



Summary Iron Age Panel Report

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Executive Summary

Why research Iron Age Scotland?

The Scottish Iron Age provides rich data of international quality to link into broader, European-wide research questions, such as that from wetlands and the well-preserved and deeply-stratified settlement sites of the Atlantic zone, from crannog sites and from burnt-down buildings. The nature of domestic architecture, the movement of people and resources, the spread of ideas and the impact of Rome are examples of topics that can be explored using Scottish evidence. The period is therefore important for understanding later prehistoric society, both in Scotland and across Europe.

There is a long tradition of research on which to build, stretching back to antiquarian work, which represents a considerable archival resource. There are also opportunities through highly favourable preservation conditions, as noted above. The Scottish Iron Age can produce rich, dense data of international quality, and there is great potential to exploit it more fully.

Many topics remain to be explored, from the details of regional chronologies and settlement sequences that have long been a key factor of research, to more innovative approaches to social structures, concepts of landscape and society, craft processes and the use of material objects to shape people's lives. The research directions suggested below should provide avenues to explore more fully the richness and diversity of life in Iron Age Scotland.

Panel Task and Remit

The Iron Age panel was asked to critically review the current state of knowledge, and consider promising areas of future research into the Scottish Iron Age. This is intended to help with the building of testable, defensible and robust narratives that describe and explain societies from the end of the Bronze Age to the formation of post-Roman kingdoms and the arrival of Christianity (c.800BC – AD500). This will facilitate the work of those interested in the Scottish Iron Age and help set a trajectory for future research. Although the remit of the current project is Scottish, it is important that this research is undertaken within the wider context of developments in the rest of Britain, Ireland and on the Continent.

This report, the result of the panel's deliberations, is structured by theme: *History of research; Land as arena; Land as resource; Building in the Round; Settlements, communities and enclosed places; Relations between people; and Scotland in a bigger world*. The themes reflect the desire to uncover the people of the Scottish Iron Age in their local, regional and wider European context. The document, which outlines the different areas of research work and highlights promising research topics, is reinforced by material in an on-line Wiki format which provides further detail and resources. The Iron Age Scottish Archaeological Research Framework is intended as a resource to be utilised, built upon, and kept updated, by all those interested in this period of Scotland's past now and into the future.

Future Research

The main recommendations of the panel report can be summarised under five key headings:

- **Building blocks:** The ultimate aim should be to build rich, detailed and testable narratives situated within a European context, and addressing phenomena from the *longue durée* to the short-term over international to local scales. Chronological control is essential to this and effective dating strategies are required to enable generation-level analysis. The ‘serendipity factor’ of archaeological work must be enhanced by recognising and getting the most out of information-rich sites as they appear.
 - There is a pressing need to revisit the archives of excavated sites to extract more information from existing resources, notably through dating programmes targeted at regional sequences – the Western Isles Atlantic roundhouse sequence is an obvious target.
 - Many areas still lack anything beyond the baldest of settlement sequences, with little understanding of the relations between key site types. There is a need to get at least basic sequences from many more areas, either from sustained regional programmes or targeted sampling exercises.
 - Much of the methodologically innovative work and new insights have come from long-running research excavations. Such large-scale research projects are an important element in developing new approaches to the Iron Age.
- **Daily life and practice:** There remains great potential to improve the understanding of people’s lives in the Iron Age through fresh approaches to, and integration of, existing and newly-excavated data.
 - **House use.** Rigorous analysis and innovative approaches, including experimental archaeology, should be employed to get the most out of the understanding of daily life through the strengths of the Scottish record, such as deposits within buildings, organic preservation and waterlogging.
 - **Material culture.** Artefact studies have the potential to be far more integral to understandings of Iron Age societies, both from the rich assemblages of the Atlantic area and less-rich lowland finds. Key areas of concern are basic studies of material groups (including the function of everyday items such as stone and bone tools, and the nature of craft processes – iron, copper alloy, bone/antler and shale offer particularly good evidence). Other key topics are: the role of ‘art’ and other forms of decoration and comparative approaches to assemblages to obtain synthetic views of the uses of material culture.
 - **Field to feast.** Subsistence practices are a core area of research essential to understanding past society, but different strands of evidence need to be more fully integrated, with a ‘field to feast’ approach, from production to consumption. The working of agricultural systems is poorly understood, from agricultural processes to cooking practices and cuisine: integrated work between different specialisms would assist greatly. There is a need for conceptual as well as practical perspectives – e.g. how were wild resources conceived?
 - **Ritual practice.** There has been valuable work in identifying depositional practices, such as deposition of animals or querns, which are thought to relate to house-based ritual practices, but there is great potential for further pattern-spotting, synthesis and interpretation.

- **Landscapes and regions:**
 - Concepts of ‘region’ or ‘province’, and how they changed over time, need to be critically explored, because they are contentious, poorly defined and highly variable. What did Iron Age people see as their geographical horizons, and how did this change?
 - Attempts to understand the Iron Age landscape require improved, integrated survey methodologies, as existing approaches are inevitably partial.
 - Aspects of the landscape’s physical form and cover should be investigated more fully, in terms of vegetation (known only in outline over most of the country) and sea level change in key areas such as the firths of Moray and Forth.
 - Landscapes beyond settlement merit further work, e.g. the use of the landscape for deposition of objects or people, and what this tells us of contemporary perceptions and beliefs.
 - Concepts of inherited landscapes (how Iron Age communities saw and used this long-lived land) and social resilience to issues such as climate change should be explored more fully.

- **Reconstructing Iron Age societies.** The changing structure of society over space and time in this period remains poorly understood. Researchers should interrogate the data for better and more explicitly-expressed understandings of social structures and relations between people.

- **The wider context:** Researchers need to engage with the big questions of change on a European level (and beyond). Relationships with neighbouring areas (e.g. England, Ireland) and analogies from other areas (e.g. Scandinavia and the Low Countries) can help inform Scottish studies. Key big topics are:
 - The nature and effect of the introduction of iron.
 - The social processes lying behind evidence for movement and contact.
 - Parallels and differences in social processes and developments.
 - The changing nature of houses and households over this period, including the role of ‘substantial houses’, from crannogs to brochs, the development and role of complex architecture, and the shift away from roundhouses.
 - The chronology, nature and meaning of hillforts and other enclosed settlements.
 - Relationships with the Roman world.

Table of Contents

Executive Summary	
Table of Contents	vi
List of Tables	ix
1. Introduction	1
Figure 1: Map of sites mentioned in the text, © RCAHMS	3
History of Research	4
2.1 Antiquarian work and early syntheses	4
2.2 The roots of organised fieldwork	5
2.3 Synthesis and survey in the mid-20 th century	5
2.4 Rescue and research in the later 20 th century	6
2.5 Controversies	8
2.6 Chronological Schemes	8
2.7 Previous research frameworks	10
2.8 Future Research Recommendations	11
3. Land as arena – place & territory	12
3.1 Introduction	12
3.2 Reconstructing environmental change	13
Climate and Climate Change	13
Human responses to early Iron Age rapid climate change	14
Forest Clearance	15
Sea Level Change	15
The Future	16
3.3 Regional Structure	16
3.4 Territory	18
3.5 Fields and soils	21
3.6 Multiple Scales of Analysis	23
3.7 Inherited landscapes	24
3.8 Different Landscapes	24
3.7 Future Research Recommendations	25
4. Land as resource	27
4.1 Introduction	27
4.2 Farming and Feeding	27
Production of plants and animals	28
Procurement of wild resources	30
Processing of plants and animals for consumption	33
Utility/Consumption of plants and animals	35
4.3 Cooking & Consumption	36
4.4 Making and using	38
Obtaining resources	38
Manufacture	40
Occurrence and use	41
4.5 New technologies	43
4.6 Future research recommendations	46
5. Building in the Round: house-scapes of the Iron Age	48
5.1 Introduction: the role of houses	48
5.2 Regional trends	48
5.3 Types and variations	49
5.4 How were roundhouses used?	51

5.5 Contemporaneity, longevity and permanence of structures	53
5.6 Explaining variations	54
5.7 Substantial houses	55
5.8 The transmission of architectural ideas over space and time	55
5.9 Atlantic stone-built roundhouses: sequence, subdivision and interpretations	57
Chronology, temporality and biography	59
Use, Activity and Deposition	59
Atlantic Landscapes and Housescapes	60
Atlantic Architecture & Portable Material Culture	61
5.10 Non-circular architecture	61
5.11 The Role of reconstructions and replicas.....	62
5.12 Research recommendations	66
6. Enclosed Places	68
6.1 Introduction	68
6.2 Setting or context of buildings: settlement form, layout and location	68
Location as a marker of difference	69
Access to / control of scarce resources.....	69
6.3 Local or regional settled landscapes and seascapes - ‘settlement hierarchies’ and ‘clusters of communities’	70
6.4 Enclosed Places	74
Defining forts.....	74
Explanatory frameworks for Iron Age forts and enclosures	74
Why enclosure?.....	76
The end of enclosure.....	76
The evidence base.....	76
6.5 Chronology and development of enclosed places	77
Origins / early enclosures.....	78
Early to mid first millennium BC.....	78
Later first millennium BC.....	78
Early first millennium AD.....	79
Mid to later first millennium AD	79
6.6 Enclosing works.....	80
Occurrence	80
Sequence.....	80
Occasionally encountered features	81
Vitrified walls.....	81
‘Unfinished’ enclosing works	82
Entrances.....	82
Building enclosures	83
6.7 The ‘functions’ of enclosed places.....	83
Diversity in time and space	83
Enclosures as places of habitation	84
Forts as nucleated settlements / oppida / tribal capitals	84
Defensive properties of enclosures.....	85
Symbolic aspects of enclosures.....	85
Enclosures as communal places.....	86
Early Medieval forts	86
6.8 Regionality	86
Southern Scotland.....	86

Central and Eastern Scotland	88
Argyll and Atlantic Scotland	89
6.9 Research recommendations	93
7. Relations between people	95
7.1 Introduction	95
7.2 Individuals and Groups	95
7.3 Art and decoration.....	96
7.4 Social structure and models of society	97
7.5 Interactions between groups.....	99
7.6 Beliefs.....	101
On-site ritual practice	101
Off-site deposition and hoarding.....	102
Death.....	103
Inter-connections.....	104
7.7 Research recommendations	105
8. Scotland in a wider world.....	107
8.1 Scotland in north-western Europe.....	107
Conclusions	110
8.2 The Celts debate	110
8.3 Impact of Empire.....	111
8.4 Significant social changes.....	113
8.5 Research recommendations	115
9. Research and methodological issues	116
9.1 Introduction: the challenge of working with the Iron Age	116
9.2 Survey and the Iron Age record	116
Iron Age settlement patterns - understanding the evidence base.....	117
9.3 Chronology.....	119
Scientific dating	119
Artefactual dating.....	120
9.4 Access to information	122
9.4.1 Databases and collections.....	122
9.4.2 Publications and backlogs publication	122
9.5 Approaches to artefacts.....	123
9.6 Future Recommendations	124
Bibliography	125

List of Figures

Figure 1: Map of sites mentioned in the text, © RCAHMS.....	3
Figure 2: Photograph of Tress Barry's excavation at Nybster broch, Caithness © RCAHMS	5
Figure 3: Hownam Rings, Roxburghshire © RCAHMS	6
Figure 4: One of the artefacts 'recovered' from Dumbuck crannog © RCAHMS	8
Figure 5: (top) British Iron Age provinces and regions, from Piggott 1966, 4	18
Figure 6: Cross ridge dyke known as the 'Deils Dyke' in Dumfriesshire © RCAHMS.....	21
Figure 7: Scottish 'field systems' e.g. Drumturn (above), Perth and Kinross © RCAHMS	21
Figure 8: Cord Rig agriculture at Hut Knowe, Scottish Borders © Mike Middleton	22
Figure 9: The Knowe of Skea © EASE Archaeology.....	24
Figure 10: Whalebone mattock from Foshigarry, North Uist © NMS	29
Figure 11: Selection of stone agricultural tools from the Northern Isles © NMS	30

Figure 12: Sample of fish remains from a context recovered at Bostadh Beach ©Ceron-Carrasco 2005.	31
Figure 13: Selection of Iron Age pottery from Orkney, © NMS.....	37
Figure 14: Crucibles from Culduthel, Inverness © Headland Archaeology Ltd and NMS.....	41
Figure 15: Pair of furnaces from Birnie, Moray © F. Hunter	44
Figure 16: Glass bead from Loch Spouts crannog, Ayrshire © NMS.....	44
Figure 17: Rotary quern from Balmaclallan, Dumfries and Galloway © NMS.....	45
Figure 18: Tofts Ness roundhouse, Orkney © Dockrill	50
Figure 19: Coring on the Iron Age islet site of An Dunan, Uig © Uig Landscape Project.....	50
Figure 20: Plan of the Wag of Forse (Curle 1948).	52
Figure 21: Loch na Beirgh excavation © Simon Gilmour	53
Figure 22: Edins Hall, Scottish Borders © RCAHMS.....	56
Figure 23: Whitslade roundhouse and souterrain, Scottish Borders ©RCAHMS.....	57
Figure 24: Armit’s sub-division of Atlantic roundhouses from Turner <i>et al.</i> 2005	57
Figure 25: Dryden’s watercolour of Dun Troddan © RCAHMS.....	64
Figure 26: Aerial image of Gurness, Orkney © RCAHMS.....	69
Figure 27: Distribution of rectilinear enclosures in the East Lothian plain, © RCAHMS	71
Figure 28: Kirk Hill palisaded enclosure and fort, Scottish Borders, © RCAHMS	78
Figure 29: Image of Brown Caterthun and White Caterthun forts, Angus, © RCAHMS.....	79
Figure 30: Plan of Dunadd nuclear fort, Argyll, © RCAHMS	79
Figure 31: Excavation of rampart at Brown Caterthun fort, Angus, © RCAHMS.....	80
Figure 32: <i>Chevaux-de-frises</i> at Cademuir Hill, Scottish Borders © RCAHMS	81
Figure 33: Gob Eirer promontory enclosure, Uig, Western Isles © Uig Landscape Project	90
Figure 34: Detail of the neck collar from Stichill © NMS.....	97
Figure 35: There was more to decoration than Celtic art. © NMS.....	97
Figure 36: Pony cap and horns from Torrs, Kirkcudbrightshire. © NMS.....	99
Figure 37: Deliberately-smashed saddle querns buried at Birnie, Moray, © F. Hunter.....	102
Figure 38: Excavations in the bog where the Deskford carnyx was found, © NMS	103
Figure 39: Remains of a youth whose body was divided between four pits © NMS	103
Figure 40: Roman finds from Keiss broch, Caithness, © NMS.....	111
Figure 41: Roman brooches from the Iron Age hillfort of Traprain Law, © NMS.....	112

List of Tables

Table 1: Parker Pearson and Sharples’ suggestions for chronological divisions within the Long Iron Age	9
Table 2: Cultivated crops in the Iron Age.....	28
Table 3: Wild mammal species exploited in the Iron Age.....	30
Table 4: Wild bird species exploited in the Iron Age	32
Table 5: Gathered shellfish in the Iron Age	33
Table 6: Wild plants gathered in the Iron Age	33

1. Introduction

The Iron Age has long been dominated by the archaeology of settlement and settlement design - the brochs, duns, wheelhouses, timber and stone-built roundhouse settlements, unenclosed platform settlements, crannogs, enclosed farmsteads and hillforts that are familiar and, often, so impressive. Uniquely, in the British context, such sites in northern and western Scotland have offered deep stratified sequences of development that have given the opportunity to observe developments, socially, culturally and architecturally over time in considerable detail. However, a broader vision of Iron Age society is coming into focus, including increasing funerary evidence, hitherto almost absent, that reveals more about the population itself.

It is, of course, the people of the Iron Age that lie at the root of study. Personal identities can be explored, as expressed through identifiers of ranking, role, gender and age. The structure of society as revealed through its material remains shows evidence of segregation, differentiation and regional patterning. The question of regional identities and idiosyncracies as well as wider links to communities elsewhere in Britain and in Europe, and their variation over time, is an important area of enquiry. It has long been argued that the people of Iron Age Scotland were far from isolated and this has been dramatically demonstrated by the discovery of a burial accompanied by an assembled chariot located at Newbridge, west of Edinburgh, where dating and form show links with the Continent, but the technological details show insular origins. It is increasingly apparent that materials, goods and ideas were being moved for a variety of reasons over very wide areas. Key research questions revolve around the nature of these contacts and the role and extent of mobile people and groups. The role of warfare and violence cannot be under-estimated in this process,

with the need for greater precision and interrogation of the archaeological evidence in order to specify its *modi operandum*.

Important work has taken place in the elucidation of environmental change at this period. Further effort is needed to add detail, precision and clarity to the chronology of farming development, its nature, its place within the landscape, its productivity and its demographic outcomes.

Ultimately, the nature of society remains the fundamental question. In tackling this, modern scholarship must learn how to break free from simple models, often reflecting partial and patronising views of tribes and elites transmitted to us fragmentarily by classical writers, and develop richer, more rounded understandings of life in the Iron Age as it was lived by prehistoric peoples.

The Iron Age panel was set up to incorporate the study of the Roman impact on what is now Scotland and it is important to consider the relationship that Iron Age peoples of this zone had with Rome and the wider world of Empire. This interaction with a literate society for the first time and what impact the Romans had on local communities, and in turn, what impact these peoples had on the rest of the Roman Empire, are all important issues for exploration. Traditionally, work has focused on aspects of military history. More recently there has been a more diverse appreciation of other aspects of enquiry including the organisation and nature of supply, the diversity of peoples among soldiers and civilians in the frontier zone, and a more subtle understanding of interactions with the local population. Roman Scotland is central to discussions relating to ethnicity and identity in the past and has a considerable voice to add to European and wider debates on frontier life. What happened when the Romans “left”? Did they all leave? What counted as ‘Roman’ at this time? How did the longer-term influence of the Roman world and its legacy

influence the formation, nature and organisation of the Pictish and other emergent kingdoms? All of these issues form critical research areas to explore.

For all its outwardly domestic character, evidence for ritual and belief is a key feature of Iron Age study. Can the apparently straightforward and intuitively interpreted evidence for the domestic sphere as retrieved from 'simple' settlement sites, be satisfactorily compared with 'special' or unusual sites such as Mine Howe, Orkney or High Pasture Cave, Isle of Skye, with their evidence for activities such as feasting, sacrifice, deposition, hoarding, or metal-working? Natural, wet/boggy or isolated places may also feature as ritual foci, with artefacts and other items being deposited, providing a rich resource in terms of craftsmanship, raw materials and the production and consumption of goods.

The quality of evidence from the Scottish Iron Age represents considerable research strength. Drystone architecture provides

detailed and still-standing information on the Iron Age built environment. Deep man-made soils contain proxy data that may indicate how people used the landscape, and how this changed over time. Wetland archaeology can provide the kind of immediacy of view of life in the past, through the unusual preservation of organic materials, that is more generally associated with shipwrecks. The long history of research into the Iron Age has provided an important archive that merits study.

Understanding the nature of settlement, landscape and subsistence remains a key research area and traditional focus of the Scottish Iron Age. Combining work on artefacts with buildings and environmental work will lead to a far more sharply defined view of the Iron Age in the future. Building on these strengths through incorporating the opportunities offered by human remains, wetland preservation, deeply-stratified sites and environmental work are important future areas of Iron Age research.

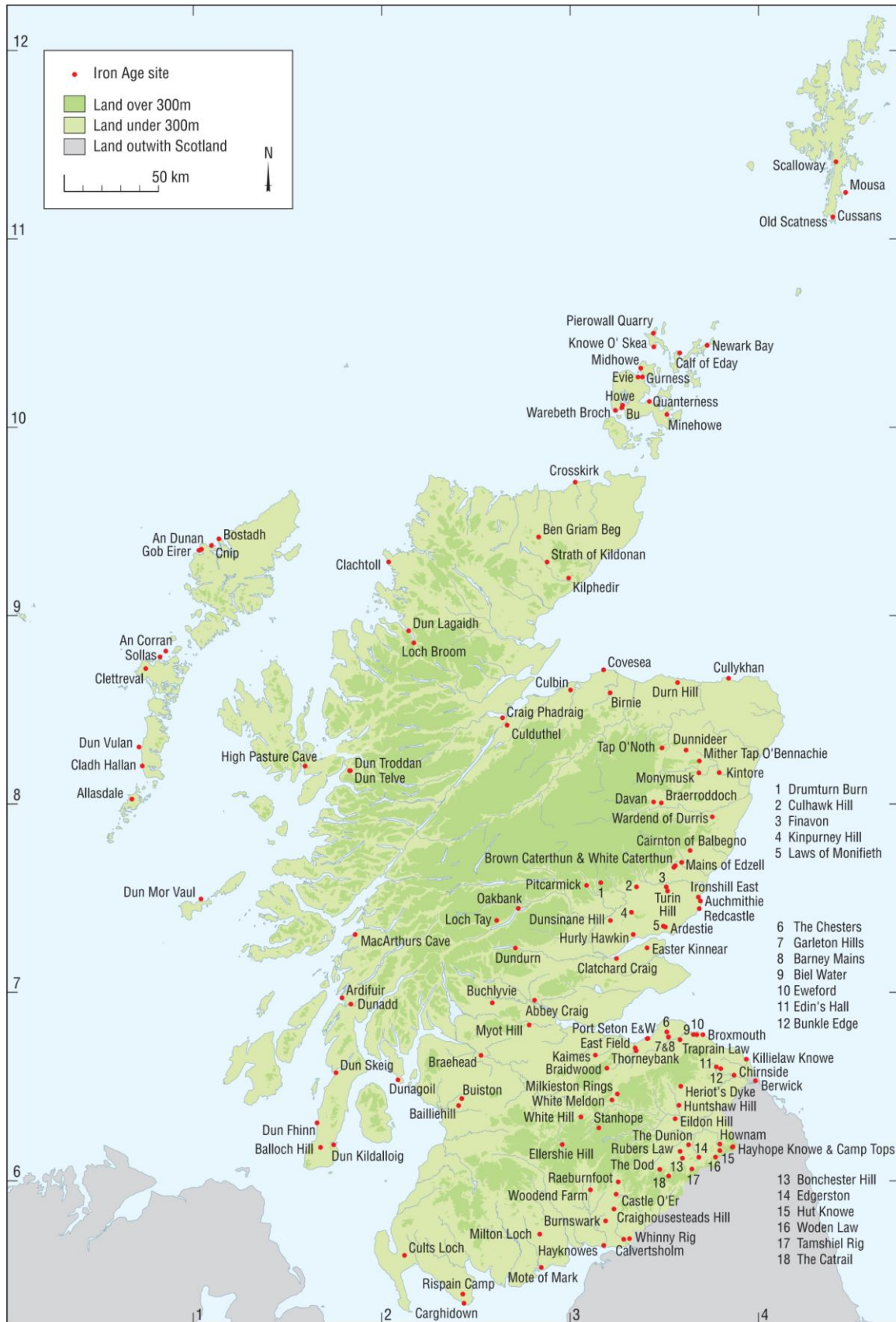


Figure 1: Map of sites mentioned in the text, © RCAHMS

History of Research

2.1 Antiquarian work and early syntheses

Interest in the Iron Age remains of Scotland can be traced back at least to the latter part of the eighteenth century. While the early antiquarians of England plundered barrows, those of Scotland 'cleared out' brochs and stone-lined souterrains. The earliest accounts, though often imprecise, give tantalising glimpses of finds now lost. William Roy surveyed hillforts in the course of his mapping of Scotland in the 1750s (Roy 1793), while it is known, largely from the *Old Statistical Account* that excavations took place in the latter half of the eighteenth century on a variety of sites. For example, the Rev. Playfair carried out the first recorded hillfort excavation, at Dunsinane Hill, digging a long, narrow trench across the interior (Christison 1900, 86; Playfair 1819; Robertson 1799), while Sir Walter Scott excavated at Green Cairn, Fettercairn, Angus in 1796 (Brown 2003, 55). Vitrified forts were a particular topic of early debate, focussed on whether they were natural or artificial, and some were excavated to cast light on this (e.g. Williams 1777). The Society of Antiquaries of Scotland was founded in 1780, but its interests remained rather disparate for the first few decades, embracing history, numismatics, travel writing etc as well as archaeology, although there are some important early accounts of broch excavations (e.g. Joass 1890). The *Proceedings of the Society of Antiquaries of Scotland* (PSAS) was first published in 1856, and it is only then that substantial excavation reports began to appear.

One recurring theme in the history of Scottish Iron Age research is the role of the individual – at key points the work of a very small number of researchers pushed knowledge forward. Early researchers were often working in the worlds of law and medicine with access to the Edinburgh intellectual circles of the day. Downturns in publication of excavations

of Iron Age sites frequently coincide with the death or retiral of key individuals. Most were independently wealthy. For the late nineteenth century, examples include George Petrie and his work on the brochs of Orkney, Sir Frances Tres Barry's excavations of Caithness brochs, and, in a more eccentric vein Christian Maclagan, a Stirling lady whose independent means enabled her to crash through the expectations of her class and gender. Though her interests were not restricted to the Iron Age, or even to the British Isles, she did carry out various surveys and an excavation on the hillfort on Mither Tap o' Bennachie.

Nineteenth-century archaeology benefitted from two great synthetic surveys. The work of Daniel Wilson (1851, 1863) drew together many widely-scattered references, much of it unpublished, including important sections on Iron Age remains, while Joseph Anderson's *Scotland in Pagan Times* (1883) synthesised many of the early antiquarian excavations. Anderson was a self-made man, whose archaeological career began as a corresponding member of the Society whilst working as a journalist in John o' Groats. By 1869, he was Keeper of the National Museum of Antiquities in Edinburgh, and many of his books and papers remain important today. For instance, without his work the results of Tress Barry's diggings in brochs in Caithness would have been lost, while he published important papers on brochs (e.g. 1873, 1877) and a wide range of artefact studies (e.g. 1885, 1904) These papers were placed firmly within what he referred to as the Early Iron Age, a term which he insisted should not be ascribed absolute dates (Graham 1976, 286).



Figure 2: Photograph of Tress Barry's excavation at Nybster broch, Caithness, © RCAHMS

2.2 The roots of organised fieldwork

The beginnings of organised fieldwork lay in this late nineteenth century period. Much of it was driven by interests in specific monument types, often with a regional focus. Examples are Munro's survey and excavation of crannogs (focussed in Ayrshire initially, but ranging much further afield; Munro 1882), the work of Petrie (and later Grant) on Orkney brochs, or the Society of Antiquaries' work on hillforts such as Dunadd and Traprain Law. This focus on a region and a monument type has remained a recurring theme – such as the work of Scott and Lethbridge on Western Isles wheelhouses in the mid-20th century, and in the post-War period, MacKie's important work on complex stone architecture in western Scotland or excavations on promontory forts in NE Scotland.

The late 19th century saw the beginning of survey programmes, notably Christison's work on hillforts (1898), while the founding of the Royal Commission put this survey programme on a regular basis, with later prehistoric monuments being systematically recorded. From the earliest Inventories, survey was often followed by excavation, and many Iron Age sites were trenched by Commission surveyors, with important results, until the 1970s.

The death of Christison in 1912 and the retirement of Joseph Anderson in 1913,

followed by the outbreak of WWI, correspond with a drop in archaeological activities in Scotland. The following years saw a lull in activity, but with notable exceptions, in particular A O Curle and J E Cree's major excavations on the hillfort at Traprain Law (Cree 1923; 1924; Cree and Curle 1922; Curle 1915; 1920; Curle and Cree 1916; 1921) and work on the brochs of Midhowe and Gurness on Orkney (1930-1939) (Callander and Grant 1934; Hedges *et al.* 1987).

2.3 Synthesis and survey in the mid-20th century

The arrival of Gordon Childe makes a useful marker for the inception of professional archaeology. He arrived in Edinburgh in 1927 to take up the Abercromby Chair of Prehistoric Archaeology. His particular interest in the phenomenon of vitrified forts led to excavations at Finavon, Angus and Rahoy, Argyll, as well as some experimental work (Childe 1935a; 1936; Childe and Thorneycroft 1938). Childe also provided two highly influential syntheses of Scottish archaeology, the first since Anderson (Childe 1935; 1946), which included important summaries and interpretations of the Iron Age evidence.

During World War II, the hiatus in archaeological activity is less noticeable. Indeed, wartime service even provided archaeological opportunities for some; J K St Joseph used his time at Scone airfield to carry out aerial reconnaissance of the area and Peggy Piggott was engaged by the Office of Works to excavate sites commandeered for civil defence purposes. Gerhard Bersu was invited to Scotland in the immediately post-war years, after his internment and before his return to Germany, to excavate on a number of sites (Bersu 1948a. 1948b; Close-Brooks 1983), and his work was significant methodologically in the excavation of timber roundhouses.

