# Towards a new understanding of Iron Age Caithness Andrew Heald\* & Adam Jackson<sup>†</sup>

#### **ABSTRACT**

A re-investigation of 19th-century excavations by Sir Francis Tress Barry has initiated a study of three Iron Age complexes at Keiss, Caithness. This paper presents the key findings and uses a series of scenarios to explain the observed patterns. The importance of Caithness to understandings of Iron Age Scotland is emphasized and future objectives highlighted.

## INTRODUCTION

Despite its rich and varied nature the archaeological record of Caithness remains peripheral to wider interpretations of the Scottish Iron Age. Instead, research has focused on other areas, and primarily on their structural record. Furthermore, information from antiquarian excavations in Caithness, as elsewhere, continues to be ignored, perceived to be incompatible with more recently excavated material and unsuitable for sustaining wider discussions. Using recent work on the Keiss Atlantic roundhouses, we emphasize the importance of both to our interpretations of the Atlantic Scottish Iron Age. Throughout, it is argued that there remain significant gaps in our knowledge and that present methodologies only provide partial understandings. To address this situation a research agenda for Iron Age Caithness is outlined.

# SIR FRANCIS TRESS BARRY AND THE IRON AGE OF CAITHNESS

The archaeological potential of Caithness has never been in doubt. More than a century ago A H Rhind noted that 'perhaps, with the exception of some districts in the Orkney Islands, there is no tract of country in all Scotland of similar extent that can furnish the archaeologist with so many examples of primeval skill' (in Stuart 1868, 292–3). Work since has confirmed this suggestion (Laing 1868; Anderson 1873a; 1873b; 1901; Curle 1941; 1948; Calder 1948; Mercer 1980; 1981; 1985; Fairhurst 1984; Batey 1984; 1987a; 1987b; 1991; Swanson 1988; Foster 1990).

Almost without exception, investigations of the Caithness Iron Age have concentrated on prominent mound sites enclosing broch towers. The earliest recorded work was undertaken by Rhind (1853a; 1853b), Anderson (1873b, 131–42) and Laing (1868; Laing & Huxley 1866). However, these early investigations were significantly extended by the work of Sir Francis Tress Barry between 1890 and 1904. The total number of sites excavated by Barry is unknown but at least 25 are represented in the National Monuments Record of Scotland (RCAHMS 1998, 7), 14

<sup>\*</sup> Archaeology Department, National Museums of Scotland, Chambers Street, Edinburgh, Scotland EH11JF

<sup>†</sup> Department of Archaeology, University of Edinburgh, 12 Infirmary Street, Edinburgh, Scotland EH1 1LT

of which are recorded as brochs; the earlier Inventory of Caithness listed 24 (RCAHMS 1911, xxxi). Although written accounts of Barry's investigations are incomplete it is clear that his excavation techniques were coarse. In the main, he concentrated on the roundhouse and its interior and was little concerned with recording structural details and complexities or stratigraphic relationships. A paper given to the Society of Antiquaries of London in 1899 (NMRS MS/821/2) provides an insight into the character and working practices of Barry:

it would be the height of assumption on my part to attempt to address the Fellows of our Society posing as a scientific man, or one in any way specially qualified to draw conclusions from the interesting facts that I shall have the honour of bringing to your notice this evening. I make no such profession, but having been all my life more or less connected with mining operations, I naturally take great interest in delving into the crust of this material world, and endeavouring to ascertain what the result of such a search may be. I merely claim to have opened out these prehistoric ruins in a business and workmanlike manner.

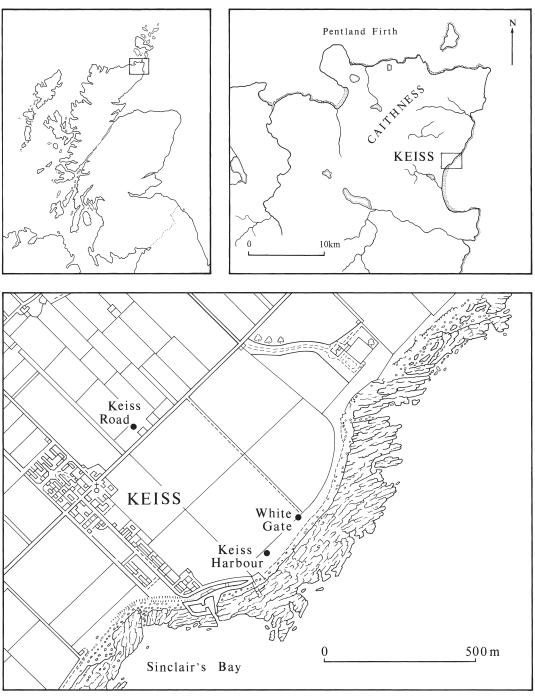
Despite Barry's crude techniques, substantial architectural remains were recovered, including structures typical of the long Iron Age (eg Atlantic roundhouses, after Armit (1992), and cellular buildings) and a rich artefactual assemblage relating to everyday life, production, trade and status in Iron Age Caithness. Such wealth makes it impossible to agree with MacKie that the finds were 'not particularly informative' (MacKie 1969, 11). However, this material has never been adequately published or analysed within a wider regional framework. Publication of Barry's work was left to Anderson (1901, 112) but his account was largely descriptive, the object being 'to place on record as briefly as possible the principal results'. Subsequent work has been concerned with re-analysis of the structural record (MacKie 1969; Swanson 1988) and while some finds have been referred to intermittently (Curle 1932, 393-4; MacKie 1969; Robertson 1970; Blair 1978; Foster 1989a) few have been adequately published, consulted or critically reviewed.

To address this situation a programme of re-analysis of the structural and artefactual aspects of three sites excavated by Barry — Keiss Harbour, Keiss Road and White Gate — was initiated in the summer of 2000. This was conducted in the context of a wider research programme designed to analyse various aspects of the Caithness Iron Age and, more specifically, the significant artefactual assemblage recovered during Barry's investigations (see below). The project is funded by the National Museums of Scotland.

## THE KEISS LANDSCAPE: SOME PRELIMINARY FINDINGS

Today, the Caithness coastline comprises cliffs and bays (Omand 1982). Within one of the latter, Sinclair's Bay, lies Keiss (NGR: ND 3561), a small village surrounded by low rolling land now given over to mixed arable cultivation and pasture (Omand 1973, 47; Hart 1973). The area is rich in archaeological and historical remains including the 16th/17th- and 19th-century castles, the 19th-century harbour and 20th-century pill-boxes. Within this landscape lie the three Atlantic roundhouses studied in this paper (illus 1).

