ASPECTS OF THE ORIGIN OF THE BROCHS OF ATLANTIC SCOTLAND

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INTRODUCTION

Everyone has doubtless heard of the broch of Mousa in Shetland, the best preserved and most impressive of all those Iron Age drystone towers — between six and seven hundred in number — that have survived in various states of preservation over some two millennia [Fig. 2.1]. It might be thought that after more than two centuries of study, and with such an abundance of architectural data available, the 'problem of the brochs' should long have been solved once and for all. Yet the phenomenon still provokes controversy among archaeologists, in terms not only of the kind of society thought appropriate for the production of such architecturally sophisticated buildings, but of the development of the drystone architecture itself and its origins, and also of the identity of its creators.

There are a number of reasons for this unsettled picture. One is that modern excavation on broch sites began only fairly recently (in 1948), so that the amount of reliable information about the age of the structures, the development of individual sites and the material culture associated with them is still relatively limited. Another is that systematic fieldwork on brochs — both in terms of the study of their architecture and of the relationship of the buildings to the landscape — is still fairly patchy. For example only in Shetland has sophisticated fieldwork of the latter kind been carried out (Fojut 1982), while the author's studies of broch architecture everywhere (begun in 1963 and carried on intermittently ever since) were only the second of their kind and have not been followed up except in restricted areas.

One might also point to the immature nature of some of modern prehistoric archaeology as a scientific discipline, in the sense that each generation seems to want to invent the wheel afresh and not to pay too much attention to what has gone before. The emphasis on the correct theoretical approach compounds the problem since it is easier to change this than to go out and obtain large quantities of fresh information in the field. The result is that the efforts of each generation are not necessarily forming the foundation blocks for those of the next, and a tendency to want to tear down the whole structure and start again is apparent from time to time. This paper is, therefore, partly an attempt at a reminder that existing evidence does not just disappear because some new discoveries have been made or new ideas thought of.

Fig. 2.1 Broch of Mousa on its small island off the east coast of Dunrossness, Shetland. This is the best preserved of all brochs and also probably the best built, the highest part of the wall still standing 43.5ft (13.3m) high. 1963.

BROCHS IN GENERAL

The essential features of Mousa, and also of many comparable but less well-preserved sites, are the compact, thick-walled circular ground plan — brochs are rarely more than 10m in diameter — and the unique hollow con-

struction of the wall [Figs. 2.2-2.4]. This is built as a double wall, entirely without cement, the two concentric halves forming narrow walkways (when accessible) and being held apart by horizontal rows of flat stone lintels. A stair links the series of superimposed galleries thus formed, and climbs to the top.

One of the many intriguing facts about brochs is that the period during which several hundred of these elaborate stone dwellings were erected in highland and island, or Atlantic Scotland — an area now regarded as a remote and peripheral part of the country — ended a millennium before the earliest mortared stone castles of Medieval times appeared. Moreover it was

Fig. 2.2 Dun Troddan broch, Glen Beag, near Glenelg, western Inverness-shire, 1974. This has a solid base like its neighbour Dun Telve and both are more typical of the brochs of the far north than of the west. The hollow, double wall is clearly visible in cross-section on the left, as are two vertical rows of windows or voids in the interior wallface.

nearly a millennium and a half before the nearest equivalent modern dwellings in Scotland were built — the tower houses of the border country and the earliest single-storeyed, mortared stone houses for the chiefs of the highland zone. In the centuries between the middle Iron Age and Medieval times stone dwellings of any kind were rare, and elaborate, monumental ones almost non-existent. Moreover the period during which these Iron Age structures were built was a short one, probably not more than two or three centuries beginning in the first B.C., although a few plausible prototypes have been traced back to the 7th or even the 8th centuries B.C. in Orkney.

Yet by and large the centuries before the broch period were almost as

Fig. 2.3 Dun Telve broch, Glen Beag, near Glenelg, western Inverness-shire, 1963. This solid-based broch with its high, hollow or galleried wall was almost as well preserved as Mousa when Alexander Gordon saw it in about 1720. Shortly afterwards it was badly damaged by a contractor, presumably he who was building the barracks at Glenelg in 1722.

Fig. 2.4 A general view of Dun Beag broch, Struan, Skye, sitting on its rock knoll. A ground-galleried broch of the type commonly found in the Western Isles, it was visited by Dr Johnson and cleared out about seventy years ago.

barren of small, stone, fortified dwellings — or indeed of stone dwellings of any kind — as those which came after. Thus some basic questions need to be asked, not all of which can be answered here.

BROCH ORIGINS

Why for example did this short but spectacular period of monumental drystone building start when and where it did? More specifically what are the origins of this striking maritime, late prehistoric culture which is distributed throughout the highland and island zone of the west and north of the country and which produced so many of these massive structures?

The latter problem divides into two parts. In the first place there is the question of the material culture associated with the brochs and allied structures (like wheelhouses); this contrasts with the early Iron Age pottery and artefacts found on a few sites like Jarlshof in Shetland and the Orkney roundhouses (below) in being richer, more varied and in having a large number of new elements, including iron-working and rotary querns. To decide whether this new middle Iron Age assemblage is a local development or a foreign import, or a combination of the two, requires a complex analysis beyond the scope of this paper. Some remarks on the subject have recently been made (MacKie 1989).

Broch Prototypes

The other aspect of the problem concerns the architectural origins of the brochs themselves — which can reasonably be regarded as man's greatest achievement in drystone building. A quarter of a century ago a fresh attempt was made by the writer to infer their structural development (MacKie 1965, 1971), it being assumed at that time that such a complex structure could not have sprung into existence from nothing, and that the identification of its immediate forerunners was a worthwhile task.

As early as 1928 it had been pointed out by the Royal Commission on the Ancient and Historical Monuments of Scotland that the greatest variety of comparable buildings, all with various forms of galleried walls, existed in the Western Isles, and that the origin of the broch was likely to have occurred among some of these (RCAHMS 1928. xxvi et seq). However, the class of 'galleried duns' thus identified was clearly not homogeneous. Some were structurally very close to brochs while others were not; in the latter group is Kildonan, a mainly solid-walled dun in Kintyre with only one short stretch of galleried wall (Fairhurst 1939).

Among those diverse 'galleried duns' there exists an homogeneous group of structures with the same high, hollow wall as the brochs (with superimposed, intra-mural galleries) but which are not free-standing, round or oval towers; part of their defensive capability depends on their proximity to a vertical cliff, or at least a very steep slope, to the edge of which these buildings are effectively tied.