The post-war years were dominated by attempts to apply Christopher Hawkes' model of the British Iron Age to Scotland (Hawkes 1959). This was championed by Stuart Piggott, Childe's successor in Edinburgh, and became a key element in the interpretations of the RCAHMS surveys of the Border counties (Piggott 1966; RCAHMS 1956, 1957, 1967). It was supported by excavation to provide type sequences, much of it conducted under the auspices of the Scottish Universities Field School, sponsored and funded by the ancient universities in Scotland. Peggy Piggott directed Scottish Field School excavations at Hownam Rings (Piggott 1948), Hayhope Knowe (Piggott 1949), Bonchester Hill (Piggott 1950) and Milton Loch Crannog (Piggott 1953). In the first three, her research aim was to elucidate the development of the hillforts of southern Scotland by testing the Hawkes and Piggott model (1948). Hownam Rings was to become a type site for Iron Age forts of eastern Scotland; concerted deconstruction of Piggott's model did not really begin until the late 1970s (Armit 1999). The publication of *The Iron Age in Northern Britain* (Rivet (ed.) 1966) represents the culmination of this period, with the presentation of Piggott's structure of provinces and regions, Feachem's survey analysis, Young's work on pottery and Stevenson's on other artefacts, all framed within a Hawkesian ABC Iron Age.

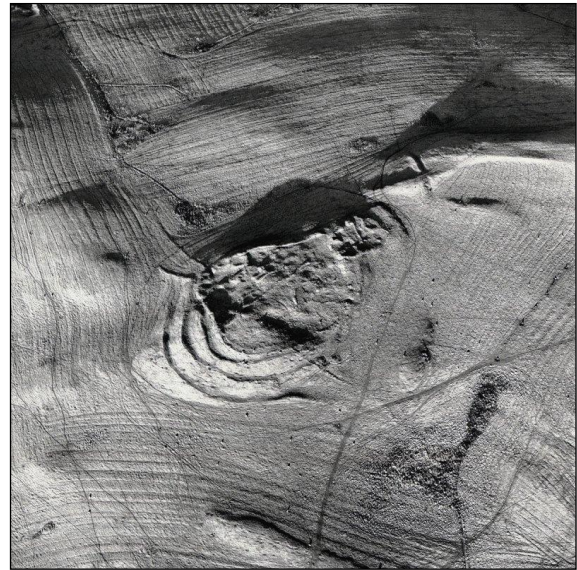


Figure 3: Hownam Rings, Roxburghshire © RCAHMS

2.4 Rescue and research in the later 20th century

Two things served to destroy this framework: the development and increasing availability of radiocarbon dates, and the explosion of excavated evidence from the first rescue "boom". For the Scottish Iron Age, a key early example was the 1950s "Rocket range" sites of the Western Isles (e.g. Young & Richardson 1960; Fairhurst 1971a), although their often slow publication and lack of synthesis has limited their impact. From the 1970s the amount of excavated settlement sites exploded. In the Atlantic zone, examples such as the roundhouses of Bu and Quanterness and the broch complex of Howe (Hedges *et al.* 1987, vol 1; Renfrew 1979, 181-198; Ballin Smith 1994) led to radical reappraisal of the development of brochs, questioning earlier work such as Hamilton (1968, 97-101) and MacKie (1965a-b, 1971), while work in the sand and gravel landscapes of southern and eastern Scotland included important work on souterrains at Newmills and Dalladies (Watkins 1980a-b), developing the key earlier synthesis and excavation of Wainwright (1963). East Lothian was a particular focus, including the key sites of Dryburn Bridge and Broxmouth. This work was synthesised in an

important conference which was published in 1982 (Harding 1982), destroying the Hownam sequence for the south-east. Sadly the energy devoted to this deconstruction was not matched by the will to create another paradigm, partly due to the lacuna created by the delayed publication of Broxmouth and other sites.

This unfortunate situation was identified by Historic Scotland as a cause for concern and resulted in the initiation of The Historic Scotland Backlog Project (Barclay and Owen 1995). This was successful in bringing to completion many important delayed publications, mostly in PSAS. Scottish Archaeological Internet Reports (SAIR) should now be able to relieve such pressure on print publication.

Archaeological aerial survey has played an increasing role in the post-war years, from its early beginnings in the 1920s (Crawford 1930, 276). The end of the war saw the RAF undertaking a survey of the entire country from the air, while from 1948 oblique aerial photographic reconnaissance was sponsored by the University of Cambridge Committee for Aerial Photography (CUCAP), conducted by J K St Joseph. His interests were principally Roman, but the results often included the discovery of cropmarks indicating the remains of later prehistoric sites (St Joseph 1951; 1955; 1958; 1961; 1965; 1969; 1973; 1977; 1978). St Joseph's activities continued until 1980 but from 1975, archaeological aerial survey was also undertaken by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS 1994, 6), while flying in north-east Scotland was undertaken by Aberdeen Aerial Surveys and by Barri Jones (Shepherd & Greig 1996; Jones *et al.* 1993). Today, the corpus is dominated by the massive amount of data accumulated since 1975, much of it documenting new discoveries of cropmark sites. The most recent RCAHMS regional surveys (1990, 1994, 1997, 2007) represent important steps in synthesising and understanding this mass of

evidence; it is to be hoped that further such synthetic regional efforts will be pursued.

The 1980s saw the foundation of long-running University-based excavation and survey programmes, especially in the Northern and Western Isles, such as Bradford's work on Sanday (Hunter 2007; Dockrill 2007) and southern Shetland (Nicholson & Dockrill 1998; Dockrill *et al.* 2010 & forthcoming), Edinburgh's work on Lewis and North Uist (e.g. Harding & Dixon 2000; Harding & Gilmour 2000), and Cardiff and Sheffield's work on S Uist (e.g. Parker Pearson & Sharples 1999; Branigan & Foster 1995, 2000). This has proved a great stimulus for the archaeology in these areas, with modern excavation results and interpretations leading to fierce debates and radical reinterpretations of the Atlantic Iron Age. Other areas have seen less research effort, but notable exceptions are landscape approaches in E Lothian (Haselgrove 2009), Angus (Dunwell & Ralston 2008) and Caithness (Heald & Jackson 2001), while the under-studied areas of Wigtownshire (Cavers 2008) and the Moray coastal plain (Hunter 2002; Jones *et al.* 1993) have seen badly-needed work.

Much of this more recent research has operated in synergy with the second rescue boom, with developer-funded archaeology. The provision for archaeology in Scottish planning policy (NPPG5) since the early 1990s has had a huge impact on Scottish archaeology in general, as can be observed from a review of Discovery and Excavation in Scotland. Major infrastructure projects in particular have resulted in the excavation of some extremely important later prehistoric sites, such as Forest Road, Kintore, Aberdeenshire (Cook & Dunbar 2008) and Phantassie, East Lothian (Lelong & MacGregor 2008). This has included areas outwith the traditional foci of research, such as the Moray plain (Murray 2007; Cressey & Anderson 2011) and Renfrewshire (Ellis 2007). Harding's (2004) volume on the northern British "long

Iron Age”, following in the synthetic tradition of Anderson, Childe and Piggott, sought to draw some of this material into broader interpretations, although the pace of development means that much material is unsynthesised, or unpublished in sufficient detail.

2.5 Controversies

It was noted above that key individuals have often played an important role in driving research. Disputes between individuals have also been an important motor for research – such as the controversy over the finds from crannogs on the Clyde, subsequently revealed as modern fakes (Hale & Sands 2005), or views on the evidence of material culture as indicators of contacts and chronology (MacKie 1965a-b, 1971; cf Clarke 1970, Lane 1987). Brochs and related complex drystone architecture has been a long-running source of controversy, from the disagreements between Anderson and Ferguson in the late 19th century (Anderson 1877; Ferguson 1878), the debates between Scott and Graham in the mid 20th century (Scott 1947, 1948; Graham 1947), Harding versus MacKie in more recent years (e.g. Harding 1984, 2000a; MacKie 1965a-b, 1983, 1994, 2008, 2010), and debates between the Edinburgh and Sheffield/Cardiff field projects on the Western Isles (Parker Pearson *et al.* 1996; Armit 1997a, 1997b; Sharples & Parker Pearson 1997; Gilmour & Cook 1998). This vibrancy of debate and variation of opinion has been important feature in keeping the subject fresh, although at times the debate has become a little self-absorbed.

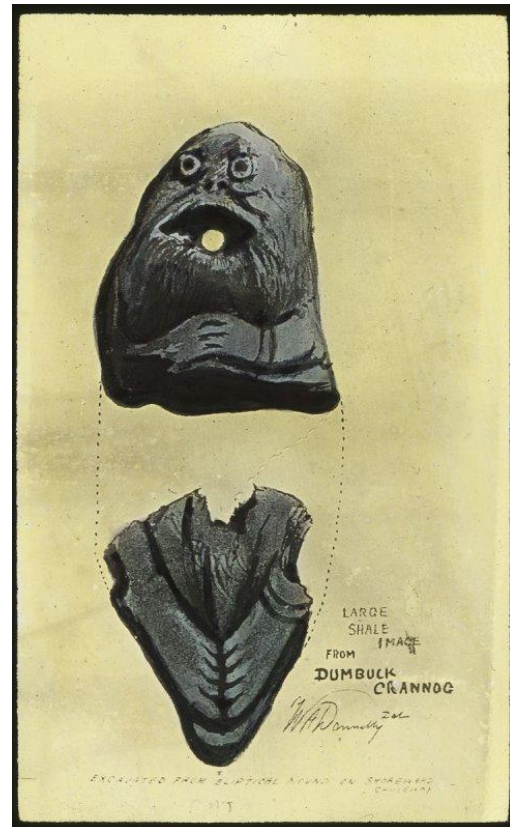


Figure 4: One of the artefacts 'recovered' from Dumbuck crannog, which were later shown to be fakes, © RCAHMS

2.6 Chronological Schemes

The Three-Age System was embraced in Scotland before England (Rowley-Conwy 2007 and see also the ScARF Neolithic Panel report). In the first synopsis of the Scottish Iron Age, Joseph Anderson (1883) insisted that this period should not be assigned absolute dates as he felt, understandably at the time, that prehistory could have no specific chronology. Since then the term 'Iron Age' has been used in Scotland for a period beginning as late as the first century BC, a full four centuries after it was understood by Hawkes and Kendrick (1931) to begin in southern England on the basis of theories involving "iron-using, Celtic-speaking colonists" spreading slowly up-country (Piggott 1958, 75). This diffusionist perspective (together with its exaggerated time-lag), however, became unsustainable in the face of new evidence and Piggott (1966, 3) subsequently backdated the inception of iron-

using to 550BC. Following the radiocarbon revolution (Renfrew 1973), later writers moved the date even earlier, to the seventh-eighth century BC (e.g. Harding 1974, 14; Ritchie and Ritchie 1981, 89). The Iron Age has in the past been understood to terminate with the Roman invasion of AD78 or in the third century AD or later if Piggott's (1966, 3) scheme is followed. Despite problems discussed in more detail below, this is still used by some researchers (e.g. Armit 1997; Armit and Ralston 2003), sometimes in a modified form (e.g. Hingley 1992, in which the terminal date was set at AD200, in order to separate clearly the Picts as an early Medieval phenomenon).

However, a project by Needham *et al.* (1997), aiming to establish an independent chronology for British Bronze Age metalwork through a programme of radiocarbon dating of associated organic materials, has led to a revision of the dating of LBA metalwork assemblages. This includes the backdating of the end of Ewart Park metalwork from 700BC to c. 800BC, suggesting that the LBA-IA transition should also be backdated by about a century (Needham 2007; but cf O'Connor 2006). There is no good reason in the evidence to suggest a time-lag between the development of styles of metalwork in later prehistory in different areas of Britain. There is a danger, of course, that the dating of events in the Early Iron Age is propelled backwards as a result of the 'plateau' in the radiocarbon calibration curve, which begins at around 800BC. Such uncertainties can only be resolved through future work, and for now it would seem reasonable to use 800BC as a useful marker for the beginning of the Iron Age (though the question of the introduction of iron is another contentious one; there is some evidence for its use in Britain from the 10th century BC (Collard *et al.* 2006), but very little sign of its early use in Scotland. The use of Bayesian statistics to separate out the AMS dates that fall within the plateau on the radiocarbon calibration curve is a highly promising avenue for further research.

Since the late 1970s/early 1980s, however, some archaeologists working in Scotland have adopted a chronological scheme known as the long Iron Age based on a Scandinavian model, breaking down perceived barriers between the Late Bronze Age, the Iron Age and the Early Historic period and taking incursions by the Norse, rather than the Roman army, as the terminus of the period (e.g. Chapman and Mytum 1983; Ralston 1980; Haselgrove *et al.* 2001, 3; Harding 2004; Haselgrove *et al.* 2001, 3). The long Iron Age therefore covers the first millennia BC and AD (as epitomised in the naming of the First Millennium Studies Group), and has been summarised by Parker Pearson and Sharples (1999) 1 thus:

Table 1: Parker Pearson and Sharples' suggestions for chronological divisions within the Long Iron Age

Label	Chronological Span
Early Iron Age	700-100BC
Middle Iron Age	200BC-AD400
Late Iron Age	AD300-900

A somewhat looser definition of the Later Iron Age, "in the first millennium AD prior to the Norse settlement" (Armit 1990b) was adopted for the Scottish Archaeological Forum of 1988; as Armit (1990b, 1-2) explained "...no precise dates [were] given for this...the division [was] clearly an arbitrary one...". Since then, the term Late/Later Iron Age has been used more precisely. Sharples and Parker Pearson (1999) define it variously as AD300-900 or AD400-800. Downes and Ritchie (2003) quote it as AD300-800. Most recently, Harding (2004, 3) has argued for a "'long' Iron Age, in which 'early' represents a span of time that in Southern Britain would cover the whole of the pre-Roman Iron Age, and 'late' is applied to the first millennium AD from around its

¹ This is the chronological scheme outlined in Parker Pearson and Sharples' (1999, 359) concluding chapter. It is contradicted in Chapter One, where the scheme is outlined as Late Bronze Age/Early Iron Age (c. 1200-100BC), Middle Iron Age (c. 200BC-AD 400) and Pictish or pre-Viking Late Iron Age (c. AD400-800) (*ibid.* 1999, 15).

second quarter". The 250 years between these two brackets becomes the Roman Iron Age. Harding rejects the use of the term Middle Iron Age in a Scottish context, arguing that it constrains the occupation of brochs to "a limited span of two or three centuries around the turn of the millennium". This perceived failing would seem to be no more than conventional depending upon a rigid classification of brochs as 'middle Iron Age'.

The usefulness of the term 'long Iron Age' has become particularly apparent in the Western and Northern Isles (e.g. Armit 1990a; Downes and Ritchie 2003), where in the past cellular buildings have been described as 'Pictish', despite the evidence for local continuity in architectural tradition, the lack of written records and the geographical distance from the Pictish heartland. The greater chronological fluidity offered by the term allows the archaeologist to appreciate the evolution of architectural traditions and social development in the *longue durée* and over wide, and environmental very distinct, areas.. The use of this long Iron Age reflects a distinct movement of interest towards the study of the Northern and Western Isles over the past twenty years. In the south and east of Scotland, the Norse incursion can be no more a logical stopping point than the Roman invasion or the first historical mention of the Picts in the Atlantic north and west. There is much to be said for the adoption of a chronological scheme that does not lay so much stress upon the significance of the dates of the earliest surviving written records, and the rather artificial divisions between later prehistoric, Roman and Early Historic periods which result from this.

It is clear from this discussion that there is no universally accepted chronological scheme for the Scottish Iron Age. Although it has been said that the traditionally defined Iron Age (quoted as 700BC to AD500) merges 'imperceptibly' into the Early Historic (Armit 1997c, 15), there is evidence for major

changes in the settlement record of many areas from c. AD400 if not from c. AD200.

2.7 Previous research frameworks

Looking back over other syntheses and research frameworks, it is notable how often the same themes recur. The CBA's nationwide survey (Hawkes & Piggott 1948, 94-9, 104-7)) was framed in a diffusionist world view, but many of the issues are familiar: issues of chronology, regional patterning, ways of life on different settlements (with crannogs specified as a priority for investigation), the problem of hillforts (with a recommendation to sample the known types, followed by total excavation of a few), the lack of knowledge of burials and religion, and a sparsity of work on 'industry and trade'. Progress has been made in all these areas, but as this document shows, all these topics are still current.

Historic Scotland's rescue archaeology priorities (Barclay 1997) were necessarily more limited in outlook, and significant progress has been made on certain aspects. Knowledge of roundhouses and souterrains is now much better, and something of the sequence to cropmark sites has been teased out in their identified key areas of south-east Scotland and Angus (Haselgrove 2009; Dunwell & Ralston 2008). Other topics remain current and valid: responses to environmental change; the primary use and internal structure of brochs; burials; the chronology and significance of decorated pottery; and the need to study the context of 'stray finds' of metalwork.

Other recent reviews have all looked at versions of the same themes. Most synthetic was Haselgrove et al's (2001) UK-wide purview, which considered five themes: chronology; settlements, landscapes and people; material culture; regionality; and processes of change. Hingley (1992) split Scotland into Atlantic and non-Atlantic, and had a structure similar to this document in many ways: households/houses;

communities/enclosed sites; regional organisation; production, circulation and consumption; ritual belief and deposition. Armit & Ralston (2003a) used a threefold division of Atlantic, east, and south-west, with a more limited focus on settlement, environment and economy which fitted the theme of the volume. This ScARF document has engaged with parts of the problem in a

different way, to try to encourage integration of different sources of evidence. In looking back to 1948, knowledge of and perspectives on the Iron Age have transformed dramatically, but many of the essential concerns of chronology, regionality and understanding settlements and material culture, remain.

2.8 Future Research Recommendations

The following have been identified as key future research areas and issues:

- Existing archival and artefactual collections provide a valuable resource that would be rewarding to exploit, especially research into antiquarian work. The exploration of the social networks of the early archaeologists, tracing influences and the development of ideas would help enrich and clarify current understandings of the Iron Age.
- Identifying current archaeologists (and their archives), from whom more recent oral history could be captured, would also provide a richly important potential source of information.

3. Land as arena – place & territory

3.1 Introduction

‘Landscape’ is the arena in which every local aspect of human settlement and life takes place. As such, land and water form the natural canvas and frame which on the one hand may shape human activities and responses, but equally may be adapted and changed by them. As a result it is easy to become overly deterministic in approaches to landscape, reflecting what has become a traditional school of landscape history, which simply aims to find out what happened in the past and where. This is the approach which reads its history through the form of features that break the natural contour, stringing them together in sequences, based upon vertical and horizontal stratigraphy that trace a series of events cumulatively leading to the present day. Here, in a nutshell, lie the principles behind Historic Landscape Assessment and Characterisation, which seek to identify these fossils of the past in the modern patterns of fields and plantations. Furthermore, it is an approach that might also be styled ‘scientific’, lending itself to palaeo-environmental techniques for the examination of landscape change.

Over the last thirty years, however, post-processual perspectives have greatly influenced how landscape is perceived, and therefore studied, in archaeology (see Bender 1993; Tilley 1994; Ashmore & Knapp 1999). Through such perspectives ‘landscape’ is not seen as a backdrop for activities of the past or an analytical resource; instead it is a more ambiguous concept where ‘landscape is an entity that exists by virtue of it being perceived, experienced and contextualised by people’ (Ashmore & Knapp 1999). From this perspective the landscape is not separate from practices, and its understanding is gained through experiences. Research themes such as biographies, metaphors and

phenomenology have their origins in these perspectives.

British Iron Age studies are increasingly incorporating these approaches as researchers consider the variety of social relations, experiences and negotiations between people, place and landscape (see Bevan 1999; Sharples *et al.* 2008 for examples). This has been an important development for exploring Iron Age settlement – moving away from only site-based analyses to contextualise sites through a greater theorised approach to landscape and the environs. For Iron Age spaces concepts of ‘taskscape’ and ‘dwelling’ (Ingold, 2000), and archaeologies of inhabitation (e.g. Chadwick 2004), have provided new ways to consider the spaces between settlements and the meaning of living in the landscape.

To these can be added questions stemming from two fundamental themes: population and territory. What was the size of the overall population? How was it disposed regionally? How did it develop through the 1st millennium BC? And what were the territories that regional and local populations were occupying? These are largely unattainable ambitions, but they feed into every aspect of an understanding of the past. For example, do the settlements that are recorded represent the totality of the population, or smaller subsets? What is the nature of the household that occupies a broch, for example? Are these the towers of the elite or the typical farmhouse of every farmer? And indeed, how large is this household and how does it relate to its neighbours, and do those relationships in, say, Shetland, hold true for Orkney or the Western Isles? Are there missing sectors of these societies that are simply leaving no recognisable signatures in the surviving archaeology?

While these sorts of questions provide numerous avenues to progress Scottish Iron Age studies, it is important that it is

recognised that many areas are still locked firmly in the early days of data collection. To take forts and their landscapes as an example, since the first systematic attempt to solve the chronological puzzle that they present in the Borders at Hownam Rings some 60 years ago (Piggott 1948), only the low land hillfort at Broxmouth, East Lothian has been almost entirely excavated, and that now thirty years ago. No unploughed example has ever been dug to this extent. Settlement studies necessarily must transpose what little is known for a tiny minority to the silent majority. For years yet to come any understanding of settlement patterns in the landscape will be extensively founded on uneven survey data in which the values and chronologies of the various constituents are barely explored and certainly not reliable.

The sections that follow are fairly traditional, hedged around with the limitations of the data. Nevertheless, it is important not to lose sight of questions relating to how the landscape shapes the lives of those living there and *vice versa*, how these relationships change across space, and how they may be manifested in the cultural residues of archaeological deposits. By investigating such questions using different methodologies it allows assumptions about life and death that are embedded in more traditional approaches to the Scottish Iron Age to be challenged and tested.

3.2 Reconstructing environmental change

Climate and Climate Change

The Iron Age is taken here to mean the period between c. 800BC and c. AD500, the latter date a median estimate given the diachroneity of this boundary across Scotland. Climate reconstructions which reflect the very long-term, Milankovitch-driven millennial relationship between the Earth and the Sun (Davis *et al.* 2003) suggest summer

temperatures in north west Europe, including Scotland, to have been slightly warmer than today, and winter temperatures not dissimilar to today. It is the more abrupt, centennial scale climatic fluctuations superimposed on these trends that had at the very least, the potential to impact on human livelihood (deMenocal 2001; Berglund 2003; Turney *et al.* 2005; Charman 2010). The summary here is a description and synthesis of palaeoclimatic data only. Inferred human responses to Iron Age climate change are considered later.

Bond *et al.*'s (1997) record of sand grains in marine sediment transported in "armadas" of icebergs to the latitude of western Ireland, centred on c. 800BC, is a graphic though poorly resolved description of the hemispheric, probably global scale of this rapid climate change (Mayewski *et al.* 2004; Chambers *et al.* 2007). Oppo, McManus and Cullen (2003) report cold ice-bearing surface ocean water off western Ireland between c. 1100BC and c. 400BC, the only time this occurred in the last c. 5000 years, because the "gulf stream" was weakened. Marine resources would almost certainly have collapsed.

Measures of storminess will have been related to the strength of the North Atlantic jetstream. Wilson *et al.*'s (2004) synthesis identified the period c. 1100-450BC as one of widespread sand blow, as do Bjorck and Clemmensen (2004) in Denmark, but increased storminess is also recognised in several case studies after c. 500BC (Wilson *et al.* 2001; Wilson 2002; de Jong *et al.* 2009), and in the Outer Hebrides Gilbertson *et al.* (1999) found that only the centuries after AD200 were as affected.

Temporal detail comes from more closely dated terrestrial records. Speleothem data are annually resolvable but complex in the climatic variables they describe. McDermott *et al.*'s (2001) record from western Ireland is regarded as describing annual temperature

more than annual precipitation. If this is correct, it bears little relation to changing ocean conditions. Rising temperatures from c. 1200BC, then stable and with limited variability around 800BC, are followed by increased variability but falling temperatures to c. 425BC. Oscillations were then extreme until c. 200BC, after which there were highly variable but falling temperatures to c. AD400. A different way to understand such changes is provided by Swindles *et al's* (2010) records in Antrim from peat-based measures of drought (summer water deficit), with three dry phases, c. 1150 to c. 800BC, c. 320BC to c. AD150 and c. AD250 to c. AD470.

Speleothem records in Inchnadamph are interpreted to depict annual precipitation more than temperature (Proctor, Baker & Barnes 2002). Declining precipitation between c. 900 and c. 700BC fits well with warm and dry indications in Irish sequences. Much higher precipitation is seen from c. 700BC to c. 300BC. Drought in northern Ireland c. 320BC to c. AD150 is matched in dry conditions in northern Scotland, persisting beyond c. AD500, but lower temperatures would have reduced the risk of drought. Temperature and precipitation are more difficult to separate in the peat-based effective precipitation records across northern Britain synthesised by Charman *et al.* (2006) but there is considerable agreement with other records. The most direct interpretation of these is in how wet bog surfaces were, and these will relate to the wetness of mineral soils. The period c. 900 to c. 750BC was the driest in the later Holocene record. The abrupt shift at c. 750BC to very much wetter bog surfaces is astonishing, and until c. 40BC they remained very wet. Although rapidly dryer over some 50 years to c. 400BC, bog surfaces were still not dry, and did not become so until after c. AD200.

The case for a dramatic climate change, from warm and dry to cool and wet, in the LBA or perhaps EIA, is supported by the pollen core evidence from several sites in the Forth Valley

(see Davies 2006 for a discussion). Ellis (2000b) interprets the evidence from the Forth Valley as representing gradual climatic deterioration. The available dates correlate well with those from peat bog recurrence surfaces from across north-west Europe, which have been dated to c. 500BC (Bell and Walker 1992, 72). Renewed glacial activity in Europe has also been reported for the mid first millennium BC (Bell and Walker 1992, 72).

Human responses to early Iron Age rapid climate change

It is important to be chronologically precise in this discussion. This section will not consider social instability and apparent upland abandonment in the later Bronze Age, prior to c. 800BC. It will focus on the period at and after c. 800BC. This is probably not just 'splitting hairs'. Highly resolved climate proxies indicate the exceptional rapidity of this event, and interpretations of climatic and social change generated before this was understood, which assume a gradual, centuries-long slide from c. 1200BC into final collapse in the early Iron Age have probably conflated what may have been two distinct phases of climatic instability in late prehistory.

Models developed in The Netherlands have stressed impacts on lowland rather than upland areas by precipitation increases at c. 800BC (van Geel *et al.* 1996, 1998) in which elevated water tables in soils drove populations away from established farmland and onto more marginal areas like salt marshes. Barber's (1998) argument for Arran comes closest to this model, though with upland soil water-logging and the blanket spread of peat leading to abandonment, but most case studies in northern Britain consider later Bronze Age abandonment: there are currently (Tipping 2002) no archaeological data in northern Britain other than on Arran that relate settlement change directly to the climatic excursion at and after c. 800BC.

In many respects current knowledge of Iron Age climate is very refined. This precision in reconstruction needs now to be related to agro-economic models to predict anticipated agrarian responses to climatic stress. For instance, Swindles *et al.*'s (2010) data on drought should have had deleterious impacts at specific periods in forcing the wilting of shallow-rooted grass pasture. Can this be seen? How might this be identified in palaeoecological analyses? How might this impact have affected pastoral economies? Some of this thinking is being done. Van Geel *et al.* (2004) have explored the links between increased soil water tables and population movements in the nomadic Scythian culture in central Europe. Van Geel & Berglund (2000) argued that climatic stress led directly after c. 650BC to substantial population increases in northwest Europe: crisis at c. 850 calBC was followed by the restructuring of society and its revitalisation.

Forest Clearance

As throughout much of northern Britain, there is evidence for extensive forest clearance in the latter half of the first millennium BC in the Lowlands. With the exception of those from Rae Loch, all of the radiocarbon dates suggest that this process was underway before the Roman army had even set foot in Britain, as has also been recognised in northern England (Tipping 1997). What is also clear is that these clearances took place at different times in different places and on different scales, just as they did in northern England (cf. Dumayne-Peaty 1998a). The overall impression is of mixed and fluctuating landuse in the Iron Age, with deforestation happening well before the Roman invasion in many places and woodland regeneration occurring in most areas in the post-Roman period (cf. Dumayne 1993a; b; 1994; Dumayne and Barber 1994; Dumayne-Peaty 1998a; b; 1999). As in northern England, the data for lowland Scotland suggest a marked intensification of agriculture from c.350BC onwards, leading to dramatic deforestation (Tipping 1997). Arable and pastoral aspects of the landscape can be

recognised, but the relative proportions of these cannot be deduced from the data gathered thus far.

This evidence refutes van der Veen's (1992, 153) assertion that the Scottish landscape was not cleared until the Roman period. The evidence from southern and eastern Scotland adds weight to Hanson's (1996) argument, that extensive deforestation was well underway over much of northern Britain by the late pre-Roman Iron Age. Indeed, Hanson's argument that this gradual process had more to do with the expansion of settlement and agricultural activity than the specific timber requirements of the Roman army, is convincing. Evidence accumulated over the last two decades provides little support for Whittington and Edwards' (1993, 20) contention, derived from the evidence at Black Loch and the Aberdeenshire lochs of Braerroddoch and Davan that the dramatic changes in landuse, which took place in the first few centuries AD, were caused by the devastation wrought by the Roman army. It is only fair to note, however, that well-dated modern and archaeologically-useful pollen diagrams are still a rarity in many areas (Tipping, 2005).

Sea Level Change

The Main Postglacial Shoreline, dated to 5800-6850 ¹⁴C years BP, was thought to have been the highest Holocene raised shoreline in Scotland (Smith *et al.* 2000, 489). However, work by Smith *et al.* (2000) on isostatic land uplift during the Holocene indicates that there was also a later period of high relative sea level (the Blairdrummond Shoreline) in the Forth Valley and elsewhere, *pace* Ellis (2000a, 247 & 254; 2000b; Ellis *et al.* 2002) and Reid (1993, 3). Tipping and Tisdall (2005) have reviewed aspects for sea-level change for the Antonine Wall zone, and the Beaully Firth has seen a detailed study, but in many areas the sequence of land uplift is poorly known. In some areas this is of considerable significance, such as the southern littoral of the Moray Firth.