Re-survey of the upstanding remains and artefactual assemblage from these three sites, in conjunction with the studies by MacKie (1969) and Swanson (1988), has stimulated the development of a number of interesting questions and interpretations concerning the character of the Caithness Iron Age. The intention here is not to dwell on the detailed minutiae of structural and artefactual classifications but to outline some general observations relevant to our



Location of Keiss and the three roundhouse complexes. (Base map: second edition Ordnance Survey 1:2,500 plan, revised 1905) Illus 1

understandings of Iron Age Caithness and the wider Scottish picture (for fuller discussion of architectural features and relative site sequences see MacKie 1969 and Swanson 1988). There are four main results: the first two have been discussed before, yet are worth reiterating.

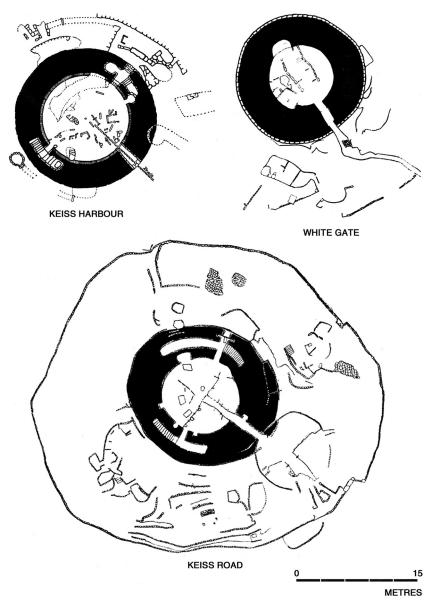
First, the structural and artefactual record shows that Keiss was an important focus for Iron Age activity from around the mid-first millennium BC to the late first millennium AD. Early publications give no indication of any phasing, but re-survey indicates that the roundhouses and associated external complexes were multi-phased and occupied over a long period of time (see also MacKie 1969), although we cannot tell whether occupation was continuous. This longevity of occupation is confirmed by the finds. For example, the pottery and Roman finds clearly indicate occupation in the first three centuries AD; the painted pebbles (Barry 1899; Ritchie 1972; 1998, 176) and the nail-headed pin suggest later activity, probably during the Pictish period (Stevenson 1955; Foster 1989a, 80–2). Indeed, Barry (1899, 191) stated that the pebbles were retrieved separately from secondary buildings outside the roundhouses.

Second, re-survey has illustrated that the Keiss roundhouses were larger functioning units than traditional understanding has allowed. They were not isolated buildings — all contain a consistent set of further components including external structures (illus 2; also see Swanson 1988; Fairhurst 1984). Indeed, the latter are as common in Caithness as they are in Orkney (Foster 1989b, 36). It is, therefore, possible that within the maze of hollows and unexcavated areas there are nuclear settlements similar to examples elsewhere (eg Hedges 1987; Ballin Smith 1994). Although we cannot tell whether they were contemporary with or later than the roundhouses their 'non-radial' appearance may suggest that they appeared early in the structural sequence (Foster 1989b, 36).

While these points have been rehearsed before the remaining two are seldom discussed. At a broad inter-site level, analysis demonstrates that the inhabitants of Keiss engaged in long-distance trade, crafts, and consumption of high status goods and materials (Table 1). The fragments of decorated Samian, fine ware and the glass vessel illustrate that Roman material was reaching the area between the first and third/fourth centuries AD. X-ray fluorescence analysis reveals that the crucible from Keiss Harbour was used for melting tin bronze with significant inclusions of lead and zinc. The zinc indicates access to a metal pool ultimately of Roman origin; such re-use and recycling activity is recognized on other native sites (Dungworth 1996; 1998) and in other imported Roman materials such as pottery (Hunter 1998, 400) and lead (MacKie 1982). The range of goods shows that the inhabitants of Keiss were part of a limited group of northern communities with access to Roman material (Table 2; Robertson 1970; Hunter 2001) and the area is clearly of significance within the region.

This pattern is supported by other finds. In recent studies aspects of craft production have been interpreted as high status, for example ferrous metalworking (see McDonnell 1998, 160; Heald, Mack & McDonnell, forthcoming). Ongoing studies by one of the authors (AH) suggest that non-ferrous metalworking can be viewed in a similar light. It is notable that such evidence from Caithness is restricted to six sites, three of which are in our study area. Similarly, the roughout for the triangular weaving tablet from Keiss Harbour may suggest restricted access to wider aspects of textile working. These plaques were used for the manufacture of elaborate borders on woven textiles (see Henshall 1950, 148–51, appendix C; MacGregor 1974, 191). Finally, the composite bronze and iron shears from Keiss Harbour, unique in a Scottish context, can be interpreted as a prestige item. While individually the status of these aspects may be queried, cumulatively they point to sites of some status.

The final point of interest is the proximity of the three sites to one another. In Shetland and the Western Isles, Atlantic roundhouses are regularly spaced 1 km or more apart (Fojut 1982;



ILLUS 2 The three roundhouse complexes at Keiss (after Anderson 1901)

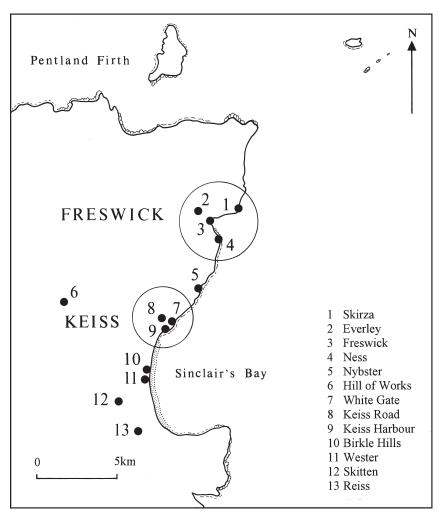
Armit 1992, 109-25). In Orkney, several dominate 3.5 km of coastline (Hedges 1987, 2, fig 3.1). Caithness roundhouses are more clustered, and the three Keiss roundhouses can be contained within a circle of 400 m radius, representing one of the densest Atlantic roundhouse distributions in Scotland. The density is even more marked when we consider that on the same bay, to the north and to the south, lie Nybster and Wester roundhouses. Intriguingly, this coastal clustering is repeated 6 km to the north at Freswick bay with Skirza, Ness, and Freswick roundhouses situated on the shore, the first two on clifftops, and Everley 500 m inland, all four occurring within a radius of less than 1 km (illus 3).