Because this specialised form of galleried dun is literally a 'half broch' the term *semibroch* has been used for them (Mackie 1965. 101), and two kinds can be seen. The *D-shaped semibrochs* stand on the straight edge of a cliff, the curved, inland wall straightening out at both ends as it approaches this edge. The open-sided building is likely to have had a low wall along the edge; Dun Ringill and Dun Ardtreck on Skye, and Dun Grugaig, Glenelg are classic instances (Graham 1949. 19) [Figs. 2.5-2.12; 2.20-2.23]. The other group — of which there are only four clear examples (including one hybrid form) — are the *promontory semibrochs,* simple, curved barriers drawn across the neck of a cliff promontory, such as Dun Grugaig (Skye) [Figs. 2.13-2.15].

Fig. 2.5 General view of Dun Ringill semibroch, Strath, Skye, seen from the south with the shore to the right. The half-collapsed mural cell is visible behind the scale, and the trench — probably dug when the site was re-fortified by the MacKinnons in Medieval times — can be seen next to the wallface on the left. 1985.

Fig. 2.6 Ringill D-shaped semibroch, Skye. E.W. Mackie, 1986.

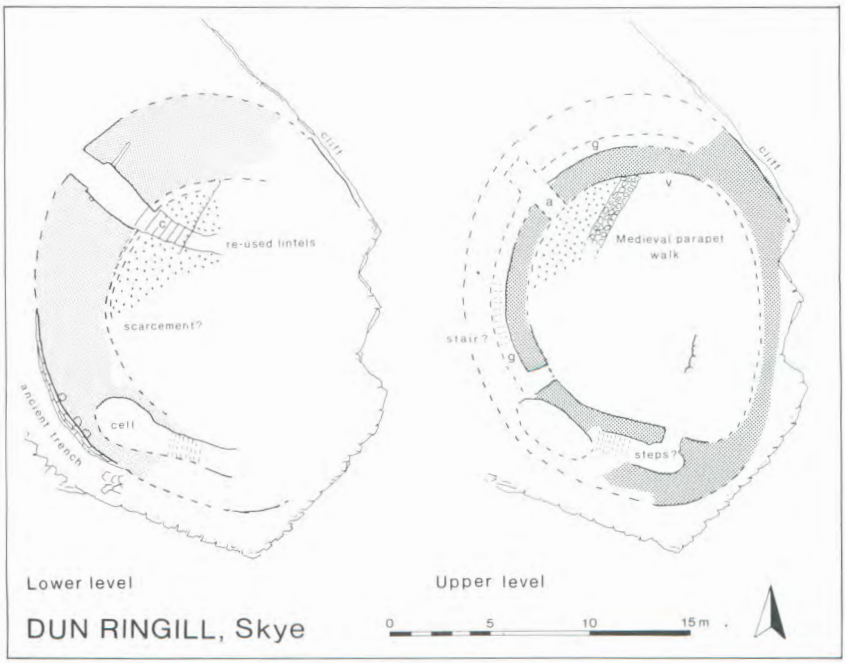
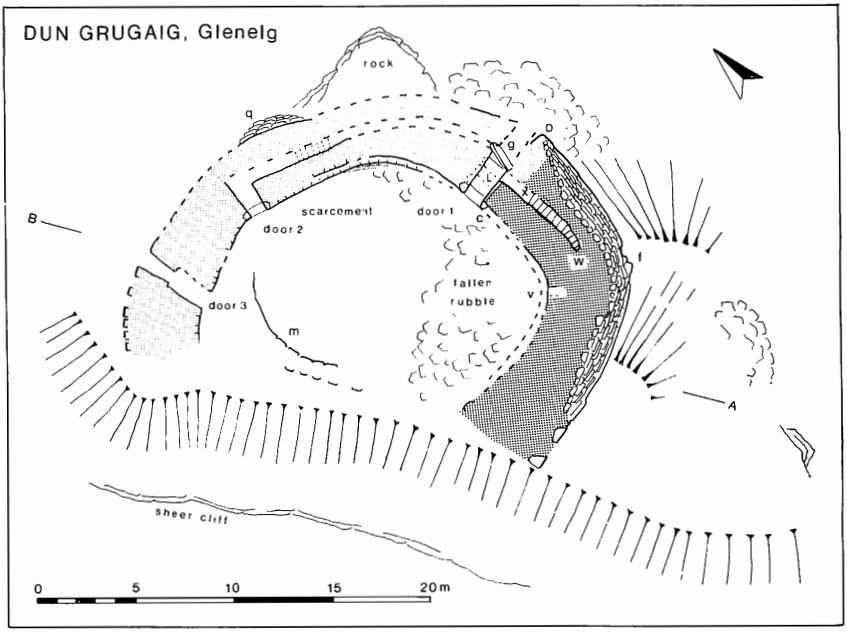


Fig. 2.7 Closer view of the partly-ruined mural cell at Dun Ringill semibroch, 1988. Its original floor has been torn out — probably during the Medieval re-fortification — and the underlying wall core can be seen about level with the top of the lower white stripe on the pole.

Fig. 2.8 The entrance passage of Dun Ringill semibroch, looking out, 1988. The original Iron Age lintels have been re-set over the Medieval inward extension of the passage, the junction of which with the older wall can be seen on the right, forming a door-check. The pole is at one of the door-checks of the unroofed Iron Age passage.



Figs. 2.9 (above), 2.10 (below) Plan and cross section of the D-shaped semibroch Dun Grugaig, Glenelg. E.W. Mackie, 1988.

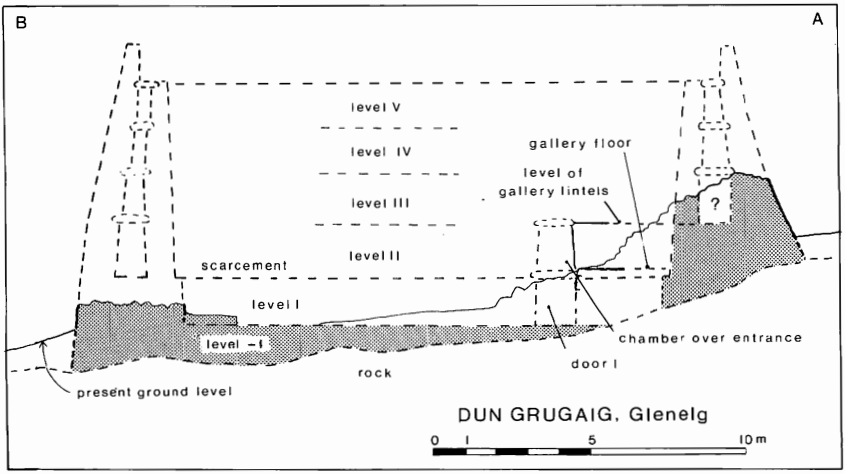


Fig. 2.11 Dun Grugaig semibroch, Glen Beag, near Glenelg in western Inverness-shire, showing the outer wallface. The floor of the upper gallery is at the level of the projecting pole. 1985.