The Future

Richard Tipping (1994) has argued that the sampling strategy and temporal resolution of pollen diagrams needs to be improved. He also provides a useful cautionary note when he points out that the actual extent of farmed land cannot yet be determined from pollen data (Tipping 1994, 33-35). A far greater density of securely dated pollen profiles is required before anything but the most generalised picture of landscape development over the later prehistoric period can be given; large parts of the country have no reliable cores. In SE Scotland, the relatively small number of lochs in the area means that potential pollen core sites are limited, and the Forth Valley mosses may hold the most potential for elucidating these issues. Raised mosses and valley peat bogs still survive in Cardross Moss, Gartreinch Moss, Flanders Moss West, Flanders Moss East and Ochertyre Moss (Soil Survey of Scotland 1982) and these probably present the most potential for enhancing understanding of the later prehistoric environment in the eastern lowlands. Research as part of the Angus Field School (Dunwell & Strachan 2007; Strachan *et al.* 2003; McGill 2003) indicated that in some heavily-impacted areas, suitable sites simply do not survive. Research into sea level change is moving fast and further inter-disciplinary research would do much to elucidate understanding of how Iron Age people experienced the landscape.

3.3 Regional Structure

The tendency in modern writing is to loosely refer to Scotland's regional structure employing labels that Piggott applied in 1962, (and published in 1966), though rarely paying any more than lip-service to the thinking that lay behind them. As he conceived them, the provinces of Tyne-Forth, Clyde-Solway, Atlantic and North-east (RCAHMS 1956, 15-16) took their cue from Hawkes' scheme for England, which defined five natural provinces within which the structure of the English Iron Age was defined on a ceramic-based

framework. In recognising that the majority of Scottish Iron Age ceramics could not be used in this way, Piggott's four provinces had only the broadest of artefactual definitions and he championed the survey of the settlement record and selective excavation as the route forwards (Piggott 1966). The closer definition of the settlement record was left to Richard Feachem (1966) in the same volume. The modern generation working in the field have little acquaintance with his definitions, nor the culture of thought within which they were conceived. This latter is an important field of research in itself, for the scheme represents the high water mark of post-war culture/historical interpretation, constructed with a compressed chronology and a model for culture change largely limited to one encompassed by the word 'invasion'. While this is now history, subtle facets of the thinking are still embedded in the way some types of monuments are defined, and it is some of these monuments that lie behind the regional definitions. Furthermore, the dataset upon which many of the regions were defined has expanded dramatically. To take eastern Scotland, for example, the huge numbers and range of structures revealed in the cropmark record was largely unsuspected and the present archaeological community is still trying to shoehorn them into existing categories designed for more limited numbers of upstanding monuments as they were perceived in the post-war years.

While some concept of a regional structure was seen to be useful at that time, the question remains whether the same holds true today, beyond the fact of mere geographical locators. Does a concept of regions based on distributions of types of artefact or site, which may represent differences in time rather than space, help or hinder research? And in any case, how does one expect the geography of culture to be manifested? For it is clear that even as Piggott conceived his provinces they were not impermeable and their edges were rarely tidy divisions between distinct groupings in the

landscape. Some modern authors have argued for different definitions of 'provinces'. For instance, Hingley (1992) separated the Atlantic north and west from the rest of the country, while Harding (2004) used a division of southern, central/eastern, and Atlantic/Argyll in his synthesis of the data, and subsequently suggested a six-fold structure of southern, eastern, central Highlands, north mainland/Northern Isles, Western Isles/Skye/Wester Ross, and Argyll/Inner Hebrides. None of these variants have seen sustained debate or justification. Modern research has tended to focus on 'site', founded on the exploration of individual sites, and only given a wider geography by comparison to similarly explored sites within distributions based on older classifications. Nevertheless, there have been several studies for Doctoral Theses of types of architecture and material culture which have explored regionality (e.g. Pope 2003; Romankiewicz 2011). On the one hand, these studies have confirmed the existence of regional patterns that to some extent sustain Piggott's provinces, but, on the other, they have also revealed differences within these regions that blur their boundaries. Many of the variations that have been observed are based on what factors are given priority in the definitions underpinning classification. There is a pressing need for more researchers to explore and redefine the older categories, if only to stimulate the sort of debate that continues to range across brochs/duns and Atlantic round-houses. But there is an equally pressing need to define the limits of visibility and invisibility imposed by the nature of the archaeological record, by patterns of land-use, formation, destruction and recovery (e.g. as encountered in the RCAHMS (1997) survey of Eastern Dumfries). Until this sort of research is begun there is little hope of understanding any distribution of monuments or artefacts, let alone employing them systematically in any meaningful regional definition.

Underlying these maps is a question of the expectation of site and artefact distributions.

Is there some hope that they will reveal socio-political groupings in the archaeological record? To take the much exploited 'tribal' map provided by Ptolemy, it is necessary to be explicit as to intentions and objectives in using this (unrefereed) source to find some manifestation in the landscape, either within the archaeology or the later history of kingdoms, lordships, estates and parishes, of the quasi-political structures of the Iron Age. Are the largest of the forts at the top of settlement hierarchies, and thus at some stages representing regional centres, which by implication have territories?

Almost the only attempt to carry the logic of the Hawkesian thinking down to the definition of districts within the provinces was carried through in 1962 by Richard Feachem who defined a series of local groups of monuments that bore resemblances to each other (published as Feachem 1966). In Teviotdale, for example, thirty out of the forty forts then known were elongated ridge forts. Such topographically defined categories are unfashionable today, and yet the integrity of the group has never been tested by excavation and nothing is known of their chronology. Other sub-groups are perhaps more convincing, such as the contrast between the stone-walled hut-circles that overlie the forts of Roxburgh and Berwick in the eastern Borders, as against those found within forts in Upper Tweeddale. These sorts of contrast are probably not restricted to the earthwork record of south-east Scotland, but they remain to be observed amongst the cropmarks that are generally subsumed into simple categories of enclosed and unenclosed settlement.

Definition of local 'types' has the potential to play two roles: it defines both elements of local settlement patterns, and entities within the overall settlement pattern. This opens the possibility of identifying mutually interdependent groups of contemporary settlements and reconstructing single units within the settlement pattern made up

perhaps of a series of settlements of different status. The physical definition of the landscape which such units occupy is an important field of research, in which there are two possible strands of approach: the first is the definition of areas by combinations of artificial and natural boundaries; the second by exploring the structure of the medieval and modern landscape (see below).

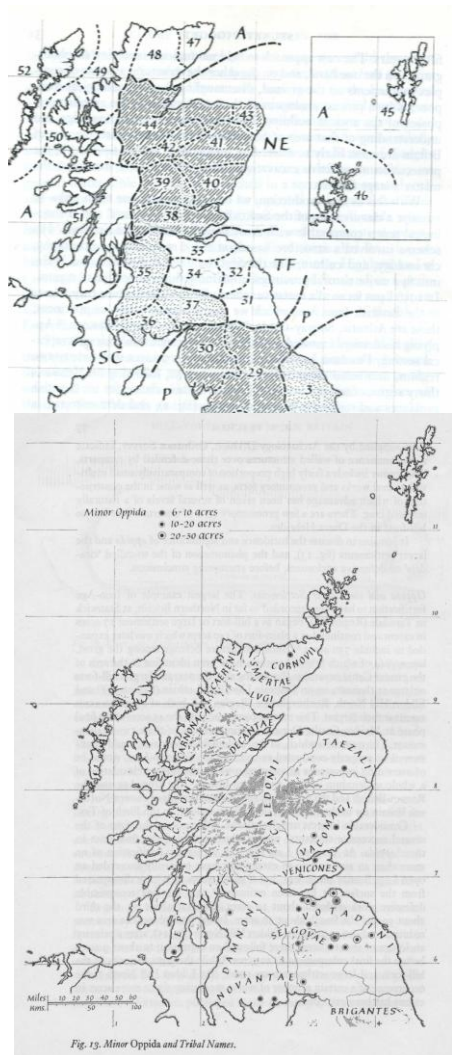


Figure 5: (top) British Iron Age provinces and regions, from Piggott 1966, 4 (bottom) Minor oppida and tribal names, from Feachem 1966, 79

3.4 Territory

The tradition of building fixed boundaries to demarcate holdings or estates in the Scottish landscape is a relatively recent phenomenon, and was only put in place over the greater

part of the country with the agricultural improvements of the late 18th and 19th centuries. Before this, the sense of territory and rights to use areas of land was no less defined, but was regularly refreshed by the beating of the bounds, a practice which is sometimes preserved in the detail of medieval charters describing a perambulation along the course of a boundary and the markers that were used to fix it in the landscape. Typically a boundary might run simply where ‘wind and water sheer’, but prominent outcrops and summits played their parts, along with occasional trees and boulders, or an ancient standing stone or cairn. In places small piles of stones might be employed, or pits and stakes. By these means the mosaic of ownership, tenure and rights interlocked across the medieval landscape to cover all its resources, from the sea to the very tops of the mountains, including everything from fish and fowl to bog, pasture and forest. Such boundaries were often a matter of interpretation, as estate maps on the eve of the Improvements sometimes show, recording several versions of the same march as identified by different individuals. And it is such differences in interpretations and the disputes that arose from them that provide the most detailed knowledge about the marches of medieval holdings. Since the synthesis of *shires* and *thanes* by Professor Geoffrey Barrow (1973), it has been clear that components of the high medieval landscape were firmly rooted in the early medieval landscape, a period that in some parts of Scotland is included in the long Iron Age. The work in Moray by Alisdair Ross on another type of land division, the *dabhach*, has shown that this too is an early medieval measure that divided the landscape to provide estates with all the necessary resources of arable, pasture, peat and woodlands.

Such a division, it might be argued, is likely to be the product of centralised authority with the power to implement sweeping reform at a scale in the landscape that would not be surpassed until the 18th century. As such,

there is a temptation to assign it to periods when there are named figures who might have exercised such power. Equally, however, its origins may lie earlier in the Roman Iron Age when there was evidently extensive reorganisation of settlement across a wide sweep of eastern Scotland at the end of the 2nd century AD. At the very least it should be expected that the Iron Age landscape was divided in comparable ways, even if it varied in scope and detail. And at whatever date this reformation may have taken place, it is more than likely that in most places the rights to recognisable units of land were being exchanged or altered within an already settled landscape pattern, rather than a situation where surveyors were being employed to redefine the holdings and rights on an entirely blank canvas without reference to what had gone before. In short, the study of medieval and post-medieval documentation not only provides a constructive approach into examining the landscape that emerged from the Roman Iron Age, but may also have fossilised elements of earlier landscape boundaries, from political divisions at one extreme to individual holdings at the other.

The challenges of using such data in any Iron Age reconstruction are considerable, if only because without documentation the majority of such boundaries would probably be unrecognisable. This is further compounded in those areas where there is evidence that boundary works were erected during the Iron Age, that none of them is enshrined in the march of a documented medieval estate, although the Thorneybank long cist cemetery in Midlothian lies immediately adjacent to an earlier linear earthwork flanked by a row of pits (Rees 2002). Nevertheless, a study of the distribution of Pictish symbol stones in the Aberdeenshire landscape has explored the possibilities of making comparisons between their distribution and the pattern of medieval parishes (Fraser and Halliday 2007; 2010), and while it is clear that the stones do not stand directly on these ostensibly later boundaries,

the correlation of their proximity is remarkable. The extension of the argument to embrace early medieval barrow cemeteries to the north of the Forth and long cist cemeteries to the south, and then a more limited selection of Iron Age burials, has thrown up further correlations that at least require research to develop some level of explanation. Artefact distributions, such as hoards and other metalwork, would also be worth considering in this light.

The linear earthwork discovered at Thorneybank is characteristic of a type of boundary that has been discovered widely in Lothian and the Borders, both through fieldwork in the uplands and aerial photography in the lowlands. While the majority of those in the uplands, mainly of Roxburgh, are flanked by ditches, many of their lowland equivalents are simply marked by lines of pits. With a few notable exceptions these are known only through cropmarkings and are thus limited to the principal areas where cereals are grown in Berwickshire and East Lothian. When the first rash of examples were discovered in the late 1970s, it was anticipated that the whole landscape was divided up in this way, but now, thirty years later, there are still large gaps in the distribution and data collection and analysis has been sufficiently rigorous that it can be confidently asserted that such an all-encompassing land division was not the case, though such boundaries in eastern Berwickshire occur over a distance of several kilometres along Bunkle Edge and around Chirnside. By and large, pit-alignments, as these curious boundaries are known, form localised clusters, in some cases almost certainly forming systems (e.g. at The Chesters, Barney Mains or Eastfield, Inveresk, East Lothian). This is probably the case with the three that survive upstanding in the vicinity of Milkieston Rings, Peeblesshire, and find comparisons with the ditched linear earthworks on White Hill and perhaps Woden Law, in Roxburgh. In several instances in the cropmarks there is simply a single earthwork

apparently forming a large enclosure around a fort, such as Huntshaw Hill at the foot of Lauderdale and it is such an enclosure against the crest of a steep escarpment that seems to lie at the core of the system at Barney Mains. The relationship to the forts in these cases, however, is quite unknown and at Killielaw Knowe in eastern Berwickshire there is an extensive system with a rectilinear layout where no evidence of any settlement earthworks have yet been recovered. Nor is there any clear relationship between the system at Eastfield, Inveresk, and any of the various palisaded or ditched enclosures within its compass. Equally unknown is how any of these systems functioned and what they were designed for. Systems where the earthworks lie open on the slopes of a hill, such as at Woden Law, are particularly puzzling.

These systems are not entirely limited to the south-east of the country and are also found on the Solway plain, though not much further west than the river Nith. Of particular note here is the system around Castle O'er in Eskdale, where the results of trial trenching carried out by Mercer suggest a date in the early centuries AD. While this system is apparently centred on a major fortification in the area, that on Craighousesteads Hill, Dumfries is not, apparently ignoring the circular settlement on the crest of the hill. Other Dumfriesshire settlement enclosures on the Solway Plain, such as Whinnyrig, Calvertsholm and Raeburnfoot, Gretna seem to have been incorporated into systems of earthworks (RCAHMS 1997, 55-7, fig. 52), though at Hayknowes a rectilinear settlement was constructed over one of the boundaries. Unlike their counterparts in the east several of these seem to include long droveways, but other than this possible indication of stock management little is known about their function. The relationship to the annexes of the fort at Castle O'er, however, perhaps signals that these localised systems of landscape enclosure, both in Dumfriesshire and the eastern Borders, indicate places of

importance in the Iron Age landscape, rather than any general importance of enclosure in the Iron Age landscape.

Others of the linear earthworks that occur in the Border hills may have been constructed as markers on the boundaries of larger territories. In particular the short cross-ridge dykes, sometimes in very remote places, but in other instances in the immediate proximity of a prehistoric settlement. An example can be found adjacent to a fort on Wether Hill in Northumberland, though there is no particular reason why it should relate to any period of occupation of the fort. The date is a useful marker in pointing up that this type of earthwork is perhaps more likely to belong in prehistory than in the Middle Ages. Over the years several cross ridge dykes have been interpreted as sectors of much longer boundary works such as The Catrail in Roxburgh, and Heriot's Dyke in Berwickshire. By virtue of their discontinuity across the landscape, linking up burns and other natural features, both have been subject to claims and counter-claims by the protagonists of competing theories, but at least one sector of the Catrail seems to be of late Iron Age date (Barber 1999), while in one sector of the earthwork known as the 'Deil's Dyke' in Dumfriesshire the core of the bank was dated to the early Iron Age. If these works do indeed hold any long-distance integrity, then they are important monuments about which relatively little is known.



Figure 6: Cross ridge dyke known as the 'Deils Dyke' in Dumfriesshire © RCAHMS.

3.5 *Fields and soils*

Palaeo-environmental data leave little doubt that arable agriculture was pursued extensively throughout the Iron Age in Scotland, variously witnessed by macroplant assemblages from excavated settlements and from wider-ranging pollen diagrams. In southern Scotland, at least, this latter source reveals episodes of massive forest clearance and expansion of arable indicators towards the end of the 1st millennium BC and through the early centuries of the 1st millennium AD (see section 3.2). Identifying the fields from which the pollen is derived, however, has proved more challenging, largely resting on the assumptions lying behind the identification of a handful of supposedly Romano-British or sub-Roman field-systems recorded in the County Inventories for the Border counties (RCAHMS 1956; 1967; 1978). It is small wonder that Stuart Piggott's *Celtic Cowboys* (1958b) proved such an enduring explanation of Iron Age subsistence strategies in northern Britain.



Figure 7: Scottish 'field systems' e.g. Drumturn (above), Perth and Kinross © RCAHMS

Since the 1970s and Richard Feachem's (1973) summation of the work on upland field-system by the OS Archaeology Division, it has been clear that there are extensive traces of prehistoric agriculture across Highland Scotland, represented by scatters of small cairns and the occasional banks and lynchets. By the yardstick of 'Celtic' field-systems, which have created an expectation that a field is a small plot of a quarter of an acre or so, bounded by lynchets and baulks, or reave systems with banks and walls taking in huge blocks of countryside (Fleming 1988; 2008), the Scottish field-system has always seemed incoherent and, to modern eyes, disorganised. What appear to be enclosed fields occasionally turn up, but examples of recognisable systems of bounded fields are so rare that they can only be presented as exceptions rather than as any norm. By way of example, Drumturn Burn in Perth & Kinross, with its trackway wending down between fields to a cluster of hut-circles often appears as a text book illustration of a Scottish field-system, and yet it is the only one of its kind amongst the dozens of hut-circle groups of North-east Perthshire. Another half dozen have a recurrent arrangement of banks in the immediate vicinity, but none of these define any areas or 'fields' as such. Similar commentaries could be made in Sutherland, for example, at Kilphedir and other hut-circle groups in the Strath of Kildonan (Fairhurst 1971, Cowley 1998).

With the excavations on Arran in the late 1970s (Barber 1997) and more recently at Lairg (McCullagh and Tipping 1998), it has become equally clear that many of the hut-circle groups in Highland Scotland, and the scatters of clearance around them, are mainly Bronze Age in date, abandoned at the end of the 2nd millennium BC but often re-occupied to some extent in the late Iron Age, witnessed in Sutherland by the souterrains attached to some of the hut-circles. This work has also revealed that the remains around the hut-circle groups are routinely complex and multi-period, and even where it can be demonstrated that intense cultivation has taken place the field remains simply do not conform to tidy concepts of field-systems driven by southern English models. Essentially, the field-system of Iron Age Scotland is an untidy, cumulative and haphazard layout, shaped on the one hand by topography and by earlier remains within its compass, and on the other by the intensity and extent of the cultivation practices. Cumulatively through time the ongoing process of successive cultivations consumes its own history, and while relatively deep sediments may accumulate as a record of this history, trapped against an undisturbed baulk or an earlier boundary, dating the beginning of the process is as fraught with difficulty as dating its end. Field soils are by their very nature stirred and mixed contexts, and in Scotland rarely yield any cultural material that may assist in the establishment of a coarse chronology. As often as not the cessation of cultivation is conferred by a basal peat date and the assumption that the onset of peat growth followed the final season of cultivation in relatively short order (see Carter in McCullagh and Tipping 1998, 157).

The problem then, is by and large one of recognition, in that there is no single signature type of field-system that can be attributed to the Iron Age, though cord rig – a distinctively narrow type of cultivation rig first identified in the Border counties (Halliday 1982; Topping 1989; Halliday 1993) – was

found beneath the peat around the hut-circles at Lairg, but while the abandonment of these particular rigs can be dated between AD500 and AD1200, and later still elsewhere (Carter 1994), it is more difficult to demonstrate their first usage in the north. In Northumberland they can be shown to be pre-Roman, occurring beneath the Roman forts of Rudchester, South Shields and Wallsend, while at Greenlea Lough an extant field-system with ridged field surfaces is overlain by a Roman temporary camp (Welfare and Swan 1995, 104–5). Elsewhere, across the Border counties traces of these ridged plots have been found adjacent to what are probably Early Iron Age settlements. In some cases they override individual buildings or part of a perimeter, but other than that they occur in topographical positions where other early remains have survived the ravages of medieval and post-medieval cultivation, thus confirming a relatively early landscape context. These plots are not only undated, but probably undatable. As the discoveries at Lairg, and indeed on Arran, show, the concentration of examples of cord rig in the Border counties is a visibility issue – the slightest growth of peat tends to fill the furrows and quickly renders them invisible on the ground or from the air.



Figure 8: Cord Rig agriculture at Hut Knowe, Scottish Borders © Mike Middleton

In itself, cord rig is not the solution to the problem. Nevertheless, the character of the plots is revealing, for they are often very small and were probably little more than gardens. In some cases a smoothed area can be detected beyond the limits of the ridging. The ridged area, it seems, is merely the last season of cultivation in a plot which has constantly changed shape and extent. If there were ever enclosures, they were no more than temporary fences, and the lack of replication of the boundaries from year to year has prevented the formation of lynchets or other recognisable boundaries. These fields are simply pieces of ground set aside for cultivation or pasture. This sort of dynamic and constantly changing pattern of cultivation is perhaps embedded in the major untapped source of Iron Age field-systems that almost certainly hide in the deepened soils that are found throughout the Northern Isles and in machair deposits in the Western Isles. Almost invariably recultivated and further deepened in more recent periods, many of these probably contain deep Iron Age field soils. Unfortunately these tend to be examined and sampled vertically by trenches and boreholes; no individual plots within such a deposit have been delineated, and no junctions between plots have been recorded. Herein lies a huge untapped potential to explore and understand the detail of arable production in the far north and north-west, while it has yet to be tested whether similar deposits may be found on the mainland further south.

The application of soil science to these Atlantic-zone deep soils has produced remarkable insights into the creation of plaggan soils, deliberately deepened and fertilised, which were then curated as a valuable resource (Guttmann *et al.* 2004, 2006, 2008). This pioneering work merits wider application. While such questions are far harder to answer in the plough-affected lands which characterise other parts of the country, it is possible that similar evidence could be found stratified in alluvial sequences.

It remains to comment on the handful of field-systems in the Border counties that are traditionally held to be Romano-British or sub-Roman. They remain undated, though one on Ellershie Hill in Lanarkshire is notable for the unenclosed house platform cut into the leading edge of one of lynchets. This field-system is almost certainly Bronze Age, as is the Stan Hope system in Peeblesshire. Others are perhaps late Iron Age, the best preserved being one including a series of long strip fields partly covered with cord rig on Hut Knowe, Roxburghshire. This occurs in part of the Cheviots with one of the highest concentrations of cultivation terraces to be found anywhere in the Borders. Cultivation terraces embrace a wide range of lynchets, some of which are short and scrappy, and others long and sinuous, these latter often emanating out of systems of reverse-S rig and furrow (see discussion in RCAHMS 1997, 40-3). Yet others are wide-spaced, effectively forming long strip fields which have been almost invariably subsumed into later rig-systems, whose furrows can be detected cutting obliquely along them or over the lynchets. Dating the origin and evolution of these flights of terraces is long overdue, as is the testing of their relationships to nearby settlements.

3.6 Multiple Scales of Analysis

Until quite recently research into the Scottish Iron Age has been hampered by the comparative paucity of material culture associated with the rich settlement record, and the problems of defining the chronology of that record. This is what the campaign of excavations by the Piggotts in the late 1940s and 1950s was attempting to address, but without any independent dating and scientific analyses the possibilities of defining the Iron Age more closely and tying it back into the wider landscape were extremely limited. This situation has now been revolutionised by the extensive application of radiocarbon dating, a dramatic increase in excavated data over the last ten to twenty years, and the development

of sophisticated scientific techniques. Research can and should now aspire to be multi-faceted, operating at a range of scales from national to regional and local to explore how individuals and communities related to their landscape. More than this it should also aspire to use the detail of aspects of Scottish data to contribute to European prehistory.

3.7 Inherited landscapes

The Iron Age inhabitants of Scotland did not, of course, live in a previously-empty landscape. Various studies have looked at continuity and change over the long term in settlement patterns through later prehistory (e.g. Barber 1997; McCullagh & Tipping 1998), and there has been more limited work on ancient concepts of past landscapes (especially early prehistoric sites and their reuse; eg Hingley 1996). This idea of the inherited landscape remains a significant area for research. So too does a comparative approach between different periods. The character of mid-late Bronze Age settlement seems markedly less regional than that of the Iron Age, and while some regional units seem to recur at different periods (e.g. the two-fold division of north-east Scotland at the Mounth; Maxwell 1990, fig 6), others show very different patterns; a long view of regionality issues would be very valuable.

3.8 Different Landscapes

It is perhaps too easy to construct normative views of stable, pragmatic farming communities, but various strands of evidence remind us of other uses of the landscape.

At the enclosure of Braehead (Renfrewshire), for example evidence from ditches and other cut features suggests episodic or seasonal use (Ellis 2007). Seasonal use of any structure raises interesting questions that have wider ramifications for the use of the landscape as a whole. This is an important strand of research which carries over into the duration of use of structures within settlements and indeed the

settlements themselves, to challenge concepts of all sites displaying relatively static long-term settlement patterns, a perspective founded in modern experience of the historic environment.

There are certainly hints that the relationship between people, their settlements and the landscape is much more complex than has been allowed previously. Where bone survives human remains are routinely recovered from domestic contexts (e.g. Armit and Ginn 2007), but the more general disposal of the dead in the landscape is a major issue. The burials that have been found to date certainly only represent a tiny proportion of the population, suggesting single events being used in very specific roles. Recent discoveries at Knowe o'Skea, with an extraordinary assemblage of children and neonates serves to point up how little is known of burial practices and where these took place in the landscape.



Figure 9: The Knowe of Skea, a multiperiod site with a funerary complex contains the largest MIA cemetery known in Scotland. Preservation conditions are excellent and the assemblage offers unprecedented potential for the in-depth study of an Iron Age population and its burial practices' © EASE Archaeology

Equally the discoveries in High Pasture Cave, Skye, reveal a place in the landscape which is clearly different from the norm of settlements, where individual deposits and burials seem to have been carried out over long periods of time. The remarkable assemblage of artefacts will enable a wide

range of interpretations, from the use of the cave and its mouth and how that related to the community involved, and perhaps how that community related to the surrounding landscape. From how far afield were people coming? And what else were they doing when they got there? The limestone environment has allowed some spectacular preservation amongst the deposits here, and there is more fugitive evidence of caves being used elsewhere, often involving human remains, such as have been found at MacArthur's Cave near Oban, or at Covesea in Moray (Saville & Hallén 1994; Armit *et al.* 2011). To these can be added what are to all intents and purposes artificial caves, such as souterrains and the subterranean structure found at Minehowe. Many of the metalwork hoards that have been discovered, some evidently in bogs and watery places, reveal wider votive practices in the landscape.

Landscape cannot be understood without considering waterscapes, from lochs and rivers to maritime connections. This is self-evidence in the case of crannogs, but is relevant also to contacts between groups and resource use, especially in the Atlantic areas (e.g. Henderson 2007a). In much of the north-west Highlands, for instance, seaborne links would have been the easiest way to link

inhabitants in the isolated pockets of good land. The Atlantic façade has seen some study (Henderson, *ibid*) but issues of waterborne contacts have barely been tackled for other areas (see the ScARF Marine and Maritime panel report).

The Iron Age landscape was a complex place in which the continuity of day-to-day life, year on year, was punctuated by specific actions at specific places. This is the arena in which people lived and died, ploughed and grazed, and met and parted. This is where individuals and communities negotiated their relationships, and where the prosaic processes of subsistence were integrated into other worlds involving both the living and the dead. Research must approach these at many levels, not simply to explore the relationships of material culture to domestic and ritual practice in local, regional and national space, but also in time, from one-off actions to repeated patterns of behaviour. It must explore changes through time and how these relate to the evolution of society from the Late Bronze Age to the early medieval period.

3.7 Future Research Recommendations

The following have been identified as key future research areas and issues:

- Modelling of the effects of climate change on agricultural potential, and of human responses to climate change – ie the resilience of past societies and their abilities to adapt.
- Regional variation in the effects of climate change.
- More frequent and more detailed pollen diagrams.
- Study of sea level change in this period, with the southern Moray Firth being a particular focus.
- Multi-scalar studies of diachronic variation in a range of variables (site types, find types etc) to consider issues of the nature and visibility of regionality and the explanation of spatially-

constrained phenomena. A key aspect of this is the definition of local “types” of site type or artefact.

- Attempts to define relict boundaries from studies of Medieval charter evidence or later parish boundaries.
- The nature and chronology of enclosure systems and their link to hillforts.
- The need to excavate fields in plan, not section, to understand their character.
- Study of some of the well-defined field terrace to characterise their date and nature.
- Seasonality in landscape and site use.
- Integrated landscape study, considering not just settlements but the agricultural landscape, use of other resources, location of votive deposits etc.
- Further study of inherited landscapes.
- Integration of the idea of waterscapes into Iron Age landscape studies.

