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# The Atlantic Scottish Iron Age: five levels of chronology

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ABSTRACT

*Five forms of dating evidence are currently relevant to the archaeology of the Atlantic Scottish Iron Age. These are defined and evaluated to construct a sequence of structural and artefactual development. It is argued that a lack of clarity on the evaluation of dating methods is responsible for much of the current confusion in the literature. Alternative chronologies to that constructed here are valid, but must be explicit on their evaluation of the dating evidence and on the weighting and primacy of dating levels.*

*The terminology of the 'atlantic roundhouse' is introduced as a framework which enables conventional structural typologies to be more effectively analysed.*

*Within the extended chronology and using the new terminology as a descriptive device, developments can be traced which offer new perspectives on the settlement sequence and undermine the unilinear models of the Atlantic Scottish Iron Age. Differences in development between the Northern and Western Isles are already becoming apparent.*

CONTENTS



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## INTRODUCTION

The Atlantic Scottish Iron Age has a history of investigation stretching back to the mid-19th century when early Scottish antiquaries first became fascinated by the brochs, among the most visually striking of later prehistoric monuments in Britain. As with any such impressive monument type the brochs and associated structures were subject to considerable early, albeit inadequate, excavation, producing structural and artefactual information which, while large in quantity, is often deficient in quality. Roman period artefacts were noted in early work as being of relatively well-known chronology and their occurrence on broch sites was taken to indicate a Roman period *floruit* of broch architecture. The concept of multi-periodicity was very poorly developed prior to the mid-20th century and even some later excavators in Atlantic Scotland, as at Dun Cuier (Young 1956, reinterpreted in Armit 1988a), apparently failed to distinguish relatively clear structural phases. The dating of structures was based on comparisons of artefactual material with what were thought to be better-understood regions in southern England and elsewhere. Diffusion from the south was assumed to be the process by which the distinctive Scottish material and structural assemblages came into being.

The history of interpretation has been haunted by a number of preoccupations which have their roots in antiquarianism: the obsession with the original height of brochs, the overriding concern with the detail of architectural typology and the view that brochs were outwith the day-to-day settlement patterns of the period, all have their origins in the 19th century. Childe's term, 'Castle Complex', coined to cover all of the small drystone roundhouses of the Atlantic Province, unwittingly sustained the emotive and subjective approach to the subject (Childe 1935). Childe's work set the Atlantic Scottish Iron Age in the context of a wider diffusionist scheme, linked to historical events in the south of England. His ideas were subsequently refined, most notably by MacKie who attempted to trace the broch builders back to the refugees from Caesar's rout of the Veneti in 56 BC (MacKie 1983, 120). Chronology has often been dictated by these interpretations.

Despite much dissatisfaction with the detailed theories of broch origins of the 1960s and 1970s, the diffusionist views have proved resilient to change and the field has remained substantially unaffected by new approaches to archaeological problems elsewhere. This paper does not seek to reinterpret the Atlantic Scottish Iron Age: instead it will be restricted to the dating evidence. This data is incompatible with the diffusionist views of the 1960s and 1970s and requires instead the adoption of approaches which deal with the evidence in terms of indigenous development (albeit with contacts in several spheres of material culture with areas to the south).

The terminology used here to describe the drystone structures of Atlantic Scotland requires some explanation. The term broch has attracted such a wealth of associations and subconscious prejudices that its usefulness as an archaeological term is open to question (Armit 1988a). In this paper *broch architecture* will be employed as a collective term encompassing a range of structural traits found in the drystone structures of the Atlantic Iron Age (Armit 1990a); it is meant as a useful shorthand form referring to the technique of hollow-wall construction and the use of such traits as scarcements, intra-mural stairs, guard-cells etc. The thick-walled drystone roundhouses of the Atlantic Iron Age will be termed *atlantic roundhouses*; this term covers all those related structures previously subdivided into brochs, duns, galleried duns etc, but not including structures where elements of *broch architecture* are used outwith the domestic sphere, for example promontory forts, blockhouses or Harding's dun enclosures (Harding 1984).

Individual structures will be classed as simple or complex *atlantic roundhouses*; the *simple atlantic roundhouses* are those which, although they may be massively built, lack evidence for the use of the specific traits of *broch architecture*; the *complex atlantic roundhouses* employ some or all of these traits in their construction and include those structures previously classed as *broch towers*. This latter term will be used to describe structures with palpable evidence of multi-storey construction (MacKie's brochs (1983)) but does not imply a typological distinction; conditions of survival are such that it is virtually impossible to separate a class of *broch towers* from other types of *complex roundhouse* in the field. Further discussion of this new terminology has been published elsewhere (Armit 1990a).

The *simple roundhouses* encompass structures recently excavated in the north eg Tofts Ness, Bu, Pierowall etc, as well as a large range of western structures previously classed as duns. The *complex roundhouses* encompass the galleried duns of the west as well as the more familiar brochs. Wheelhouses remain a separate phenomenon in terms of the terminology, reflecting their different architecture (Armit 1990b).

## FIVE LEVELS OF DATING

Five different types of dating evidence will be considered: the body of C14 dates available from relatively recent excavations; the evidence of quern types; cross-dating using Roman material; native material culture; and structural typology. Having defined these forms of chronological evidence it is necessary to consider the weight to place on each: a hierarchy of dating methods can be created placing these types of evidence on descending levels of reliability.

In this paper it is argued that the C14 evidence should be taken as the starting point for analysis. The assumptions on which the method rests are based outside the realm of Atlantic Scotland and afford a chance to shake off the value labels which have become associated with various structural forms through a century of typological schematizing. The second level of dating will be the evidence of quern types; the full evidence for chronological significance of quern typology is discussed below but in essence it is a relatively uncomplicated chronological indicator which, if one takes the premise of a 'quern transition', is not subject to multiple interpretations.

The third level of chronological evidence, that of Roman-derived material, is more difficult to deal with, principally because of the generally poor recording of the sites on which it has been most often found. Although the meaning of Roman associated material within native Scottish contexts is far from clear it is still perhaps a more reliable chronological guide than the native material culture which has resisted many attempts at typological and chronological ordering. This fourth level of dating based on native material culture will be discussed more fully below.

The final level of dating to be considered here is that which derives from structural typology. As with the native material culture there is no justification for using structural typology as a starting point for chronology; rather it is something which must be derived at a secondary stage from more reliable data when this is available. This is why the first three dating methods – C14, querns and Roman material – have been given primacy in this study over the theory-derived levels of native material culture and structural typology. It is, of course, simplistic to suggest that any archaeological evidence is other than theory-derived and the distinction amongst the forms of evidence discussed above is one of degree. The

arrangement of the hierarchy presented here favours those dating forms with less inherent tendency to perpetuate outmoded hypotheses.

The relative chronological value of the dating methods is open to dispute but any contrary scheme should explicitly state which are given primacy. Traditional approaches have tended to take structural typology as Level 1, the prime level of chronological reliability,and have used this to evaluate other levels of evidence (eg MacKie 1983).

The hierarchy of dating is designed to place the emphasis on the least value-laden sources of chronological information which do not suffer from preconceived ideas controlling data gathering and definition. For example, structural typology can in some measure dictate results if it is used to include certain sites and exclude others at an early stage in the gathering of data; little progress can be made if analyses are restricted to sets of data defined by pre-existing hypotheses. If we study the chronology of broch towers and adopt too strict a typological definition of the term at the outset (excluding sites which may not have a sufficiently high degree of preservation to demonstrate the original presence of architectural features) we will be denying the possibility of any challenge to our typological scheme. Consequently this paper will examine evidence from a wider range of available structural forms. Atlantic Scotland will be taken to represent Piggott's Atlantic Province as far south as Coll and Tiree (Piggott 1966). Much of Argyll is deliberately omitted to avoid the particular problems associated with that area with its very diverse and poorly understood settlement forms.

The chronological period covered in this paper will end at AD 200, although it is recognized that this corresponds with no actual break in the archaeological sequence; the continuity of the Atlantic Scottish sequence from the early Iron Age to the immediately pre-Norse period has been stressed by the author elsewhere (Armit 1990b).

Full references to the published reports on each of the sites are listed in the appendix and the structural details mentioned in the text derive from these reports. References will not therefore be continually repeated in the text except where citation is required.

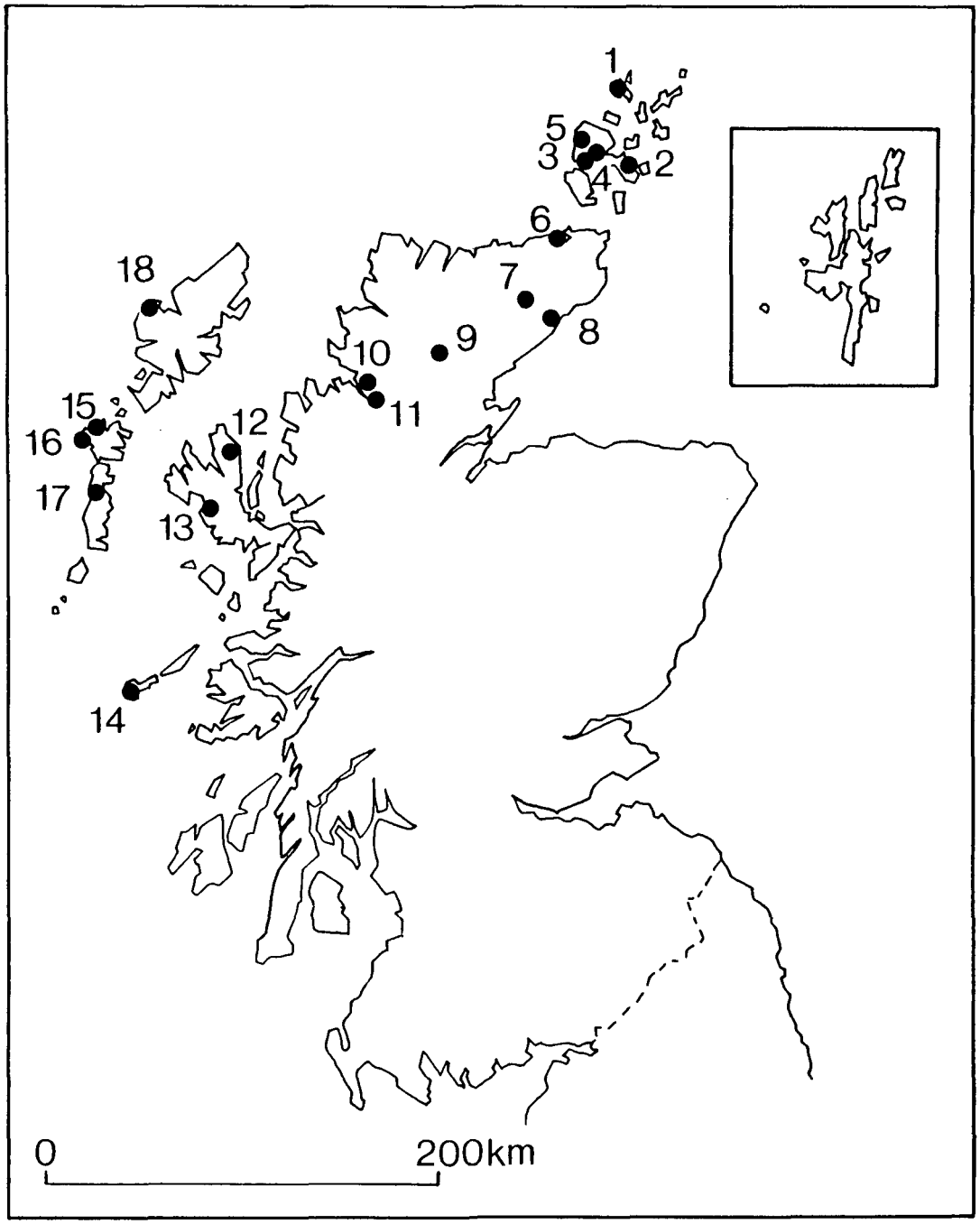
## LEVEL 1: C14 DATING

Radiocarbon dates are now available from sites in most parts of Atlantic Scotland and cover many of the known structural forms. Illus 1 gives the location of the sites yielding C14 dates while illus 2, 3 and 4 present the data, calibrated to calendar years by the method described in the appendix. The dates have been calibrated in order to align the C14 derived sequence with the evidence of historically derived dates. Confidence levels of 68% have been used and the pitfalls involved in the use of any individual date are obvious. Factors such as laboratory error, the use of different sample materials and contextual problems, must all be taken into account.