Table 1 Objects from the three Keiss roundhouses now in the National Museums of Scotland (x= object recorded as being found, yet no longer survives)

Material	Class	KEISS HARBOUR	KEISS ROAD	WHITE GATE
Pottery	Native	1	5	1
	Samian	3	1	_
	Lower Nene Valley colour-coat	3	_	_
	Crucible	1	_	_
Stone	Burnisher / polisher	4	_	_
	Cup / lamp	4	3	_
	Disc / pot lid	1	15	3
	Decorated slate	1	_	_
	Knife	1	_	_
	Strike-a-light		1	_
	Painted pebble	11		_
	Gaming counter	_	4	_
	Pebble	1	2	1
	Scraper	1	_	_
	Steatite object	1	_	_
	Whetstone	2	8	_ 1
	Whorl	2	3	1
	Rotary quern	3 1	X	X
	Saddle quern		X	X
	Stone ingot mould	x>2	x > 2	X
	Pounder	_	3	_
Amber	Bead	_ 1	_	2
Cannel coal / shale		1	_	_
	Pendant	1	_	_
Bone	Cheek piece	1	_	_
	Whalebone plate / smoother?	1	_	_
	Door snick	1 1	_	_
	Fish gorge Playing piece	1	_	_
	Vertebral disc (?playing piece)	11	_	_
	Point	17	16	4
	Mount	3	-	_
	Rib spatula	2	_	_
	Perforated object	1	_	_
	Pin	5	1	_
	Weaving tablet rough-out	1	_	_
	Bobbin	2	1	_
	Hilt guard	_	1	_
	Spindle whorl	4	1	_
	Worked antler	2	3	_
	Handle	7	1	1
	Bead	2	_	_
	Ring / armlet	1	_	_
	Spoon	1	_	_
	Pivot	1	-	_
	Long handled comb	3	_	_
	Blank for long handled comb	1	_	-
	Rings	8	2	_
	Perforated point (?needle)	-	1	_
	Worked bone	_	2	_
Glass	Cylinder bead	1	_	_
	Re-used rim sherd of Roman vessel	1	_	_
	Ring	1	_	
Metal	Ring	_	1	_
	Shears	2	_	_
	Spearhead	1		
	TOTAL	128	79	16

Table 2 Caithness sites with Roman finds

	Date	Crosskirk	Everley	Keiss Harbour	Keiss Road	Nybster
Glass Fragment hollow rim, amber (bowl?) Fragment folded rim Fragment (Roman?)	1st century AD 1st/2nd century AD ?	*	*	*		
Samian Ware Fragment, decorated bowl, Dr 29 Fragment, plain Fragment, decorated bowl, Dr 37 Fragment, barbotined beaker, Dr 72	1st century AD 2nd century AD 2nd century AD 2nd century AD	*	*	*	*	*
Fine Ware Fragment, Lower Nene Valley colour- coat Castor Ware beaker	•	*		*		
Castor Ware beaker	4th century AD	*				



ILLUS 3 Roundhouse distribution in the area

## THE IRON AGE OF COASTAL CAITHNESS: SOME SCENARIOS

Interpretation of the four observations set out above is inevitably constrained by the nature of the earlier evidence and the non-invasive methodologies applied in the project thus far. For example, we cannot reconstruct specific structural sequences or easily fit architectural details into standard roundhouse typologies (eg Armit 1992; Sharples & Parker Pearson 1997; Parker Pearson & Sharples 1999). Thus, we must take a broader methodological approach and consider issues of location, inter-site patterning, the changing history of Iron Age landscapes, and changing sociopolitical strategies. However, this is not always straightforward. As will become clear, current views on Caithness and Iron Age Scotland do not adequately explain the archaeological patterning witnessed at Keiss.

In further discussion artefacts become key components. We reject approaches that omit small finds from discussion because of the argument that archaeologists must wait until more 'modern' excavations have been carried out (eg Martlew 1982, 255). The lack of stratigraphical information on all three sites at Keiss should not be considered a justification for completely ignoring the artefactual assemblages. On the contrary, it is our contention that broad patterns can still be deduced which provide insight into past activity in the area. This patterning cannot simply be attributed to differential preservation or coarse retrieval strategies. Analysis of all of Barry's excavations reveals a standard excavation procedure: wall-chasing and the emptying of interiors (illus 4). Barry's retrieval and collection strategies are not known; however, it is improbable that they varied significantly from site to site. Furthermore, as Keiss Harbour and White Gate were excavated in the same year, 1893, it is unlikely that markedly different criteria were set for material collection and retention. While the vagaries of excavation would have undoubtedly influenced some aspects of recovery we can assume with some confidence that Barry was pursuing, at the inter-site level, a consistent collection strategy — albeit with an emphasis on the more exotic and complete artefacts. Consequently, even allowing for the antiquarian methods of excavation and recovery, the artefactual assemblages from the Keiss roundhouses should allow insight into aspects of the occupation and use of the sites. This artefactual emphasis is important, as too often studies have leapt from detailed consideration of the structural record to sweeping



ILLUS 4 Barry's wall-chasing at Keiss Harbour. (Photo: RCAHMS: Society of Antiquaries Collection)

generalizations about the socio-political status of Iron Age inhabitants without considering other potential sources of evidence. We shall now outline four possible scenarios that might explain the patterns observed at Keiss.

#### DEVELOPMENT THROUGH TIME

The first scenario suggests that at Keiss we are witnessing the gradual emergence and development of an important social group through time. As has been suggested for other areas this situation might be marked by earlier structures developing into increasingly elaborate architectural forms, ultimately the complex Atlantic roundhouse (and, perhaps, the associated settlements). This transition may be linked to competition which led to the local pre-eminence of groups, with the acceptance of this new authority mobilized in the labour of building the roundhouses and associated outworks (Barrett 1981, 215; Foster 1989b, 44-5). Importantly, this social change may have resulted in the amalgamation of pre-existing social groups within the area in order to maintain, strengthen and expand the authority of the region. This scenario relies on three key assumptions: that one of the roundhouses at Keiss was built first; that one site and its inhabitants became dominant in the landscape; and finally, that this dominance was expressed through the elaboration of architectural forms.

It is possible that White Gate was the earliest roundhouse at Keiss — it may be a simple Atlantic roundhouse. Such sites are argued to have been built in the first half of the first millennium BC and are considered to be the precursors of complex Atlantic roundhouses (Sharples 1984; Hedges 1987; Armit 1991; Gilmour 2000). The absence of Roman finds and distinctive metalwork from the site may support this suggestion. Comparison with other Atlantic regions suggests that the complex Atlantic roundhouse and associated buildings at either Keiss Road or Keiss Harbour became the domicile of the later dominant social group. These roundhouses may have reflected the status of a single household within the community, and the nucleated settlements the accumulation of social and political influence (Foster 1989b; Hedges 1990; Barrett & Foster 1991; Hingley 1992, 19; Armit 1996, 130–1).