4. Land as resource

4.1 Introduction

The local landscape provided most of the resources which sustained life and society in Iron Age Scotland, from the food on the table to the chariot in the yard. This section considers the evidence in two broad themes: food and other resources. The intention is to move beyond conventional specialisms (animal bones, pottery and so forth) and tackle broader topics which they illuminate. For food, this may be termed a “field to feast” approach – trying to draw together different aspects to consider the agricultural cycle in its totality and its social context in terms of people’s eating habits. The manufacture and use of material culture can be considered in a similar context, starting from the resources of the landscape and considering how these were utilised. This is essentially a life-cycle approach; in this theme the obtaining of resources, their manufacture and aspects of their use are considered, with issues of fragmentation and deposition covered in Theme 7.

It is easy to take a pragmatic approach to resource use based on availability and need, but post-processual perspectives on landscapes (theme 3.1) caution against this. Although it is hard to approach such concepts, researchers should be aware that past conceptions of landscapes and their uses were very different from today’s. Useful research could be done in considering whether resources taken from the wild were seen as different from domestic ones (e.g. the use of deer v cattle), or whether resources from particular parts of the landscape (for instance marine resources, or those from bogs such as iron ore or peat) were conceived of and treated differently.

A full understanding of the production and procurement of resources requires an integrated ‘field to feast’ or life-cycle approach, considering the nature of the various stages from procurement/production,

processing and storage, to consumption / use and deposition.

Studies considering evidence for different concepts of how various landscape resources were used would be valuable.

4.2 Farming and Feeding

This section represents surveys published of Iron Age sites within Scotland and synthesises some methodological papers examining specific aspects of Iron Age diet or food production. There are several issues in terms of the completeness of the data set for biological remains within Scotland. The first of these is related to the age of excavation. Although animal bones and marine molluscs have long been of some interest to excavators (MacNaughton 1891 & 1893), these have often been collected in a sporadic and selective manner (e.g. MacGregor 1974) and published reports often include little more than lists of species present (e.g. Grahame 1968). For plant remains and bones of smaller animals (particularly small fish) this problem persisted until sieving of sediments became routine on excavations (Wheeler & Jones 1976); this has only really occurred in the last 20-30 years. The second major problem is the almost complete lack of bone preservation in most of the Scottish mainland. Barring a couple of sites in the south east (e.g. Barnetson 1982; Cussans *et al.* in prep), crannog excavations (mostly antiquarian) and parts of Caithness almost all excavation reports note only the presence of tiny unidentifiable fragments of burnt bone, all other traces having been lost to the acid soil. However, areas of the Atlantic zone offer excellent preservation conditions, and a number of large scale excavations have employed routine sampling, sieving and flotation programmes to produce some excellent economic data for Iron Age Scotland. These dominate the following picture.

Production of plants and animals

The suite of domestic mammal species found on Iron Age sites appears to be fairly uniform throughout Scotland. Cattle and sheep are almost always the dominant species with pigs playing a more minor role; the unusual site of High Pasture Cave, with a dominance of pigs within the cave, is a notable exception to this (Drew 2006). The status of goats is less certain as they are often difficult to distinguish from sheep and are therefore probably under-represented, (Noddle 1977, 2000) although they do not appear to have been present in Shetland or the Western Isles at this time (Platt 1956, Cussans and Bond 2010 and forthcoming; Mulville 1999; Smith & Mulville 2004; McCormick 2006). Horses may also have had occasional food value (Smith 1994, Cussans & Bond 2010). At a few sites domestic fowl and/or goose seem to have been present, particularly in later phases (Platt 1948; Bramwell 1977; Allison 1997; O’Sullivan 1998c; Cartledge & Grimbley 1999).

In terms of cultivated crops hulled, six-row barley (*Hordeum vulgare* var. *vulgare*) appears to be the dominant crop across Scotland during the Iron Age. Although there is still some presence of naked barley (*Hordeum vulgare* var. *nudum*) this declines over time (a pattern that began before the Iron Age). Although some authors have likened this crop to Scottish bere (MacGregor 1974; Dickson & Dickson 1984; Boyd 1998), Bond (2003) noted a crop made up of barley of varying hulledness and grain morphology and interpreted this as a mixed ‘landrace’ of barley. Oats (*Avena* spp.) have a low but persistent presence in Iron Age assemblages but often these cannot be determined to species and many may be simply weeds of the barley crop. At some sites cultivated oats (*A. sativa/strigosa*) have been positively identified. At many Scottish sites wheat (*Triticum* sp.), usually emmer wheat (*Triticum dicoccum*), also played a minor role. Flax (*Linum usitatissimum*) seeds have also occasionally been identified, and may have been used for food or oil; alternatively the

crop may have been grown for the fibres. A possible identification of rye (*Secale cereale*) has been made at Dun Vulcan (Smith 1999).

Table 2: Cultivated crops in the Iron Age

Species	Reference
six-row barley	<i>Hordeum vulgare</i> var. <i>vulgare</i>
naked barley	<i>Hordeum vulgare</i> var. <i>nudum</i>
Oats	<i>Avena</i> spp.
cultivated oats	<i>A. sativa/strigosa</i>
wheat	<i>Triticum</i> sp.
Flax	<i>Linum usitatissimum</i>

Methods of rearing animals and cultivating crops are more difficult to determine than the presence of the species themselves. In terms

of animal husbandry there is limited evidence for the presence of foddering practices and possibly for stalling/penning of animals. No reference to pathologies related to stalling of animals could be found, but structural evidence has been suggested on several sites. Woodend Farm, Johnstonebridge, Dumfries and Galloway (Banks 2000), high phosphate levels were associated with the interior of one of the posthole defined structures (Duncan 2000). Other possible provision of animal housing has been found at Dun Vulcan (Parker Pearson & Sharples 1999) and at the wheelhouse sites of Allasdale and Cletraval (Young 1953; Scott 1948), where structures within the enclosure were identified as byres. The role of ring-ditches in timber roundhouses has seen some debate (summarised in Dunwell 2007, 104). They are a long-lived and varied phenomenon (theme 5.3), with some little more than shallow erosion scoops and others deep, deliberate features. One plausible formation process for them stems from use as byres, perhaps for over-wintering animals, with the scoop caused by clearing out accumulated midden material for use as fertiliser (see also discussion of soil improvements below).

The general lack of evidence for boundaries in the landscape has been discussed above (3.4); there could have been temporary boundaries or features such as hedges which are hard to identify, but taken at face value it suggests that flocks were closely tended rather than enclosed.

In terms of the provision of fodder the consumption of seaweed during the winter by sheep at the Iron Age site of Mine Howe in Orkney has been identified through the analysis of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ values (Balasse *et al.* 2009). Dental microwear analysis (e.g. Mainland 2000) also has the potential for the identification of foddering practices. The introduction of oats into the Northern Isles during the Iron Age is likely to have made extra storable fodder available for cattle and horses (Bond 2003). Cussans (2006) linked this

apparent agricultural intensification to an increase in sheep size during the Atlantic late Iron Age at Old Scatness, Shetland.



Figure 10: Whalebone mattock from Foshigarry, North Uist © NMS

Evidence for the cultivation of crops comes from several strands. Evidence for fields has been discussed above (3.5), the evidence suggesting a shifting patchwork of cultivated areas. Analysis of soils through thin-section micromorphology, phosphate levels etc. can give clues as to anthropogenic soil amendments. Evidence for such amendments have been found in the Northern Isles where it is suggested that manure (Guttmann *et al.* 2006) and midden material (Guttmann *et al.* 2003) were spread onto the fields. It has also been suggested that midden heaps themselves were spread out and used for the cultivation of crops (Guttmann *et al.* 2004). Harvesting methods inferred from weed ecologies appear to vary from site to site; in some areas crops appear to have been harvested by uprooting (Boardman 1998; Smith 1999; Church 2000; Church & Cressey 2006) and in others by reaping either high up the stem (Milles 2000) or low down (Dickson 1994, 1999; Bond 2007b). Artefactual assemblages provide further evidence, such as ard points and sickles (e.g. Rees 1983; Armit 1991, 191; Wilson 1980), although their rarity as finds means they can provide only the most general patterns. They show diachronic variation: the sickle, for instance, is a later Iron Age phenomenon, with the reaping hook (which lacks the backward curve of the blade) a more multi-functional tool which preceded

it and continued in use alongside it (Rees 1979, 450-461). There is no evidence that the scythe, introduced by the Roman army, was adopted locally. Ard points in particular show regional variation according to the availability of raw materials, with stone tips in the Bronze and Iron Age of the Northern Isles, whalebone tips in the Western Isles, and wood (sometimes tipped in iron) elsewhere (Fenton 1963; Rees 1979, 7-61). There is no evidence of plough-pebbles, representing the use of the mouldboard plough, until the post-Roman period (Fenton 1963, 276-9, Hill & Kucharski 1990) The presence of ard marks in excavated layers gives direct evidence for which areas were under cultivation (e.g. Barclay 1985; Fowler 1983, 113-7, 150-6), although these vestigial traces are not always noted in excavation. Some of these may represent the use of a heavy ard to break up ground which had laid fallow, rather than regular cultivation, as they do not seem to represent repeated ploughings (e.g. Dockrill 2007, 58-61).



Figure 11: Selection of stone agricultural tools from the Northern Isles, © NMS

Procurement of wild resources

Although Scottish Iron Age economies were clearly dominated by domestic plants and animals, hunting, gathering, fishing and fowling all had significant if minor roles in the diets of prehistoric people and would have offered welcome diversity in the diet, a

variety of additional minerals and nutrients and a fallback in times of agricultural failure. The key wild mammals exploited were red deer (*Cervus elaphus*), seals and whales; hare (*Lepus capensis*) and roe deer (*Capreolus capreolus*) were also occasionally exploited in some areas.

Table 3: Wild mammal species exploited in the Iron Age

Species	Reference
Red deer	<i>Cervus elaphus</i> MacNaughton 1891, 1893; Platt 1948, 1956; Noddle 1974, 1977, 1980, 1997, 2000; Macartney 1984; McCormick 1984, 1997, 1998, 2006; Sellar 1989; Finlay 1991, 1996; Smith & Young 1998; Mulville 1999; Serjeantson et al. 2005; Bond 2007a; Nicholson & Davis 2007; Cussans & Bond forthcoming
Seals	Macnaughton 1891; Platt 1956; MacGregor 1974; Noddle 1974, 1977, 1980, 1997, 2000; Macartney 1984; Finlay 1991, 1996; McCormick 1998, 2006; O'Sullivan 1998b; Mulville 1999; Bond 2007a; Nicholson & Davis 2007; Cussans & Bond 2010
Whales	Platt 1956; MacGregor 1974; Noddle 1977, 2000; McCormick 1984, 2006; Macartney 1984; Finlay 1991; O'Sullivan 1998b; Mulville 1999; Bond 2007a; Nicholson & Davis 2007; Cussans & Bond 2010
Hare	<i>Lepus capensis</i> Sellar 1986, 1989; Smith & Young 1998; Mulville 1999
Roe deer	<i>Capreolus capreolus</i> Macnaughton 1893; Noddle 1974, 1980; Mulville 1999

The relative importance of red deer in the diet can be difficult to assess as in some cases fragments of antler (which may come from shed antlers) and bone are counted together. Studies of antler generally suggest that shed rather than butchered material was preferred, although both were used (e.g. Hallén 1994, 197; C Smith 1994, 145; Hunter 2006c, 138 Hunter *et al.* forthcoming). This implies a good knowledge of deer ecology and particularly of times and places in the landscape where antlers were likely to be shed. It is notable that, among the rare representational art of the period, deer are the most common animal represented, suggesting they were seen to have a special significance (e.g. MacGregor 1976, nos 327, 329-331). There are indications from the Western Isles of the exploitation of deer varying on different islands, and suggestions that deer were seen as rather different from other animals (Mulville & Thoms 2005, 239-242).

Seals are likely to have been exploited for their meat, blubber and skins and may have been hunted or opportunistically scavenged. It is difficult to say if whales were exploited as a food source but they were certainly valued for their bone and probably their blubber. There has been debate as to whether the whale material found on Iron Age settlements came from carcasses of animals that had become beached rather than being actively hunted. MacGregor (1974) suggests that the low number of whale strandings recorded in Orkney in recent times (nine in 60 years) would not have been sufficient to allow the development of specific artefact types and that therefore some whales must have been purposefully hunted, but this does not take account of the large quantity of material represented by a single stranding nor the changing world population of whales since the first millennium BC. An alternative model is provided by ethnographic evidence of whaling in Scotland in the pre-modern period, which was essentially opportunistic: when whales were spotted close in-shore, boats were mobilised and a ruckus was created in the

hope of driving them onto the shore (Baldwin 2008). Mulville (2002), in reviewing Iron Age evidence of cetaceans, notes that many aspects of cetacean use remain unclear, and highlights the potential of DNA analysis as a way of identifying the often heavily-worked and thus undiagnostic fragments which survive. A clearer knowledge of the range of species represented, and a study of their chronology and quantity on specific sites, would allow a much better-informed discussion of procurement strategies.

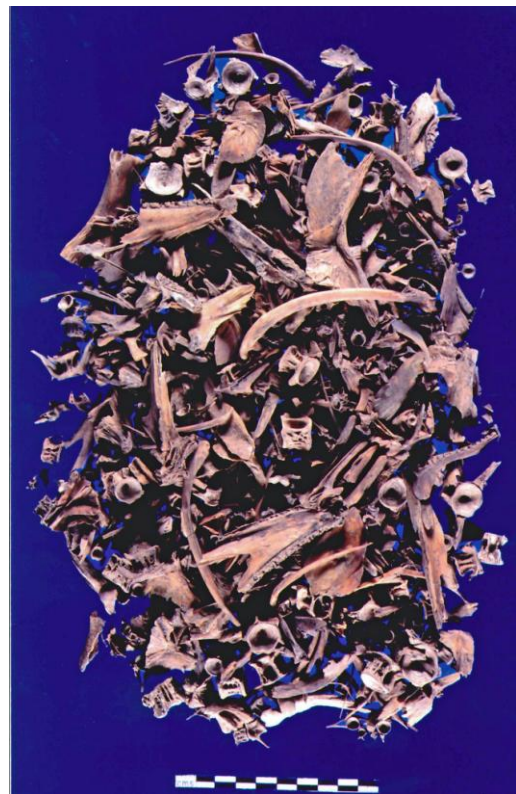


Figure 12: Sample of fish remains from a context recovered at the Iron Age settlement of Bostadh Beach, Lewis, Western Isles. ©Ceron-Carrasco 2005.

The extent and nature of fishing activities are difficult to assess on earlier excavations due to the lack of systematic sampling and sieving (e.g. MacCartney 1984; Finlay 1991; Nicholson 1997); however, cod family (Gadidae) fish, in particular saithe (*Pollachius virens*), pollack (*Pollachius pollachius*) and cod (*Gadus morhua*), do seem to have been preferred (Platt 1956; Wheeler 1977; Colley

1983; Macartney 1984; Seller 1986, 1989; Finlay 1991, 1996; Locker 1994; Cerón-Carrasco 1995, 1998a, 1998b, 2005, 2006a; Cerón-Carrasco & Parker Pearson 1999; Nicholson 2007a, 2007b, 2010a, forthcoming). Fishing technologies seem to have varied from site to site: the majority of sites show a concentration on inshore or coastal fishing, whereas at a few sites offshore fishing seems to have taken place, particularly in the early Medieval period (Atlantic Late Iron Age; Late Iron Age (Colley 1983; Sharples 1984; Seller 1989; Cerón-Carrasco 1995, 1998a, 1998b; Finlay 1996; Russ *et al.* in prep.).

Artefactual evidence of fishing has never been synthesised. Hooks are rare, but some stone weights and pumice floats could be from fishing nets, while bone tool assemblages include examples of what may be netting needles (e.g. Benton 1931, 184, fig 7). Isotopic evidence is so far limited, but a study in East Lothian indicated that marine resources played little if any recognisable role in the diet (Jay & Richards 2007, 182).

The exploitation of birds seems to have been a minor but persistent activity. Bird bones are present at a large number of Scottish Iron Age sites and although the abundance of different species varies from site to site those that are most frequent tend to belong to sea birds, for example gannet (*Sula bassana*), cormorant (*Phalacrocorax carbo*), shag (*Phalacrocorax aristotelis*), great auk (*Alca impennis*) and gulls (*Larus spp.*)

It seems most likely that the majority of these birds were exploited during the spring and summer months during the nesting season, when they would be relatively easy to catch (Bramwell 1977; Allison 1997; Serjeantson 2007a; Nicholson 2010b). Some birds which would be autumn/winter visitors have also been identified (Bramwell 1977; Allison 1997; Hamilton-Dyer 2006). Although there is little direct evidence, ethnographic parallels suggest that birds' eggs would also have been

exploited (Hedges 1983: 118; Nicholson 2010b).

Table 4: Wild bird species exploited in the Iron Age

Species	Reference
Gannet <i>Sula bassana</i>	Platt 1956; Bramwell 1977; MaCartney 1984; Finlay 1991; O'Sullivan 1995; Allison 1997; Hamilton-Dyer 1998a, 2006; Cartledge & Grimbley 1999; Serjeantson 2007a, 2007b; Nicholson 2010b
Cormorant <i>Phalacrocorax carbo</i>	(As above)
Shag <i>Phalacrocorax aristotelis</i>	(As above)
Great auk <i>Alca impennis</i>	(As above)
Gulls <i>Larus spp.</i>	(As above)

Gathered foods include shellfish and wild plants. Although a variety of shellfish species are present on Scottish Iron Age sites two were heavily exploited, the common limpet (*Patella vulgata*) and the periwinkle (*Littorina littorea*). However, despite the large numbers of shells found on some sites, calculations of meat weight and consequent likely contribution to the human diet are low (Evans & Spencer 1977; Barlow 1984; Howard 1996). There are also no firm conclusions as to whether these shellfish formed a regular, albeit minor, part of the human diet, if they were used as fishing bait or if they fulfilled both roles (Colley 1983; Evans 2005; Cerón-Carrasco 2005, 2006b; Cussans 2010). Other edible species present in small numbers include mussels (*Mytilus edulis*), oysters (*Ostrea edulis*), common cockle (*Cerastoderma edule*) and razor clams (*Ensis sp.*). All of the shellfish species regularly exploited are common on rocky or sandy shores and could be easily gathered in the inter-tidal zone. On a small number of sites remains of edible crab

(*Cancer pagurus*) have also been identified; these creatures spend part of their life cycle out at sea in deep water but come close to the shore in the spring and summer months and so were probably only caught at this time of year (Evans 1983).

Table 5: Gathered shellfish in the Iron Age

Species	Reference
Common limpet <i>Patella vulgata</i>	Macnaughton 1891, 1893; Platt 1948; Evans & Spencer 1977; Hunter & Morris 1982; Colley 1983; Barlow 1984; MacCartney 1984; Seller 1989; Howard 1996; Carter 1998; Evans 2005; Cerón-Carrasco 2005, 2006b; Nicholson 2007c; Cussans 2010, forthcoming
Periwinkle <i>Littorina littorea</i>	(as above)
Mussels <i>Mytilus edulis</i>	Platt 1948; Barlow 1984; Macartney 1984; Howard 1996; Carter 1998; Russell 2000; Evans 2005; Cerón-Carrasco 2005, 2006b; Nicholson 2007c; Cussans 2010, forthcoming.
Oysters <i>Ostrea eulis</i>	(as above)
Common cockle <i>Cerastoderma edule</i>	(as above)
Razor clams <i>Ensis</i> sp.	(as above)
Edible crab <i>Cancer pagurus</i>	Noddle 1977; Evans 1983, 2005; Ritchie & Welfare 1983; Seller 1986; Hamilton-Dyer 1998b

Many sites produce wild plants may also have been collected for food use. The most common (probably due to their robust nutshells) are hazel nuts (*Corylus avellana*). The crowberry (*Empetrum nigrum*) is also present at a few sites; however, this may represent the collection of plant material for

thatch or bedding. Other plants were less certainly purposefully gathered even though they have edible parts, as many of them also occur as weeds of cultivated ground and may have been accidentally gathered along with the cereal crops. These include wild radish (*Raphanus raphanistrum*), Brassicas (*Brassica* spp.), fat hen (*Chenopodium album*) and corn spurrey (*Spergula arvensis*).

Table 6: Wild plants gathered in the Iron Age

Species	Reference
Hazel nuts <i>Corylus avellana</i>	van der Veen 1985; Boardman 1994, 1995a, 1995b; Boyd 1998; Milles 2000
Crowberry <i>Empetrum nigrum</i>	Donaldson 1986; Fairweather 1996; Holden & Boardman 1998; Boardman 1998; Smith 1999; Bond 2007b, 2007c; Bond & Summers 2010
Wild radish <i>Raphanus raphanistrum</i>	Dickson & Dickson 1984; van der Veen 1985; Donaldson 1986; Boardman 1995a, 1995b, 1998; Holden & Boardman 1998; Boyd 1998; Smith 1999; Church & Cressey 2006; Bond 2007b, 2007c; Bond & Summers 2010
Brassicas <i>Brassica</i> spp.	(as above)
Fat hen <i>Chenopodium album</i>	(as above)
Corn spurrey <i>Spergula arvensis</i>	(as above)

Processing of plants and animals for consumption

Processing of plants and animals prior to consumption often leave traces and therefore give clues as to food preparation methods. For animals these are most commonly signs of butchery; the majority of bones of food-forming mammals found on Scottish Iron Age

sites are incomplete and are frequently quoted as being broken to gain access to marrow (Macnaughton 1891, 1893; MacGregor 1974; Seller 1982, 1986, 1989; MacCartney 1984; Finlay 1991; McCormick 1998; O'Sullivan 1998a; Mulville 1999; Serjeantson *et al.* 2005). Cattle bones tend to be more fragmented due to their larger size and the probable need to break them down into more manageable portions; large blade chop marks also seem to be more common on cattle bones (McCormick 1998; Cussans & Bond 2010, forthcoming), again probably due to their large size. Knife marks have been noted on cattle, sheep, pig, horse, deer and seal bones and in some cases (particularly cattle and sheep) regular butchery patterns have been noted (Macartney 1984; Finlay 1991; Smith 1994; Cussans & Bond 2010, forthcoming). Butchery evidence is also present on some fish and bird bones (Colley 1983; Smith 1994; Allison 1997; Cerón-Carrasco 1998c; Cerón-Carrasco & Parker Pearson 1999; Cartledge & Grimbly 1999; Hamilton-Dyer 2006; Nicholson 2010a, 2010b). Some evidence for the preservation of meat and fish through drying or smoking has also been found (Smith 1994; Nicholson 2004, 2010a:160, 2010b:169; Cussans & Bond forthcoming); there is no evidence so far for the processing of salt (in the form of briquetage containers) for meat preservation.

There has been little recognition (or study) so far of variations in processing practice in different areas, periods or site types. Nor has the distribution of body parts present (or the range of macroplant remains present) yet provoked extended discussions over producer and consumer sites, although differences have been noted among some site assemblages (e.g. Mulville & Thoms 2005, 238-242).

Long before the routine recovery of plant remains from archaeological sites the presence of saddle and rotary querns attested to the on-site processing of cereal crops. Querns are common finds at Scottish Iron Age

sites (Armit 1991; McLaren & Hunter 2008), the more primitive saddle quern being replaced by the rotary quern (Caulfield 1978; Armit 1991), although the exact chronology and pattern of the change over in forms is yet to be fully understood (McLaren & Hunter 2008; see themes 4.5 and 9.3).

MacKie (1971, 1987) has noted a basic functional difference between the adjustable querns of the Atlantic zone, where the coarseness of the grind can be adjusted, and the fixed bun and beehive querns of southern Scotland. This ability to readily modify the coarseness or fineness of the grinding would make it easier to make (e.g.) coarse-ground grain for stews versus finer-ground meal for bread or bannocks.

Many of the charred plant assemblages examined that contain principally chaff and weed seeds are likely to represent crop processing residue (Dickson & Dickson 1984; Dickson 1994; Smith 1999; Milles 2000), but remains from many sites are too small or poorly preserved to determine such practices (Boardman 1995a, 1995b; Fairweather 1996). Some deposits of fully cleaned grain are also found (van der Veen 1985; Boardman 1995a, 1998; Holden 1998; Summers & Bond forthcoming), probably burnt during drying or storage. There appears to be a shift in grain processing and storage practices during the Iron Age from small scale day-to-day processing to larger scale processing (Bond 2002; Summers & Bond forthcoming) and possibly central storage (Kendrick 1995; Holden 1998; Dockrill 2002; Dockrill & Batt 2004; Dockrill *et al.* forthcoming). One of the key pieces of evidence in this argument is the presence of a corn-drying kiln at the site of Old Scatness, Shetland with its final phase of use dating to the 2nd to early 5th century AD (Dockrill *et al.* forthcoming). Corn-drying kilns seem more generally to be a phenomenon of the post-Roman period except in Roman military contexts (Holden 2006; Cook & Dunbar 2008).

In terms of structural evidence, four- and six-post structures have been seen as granaries (on fairly slender evidence), while evidence from Scalloway (Shetland) hinted at grain storage within the broch, preserved by destruction in a fire (Sharples 1998, 31). Souterrains may have been used for food storage (Hingley 1992, 35; Anderson & Rees 2006, 53-4), and it is possible that pits were widely used for storage of foodstuffs, although direct evidence rarely survives; there is no equivalent of the consistent, repeated digging of grain storage pits found in Wessex.). Another line of evidence probably relating to both cooking and food storage are residues found on pottery sherds (Campbell *et al.* 2004; Brown & Heron 2004; Craig *et al.* 2005) an area meriting more work. .

Utility/Consumption of plants and animals

The use of domestic mammals on archaeological sites is usually determined from examining the age and sex structure of the herds. The extensive fragmentation of bone often found on Scottish Iron Age sites, greatly hinders this. Sex is almost never determined for cattle and sheep and age structures can often only be suggested. At sites where better data (particularly for ageing) has been obtained, this suggests mixed economies where meat, dairy products, wool and possibly traction were all important elements (Seller 1982; Smith 1994; McCormick 2006; Bond 2007a; Cussans & Bond 2010, forthcoming). The association of large numbers of neonate cattle bones with dairy production has been much debated (see Mulville *et al.* 2005) but the availability of dairy products in the Western Isles has now been confirmed through analysis of pottery residues (Craig *et al.* 2005) although the intensity of such practices could not be determined from this method (not least because the coating of pots with milk, attested ethnographically, may bias the sample). It is now generally commonly accepted that high numbers of neonate cattle are related to dairying practices (e.g. Serjeantson *et al.* 2005; Mulville *et al.* 2005;

Bond 2007a; Cussans & Bond 2010, forthcoming). However Mulville *et al.* (2005) point out that the subject is still very much under debate; for instance, McCormick (2006) found high quantities of cattle neonates at the site of Cnip, Lewis but here the interpretation was that this was the result of poor grazing (McCormick 2006, 167). The use of animals for traction has been interpreted at some sites from pathologies, usually found on the bones of the feet (e.g. Bond 2007a).

A key aspect for future work is the nature of inter-site differences in terms of the domestic animals and crops produced and consumed in different circumstances.

Characterising agricultural practice requires the combination of techniques and methodologies. This would allow researchers to build up a full picture of the procurement, use and consumption of plant and animal resources. How well, for example, do the results of isotopic studies coincide with data from animal bones and plant remains? Innovative approaches are required for topics such as dairying, the nature of specific meals, and how foods were combined together.

The extent to which wild resources were exploited, the role they played in Iron Age diet and the way they were thought of requires fuller consideration. Specific examples are the nature of the exploitation of resources such as deer (whether for antler or as prey) and cetaceans (hunted or expedient use).

Interpretation of age structures in eg cattle in terms of agricultural practice remains a topic of debate

There is a need to explore the nature of foddering practices, the over-wintering of animals and the provision of animal housing, including targeting the function of ring ditches when sites with appropriate evidence are encountered.

4.3 Cooking & Consumption

More is known about how things were cooked and served than is known about the details of cuisine, although more could undoubtedly be gleaned from a detailed study. A variety of means of preparing food is represented in the Iron Age record. Hearths are present in many domestic structures. As well as providing heat and light, they would have been the principal cooking and smoking resource; a hearth allows a variety of different cooking options, from bubbling cauldrons or spits over the flame or cooking pots set on the hearth to grilling on the stones or baking in the ashes. Rare oven-like structures have also been identified such as the one at Old Scatness (Dockrill *et al.* forthcoming); a study of hearths and ovens is currently being undertaken by J.R. Summers (in prep) as part of his PhD research. An alternative to hearths is cooking pits (e.g. Rideout 1995), and in some areas and periods they are locally abundant. This variation between the hearth and the pit as the dominant means of cooking merits a detailed study, as it represents very different traditions of cooking and thus styles of cuisine. While burnt mounds are primarily a Bronze Age habit, the presence of fire-cracked stone in abundance on Iron Age sites indicates that hot stone cooking technology remained a key feature (Barber 1990), but now on-site rather than off-site as in the Bronze Age. The presence of stone-lined tanks or cists at several sites has been interpreted as food (or water) storage or processing features (MacGregor 1974; Dickson & Dickson 1984; Dickson 1994). The whole area of cooking apparatus merits detailed research on a regional or national level.