The appendix gives details of the dates and their contexts as well as references to the full reports of each. In some cases, notably Dun an Ruaigh Ruaidh, the interpretation of the dates given here is in fundamental disagreement with that of the excavator. The reasons for such divergent interpretations are given, where applicable, in the appendix.

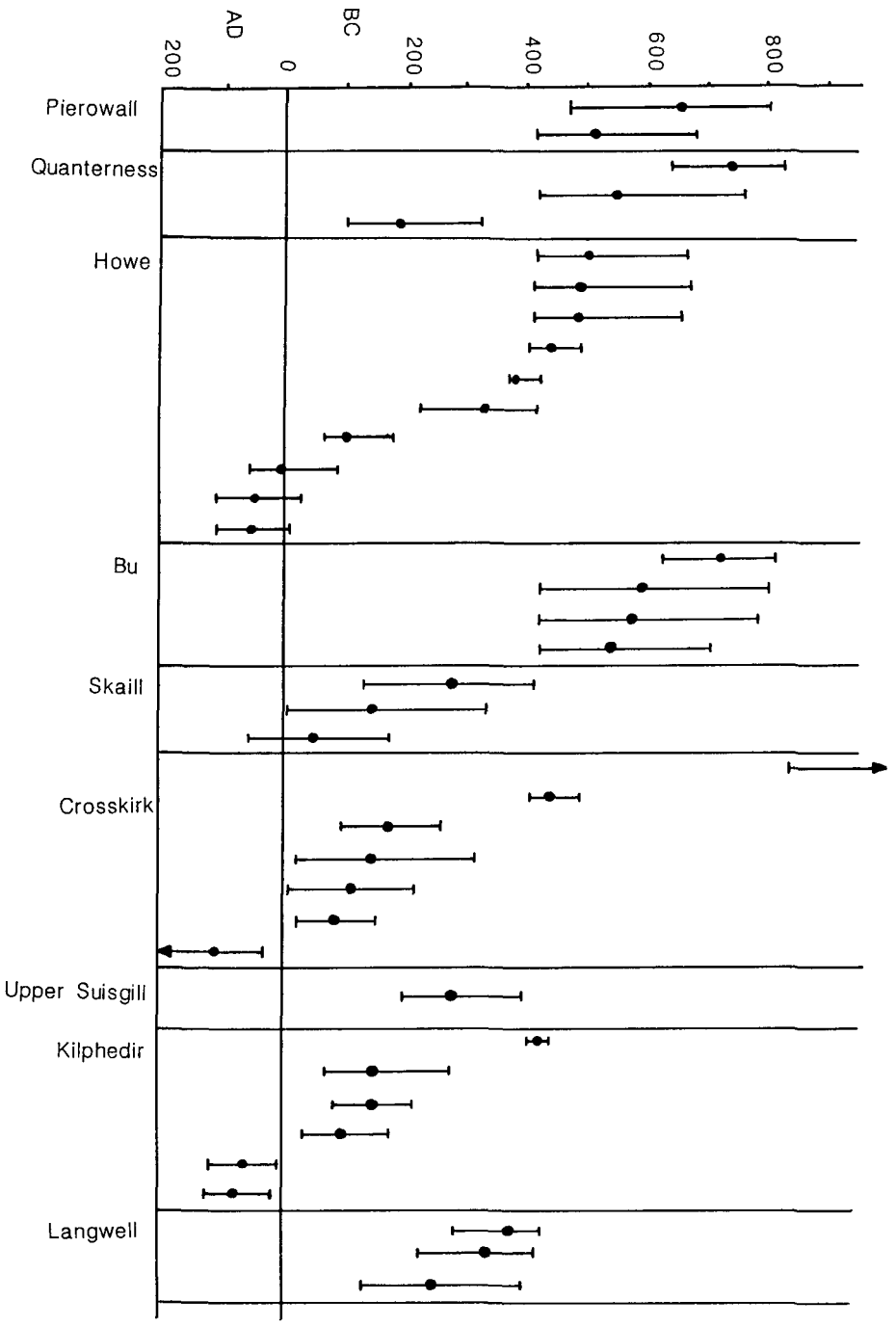
### PATTERNS IN THE C14 DATA

The C14 evidence for the Atlantic Scottish Iron Age is undeniably sparse and occasionally ambiguous but already clear regularities are beginning to emerge which can be used to form the basis for a chronology. It is possible that only the paucity of dates enables




ILLUS 1 C14 dated sites in appendix 1

1 Pierowall Quarry
2 Quanterness
3 Howe, Stromness
4 Bu
5 Skaill
6 Crosskirk
7 Upper Suisgill
8 Kilphedir, Sutherland
9 Langwell
10 Dun Lagaidh
11 Dun an Ruaigh Ruaidh
12 Dun Flodigarry
13 Dun Ardtreck
14 Dun Mor Vaul
15 Eilean Olabhat
16 Baleshare
17 Hornish Point
18 Dun Bharabhat



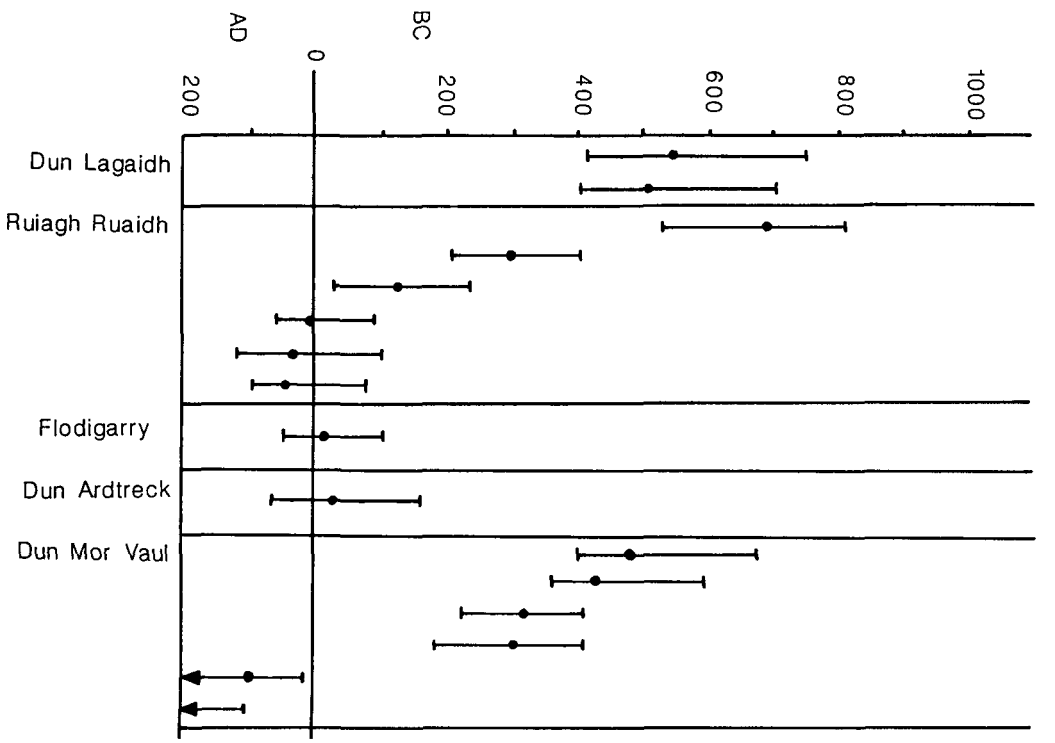

ILLUS 2 Calibrated C14 dates from the Northern Isles and North Mainland (data in appendix)

phases to be discerned; this must be acknowledged as a central restriction in the following description of the periods, dating very broadly from 800 to 400 BC, from 400 to 200 BC and from 200 BC to AD 100, where phasing is used as a descriptive rather than analytical tool. This section is restricted to structural features; material culture will be discussed as a separate level of chronological evidence.

800–400 BC

A series of dates from Orkney forms an almost indistinguishable group, statistically, for this period; it comprises dates from the primary occupation at Bu, Quanterness, Pierowall and the Phase 5 roundhouse at Howe. C14 evidence for settlement in the west at this period is more tenuous and restricted to the hillfort at Dun Lagaidh, early occupation at Dun Mor Vaul towards the end of the period, pre-roundhouse occupation at Dun Bharabhat and some of the dates from Hornish Point. These latter dates are discussed further below.

At Howe and Pierowall massive solid-walled simple roundhouses were occupied in this period; both were some 16 m in overall diameter, the former with walls 4 m thick and the latter 3 m, both poorly preserved. Howe is the only C14 dated roundhouse known to have had a surrounding enclosure and ditch at this time. The early dates suggest that the roundhouse was constructed between 500–400 BC. The roundhouse at Bu was 19.5–20.5 m in external diameter and enclosed an area some 9–10 m in diameter. Again the structure was solid-walled, but may originally have had a guard-cell leading off the entrance passage. Although the excavator has



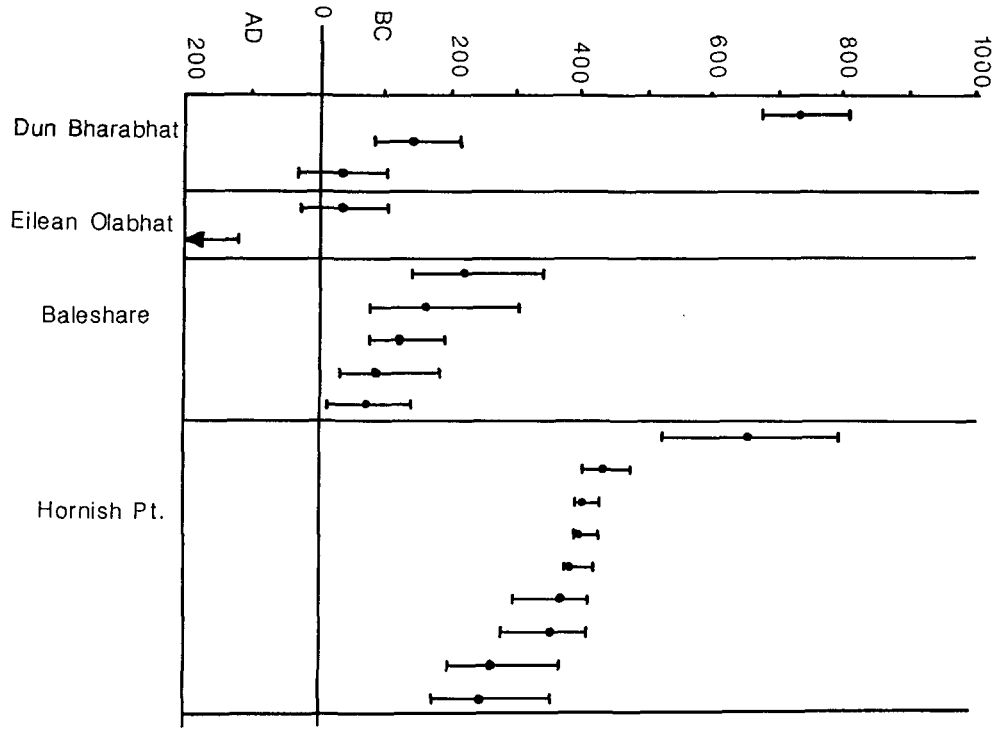

ILLUS 3 Calibrated C14 dates from the West Coast and Inner Isles (data in appendix)

described it as a broch (Hedges 1987, 10) it does not fulfil the criteria prescribed by MacKie (eg MacKie 1984). Quanterness had a slighter roundhouse structure built into the ruins of a chambered cairn (Renfrew 1979).