Fig. 2.12 General view of Dun Baravat semibroch on a rocky islet in Loch Baravat, Berneray, Lewis, from the north-east, showing the causeway to the shore. The high, galleried part of the wall faces the causeway, the entrance having been at the extreme right, but the rest of the wall is low and apparently solid. 1985.

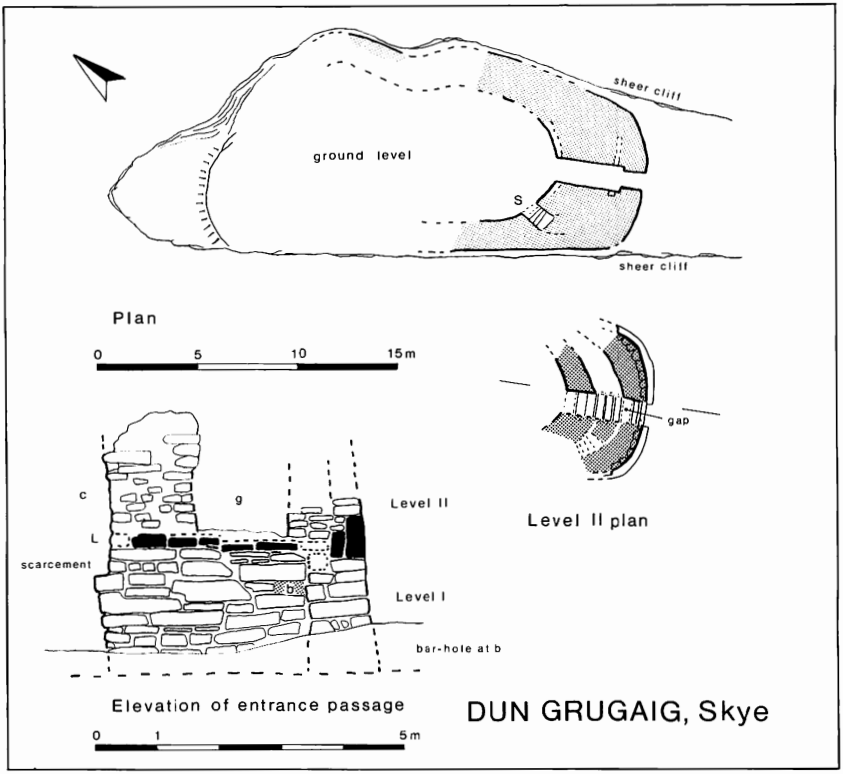


Fig. 2.13 Plan, with reconstructed elevation, of Dun Grugaig promontory semibroch, Skye. E.W. Mackie, 1986.

These semibrochs could be regarded as late, degenerate brochs, built towards the very end of their era when skills were declining and when the builders were perhaps being driven to peripheral lands. Alternatively they might be contemporary variants (Harding 1984. 211-15), or the immediate forerunners from which the free-standing towers developed. Although none had been excavated when the 1965 study was written, their more primitive design and situation, and their distribution, both seemed to make the last view extremely plausible.

Distribution and Development

The distribution of the semibrochs is particularly striking (MacKie 1965. fig. 1), being concentrated in Skye and scattered in adjacent areas, in exactly the same regions as the majority of the ground-galleried brochs are found. This form of broch was deduced, from independent structural evidence, to be typologically the earliest form; the more developed solid-

Fig. 2.14 General view of Dun Grugaig semibroch, Strath, Skye, on its cliff promontory, taken in 1963 when the bushes were very much thinner. The high, galleried part of the wall forms a simple cross wall and a fragment of the upper gallery remains.

Fig. 2.15 The entrance passage of Dun Grugaig semibroch, Skye, looking towards the land; the door-checks are clearly visible near the front end. The design of the entrance, and of the galleried wall, is the equal of the brochs although the general defensive design is much inferior. 1963.

based brochs are concentrated in the far north-east mainland and in the Orkney and Shetland islands.

Thus if maps are prepared of the distribution of the two types of semi-brochs and the two types of brochs, they show in a convincing sequence how one kind of architecturally-sophisticated stone building could have evolved over both time and space, in four stages.

The earliest stage [Fig. 2.16] is represented by the four promontory semi-brochs. The second [Fig. 2.17] sees the development of the D-shaped semi-brochs of which at least eight were built over a much wider area. Two have been excavated of which one — the fine example on Loch Broom in Wester Ross, just across the water from Ullapool — enclosed a wooden roundhouse very similar to those usually found inside thoroughly excavated brochs (MacKie 1980. fig 3).

The third stage in this scenario [Fig. 2.18] saw a 'minor technical breakthrough which had major social implications' (MacKie 1965. 126), namely the emergence of the free-standing ground-galleried broch, an impressive stronghold which could be built close to fields and pastures and which was no longer dependent on the availability of a suitable cliff edge. At this point, it was also argued, the material culture suddenly became more elaborate and some elements of this suggested the arrival of immediately pre-Roman people from Wessex and Brittany; these presumably P-Celtic speaking newcomers could have stimulated the transformation of semibroch into broch. This artefact evidence is at the same time the most important and the most difficult to interpret of all that relevant to our understanding of the origins of the broch cultures, but has to be pursued in another place. It has of course been denied that foreign influences are traceable in the material culture (Lane 1988).

The fourth stage [Fig. 2.19] evidently took place in the far north, probably in Orkney, and consisted of the development of the more advanced solid-based broch. One aspect of this final development has become clearer in the last twenty years. The four definite solid-based brochs in the west are all on the mainland coast — scattered all the way down to Lismore at the mouth of Loch Linnhe — and they dominate small tracts of arable land between vast areas of barren mountains and the western sea. They are strikingly absent from the Hebridean islands, and this curious distribution is easily explained in terms of the scenario just outlined.

If broch evolution started in the west and reached its apogee in the far north, the few examples of the latest type built in the west (in a sort of reflux movement) would have to be in those peripheral areas which were not already occupied. This tells us both that the architectural evolution occurred in the way described and also that broch development reached its final stage relatively quickly, while the great majority of the early, ground-galleried forms were still in use.