Reconstruction of diet, and the balance between meat and plant resources, is very difficult. Direct evidence comes from rare coprolites. Some of the coprolites found at Howe were thought to be of human origin but it was not possible to analyse their contents (Ballin Smith 1994). A collection of human coprolites from the well at Warebeth broch (Dickson 1989) gave surprising results as they

contained a large proportion of meat, plant remains being much scarcer than expected. As a result they were interpreted as being the result of atypical meals, possibly from a time of cereal shortage, and were thought unlikely to be representative of the everyday diet of the inhabitants of the site (although diet probably varied seasonally). Another direct (and relatively new) method of determining aspects of diet is the examination of starch granules trapped in dental calculus. In a pilot study Hardy *et al.* (2009) identified cereal starch in dental calculus of skeletons from Pictish Tarbat.

Stable isotope studies are also useful dietary indicators. At early medieval Newark Bay in Orkney, Richards *et al.* (2006) found there was higher than expected marine input into the diet and considerable variation between individuals. In contrast, in Iron Age East Lothian, Jay (2005, 242-243; ; Jay & Richards 2007) found slight variation between sites but a great deal of homogeneity at any one site and no indication of a significant proportion of marine input into the diet. There was also little indication of diversity between individuals in terms of diet, but the topic is worth pursuing as more skeletal data becomes available.

Such studies give an idea of the ratio of different elements in the diet, but say little about cuisine: there are many ways to cook a pig. In favourable circumstances, the animal bone assemblage can give some idea of how meals were prepared – for instance, whether bones were charred, or affected by boiling. Likewise butchery styles and bone representation can give some idea of the cuts of meat used; for instance, at the Dürrenberg (Austria), the evidence suggested stews were the main dish, as these extract maximum value from poor meat (Stöllner 2003, esp. 170).

Artefactual evidence, specifically pottery, ought to give insights into the preparation, storage and consumption of food, though in

Scotland it is rarely interpreted in such terms. The tendency has been to look on pottery primarily as a dating tool, at least in the Atlantic regions where it is commonplace, or to bemoan its absence in other areas. Yet these two very different situations of pottery use also ought to inform us about people's cooking and eating habits. While pottery sequences have been studied in terms of typological development (e.g. Young 1966; Campbell 2002), there has been less concern over functional development and diversification. A valuable piece of research would be an overview of a region's ceramics (and indeed other vessels) in terms of vessel capacity and form, the latter interpreted in terms of likely function. Work in southern England on vessel size, form, and the analysis of context groups in terms of function, provides models for such studies (Woodward 1997; Hill 2002; Morris 2002), although the generally fragmentary nature of Scottish assemblages does limit the potential somewhat (A MacSween, pers comm.). Campbell (1991) provides a rare attempt to interpret potential meanings behind the decoration of pottery (see more generally Woodward 2002).

The other area of investigation is the rarity of pottery in much of the lowlands. As Willis (1999, 83-90) has shown in the analogous case of northern England, the area was not aceramic but pottery was uncommon. The implication must be that vessels in a range of other media were used. Of these, there are rare survivals of wooden vessels in a diversity of forms, from cups to massive buckets, and suggestions of other materials such as birch bark containers which could readily fulfil the consumer end of the spectrum (Earwood 1993). The form of some vessels resembles bread troughs for kneading dough, while a number were found to contain "bog butter", a generic term for a range of animal products, some dairy, and some representing products such as tallow (Hunter 1997, 128-9; Berstan *et al.* 2004). This serves as a valuable reminder of the range of secondary products available

from animals – milk, butter, cream, blood, sinew, gut and so forth.



Figure 13: Selection of Iron Age pottery from Orkney, © NMS

Pottery and wood were not the only options for vessels, but evidence for other materials has not been fully studied. Leather vessels are likely, though near-impossible to prove; wicker vessels are known (e.g. from Howe; Dickson 1994, illus 82), but their form constrains their use. Stone "cups" from northern Scotland are more likely lamps (Stevenson 1966, 28), but various forms of stone bowl are known, including rare steatite examples in the Northern Isles (Forster 2009). Copper-alloy vessels were also used, from cups to cauldrons (MacGregor 1976, 147-152), although their original prevalence is hard to assess. Occasional pottery skeuomorphs of bronze vessels indicate the latter's perceived value: examples include the burnished carinated early Iron Age pottery known from Clickhimin, Shetland or a small cup with bosses imitating rivets from the Howe (Hamilton 1968, fig 19.1-5; Ballin Smith 1994, 248).

The social context of consumption is also elusive and tends to be dominated by exceptional circumstances. At some sites deposits of animal bone have been interpreted as having a special function i.e. they are not part of the everyday domestic refuse but may have been involved in some form of special event. These may be sacrificial or ritual deposits or the remains of feasting. A series of examples may illustrate the phenomenon. High Pasture Cave had an

unusual species distribution compared to many sites and a number of examples of articulated animal remains (Drew 2006). An array of ritual pits containing articulated and cremated animal remains was excavated at Sollas in North Uist (Campbell 1991), while Davis (2000) identified a deposit made up mostly of calf hind leg elements in close association with human cist burials at An Corran, Boreray. Cussans and Bond (forthcoming) interpreted a deposit of prime meat age cattle and prime joints of pork and lamb making up a primary ditch deposit as the remains of a community feasting event. A perceived significance to animals is seen also in other phenomena, such as the use of cattle metapodia to define a hearth at Bornais, S Uist, or deer jawbones at A'Chèardach Bheag (Mulville *et al.* 2003; Mulville & Thoms 2005, 241).

There has been little detailed interpretation of the meaning of such events – contrast the innovative work of Jones (2007) on social interpretations of the pit deposits at Danebury, or Hill (1995) on deposits in Wessex, which offer exciting prospects of what could be obtained from such data. Campbell's (2000) structuralist interpretation of the Sollas deposits, drawing together a range of sources of evidence, is an enlightened example of recognising the patterns which lurk in such data, offering models for debate about meaning.

An area which has seen little detailed study is the question of alcohol, although the evidence would only survive in very favourable circumstances, such as burials or hoards where vessels could be sampled. It is likely that beer was a staple drink, and possible also that fruit wines were made although hard evidence is elusive.

There is a poor understanding of the nature of cooking practices and cuisine in the Iron Age, although much raw evidence exists. Specific examples include: patterns in preference for hearths rather than pits as cooking devices;

interrogation of animal remains for information on cooking practices (butchery, charring etc); size, form and thus function of pottery and other vessels

A range of scientific approaches have considerable potential for the study of food, cooking practices and cuisine: organic residue analysis of pottery; isotopic study of human bones in terms of diet and the balance of arable and pastoral resources, and animal bones in terms of mobility; coprolites

Patterns in the deposition of animal bone can provide important information on social habits such as feasting and insights into beliefs, but this remains an area ripe for detailed research, with only a few pioneering studies so far.

4.4 Making and using

This section focuses on use of the landscape as a resource for raw materials other than food (considered above). Thus its main focus is on the procurement, manufacture and aspects of the use of material culture. The overview provided in Haselgrove *et al.* (2001, 14-22) remains a valid general treatment of the theme, while Hunter *et al.* (2006) provide a recent review of archaeometallurgy in Scotland. This section seeks to avoid mere repetition of the conclusions in these works, but will focus on key opportunities and issues in the Scottish material.

As with the 'field to feast' approach for food resources, these other materials benefit from a life-cycle approach, considering their sourcing, manufacture, various uses and deposition.

Obtaining resources

A potential abundance of resources was available to the inhabitants of Iron Age Scotland, but these varied in their occurrence. Some, such as bone and hide, were universally available as byproducts of butchery, and the raw materials for everyday textile

manufacture were likewise readily available from animal husbandry or by gathering plant resources. Stone for everyday tools was generally abundant, although particular stone types were regionally restricted (see below). Clay is widely accessible, so the rarity of ceramics in much of lowland Scotland is not due to a lack of raw material. Wood was common over most of the country, but scarce in the Northern and Western Isles, leading to its substitution by materials such as bone; this provides valuable insights through skeuomorphs of wooden objects (Clarke 1970).

Broad patterns of regional variation in resources are reflected in the predominant building materials in different areas, with roundhouses predominantly of timber in the south and east, and stone in the north and west. This bald statement conceals considerable variety; not only are there plentiful exceptions to these patterns, but timber would have been needed in all areas for roofing materials. Study of more recent vernacular architecture and consideration of a range of alternative roofing systems shows how timber resources could have been put to maximum use in areas of scarcity (Romankiewicz 2011, 131-141, 165-180), and there has been discussion of the use of driftwood as a resource, more commonly available in the Iron Age than today (e.g. Scott 1951; Church 2002, 67-75; Armit & Ralston 200b, 50; Fojut 2005b). It is likely that timber was a carefully managed resource, especially given the evidence for its extensive clearance in lowland Scotland in the later Iron Age (Tipping 1997; Armit & Ralston 2003b, 50), and study of charcoal from house sites ought to provide insights into this in favourable circumstances (e.g. Barber 1997; Taylor 1999; Crone 1998; Church 2002, 72; Miller 2002). The other key but undervalued building resource was turf, well-attested in the vernacular tradition but often overlooked in studies of excavated house (Loveday 2006). The practicalities of turf construction, mechanically and in terms of resource use,

turf quality and impact on grazing land, merit further work.

Other natural resources were more restricted or took more effort to obtain. Fairnell and Barrett (2007) have reviewed the limited evidence for the hunting of fur-bearing species. The gathering of shed antler (which seems to have been more common than hunting the deer) also required effort at particular times of year and knowledge of the animals' movement (see above). Other resources are more restricted in their natural occurrence, especially certain stone types: notable examples are steatite (used for vessels and ornaments), and a range of black, shiny organic-rich stones such as cannel coal, oil shale and lignite which were used for ornaments. Their restricted availability led to regionally distinctive patterns of supply and use (Forster 2009; Hunter forthcoming a).

Iron is often said to be widely available owing to the extensive distribution of bog ore (Tylecote 1986, 125). It is certainly more common than metals such as copper, but there has not been any systematic work on the availability of bog ore, and the relative rarity of iron for much of the Iron Age might suggest it was less accessible than might appear (see *New Technologies* below). For other metals, there is increasing circumstantial evidence for exploitation of Scottish copper sources, notably the ingots found at Edin's Hall (Scottish Borders), but this remains an area ripe for further study (Hunter *et al.* 2006); the same problem remains in the Bronze Age. Proxy records such as pollution signatures from smelting or evidence of woodland management for charcoal from pollen records have considerable potential in approaching this problem (e.g. Mighall & Chambers 1997; Mighall *et al.* 2009). The distribution and typology of gold ribbon torcs, now recognised as an Iron Age type (Warner 1993, 2003), suggests these may have been made in Scotland, but (again as in the Bronze Age) there is no clear understanding of how far

Scottish gold sources were used at this time. Alloying elements (for copper alloys notably tin, but also zinc) were not apparently available locally, and imply broader contacts; the zinc represents the remelting of Roman objects (Dungworth 1996), and this is a useful reminder that recycling and reuse rather than primary manufacture was a key source of metals.

Henderson (1989) suggested that glass may have been made in Scotland, but this seems increasingly unlikely. Recent work on beads from north-east Scotland and on the manufacturing debris from Culduthel (Inverness) strongly indicates a reliance on imported ingots or recycled Mediterranean glass (Bertini *et al.* 2011; Davis & Freestone forthcoming). However, the distribution of typologically-distinctive forms of glass bead and bangle indicates that glass was worked in Scotland (see below).

As the example of glass analysis shows, scientific work can be very valuable in developing pictures of resource supply. Some staples of procurement studies show little sign of complexity in a Scottish context. There is no evidence of salt production and distribution to date, although Iron Age briquetage from salt processing has recently been found at Berwick on Tweed (T Cowie, pers comm.). Petrological work to date indicates overwhelming use of local clays for pottery (e.g. MacSween 1990; Topping 1986, 1987) although there are examples of more distant sources being preferred; for instance, at Lairg talc for temper came from c. 30 km away, while potters at Tofts Ness on Sanday used dolerite from other islands (MacSween & Dixon 1998, 142–4; MacSween 2007, 277). In southern Britain, preferred rock sources for querns are found at relatively small exposures with extensive regional distributions such as Yorkshire Millstone Grits or Sussex Greensands (Heslop 2008, 28–42; Peacock 1987; see also Moore 2006, 183–90), but the prevailing hard rock geology in most of Scotland meant that stone fit for querns was

readily available. However, the possibility of more localised distribution systems remains to be explored (McLaren & Hunter 2008, 106–7), and there are examples of quite large-scale quern quarries on the west coast which are undated (Mainland 2012).

There is considerable potential in using excavated data to study the use of the local landscape, and the procurement systems involved, although this is rarely done. There is also scope for consideration of how access to desirable sources of raw material was negotiated or controlled.

Manufacture

A wealth of evidence is available to study craft processes, especially for particular raw materials – iron (via slag), copper alloy (from moulds and crucibles), bone/antler and shale/cannel coal have particularly good evidence. Most have seen site-specific discussions but little broader synthesis. An exception is the evidence for non-ferrous metalworking, which has been addressed in a couple of PhD studies, as yet unpublished (Heald 2005; Sahlén 2011). These emphasise considerable regional and chronological variety in the evidence, apparently reflecting differences in the organisation of production. Following anthropological parallels (e.g. Budd & Taylor 1995), Heald (*ibid*) has stressed the role of the smith and the significance of the act of creation/fabrication as well as that of the product itself, while Sahlén considers the development of technological practices; the evidence is capable of multiple readings, and as more data become available (for instance, from recently-excavated workshop sites at Culduthel and Mine Howe) there is considerable scope for more research. The production of iron has seen much less study, with McDonnell's work in the Northern Isles a rare exception (e.g. McDonnell 1998; McDonnell and Dockrill 2005); he stresses the social significance of control over iron production and manufacture, as a key raw material of the period. Recent excavations have greatly expanded the amount of data

available from mainland Scotland; for instance, analysis of the iron-working debris from Culduthel (Inverness) has shown the advanced skills of the smiths, who were producing steel (Dungworth & McLaren forthcoming), while appraisal of published Western Isles assemblages has noted a dominance of smithing rather than smelting evidence, raising questions about the source of raw material (McLaren forthcoming) There is great potential for synthetic study of the nature of iron-smelting and smithing; a current PhD project should provide initial models for further testing (Cruickshanks in prep).

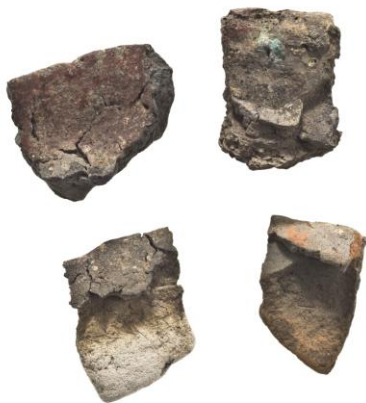


Figure 14: Crucibles from Culduthel, Inverness © Headland Archaeology Ltd and NMS

Despite this wealth of evidence, broad overviews of production have been rather dismissive of Scottish evidence, characterised with a broad brush as “domestic” (Morris 1994, 1996). This downplays the regional variety and the considerable variation encompassed in the “domestic” label (see Hunter forthcoming a). Some crafts could have been carried out readily by all or most people, but the inevitable variety in individual skill levels probably led to some degree of specialisation, at least for more complex objects – for instance, everyone may be able to make a bone point, but a long-handled comb required more precision and access to a saw. Crafts involving control of pyrotechnology – potting, metal- and glass-

working – are likely to have been more specialist, but the nature and social implications of any such specialisation are not clear. The nature of craft processes and development and transfer of skills are key questions. There are very few examples of dedicated workshop areas, suggesting that most crafts were practised as occasional elements within a broader routine. The publication of recently excavated workshop sites (notably Mine Howe and Culduthel) should shed considerable light on manufacturing practice and process and enable debate on the nature of these unusual specialised sites.

Occurrence and use

Studies have tended to focus on the glamorous rather than the mundane objects, although the latter are more representative of daily life and have much to reveal. Yet the function of many items remains surprisingly obscure. This is particularly true of many bone/antler objects and coarse stone tools (especially cobble tools) – with the latter, wear patterns demonstrate varying kinds and intensities of use, but the correlation of this with function is not clear. Here there is great scope for sustained experimental work and for the application of scientific analysis, particularly the potential for residue analysis on stone tools. This is a key element in unlocking the stories which the everyday finds from Iron Age sites can tell us.

While regional and chronological differences in object use are a key feature of some material studies (notably pottery), they have been little-explored in others such as bone/antler or stone tools; this is a key area for further work. Wooden artefacts have seen recent synthesis (Earwood 1993), but many other finds categories have either never been synthesised (e.g. iron objects), have received valuable but site-specific treatments (e.g. bone and antler; Hallén 1994, or have studies which are now rather dated (e.g. glass beads, Guido 1978).

The issue of struck lithic use in the Iron Age is a contentious one, with some specialists arguing that the finds are residual (e.g. Saville 1981) and others interpreting the rather erratic range of material often found as evidence of expedient lithic use continuing through the first millennium BC (e.g. Young & Humphrey 1999). Ballin (2010, 101-3) has identified early Iron Age quartz traditions in Shetland which represent more than expedient use, and it is a topic which merits continued attention with an open mind.

The wider issue is what these finds tell of life in the Iron Age. Here there is a great need for more comparative studies – to understand the finds from one site it must be compared it to others to get a sense of how normal or unusual the assemblage is. Work in the Roman period has made great strides in showing how the comparison of assemblages between different areas of a site or different sites can reveal the range of activities taking place, through the categorisation of finds by function and the statistical analysis of this data through correspondence analysis (e.g. Cool & Baxter 1999, 2002). Similar techniques should be applied to the understanding of Iron Age material culture (see theme 7).

The issue of resource procurement is one where scientific work has not been exploited to the full.

- *Petrological work on the geological sourcing of rock types occurring as filler in ceramics should be continued and expanded, especially in developing detailed pictures of local supply systems.*
- *Attempts to fingerprint Scottish copper sources by the analysis of copper alloys (successful in identifying the reuse of Roman metal) would benefit from wider application to examine the possibility of regional variation, and also from more work on trace elements to look for pre-Roman circulation pools, as has proved possible in Bronze Age contexts (Cowie et al. 1998).*

Direct evidence of mining remains elusive, and proxy records (such as pollution signatures in peat bogs) offer considerable potential.

The study of evidence for woodland exploitation for the differential provision of material for building, different types of artefacts and, of course, fuel is an area of considerable potential especially given the numbers of waterlogged sites, notably crannogs. Valuable work has been done on this (e.g. Miller 2002) but it remains a resource where the Scottish record exhibits considerable potential.

Many resources were locally available, but this is too often seen as 'obvious' and therefore without interest. The detail of localised procurement systems is of interest in terms of the exploitation of the local landscape, with the potential detailed pictures of routes of access and areas of avoidance affecting views of landscape use beyond the site.

Existing assemblages contain a great deal of raw material which merits study or re-examination to allow rethinking and modelling production and procurement systems and the nature of craft processes could be undertaken. The data from antiquarian excavations are a valuable resource, compensating in geographical breadth for what they lack in contextual detail. Regional case studies for particular crafts would be a valuable way forward

- *Iron (through both study of slag and metallographic work on the products) is an obvious, urgent and often ignored subject of such study.*
- *Cannel coal / oil shale, and jet are often insufficiently differentiated and possibly contain the means for even more precision in origination. They are also prime candidates for technological study of patterns of craft practice.*
- *Bone/antler show evidence of regional or chronological variation in manufacturing techniques, but this has not seen detailed*

synthesis. There are also hints of varied access to resources, e.g. cetacean bone or marine ivory, which merit more work.

Sites with good manufacturing evidence, excavated and published to modern standards, remain rare; future discoveries should be a priority for careful excavation and detailed post-excavation programmes.

Studies of technology can benefit substantially from professional craftsmen's help in elucidation of processes, 'short cuts' and techniques.

The use of certain categories of objects remains obscure. Notable examples are coarse stone tools and bone tools. A combination of scientific analysis (of wear patterns and residues) and experimental work would be of value.

4.5 New technologies

The Iron Age saw the introduction of new materials – notably iron, but also the first widespread use of glass. It also saw new technologies, notably rotary technologies – the rotary quern, the lathe and the potter's wheel.

Iron remains one of the big questions in the European Iron Age more generally, in terms of the motives behind its introduction (e.g. Needham 2007; see also Bronze Age ScARF report), the chronology and speed of uptake. A direct functional correlation between the decline of bronze and the increase of iron seems increasingly unlikely; the hoard evidence suggests that bronze circulation declined very rapidly, while the adoption of iron was an altogether slower, more protracted process. For instance, there are suggestions that iron manufacture was present in at least parts of Britain by the late Bronze Age (e.g. Collard *et al.* 2006), and some iron objects were certainly available, such as the iron ring from the Balmashanner (Angus) hoard (Anderson 1892). The problem

has not been considered from a Scottish perspective for over thirty years (MacKie 1979); it will not be solved from the Scottish evidence, but it needs to be seen within the wider European picture.

The question of the uptake of iron is one where a Scottish study would be very valuable. Evidence of iron is rare in this period; this is partly due to its poor survival, and a PhD study is underway to assess the value of production evidence and proxy records (such as toolmarks on bone, or the frequency of whetstones) to reconstruct the availability and use of iron more reliably (Cruickshanks in prep). In southern Britain and on the Continent, evidence seems to suggest that iron only became widely available from the second century BC (Ehrenreich 1985; Pleiner 2000, 34). McDonnell has modelled the organisation of iron production in the Northern Isles (McDonnell 1998; McDonnell & Dockrill 2005), and there is scope for testing this more widely, especially through the study of slag, but there are clear signs of regional as well as chronological variation in iron production which merit further attention. For instance, furnaces are now known from several sites along the Moray Firth coast, but only one is yet known in East Lothian despite extensive excavation. Yet this one furnace, from Broxmouth, also shows the information which can come from such finds, as it demonstrates high-quality iron production as early as the fifth century BC (McDonnell forthcoming). The symbolism of production has attracted a lot of attention (e.g. Hingley 1997, 2006; Giles 2007), perhaps to the detriment of detailed regional studies into the practicalities of iron production and use (cf Halkon 2007, 2008).



Figure 15: Pair of furnaces from Birnie, Moray © F. Hunter

While glass was not a new material, its first widespread use in Scotland was in the Iron Age. Glass beads were present in the later Bronze Age, but they are rare: by the later Iron Age glass beads were much more common, although a detailed chronology of this is lacking. Guido's (1978) synthesis remains key, but her dating was constrained by a diffusionist perspective and a reliance of Roman associations which is only gradually being replaced as examples come from independently-dated contexts (e.g. from Loch Glashan (Argyll), Dun Bharabhat (Lewis) and Culduthel (Inverness), all with firmly pre-Roman Iron Age dates; DES 2005, 166; Harding & Dixon 2000, 28; Hunter forthcoming b; Henderson and Gilmour forthcoming). Recent programmes of analysis in north-east Scotland have cast important light on bead-making technology in the area, with Bertini's analysis indicating the use of glass from the Mediterranean in the manufacture of class 13 and 14 beads, and the work of Freestone and Davis (forthcoming) on the Culduthel glass-working debris indicating the use of small numbers of imported ingots. It would be very valuable to apply similar analysis to the glass bangles of southern Scotland, and test whether these are made from recycled Roman glass, or whether some could represent an earlier Iron Age tradition.



Figure 16: Glass bead from Loch Spouts crannog, Ayrshire © NMS

Rotary technologies are one of the noteworthy features of the European Iron Age, but their uptake in Scotland was variable. The date of introduction of the rotary quern is still not clear (see theme 9.3); examples from Howe and Dun Mor Vault suggests an early date around the fourth century BC, consistent with its adoption elsewhere in Britain (McLaren & Hunter 2008, 105), although neither is entirely secure (MacKie 1998, 28-9). MacKie (1971, 1987) has discussed a series of important issues surrounding this new technology, such as whether it was a restricted status technology to begin with, when did it become widespread, and why are there regional variations in quern type (with bun- and beehive-shaped querns the main type in southern Scotland, while the Atlantic and north-eastern areas used adjustable disc querns) as well as hybrid forms (e.g. MacKie 1998, 29-30). There is an important avenue of research in this topic, along with issues of stone source, wear patterns, fragmentation and deposition; the work of Heslop (2008) in north Yorkshire provides a model.



Figure 17: Rotary quern from Balmaclallan, Dumfries and Galloway © NMS

The uptake of other rotary technologies was much more variable. There is no wheel-thrown pottery (though some may have been finished on a slow wheel; Campbell 1991, 150), and no use of the lathe to make shale armlets, in contrast to traditions in southern England in the late Iron Age. However, evidence from Oakbank crannog (Perthshire) suggest that wood-turning was practised in the early Iron Age, while finds from Pict's Knowe (Dumfriesshire) are Roman Iron Age in date (Crone *et al.* 2007, 111-3; *British Archaeology* 30 (1997), 4). This difference in uptake of technological innovation is an area

meriting more research on a broad geographical front.

The other rotary technology worth mentioning is the wheel itself. Work on the chariot burial from Newbridge (Midlothian) showed advanced wheel-making technology in the fifth century BC, with notable technological differences from what was typical on the Continent at this time, suggesting that groups in Scotland were at the forefront of innovation in this technically-demanded craft at the time (Carter *et al.* 2010). This serves as a valuable reminder of the regional variation in these skills across the European Iron Age which cannot readily be subsumed in a core-periphery view.

The introduction and uptake of iron remains a topic where understanding is limited in a Scottish context.

Recent research has cast doubt on glass manufacture in Scotland, but the nature of glass-working (particularly in the case of glass bangles) remains obscure.

Rotary querns have enormous potential for detailed regional study in terms of different types and their adoption, chronology, use-lives, geological sources, fragmentation and deposition.

4.6 Future research recommendations

From the detailed recommendations above, the following have been identified as key future research areas and issues:

- A full understanding of the production and procurement of resources requires an integrated ‘field to feast’ or life-cycle approach, considering the nature of the various stages from procurement/production, processing and storage, to consumption / use.
- A key aspect for future work is the nature of inter-site differences in terms of status and the domestic animals produced and consumed in different circumstances.
- Characterising agricultural practice, including whether crops were produced at all sites or whether there were specific producer and consumer sites, forms another strand.
- Combinations of techniques and methodologies are required to build up a full picture of the procurement, use and consumption of plant and animal resources. How well, for example, do the results of isotopic studies coincide with data from animal bones and plant remains to provide a useful point of departure. Innovative approaches are required for topics such as dairying, the nature of specific meals, and how foods were combined together.
- The issue of resource procurement is one where scientific work has not been exploited to the full.
 - a) Petrological work on the geological sourcing of rock types occurring as filler in ceramics should be continued and expanded, especially in developing detailed pictures of local supply systems.
 - b) Attempts to fingerprint Scottish copper sources by the analysis of copper alloys (successful in identifying the reuse of Roman metal) would benefit from a wider application of analysis to examine the possibility of regional variation, and also from more work on trace elements to look for pre-Roman circulation pools, as has proved possible in Bronze Age contexts.
 - c) Direct evidence of mining remains elusive, and here proxy records (such as pollution signatures in peat bogs) offer considerable potential.
- The study of evidence for woodland exploitation for the differential provision of material for building, different types of artefacts and, of course, fuel is an area of considerable potential especially given the numbers of waterlogged sites, notably crannogs. Valuable work has been done on this but it remains a resource where the Scottish record exhibits considerable potential.
- Many resources were immediately locally available. This is too often seen as ‘obvious’ and therefore without interest. The detail of localised procurement systems is of interest in terms of the exploitation of the local landscape, with the potential detailed pictures of routes of access and areas of avoidance affecting views of landscape use beyond the site.
- Existing assemblages contain a great deal of raw material which merits study or re-examination to allow re-thinking and modelling production and procurement systems could be undertaken.. Regional case studies for particular crafts would be a valuable way forward

- a) Iron (through both study of slag and metallographic work on the products) is an obvious, urgent and often ignored subject of such study.
 - b) Cannel coal / oil shale, and jet are often insufficiently differentiated and possibly contain the means for even more precision in origination. They are also prime candidates for technological study of patterns of craft practice.
 - c) Bone/antler show evidence of regional or chronological variation in manufacturing techniques, but this has not seen detailed synthesis. There are also hints of varied access to resources e.g. cetacean bone or marine ivory, which merit more work.
- Sites with good manufacturing evidence, excavated and published to modern standards, remain rare; future discoveries should be a priority for careful excavation and detailed post-excavation programmes calling, if necessary, for external professional craftsmen's help in elucidation of processes, 'short cuts' and techniques.
 - The processes behind the introduction and development of iron use in Scotland remain poorly understood.

5. Building in the Round: house-scapes of the Iron Age

5.1 Introduction: the role of houses

Study of the Iron Age is often dominated by the archaeology of houses and hillforts. The latter are dealt with in theme 6, along with a consideration of settlement patterns. This theme considers the concept of the ‘house’ itself and the evidence from houses at a range of levels, from the roots of the evidence itself to broader aspects of its interpretation. This national-scale review cannot hope to offer a detailed analysis of the research needs of specific areas or house types; it is hoped that the topics addressed here represent the major ones, and encourage others to develop or react against them in specific areas.

Houses dominate what is seen today of the Iron Age landscape – the term ‘house-scapes’ is introduced here to convey something of this. There are thousands of later prehistoric roundhouses known across Scotland, and hundreds of them have been excavated, presenting a tremendous resource for studying the period. Within this is significant variation in architectural form and material, and attempts to identify social and regional variation in houses and settlements represent considerable challenges.