Little is known of the primary internal organization of these structures other than at Bu where there was a complex radial division of space (Hedges 1987, 12) suggestive of parallels with wheelhouses. The interior at Quanterness would appear to have been open in its primary occupation.

There is no solid evidence from these Orcadian structures of the appearance at this earliest stage of any of the specific structural characteristics used to define complex roundhouses; there is certainly no C14 evidence for the development of the highly specialized hollow-wall building technique which enabled the construction of broch towers, neither is there evidence of scarcement ledges or intra-mural cells, galleries or stairs. This could simply be the result of an inadequate database but, as will be discussed below, it may well reflect the original situation and be compatible with models for structural and cultural development in the period.

Interestingly there is one date from Crosskirk, SRR-266, which calibrates to a reasonably tightly defined period between 487–406 BC at the 68% confidence level. This date from the primary floor at Crosskirk was rejected by Fairhurst (1984) despite its internal consistency with dates from the secondary internal occupation levels. In view of other dates from solid-walled roundhouse sites it may be permissible to accept this as a genuine date for the primary occupation at Crosskirk. If this were so it would imply the construction of a thick-walled




ILLUS 4 Calibrated C14 dates from the Outer Hebrides (data in appendix)

roundhouse of relatively modest height (the clay-cored wall would have restricted potential height) containing a guard-cell, intra-mural cell and intra-mural stair, in Caithness in the fifth century BC. This would be consistent with a development of complexity from the simpler Orcadian type which seems to be focused earlier in the period. The radially partitioned interior invites comparisons with Bu and strengthens the possibility of chronological proximity.

The C14 dates suggest an internally consistent development in this period from simple thick-walled roundhouses as at Bu and Howe to more complex but essentially similar structures exemplified by Crosskirk. A fifth century BC date is also strongly suggested for the hut circle group at Kilphedir which consisted, at this stage, of slighter walled roundhouses.

400–200 BC

Dates which fall into this period at the 68% confidence level derive from Howe, Crosskirk and Skaill in the north (together with enigmatic reconstruction and reoccupation at Quanterness) and from Hornish Point, Baleshare, Dun an Ruaigh Ruaidh and Dun Mor Vaul in the west. The later dates for the secondary occupation at Dun Bharabhat, Lewis, indicate primary occupation of the roundhouse in this period. The apparently continuous nature of the structural sequence at Howe together with date GU-1758, indicate that these two centuries saw the construction of the Phase 6 structure, similar to the complex roundhouse at Crosskirk.

The Howe structure had walls 3.5 m in width and preserved up to 2 m in height, containing two intra-mural stairs and two 'guard-cells': its interior was divided by radial partitions similar to those at Crosskirk and Bu. Like Crosskirk, the Howe structure provides a structural link between the simple roundhouses and broch towers. The occupation at Skaill and Quanterness suggests that settlement in Orkney was by no means restricted to massive complex roundhouses.

At Dun Mor Vaul occupation continued but without convincing structural associations and the western C14 evidence is restricted effectively to that from the Central Excavation Unit's excavations at Baleshare. The evidence from the former site does not relate to any convincing settlement structure so in this discussion only Hornish Point is relevant. As discussed in the appendix, there is strong dating evidence at Hornish Point for the construction and occupation of one or more wheelhouses between 430–300 BC (Barber pers comm and forthcoming). Unfortunately the excavation was restricted in scale but it is clear that Structure 5 represents a small drystone sand-revetted structure containing a number of radial piers converging on a central open interior (Barber forthcoming).

This apparently disturbing early dating, relative to conventional wheelhouse dating, will be seen in clearer perspective when other levels of dating are examined but the very great degree of similarity in the organization of interior space between areas and through time in the Atlantic Scottish Iron Age should not go unnoted at this stage.

The later dates for the secondary occupation at Dun Bharabhat, Lewis, indicate primary occupation prior to c 200 BC. The immediately pre-roundhouse occupation material, relating to incompletely excavated phases dates to the seventh century BC, and thus the foundation of the roundhouse could be substantially earlier than 200 BC. The structure is a complex roundhouse with intra-mural stairs and galleries and entrance features typical of broch architecture. Its small size and the width of one gallery entrance (so wide as to pose problems of weight stress on the lintel if much walling had been in place above it) make interpretation of the structure as a broch tower difficult.

By c 300 BC there appear to have been structures in Atlantic Scotland which contained many of the features associated with broch architecture conventionally ascribed to a much later period.

200 BC–AD 100

This period encompasses the broch tower phase at Howe, much of the secondary occupation at Crosskirk, the more reliable dates for Dun an Ruaigh Ruaidh and Dun Mor Vaul together with the single dates from Dun Ardtreck and Dun Flodigarry and secondary occupation in Dun Bharabhat.

The interior partitioning and general plan of the Howe broch tower unambiguously link it with the complex roundhouse which previously occupied the site and with the Crosskirk complex roundhouse and thus with the earlier simple roundhouses. The dates from Flodigarry and Ardtreck indicate the building of ground-galleried roundhouses, possibly of tower-like proportions in this period. The dates from Dun Mor Vaul and Dun an Ruaigh Ruaidh are consistent with this broad period.

The occupation at Dun an Ruaigh Ruaidh, as discussed above, seems to have centred on the first century AD. This site, too, was a ground-galleried roundhouse, with upper gallery levels preserved. The contention of the excavator that the structure was a 'semi-broch' seems untenable. The structure, from its position on the eroding cliff-edge, has lost much of its walling through collapse. The attempt to find rubble below, where the cliff has fallen away, did not in any way disprove this; the collapsed masonry and natural rock must have formed an ideal quarry for the many stone buildings in the valley below (this also explains why the remaining structure above has been allowed to survive to upper gallery level). Equivalent circumstances account for the 'semi-broch' interpretation in the case of all of MacKie's D-shaped examples. 'Broch architecture' is meaningful only, in structural terms, in a complete circular or subcircular structure where weight distribution can be channelled evenly.

This period also witnessed the construction of roundhouses with continuous intra-mural galleries and other features of broch architecture. There may be an increase in architectural complexity and in the number of *complex roundhouses* overall; alternatively this could be an artefact of the C14 dating. No simple atlantic roundhouse is clearly attributable to this period. Further sections will attempt to fill out and amplify the very broad outline chronology which is perceptible in the C14 evidence.

## LEVEL 2: THE QUERN TRANSITION

The importance of the adoption of the rotary quern, in place of the archaic saddle quern, to the chronology of the Atlantic Scottish Iron Age was first stressed by Seamus Caulfield (1977). The central hypothesis was that the superiority of the rotary quern, in both the quality and the speed of its grain processing, would ensure that once adopted in one part of the area it would supersede the saddle quern within a period which would seem to the archaeologist to be extremely short. Thus a 'quern replacement horizon' lasting an unknown, but almost certainly very short, period during which the two types were in use can be envisaged. Generally, however, the presence of a saddle or rotary quern on a site would indicate a pre- or post-replacement date.

Caulfield's main intention was to show that the prevalence of saddle querns on northern roundhouse sites compared with their absence from the west suggested that the earliest broch

towers were constructed in the north, in contrast to the ideas of Euan MacKie. Evidence discussed below, however, suggests that saddle querns were in use on western roundhouse sites. Indeed, the whole question of geographical 'broch origins' need not be a central issue and the importance of quern transition theory lies in the recent evidence for the dating of the transition to the use of rotary querns and for the implications of this date for the wider questions of Atlantic Scottish chronology. It is the contention here that if the hypothesis of an archaeologically sudden quern transition is accepted then we must be prepared to address the problems of chronology which that hypothesis raises; problems which render invalid many long-established theories of structural development and sucession.

It is important to assess the validity of the quern transition as a short-lived process within the region. The superiority of the rotary quern is not in question: if efficiency and quality of product were the only criteria there would be no room for doubt that the rotary quern would have rendered the saddle quern obsolete in the Atlantic Province in a few years at most. The problem lies in our lack of understanding of the way in which remote and potentially conservative farming communities react to technological innovation. There are two main arguments which suggest that the communities of the Atlantic Scottish Iron Age may have been quick to accept this change in technology.

The development and spread of structural innovations across areas which, in terms of primitive transport capabilities, were very extensive is not indicative of the behaviour of isolated and inward-looking communities. The spread of highly complex and specific building techniques involved in broch architecture must show that, whatever the process behind their spread, communities were not afraid of change. With the obvious advantages of the rotary quern to influence acceptance it is likely that contacts across the Atlantic Province would have led to the displacement of the saddle quern within a relatively short period.

The second argument lies in the economic urgency which may have further opened communities to technological development. The deterioration of the northern climate during the first millennium BC – indicated, for example, in the peat growth over a mid-first century BC agricultural settlement at Kilphedir – would have led to substantial social and economic changes. An openness to agricultural developments in such a situation is intrinsically more likely than in more static and successful socio-economic systems.

The rotary quern is ubiquitous on sites of the period, but it was not an isolated agricultural development; the disappearance of stone ards from the artefactual record, suggestive of their replacement by iron versions (Hedges 1987, 93), is another example. The appearance of horse bones, indicative of small domestic herds (Macartney 1984, 137), is another innovation linked either to agricultural practice or alternatively to the display of prestige through horse ownership and riding. The context of the period under consideration gives every support to the idea of the rapid adoption and spread of the rotary quern. The dating of this transition is central to the chronology of the many sites from which saddle and rotary querns have been obtained.

The dating of the quern transition, in the hierarchy of chronological levels, rests on the C14 evidence. The appendix gives details of dates from Crosskirk and Baleshare which are relevant to this matter. Both sites have deposits which contain or seal rotary querns, or fragments, and provide dates for a period when the rotary quern was already established, rather than for the transitional period.

The rotary quernstone at Baleshare was built into the entrance passage of a structure in a Hebridean machair site (Barber forthcoming, see appendix for further details). This site is dated by a series of C14 dates. The dates presented for Baleshare in illus 4 are contemporary

with or later than the structure containing the quern. This tight cluster of dates strongly suggests the abandonment of this structure prior to the mid or late second century BC. The structure was built after a rotary quern had been made, used and discarded. Even assuming a short life for this sand-revetted structure, and a short life for the quern in its primary function, it is difficult to sustain the view that the rotary quern was introduced in the Outer Hebrides substantially later than 200 BC.

The Hebridean evidence is paralleled at Crosskirk in Caithness (Fairhurst 1984). The relevant dates from this site relate to the complex roundhouse at a period after its initial occupation (illus 2). The dates are taken from layers in the build-up of occupation material within the roundhouse and from associated parts of the external occupation. These dates as a group again suggest that querns had been made, used and broken on this site prior to the period of 150–100 BC and give a *terminus ante quem* for the quern transition in Caithness which is consistent with that for the Outer Hebrides.

