouse, but no evidence of features of equivalent depth was found. One other hole for a much less substantial post was found in the surviving roundhouse area – this was 0.5 m in diameter and 0.52 m deep.

GRAIN PIT

This feature was located just outside the main area of surviving features, 0.6 m south of the machine-cut section through the roundhouse deposits. Consequently it is not certain to which phase of use it relates. If contemporary with any of the houses described above, it would have been cut through the floor. The surviving pit was subrectangular in shape, measuring 0.9 x 1.3 m. Traces of a clayey sand lining with carbonized wood lay within the pit in places. The fill 200 consisted of carbonized barley and other grains, surviving to a maximum depth of 0.1 m. At its highest level the pit was cut 0.4 m below the level of the phase 1 roundhouse floor, and so the feature would have had at least this depth originally. The radiocarbon date obtained from the grain samples was 270±50 BC (GU-2633), statistically equivalent to the date from the roundhouse phase 1 destruction.

THE FINDS

SOUTERRAIN

No artefacts were recovered. Four cattle teeth and two left cattle radius fragments were found in the lower souterrain infill deposit and in the pit fill. One of the radius fragments had been chopped in the lower sagittal plane, possibly to extract the marrow. Ten other burnt or porous fragments were identifiable only as to 'large mammal'.

ROUNDHOUSE AND GULLY

Pottery (Mary Butler)

One sherd of pottery was recovered from layer 310, the upper phase 3 gully surface. This is an undecorated body sherd, with a soft, sandy and coarsely tempered fabric. It is pale cream on the outside and reduced on the inside for most of its thickness. Dimensions 24 x 20 x 5 mm thick. Unfortunately the area the sherd was recovered from had been disturbed and the find may be intrusive.

Bone

Six small calcined fragments were recovered, all unidentifiable as to species. One cattle tooth fragment was recovered from 310, and two cattle teeth fragments were recovered from phase 2 gully deposit 327.

Stone (Jill Harden)

1 331-1. A broken bifacially retouched piece of flint, yellow-brown in colour; length 14.2 mm, breadth 16.3 mm, thickness 2.4 mm (the original piece may have been c 27 mm long). This is a broken leaf-shaped arrowhead. It is traditionally classified as a Neolithic form, in contrast to the later Neolithic/earlier Bronze Age barbed and tanged form. Leaf-shaped arrowheads are a common find in the coastal areas of Scotland, where early settlements might be expected.

2 331-2. A large flint flake, red-brown in colour, with possible utilization scars around the pointed right side of the piece; length 37 mm, breadth 42 mm, thickness 9.2 mm. This is an unusually large flake (possibly a thinning flake) for this area. The colour is typical of Buchan flint, which when discovered in this district is usually small in size.

3 307. A chip from a quartzite rock, not necessarily flaked by man; length 33.6 mm, breadth 60.7 mm, thickness 9.6 mm.

The two flints are not necessarily contemporary with the settlement excavated at Cyderhall. They are fairly typical of the fieldwalking collection that might be expected on any of the coastal lowlands of well-drained gravels.

CONCLUSIONS & DISCUSSION

The Cyderhall souterrain is typical of the Sutherland type in being of simple construction, narrow, and in all probability originally very short, compared with the souterrains of Angus (Barclay 1985; Corcoran 1968; Wainwright 1963). The association with above-ground structures is also common – in Sutherland there are examples at Loch Hope, Portnancon, Achindale and Allt Cille Pheadair (NMRS 1989). The low number of finds recovered is also typical of souterrain excavations in general.

Possibly the most significant structural evidence at the Cyderhall site was of two trenches leading off from the same roundhouse, but supported by different building materials. The parallels in length, breadth and orientation of the souterrain and the gully are more significant than the fact that the former also had stone walling. Both souterrain and gully had regular paired internal post-holes indicating revetting for the walls and support for a timber-framed roof, and both had circular features cut through the middle of the passage. Both were deliberately filled in. From a practical or ritual point of view the souterrain and gully are identical. However, the souterrain had been cut into a slope and a roof above head height would have been at or near ground surface level, whereas the gully was dug on flat ground; to have been used comfortably (not on hands and knees) it would have had to have walls projecting well above ground level. When in use, the gully may have appeared as no more than an extension of the house. Although it is more regular, the gully has parallels at the Iron Age site of Dalladies (Watkins 1980a); wooden-framed subterranean structures seem an easier option than stone-built ones for a people used to building wooden-framed houses, though such structures would not last so long and would be more vulnerable to fire. Timber-built souterrains are well known from Ireland, though they are nearly always associated with ring-forts and are usually placed in the first millennium AD (Warner 1979). The most recently excavated example was at Coolcran in Co. Fermanagh, dated dendrochronologically to 822±9 AD (Williams 1985).