Circular buildings represent the vast majority of Iron Age structures in Scotland (as elsewhere in Britain but in contrast to the near Continent). They can vary in size from less than 7m to approaching 20m in diameter, although ‘modest’ proportions (c. 8m across) appear most commonly. It is hard to imagine that all served the same role in Iron Age settlements (Harding 2009, 275).

Any discussion of Iron Age settlement and society needs to start in the Late Bronze Age (Harding 2006, 79). Roundhouses were being built across Britain from c. 1800BC (Armit 2003, 33), and over time gave rise to a diverse

range of regional forms. These Bronze Age origins are notably not the case in parts of Atlantic Scotland (e.g. the Northern Isles), where cellular forms remained the vernacular style. The Iron Age roundhouse, however, is not a straight continuation of a Bronze Age prototype (Harding 2009, 144-5) but represents a development of the concept during a period of significant change in roundhouse architecture circa 800-600BC (Pope 2003, 2007).

5.2 Regional trends

Broad regional and local patterning of the house and settlement record has been clear for decades, and underpinned Piggott’s (1966) justification of the delineation of his provinces and regions (see theme 3.3). There is a broad distinction between the stone roundhouse forms of north and west Scotland and the timber houses of south and east Scotland, where the greater diversity of building structural form may imply the existence of a more complex or more varied society (Armit 2002; Henderson 2007a, 126-7). However, there were timber roundhouses in the former area, and stone ones in the latter. Distinct regional identities probably exist, but there are few well defined boundaries to distributions, and much transgression (Haselgrove *et al.* 2001, 23). Cunliffe (2005, 73-5) makes a broad distinction between Atlantic and western Scotland as dominated by strongly-defended homesteads of single family units, and southern and eastern Scotland as a hillfort-dominated zone interpreted as reflecting communal activity of large groups of people based in a range of other subsidiary settlements. This is an acknowledged over-simplification, masking intra-regional and local diversity (see also Harding 2006).

Different levels of archaeological survival are, broadly speaking, the product of an east versus west, lowland versus highland, timber versus stone divide. Better preservation of stone architecture in the west allows us to understand the characteristics of buildings,

sequences and change over time better than the often plough-truncated remains of timber roundhouses in the eastern lowlands. In the south-east the unique preservation of timber structural traces in the resilient turf of the Cheviot Hills has, to some extent, counter-balanced this tendency and excavations at Kintore (Cook & Dunbar 2008) have shown that when examined intensively on a large enough scale developments over time in roundhouse form can be traced. Burnt-down houses present a particularly valuable resource, as Barber's (1997) analysis of the Bronze Age example from Tormore (Arran), Hodgson's (2001) work on the later Iron Age one from South Shields (Tyne & Wear), or Sharples' (1998) analysis of the burnt layers at Scalloway, amply illustrate. This requires considerable investment in careful excavation and analysis.

- *Issues concerning raw materials and resource availability (particularly timber and stone) require further exploration, in both chronological and cultural terms, including comparisons between Atlantic and non-Atlantic traditions, but also more nuanced comparisons, including topics such as the South-east vs. South-west chronological distinction in timber usage for buildings (RCAHMS 1997).*
- *Burnt-down houses represent a particularly valuable resource which needs to be seized with careful work in the field and in the lab.*

5.3 Types and variations

The range of recurring ground-plans of timber roundhouses in much of southern and eastern Scotland are often known by short-hand reference to their salient structural feature as of ring-groove, post-ring and ring-ditch construction. The broad distinctions have merit, but the structural features are not exclusive: buildings with a ring-groove wall regularly have an internal post-ring providing the main structural support, while ring-ditch houses always have a post-ring and

sometimes have a ring-groove wall; post-rings alone may have had a turf wall, but could also have lost any ring groove to erosion.

It is unclear what these distinctions signify, particularly as in many areas they are in use over the same long timespan and, indeed, are not uncommonly found as elements of the same settlement. An attempt was made to model possible ethnic, functional or social variations for the post-ring houses and ring-ditch houses juxtaposed at Kintore, Aberdeenshire. Here the excavators argued for the occupants of ring-ditch houses having a dominant relationship with their post-ring counterparts (Cook & Dunbar 2008) an argument that has not found general agreement.

The idea of houses as cultural and chronological markers in the Tyne-Forth area proposed by Hill (1982b) has been applied in Eastern Dumfriesshire to ring-ditch houses (RCAHMS 1997, 161-2). It does not, however, seem to be applicable for other areas – e.g. the North-East (Cook & Dunbar 2008; Dunwell & Ralston 2008). For most Atlantic areas (with the possible exception of East Lothian) the chronological control is currently inadequate to support the use of house plans as type-fossils, and indeed the evidence generally contradicts such simple views.

Stone-built 'hut circles' occur extensively across Scotland, in 'upland' contexts on the mainland and on the inner isles in Bronze Age and Iron Age contexts, though not in parts of the south-east, or on the Northern Isles or Outer Hebrides. They occur in both Bronze Age and Iron Age contexts. Excavation suggests that the majority belong to the second millennium BC, with a smaller proportion indicating activity in the first millennium BC (Halliday 1999, 56-8).



Figure 18: Tofts Ness roundhouse, Orkney © Dockrill

The most dramatic stone-built roundhouses are those traditionally called brochs, and typical of Atlantic Scotland. The dramatic broch towers such as Mousa are now normally seen as a development from earlier, less complex but still massive stone roundhouses, the details of which remain a matter of considerable debate. The terminology of *simple* and *complex Atlantic roundhouses* was developed to encompass this architectural variety (including sites otherwise termed brochs and duns) while emphasising that these were variants of the roundhouse tradition; this is discussed and referenced more fully below (see 5.9).

While there is a great preponderance of round or oval buildings, there is, however, also a much smaller range of other structures present, of unrelated forms, that are generally ascribed a non-domestic function (i.e. souterrains, ‘four-posters’ and a miscellany of odd structures like that at An Dunan, Uig, Western Isles (Gilmour 2002)); some are considered further below (5.10).



Figure 19: Coring on the Iron Age islet site of An Dunan, Uig, Western Isles © Uig Landscape Project

Crannogs

Crannogs (artificial islets) are distributed across Scotland where conditions are suitable, with Late Bronze Age/Early Iron Age dates for the earliest recognisable timber crannogs and artificial islets constructed on a large scale during the period c. 800-500BC, which has been termed the ‘crannog event horizon’ by Cavers (2006). Regional distinctions have been proposed by Henderson (1998), based upon visible characteristics, although the value of this classification has been questioned by Harding (2000), particularly in terms of the relationship with island duns. Crone (2000, 4) understands these regional differences principally in terms of the availability of raw resources rather than as cultural differences. She notes that currently known distributions may reflect research bias (Crone 2000, 2), except for the situation in the south-east of Scotland where there appears to be a genuine dearth of crannogs, probably largely due to the relative scarcity in this region of suitable locations.

There is no reason to assume all crannogs were domestic residences or even supported a single circular house (Harding 2000). ‘Crannog’ has been argued as a portmanteau term (Harding 2000) for a type of site that included domestic occupation, but the excavated sample is insufficient to say whether or not crannogs performed a range of functions, whether permanent, periodic or seasonal. Marine crannogs (a disparate group

found mostly in the Firth of Clyde and Beaulieu Firth) probably were not primarily domestic residences, instead serving a range of functions for craft-processing and utilising the sea's resources (Hale 2000). Certainly Irish investigation of crannog sites, which has been more intensive than in Scotland, suggests that these sites vary widely in function, over a very widely varying chronology, with industrial, ceremonial / funerary and settlement functions being identified (Fredengren 2002).

- *There is a continuing need for the definition of local types and sequences (see also theme 3.3).*
- *Is variation in house size and construction simply a product of the availability of resources (Cook & Dunbar 2008, 13), or were other social factors responsible? Can clearer patterns in space and time be discerned?*
- *What range of activities took place on crannogs?*

5.4 How were roundhouses used?

Identifying structures as houses immediately poses the question - are buildings always dwellings? Many Iron Age structures were probably inhabited in some form (whether short or long term, permanently or seasonally), but there are also examples where there is evidence to suggest a non-domestic function for a building which on the basis of direct structural comparison with other known examples would be classified as a house (e.g. Over Rig, Dumfriesshire; RCAHMS 1997, 84-86).

Many 'houses' may have had both domestic and non-domestic functions. An increasingly used concept is that of 'byre-house' (Harding 2004, 2009), where animals and people cohabited; this has been used in studying Atlantic roundhouses, ring-ditch houses and the stalled structures known as wags (e.g. Baines 1999) at various times. In ring-ditch houses, the circumferential ring-ditch is seen as the byre (see 4.2); in other cases there is

assumed to be a ground-floor byre and upper storey living quarters. Such multiple floors are demonstrable for complex Atlantic roundhouses where scarcements survive, but conjectural for timber-built round houses. There are drawbacks to this idea, in that hearths or cooking pits are often found on the ground floors of such structures (although demonstration of primary layout is rare), and unequivocal evidence for cattle stalling (e.g. cow dung) has yet to be confirmed (E.MacKie, contribution after ScARF workshop).

Analysis of the possible uses of space has seen discussion in the Atlantic (e.g. Foster 1989; Romankiewicz 2011, 39-71), but little published synthesis for timber structures or other areas; while there remain great problems in attributing specific roles to the use of particular spaces, broad similarities and differences in the character of architectural space should offer more help than they currently provide to an understanding of building functions.

Crannogs or artificial islets present an extreme illustration of this point. The argument that crannogs functioned solely as residences is far from proven, and excavations have very largely failed to produce convincing house plans (Henderson 1998, Cavers 2006); the reconstruction of one of the most extensively excavated sites (Oakbank, Loch Tay) has proved contentious (Cavers 2006, 398); see 5.7.

Understanding floors

Although sites in the Atlantic zone often produce surviving deposits within their structures, it can be difficult to interpret daily activities and practices from constantly used, re-used and cleaned floors, often truncated by later activity (e.g. Armit 2006, 240-241). Indeed, the end-deposit of any period of use preserved for archaeological study may be a very specific accumulation left in circumstances that may not reflect daily use in any way.

Yet not all house floors are as mixed and confused as those heavily cut, re-cut and truncated examples from sites such as Sollas and Cnip on the Western Isles. Some Northern Isles sites appear to show less practice of intrusive deposition into the floors of buildings, and these deposits may provide a clearer manifestation of patterns of activity and practices. At least this proposition can be tested: detailed investigation and analysis of well-preserved floor deposits is vitally important in this regard. To date there has been no modern large-scale analysis of well-preserved floors that might represent activity dating to the original use of an Atlantic roundhouse.

Indeed, while debate has continued over the specific interpretations of the scientific analysis of floor deposits, these have largely revolved around the floor accretions of southern timber roundhouses floors and modern experimental roundhouses (Macphail *et al.* 2004, Canti *et al.* 2006, *contra.* Macphail, Cruise *et al.* 2006). Atlantic Iron Age structures represent a very useful body of extremely well-preserved structures that could help resolve some of these debates.

Building use and layout as indicators of Iron Age cosmology: roundhouses, social lives and social practice

The topic of cosmological influences affecting house construction and use has been previously addressed (Fitzpatrick 1995; Giles & Parker Pearson, 1999). It has been suggested that the dominant entrance orientation to the east/south-east; the siting of activities within the house in accordance with the movement of the sun in the sky relative to the open doorway (represented by particular artefactual patterning in floor deposits) and emphasis upon symbolic regions within the house associated with sleeping and waking are an expression of the Iron Age cosmos itself. This approach has been criticised. Pope has argued that the approach is overly reliant on cross-cultural analogies (2007, 204-206), and that some of the aspects purportedly revealed by the approach do not stand up to closer detailed scrutiny. Webley (2007) has pointed out that some of the artefact patterning in English roundhouses does not support the specific ordering as envisaged in the cosmological explanation offered by Fitzpatrick.

Such criticism does not invalidate the idea that Iron Age communities may have constructed, construed and lived by elaborate cosmological schemes, nor, perhaps, that the orientation of the house, arrived at for altogether more mundane reasons, was not incorporated into those schemes. This needs further pursuit as a research theme utilising ethnographical, sociological as well as archaeological and architectural approaches. Regional and local variations of cosmological schemas in the structure and organisation of architectural space (e.g. Foster 1989; Romankiewicz 2011, 53-66, illus 79 and 65) and artefact deposition should also be explored.

The nature of so-called 'floor deposits' is a key issue requiring further research, and the

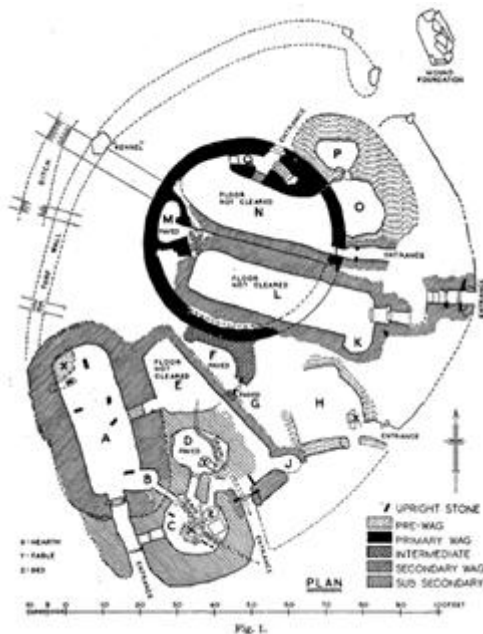


Figure 20: Plan of the Wag of Forse (Curle 1948).

settlements of the Atlantic zone offer an ideal opportunity for this.

- *Study of building use needs to be more of a priority, drawing on a range of evidence; this needs to include integration of field evidence of use, repair, etc; comparison of artefact assemblages and their distribution; the ecofactual record; and an understanding of the taphonomic processes governing this evidence. Such integrated work is rarely carried out.*
- *Cosmological approaches have been influential in recent years, but after recent critique more work is required to demonstrate any patterns in the evidence.*

5.5 Contemporaneity, longevity and permanence of structures

Dating issues often restrict how far archaeology can demonstrate the contemporaneity of buildings within settlements, especially where relative sequences through stratification cannot be demonstrated. A lack of stratification is generally more an issue in plough-truncated lowland sites; this applies equally to buildings within enclosed settlements (e.g. Boonies; Jobey 1974, RCAHMS 1997) as it does to 'open' settlement (e.g. Dalladies; Harding 2004, 99), and restricts reconstruction of settlement form, layout and development. Cropmarks as palimpsests of activity can represent a particular challenge when attempting to reconstruct the distribution of sites and structures at any particular time.

The long-held assumption that houses were occupied for long periods of time as permanent, continuous residences, has been challenged with archaeological evidence from a range of excavated structures (e.g. Halliday 1999; Barber & Crone 2001; Cowley 2003, 2009; Crone 2000; see also 9.3). A position is now being approached where the assumption is of shorter, perhaps generational duration for the occupation of a building unless demonstrable otherwise. This too should be a matter of testing, not assumption, with

assessment (for instance) of evidence for the degree of repair or replacement in buildings a useful proxy of longevity; it is unwise to rely, for instance, on the existence of 'floor layers' (a nebulous concept) or quantities of finds as an indicator of longevity, as it is likely that many houses were kept clean in normal use. It must also be remembered the likelihood of a building going through stages in its life, from freshly made through maintenance to reuse which may bear no relation to its primary purpose (and may generate the bulk of the surviving evidence, if it is turned into a store or dump).

Apparent episodic and seasonal activity has been identified at sites that previously would have been interpreted as permanent and continuous (e.g. Braehead; Ellis 2007). Such evidence is hard to establish in many circumstances but should be in an excavator's mind, rather than assuming permanence.

At some excavated Atlantic settlements (e.g. Dun Mor Vaul, MacKie 1974, 1997; Howe, Ballin Smith 1994; Beirgh, Harding and Gilmour 2000) the evidence does suggest occupation for several centuries, apparently continuously. These issues are fundamental to how the broader distributions of settlement remains are interpreted as representative of stable and sedentary or shifting and mobile communities.



Figure 21: Loch na Beirgh excavation © Simon Gilmour

- *In the cases of both short- and long-term occupation, there is the possibility to test this in good circumstances, through careful excavation and fine-grained dating of the sequence; where circumstances present themselves, this should be seized.*

5.6 Explaining variations

It is now widely recognised that no simple equation can be drawn between monumental structures and social status; there were many roles for and meanings of houses. Although culturally specific, it is of interest that Crone (2000) interpreted the 8m diameter Early Historic house at Buiston crannog as the home of a wealthy farmer, supported by the evidence from early Irish documents. While wary of extending evidence into a pre-Roman Iron Age context, the site illustrates the potential dangers of linking status to size in a simplistic manner. Care is also needed with regard to how dimensions of timber roundhouses have been identified from surviving remains in plough-truncated lowland contexts, because there has been a tendency to underestimate diameters by failing to take into account non-earthfast elements of the structure, such as turf walls (e.g. Harding 2009, 273).

It is widely considered that occupants of monumental houses were displaying identity, prestige and independence (Hingley 1992, 14-17; Armit 1997c, 27), although this remains an assumption based on current models of Iron Age society. Egalitarian vs. elite models for explaining substantial houses are discussed by Hingley (1992, 40-1) as having relevance at different times and different places. In some areas and at some times 'substantial houses' seem to represent the only archaeologically detectable settlement form, as with the Atlantic roundhouses of North Uist and Barra are much discussed (Armit 1997a & b, 2002; Sharples and Parker Pearson 1997). A similar argument has been made for crannogs of the central highlands (Cavers 2006, 399) on the

basis that there is nothing to indicate high-status, with artefacts and ecofacts suggesting a distribution of large disaggregated roundhouses supporting the interpretation that local society did not reflect social relationships through architecture (although see above about problems of identifying the character of buildings on crannogs). Such models assume that the currently known buildings represent the bulk of the Iron Age settlement pattern; the possible existence of 'invisible' buildings, eg turf structures with no foundations, is a major challenge here.

Some have sought to link specific aspects of architecture as evidence of difference, often expressed as status differences, for example:

- **Entrance orientations:** the work by Parker Pearson *et al.* (1996), where differences between broch entrance orientations were linked to status distinctions between the occupants. Much of this has been challenged by Pope (2007), and Romankiewicz (2011, 54-57) although the topic was revisited by MacKie (2010, 104-5 and fig 4) who did find patterning in his sample.
- **Grand entrances / porches:** as elements of display, but Harding (2009) has suggested there were fewer projecting porches than some think, because building sizes have been underestimated by not accounting for non-earthfast wall lines.
- **Quality of construction:** comparing apparently poorly constructed Atlantic roundhouses (e.g at Crosskirk, Caithness; Fairhurst 1984; Ralston 1996, 139) and visibly well built ones (e.g *par excellence* at Mousa, Shetland) – was this quality recognised at the time of construction? Did this matter in terms of the 'status' of the building, and was 'quality' more associated with foreseen duration of use or the nature of indentured labour involved in the construction? Could poorly constructed examples such as Crosskirk be 'imitations' of high hollow-walled

structures? (based upon comment made by E MacKie in response to the ScARF Iron Age workshop).

- **Commissioned construction:** were there professional broch-builders (e.g. MacKie 2010, 96-7) that might indicate the wealth and status of those that commissioned construction? Simple structures at least were probably built by local communities (Armit 2003, 77-78), while Romankiewicz (2011, 200-2) argues for a locally- or regionally-based construction of even the more complex structures.

There are some cases where recurrent differences in the character of artefact assemblages recovered from different types of structure appear to reflect real social differentiation, though the topic has been under-studied. This is most evident when looking at the distribution of exotica, particularly Roman artefacts occurring on non-Roman settlement sites (Macinnes 1984a, Hunter 2001), but trends can also be detected in the distribution of non-Roman artefacts (Heald & Jackson 2001, Hunter *et al.* 2009). However, the taphonomy and circumstances of deposition also need to be taken into account – there may be a wider range of material in some types of structure because material was deliberately deposited as part of recurrent foundation or closure acts (e.g. Hurly Hawkin; Taylor 1982, Hunter 1997, 115-6 & 122).

5.7 Substantial houses

Monumental Iron Age domestic structures termed ‘substantial houses’ (a term coined by Hingley in 1995) are known across Scotland. The category not only relates to dry-stone structures such as broch towers, some demonstrating extreme longevity, but can be applied to very large but inevitably less permanent timber buildings. There is a strong case for suggesting that ‘substantial houses’ are a social outcome that occurs in both dry-stone and organic materials, depending upon local materials availability, and their direct

comparison is certainly worthy of further pursuit (Hingley 1995).

Such ‘substantial houses’ (Hingley 1992) were a conspicuous feature across Scotland in the Early Iron Age irrespective of architectural detail, and continued to be common in Atlantic Scotland in the Middle Iron Age (complex Atlantic roundhouses, broch towers, wheelhouses). However, elsewhere in Scotland such substantial houses appear to become less frequent, though some do occur in the early first millennium AD (e.g. the ‘southern brochs’ (Macinnes 1984), Culhawk Hill (Rees 1998), big timber houses in the South-west, e.g. Rispain Camp (Haggarty and Haggarty 1983), and large ring-ditch houses in the Moray Firth area (e.g. Birnie and Culduthel; Hunter 2002, Murray 2007).

- *Are substantial houses individual domestic units or do they reflect the incorporation of multiple activities or groups of people under one roof – latterly disaggregated into separate structures (e.g. the Atlantic Roundhouses vs. cellular settlements of the Atlantic north and west or substantial timber roundhouses vs. scooped settlements in south-east Scotland).*
- *There is a need for and importance of locally-based models of the evidence for and context of substantial houses.*
- *Broad comparison of the different manifestations of substantial houses could offer many useful insights, especially in assessing how similar or different their social roles were.*

5.8 The transmission of architectural ideas over space and time

The development of the complex drystone architecture of the Atlantic has seen extensive discussion (see 5.9). The role of maritime links is of prime and indisputable importance here, enabling the transmission of knowledge and architectural preferences within social

contexts that remain uncertain. This whole area remains one of active debate.

The adoption of exotic architecture has often been seen as an indication of construction and use by high-status occupants. The so-called 'southern brochs' are an excellent example of this – Macinnes' model of a network of high-status sites with occupants controlling a prestige goods economy associated with the redistribution of Roman goods is still widely accepted (Macinnes 1984a). More could be done on the background to this phenomenon – there are other stone houses in the southern Scottish Iron Age, often termed duns (e.g. Stanhope (Peeblesshire), Castlehaven (Kirkcudbrightshire), Castlehill Wood (Stirlingshire); RCAHMS 1967, 157-8; Barbour 1907; RCAHMS 1963, 81). How do these fit into the model of exotic influence? And how many more such brochs can be anticipated? The Buchlyvie broch was an unprepossessing mound before excavation (Main 1998), while the recently-discovered broch at Castle Craig, Auchterarder gave no hint of any surface presence (DES 2011, 144-5). Are all southern brochs similar, or should the Galloway ones be seen as an integral part of the Atlantic world, rather than an introduced innovation (Henderson 2007a, 165-66; Cavers 2008, 16-17)? And do they all date to the Roman Iron Age? The lack of Roman finds from some extensively-excavated examples (e.g. Edinshall; Dunwell 1999) raises questions over the suggested tight, Roman Iron Age chronology.



Figure 22: Edins Hall, Scottish Borders © RCAHMS

Other architectural styles or concepts are widespread in space and time. Souterrains vary in date from the Late Bronze Age/Early Iron Age in the Northern Isles to the Roman Iron Age south of the Forth, with a presumed flourish in the last centuries BC and first two centuries AD (Armit 1999; Miket 2002). There are differences in construction and dating across the areas of occurrence, but similarities in conception, situation and material assemblages imply links in terms of their function and behaviour. Composite ritual and storage functions (Henderson 2007a, 142-7) have been argued although such a composite functional interpretation may not be sustainable for all areas (see Dunwell & Ralston 2008 on Angus souterrains versus Carruthers on Orcadian examples).



Figure 23: Whitslade roundhouse and souterrain, Scottish Borders ©RCAHMS

Ring-ditch houses may be a further example of longevity accompanied by gradual transfer over territory. They appear to be present for up to a millennium north of the Tay before they are documented south of the Forth, (although there is the possibility of a visibility or research bias here, and the nature of the ring-ditch and its formation remains a key question; see theme 4.2). A parallel issue is the re-use or re-invention of crannogs across much of the first millennia BC and AD (and into the medieval period).

It is also clear that the movement of these different building traditions was accompanied by the independent growth of local 'sub-styles' wherever they passed. There are good examples of local distinctiveness within these architectural 'streams'. For example, wheelhouses in Shetland can be argued to be distinct in design from those in the Western Isles (Harding 2009, 112-4). In turn both areas are quite distinct from Orkney, where classic wheelhouses are absent, but where there are buildings with radial partitions (e.g. at Howmae), suggesting that wheelhouse traits did penetrate the archipelago and so the total distinction drawn may be overemphasised (Harding 2006, 74; Henderson 2007a, 160). At Scatness in Shetland wheelhouse use extends into the second half of 1st millennium AD,

albeit with significant structural differences to earlier forms (Dockrill 2003, Dockrill *et al.* 2010).

Complex Atlantic roundhouses on Barra and North Uist are also considered distinct from their counterparts on South Uist (Armit 1997 a & b, 2002; Sharples and Parker Pearson 1997). These arguably represent local variations (perhaps autonomous or hierarchical) among the societies of the Western Isles that adopted Atlantic roundhouse architecture. The Atlantic roundhouse need not have resulted from a homogenous cultural background or social structure (Romankiewicz 2011).

- *The mechanisms behind the spread of these phenomena remain hotly debated.*
- *Are the Galloway brochs late 'bastard forms' (Cowley 2000, 174) or part of the Atlantic mainstream (Henderson 2007a, 165-66; Cavers 2008, 16-17)?*
- *How do lowland brochs fit into their settlement landscapes, especially in relation to other stone architecture?*

5.9 Atlantic stone-built roundhouses: sequence, subdivision and interpretations

The broch has long been a dominant feature in the study of the Scottish Iron Age, and its classification and development has excited much debate (for historiography, see MacKie 2002, 27-44; Romankiewicz 2011, 15-21).

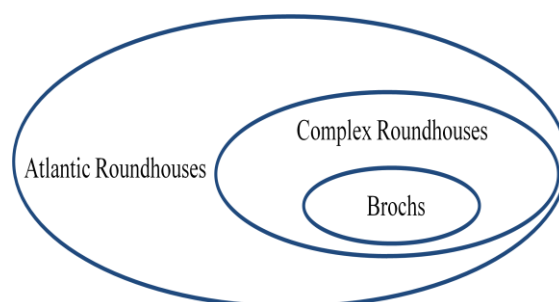


Figure 24: Armit's sub-division of Atlantic roundhouses from Turner *et al.* 2005

Armit's terminology of *Simple and Complex Atlantic Roundhouses* (Armit 1991, revisited in Armit 2005b) is an attempt to rationalise into a related typological sequence the numerous sites known mainly from non-intrusive survey of settlement mounds that reveals only limited architectural detail. This also aimed to bridge the regional gap between things called brochs in the north and things called duns in the west, the terminological difference hiding many clear similarities (here Harding's (1984, 218-219) split of duns into those which could be roofed (dun-houses, less than c.15m) and those which could not is very useful).

The Northern Isles are considered a likely candidate for early development by most researchers (e.g. Armit 2003). Some regions (notably Orkney) appear to show a typologically clear developmental sequence from fairly simple, though sometimes substantial, roundhouses (e.g. Early Iron Age structures at Bu, Quanterness, Calf of Eday, Pierowall Quarry, Howe), through increasing architectural complexity (including intramural chambers & galleries, upper staircases, inner wall-face voids, scarcement ledges) to broch towers. Howe, in particular, shows a clear sequence of increasing architectural complexity and scale over a prolonged period of time from the Early Iron Age through the Middle Iron Age (Ballin Smith 1994; cf MacKie 1998), although there are problems with comparing poorly preserved wall foundations of earlier truncated roundhouses with later, better-preserved structures on the site. The Western Isles lacks clear parallels for the simpler Early Iron Age roundhouses that are found in the Northern Isles, and whether or not this is a genuine absence requires more work. For those seeking a western origin for this complex architecture, parallels can instead be drawn to other architectural types (block-houses, galleried duns and semi-brochs; e.g. MacKie 1992, 2002, 2008). Early dates from Old Scatness, Shetland have reinvigorated the debate (Dockrill *et al.* 2006; MacKie 2010), which takes the absolute dating of 'true brochs' (showing complex

drystone architecture) back to the third or fourth centuries BC (Dockrill *et al.* 2006). This places a lot of evidential value on the dating of a single site, and there remains a need for broader pictures of the development of a series of sites to give a better view.

The diffusionist paradigm utilising architectural and artefactual typologies has been, and continues to be, very influential in Atlantic Iron Age studies. Further reassessment of, and sustained innovative studies of, material culture are required in order to assess and where necessary update the assumptions that have been inherited from previous work (see *Atlantic Architecture & Portable material culture* section below). Connectivities within the Atlantic zone have been stressed in recent synthetic reviews (Cunliffe 2001; Henderson 2007a), and the mechanisms and meanings of this deserve further work.

In recent years there has been a move away from detailed analysis and debate concerning architectural detail and consequential definition of broch status (but see Armit 1997 a & b, Sharples & Parker Pearson 1997) This move has, for better or for worse, been in favour of attempting to address more intimate scales of human activity and practice, seeking to define the functionality of brochs; often post-structuralist, post-processual approaches have been adopted, highlighting social and symbolic factors.