Future C14 dating will further define the period of the quern transition by dating deposits containing rotary querns. A date of c 200 BC would seem a reasonable estimate at the present state of knowledge. There is, as yet, no convincing internal typology for either rotary or saddle querns in Atlantic Scotland. Only a broad distinction between the pre- and post-replacement periods is currently possible. Nonetheless, a reasonably secure dating of this replacement to the period c 200 BC provides a wealth of information relevant to existing models of structural and material development in the Atlantic Scottish Iron Age.

One problem of potential significance for the use of the quern transition as a chronological indicator is the possibility of the survival of saddle querns for uses other than grain processing. The range of possible functions for saddle querns is greater than that for the more specialized rotary querns. It is not clear if grinding equipment for non-grain processing functions is of a form likely to be confused with saddle querns. Most of the Hebridean sites where rotary querns are found contain no saddle querns and the transition appears to have been complete. At the Howe saddle querns do survive into the later period (Beverley Smith pers comm) but their contexts are overwhelmingly from collapsed building rubble. A major study of the forms and contexts of saddle querns over the period will be needed to assess the degree of survival and the possibility of changes in form and size for saddle querns used for purposes other than grain processing. At present only the appearance of rotary querns is of definite chronological significance while the occurrence of saddle querns *in situ*, especially where they occur in number and without associated rotary querns, should be treated cautiously as an indicator of pre-quern transition date.

### NORTHERN QUERN EVIDENCE

As Caulfield pointed out, there are many instances of saddle querns being found on northern roundhouse sites although most are very poorly recorded or entirely without contexts. The sequences on sites such as Howe give warning that without properly recorded contexts it cannot be certain that a saddle quern from a given site is associated with the occupation of the roundhouse rather than with an underlying and unrecognized structure possibly of simpler type. In using the quern transition to examine structural sequences it is valid to use only those examples which can be assigned to a reasonably specific context.

The two principal northern sites to be affected by the re-dating of the quern transition are Jarlshof in Shetland and Gurness in Orkney. At Jarlshof there are no querns recorded from within the roundhouse itself but the Aisled Roundhouse, which was the earliest

identified post-roundhouse structure on the site, yielded both saddle and rotary querns (Hamilton 1956). The Aisled Roundhouse has been considered in detail elsewhere (Armit 1992) and has been shown to have been a wheelhouse even in its earliest form with no evidence of the timber post phase which Hamilton considered to have pre-dated the insertion of radial stone piers. The earliest wheelhouse at Jarlshof would seem to straddle the local quern transition and date to around 200 BC. The later structures on the site contained only rotary querns.

The importance of this re-dating of the first Jarlshof wheelhouse or aisled roundhouse is that it places the entire construction and primary occupation of the complex roundhouse into the period prior to 200 BC, far earlier than the accepted dating for that site. This need not necessarily surprise us since, although Jarlshof has long been accepted as one of the classic 'broch' structures, in the traditional sense, it does not have evidence of greater structural complexity than the structures at Crosskirk and from Howe in Phase 6 which have been referred to above as complex roundhouses. The Jarlshof structure is a massive-walled, possibly circular roundhouse with a solid base and evidence of a guard-cell, fragment of a basal cell and a scarcement, taken to indicate an upper floor level. This does not amount to a greater structural complexity than is demonstrated at Crosskirk or Dun Bharabhat, and the pre-200 BC date is not inconsistent with the emerging C14 chronology. The scarcement is the only structural feature not present at the latter sites and at Jarlshof it lies at a height of 2.5 m, the maximum height to which Crosskirk was preserved and above the preserved height of Bharabhat.

The structure at Jarlshof was a complex roundhouse similar to others which had developed from the earlier simpler roundhouses and which was constructed at broadly the same time as Crosskirk. Unlike the latter structure it was abandoned, at least in its primary form, much earlier and succeeded by the earliest wheelhouse on the site at c 200 BC. Whether the roundhouse at Jarlshof ever possessed the same radial interior organization as Crosskirk, Bu and the others, is not clear as the primary floor has never been exposed; the one original feature known, the rock-cut well, does however form a striking parallel with the former site and with Gurness, discussed below. By the period of the quern transition Crosskirk was still inhabited, albeit in a progressively modified form, while the Jarlshof roundhouse had been supplanted by the early aisled wheelhouse.

Gurness in Orkney is perhaps the most important site to be affected by a re-dated quern transition. Gurness displays unambiguous broch architecture; it was a broch tower, with clear evidence of upper galleries and floor levels in combination with other definitive features of broch architecture. Like the demonstrably early sites at Bu, Howe Phase 6 and Crosskirk, Gurness displayed traits of spatial organization based on radial division accomplished by the use of projecting stone piers. In terms of spatial organization as well as construction it lies in the developing tradition which springs from these architecturally simpler structures. The earliest occupation levels at Gurness yielded saddle querns and the upper levels rotary querns. This was noted specifically by the original excavator (Craw quoted in Hedges 1987) and seems to indicate primary occupation of the structure prior to 200 BC with occupation continuing well beyond this date.

The re-interpretation of the site by Hedges does not take the evidence of these querns into account and prefers a first century AD date for construction on the basis of Roman material which will be examined below (Hedges 1987). This reverses the hierarchy of dating proposed in this paper and is valid if one denies the importance of the quern transition. Since the early dating of the site would not be inconsistent with the C14 dating of complex

roundhouses, and since the quern evidence from other sites provides an internally consistent sequence, the reversal of the hierarchy of the dating methods must be argued. If the later dating is accepted, the inapplicability of the quern transition to Gurness must be explained. With reservations expressed above regarding the use of saddle querns as a pre-transition indicator, the numbers and exclusivity of the Jarlshof and Gurness contexts argue for the chronological review proposed here.

The numbers of saddle querns from early roundhouse excavations in the north give circumstantial support to the hypothesis that the majority of these structures were constructed prior to 200 BC to represent the archaeologically most visible phases of sites where the structural development began at an early period (data collated *in* Caulfield 1977, 131–3). The numbers and contexts of rotary querns similarly indicate that the quern transition in no way marked the end of complex roundhouse occupation. The evidence from C14 and quern dating for the construction of northern roundhouses after the local quern transition is, however, restricted to the somewhat ambiguous dating of the later broch tower at Howe.

One other Orcadian site worthy of consideration in the light of quern dating is the Calf of Eday (Calder 1939). The construction of the thick-walled roundhouse on this site, which had substantial radial stone piers and which is normally regarded as a wheelhouse, should pre-date the quern transition. The closest Orcadian parallel for this structure is not a wheelhouse but instead is the massive-walled roundhouse at Bu. The Calf of Eday structure would seem to parallel the simple massive-walled roundhouses towards the earlier part of the Orcadian Iron Age.

Returning to the description of structural development discussed in the previous section, in the light of the quern transition evidence, the picture can be somewhat amplified. The development of simple roundhouses prior to 400 BC, as at Bu, Howe and possibly the Calf of Eday, would seem to be followed by the relatively rapid development of related structures, of similar scale but of increasing and variable complexity as at Crosskirk, Jarlshof and Howe with the earliest clear evidence for the building of a broch tower, with all the specialized architectural techniques which that entails, coming from Gurness prior to the quern transition around 200 BC.

Gurness is representative of a number of northern complex roundhouse sites which have extensive associated occupation in slighter structures surrounding and focused on the central roundhouse itself. Occupation of roundhouse sites continues well after this date into the second and first centuries BC although some such as Jarlshof are clearly superseded by the wheelhouse form. Roundhouse sites form the focus for later settlement into much later periods (even into the post-medieval period in the Outer Hebrides) but it is important to differentiate phases of construction and primary occupation from reconstruction and secondary use.

### WESTERN QUERN EVIDENCE

The situation in the western Atlantic Province is somewhat different regarding the relation of quern types to structural form. For the reasons presented above this discussion assumes an archaeologically indistinguishable date for the quern transition across the Atlantic Province at the period around 200 BC. As Caulfield observed, the evidence for querns in the western roundhouse sites shows significant differences from those of the north (Caulfield 1977).

Ground-galleried complex roundhouses such as Dun Mor Vaul and Dun an Ruaigh

Ruaidh have rotary quern fragments stratified in pre-roundhouse contexts at the former site and primary structural contexts at the latter (MacKie 1974 & 1980). Such developed broch-towers were being constructed after the local quern transition and thus later than any securely dated northern example.

Some western sites, which Caulfield did not consider, do show evidence of earlier construction of complex roundhouses. Dun Cuier, in Barra, is a ground-galleried complex roundhouse which yielded a saddle quern from an unclear context. Dun Thomaidh in North Uist provides a futher example of a saddle quern occurring on a re-occupied complex roundhouse site (Armit 1992). This Hebridean evidence would suggest that, as in the north, complex roundhouses were constructed and occupied prior to 200 BC although in the west there is unambiguous evidence of construction extending into the last two centuries BC.

C14 dating has not yet been deployed in the west on sites likely to shed light on the earlier parts of the Iron Age sequence. The western equivalents of Bu, Crosskirk and the rest, if they exist, have not yet been explored. The two regional sequences may be focusing on different parts of the same sequence and may be complementary in developing a unified model for development in the Atlantic Province, or they may indicate genuine differences with an early development in the north followed by abandonment soon after the quern transition while broch architecture arrives fully developed in the west and persists longer. One initial observation of possible significance is that the best understood complex roundhouse excavations in the west, at Vaul, Ruaigh Ruaidh and Flodigarry, all represent structural developments on sites without apparent previous massive-walled stone buildings.

The western situation is complicated by the parallel occurrence of a seemingly distinct but clearly contemporary structural tradition in the form of the wheelhouse. The distinctiveness of the wheelhouse, as a structural type, is not as great as was once thought; the spatial organization of the northern roundhouses shows a similar tradition of the organization and division of domestic space. Several Hebridean wheelhouses, those which are free-standing and massive-walled, seem as close to the northern roundhouse architectural tradition as to their neighbouring sand-revetted wheelhouses (Armit 1992). The definitive characteristic of the wheelhouses which sets them apart architecturally from the traditions of broch architecture is the structural use of drystone corbelled bays, founded on drystone piers, for roofing the periphery of the structure. Rather than simple spatial divisions, which may be irregularly spaced and may be formed of single set slabs, the piers of the wheelhouses form a regular radial foundation for peripheral roofing.

The site of Foshigarry, North Uist, shows a sequence of development from aisled to bonded-pier wheelhouse which strikingly parallels that at Jarlshof and bears an identical relationship to the local quern transition. The first wheelhouse at Foshigarry had both saddle and rotary querns while the later two had only rotary querns (Armit 1992). The great majority of the Hebridean wheelhouses yield only rotary querns and some eg Kilpheder (Lethbridge 1952) and A'Cheardach Mhor (Young & Richardson 1960) incorporate rotary querns in their walling and were built after the quern transition. The evidence for dating wheelhouses to the period from the third to fifth centuries AD has been considered elsewhere and shown to be untenable (Armit 1992). The combined C14 and quern evidence for the Hebridean wheelhouses indicates development possibly as early as 300 BC, suggested by the dates from Hornish Point, and continuing construction and occupation well after the local quern replacement horizon.

## LEVEL 3: ROMAN MATERIAL

The greatest impact of C14 dating in the Atlantic Scottish Iron Age has been in our understanding of the early part of the period, while the dating of the quern transition has increased our awareness of developments in the period around 200 BC. The study of Roman and Roman-associated material is restricted, by definition, to elucidating developments towards the end of the conventional Atlantic Iron Age. Roman material was originally the only means of dating the Atlantic Scottish Iron Age so it is not surprising that the notion of a Roman period *floruit* has been so resistant to change.