However, we would suggest that this unilinear model is overly simplistic. Recent studies of Atlantic roundhouse structural chronology (Armit 1992, 109; Gilmour, forthcoming a) and the Roman finds indicate that Keiss Road and Keiss Harbour were used at the same time. This creates a problem — past models for other Atlantic areas have generally recognized dominant groups solely through the identification of one pre-eminent structural complex. At present, it is difficult to recognize the location of a unique, dominant social group at Keiss. More fundamentally, there is strong evidence that sites were not completely abandoned when alternative settlements emerged; for example, the external buildings, and perhaps internal fittings (see Baines 1999), at White Gate demonstrate that this site continued to be occupied throughout the first millennium AD. Clearly the landscape history of Keiss was far more complex and if we are to progress other models need to be considered.

# CONTEMPORANEITY (1): HIERARCHY IN THE LANDSCAPE

The second scenario contends that all three roundhouses would have been built and used within the same period and each, at some juncture, would have provided a focus for extra-mural settlement. As outlined above, aspects of the structural and artefactual record support this view, particularly at Keiss Road and Keiss Harbour. Childe's suggestion (1935, 204) that 'the available evidence points to contemporary occupation of them all' may not be far off the mark. Given their

proximity to one another, how are we to interpret this pattern? To assess this scenario we must refer to the current, divergent, views on roundhouses and Iron Age landscapes.

The suggestion that brochs were Iron Age castles housing the armed followers of warlords (eg Childe 1935) has been replaced with an active debate on social function, on which there is still no consensus. Broadly, there are two opposing camps. Some argue that in some regions certain Atlantic roundhouses were the typical household of the local population and did not relate solely to one social class (eg Armit 1992, 126; 1996, 129). Conversely, others argue that in some areas these sites represented the pinnacle of a hierarchical settlement structure (eg Parker Pearson, Sharples & Mulville 1996). In a similar vein, some view them as fortified farmhouses of tribal elites, or 'sub-chiefs', each controlling a territory supporting tribesmen and their families (eg Scott 1948; Heisler 1977; Fojut 1982; MacKie 1997; 2000).

The latter model assumes the existence of subservient households living in other structures (see Parker Pearson & Sharples 1999 for discussion of the Hebrides). While such sites are known in Caithness (Mercer 1985; 1996; Hingley 1992, 17) there is little evidence of subservient households in the Keiss landscape (see also Heisler 1977, 136; Batey 1984). Furthermore, the site density at Keiss suggests that the hierarchical model is, at the very least, an oversimplification and at worst fundamentally flawed; is it feasible that three separate hierarchically-arranged Iron Age groups would live within 500 m of one another? If Heisler's calculations are correct then three groups of over 200 people would have to have been supported within this small area (Heisler 1977 but see Armit 1992, 123 for criticisms).

This leaves us with the first suggestion, that Atlantic roundhouses were the typical household of the local population and did not relate solely to one social class. This interpretation has gained credence before — Foster (1989a, 200) argues that Caithness has no structural evidence to suggest a hierarchy of sites, but this model may also be unrealistic. With a few exceptions (eg MacKie 1977, 61–7; Parker Pearson, Sharples & Mulville 1996; 1999) there has been little discussion of how differential status between apparently similar sites can be recognized. This position is strongly linked to the common perception that social relations and internal hierarchies are best approached through analysis of geographical patterning and architectural nuances (eg Heisler 1977; Fojut 1982; Gilmour, forthcoming b). Although providing a basis for discussion, this reliance on the structural record makes it difficult to interrogate social differences between typologically similar sites and areas. For example, for Heisler (1977) to conclude that every roundhouse site was the abode of a 'sub-chief' without distinction or explanation is to say nothing meaningful about the socio-political makeup or complexities of Keiss or, indeed, Caithness. It also gives no indication of where the chiefs or subservient individuals lived.

Insight into this question may be provided by consideration of the rich corpus of artefactual information; there are important inter-site differences that might reflect social differences between groups living contemporaneously on the Keiss settlements (contra Heisler 1977, 21). By taking a broader look at the character of the assemblages, considering the activities represented on a presence/absence basis (following the methodology outlined by Hunter, forthcoming), three key points emerge (Table 3). First, unsurprisingly, all sites produced evidence for core activities such as agriculture, food preparation and the like. Second, it is clear that White Gate is different from the other sites, with only the amber bead hinting at something above the prosaic. Finally, there appears to be little to differentiate the histories of Keiss Harbour and Keiss Road. The inhabitants of both undertook craft activities and had access to Roman material and other markers that may be classed as high status, such as non-ferrous metalworking and weaponry. This is, perhaps, unsurprising; as outlined above, the structural characteristics of both sites may indicate similar elevated social status.

Table 3 Comparison of site assemblages and function by presence and absence

	White Gate	Keiss Road	Keiss Harbour
Transport			*
Skinworking			*
Pottery manufacturing			*
Weaponry		*	*
Roman objects		*	*
Games and leisure		*	*
Non-ferrous metalworking		*	*
Bone working		*	*
Antler working		*	*
Fixtures and fittings		*	*
Ornament	*	*	*
Textile working	*	*	*
Fishing	*	*	*
Agriculture	*	*	*
Food prep / eating	*	*	*
Miscellaneous	*	*	*

However, closer analysis indicates that Keiss Harbour may have had a higher social standing. While the simplistic equation of Roman finds as invariable status indicators is being questioned, particularly in Lowland Scotland (Hunter 2001), that the inhabitants had preferential access to a wider range of Roman material over a longer period than any other site surely reflects differential status within the region (Table 4). Indeed, the range of Roman finds from Keiss Harbour represents the largest haul from any site in Caithness. This pre-eminence is reinforced by other finds: 75% of the metalwork and all the glass objects are from the site.

Sherds of Roman artefacts from the three Keiss roundhouse complexes

	White Gate	Keiss Road	Keiss Harbour
Samian Ware	_	1	3
Lower Nene Valley colour-coat	_	_	3
Roman glass vessel		_	1

Therefore, across the Keiss landscape we may be witnessing the manipulation of status differences, not through overt structural types, but through the formal subdivision or restriction of specific goods and perhaps tasks. The inhabitants of Keiss Harbour may have controlled the acquisition and re-distribution of high status goods within the locale and this may explain the presence of the Samian sherd and non-ferrous metalworking evidence at Keiss Road. Heisler (1977, 134) concluded that while each Caithness broch community was the domain of a single sub-chief the society could have been highly stratified 'if a series of broch communities were united under higher order chiefs'. Were the inhabitants of Keiss Harbour at the hierarchical pinnacle that Heisler was searching for? If this model proves to be correct, it has an important bearing on our understandings of the socio-political framework of the Caithness Iron Age and other regions. At the very least, it refutes MacKie's suggestion that brochs in Caithness were built by powerful local cultures which lacked exotic material (MacKie 2000, 108). In sum, the artefactual evidence may imply important social differences within this small geographical area, differences that cannot be ascertained through structural analysis alone.