Thus, or so it seemed in 1965 (and with the exception of the previous two paragraphs), could be explained the genesis, and subsequent rapid development and spread, of the broch class of what were then called the small stone *forts* (it is now clear that they were fortified dwellings) (MacKie 1989). An

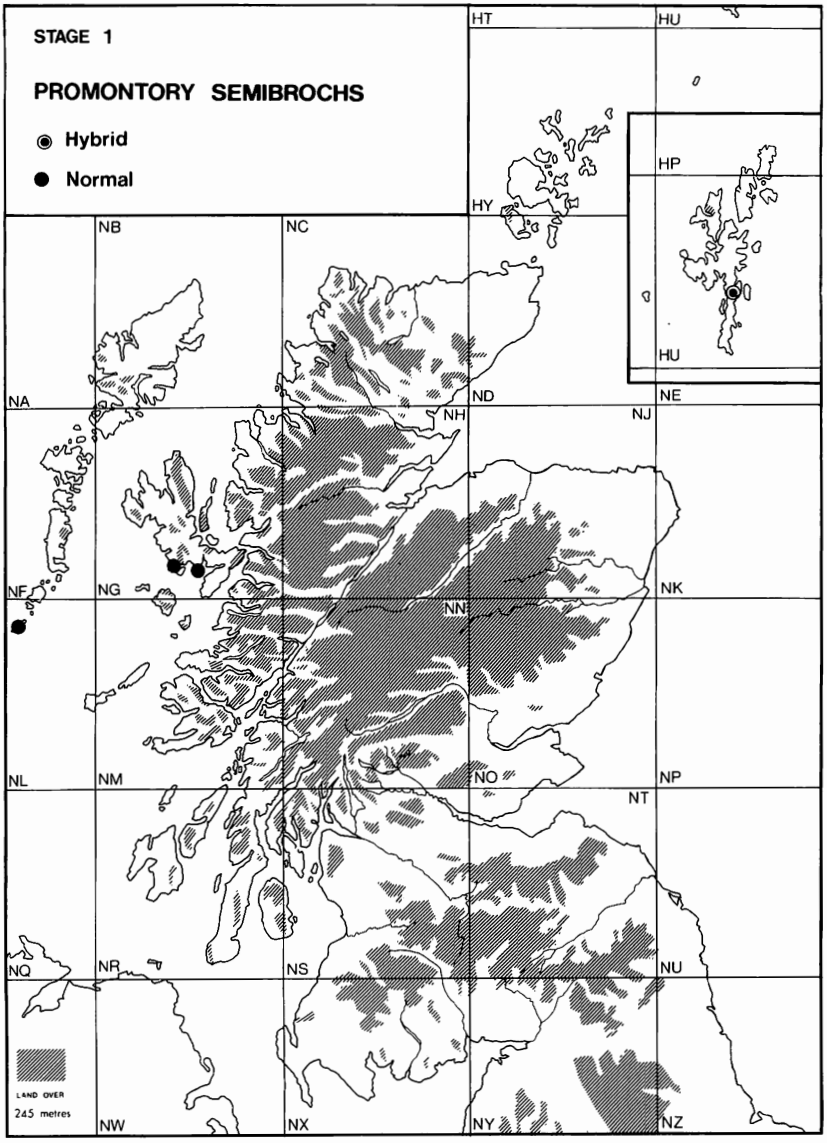


Fig. 2.16 Distribution of hollow-walled buildings of the broch class in Scotland. Stage 1: Promontory Semibrochs.

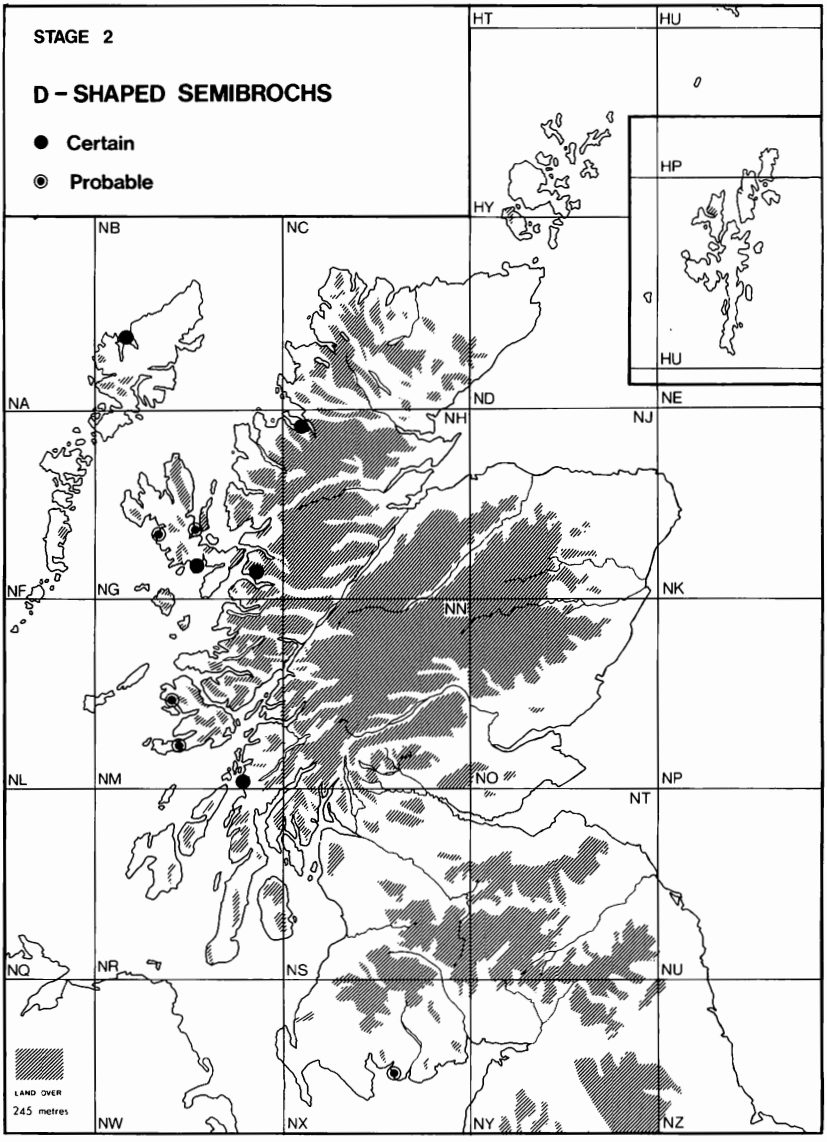


Fig. 2.17 Distribution of hollow-walled buildings of the broch class in Scotland. Stage 2: D-shaped semibrochs.