The types of Roman material found in the Atlantic Scottish Iron Age comprise essentially coinage, glass and pottery, both Coarse Wares and Samian. In absolute terms the quantity is very small. An obstacle to interpretation is our lack of knowledge as to the processes by which these objects come to be on native sites outwith the areas of Roman penetration and the context of their use in native societies. No attempt has been made to analyse the types of Roman material and their contexts with a view to explaining the processes which lead to their introduction into Atlantic Scotland. Without such a model it is difficult to assess the value of Roman material as a chronological tool except insofar as such material, where its date of manufacture is known, provides a *terminus post quem* for its associated material.

The date of Roman influence on Scottish material culture is generally held to be the late first and second centuries AD when Roman military strength in the north was at its height. Generally Roman material is seen as representative of heirlooms or trophies of raids or even scavenging on Roman sites. Other interpretations could be envisaged which involve gift exchange or direct trade. Roman finds have tended to be regarded as exotic curios in otherwise mundane cultural assemblages.

Several of the sites dated by C14 and quern evidence have yielded Roman material. Crosskirk is a valuable example in highlighting how the presence of Roman material could, in the absence of the C14 sequence and the evidence of the quern transition, entirely mislead us into believing that the site had been constructed in the first or second centuries AD.

Several fragments of Samian pottery from Crosskirk, dating from the second century AD, occur in contexts secondary to the construction and original occupation of the structure. All appear to belong to Period 4 possibly, but not conclusively, after a break in the occupation of the site (Fairhurst 1984, 115). A small fragment of Roman glass belongs to this same occupation material. A sherd of Castor Ware found under the turf outside the roundhouse at Crosskirk demonstrates that occupation on the site continued into the fourth century AD (Breeze 1984, 115) although the presence of the complex roundhouse form on the site by this time may have been incidental.

There is no convincing evidence for a break in the occupation at Crosskirk, this belief apparently stemming from incredulity at the relatively shallow depth of stratification which had built up inside the roundhouse after several centuries of occupation. It need not cause major surprise that a society who possessed the technological ability to construct a complex roundhouse also possessed the practical sense to keep the build-up of debris on the floor to a minimum.

Most of the Roman finds from Atlantic Scotland are small fragments of larger pottery or glass vessels; whilst glass may have been brought into the structures broken for re-use, unless small broken potsherds were treasured in their own right it is likely that these original Roman artefacts were used and eventually broken in the structures themselves. That only small and

occasional fragments are found again suggests that debris was regularly removed from domestic floors.

The relatively well-understood sequence at Crosskirk, which, despite its wealth of Roman finds, was a construction of much earlier centuries, is of great relevance to a reinterpretation of the sequence at Gurness. The previous section proposed a foundation date for the broch tower at Gurness prior to c 200 BC, a view clearly at variance with that expressed in the recent publication of the site (Hedges 1987) which favours a first century AD date on the basis of Roman period finds. This is the result of allotting primacy to the Roman material over the quern evidence, although the two need not be contradictory.

To take the Roman material as evidence of a first century AD date for the foundation of the broch tower entails a number of difficulties. It implies that the builders of this structure, surely one of the most architecturally advanced buildings of the period, continued to use large numbers of saddle querns which had been rendered obsolete, for the processing of grain, in neighbouring Caithness some two or three centuries previously. This is especially difficult to sustain since they were manifestly in contact, however indirectly, with the Roman world.

The original excavator stated expressly that the saddle querns came from the lowest levels and were superseded on the site by the rotary form. Hedges notes, in this reinterpretation, that the stratigraphic basis for this interpretation is insufficient from the extant records and that all that is known is that specimens of both saddle and rotary querns were located beneath the final floor (Hedges 1987, 78). This tells us nothing of the relative stratigraphy of the two types. Nonetheless Craw's belief in the spatial separation remains, and reflects the situation which would be expected, so it is clearly necessary to examine the reinterpretation made some forty years after the excavation which refutes the observation of the excavator. This entails examining the Roman material and its contexts.

The Roman material from the site comprises a glass globule and toggle, possibly made from re-used Roman glass, and fragments of a Roman amphora dated to the second century AD. Some of this material derives from contexts below the final identified floor but none is clearly associated with primary occupation. The two glass fragments were found when material which had subsided into the underlying well was sieved. All that is known is that they came from below the final floor; not, as Hedges states, that they came from the 'earliest' floor. It would seem likely that material subsiding into a well would be disturbed stratigraphically and likely to have been deposited originally after the well had gone out of use, ie some considerable time after the construction of the well and thus presumably long after the primary occupation of the broch tower.

The complex constructions within the well may also date to a period after the initial occupation. The only convincing stratigraphic determinant for the Gurness interior deposits is whether a given find derives from the final floor or before it. If the level of information from Crosskirk had been similar, then that site too would have been interpreted as a Roman Period construction. The broch tower at Gurness was occupied well into the Roman period but this is not inconsistent with a foundation in the third or second century BC as was the case at the even earlier site of Crosskirk, this view being consistent with the presence of seven saddle querns in the site assemblage.

No other northern roundhouse site has well-stratified evidence linking Roman material to primary occupation or construction. Clickhimin in Shetland yielded a fragment of a Roman colourless glass bowl from its secondary interior modification stage (Hamilton 1968, 138). This would date this re-occupation and rebuilding to the late first or second century AD. In Orkney Roman finds show continuing occupation of complex roundhouses in the second century AD at

sites such as Oxro, Taft and Borthwick (Hedges 1987, 30) demonstrated by the presence of Samian Ware. A series of *denarii* from Lingro included at least two of Crispina dating their production to AD 180–3 (*ibid* 30).

In the western Atlantic Province the only secure contexts for Roman material from a roundhouse site come from Dun Mor Vaul in Tiree. Sherds of Antonine Samian Ware and a number of Roman glass fragments combine to extend the date of the secondary occupation of the structure into the second century AD. Hebridean wheelhouses have produced few examples of Roman or Roman associated material; a Samian sherd from Bac Mhic Connain in North Uist (Beveridge 1930) has no recorded context to link it with the occupation of the wheelhouse on that site. The fibula found in an aumbrey at the Kilpheder wheelhouse in South Uist may again date from the late second century AD but its context could indicate deposition at any time prior to the total infilling of the wheelhouse (Lethbridge 1952, 182).

There is extensive evidence of Roman Period occupation of complex roundhouses but no evidence as yet for their construction in Atlantic Scotland at this time. It is possible that the large external settlements which were associated with many northern roundhouses became the more important element on the sites at this time and that they, rather than the roundhouses, were the focus for expansion. The Orcadian sites with Roman occupation tend also to be those with evidence of substantial associated external settlements, eg Gurness, Midhowe, etc. This pattern is not exclusive and in the west the typical single-structure settlements seem to have persisted, eg Dun Mor Vaul.

Indications that the period of currency of broch architecture may have continued into the first century AD comes from the lowland complex roundhouses outwith Atlantic Scotland and outwith the scope of this paper (Macinnes 1984). In the Atlantic Province the evidence of this third chronological level clarifies the pattern suggested by the C14 dates for the latter part of the Iron Age. In discussing the C14 and quern evidence it was suggested that the broch tower developed from complex roundhouses present between 400–200 BC. Sites such as Gurness would have represented early examples of the fully developed form, Gurness being constructed not later than c 200–150 BC. The evidence of Roman material is compatible with this picture and extends the occupation of these structures into the second century AD although the paucity of well-defined stratigraphic contexts means that it is not possible to be sure that broch architecture was still current after the first century AD in Atlantic Scotland.

The evidence of continuity into the Pictish period is amply demonstrated in Orkney (Hedges 1987) and in the Outer Hebrides (Harding & Topping 1986; Armit 1988a) and would seem to reflect a generally continuous development of settlement into the period beyond that considered in this paper. The next stage in the chronological investigation of the Atlantic Iron Age will be to examine the less independently datable levels of native material culture and structural typology in the light of the broad chronology constructed so far.

## LEVEL 4: NATIVE MATERIAL CULTURE

Chronological patterns in the native material culture of the Atlantic Scottish Iron Age are poorly understood and a major re-evaluation of the subject is overdue. Within the scope of this paper all that can usefully be done is to assess the chronological value of current typological schemes in relation to the preceding discussion of the emerging chronology.

### NATIVE POTTERY

The chronological value of native pottery in the region is greatest for the early period in

the north where the scheme defined by Hamilton (1956 & 1968) and developed by Renfrew (1979), on the basis of the cross-dating of stratigraphic sequences on several sites, is supported by recent excavation. For the later part of the northern sequence and for the whole of the western sequence the greater variety and profusion of decoration and form seems paradoxically far less sensitive to chronological change, although well-stratified sequences from a series of excavations on Lewis may clarify the picture.

The pottery of the early period in the Northern Isles, from the end of the Late Bronze Age into the Iron Age possibly up to c 400 BC, forms a coherent sequence which fits the C14 evidence from recently excavated sites. The pottery from the sites of Bu, Quanterness and Pierowall, all occupied in the period 800–400 BC, shares common features with Village II at Jarlshof and with the first roundhouse at Clickhimin. The undecorated, high-shouldered jar occurs at both of these Shetland sites with the first appearance of roundhouses. These jars replace the plain bucket and barrel forms of the preceding period. The Pierowall assemblage parallels the Jarlshof rim forms closely with hints of internal flanging on some rims again parallel to the Jarlshof assemblage (eg Sharples 1984, no 21). The other Jarlshof pot form which appears dominant in the catalogued assemblage, with globular bodies and curving out-turned or everted rims is also paralleled at Quanterness and Clickhimin. There is no indication at the C14 dated sites of the plain Late Bronze Age wares.

C14 dating indicates a probable range of 800–400 BC for these forms, although the weighted centroids of the dates concentrate on the second two centuries of that span.

There are no obvious parallels in the northern assemblage for the pre-roundhouse wares from Crosskirk and the early-roundhouse wares from that site show closer resemblance to the succeeding types at Clickhimin and the roundhouse period types at Jarlshof, although with significant differences in decoration. This may indicate that Crosskirk, the earliest dated complex roundhouse is of a period somewhat later than the Orcadian and Shetland group as the C14 evidence suggests. There is a scarcity of reliable ceramic sequences from the north after this early period, which should be remedied by the publication of the Howe assemblage. The pottery of the later centuries BC in the north contains a greater variety of forms and decoration, although the latter is very restricted in comparison to the western pottery of the period. At present, without dated stratigraphic assemblages, it is impossible to assess the chronological significance of this pottery and the traits it contains.

In the western Atlantic Province the sequence is less clear. The pottery sequence at Dun Mor Vaul (MacKie 1974, 161) demonstrates the persistence of a wide range of forms and decorative motifs throughout the entire sequence of occupation from c 600 BC to c AD 300. The Vaul assemblage is one of the largest in the region and contains the vast majority of the forms and motifs current in the western Atlantic Iron Age. The presence or absence of these traits on any western site cannot be taken, in the present state of our knowledge, as chronologically sensitive within the period concerned. Patrick Topping's recent work on Hebridean pottery led to similar conclusions for the native pottery of that area (Topping 1985). Correlation between west and north is virtually impossible given the poor state of our understanding of development in either area for most of the period.

One of the few motifs not present at Vaul – applied roundels or bosses – was present at Flodigarry in a primary, thus probably first century BC, context. This form, however, is paralleled in the pre-roundhouse ware at Crosskirk and so again illustrates vividly the recurrence of traits over long periods. It must be concluded from current evidence that the pottery typology of the period is not chronologically significant but may instead reflect functional and symbolic differences. The continuity of specific traits over such a time-span

reinforces the C14 picture of a continuous progression and development of a cultural group sharing a similar ideological background.