In order to understand the experiences of occupants and visitors to Atlantic roundhouses, and the capacities that the people and the buildings had to exert influence and power over social relations, near and far, it is necessary to examine and understand the detail of architecture. The perennial question as to how high a particular building was is essential to any appreciation of its setting and impressiveness in the landscape. An appreciation of the three-dimensional space available within such

buildings is also key, and not readily grasped from small-scale plans.

- *The development of the complex architecture of Atlantic Scotland remains an active area of debate; new approaches to existing data provide new perspectives (e.g. Romankiewicz 2009, 2011), but the impact of the dating evidence of Scatness stresses the prime need for more, reliably dated sequences.*
- *The investigation of the social motives behind the construction of such massive structures has seen important work in recent decades, but remains a key area of debate.*

Chronology, temporality and biography

As with the dating of other aspects of the Iron Age (see 9.3) the issue of the 'plateaux' on the radiocarbon curve that reduces all dates within a wide bracket to a common blandness has presented problems. AMS coupled with Bayesian analysis are beginning to resolve these, and a range of other scientific dating techniques are becoming more widely applied, such as OSL dating and archaeomagnetism, although they are far from routine.

Hingley (2005) has suggested that substantial roundhouses created and marked a particular temporality, or sense of time amongst past communities. Duration and endurance as a mark and 'qualification' for status are also factors: a remarkable social change may be implied by the adoption of 'permanent' dwellings that were designed to outlive by far their builders (Sharples 2006) - although the idea of very long duration has been challenged (Cowley 2003). Sharples suggests the adoption of 'permanent' dwellings is a response to environmental degradation - an idea that requires demonstration. A closer reading of the fine resolution (including soil micromorphology) of floor deposits and occupational layers in tandem with more precise absolute dating may help to resolve

the question of continuity or discontinuity of occupation.

The potential long endurance of buildings raises issues of lineage and inheritance (Armit 2005a) and the life-cycles of buildings have been emphasised as important aspects of their social use (Sharples 2005). The end of substantial circular buildings and the development of the generally smaller structures that succeed monumental Atlantic roundhouses have been charted (see Gilmour 2000 for the West, Hedges 1990 and Smith 1990 for the North). Exactly when and why this occurs remains a very important topic for investigation. Changes in social organisation are presumed to be the likely cause, but this requires demonstration (see 5.4 above).

- *The important recent work on issues such as building longevity and inheritance has opened up new areas to consider, and emphasised that there are still many fresh perspectives to consider with this well-known group of material.*

Use, Activity and Deposition

It is frequently assumed that Atlantic roundhouses indeed functioned as 'houses for living in' with little reference to evidence for activities that took place within them. One rich resource for interpretation is the series of soft deposits that the hard shells of Atlantic architectural spaces protect and preserve, although Armit (2006) is admirably realistic about the complex series of processes that will have lasted centuries and served to complicate and truncate the floors and floor-deposits as well as confusing any single, coherent and contemporary pattern of activity and deposition (see more generally 5.2 above). At Scalloway (Sharples 1998) it was argued that sudden conflagration and collapse of the organic roof led to the preservation of floor deposits frozen at a particular point in the annual cycle of activities and tasks undertaken inside. It was inferred from the evidence that overwintering animals were accommodated on the ground

floor while humans domiciled in upper storeys. A similar conflagration was argued for the remains at Bharabhat, Lewis (Church 2002). Dockrill (2002) has suggested that broch towers provided a major role in the management of the local economy as centres for the redistribution of cereals.

How the generality of Atlantic roundhouses were actually used, however, remains an important research question, including whether there is a wider range of functions than the simply domestic. It is inherently unlikely that they all functioned in a similar way and provided a recognised and stable role in terms of the agricultural cycle of tasks and processes and the social continuum of changing status and activity. Research is required as to whether any standard patterns of activity can be established and whether, if this proves to be the case, these vary locally or by region.

- *As noted earlier, interpretations of building use should be more integrated, with excavated evidence, artefactual, ecofactual and other scientific techniques being drawn together.*

Atlantic Landscapes and Housescapes

The landscapes of the Atlantic Iron Age have long been part of archaeologists' thinking; however, landscape was an implicitly assumed background to the narrower focus of study of sites and artefactual typologies. Fojut (1982, 2005a) pursued the theoretical dimensions of broch landscapes within the socio-economic sphere. A territorial model in which brochs sat within an agriculturally viable unit of land (including the coast) was developed. Dockrill and Bond (2009) have explored the relations between people and the landscape, through investigating the production and curation of soils by inhabitants of Atlantic Iron Age houses in a model emphasising the ecological marginality of Atlantic Scotland. Similar relationships between people and resources have been explored in the Western Isles (Cerón-Carrasco *et al.* 2005). The relationship

of substantial roundhouses to other contemporary buildings should also be considered. In Orkney and Caithness fairly extensive extramural complexes of buildings exist around a central 'broch-tower' (Howe phase 5 & 6); this can be misleading, as some are later accretions (e.g. most of the village at Gurness; MacKie 1994), but this is a settlement trajectory not taken in the Western Isles.

The landscape dimension needs to be addressed more explicitly. In many areas of Atlantic Scotland, although there is a lot of detailed information about monumental roundhouses and their economic and environmental relationships within landscapes, there is still a need to do more work on the political, social and symbolic aspects that almost certainly existed in the relations of Atlantic roundhouses with the landscape, other Atlantic roundhouses, and "non-Atlantic roundhouse" sites (Sharples & Parker Pearson 1997). While the extremely high density of Atlantic roundhouses/brochs in some landscapes (e.g. Rousay and Evie, Orkney; the Glenelg brochs, Highlands; the Keiss brochs, Caithness) may represent the sequential foundation of brochs over time, it may also have implications for the establishment of inheritance, lineage and generational development. Research into these dense clusterings of dramatic monuments would be very useful in investigating the complexity of inter-site relationships, successional or not, in the Atlantic Iron Age.

Why Atlantic roundhouses/brochs in the Western Isles, and the Northern Isles and Caithness respectively, have such a different relationship with non-broch forms in each area could be further explored. Parker Pearson has suggested that the nature of working the land in agricultural terms in each region was quite fundamentally different (Parker Pearson 2004) but does this environmentally /ecologically determinist approach represent the full story? Why does

Orkney appear not to have typical wheelhouse structures?

- *There is a need to do more work on political, social and symbolic aspects of the relations of Atlantic roundhouses with the landscape, other Atlantic roundhouses, and other settlement forms.*
- *Research into areas with dense clusterings of brochs would be very useful in investigating the complexity of inter-site relationships, successional or not.*

Atlantic Architecture & Portable Material Culture

In parts of Atlantic Scotland portable material culture is quantitatively very rich and diverse. Mackie (2008) has raised issues of the neglect of artefacts in recent syntheses (although aspects have been addressed, eg Topping 1987; Hallén 1994; Harding 2000a, 17-27; Heald 2001; Smith 2002). This material is still often dealt with in excavation reports as a series of parallels and provenances with unusual or exotic material picked out for most discussion. The 'mundane' bulk of objects need to be examined for the information they can yield. This material should be approached in an integrated fashion, placing it centrally to the interpretation of structural sequence and the lives, strategies, and identities of the Iron Age inhabitants. As Smith (2002) has pointed out even some fairly basic questions surrounding Atlantic portable material culture are unanswered and require sustained programmes of research (e.g. the fundamentals of dating and function).

In order to establish a more sophisticated and useful analysis of portable material culture in general, studies of Atlantic Scottish artefacts need to be encouraged. In particular new approaches to synthesising and integrating portable and architectural material culture have to be developed and made widely available. A start has been made to this process (e.g. Sharples (1998) at Scalloway,

Shetland), although this shows its experimental nature as it makes the report very hard to use. The idea, of integrating specialist reports, is sound, and needs to be developed with further innovation, while continuing to present the basic information in a way that others can re-interrogate.

It has been suggested that the Middle Iron Age investment in impressive monumental architecture represents an emphasis upon corporate/communal (though not necessarily non-hierarchical) identities in contradistinction to the succeeding Late Iron Age period with its increased emphasis upon personal adornment, a clear formal tradition of individual burial and the construction of much more modest architectural spaces (e.g. Sharples 1998, 2003). However, there is a range of small items of portable material culture (brooches, pins, glass beads, bangles, finger and toe rings, combs etc) from the earlier period that together may represent the marking-out of individual persons and bodies (Hunter 2007b, 289-90). In addition, Roman portable material culture in Middle Iron Age contexts in Atlantic Scotland may also have served partly to fulfil this expression of personal identity.

- *Many aspects of Atlantic material culture merit fresh synthesis (see also theme 4.4) – little apart from pottery has seen detailed study, and pottery itself still has much to yield.*
- *Approaches to publication need to develop the ideas behind reports such as Scalloway, but not neglect the need for presentation of the material in a way others can use for different ends.*

5.10 Non-circular architecture

The Iron Age is not simply a time of roundhouses in various forms. Rectangular structures of four or more posts are often found on cropmark sites, and interpreted as granaries on no strong evidence; one could

equally construct a roundhouse from a four-post structure. The nature of these structures remains a major concern e.g. Dunwell 2007, 61-62).

There is a variation in circularity, with a number of structures notably oval, while some structures in the Atlantic zone have been seen as D-shaped ‘semi-brochs’, a concept supported strongly by MacKie (e.g. 1991; 2008, 267, 274-5), but rejected by others, who seek to explain these as eroded and collapsed roundhouses (Harding 1984).

The Atlantic Late Iron Age appears to show increasingly diverse range of structural forms. These are predominantly cellular forms, but there are also a small but significant proportion of rectilinear structures like the wags (stalled buildings) and similar structures (Baines 1999, Cowley 1999), some Argyll duns, and buildings external to earlier brochs, e.g. at Dun Vulcan (Parker Pearson *et al.* 1999; Gilmour 2002, 2005). Questions over the function of many of these buildings are yet to be satisfactorily resolved. There is also some continuing use of circular forms (e.g. late wheelhouses at Scatness, Dockrill *et al.* 2010 and forthcoming). But how significant is the difference? Should wags be seen as aisled roundhouses transformed into rectangular form (Harding 2009, 276)?

Beyond the Atlantic zone, the evidence of buildings in the first millennium AD is minimal after c. AD200, and has even been suggested to represent ‘tableaux of desertion’ (Hill 1982b, 10). There is some evidence of rectilinear forms emerging (Pitcarmick type houses, Anglian halls). Cellular forms also occur (e.g. Ardestie; Harding 2004, 240-2), and the continuation of round and oval forms is in evidence (e.g. Buiston, Crone 2000; Easter Kinnear, Driscoll 1997 and the circular ‘homesteads’ of Perthshire (Taylor 1990) although their dating may be earlier than he argued, cf Hingley *et al.* 1997). This reduction in evidence may also reflect a change to non-earthfast building techniques. Whatever the

cause of this apparently sharp diminution of structural settlement evidence, it means that obtaining a coherent idea of the range of settlement forms and the social structure that lay behind them, is going to be profoundly challenging.

Recent work in East Lothian has suggested that here the development of non-roundhouse buildings was underway in the 2nd-1st century BC at the site of Phantassie (Lelong 2008b). This site also serves as a useful reminder of survey bias, as it was unrecorded prior to invasive fieldwork, and the cellular structures had no earthfast foundations. At Phantassie they survived because they used stone – but similar buildings of turf would leave no trace, and such ‘invisible’ architecture poses a serious challenge (Loveday 2006). For those who want a more hierarchical Iron Age, the landless peasantry may have lived in exactly such hypothetical turf or timber houses which would be a struggle to recognise today.

- *What forces led to the move away from roundhouse architecture in different parts of the country? The contexts, chronology and significance of the introduction of rectilinear forms of architecture in various parts of Scotland during the first millennium AD require a major input of future research and synthesis.*
- *What roles were played by buildings such as wags, souterrains, four-posters, and the irregular-shaped buildings found outside some brochs?*

5.11 The Role of reconstructions and replicas

The definition of reconstruction in architecture is defined by British Standard BS 7913: “re-establishment of what occurred or what existed in the past, on the basis of documentary or physical evidence.” (BS 7913, 3). Furthermore, this definition acknowledges that the accuracy of the reconstruction

depends on the strength of the evidence. Where evidence is poorly preserved, the reconstruction will remain largely hypothetical. The BS statement emphasises the research aspect within the process of reconstruction. The result of the reconstruction process is not a rebuilt structure, but an academic hypothesis concerning the original appearance of the building. This hypothesis can form the basis for physical rebuilding or restoration. Rebuilding is defined as “remaking a building or part of a building or artefact which has been irretrievably damaged or destroyed” (ibid). This has to be “on the basis of a recorded or reconstructed design” (ibid). Restoration in contrast is concerned with the alteration of a building with the objective to “make it conform again to its design or appearance at a previous date” (ibid). Again, it is emphasised that the “accuracy of any restoration depends on the extent to which the original design or appearance at a previous date is known, or can be established by research” (ibid).

The last ten years have seen extensive studies of the architecture of the three main types of Iron Age houses that dominate the settlement record (Pope 2003 for timber roundhouses; Armit 2006 for wheelhouses; MacKie 2002, 2007 and Romankiewicz 2011 for complex Atlantic roundhouses). Architecture is used here in its widest meaning as concerned with the design, the construction and structural system, the construction process, and the use of spaces, as well as their maintenance, repair, collapse and decay. The narrative and graphical ideas advanced in these academic works have not yet been tested by any attempt at physical reconstruction. Reconstructing houses raises questions regarding the processes of planning and erecting these structures. The requirements for building materials and a skilled workforce for construction and maintenance need to be understood and the impact of technical matters such as heating, lighting and drainage require testing. While a recent study of

complex Atlantic roundhouses was primarily concerned with the architectural understanding of these buildings (Romankiewicz 2011), other analyses also looked beyond purely functional aspects and reconstructed the use of space, depositional patterns and abandonment processes (e.g. Foster 1989, Armit 2006, Campbell 2002); aspects that should be similarly considered when reconstructing Iron Age houses.

Such analytical results will always be limited by the variable preservation of these houses. Stone robbing and collapse have reduced the walls; any organic building components have generally decayed, perhaps even without trace. Although it will never be possible to gain a complete picture of an Iron Age house through archaeological evidence alone, the record is often sufficient to allow speculation about the nature and dimension of the lost building parts, the available materials and the use of space. Related disciplines can help to enhance the level of detail for such reconstructions, their plausibility or to help find analogies. Architectural analysis of spatial use and structural systems and the discipline of structural engineering in particular, have proved to offer useful tools to develop reconstructions, graphically as well as physical (available through doctoral research undertaken at University of Edinburgh by Ian Thew and Alasdair Sutherland; Romankiewicz 2011). Scotland’s vernacular buildings, as recorded from the 1750s onwards, hold information about the architectural detail and material required to build physical reconstructions, offering analogies for buildings constructed in essentially the same environment with the materials that the same environment has to offer (compare Trigger 1978, 170; Romankiewicz 2011, 131).

The recent archaeological and architectural analyses have also demonstrated the very regional character of Iron Age roundhouse architecture within Scotland. It is therefore important to acknowledge these regional differences in any reconstruction. Similar

regional traditions are identified in the vernacular record, thus regional variants for the missing building elements can be developed. Such “*interpretative Rekonstruktionen*” (Luley 1992, 60), suggesting regional variation, allow for more diversity than most general reconstructions have previously achieved. The more varied reconstructions and alternatives which are presented, the clearer it will become that a single reconstruction cannot explain sufficiently the variety in the architectural record of Iron Age roundhouses. It is therefore necessary to emphasise and

communicate this singularity through the medium chosen for visualisation. A hand-drawn sketch is easily recognised as an hypothesis, whereas computer-aided three-dimensional animations and built reconstructions are progressively more readily accepted as presenting a *de facto* Iron Age building. This problem can be overcome by presenting alternatives in order to demonstrate the hypothetical nature of the reconstructions and to encourage engagement with different readings of the evidence.



Figure 25: Dryden's watercolour of Dun Troddan © RCAHMS.

The frequent lack of alternative reconstructions has been criticised before (Drury 1982, 1). Where parts of buildings have been lost, there cannot be one single reconstruction. The production of alternative reconstructions also acknowledges the variation in the surviving structural records. Reconstructing in alternatives is to reflect the individuality of the original structures and the individuals that built them. It is important – whenever possible – to avoid generalisation and to base reconstructions on particular (and acknowledged) rather than generalised evidence.

Reconstructing by analogy is perfectly permissible, but the analogies should avoid

blurring together different structural details. Developing only one solution and expecting that this can explain the diverging evidence between various roundhouses can always be disproved by an individual instance of evidence for which the single solution is unsuitable. Individual, site-specific evidence should not be ignored or compromised in the attempt to present a generally applicable picture. In the light of the variable evidence, the ‘evocation of an archetypal Iron Age roundhouse’ has to be avoided.

Although reconstructions depend on analytical results, practical experience and experiment, they are also a reflection of the theoretical standpoint of the ‘reconstructor’. As different definitions and theories of

reconstructions are discussed academically (Reynolds 1979; 1982; 1993; Stone & Planel 1999), it is necessary that every new reconstruction is explicit as to the theoretical stance of its originator/s, their knowledge, skills and experience and their understanding of the prehistoric circumstances, but also their own cultural background. Reconstructions will always be inherently affected by the reconstructor's attitude and philosophical position.

Scientific archaeological reconstructions or replicas² of excavated Iron Age structures are essentially experiments to test hypotheses about the patterning of archaeological remains, and how structures might have been constructed and might have looked (Harding 2009, Townend 2007). They are simulations based upon interpretation, not recreations, and can address only a limited range of questions about past ways of living, since the original social conditions cannot, of course, be replicated (Harding 2009).

There have been criticisms (Townend 2007) that Iron Age timber roundhouse reconstructions (which have been the Iron Age structural form in Britain most frequently attempted) have focused upon the technological and engineering aspects of construction as opposed to the process, methods and symbolic dimensions of building, and that reconstructed roundhouses tend to look the same as they are based upon the 'hyper-rational myth' of 'simple and effective' cone-on-cylinder engineering developed by Reynolds at Butser Farm, Hants. (Reynolds 1979; Harding *et al.* 1993; but see Harding 2009, 217 for a rebuttal of Townend).

Several reconstructions have been made of Scottish Iron Age structural forms, including the structure excavated at Monymusk, Aberdeenshire believed by the excavators (Greig 1996) to have been a timber roundhouse and reconstructed at the now

closed Archaeolink Prehistory Park. A crannog on a piled foundation at the Scottish Crannog Centre, Kenmore (Dixon 1994, 2004), has not gone without challenge, (e.g. Cavers 2006, 399), while elements of complex Atlantic roundhouses have been specifically used to assess structural features. A Late Iron Age 'ventral' house was built following excavations at Bostadh, Isle of Lewis (Neighbour & Crawford 2001), and the experimental building of a wheelhouse and a corbelled cell, based upon structures excavated at Scatness, Shetland, was undertaken by the Shetland Amenity Trust (Dockrill *et al.* 2010, 72-74; see also Malcolmson *et al.* 2004). The majority of these endeavours were intended for public display or involved community engagement in their execution, and thus have had to take cognisance of public access and currently legally sanctioned health and safety issues. Attempts have also been made to recreate the process of vitrification in timber-laced walls (Childe & Thorneycroft 1938; Ralston 1986), albeit with only partial success, while engineering model reconstructions of brochs have been attempted by researchers within the University of Edinburgh Architecture Department. Very little of this work has seen detailed publication.

The range of reconstructed Iron Age structural forms in Scotland has been limited, and there are some further types that could be usefully reconstructed as controlled experiments, in some cases building upon existing proposals represented graphically, for example:

- *a two-storey timber roundhouse as proposed in relation to ring-ditch houses – Reynolds 1982; Kendrick 1995, of which there has been no reconstructed example in Britain;*
- *a timber-lined souterrain (e.g. Redcastle, Angus; Alexander 2005 and suggested reconstruction in Dunwell & Ralston 2008, 125, fig. 44);*

² Focussing upon physical, not graphical, reconstruction

- *There is also the potential to examine certain ill-understood architectural components of generally better preserved Iron Age drystone structures, where the case for total reconstruction is arguably less compelling – e.g. some of the architectural aspects of brochs (Romankiewicz 2011), and the postulated ‘partial corbelling’ of certain Late Iron Age structures in the Atlantic west (Gilmour 2000).*

There is also value in attempting to use experimentation to look for the archaeological correlates of non-earthfast house construction. This could help to identify and

understand possible vestigial archaeological remains of such settlements.

It is recommended that future projects are designed to be of sufficient longevity as to allow for observation of construction, use (including maintaining an internal fire), repair, decay, removal, and ‘archaeological’ excavation (e.g. Butser, Harding et al. 1993; Experimental Earthwork Project, Bell et al. 1996). None of the reconstructions attempted to date have attained such longevity.

There is also a need for academic publication of current and future reconstruction and replica projects, identifying the aims, methods, limitations, experiences and outcomes (e.g. Ralston 1986; Harding et al. 1993).

Roof Reconstructions

Unwin’s reconstructions of alternative roofs and roofing materials for timber roundhouses at Lairg are a rare exception to current practice. The scholarly reconstructions suggest different roof pitches, materials and thatching techniques, adjusted to different environmental conditions and site locations (Holden 1998, 10). Fojut’s discussion of roof reconstructions also stands out for considering alternative solutions. These are, however, based on typical rather than site-specific dimensions (Fojut 2005b). The work undertaken at Lejre, Denmark (Rasmussen 2007) could be an inspiration on how to built, study, demolish and excavate Iron house reconstructions in order to enhance an understanding of the processes involved.

5.12 Research recommendations

- *What factors lie behind variation in house size and construction? Can clearer patterns in space and time be discerned?*
- *The nature of so-called ‘floor deposits’ is a key issue requiring further research, and the settlements of the Atlantic zone offer an ideal opportunity for this.*
- *Integrated study of building use needs to be more of a priority, drawing on a range of evidence; this needs to include integration of field evidence of use, repair, etc; comparison of artefact assemblages and their distribution; the ecofactual record; and an understanding of the taphonomic processes governing this evidence. Such integrated work is rarely carried out.*
- *Questions of detailed chronology of buildings can and should be tested where circumstances allow a fine-grained chronology to be constructed.*

- *Issues concerning raw materials and resource availability (particularly timber and stone) require further exploration, in both chronological and cultural terms, including comparisons between Atlantic and non-Atlantic traditions, but also more nuanced regional comparisons.*
- *Burnt-down houses represent a particularly valuable resource which needs to be seized with careful work in the field and in the lab.*
- *How do lowland brochs fit into their settlement landscapes, especially in relation to other stone architecture?*
- *The development of the complex architecture of Atlantic Scotland remains an active area of debate; new approaches to existing data provide new perspectives, but the impact of the dating evidence of Scatness stresses the prime need for more, reliably dated sequences.*
- *There is a need to do more work on political, social and symbolic aspects of the construction of Atlantic roundhouses and their relations with the landscape, other Atlantic roundhouses, and other settlement forms.*
- *Many aspects of Atlantic material culture merit fresh synthesis (see also theme 4.4) – little apart from pottery has seen detailed study, and pottery itself still has much to yield.*
- *What forces led to the move away from roundhouse architecture in different parts of the country? The contexts, chronology and significance of the introduction of rectilinear forms of architecture in various parts of Scotland during the first millennium AD require a major input of future research and synthesis.*
- *There is a need for academic publication of current and future reconstruction and replica projects, identifying the aims, methods, limitations, experiences and outcomes.*

6. Enclosed Places

6.1 Introduction

Moving beyond the houses of Theme 5 takes the discussion to settlements and settlement patterns. Settlements of different sizes (homesteads, hamlets, villages; Harding 2004) were occupied throughout the Iron Age in most parts of Scotland. Social distinctions between these are a matter of speculation (Harding 2004, 68) and are still far from being satisfactorily determined (*ibid*, 246). All of these settlements could be seen as steps on a continuum.

The record is mostly one of dispersed settlement, with hillforts variously interpreted, for instance as places of assembly for dispersed communities, or regional or wider-scale centres of organisation. The Early Iron Age is generally regarded, on the basis of fairly exiguous evidence, as less hierarchically organised than the Middle Iron Age or Late Iron Age, without demonstrated 'central places' and with social distinctions signified in domestic architecture and to a lesser extent by acts of enclosure (Ralston & Ashmore 2007, 230). There is often an implicit desire to find hierarchy between settlements, reflecting models of hierarchical 'Celtic' society, but a cold look at the evidence allows other models to be explored.

This section will start with issues of settlement form, layout and location. Settlement patterns are then considered, before an extended treatment on enclosed places, which has long been a dominant theme in Iron Age studies.

6.2 Setting or context of buildings: settlement form, layout and location

Generally there are no marked variations in the size or complexity of buildings to suggest social differentiation either within or between settlements, nor even between different

types of site such as open settlements, enclosed settlements and hillforts (e.g. Harding 2004, 180-3 and Lelong 2008, 250 on southern Scotland), although there are some exceptions (Harding 2004, 180-3 on Edgerston, Scottish Borders). There are instances where enclosure was used to subdivide spaces within settlements, which have been interpreted as evidence for social distinctions – for example Edin's Hall broch, Berwickshire (Dunwell 1999 although see MacKie 2007, 1324 for discussion that this structure is not a broch) and Enclosure 1 at Port Seton East, East Lothian (Haselgrove & McCullagh 2000). However, it seems that for the vast majority of demonstrably Iron Age settlement there is no visible or apparent use of enclosure to define hierarchies of space within settlements. The planned or organised layout of buildings indicates some kind of control of movement or communication within the settlement (Harding 2009, 54), but again, detectable evidence of planning is quite rare. Examples, however, do include a number of enclosed settlements - e.g. Hayhope Knowe (Piggot 1949), while the 'broch villages' of Orkney and Caithness, are often argued to embody social distinction. These settlements have been interpreted as representing elite residences with their dependents (or kinship groups) clustered around the central structure (Foster 1989; Dockrill *et al.* 2006; Armit 2003, 97-8; 2006, 254); they are frequently interpreted as the material expressions of dominance and subservience and the centralization of power (Armit 2002). If accepted, this sort of arrangement appears exceptional in Iron Age Scotland (and indeed more widely), but relies on an interpretation of the towers and surrounding houses as being contemporary. This is far from certain and other researchers contend that the villages were built after the towers had been substantially demolished (MacKie 1995; 1998, 22-3). Any such hierarchical arrangement would thus post-date the phase of broch construction. Evidence from early excavations is not especially reliable, and more recent excavations provide a firmer guide: at Howe,

the second-phase broch was surrounded by a planned settlement (Ballin Smith 1994; Mackie 1998, 23-4).



Figure 26: Aerial image of Gurness, Orkney, © RCAHMS

Site sequence is key here, but often poorly understood – especially as the use of buildings could vary over their lives, and sufficient dating evidence has rarely been obtained to disentangle this (see 5.1). The work at Kintore, where large-scale excavations and an extensive dating programme allowed a view of long-term settlement development shows what needs to be done (Cook & Dunbar 2008). Here the Scottish evidence sits a long way behind work in southern Britain, where (for instance) large-scale work on the Thames gravels over 20 years ago illustrated such patterns of changing settlement (e.g. Lambrick 2009 for a recent summary).

Location as a marker of difference

The location or setting of a building or settlement has also been interpreted as evidence of status or social difference, but this does depend on an understanding of contemporary concepts of landscape. The most common example is a situation on prominent locations, notably hilltops, as in hillforts but also occasional isolated houses (e.g. Culhawk Hill ring-ditch house, Rees 1998). Most sit within agricultural landscapes, and can be seen as overlooking or embedded in these resources, but others seem to be located for visibility over larger areas or in

highly isolated positions (such as some promontory forts), separated from good agricultural land. Understanding of the possible meanings behind site positioning requires not only evidence for the use of the specific settlement, but its relation to neighbours and the nature and meaning of the landscape in which it sits. GIS-based studies offer ways to understand the setting, but need to be interrogated along with information on landscape character and models of landscape meaning.

A similar question of the cultural value of landscape arises with many Atlantic roundhouses. The repeated reuse and longevity of such sites created a sense of place, forging and reinforcing a group's identity. Some connect this to status (Harding 2004, 292-3; 2009, 288), but Dockrill 2002 has invoked manured infields as an explanation for the phenomenon in Shetland, this rich agricultural resource encouraging groups to stay close to it and maintain it. It connects also to issues of inheritance (Armit 2005a; see 5.4).

Positioning of sites in relation to features of the earlier landscape has not seen extensive treatment, but Hingley (1996) has noted clear examples in the Atlantic zone of the active reuse of earlier monuments for Iron Age houses, suggesting the manipulation of memory and concepts of ancestry. This is an area meriting more research.

Access to / control of scarce resources

Access to agricultural resources was key for most sites, but some show evidence of differential or more centralised control. An example is the earthwork system associated with Castle O'er hillfort, Dumfries and Galloway, suggested, by virtue of gate systems and design, to be connected to the control of livestock (Mercer, forthcoming), and the site was therefore interpreted as a locally pre-eminent place within a settlement hierarchy (RCAHMS 1997). Access to and control of intensively managed agricultural

land and/or the production of agricultural surplus have also been linked to status, for example in the case of Shetland brochs (Dockrill 2002; see above). Souterrains have been interpreted as storage chambers that are expressions variously of individual wealth, communal storage and redistribution, amongst various other possibilities (Armit 1999, Miket 2002). There are variations in capacity, construction materials, monumentality and context that might relate to differences between communities, but fundamental issues relating to an understanding of the potentially variable functions of souterrains have yet to be satisfactorily explained.