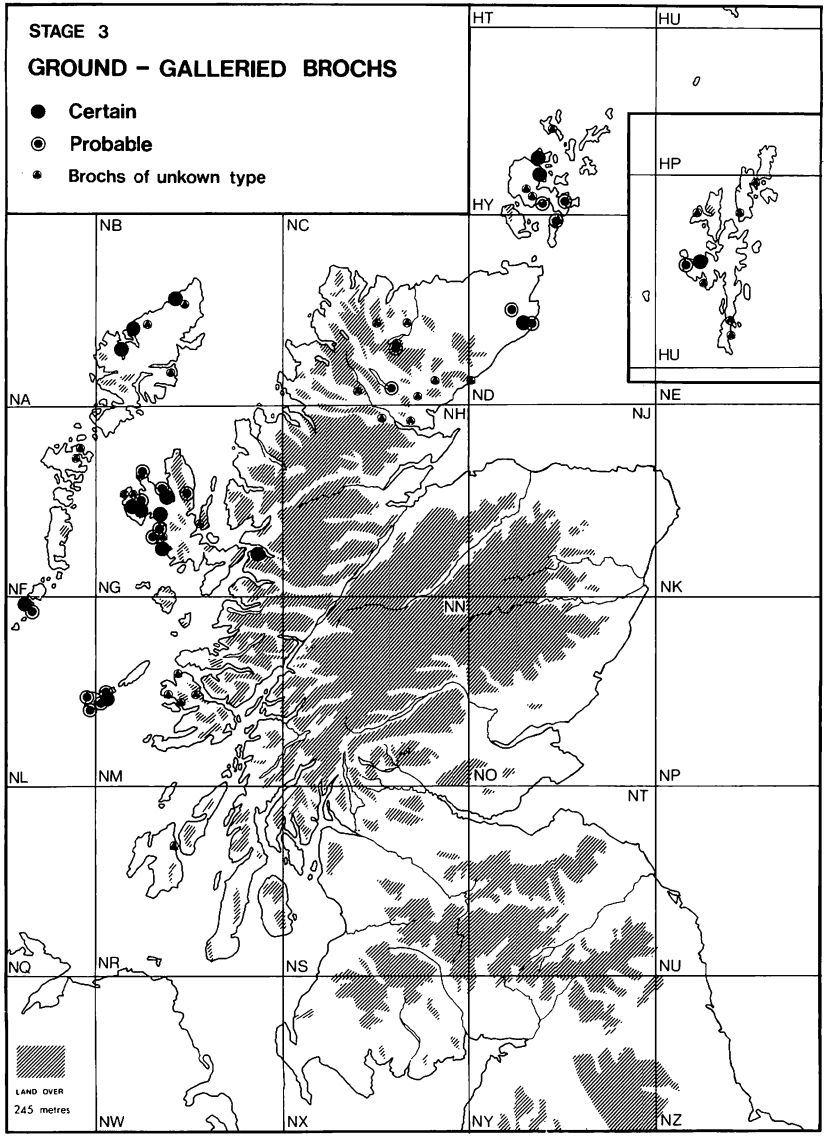


Fig. 2.18 Distribution of hollow-walled buildings of the broch class in Scotland. Stage 3: Ground-Galleried Brochs.

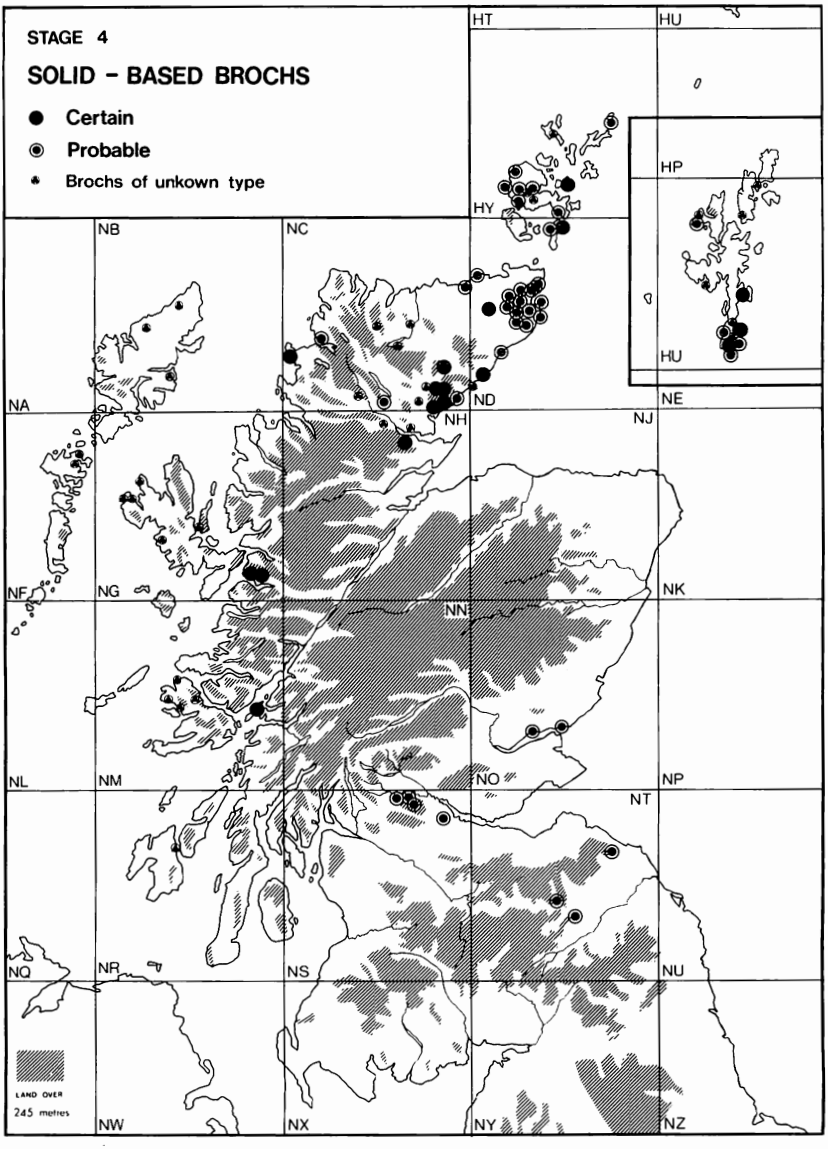


Fig. 2.19 Distribution of hollow-walled buildings of the broch class in Scotland. Stage 4: Solid-Based Brochs.

important aim of the writer's research in the mid and late 1960s was to find and excavate a semibroch to ascertain whether the group was indeed old enough to be plausible prototype brochs. Two were explored and will be briefly described shortly.