### METALWORK

The problems of lengthy chronological survival which limit the usefulness of the pottery sequence also apply to the remainder of the native material. A prime example is the projecting ring-headed pin, originally dated to the early centuries AD on the basis of Roman associations at Traprain Law but now thought to have been current as early as the fifth or fourth century BC at Dun Mor Vaul, by its association with stamped pottery sherds (MacKie 1974, 128). With the prospect of many, conventionally late, assemblages representing long sequences it is difficult to place chronological significance on native metalwork without a wide-ranging review of the evidence and its contexts.

### GLASS

The chronological value of Roman glass has already been discussed. The problems with the native material are best examined by a case study of one common type: the small annular yellow glass beads of Guido's Class 88 (Guido 1978, 181). The conventional dating of the type is based on two concepts: diffusion and time-lag. The beads have close parallels in south-west England, particularly at Meare which is taken to be the centre of their manufacture, and the type is dated in the south from the third to first century BC. Although the Scottish series is thought to have been manufactured in Scotland at Culbin Sands and possibly at a number of other locations (*ibid*, 74), the date for the series – first century BC to first century AD – is based on the hypothesis that the idea for the type must have originated in the south and arrived in Scotland by an unexplained process much later. The reverse direction of diffusion is not considered. However, there is no reasonable explanation as to why this process should have taken upwards of 200 years, and it seems preferable to assume that the Scottish series is at least as early as the English series, dating from the third to first century BC.

This revised dating is easier to reconcile with the Scottish occurrences of annular yellow glass beads which have a wide chronological and contextual currency. Examples occur in the pre-roundhouse fort at Clickhimin which would pre-date the quern transition in that area, and at Dun Mor Vaul and Dun Troddan as well as at the Hebridean wheelhouses of A' Cheardach Mhor and Tigh Talamhanta. All of these sites would fit easily into the period as newly defined. For more specific chronological separation the type, and indeed the bead evidence in general, is not helpful.

## LEVEL 5: STRUCTURAL TYPOLOGY

This form of study has been the central feature of the great tradition of broch studies in the mid-twentieth century. The schemes of MacKie, Hamilton and their predecessors rested on the extraction of as much data as possible from the cataloguing and comparison of the architectural minutiae of their rigorously defined structural forms (eg MacKie 1965, Hamilton 1968). The problem with this approach centred on the inferences drawn from structural typology. These tended to rest on preconceived hyper-diffusionist theories stretching the method far beyond the bounds of legitimate inference. These studies were characterized by a highly particularist approach to structural typology without adequate consideration of what structural variation or similarities actually mean within societies. The problems of over-

definition and the reductionist approach in general have been discussed in case-study form elsewhere (Armit 1988a) and this discussion will centre on the limited inferences which can be drawn by a cautious structural typological approach constructed with respect to the evidence of more reliable chronological indicators.

While brochs were viewed as the specific development of a relatively brief period from the second half of the first century BC it was considered justifiable to use structural typology to link large numbers of these structures to one overall historical process and to infer close chronological proximity between structures sharing the traditionally defined traits of broch architecture. With the extended chronology established by more reliable dating methods it has become apparent that the chronological tightness of broch architecture has disappeared. A period of several centuries when the characteristic traits of broch architecture are found in varying combinations across the Atlantic Scottish Province now appears more likely. Although the broch towers may be a relatively late development within the Iron Age structural sequence it is still probable that they were built over a period of three centuries or more.

In terms of field survey, it is generally impossible to distinguish between simple and complex roundhouses and broch towers. Collapsed masonry, stone-robbing, local environmental change, etc, can all contribute to the problems of assigning a site to a specific place within a structural typological scheme. In the past the tendency has been to assign poorly preserved structures to the lowliest of the available classes. Thus, in the Western Isles, there are very large numbers of sites classified as duns which have all the superficial features to be expected of a similarly preserved broch tower (Armit 1988a).

The cellular structures of the Late Bronze Age at Jarlshof and Clickhimin and of the type which cluster around northern broch towers, would not be assignable in the field to any specific class or period on the basis of structural typology alone. Although this is an obvious and accepted point it appears to be far more difficult to appreciate when dealing with the roundhouses of the Iron Age; these have often been casually assigned to specific categories in a typological sequence and thence to the chronological positions dictated by that typology. The duns of the Western Isles are a prime example of this process (Armit 1985, 1988a).

In an area where structural developments occur very gradually and where traits recur widely in chronologically remote periods, it is dangerous to use structural typology as a means of dating sites. It may eventually be possible to use specific combinations of architectural features, such as the hollow-walled building of the broch towers, to give a *terminus post quem* for a structure if that patterning can be shown to be specific to a relatively restricted period, but only when securely fixed by more reliable dating methods. To establish a structural typological sequence based on a development from simple to complex roundhouses and thence to broch towers, for example, would be to fossilize an opinion in the literature and effectively hinder objective future work.

## SUMMARY SEQUENCE

In the early part of the period, broadly dated by C14 evidence to 800–400 BC, the Orcadian record is dominated by simple atlantic roundhouses such as Pierowall, Bu, Tofts Ness and Quanterness, all isolated single farmhouses. Additional stratigraphic evidence from Shetland suggests that this type of settlement was directly successive to the cellular houses which characterize the Late Bronze Age in the area and which share structural traits with the Orcadian and Shetland Neolithic houses. The native material culture, in particular pottery, helps to give greater definition to the C14 sequence suggesting that the development of the

roundhouses may have occurred in the period 600–400 BC where the weighted centroids of the calibrated date distributions cluster.

From c 400 BC the C14 data indicate that each of these excavated simple roundhouses had been abandoned and the structures which are represented are complex roundhouses incorporating features of broch architecture. Howe is the sole dated Orcadian example but Crosskirk in Caithness is a parallel. Both appear to have been enclosed and may have had ancillary outer structures.

From 200 BC the C14 evidence is less helpful in the north and the second level of dating, the quern evidence, becomes more useful. This indicates that a number of broch towers occupy sites with occupation earlier than the quern transition. Gurness in Orkney is the prime example of a broch tower which has artefactual evidence for construction prior to the local quern transition. At this period the northern broch towers appear often to be enclosed and surrounded by clustered settlements. Roman material indicates the continued occupation and importance of these settlements into the early centuries AD although it is not currently possible to identify any northern roundhouse likely to have been built at this time. The site of Skaill with its cellular architecture is a useful reminder that the archaeological concentration on the most obvious sites may have greatly distorted our overall impression of the developing settlement pattern.

The revised chronology brought about by the C14 evidence has highlighted the development of nucleated settlement in the Northern Isles and possibly in Caithness. The development, from single roundhouses in the earliest Iron Age, is followed by the appearance of enclosed roundhouse settlement at Crosskirk and Howe. With the development of the broch tower large nucleated settlements appear clustered around roundhouse sites which may, as at Howe, have developed from earlier simpler roundhouses. Against this pattern Hedges has observed a contemporary settlement form represented at Skaill where slighter structures are present (Hedges 1987). Unfortunately, the dating of this site is imprecise and it cannot be convincingly related to any specific chronological position. Exploring the complementary development of these two distinct elements of the settlement pattern must form a prime research objective in the north.

The settlement patterns of the west throughout the period are currently much less well defined although current work will help establish a database comparable to that of Orkney. At present the west provides a series of comparisons and contradictions to the Orcadian record which are discussed below.

## DISCUSSION

A chronological framework independent of preconceived interpretations must be constructed, linking the time dimension with aspects of cultural production, such as structures and artefacts. Advances in methods of interpreting contexts and associations of cultural products will be of little value if founded on schemes constructed on the basis of the previous generation's assumptions. It is necessary prior to the application of new interpretative models, to understand the dependence of the archaeological sequence on preceding and potentially outmoded hypotheses. The differential weighting of various forms of evidence can contribute to eliminating this dependency.

The central aim of this paper has been to clarify the chronological basis for the study of the Atlantic Scottish Iron Age. The hierarchy of dating methods is not definitive but it is explicit; future work will be more constructive if it can be equally explicit regarding its

underlying assumptions. It is hoped that this will help to provide criteria for a more realistic evaluation of competing hypotheses.

The picture resulting from this re-evaluation indicates a series of developments which are of far greater complexity than they may have appeared prior to the excavations of the 1970s and 1980s. There is little support for a unilinear sequence to encompass the entire area of Atlantic Scotland. This brief discussion will not attempt to offer an all-embracing model but simply consider some of the problems which have become apparent in the preceding chronological review. It may be useful to isolate a number of the differences which appear broadly to distinguish the north and the west of the region. Differences are apparent in:

(a) The absence in the west of large nucleated settlements clustered around complex roundhouses.

(b) The interior organization of the excavated western roundhouses which lack the consistent radial or bipartite division of the northern examples.

(c) The presence and importance in parts of the west of a contemporary domestic form, the wheelhouse, which has an unclear relationship with broch architecture; the relative rarity of this form in the north is important.

(d) The far greater abundance of decorated pottery in the west particularly in the early part of the period.

These are a few of the more immediately striking examples of the disparity between the two areas, although the west/north dichotomy may well be over-stressed; Shetland, for example, shares traits a–c with the west rather than with Orkney. The central point is that the presence of broch architecture over the whole area need not indicate shared processes of development throughout the period. The historical narrative approach, which attempts an all-embracing explanatory descriptive model, can only be a goal for the remote future.

Over the years the attitude of prehistorians to brochs has encouraged ideas of uniformity of origin and development in all of the areas where broch architecture occurs. It has been considered that the uniformity of the structures coupled with their degree of specialization must indicate a powerful cultural relationship amongst their builders. This view can be challenged. It has been usual to see structural evidence as separate from artefactual evidence. This is a convenience of classification which enables us to devote our analytical energies to relatively restricted aspects of society at any one time, and as such it is a valuable conceptual division. Its utility, however, does not make it a real division in terms of prehistoric society. When the specific structural form of the broch tower is interpreted as an artefact, we can begin to appreciate that its use and meaning could vary between cultural contexts.

To use an analogy with the spread of the rotary quern, we can appreciate that the adoption of this artefact by a wide range of societies does not in any way necessitate cultural uniformity. What was adopted was a specialized artefact which utilized a specific technique, of rotary motion, to a given end and which was accommodated within a pre-existing cultural context. The complex roundhouse, as an artefact, utilizes the central technique of hollow-walled construction to produce the desired end-product: a high-walled structure. The adoption of this technique and this structural form need not be seen *a priori* as an indicator of cultural uniformity among participant groups. The more restricted distribution of broch architecture compared to the rotary quern arises from a number of restrictions based on the limited geographical background of drystone building skill and the perceived social use of a product which lacks the universal applicability of the rotary quern. In such a context the variation in architecture between areas need not be surprising. The

dichotomy between the open-interior roundhouses of the west and the radially partitioned roundhouses of the north may show the superficial unity of broch architecture cloaking two very different domestic forms.

Complex roundhouses can be seen as one 'artefact' amongst a whole range in Atlantic Scotland and not necessarily as the one that holds the key to the formulation of models to explain the entire process of development in the area. Structural types form an important element in the cultural fabric of material forms and associations; the view of brochs as artefacts within a wider cultural context should not be taken to deny their importance. The sheer scale of broch towers would inevitably have made them extremely powerful symbols and this could well have led to their adoption within different cultural contexts and with varying contextual meanings. Nonetheless the study of the Atlantic Scottish Iron Age must lose its dependency on structural typology. The disentangling of the valuable aspects of our antiquarian and architectural/historical inheritance from the clutter of prejudice and unfounded assumption is an essential step towards a proper re-evaluation of the Atlantic Iron Age.