The question of the function of the souterrains has usually been answered inconclusively in published discussions; the true answer may be, as F T Wainwright pointed out in the 1950s, that all below-ground structures are not likely to have one common function at all, particularly as the forms can differ so widely. For this reason not many general implications will be drawn here.

Sampling of the souterrain floor level allowed analysis of micro remains. This analysis revealed the presence of a significant record of hemp and cultivated flax, which may have resulted from the storage of the actual crop there, or of containers such as sacks or bags made of linen or hemp. Records of the barley group cereals were not significant compared with the records for the grasses, sedges and herbs (especially composites, docks and stinging nettle). This makes it unlikely that the souterrain was used as a storage place for grain, and indeed the presence of the grain pit shows that alternative storage techniques were used at the site. Records of sheep liver fluke ova and whipworm ova from the souterrain floor also suggest that the interior was soiled by faecal material – in contrast to the impression of cleanliness given at other excavated souterrain sites (eg Newmill: Watkins 1980b).

The analysis of the carbonized material from the grain pit suggests that six-row hulled barley (*Hordeum vulgare*) was the main food crop grown, and that it was stored in whole spikelets (see full report in fiche, 2: A5–12). Other grain species definitely present were emmer (*Triticum dicoccum*) and oats (*Avena sp.*); spelt (*Triticum cf spelta*) and rye (cf *Secale cereale*) were possibly present also. Evidence of the poisonous fungal contaminant ergot was also found with the grains. The grain in the pit is unlikely to have become carbonized unless the pit had been dug inside the roundhouse which later burned down, and the internal pit may be seen as a convenient food store, a safe and protected location for seed grain, or both.

Animal bone survived very poorly on the site, and only 176 g of bone and teeth were recovered. Much of this was in bad condition and could not be identified. The evidence of the rest indicates that cattle raising was the main husbandry, though the bones of other species may simply not have survived at all.

Iron Age roundhouses similar to the Cyderhall example are well known, and here there is only one unusual difference: the sunken floor. This may have been created to allow easy access to the souterrain and gully. It is significant that after the roundhouse floor was levelled up, the gully appears to have become an open-air working area. The deliberate infilling of subterranean structures has parallels elsewhere – Dalladies, Newmill (Watkins 1980a & b), Northwaterbridge (Small & Cottam 1974); this common practice seems to suggest that, as with the chambered cairns in an earlier period, souterrains had a significance beyond the purely utilitarian for their Iron Age builders. The calibrated dates indicate occupation somewhere between 400 and 200 BC or perhaps even earlier.

RADIOCARBON DATES

329 Carbonized timber, phase 2 destruction GU-2630 2340±60 BP 390±60 BC uncal

350 Carbonized timber, phase 1 destruction GU-2631 2230±50 BP 280±50 BC uncal

200 Carbonized barley (*H. vulgare*), grain pit GU-2633 2220±50 BP 270±50 BC uncal

343 Carbonized post (*Quercus sp.*), phase 1 gully GU-2650 2330±50 BP 380±50 BC uncal

Using the University of Washington Radiocarbon Calibration Program (1987, rev 2.0) supplied by the Scottish Universities Research & Reactor Centre, East Kilbride, the calendar age ranges indicated for the above dates are as follows:

level of confidence:	one sigma (68%)	two sigma (95%)
Sample 329	411–388 BC	755–258 BC
Sample 350	389–208 BC	400–131 BC
Sample 200	387–206 BC	400–126 BC
Sample 343	408–388 BC	733–234 BC

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Thanks to those who produced the specialist reports: Jill Harden (stone), Brian Moffat (pollen), Sheila Boardman (grain), Catherine Smith (bone), Mary Butler (pottery) and Anne Crone (wood). Thanks to all the people who braved the December and January frosts and the ear-shattering noise of the gravel-sorting machine to excavate the site, including the regulars, Terry Kelly, Thomas Ramsay, Jim Falconer, Jo and Jill, and the occasionals, Barney MacDowell, Mary Butler, Jane Page, Duncan Ross, Doug Scott (thanks for the theodolite!) and Jill Harden.

Bob Gourlay got the excavation off the ground and provided equipment and moral support, as well as facilities for post-excavation work.

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