Since that time, however, other forms of possible broch prototypes of a different kind have been found in Orkney and safely dated to the end of the Bronze Age and the early Iron Age, centuries before the period of the classic brochs; these are defined by the characteristic associated artefacts as middle Iron Age in date, and probably not older than the first century B.C. Thus one of the purposes of reviewing this evidence now is to see how well it stands up against the new Orkney data, and whether the criticisms levelled against the 'semibroch hypothesis' are valid. The writer has discussed the whole problem in more detail elsewhere (MacKie 1992).

New Discoveries in Orkney

The Orkney discoveries may be summarised as follows. It has become clear since the early 1970s that large, round drystone buildings with relatively low walls were being put up in those islands from very early times — probably as far back as the late Bronze Age in the 8th or 7th centuries B.C. The Quanterness Neolithic chambered cairn had a stone roundhouse built next to it, and two radiocarbon dates in the 6th and 9th centuries b.c. were obtained for material from the primary occupation layers, while a thermoluminescence date for the associated pottery fell within the 8th century B.C. (Renfrew 1979. 194). One radiocarbon date for the secondary occupation was in the 3rd or 2nd centuries b.c.[1]

The house enclosed an area about 8m in diameter with a wall of uncertain thickness (it was set into older cairn rubble); later the interior was divided by cross-walls into irregular areas. No central hearth was located and the doorway bore no signs of the standardised features seen in broch entrance passages, such as the regular shape with door-checks and a bar-hole and socket. The scanty pottery included a shouldered sherd analogous to the early Iron Age material from Jarlshof, there dated typologically and stratigraphically (but not by radiocarbon which had only just been developed) to about the 5th or 6th centuries B.C. (Hamilton. 1956).

Another late Bronze Age roundhouse was discovered by chance in Orkney a few years later, in a rescue excavation on what was thought at first to be a broch site (Hedges & Bell 1980; Hedges 1987. vol 1). Here at Bu a similar building to the Quanterness house had been subsequenly enlarged by a thickening of the original stone wall to broch-like proportions with less substantial masonry inside and outside; the original wall had an average thickness of only 2.95m (Hedges 1987. fig. 1.3, table 1.1), and the later addition rested on midden material. Two C-14 dates were obtained for deposits laid down at an early stage in the use of the building and fell in the 5th and 6th centuries b.c.; at what stage the wall was thickened is not altogether clear, even from the final report.

In these buildings there were none of the specialised architectural features of the brochs, such as the standardised entrance passage with door-checks and bar-hole, or the intra-mural stair, gallery or cells. The interior of the building was divided up into irregular partitions and lacked a central hearth as well as any signs of a ring of post-holes.

TESTING THE 1965 HYPOTHESIS

As noted in 1965 no semi-broch as here defined had been excavated, and the obvious test for the hypothesis outlined above was to explore one by modern stratigraphical techniques and to date it with radiocarbon measurements. From the evidence of the associated artefacts and from radiocarbon dates from Dun Mor Vaul broch on Tiree (MacKie 1974), the 1st century B.C. seemed the likeliest time of the genesis of the towers, and also for the start of the middle Iron Age period in the artefact sequence (Stages II and III in the sequence as originally described) (MacKie 1971. fig 7). Thus the semibrochs ought to be older than that.

In the light of the discoveries in Orkney just outlined, the evidence for the age and status of the semibrochs clearly must be critically reviewed again (MacKie 1992), since these buildings no longer stand alone as plausible broch prototypes (Hedges & Bell 1980; Hedges 1987).

Fig. 2.20 General view of the interior of Dun Ardtreck at an early stage in the excavations. The 70 ft. (21.3m) cliff is to the right and the entrance out of sight to the left. The inner face of the galleried wall can be seen resting on the rubble platform, and one gallery door has been exposed. It can be seen how the underlying rock slopes downwards from the cliff edge. 1965.

Dun Ardtreck, Skye

Dun Ardtreck was the first semibroch to be excavated, in 1965 (MacKie 1975. 84 et seq.) [Figs. 2.20, 2.21]. It is a D-shaped, drystone fortlet near the end of the Portnalong peninsula, surrounded by an outer wall and sited on the straight edge of a high cliff which forms the upright of the 'D'. The galleried wall straightens as it approaches the edge, and traces of a much narrower wall were found along it. Despite this, it has been claimed that it is the remains of a circular broch, part of which has fallen into the sea (Martlew 1982. 270). Only part of the ground level, intra-mural gallery was preserved and the stair in this had evidently been ripped out; however the wider section of the passage approaching its foot was clear. The structure had undergone destruction by fire, and subsequent partial demolition, before being occupied for a long period as a domestic site; but even so it was clear that it must have had at least two and probably three superimposed wall galleries to have been effective as a defended site [Figs. 2.22, 2.23].

The destruction, and the transition from primary to secondary occupation, was dated by clearly stratified 2nd century Roman pottery which showed that this semibroch was at least as old as the brochs. A rather imprecise C-14 date of 50 ± 105 b.c. (GX 1120) for charcoal from the construction levels showed that it could have been built in the pre-broch era as then defined (MacKie 1975a. 84; in prep.: site NG331). However, the

Fig. 2.21 General view of part of the galleried wall of Dun Ardtreck after excavation, showing the shallowness of the gallery and its rubble floor. Both features are the result of the hollow wall having been built on a rubble platform. 1965.

Fig. 2.22 View of the entrance passage at Dun Ardtreck after excavation, showing the two door-checks (faced with flat stone slabs) and the raised door to the guard cell on the left. At this stage the secondary ramp leading up to the outer end of the passage from the exterior is still in position, in contrast to the situation in Fig. 2.23. An iron door handle was found at the base of the right hand door-check and the passage lintels must have been removed during the secondary occupation of the site. 1965.

Fig. 2.23 View of the outer end of the entrance passage at Dun Ardtreck after the removal of the secondary ramp, revealing the primary paving below. 1965.

associated artefacts were all of standard middle Iron Age type, and a date for the construction of the site *substantially* earlier than the main broch period could not be demonstrated.

Another criticism of the site was that of Fairhurst who surmised that the C-14 date from this site in fact belonged to an earlier building and not to the D-shaped one (Fairhurst 1984. 178.) The point here is the curious construction of the foundations of Dun Ardtreck. The rock surface, thinly covered with turf, slopes downwards and inland from the edge of the cliff, and the builders were evidently unwilling or unable to found the galleried wall directly on this slope. Instead they used the lowest four or five courses of the curved outer face as a revetment for an approximately level rubble platform running backwards from that, until it merged with the rising rock face; the galleried wall was then built on this level foundation and the outer wallface continued upwards with no sign of a break (MacKie 1975. pl. 5f). Neither was there any other sign that the structure was built in two phases; if it had been, the hypothetical earlier one would have had to have rested on exactly the same foundations as the later, gallery-walled one and to have been of exactly the same D-shaped plan!