## APPENDIX

### C14 DATES FOR THE ATLANTIC SCOTTISH IRON AGE

The following section lists the sites from which the dates in illus 2, 3 & 4 are derived. Both the dates used and those left out are listed. The reasons for this selection are discussed and it must be made explicit that an element of subjective interpretation cannot be excised from the use of C14 dates; indeed it is inherent from the initial stage of sample gathering and selection on-site. Some sites have been excluded where dates do not relate to Iron Age activity (as at Dun Carloway) or where full data are unavailable (as for the Udal wheelhouse). The sites are discussed from north to south within three subdivisions of the Atlantic Province: the Northern Isles and North Mainland; the Outer Hebrides; and the West Coast and Inner Isles.

The following tables list the dates from each site first in their uncalibrated form with laboratory reference number and a note on site context. The dates used in this paper, however, are calibrated using the micro-computer package CALND which uses the high-precision dendrochronological data of Stuiver & Pearson (1986) and the calibration procedure of Robinson (1984). Each calibrated date is presented here as a Weighted Average, or centroid, of the calibrated distribution (the range of possible dates) with a note of the upper and lower 68% confidence limits.

| | |
|---|---|
| Lab Ref: | Laboratory reference number |
| Context: | Sample context within site |
| Uncal: | Uncalibrated date with standard deviation |
| WA: | Weighted average (centroid) after calibration |
| 68% H: | 68% confidence upper (oldest) limit |
| 68% L: | 68% confidence lower (youngest) limit |

## NORTHERN ISLES & NORTH MAINLAND (illus 2)

PIEROWALL QUARRY, ORKNEY (Sharples 1984)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1580 | Occupation immediately preceding roundhouse | 560±80 bc | 657 BC | 804 BC | 470 BC |
| GU-1581 | Contemporary occupation to roundhouse | 475±60 bc | 511 BC | 681 BC | 416 BC |

These two dates, derived from animal bone, have both been included in illus 2. GU-1580 is a *terminus post quem* for the roundhouse construction while GU-1581 is derived from contemporary occupation debris (Sharples 1984, 89).

The 68% confidence levels cover almost 400 calendar years from 804 to 416 BC. The spread of potential dates matches almost exactly those from the occupation material at Bu and Quanterness.

QUANTERNESS, ORKNEY (Renfrew 1979)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| Q-1465 | Primary occupation | 620±85 bc | 738 BC | 828 BC | 639 BC |
| Q-1464 | Primary occupation | 490±85 bc | 545 BC | 759 BC | 414 BC |
| Q-1463 | Secondary occupation | 180±60 bc | 186 BC | 323 BC | 98 BC |

These dates taken from soil rich in organic material (Renfrew 1974, 72) combine to suggest primary roundhouse occupation between 800–400 BC. This is not as desperate a situation as it may at first appear as the 95% confidence levels of these two dates do not extend the range significantly beyond 900–400 BC. Secondary occupation appears to have been substantially later possibly as late as the third or second century BC.

HOWE, STROMNESS, ORKNEY (Carter *et al* 1984)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1760 | Phase 3 silt in well | 455±75 bc | 489 BC | 670 BC | 407 BC |
| GU-1804 | Phase 3 midden | 470±55 bc | 500 BC | 666 BC | 415 BC |
| GU-1805 | Phase 4 settlement floor | 355±60 bc | 380 BC | 421 BC | 371 BC |
| GU-1799 | Phase 5 skeleton in roundhouse drain | 430±50 bc | 439 BC | 487 BC | 406 BC |
| GU-1789 | Phase 5 rampart const. | 455±70 bc | 486 BC | 656 BC | 409 BC |
| GU-1759 | Phase 5/6 ditch fill | ad10±60 | AD 48 | 25 BC | AD 113 |
| GU-1758 | Phase 5/6 east rampart | 305±95 bc | 329 BC | 415 BC | 220 BC |
| GU-1750 | Phase 7 end of main broch village | 120±50 bc | 103 BC | 177 BC | 64 BC |
| GU-1788 | Phase 7 early burning in broch tower | ad 15±55 | AD 54 | 5 BC | AD 113 |
| GU-1786 | Phase 7 late burning | 25±55 bc | AD 9 | 86 BC | AD 59 |

*Excluded Dates*

| | | | | | |
|---|---|---|---|---|---|
| GU-1787 | Phase 7 workshop floor | ad 280±65 | AD 371 | AD 265 | AD 421 |
| +3 Pictish settlement dates | | | | | |

The dates from Howe provide a reasonable degree of internal consistency at the 68% confidence level. All of the published dates have been included in illus 2 except for those relating to Phase 8, the post-broch tower 'Pictish' occupation and from late Phase 7, these being outwith the period under discussion in this paper.

Although structures are not identifiable until Phase 5 with the construction of the early roundhouse, hearths, paving, etc in Phase 4 indicate earlier structures of indeterminate form (Carter *et al* 1984, 64). The later dates from the site are ambiguous, in the absence of full publication of their contexts; the Phase 7 occupation appears to cover a long chronological span including broch tower and ancillary structure occupation.

BU, ORKNEY (Hedges 1987)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1228 | Primary occupation | 520±95 bc | 593 BC | 797 BC | 419 BC |
| GU-1154 | Primary occupation | 510±80 bc | 576 BC | 783 BC | 420 BC |
| GU-1152 | Base of infill | 490±65 bc | 539 BC | 705 BC | 418 BC |
| GU-1153 | Earth-house occupation | 595±65 bc | 717 BC | 809 BC | 622 BC |

All four of the dates from Bu have been included in illus 2. The first three listed provide strong evidence for occupation of the roundhouse at some time in the period from 800 to 400 BC.

The date from the earth-house occupation, clearly later than the others on stratigraphic grounds, is superficially out of sequence with the others. It is worth noting that the 95% confidence levels for GU-1513 extend from 839 to 439 BC indicating that its implausibly early dating at the 68% level may artificially stress its irregularity when compared with stratigraphically later dates. Nevertheless this does indicate a need for caution in the use of the percentage confidence levels.

SKAILL, ORNKEY (Gelling 1985)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| Birm-413 | Iron Age occupation | 260±120 bc | 276 BC | 409 BC | 129 BC |
| Birm-397 | Iron Age occupation | 150±110 bc | 146 BC | 333 BC | 4 BC |
| Birm-764 | Primary Iron/Dark Age | 70 ±100 bc | 47 BC | 175 BC | AD 58 |

The Iron Age site at Skaill is not yet fully published and these data are taken from an interim report (Gelling *in* Renfrew (ed) 1985, 176–82). The very wide standard deviations of these dates in their uncalibrated state mean that occupation may have taken place in the last five–four centuries BC.

CROSSKIRK, CAITHNESS (Fairhurst 1984)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| SRR-266 | Primary floor const. | 430±50 bc | 439 BC | 487 BC | 406 BC |
| SRR-272 | Broch occupation | 100±50 bc | 78 BC | 150 BC | 18 BC |
| SRR-271 | Enc. 1 floor (broch phase) | 120±80 bc | 107 BC | 213 BC | 4 BC |
| SRR-270 | Enc. 1 (broch phase) | 150±100 bc | 146 BC | 317 BC | 20 BC |
| SRR-268 | Enc. 3a hearth | 170±50 bc | 172 BC | 262 BC | 97 BC |
| SRR-267 | Late hearth | ad 70±70 | AD 117 | AD 32 | AD 205 |
| SRR-269 | Enc. 7 | 820±100 bc | 944 BC | 1064 BC | 834 BC |

The dates from Crosskirk give another coherent sequence, all from charcoal samples except for dates SRR-266 (organic detritus) and SRR-270 (bone protein) (Fairhurst 1984, 164–5). All are included in illus 2. The dismissal of date SRR-266 by the excavator as being representative of a construction date was due to its being regarded as too early (*ibid*, 165); there is no other justification given and since the date is not inconsistent with the other dates from this or other sites it is accepted here as a reliable indicator of the construction phase.

Dates SRR-270, 271, 272, and 268 derive from contexts deposited during the occupation of the structure but post-dating the primary occupation while SRR-267 is from the latest reorganization of the roundhouse interior. All of these dates give a plausible dating of the occupation sequence. The very early date, SRR-269, comes from a structure of unclear type and which is stratigraphically ambiguous.

UPPER SUISGILL, SUTHERLAND (Barclay 1985)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1491 | Period VI | 255±65 bc | 280 BC | 396 BC | 196 BC |
| Excluded Dates | | | | | |
| GU-1492 | Structure 1a | 825±105 bc | 951 BC | 1073 BC | 834 BC |
| GU-1490 | Structure 1b | 885±90 bc | 1021 BC | 1161 BC | 911 BC |
| GU-1493 | Period III bank debris | 990±60 bc | 1167 BC | 1287 BC | 1069 BC |
| GU-1326 | Period V | 630±60 bc | 763 BC | 823 BC | 681 BC |

The majority of the dates have been excluded from illus 2 owing to their lack of association with well-defined structural units. The one date which is included relates to the latest phase on the site when the souterrains were in use.

KILPHEDIR, SUTHERLAND (Fairhurst & Taylor 1971)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-299 | Hut Circle Occupation | 420±40 bc | 422 BC | 438 BC | 406 BC |
| GU-10 | Abandonment | ad 42±60 | AD 84 | AD 18 | AD 128 |
| GU-11 | Abandonment | 114±55 bc | 96 BC | 176 BC | 32 BC |
| GU-67 | Abandonment | ad 28±60 | AD 68 | AD 9 | AD 122 |
| L-1061 | Abandonment | 150±80 bc | 146 BC | 276 BC | 69 BC |
| SRR-3 | Abandonment | 150±50 bc | 143 BC | 214 BC | 83 BC |

All of these dates are included in illus 2. All but the first derive from a single sample taken from charcoal deposited after the abandonment of the final roundhouse on the site.

TOR A CHORCAIN, LANGWELL (Nisbet 1974)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GaK-4860 | Primary posthole | 230±90 bc | 245 BC | 395 BC | 128 BC |
| GaK-4862 | Foundation of inner wall | 350±90 bc | 375 BC | 426 BC | 278 BC |
| GaK-4861 | Fallen roof timber? | 310±100 bc | 334 BC | 418 BC | 220 BC |

This site has never been fully published and the contexts of the dates are not entirely clear. They seem all to be associated with the construction of a vitrified dun built over a hillfort as at Dun Lagaidh. The roundhouse incorporated a number of the features of broch architecture including a guard cell and was of characteristic broch size and shape but from the vitrification must have incorporated timbers in its construction.

WEST COAST & INNER ISLES (illus 3)

DUN LAGAIDH (MacKie 1975)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GaK-1121 | Construction of hillfort | 490±80 bc | 544 BC | 750 BC | 415 BC |
| GaK-2492 | Destruction of hillfort | 460±100 bc | 507 BC | 704 BC | 402 BC |
| Excluded Dates | | | | | |
| GaK-1948 | Old ground surface | 880±90 bc | 1014 BC | 1151 BC | 906 BC |
| GaK-1947 | Medieval reoccupation | ad 840±90 | AD 921 | AD 782 | AD 990 |

The two dates incorporated in illus 3 relate to the hillfort which was built over by a roundhouse (the excavator refers to the site as a dun because it lacks unambiguous evidence of superimposed mural galleries; this type of structural typology has been argued against in this paper and elsewhere, eg Armit 1988). The roundhouse itself is not dated by C14 as GaK-1947 relates to medieval reoccupation. Dun Lagaidh in its initial hillfort period is more closely related to structural developments outside the main area of Atlantic Scotland as considered in this survey.