#### CONTEMPORANEITY (2): INTERDEPENDENCE IN THE LANDSCAPE

The third scenario contends, like the second, that all three roundhouses would have been built and used within the same period and would have provided foci for contemporary extra-mural settlement. However, contrary to the model of hierarchy in the landscape, in this scenario it is proposed that these contemporaneous roundhouse settlements functioned together within a system that was not overtly pyramidal; instead, several sites were engaged in a complex network of socio-political and economic interaction. This is not to say, for example, that one site had greater access to particular types of goods or skills, but that all three sites were interdependent.

This scenario rests on the recognition that contemporaneous roundhouse sites were densely distributed, intervisible and situated in a variety of locations along a short strip of coastline, as demonstrated at Keiss and at nearby Freswick bay (above). Separate locational explanations may be offered for each in terms of defence, trading (eg land or sea) or the main focus of their respective subsistence basis (eg fishing or arable). However, no single factor in the selection of locations will explain all their situations. Indeed, when considered as a group, explanation is easier if allowance is made for a significant level of interaction, sharing of resources and transfer of goods and materials between sites. Taken a step further it is possible to view the roundhouse locations at Keiss and Freswick as conforming to a group focus on, and co-ordinated investment in, the immediate hinterland of the bays and the access to the sea that they offer. Clearly, models formulated on the precedence of one site within a defined territory may not explain the evidence of socio-cultural and economic patterning in the Iron Age of coastal Caithness.

#### EBB AND FLOW

Any one of these three models could explain the patterns at Keiss. However, as argued above, on the basis of current structural and artefactual information, the first, unilinear, model appears simplistic. Similarly, while the second and third scenarios may be more attractive, they too have their problems. If the Keiss roundhouses are indeed contemporary then it is necessary to seek verification of either hierarchy or equality, for the two have very different consequences for our understanding of the socio-political and economic character of the Caithness Iron Age.

It may be argued that one model alone will not provide realistic insights into the complexities of a landscape used for over a millennium. Indeed, it is quite possible that at Keiss we are witnessing an ebb and flow in the function and status of specific sites over certain times, allowing a greater fluidity and complexity to settlement and social development. This approach resists explanations that envisage the emergence of only one site or the shift of settlement following the rise of a particular social elite and allows for discontinuity in the occupational history of any one site. This 'ebb and flow' fits well with the structural and artefactual evidence for activity at all three sites from the first half of the first millennium BC through the first millennium AD and easily allows the possibility that all were used, abandoned, re-used and relocated. For example, it is possible that the White Gate roundhouse preceded the other settlements and was pre-eminent in the social system, yet was superseded by a later building in a different part of the Keiss landscape. Only later was the site re-occupied for purposes other than its original construction

However, there is a danger that by using this model we are merely masking our lack of knowledge of the use, abandonment and re-use of Iron Age structures and landscapes. To date there are few models to explain why such movement and change should occur. If, for example, the occupants of White Gate lost their social position, why would a new elite, perhaps living at

Keiss Harbour, establish itself in the same area so close to the now defunct group, and build a structure of almost identical form? On the other hand, if the inhabitants of Keiss were the descendants of those of White Gate why did they feel the need to move to a site so close by? Practical (site location, resource potential), strategic, and symbolic considerations (see Foster 1989b, 45; Hingley 1992, 42) may explain why the Keiss landscape was used over the long term, but these models do not explain why highly localized, yet major, shifts within the landscape took place in the short term. Consideration of issues such as inheritance (Armit, forthcoming) may be one way forward.

Irrespective of which model we select, all stand or fall on a priori and largely unsubstantiated assumptions about chronology, function and status. Our difficulty in choosing between models exposes the inadequacy of our current knowledge and raises important issues that need to be addressed if Caithness is at last to play an active role in interpretations of Iron Age Scotland.

#### THE IRON AGE OF CAITHNESS: SOME FUTURE OBJECTIVES

As stressed throughout, Caithness continues to have a peripheral role in discussions of the Atlantic Scottish Iron Age. However, during the first millennium AD political units emerged in Caithness and Orkney that exercised authority over a large area (Foster 1989b) and had links with the southern mainland (MacKie 2000) and the Roman world. Clearly the area played a pivotal role, both geographically and politically, in the socio-political makeup of the Scottish Iron Age. However, before we can achieve a better understanding, significant gaps in our knowledge have to be filled. A starting point must be a greater understanding of the complex histories of roundhouses and associated outbuildings. As MacKie (2000, 108) states:

There is no doubt that as AD 2000 approaches the continuing lack of a thoroughly modern, stratigraphical excavation of a productive hollowed-walled broch standing on a mound in the northeast mainland is a severe handicap to any hypothesis advanced about the Iron Age period in this region.

Thus, there is a clear need to investigate issues such as the date, function, use and abandonment of these buildings. As emphasized throughout there is a need to study the role of these complexes within the wider landscape and their relationships to one another. However, we must guard against uncritically applying models from other regions; at best these generalize and do not provide the necessary spatio-temporal resolution — at worst they simply do not fit the observable data.

The study of artefacts must be integral to any new discussions. As we have seen, examining social relations through architecture alone restricts understandings of the socio-political composition of Iron Age Caithness. We must therefore move away from the perception that settlements are the principal forum for social interaction detectable by archaeological means (Armit & Ralston 1997, 170). Equally, new studies must involve a wider range of material and transcend old difficulties such as highly problematic cultural or typological models. Two broad areas need to be addressed if future understandings are to be more rewarding.

## CHRONOLOGY

Major gaps in our knowledge are compounded by the lack of chronological control for many artefact groups. That a major re-evaluation is long overdue is accepted (eg Lane 1987; Harding 1990; Armit 1991, 198) yet little has been done to tackle this issue. The collection of data specifically for the purpose of artefact research should move further up the list of excavation priorities. In particular, the lack of stratigraphic control for all of the objects from Barry's excavations means it is crucial to obtain stratified parallels during future work. The retrieval of material to date the deposition of artefacts and to construct reliable sequences is also necessary. This must be married with more critical examination of contextual information. The complex 'lifecycles' of objects (from production, to use, to discard, to reuse) and the blurring, blending or complete inversion of artefact sequences within primary and secondary contexts means that data must be critically studied before even basic questions of chronology can be discussed.

There must also be critical analysis of regional models. Recent studies, particularly on Hebridean pottery (MacSween, pers comm) have shown that there are problems in replicating chronological characteristics and sequences from site assemblages over wide geographical regions. Whereas many material groups do exhibit overall similarities there are subtle differences between sites that need to be explored. As demonstrated at Keiss, an interesting exercise would be to examine the similarities and differences between several site assemblages within Caithness.