One intriguing object was in the destruction level, and had therefore arrived on the site in its primary phase of occupation. This is a Roman axe-hammer of standard military type (MacKie 1965. fig. 7 no. 2) — the only one so far found outside a Roman military installation in southern Scotland. It is tempting to imagine that it was a present to the chief of Dun Ardtreck by the commander of one of the ships of Agricola's fleet which circumnavigated Scotland from east to west in the mid-80s A.D.

Dun an Ruigh Ruaidh

Dun an Ruigh Ruaidh (or 'Rhiroy') on the south shore of Loch Broom, Ross and Cromarty, was diagnosed as another D-shaped semibroch built on the edge of a low cliff, although it was originally thought to be a broch (Calder & Steer 1949, 72 et seq.) [Fig. 2.24]. It was excavated in 1968 and 1978 and an account of the work has been published (MacKie 1980). Criticisms of the author's interpretation of this site have again concentrated on the dating and the ground plan; it has been maintained that the several radiocarbon measurements do not support a date for the construction of the site as early as the 3rd century B.C. and that the structure is simply another broch, part of which has fallen over the adjacent cliff (Harding 1984. 21).

The site itself stands on the southern shore of Loch Broom, at the cliff edge of a narrow, level terrace which slopes steeply down to the water. The structure has many broch-like features, for example the ledge or scarcement on the inside wallface which is (with one exception) found only in brochs and broch-like buildings. It also has a length of upper gallery preserved on the uphill side with some roofing lintels preserved — another architectural feature which is unknown outside the brochs [Fig. 2.25]. Yet this is relatively crude in construction, having an uneven floor on top of a solid wallbase.

Fig. 2.24 Dun an Ruigh Ruaidh. General view of the site from the north-west. 1978.

Fig. 2.25 Dun an Ruigh Ruaidh. General view of the semibroch in 1978 after excavation. In the foreground is the raised doorway from the interior to the upper part of the intra-mural stair. It was reached from the raised wooden floor resting on the scarcement visible on the inner face. The remaining steps have been re-buried but the flight ran up above the upper gallery visible in the middle of the wall, which therefore ended blind behind the stair.

The intra-mural stair and the standard broch entrance passage also confirm the close links with the brochs.

The site went through two main stages of occupation. At first it had a high, hollow wall and a clean cobbled floor with a massive central paved hearth, and within the interior was a substantial, two-storeyed wooden roundhouse the upper floor of which rested on the scarcement ledge and on a ring of heavy posts set in the floor [Fig. 2.26]. A small midden deposit below the cliff belonged to this stage. The central hearth implies that Dun an Ruigh Ruaidh was built for a single household, presumably that of a chief [Figs. 2.27, 2.28].

There were clear signs that this period of occupation was ended by the substantial demolition of the structure; the wall was lowered, the wooden posts of the roundhouse were pulled out and dark midden material began to accumulate all over the interior, including the fireplace. Three similar C-14 dates suggested that this episode took place in the first century b.c. or a.d. (MacKie 1980. table 1). What the meaning in social terms of this change is is not clear.

Close-Brooks refers to Dun an Ruigh Ruaidh as a broch despite the

Fig. 2.26 General view of the interior excavations at Dun an Ruigh Ruaidh in 1978, showing some of the post holes.

Fig. 2.27 Central primary hearth at Dun an Ruigh Ruaidh partly exposed in 1978.

report, but without giving a specific reason (Close-Brooks 1986. 149); she merely says that there would have been room for the 'missing' part of the wall if about 1.50m of the cliff has fallen away since the Iron Age. Although the structure is oval in plan it was clear from the excavations that the wall along the cliff was narrower and probably lower than elsewhere; the galleried part of the wall clearly did not extend beyond the main entrance which was on the south-east side facing along the cliff; and there just was not room for a wide galleried wall along that edge. A crucial piece of evidence was found by excavating below the cliff; there was no sign of the massive early fall of lumps of cliff followed by tons of rubble which would have occurred if a round broch had partly collapsed.

The question of the nature of the building is also considered by Harding:

> . . . Feachem's view that the missing third had simply fallen over the edge of the rocky bluff on which it stands is certainly not refuted by MacKie's small cuttings beneath the cliff, which were located too close to the cliff edge, and

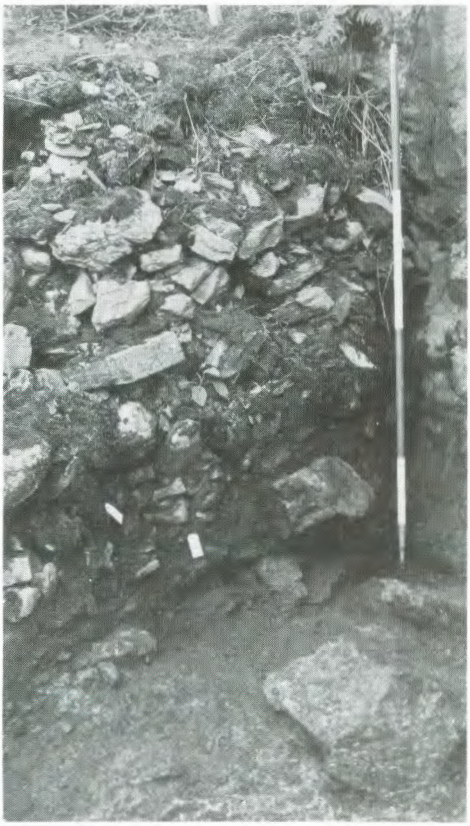


Fig. 2.28 Section of deposits exposed by trench below cliff on which semibroch stands. The pale subsoil is at the base and the Iron Age midden, underlying much later fallen rubble, is immediately on top of it, the two parts being marked with labels. Dun an Ruigh Ruaidh, 1978.

> rather too far south, to expect to find the massive debris which could have tumbled from a very considerable height . . . well down the slope towards the edge of Loch Broom. (Harding 1984. 211).

Yet both the sections show rubble piled highest against the base of the rock face (MacKie 1980. pl. 6a, fig. 11). The general plan (ibid. fig. 2) also shows how much debris is lying strewn down the slope immediately below the cliff, and a large piece of rock was in fact found just in front of its foot, but on the surface (ibid. fig. 11). The idea that debris would have bounded down the hill to the shores of Loch Broom a quarter of a mile away cannot be sustained; the only thing that nearly did that was a Calor gas tank which escaped during the packing up at the end of the 1978 season.