DUN AN RUAIGH RUAIDH (MacKie 1980)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1365 | Pre-broch turf –Ph1 | 135±80 bc | 126 BC | 234 BC | 26 BC |
| GU-1366 | Posthole –Ph1 | 275±80 bc | 299 BC | 404 BC | 206 BC |
| GU-1368 | Posthole –Ph1 | 1±65 bc | AD 36 | 73 BC | AD 101 |
| GaK-2493 | Posthole –Ph1 | 580±80 bc | 687 BC | 809 BC | 527 BC |
| GU-1367 | Late Ph2 on hearth | 30±60 bc | AD 3 | 91 BC | AD 59 |
| GaK-2496 | Late Ph2 floor | 10±100 bc | AD 25 | 99 BC | AD 122 |
| Excluded Dates | | | | | |
| GaK-2495 | Late Ph4 | 1020±90 bc | 1211 BC | 1367 BC | 1070 BC |
| GaK-2494 | Ph6 Gallery | ad 790±80 | 865 BC | 759 BC | 973 BC |
| Gak-2497 | Pre-broch | 970±110 bc | 1195 BC | 1376 BC | 1029 BC |

The dates from this site present an erratic series which requires detailed consideration and cautious use. The original excavation report does not adequately analyse these dates and uses them to argue for a variety of possible hypotheses.

The problematic dates are those which derive from construction and primary occupation contexts; the first four listed. The only dates which are out of sequence are those deriving from charcoal from Phase 1 postholes. The use of old timbers in construction could easily account for apparent anomalies and in this instance only the youngest date is of real value; each of these dates represents a *terminus post quem* for occupation so clearly the youngest is the most archaeologically useful and indeed the only useful one which dates the phase of activity.

GU-1368 is the most important date, representing the infill of the postholes during the primary occupation period. This date ranges from 73 BC to AD 101 at the 68% confidence level with a weighted centroid of AD 36. Its extreme 95% oldest limit is 108 BC so it is unlikely that the charcoal was deposited before that date and thus that the postholes went out of use by this date. MacKie's claim that radiocarbon dates show that the structure was built in the third or second centuries bc appears to be contradicted by this evidence. The statistically most likely date for the filling of the postholes (prior to the completion of the primary pebble floor of the roundhouse) is the weighted centroid of the calibration for GU-1368, ie AD 36.

This dating is consistent with the date GU-1365 for the pre-structural turf-line for which the weighted centroid is 126 BC. This date is another *terminus post quem* for the structural activity on the site. The two dates for Phase 2 suggest continuing occupation on the site in the first century AD.

DUN FLODIGARRY, SKYE (Martlew 1985)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1662 | Immediately post-const. | 45±65 bc | 14 BC | 100 BC | AD 53 |

The single date from Flodigarry relates to a structure which has been convincingly interpreted as an unfinished broch of ground-galleried type and relatively massive proportions (Martlew 1985). It is derived from *corylus* charcoal deposited soon after the construction of the broch wall. The usefulness of a single date is severely limited.

DUN ARDTRECK, SKYE (MacKie 1974)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| Gx-1120 | Construction | 55±105 bc | 29 BC | 160 BC | AD 68 |

The single C14 date from this structure is rendered almost useless by the wide dating range which extends rapidly after the 68% confidence level. At 90% confidence it spans seven centuries between 500 BC and AD 200.

DUN MOR VAUL, TIREE (MacKie 1974)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GaK-1092 | Phase 1A under midden | 400±110 bc | 424 BC | 592 BC | 359 BC |
| GaK-1098 | End of Phase 1A – grain | 445±90 bc | 483 BC | 674 BC | 400 BC |
| GaK-1225 | Phase 1B – animal bone | 280±100 bc | 301 BC | 409 BC | 182 BC |
| GaK-1096 | Phase 2B gallery floor | 1195±90 bc | 1429 BC | 1519 BC | 1343 BC |
| GaK-1097 | Phase 2B gallery chamber | ad 60±90 | AD 106 | AD 11 | AD 214 |
| GaK-1521 | Phase 4 – topsoil | 290±80 bc | 316 BC | 407 BC | 220 BC |
| GaK-1099 | Phase 5 gallery rubble | ad 160±90 | AD 226 | AD 111 | AD 336 |
| Excluded Dates | | | | | |
| GaK-1520 | Norse | ad 490±200 | AD 576 | AD 390 | AD 748 |
| Gx-3426 | Burial | ad 805±155 | AD 881 | AD 675 | AD 1012 |

All but two of the C14 dates from the site are included in illus 3. GaK-1520 and Gx-3426 are both from much later re-use. The relationship between the remaining dates and the structure is unclear and MacKie's interpretation is based on the assumption that the floor level which he identified was the original one.

MacKie postulated that the first three dates related to pre-roundhouse occupation although the sections and plans do not support this and the absence of convincing structures associated with phases 1A and 1B means that we cannot rule out the possibility that those levels were the primary roundhouse occupation levels (MacKie 1974, 92). MacKie's failure to consider this possibility appears to derive from his belief that the roundhouse would have had a level floor while the early deposits lie deep in a cleft; evidence from many other roundhouse sites does not warrant this assumption. An alternative and opposite view suggests that MacKie's floor levels were construction levels and that his secondary occupation was in fact primary occupation (Nieke 1984, 172). The excavation report does not permit one to choose between these hypotheses with any confidence.

## OUTER HEBRIDES (illus 4)

### DUN BHARABHAT, LEWIS (Harding & Dixon pers comm)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-2434 | Secondary Occupation | 60±50 bc | 31 BC | 101 BC | AD 33 |
| GU-2435 | Secondary Occupation | 150±50 bc | 143 BC | 214 BC | 83 BC |
| GU-2436 | Material under foundation | 600±50 bc | 733 BC | 807 BC | 671 BC |

These dates derive from the interior occupation of the complex roundhouse on Dun Bharabhat, with GU-2436 providing a *terminus post quem* for construction and the remaining two dates providing a *terminus ante quem* for the primary occupation and partial collapse of the structure.

### EILEAN OLABHAT, NORTH UIST (Armit 1986 & 1988b)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-2326 | Phase 3 | 60±50 bc | 31 BC | 101 BC | AD 33 |
| GU-2327 | Phase 3b | ad 150±50 | AD 214 | AD 124 | AD 273 |

Dates obtained since this paper was written suggest that the Eilean Olabhat charcoal has been contaminated through being burnt with peat. These dates cannot therefore be considered reliable.

### BALESHARE, NORTH UIST (Barber forthcoming)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-1962 | Burial – prob contaminated | 205±50 bc | 222 BC | 342 BC | 142 BC |
| GU-1964 | Sand after structures | 160±80 bc | 159 BC | 303 BC | 75 BC |
| GU-1972 | Dumped material | 135±50 bc | 122 BC | 189 BC | 75 BC |
| GU-1968 | Sand sealing quern | 95±50 bc | 72 BC | 140 BC | 11 BC |
| GU-1975 | Dumped deposits | 107±50 bc | 86 BC | 181 BC | 28 BC |
| Excluded Dates | | | | | |
| GU-1960 | Midden under quern/walls | 290±55 bc | 321 BC | 403 BC | 238 BC |
| GU-1974 | Cultivated deposit | 260±50 bc | 288 BC | 393 BC | 219 BC |
| GU-1970 | Midden | 315±50 bc | 348 BC | 407 BC | 274 BC |
| GU-1961 | Cultivated deposit | 440±55 bc | 455 BC | 526 BC | 409 BC |
| GU-1963 | Midden | 425±55 bc | 438 BC | 486 BC | 403 BC |
| + 6 LBA Dates | | | | | |

The extensive Hebridean machair site at Baleshare was partially excavated in 1984 by the Scottish Central Excavation Unit as part of a wider programme of rescue excavation which also included work at Hornish Point (Barber forthcoming). The excavation revealed a number

of fragmentary structures none of which can be linked conclusively with specific structural forms. The importance of the dating of this site in the present context is the presence of a rotary quern stone re-used in the walling of a partially excavated drystone structure.

Dates GU-1962, GU-1964 and GU-1968 all seal the quern fragment and dates GU-1972 and GU-1975 are contemporary or later. The other dates all derive from contexts pre-dating the quern and are thus excluded from illus 4. The dates combine to suggest the abandonment of the structure prior to the mid–late second century BC with the weighted centroids of the calibrated dates concentrating around this period. This represents the abandonment of a structure which was itself built after the breakage and re-use of a rotary quern.

Rotary querns in the Outer Hebrides must have been in use before the contexts dated here were formed. Even if we take the very latest parts of the 68% confidence levels for these five dates it is still very probable that this structure was abandoned in the late second century BC. A date for the local 'quern transition' at around 200 BC or earlier would seem to be the implication of these dates.

These dates were derived from marine shell and may be somewhat too old. They are soon to be calibrated by a series of charcoal dates from the same contexts.

HORNISH POINT, SOUTH UIST (Barber forthcoming)

| Lab Ref | Context | Uncal | WA | 68% H | 68% L |
|---|---|---|---|---|---|
| GU-2015 | Midden above structures | 230±50 bc | 253 BC | 358 BC | 181 BC |
| GU-2024 | Dumped deposits over Wh. | 220±50 bc | 241 BC | 352 BC | 170 BC |
| GU-2025 | Dumped deposits over Wh. | 335±50 bc | 367 BC | 410 BC | 295 BC |
| GU-2028 | Structure 7 – contemp. Wh.? | 320±50 bc | 353 BC | 407 BC | 274 BC |
| GU-2026 | Structure 7 – contemp. Wh.? | 235±50 bc | 259 BC | 362 BC | 187 BC |
| GU-2017 | Sand – Structures contemp? | 385±50 bc | 402 BC | 426 BC | 395 BC |
| GU-2022 | Rev wall – Structures contemp? | 360±50 bc | 386 BC | 420 BC | 391 BC |
| GU-2021 | Cultivation – Structures contemp? | 375±50 bc | 395 BC | 424 BC | 393 BC |
| GU-2027 | Cultivation under Wh. | 420±50 bc | 429 BC | 474 BC | 402 BC |
| GU-2020 | Cultivation under site | 550±50 bc | 650 BC | 792 BC | 521 BC |

Hornish Point is another Hebridean machair site excavated in the Central Excavation Unit's rescue programme in 1984 (Barber forthcoming). The dates form a coherent series and are all from reliable contexts linked to a series of structures whch include at least one certain and two probable wheelhouses. The last two dates, GU-2027 and 2020, indicate that the structural sequence began after use of the area for cultivation in the late fifth century BC. The problem with the dates is that, as at Baleshare, they derive from marine shell and may therefore be slightly older than they appear. The sequence is shortly to be calibrated by charcoal dates.

The preliminary stratigraphic matrix for the site shows that the very tight cluster of dates GU-2017, 2021 and 2022, are likely to be contemporary with the occupation of Structures 1 and 2, both of which have the characteristic radial piers associated with wheelhouses (Barber pers comm). This would date the structures with a high degree of probability to between 430 and 390 BC. The best preserved wheelhouse, Structure 5, is not dated directly but is post-dated by GU-2014, 2024 and 2025 which together suggest abandonment by around 300 BC. The dates

for the fragmentary Structure 7, which is stratigraphically parallel to Structure 5, are not inconsistent with this dating. The whole structure sequence of wheelhouses and associated structures would appear to occur from approximately 430 BC until 300 BC at the latest.

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## AUTHOR'S NOTE

The text of this paper was prepared in 1988. Subsequent development of some of the arguments can be found in Armit (1990b).

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