Finally, because of various stratigraphic and typological differences, as well as the operation of various taphonomic processes (Hill 1995; Bond & MacSween 1998), one of the best ways forward is through direct scientific dating of individual artefacts. Recent advances in dating techniques (eg AMS) offer the potential to date individual objects such as pins and combs, and have been successfully employed in, for example, the dating of Mesolithic objects (cf. Bonsall, Tolan-Smith & Saville 1995; Kitchener & Bonsall 1997).

#### MORE MATERIAL, WIDER QUESTIONING

There is a need to utilize and interrogate the artefactual record more fully. Although Clarke (1971) called on archaeologists to consider more material, studies continue to be restricted to a limited range (eg pottery and exotic finds). Particular attention must be paid to the seldom-studied objects such as bone and stone, as they can provide information on procurement, production, use, exchange, cosmology and deposition. Such studies must also be more rigorous and must move away from ad hoc analyses to holistic interrogation of the wider dataset, including the collections housed in our museums. Despite recent work (eg Topping 1985; 1987; Foster 1989a; 1990; Lane 1990; Hallén 1994; MacKie 1997) much remains to be done. It is only through wider questioning of such material that we can begin to understand why Roman goods ended up in Caithness or assess MacKie's suggestion (2000, 108–11) that the material culture of Caithness is more aligned to mainland Scotland than the island areas of Atlantic Scotland.

## CONCLUSION

On the basis of preliminary work we have constructed a range of scenarios to explain the hitherto unexplored patterning observable at Keiss. Regardless of the weaknesses of the data, insights into aspects pertinent to our understanding of Iron Age Keiss and Caithness have been identified. However there remain problems, none more important than the need to develop local models that reflect the distinct nature of the Caithness archaeological record. Accordingly, future objectives have been explored in which the holistic analysis of the structural and artefactual evidence, both old and new, is an essential component. At the very least this study has emphasized the clear need to integrate the rich and varied archaeological record of Caithness into future discussions of Iron Age Scotland.

# POSTSCRIPT: A RESEARCH AGENDA FOR IRON AGE CAITHNESS — **RE-ANALYSIS OF TRESS BARRY**

Re-analysis of the Keiss roundhouses and their assemblages was undertaken as a first stage in a wider research programme designed to re-investigate Barry's excavations and their associated assemblages. A key objective is to assess the potential of Barry's sites to provide further insight into wider issues concerning the Atlantic Scottish Iron Age. There are three main strands to the project: re-analysis of the significant artefactual corpus, survey of the upstanding remains and excavation.

#### **ARTEFACTS**

After Barry's death 1500 objects were donated to the National Museums of Scotland and study of this material forms the cornerstone of the project. As the majority of finds have never been published, publication is important in itself. Analysis of the assemblages will incorporate new analytical techniques (where appropriate) and results will be discussed within a wider Iron Age framework. In addition, an essential element of the project will be the interpretation of the data in new ways, discussing topics such as resource exploitation, technology, status, identity and so on, where the evidence allows.

#### SURVEY AND EXCAVATION

To understand fully the artefacts it is necessary to attempt to contextualize the finds. This is approached through examination of the structural record and wider models of settlement of Iron Age Caithness. The first stage is survey. Despite the work by Mercer (1980; 1981), Batey (1984) and Swanson (1988), none of the sites excavated by Barry has ever been adequately published. Indeed, many (eg Skirza, Everley) have never had a measured survey. Consequently, an integral element of the project is the production of modern surveys of the remaining upstanding buildings and landscape features of the areas excavated by Barry.

While such non-invasive techniques can stimulate new insights, survey alone will not answer all our questions. Furthermore, work in Caithness since Barry does not allow much better resolution. The only modern broch excavation is Crosskirk (Fairhurst 1984); regrettably there are ambiguities in the published stratigraphy from this site and the radiocarbon determinations are open to more than one interpretation (MacKie 1987). Altogether, we know little about the date, use and purpose of these sites and there is a clear need for new excavations.

Barry's sites provide a useful avenue into these areas. With this in mind, initial work will comprise re-excavation of some of Barry's sites. This will complement the survey evidence, allowing broad characterization of the deposits and structures. It will also allow a better understanding of Barry's excavation techniques and retrieval strategies. Furthermore, re-analysis will allow an assessment of whether undisturbed levels still exist. Importantly, it is doubtful whether Barry reached primary levels or excavated complete settlements. Should archaeological deposits survive, the value of investigating the nature of a Caithness roundhouse complex, and wider issues surrounding it, are obvious.

# **ACKNOWLEDGEMENTS**

Earlier drafts of this text were read by Dr David Clarke, Fraser Hunter, Dr Simon Gilmour, Dr Ian Armit, and Professors Dennis Harding and Ian Ralston, to whom grateful thanks are offered for many useful comments and thoughts. Particular thanks to David Clarke, Fraser Hunter, Dennis Harding and Colin Wallace for discussion of some of the finds from Keiss. Grants from the National Museums of Scotland made this study possible. Illustrations 1 and 3 are by Marion O'Neil.