Most of this was obvious before the excavation started and the two trenches below the cliff were dug to find out if this mass of debris was ancient. The southerly of these is in fact immediately below one end of the massive wall and a huge amount of dry rubble debris would have been there if a high broch had collapsed, not to mention large fragments of the rock face. The problem is that the stratigraphy of both trenches under the cliff showed very clearly that most if not all the stone rubble is quite recent; 19th or 20th century objects were found in it, one at a low level, just above the Iron Age midden underneath. The fact is that it was impossible to identify the mass of early dry rubble that the collapse of a broch requires, and neither was there the slightest evidence for the early cliff fall needed to cause it. No amount of special pleading can get round this.

On the other hand, it has to be admitted that the set of radiocarbon dates obtained from excavated and clearly stratified samples of charcoal and buried turf do not form as clear a pattern as one would wish. Harding argues against an early date in the context of a clearly expressed doubt about the existence of the semibrochs as a class. He says that:

> dates . . . afford anything but a consistent sequence and certainly do not demand a third century [b.c.] dating of its initial phase; indeed, if we regard the sixth century date obtained for one of the post-hole samples as probably suspect [as, he might have added, was admitted by the excavator] then it would be hard to sustain a primary occupation, on the basis of the remaining dates, earlier than the first century B.C. (Harding 1984. 211).

The report analyses the difficult chronology of the site in detail, and the problem has been reviewed again recently (MacKie 1992). The only further comment to make here is that, since the dates admittedly do not form as clear a pattern as one would like, one is forced to look for guidance to other types of evidence. Most of the associated artefacts are quite distinct from the standard material culture of the Hebridean middle Iron Age sites and seem not inconsistent with the establishment of the site between the 3rd and 1st centuries B.C. However a rotary quern of middle Iron Age type was found jammed into a post-hole as a packing stone, though this could be secondary. By using the C-14 dates by themselves one could argue, though with less conviction, for a much earlier as well as a slightly later construc-

tion date, but the evidence is unfortunately equivocal. The writer tends to think that the date for the top of the old ground surface (approx. 2nd century b.c.) underneath it, is probably the best guide to the date of the erection of the building.

CONCLUSIONS

The results of the two excavations described seemed relatively consistent and satisfactory in the sense that they broadly confirmed the predictions made in 1965 — that the semibrochs existed as a distinct class of buildings closely related to the brochs, that they were very probably broch prototypes and were slightly earlier than the round towers.

Nevertheless, as already explained, persistent criticisms have been levelled at the hypothesis, presumably as a way of challenging what might be called the 'evolutionary' view of broch development — in which the structural evolution and geographical expansion of the buildings is specifically reconstructed — and thereby supporting a vaguer model based on assumptions of purely local development along a variety of paths (Hedges 1987. 1990; Armit 1990).

It has been shown that the doubts expressed about Dun Ardtreck and Dun an Ruigh Ruaidh are hard to sustain convincingly, and further powerful support for the 'semibroch hypothesis' is available from the analysis of the remaining unexcavated sites (MacKie 1992). Of course this does not mean that the remarkable early Orkney roundhouses are irrelevant to the question of how the brochs emerged; the picture must be more complex than the author thought in 1965 and an attempt to review all the available evidence is in progress.

Note

[1] Radiocarbon, or C-14, dates have 'b.c.' or 'a.d.' with them as they do not necessarily refer to calendar years, having to be adjusted — by varying amounts according to the age — by means of the tree ring 'clock'. Thermoluminescence dates on the other hand do relate directly to calendar years, so have 'B.C.' or 'A.D.' with them. In the Iron Age period in Britain, the C-14 dates tend to be a little younger than they should be in terms of calendar years.

References

Armit, I. (ed.) *Beyond the brochs: Changing perspectives in the Scottish Atlantic Iron Age.* 1990.

Calder, C. S. T. & Steer, K.A. Dun Lagaidh and four other prehistoric monuments near Ullapool, Ross and Cromarty, in *Proc. Soc. Antiq. Scot.* 1948-49. vol 83: 68-76.

Close-Brooks, J. *Exploring Scotland's Heritage: The Highlands.* 1986.

Fairhurst, H. The galleried dun at Kildonan Bay, Kintyre, in *Proc. Soc. Antiq. Scot.* 1938-39. vol 73: 185-228.

Hamilton, J. R. C. *Excavations at Jarlshof, Shetland.* 1956.

Harding, D. 1984. The function and classification of brochs and duns, in R. Miket & C.

Burgess (eds.) *Between and beyond the Walls: Essays on the prehistory and history of Northern Britain in honour of George Jobey.* 1984: 206-20.
Hedges, J. W. & Bell, B. That tower of Scottish prehistory: the broch, in *Antiquity.* 1980. vol. 54: 87-94.
Hedges, J. W. *Bu, Gurness and the brochs of Orkney.* BAR. 1987.
Hedges, J. W. Surveying the foundations: Life after 'Brochs', in I. Armit (ed.) *Beyond the brochs: Changing perspectives in the Scottish Atlantic Iron Age.* 1990: 17-31.
Lane, A. English migrants in the Hebrides: 'Atlantic Second B' revisited, in *Proc. Soc. Antiq. Scot.* 1987-88. vol. 117: 47-66.
MacKie, E. W. The origin and development of the broch and wheelhouse building cultures of the Scottish Iron Age, in *Proc. Prehist. Soc.* 1965. vol. 31: 93-146.
MacKie, E. W. English migrants and Scottish brochs, in *Glasgow Archaeol. Journ.* 1971. vol. 2: 39-71.
MacKie, E. W. *Dun Mor Vaul: an Iron Age broch on Tiree.* 1974.
MacKie, E. W. Dun an Ruigh Ruaidh, Loch Broom, Ross and Cromarty; excavations in 1968 and 1978, in *Glasgow Archaeol. Journ.* 1980. vol. 7: 32-79.
MacKie, E. W. Leckie broch — impact on the Scottish Iron Age, in *Glasgow Archaeol. Journ.* 1989. vol. 14: 1-18.
MacKie, E. W. The Iron Age semibrochs of Atlantic Scotland: a case study in the problems of deductive reasoning, in *Archaeol. Journ.* 1992. vol 101: 149-81.
MacKie, E. W. *The Roundhouses, Brochs and Wheelhouses of Atlantic Scotland, c. 700 B.C. to A.D. 300: Architecture and Material Culture.* forthcoming.
Martlew, R. The typological study of the structures of the Scottish brochs, in *Proc. Soc. Antiq. Scot.* 1981-82. vol. 112: 254-76.
Renfrew, C. *Investigations in Orkney.* Rept. Research Comm. Soc. Antiq. London. 1979. no. 38.
RCAHMS. *Ninth Report with Inventory of Monuments and Constructions in the Outer Hebrides, Skye and the Small Isles.* 1928.