#### **REFERENCES**

- Anderson, J 1873a 'Notes on the evidence of spinning and weaving in the brochs or Pictish towers supplied by the stone whorls and the long-handled "broch combs" found in them, *Proc Soc Antiq Scot*, 9 (1872–3), 548–61.
- Anderson, J 1873b 'Notice of the excavation of the Brochs at Yarhouse, Brounaben, Bowermadden, Old Stirkoke and Dunbeath in Caithness; with remarks on the Period of the Brochs and Appendix, containing a collected list of the Brochs of Scotland, and early Notices of many of them, with a Map showing Sites of Brochs', *Archaeol Scotica*, 5, pt 1 (1893), 131–98.
- Anderson, J 1901 'Notice of nine brochs along the Caithness coast from Keiss Bay to Skirza Head, excavated by Sir Francis Tress Barry, Bart, MP, of Keiss Castle, Caithness', *Proc Soc Antiq Scot*, 35 (1900–1), 112–48.
- Armit, I (ed) 1990 Beyond the Brochs: Changing Perspectives on the Atlantic Scottish Iron Age. Edinburgh.
- Armit, I 1991 'The Atlantic Scottish Iron Age: Five levels of chronology', *Proc Soc Antiq Scot*, 121 (1991), 181–214.
- Armit, I 1992 The Later Prehistory of the Western Isles of Scotland. Oxford (= Brit Archaeol Rep Brit Ser, 221).
- Armit, I 1996 The Archaeology of Skye and the Western Isles. Edinburgh.
- Armit, I forthcoming 'Land-holding and inheritance in the Atlantic Scottish Iron Age'.
- Armit, I & Ralston, I B M 1997 'The Iron Age', in Edwards, K J & Ralston, I B M (eds) Scotland: Environment and Archaeology, 8000 BC-AD 1000, 169–93. Chichester.
- Baines, A 1999 'Breaking the Circle: Archaeology and Architecture in the Later Iron Age of Northern Scotland', *Northern Archaeol*, 17/18 (1999), 77–85.
- Ballin Smith, B 1994 *Howe: Four Millennia of Orkney Prehistory*. Edinburgh (= Soc Antiq Scot Monogr Ser, 9).
- Barrett, J C 1981 'Aspects of the Iron Age in Atlantic Scotland: a case study in the problems of archaeological interpretations', *Proc Soc Antiq Scot*, 111 (1981), 205–19.
- Barrett, J C & Foster, S 1991 'Passing the time in Iron Age Scotland', in Hanson, W & Slater, E (eds) Scottish Archaeology: New perceptions, 44–57. Aberdeen.
- Barry, F T 1899 'Notes on painted pebbles from the Keiss brochs', *Proc Soc Antiq Lond*, 17 (1897–9), 191–2.
- Batey, C 1984 Caithness Coastal Survey 1980–82: Dunnet Head to Ousdale. Durham (= Durham Univ Occas Pap, 3).
- Batey, C 1987a 'Viking and Late Norse Caithness: the archaeological evidence', *in* Knirk, J (ed) *Proceedings* of the Tenth Viking Congress, Larkollen, Norway 1985, 137–48. Oslo (Universitets Oldsaksamlings Skrifter Ny Rekke, 9).
- Batey, C 1987b Freswick Links, Caithness. a re-appraisal of the Late Norse site in its context, 2 vols. Oxford (= Brit Archaeol Rep Brit Ser, 179).
- Batey, C 1991 'Picts and Vikings in Caithness and Sutherland: a resumé', *in* Karkov, C & Farrell, R (eds) *Studies in Insular Art and Archaeology*, 9–60. Oxford, Ohio (= American Early Medieval Stud, 1).
- Blair, M J 1978 A Re-examination of the Evidence and Material from the Harbour Mound Broch at Keiss, near Wick, Caithness. Unpub MA dissertation, Univ Edinburgh.
- Bond, J N & MacSween, A 1998 'Ashes to the Earth; The Making of a Settlement Mound', *in* Nicholson & Dockrill (eds) 81–96.

Bonsall, C, Tolan-Smith, C & Saville, A 1995 'Direct dating of Mesolithic antler and bone artifacts from Great Britain: new results from bevelled tools and red antler deer mattocks', Mesolithic Miscellany, 16.1 (1995), 2–10.

Calder, C S T 1948 'Report on the Excavation of a broch at Skitten, in the Kilimster District of Caithness', Proc Soc Antiq Scot, 82 (1947-8), 124-45.

Childe, V G 1935 The Prehistory of Scotland. London.

Clarke, D V 1971 'Small finds in the Atlantic Province: Problems of Approach', Scott Archaeol Forum, 3 (1971), 22-55.

Curle, A O 1941 'An Account of the Partial Excavation of a "Wag" or Galleried Building at Forse, in the Parish of Latheron, Caithness', Proc Soc Antig Scot, 75 (1940–1), 23–39.

Curle, A O 1948 'The "Wag" of Forse, Caithness: Excavations 1947–48', Proc Soc Antiq Scot, 82 (1947–8), 275 - 86

Curle, J 1932 'An inventory of objects of Roman and provincial Roman origin found on sites in Scotland not definitely associated with Roman constructions', Proc Soc Antig Scot, 66 (1931–2), 277–397.

Dungworth, D B 1996 'The Production of Copper Alloys in Iron Age Britain', Proc Prehist Soc, 62 (1996), 399-421.

Dungworth, D B 1998 'EDXRF Analysis of Copper-alloy artefacts', in Main, L 1998, 347-55.

Fairhurst, H 1984 Excavations at Crosskirk, Caithness. Edinburgh (= Soc Antiq Scot Monogr, 3).

Fojut, N 1982 'Towards a Geography of Shetland brochs', Glasgow Archaeol J, 9 (1982), 38–59.

Foster, S M 1989a Aspects of the Late Atlantic Iron Age. Unpub PhD thesis, Univ Glasgow.

Foster, S M 1989b 'Transformations in social space: Iron Age Orkney and Caithness', Scott Archaeol Rev, 6 (1989), 34-55.

Foster, S M 1990 'Pins, Combs and the Chronology of Later Atlantic Iron Age Settlement', in Armit, I 1990, 143-74.

Gilmour, S 2000 'First Millennia Settlement Development in the Atlantic West', in Henderson, J C (ed) 155-70.

Gilmour, S forthcoming a 'Complex Atlantic roundhouses — chronology and complexity'.

Gilmour, S forthcoming b 'Atlantic Scotland: evidence and controversy'.

Hallén, Y 1994 'The use of bone and antler at Foshigarry and Bac Mhic Connain, two Iron Age sites on North Uist, Western Isles', Proc Soc Antiq Scot, 124 (1994), 189-233.

Harding, DW 1990 'Changing Perspectives in the Atlantic Iron Age', in Armit, I 1990, 5-16.

Hart, B E 1973 'Climate and weather', in Omand, D (ed) 1973, 40–5.

Heald, A, Mack, I & McDonnell, G forthcoming 'Ferrous metalworking', in Cressey, M & Sheridan, J A 'Excavations at Seafield West, Inverness', Proc Soc Antig Scot.

Hedges, J W 1987 Bu, Gurness and the Brochs of Orkney, 3 vols. Oxford (= Brit Archaeol Rep Brit Ser, 163-5).

Hedges, J W 1990 'Surveying the Foundations: Life after brochs', in Armit, I 1990, 17–31.

Heisler, D M 1977 Carrying Capacity and Social Organisation in the Atlantic Iron Age. Unpub PhD thesis, Univ Missouri-Columbia.

Henderson, J C (ed) 2000 The Prehistory and Early History of Atlantic Europe. Oxford (= Brit Archaeol Rep Inter Ser, 861).

Henshall, A 1950 'Textiles and Weaving appliances in Prehistoric Britain', Proc Prehist Soc, 16 (1950),

Hill, J D 1995 Ritual and Rubbish in the Iron Age of Wessex: A Study on the Formation of a Specific Archaeological Record. Oxford (= Brit Archaeol Rep Brit Ser, 242).

Hingley, R 1992 'Society in Scotland from 700 BC to AD 200', Proc Soc Antiq Scot, 122 (1992), 7-53.

Hunter, F 1998 'Discussion of the artefact assemblage', in Main, L 393–401.

Hunter, F 2001 'Roman and Native in Scotland: new approaches', J Roman Archaeol, 14 (2001), 289–309.

Hunter, F forthcoming 'Approaches to artefacts from houses: theories, factoids and methodologies'.

Kitchener, A C & Bonsall, C 1997 'AMS radiocarbon dates for some extinct Scottish mammals', Quaternary Newsletter, 83 (1997), 1–11.

Laing, S 1868 'On the Age of the Burgs or 'Brochs' and some other Prehistoric Remains of Orkney and Caithness', *Proc Soc Antiq Scot*, 7 (1867–8), 56–79.

Laing, S & Huxley, T H 1866 The Prehistoric remains of Caithness. Edinburgh.

Lane, A 1987 'English Migrants in the Hebrides: "Atlantic Second B" Revisited', *Proc Soc Antiq Scot*, 117 (1987), 47–66.

Lane, A 1990 'Hebridean Pottery: Problems of Definition, Chronology, Presence and Absence', in Armit, I 1990, 108–30.

MacGregor, A 1974 'The Broch of Burrian, North Ronaldsay, Orkney', *Proc Soc Antiq Scot*, 105 (1972–4), 63–119.

MacKie, E W 1969 'Continuity in Fort Building Traditions in Caithness', *The Dark Ages in the Highlands*, 5–24. Inverness (= Inverness Field Club publication).

MacKie, EW 1977 Science and Society in Prehistoric Britain. London.

MacKie, E W 1982 'The Leckie broch, Stirlingshire: an interim report', *Glasgow Archaeol J*, 9 (1982), 60–72.

MacKie, E W 1987 'Review of Fairhurst 1984', Antiq J, 65.2 (1987), 500–1.

MacKie, E W 1997 'Dun Mor Vaul revisited: fact and theory in the reappraisal of the Scottish Atlantic Iron Age', *in* Ritchie, G (ed) *The Archaeology of Argyll*, 141–81. Edinburgh.

MacKie, E W 2000 'The Scottish Atlantic Iron Age: Indigenous and Isolated or part of a wider European World?', *in* Henderson, J C (ed), 99–116.

McDonnell, G 1998 'Irons in the Fire — Evidence of ironworking on broch sites', *in* Nicholson, R A & Dockrill, S J (eds), 150–62.

Main, L 1998 'Excavation of a timber round-house and broch at the Fairy Knowe, Buchlyvie, Stirlingshire, 1975–8', *Proc Soc Antiq Scot*, 128 (1998), 293–419.

Martlew, R 1982 'The typological study of the structures of the Scottish brochs', *Proc Soc Antiq Scot*, 112 (1982), 254–76.

Mercer, R 1980 Archaeological Field Survey in Northern Scotland 1976–1979. Edinburgh (= Univ Edinburgh Archaeol Dept Occas Pap, 4).

Mercer, R 1981 *Archaeological Field Survey in Northern Scotland. Volume II, 1980–1*. Edinburgh (= Univ Edinburgh Archaeol Dept Occas Pap, 7).

Mercer, R 1985 Archaeological Field Survey in Northern Scotland. Volume III, 1982–3. Edinburgh (= Univ Edinburgh Archaeol Dept Occas Pap, 11).

Mercer, R 1996 'The excavation of a succession of prehistoric roundhouses at Cnoc Stanger, Caithness, Highland, 1981–2', *Proc Soc Antiq Scot*, 126 (1996), 157–90.

Nicholson, R A & Dockrill, S J (eds) 1998 *Old Scatness Broch, Shetland: Retrospect and Prospect.* Bradford. NMRS MS/821/2 Photocopy of booklet 'Prehistoric Brochs of Caithness. A Paper. Read by Sir Francis Tress Barry, Bart, FSA, and Hon Mem SAS, at a meeting of the Society of Antiquaries of London on June the 8th 1899'. Copied from an original booklet in the collection in Dunrobin Castle Museum.

Omand, D (ed) 1973 The Caithness Book. Inverness.

Omand, D 1982 'The making of the Caithness landscape', in Baldwin, J R (ed) Caithness: A Cultural Crossroads, 6-25. Edinburgh.

Parker Pearson, M & Sharples, N 1999 Between Land and Sea: Excavations at Dun Vulan, South Uist. Sheffield

Parker Pearson, M, Sharples, N & Mulville, J 1996 'Brochs and Iron Age society: a reappraisal', *Antiquity*, 70 (1996), 57–67.

Parker Pearson, M, Sharples, N & Mulville, J 1999 'Excavations at Dun Vulan: a correction', *Antiquity*, 73 (1999), 149–52.

RCAHMS 1911 Royal Commission of the Ancient and Historical Monuments of Scotland. *Caithness*. Edinburgh.

RCAHMS 1998 The Sir Francis Tress Barry Collection: Catalogue of Material held in the National Monuments Record of Scotland. Edinburgh.

Rhind, A H 1853a 'An account of an extensive collection of Archaeological Relics, and Osteological Remains from a 'Picts House' at Kettleburn, Caithness', Proc Soc Antiq Scot, 1 (1852–3), 264–67.

Rhind, A H 1853b 'Notice of the Exploration of a 'Picts House' at Kettleburn, in the county of Caithness', Archaeol J, 10 (1853), 212-23.

Ritchie, A 1972 'Painted pebbles in early Scotland', Proc Soc Antig Scot, 104 (1971–2), 297–301.

Ritchie, A 1998 'Painted pebbles', in Sharples, N (ed.) Scalloway: A Broch, Late Iron Age Settlement and *Medieval Cemetery in Shetland*, 176–8. Oxford (=Oxbow Monogr, 82).

Robertson, AS 1970 'Roman finds from non-Roman sites in Scotland', Britannia, 1 (1970), 198-226.

Scott, L 1948 'Gallo-British colonies: the aisled roundhouse culture in the North', Proc Prehist Soc, 14 (1948), 46-125.

Sharples, N 1984 'Excavations at Pierowall Quarry, Westray, Orkney', Proc Soc Antig Scot, 82 (1984), 1-48.

Sharples, N & Parker Pearson, M 1997 'Why were brochs built?: Recent studies in the Iron Age of Atlantic Scotland', in Gwilt, A & Haselgrove, C (eds) Reconstructing Iron Age Societies: New Approaches to the British Iron Age, 254–65. Oxford (= Oxbow Monogr, 71).

Stevenson, R B K 1955 'Pins and the chronology of brochs', Proc Prehist Soc, 21 (1955), 282-94.

Stuart, J 1868 'Report to the Committee of the Society of Antiquaries of Scotland, appointed to arrange for the application of a Fund left by the late Mr A Henry Rhind, for excavating early remains', Proc Soc Antiq Scot, 7 (1867-8), 289-307.

Swanson, C 1988 A Contribution to a New Understanding of Brochs. Unpub PhD thesis, Univ Edinburgh.

Topping, P 1985 Later Prehistoric Pottery of the Western Isles. Unpub PhD thesis, Univ Edinburgh.

Topping, P 1987 'Typology and chronology in the later prehistoric pottery assemblages of the Western Isles', Proc Soc Antiq Scot, 117 (1987), 67-84.