Some buildings or settlements are located close to mineral resources, and the juxtaposition is unlikely to be coincidental – e.g. at Edin’s Hall, Scottish Borders (copper mines; Dunwell 1999) and Garleton Hills, East Lothian (haematite; Haselgrove 2009). These provide opportunities to address the nature of access to such resources, and how they were conceived of, controlled and negotiated.

The nature of broch villages remains unclear, as the evidence for contemporaneity of broch and village is not always strong, although at some phases the two were in concurrent use – when did this happen, and what does it represent in terms of social forms?

There is more generally a need for tighter control over site sequences in order to create the building blocks for understanding settlement evolution.

Why did people choose to inhabit places such as hilltops, promontories jutting into the ocean and artificial islands in lochs? There is a need not only to study the setting of sites but also to try to reach a better understanding of how the surrounding landscapes were conceived, to assess unusual site placements.

There are obvious variations in size, capacity and construction of souterrains, but how does

this relate to social variation, and how does this vary in time and space? At present research is still largely clouded by little positive evidence as to what these monuments were used for in their different locations.

What is the relationship between settlements and local natural resources? How was access negotiated between different groups?

6.3 Local or regional settled landscapes and seascapes - ‘settlement hierarchies’ and ‘clusters of communities’

Evidence for assessing the idea of settlement hierarchies was considered inadequate twenty years ago (Hingley 1992, 34), and arguably remains so:

“The absence of well-defined chronological spans for the various types and scales of settlements still bedevils attempts to establish definitively whether there was a clear settlement hierarchy at any time during the pre-Roman Iron Age; social, economic, regional and chronological variations remain difficult to disentangle and the ambiguities of the data continue to foster a wide range of interpretations” (Armit & Ralston 2003, 182).

“The potential exists, therefore, to allow settlements in the Tees-Forth region to be ranked, but without a programme of large-scale excavation and a firm chronological framework it is unlikely to be realised” (Cunliffe 2005, 318).

“Attempts at defining regional zones in terms of settlement patterns must be regarded as tentative at best, since most regions show considerable

diversity of forms" (Harding 2009, 246).

The term 'hierarchies' carries an inherent assumption of a rigidly stratified society, although current models of Iron Age society are not necessarily consistent with this (7.4); the term 'patterns' is more neutral. Any understanding of settlement patterns must depend upon a programme of investigation to create a paradigm for the sequential development of settlement type mainly through the refining, cumulatively, of site chronologies. Only in this way will it be possible to suggest which components of the prehistoric landscape refer to each other and which do not. Such sequences will, of necessity, be localised as the range of settlement forms is more varied in some areas than others. Most regions demonstrate a diversity of settlement form that can be recognised even if it cannot be satisfactorily explained. A more uniform settlement pattern within a region or locality at a given time has been argued to occur in some places (Armit 2002 on Barra and North Uist) and this is interpreted as evidence of an egalitarian society of independent landowning families, or at least one where social distinction was not manifested in architecture and all potential classes lived in the same structures, from elites to tenant farmers. Others believe that such local societies must have had a 'big chief' even if it cannot be detected in the settlement record (e.g. MacKie 2000, 105). A key methodological problem here is the possibility of low-status buildings without earthfast foundations, which would be hard to detect (5.6).

Of immediate relevance to assessing social differentiation and cohesion among settlements has been the presence or absence of enclosure. Social variation has often been seen as implicit in the labour obligations embedded in the construction and maintenance of settlement and hillfort enclosures (Hingley 1992, 32). More complex enclosure and multivallation has often been

interpreted as a reflection of higher social status, although there has been much debate surrounding this issue (e.g. Banks 2000 on Woodend, although based substantially upon negative artefactual evidence). More recently, alternative models of competitive architectural expression and the demonstration and/or mutual expression of co-operation though mutual dependency have been advanced (Frodsham *et al.* 2007 on the Cheviots). Enclosed settlements in these models may be the product of less stratified societies than previously envisaged, where hillforts were seen as elite centres.

This debate about the social significance of open versus enclosed settlement is rather simplistic. There is a growing recognition that settlement layouts sometimes evolved in a complex fashion, incorporating both enclosed and unenclosed layouts – influential excavated examples include Broxmouth (Hill 1982), Braidwood (Gannon 1999, on the basis of re-survey), Braehead (Ellis 2007), and observations accrued during the Traprain Law Environs Project (Haselgrove 2009).

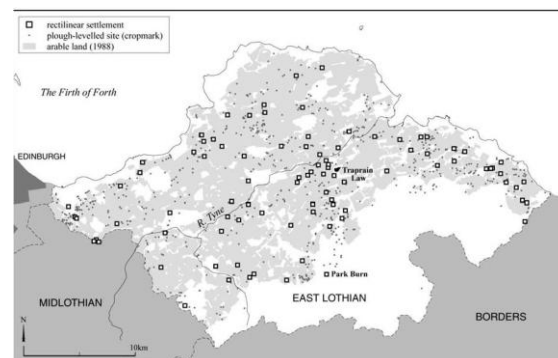


Figure 27: Distribution of rectilinear enclosures in the East Lothian plain, © RCAHMS

There is no need to assume that enclosure was inherently superior or more desirable to open settlement or *vice versa* (Harding 2004, 66, 290 *contra* Hingley 1992, 33 who assumed open settlements formed the lowest level of society in East Lothian). The Roman coin hoards from Birnie, Moray, associated with what might otherwise have been considered a typical unenclosed timber

roundhouse settlement is a case in point (Hunter 2002). This emphasises once more the need to investigate settlement patterns on a regional basis.

The 'clusters of communities' model introduced by Hill (2006) allows for less hierarchical societies than had been previously generally considered. The model has been introduced in order to elucidate the East Lothian record by Lelong (2008) and Haselgrove (2009), but to what extent can archaeological correlates actually be identified? Lelong's (2008) claim for communities a few kilometres across seems plausible but is nevertheless an assertion. The Tweed Valley does exhibit apparently discrete clusters of homesteads (Wise 2000), but as yet they lack excavation and any dating and thus demonstration of contemporaneity. It might be possible to identify clusters of communities in zones of preservation with established geographic boundaries (e.g. islands and isolated glens).

Biases of style and scale in regional research fundamentally affect the extent to which changing settlement patterns in different parts of Scotland can be modelled – i.e. whether areas have 'research frameworks', are 'unsorted' or are 'black holes' (Haselgrove *et al.* 2001, 23). An example of a well-researched area is the Western Isles, which has a developed and tolerably well understood settlement sequence in many respects for the first millennia BC and AD (Gilmour 2000; Armit 2003; Henderson 2007a), and is an area with a strong 'research tradition'. Nevertheless there are still fundamental questions relating to prehistoric social structure in this area, such as:

- *The context and chronology of the adoption of Atlantic roundhouse architecture (Gilmour 2000, 2002; Henderson 2007a; MacKie 2008, 2010);*
- *The social and chronological relationships between complex Atlantic roundhouses and wheelhouses (Armit 2003, 135; 2006; Gilmour 2000; Henderson 2000, 121; Harding 2004, 261-2 & 2009, 287; MacKie 2007, 2010; Parker Pearson & Sharples 1999), and other contemporary settlement forms (Gilmour 2002);*
- *The dating and role of promontory forts (Burgess 1999; Henderson 2007a).*

In East Lothian a nuanced research framework is under construction based upon a range of recent programmes of investigation (Lelong 2008; Cowley 2009; Haselgrove 2009). Nevertheless Haselgrove has been very cautious in his approach to interpreting any diversity of the scale and design of settlement as an indicator of social structure and settlement hierarchy (and considerably more cautious than Lelong).

MacInnes (1982) outlined broad changes in the character of the settlement record in eastern Scotland as evidenced from the largely untapped cropmark record at that time. This, she saw, could reflect contrasting types of social organisation, land tenure, or political centralisation. The complexities of the topic have been explored, *inter alia*, by Davies (2007) and Cowley (2009), and remain a key area for research; extensive areas of the cropmark record are essentially unsorted (e.g. the Moray Firth; though see Jones *et al.* 1993).

In many areas (Haselgrove *et al.* 2001, 23) there is evidence of a diversity of prehistoric building and settlement form, where plausible hypotheses for the local or regional organisation of settlement and society can be proposed but where basic issues of chronology and function need to be resolved before any satisfactory model of settlement development can be accepted (e.g. Isle of

Skye, MacSween 1985; Sutherland and Caithness, Cowley 1999; Angus, Dunwell & Ralston 2008). In Argyll Harding (1997, 2004) and Armit (2009) have moved towards a partial construction of a settlement sequence, while in south-west Scotland (Cowley 2000, Henderson 2007a, 165-6; Cavers 2008) and Strathclyde (e.g. Alexander 2000) the links between the diverse components of the Iron Age settlement record are still unclear. Recent intensive work in East Lothian has provided one model of a means to establish a regional sequence. Other approaches take more of a keyhole approach, such as Cook's work on Strathdon hillforts (2010), focussed on enclosure sequences, or Martin Wildgoose's extensive sampling of hut circles in southern Skye, which targets central hearths to extract dating evidence (Wildgoose & Birch, pers comm.). Such approaches do not provide a rounded picture, nor will they recognise complexity in a site, which would cause misleading results. However, they can provide a reasonably rapid and cost-effective first-stage framework for subsequent testing. This would help to frame debate, and encourage others to tackle and challenge the model. In areas of predominantly cropmark archaeology, where the sites are being abraded year on year, such programmes may offer the only hope of extracting some information on overall settlement sequences at a broad-brush level. It is, however, much more difficult to characterise an amorphous (and probably long-lived) open settlement in this way than the specific moments of enclosure construction. The keyhole approach is not ideal, but would provide a means of obtaining basic sequences.

The enquiry must move to a situation where regions can be compared on a more equal footing. Some key 'black holes' sit between other better understood areas and would seem, therefore, to be immediate targets for research (e.g. Fife, between the Lothians and Angus; the western seaboard between Galloway and Argyll (perhaps, arguably, Cape Wrath! !); the central and western Highlands.

Sampling and dating large numbers of sites provides a valid first step in characterising sequences.

Was there a lower status, peasant, slave or landless element to societies that leaves little recognisable archaeological trace? Procedures for the detection of such an invisible component would have a profound impact on how the demography as well as the spatial organisation of prehistoric societies are modelled (e.g. Armit 2002, 2003; Gilmour 2002 on the Western Isles).

Open settlements appear under-represented in many parts of lowland Scotland except in pockets where cropmark production is good (e.g. parts of Angus) – this is often perceived as a visibility bias (e.g. East Lothian, Cowley 2009), but requires verification, possibly by an alternative method of remote sensing.

There is no overall clear picture regarding the role of 'hillforts', whether as tribal capitals, (seasonal) meeting places, elite residences, or other functions and it is likely that, anyway, their role varied across time and space (Armit 1997a, 50). There is no proven reason to see them as the apex of a social triangle (Harding 2004, 290). Some have houses (Eildon Hill, Rideout et al. 1992; Traprain Law, Jobey 1976; Hownam, Piggott 1948) but again there is little obvious distinction between house sizes within hillforts or in comparison with other types of settlement (Harding 2009, 268-9). Promontory forts are also poorly understood. (See further 6.5).

This question impacts directly on social models for the Iron Age, a key research topic which settlement patterns inform (see theme 7.4).

Upland settlement, the dating and character of 'hut circles', and the relationship to lowland settlement (e.g. in Sutherland, Cowley 1999; in North-east Scotland, Dunwell & Ralston 2008, RCAHMS 2007) may be the result of research biases fuelled by the focus on lowland

cropmark excavations. How can this be redressed?

The relationships between timber and stone crannogs and island duns (Harding 2000), and their relationship to land-based settlement remain important research topics. An array of reasons for building on the water has been postulated, ranging from defence to maximising agricultural land onshore; but each site requires analysis within its own context.

6.4 Enclosed Places

This section includes features conventionally termed forts and enclosed settlements, (excluding crannogs, which it can, however, be argued are enclosed by water). The term 'enclosure' has been used multifariously as a classificatory term (by e.g. RCAHMS). This section has not included different scales of enclosure – sub-divisions within sites, or wider land / landscape enclosure (including linear banks, pit alignments, field systems) except where they can be specifically associated with forts and enclosed settlements. The social contexts of forts and enclosed settlements, hierarchical or otherwise, have been mentioned above.

There is no absolute distinction between 'forts' and 'enclosed settlements' or 'enclosures'. The range of sites present within these classificatory categories represents a continuum, from tiny enclosed promontories (e.g. Auchmithie, Ralston 1986) and settlement enclosures (e.g. Biel Water, Lelong and MacGregor 2008) through to large enclosed hilltops (e.g. Eildon Hill North, Roxburghshire, Ridout *et al.* 1992) and massive enclosed promontories (e.g. the undated Mull of Galloway). Where there is evidence of habitation (be it permanent, seasonal or episodic), settlements ranging from individual households / farmsteads through to sizeable communities / villages are represented (Cunliffe's 2005 'defended homesteads'). The construction and use of

these enclosed places spans two millennia, from the late second or early first millennium BC through to the late first millennium AD (c. AD800?). The dataset is highly diverse, although there are some regional differences in the character and range of enclosed places. With this diversity in scale, time and space in mind, the question of whether hillforts / enclosures form a sensible unit of analysis should be discussed.

Defining forts

Recent definitions of 'fort' or 'hillfort' (e.g. RCAHMS thesaurus, Halliday & Ralston 2010; RCAHMS 1997; Ralston 2006, 12) make reference to topographic advantage and enclosing works, but embody subjective considerations of defensive potential (from both the enclosing works and topography) and the extent of enclosed ground. Cunliffe (2006, 152) noted the common denominators of Wessex hillforts as enclosure, visibility and communal functions (the meanings of which may change over time). There is a bewildering array of schemes by which scholars at different times have attempted to sub-classify 'forts' in different parts of Scotland, by attributes such as site morphology, topographic location, date, and perceived function (sometimes in combination).

Given the continuum of enclosure forms, there is a case for viewing the search for a definition of a 'fort' as a 'lost cause' (Halliday & Ralston, 2010). However, there are evidently a considerable number of later prehistoric enclosed places that were not settlements (c.f. Hill 1996; 'not farmsteads') in any conventional sense, although it does not follow that they were therefore solely, or even primarily, fortifications. Can enclosed places be classified into distinguishable 'types' in time and/or space? If so how, and at what scale (local, regional, national)?

Explanatory frameworks for Iron Age forts and enclosures

In response, possibly implicitly, to the development of post-processual perspectives

Ralston (1996, 145) called for a reassessment of the roles of enclosed sites within Scottish Iron Age communities, while Armit (1999, 72-3) identified a need for 'grand narratives' for a Scottish Iron Age freed from its 'unhealthy dependency' on models generated in southern England. This dependency is arguably a difficulty that has arisen through Scottish enclosed places being located on the northern periphery of a sub-continental scale phenomenon. To what extent either of these researchers' aims has been delivered, and whether interpretative models of the Scottish Iron Age are really free of southern influence (or indeed whether they should be), are outstanding questions.

'Invasionist' models are now very largely rejected (following Clark J.G.D. 1963 *Antiquity*). The primarily defensive / military explanations of hillforts and fortified settlements that underpinned such models have been widely criticised and reassessed. However, the defensive properties of enclosing works are still widely cited within the context of Scottish sites, although the degree of emphasis placed upon those properties varies widely between both scholars and archaeological context (Ralston 2006).

The influence of Cunliffe's 'Danebury model' of hillforts, and before that Childe's 'hill-top towns' and Feachem's 'minor oppida', as elite-controlled central places within defined territories, forming the apex of economic, political and social hierarchies and with redistributive functions (e.g. Childe 1946; Feachem 1966), influenced the research of scholars working in Scotland at around the same time (e.g. MacInnes 1982, 1984a, 1984b). These processual approaches were set within the 'Celtic' model of a hierarchical society (e.g. James 1993, 52-3). The size and scale of earthworks were discussed as socially controlled conventions (Cunliffe 2004, 50).

The origins, development and social context of enclosed places are now commonly

explained with reference to a rather diffuse post-processual paradigm that has developed since the late 1980s, largely developed through reassessment of the Southern English evidence, and initially emerging from a rethinking of the 'Danebury model' (reviewed recently by e.g. Armit 2007b; Lock 2007 and Sharples 2010b from different standpoints). Post-processual perspectives incorporate several overlapping strands such as the rejection of the 'generalizing' 'Celtic Society' model (e.g. Hill 1996) and the 'window on the past' approach, and the consideration of less hierarchical, more segmental later prehistoric societies with 'clusters of communities' (Hill 2006). Others do not dispose of the 'window on the Iron Age' approach, but regard it more as 'of distorted glass' (Harding 2004, 294-7). Enclosing works have been interpreted as physical representations of metaphysical categorization (Lock 2007), with a wide potential range of practical and symbolic meanings (Collis 1996; Ralston 2006, 10-11), such as defining communities, as social defences, displaying status or isolation, and as expressions of power through the mobilisation of labour. Hillforts have been interpreted as 'not farmsteads' (Hill 1996), but rather communal expressions or arenas with a potentially wide range of episodic / seasonal / semi-permanent uses (as suggested by the results of the Wessex Geophysical Project, Cunliffe 2006, 154) or as 'extraordinary' places (Lock 2007). Cosmological and phenomenological approaches to hillforts have also been attempted (e.g. Hamilton & Manley 2001), although not so far sustained for Scotland. This 'pacification' of the Iron Age has been criticised by others (Armit 2007b, James 2007), who variously consider warfare, other physical violence and related insecurity as endemic at this time.

Aspects of post-processual thinking can be seen influencing excavation site interpretations (e.g. Port Seton East and West, East Lothian, Haselgrove & McCullagh 2000; A1 excavations, Lelong & MacGregor

2008; Brown Caterthun, Angus, Dunwell & Strachan 2007), and regionally based assessments of the social context of enclosed places and the structure of societies based on synthesised survey and new excavation data (e.g. East Lothian with ‘clusters of communities’, Lelong 2008 and Haselgrove 2009; Anglo-Scottish Borders, Frodsham *et al.* 2007). They also appear in the interpretation of the potential functions of groups such as ‘oblong enclosures’ and ‘promontory/headland’ forts – (Harding 2004).

Why enclosure?

The adoption of enclosure was a deliberate choice, and not all areas of Scotland enclosed places to the same degree. Armit & Ralston (2003, 193), for example, suggested that a perceived trend to enclosure could have been associated with factors such as an increasing emphasis on pastoral farming brought about by climatic deterioration, or a result of social change, but without offering a firm proposal. A lack of chronological control certainly hinders attempts to model contexts for the adoption of enclosure in different parts of Scotland, by not allowing identification of contemporary changes in patterns of settlement, society and land-use (following the approach adopted by Thomas (1997)). Can these issues be addressed in the Scottish Iron Age, and if so how? Or, as Lock (2007, 341) suggested for Wessex, does the ‘why hillforts’ question lead to an inevitable dead end anyway?

The end of enclosure

There are various phases and places when enclosures were not used. Reasons proposed for the end of enclosure have included: the adoption of new forms of displaying status or ranking through e.g. personal ornaments and monumental houses; changes to the structure of society resulting in the reassertion of authority at a higher level; rejection of beliefs; and direct and indirect Roman influence. What factors lie behind the move away from enclosure in the first half of the first

millennium AD, particularly as regards enclosed settlements, require more research.

The evidence base

Archaeologists are probably aware of most Iron Age ‘forts’ surviving as earthworks in most parts of Scotland, but the gaps in the knowledge of smaller enclosures may be significant (e.g. Cowley 2000 on Galloway). Existing field survey plans of sites are of varying age and varying quality, accuracy and completeness. Resurvey of sites can lead to recognition of important details and nuances of character, complexity and sequence not previously appreciated (e.g. Gannon 1999 on Braidwood; RCAHMS 1997 & 2007). With a dearth of excavation in many parts of Scotland thorough and detailed survey evidence is crucial, although there is much in terms of complexity and dating that can be provided only through excavation (e.g. Brown Caterthun, Dunwell & Strachan 2007). There is a substantial cropmark record of forts and other enclosures, including in areas beyond the traditional excavational ‘honeypots’. The synthesis and interpretation of this data is more advanced in some areas (e.g. East Lothian, Cowley 2009) than others. There has been very little geophysical investigation of forts and enclosed settlements, with a few notable exceptions (e.g. Traprain Law Environs Project, Newstead Research Project, Dent forthcoming) This is a cost-effective method for delivering important information on the character of sites (and particularly their internal arrangements), as the Wessex Hillforts Geophysical Project (Cunliffe 2006) showed, albeit in different geological conditions.

For hillforts, Feachem (1966, 60) identified that a lot of survey and little excavation had taken place, and this broadly remains the case. Few sites have seen any excavation, and the excavation sample is biased towards south-eastern Scotland. The areas of sites that have been examined by excavation is almost wholly pitifully small (with exceptions such as Broxmouth, Hill 1982a). Most excavations

have focussed upon examining enclosing works, with less emphasis on interiors and less still on exteriors (important because enclosing works need not delimit the extent of activity). Recent and ongoing research projects are undertaking limited sampling of multiple hillforts, focussed on enclosing works, to gather dating information (e.g. Strathearn Environs and Royal Forteviot Project, e.g. DES 2007, 155-6; 2008, 144; Hillforts of Strathdon, e.g. Cook 2010) – an unfashionable but useful and cost-effective approach (Haselgrove *et al.* 2001, 5). A considerable number of smaller enclosed sites have been more intensively examined, including settlements and ‘promontory forts’. Some have been substantially or fully investigated in recent years as a result of development pressures (e.g. Port Seton, Haselgrove and McCullagh 2000; Braehead, Ellis 2007; Woodend, Banks 2000). An audit of investigations, both published and as yet unpublished, may provide useful information on approaches to examination, focus of investigations, and discoveries made. Results of some important projects remain unpublished, such as the Newstead Research Project and work on the promontory forts of the Moray coast; publication of the critical Broxmouth sequence is expected soon.

Attempts to classify enclosed places have not been successful, but regionally-focussed studies seem to offer the best way forward rather than attempts at national-scale classifications.

The discipline would benefit from an overall review of the social context of enclosed places, based upon a detailed review of the evidence.

- *The lack of dating evidence for enclosed sites in many areas is a severe constraint in understanding them.*
- *The lack of evidence for activities within such sites, due to limited work in enclosure interiors, is another*

severe constraint, as are the difficulties in connecting interior activity to enclosure sequences.

- *Geophysical survey offers a cost-effective approach to assessing the interiors of enclosures in favourable circumstances.*

Is the move away from enclosure in the early first millennium AD a general phenomenon, and what lay behind it?

6.5 Chronology and development of enclosed places

There is a long history of enclosing ‘forts’ and settlements from the late second to early first millennium BC into the middle and later first millennium AD. It is difficult to establish any particular *flourish* within this timescale (Hingley 1992, 19), although there does appear to have been a significant lull, if not certainly a hiatus, in the early centuries AD. Some sites display activity over a long period, although not necessarily (and probably not) continuously. More dating evidence is required, as there is no real chronological control in any part of Scotland, beyond a sketchy outline in East Lothian and Aberdeenshire. It is therefore difficult to trace the development, character or meaning of enclosure over time at either national or regional level.



Figure 28: Kirk Hill palisaded enclosure and fort, Scottish Borders, © RCAHMS

Origins / early enclosures

Some of the larger earthwork ‘forts’ (Traprain Law, East Lothian Armit *et al.* 2002; Eildon Hill North, Roxburghshire Rideout *et al.* 1992; Dunagoil, Bute Harding 2004, 141; Ben Griam Beg, Sutherland Mercer 1992; Ralston 2006, 172-3) have been speculatively dated to the Late Bronze Age. They have been regarded as part of a pattern of large hilltop enclosures across Britain (e.g. Armit 1997c, 54) although others (Ralston & Ashmore 2007) have hesitated to place these large early sites within a single chronological horizon since some sites (e.g. Burnswark, Dumfries, Jobey 1978) appear to have later origins. Arguably more securely dated to the Late Bronze Age are smaller promontory forts (Cullykhan, Banffshire; Gob Eirer, Isle of Lewis) and some curvilinear enclosure recently examined in East Lothian (Haselgrove 2009; but see Sharples 2011). Whether the potentially widespread adoption of enclosure in East Lothian (Haselgrove 2009, 115) was typical of other areas of Scotland or was a precocious development is therefore an interesting question. East Lothian is one of the more intensively investigated parts of Scotland, so this may reflect sample bias or represent a real difference (c.f Cowley 2009, 222)?

Early to mid first millennium BC

A wide range of palisaded and earthwork enclosures was erected during the first half of the first millennium BC, although close dating has been precluded by the 800-400 calBC radiocarbon calibration issue (Ralston & Ashmore 2007). Harding (2004, 66-7) argues that the repeated association of palisaded enclosures with ring-ditch houses and cord rig traces in southern Scotland represents a mid first millennium BC phenomenon. The palisaded enclosures are often seen as a kind of ‘pioneer’ settlement utilising cleared woodland in its construction. Some palisaded enclosures later developed into settlements defined by earthworks. Whilst generally interpreted as settlements bounded by fences, their potential appearance as fortified stockades has been recently reasserted (Halliday & Ralston 2010), especially in relation to the possibility that ‘double palisades’ may have been box ramparts. The extent of early palisaded enclosures is still to be determined due to potential issues of visibility in the north and west, although there are at least some in the cropmark record outwith south east Scotland.

Later first millennium BC

In this period there would appear to be less emphasis on major hillfort earthwork construction, and it is widely believed that by the end of the millennium a high proportion of forts had fallen out of use Armit (1997c, 64-5) cited a 20% occupancy of forts on the eve of the Roman invasion. And dating evidence from a number of excavations can be adduced to support this (e.g. Broxmouth, East Lothian Hill 1982; Brown Caterthun, Angus Dunwell and Strachan 2007; Balloch Hill, Argyll Peltenburg 1982). At many sites in southern Scotland where earthworks are overlain by unenclosed settlements, the ‘abandonment’ of enclosure is generally assumed to have occurred before the Roman invasions (Hill 1982b; Haselgrove 2009), and is not now considered a result of pax Romana. The formation and modification of enclosed settlements continues and this is the probable

context for the appearance of rectilinear enclosures (palisaded and banked) across much of southern and eastern Scotland. Further dating of 'open' settlements overlying enclosing works is required.



Figure 29: Image of Brown Caterthun (background) and White Caterthun (foreground) forts, Angus, © RCAHMS

Early first millennium AD

Some forts and enclosed settlements were demonstrably being occupied into the first two or three centuries of the first millennium AD (e.g. Castle O'er and Bailiehill, Dumfries RCAHMS 1997). Renewed occupation of varying scale at large forts in southern Scotland after putative periods of abandonment or a different type of use has been identified – e.g. at Burnswark, Eildon Hill North, Traprain Law – in some cases posited as 'boom towns' (Armit *et al.* 2002). By the 3rd or 4th century AD few enclosed places were still in demonstrable use – Traprain Law being a notable exception as evidenced by the construction of the 'Cruden Wall', probably in the fourth or fifth century AD (Close-Brooks 1983).

Mid to later first millennium AD

In this period there was a new wave of building forts, a phenomenon primarily between the 5th to 9th centuries AD (Alcock 2003, 190). Those with a distinctive morphology are the royal or princely 'nuclear forts' (*ibid*), some located on earlier fortified sites (e.g. Dunadd, Argyll Lane and Campbell 2000) some apparently *de novo* (e.g. Dundurn, Perthshire Alcock *et al.* 1989). They probably developed by accretion over several centuries, but with different organising principles to those evident in pre-Roman Iron Age forts (Harding 2004, 207) – although some have suggested that The Dunion, Roxburghshire may be an Iron Age precursor of the form (Rideout *et al.* 1992, 117). Other new Early Medieval forts are more akin to Iron Age precursors in appearance, notably Mote of Mark, Kirkcudbright and Clatchard Craig, Fife, (Laing and Longley 2006; Close-Brooks 1986 although Harding (2004, 233) suggests an Iron Age origin for its outer enclosure).

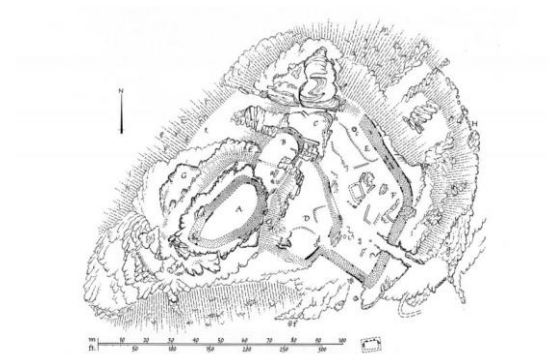


Figure 30: Plan of Dunadd nuclear fort, Argyll, © RCAHMS

There was also 'refortification' of earlier promontory sites (e.g. on the Moray Firth littoral including Cullykhan, Banffs.) and reuse of earlier sites with no demonstrable rebuilding (e.g. Craig Phadrig, Inverness), but all after a break in activity. There are acknowledged difficulties in distinguishing Early Medieval constructions and modifications of Iron Age antecedents within the survey dataset (e.g. Ralston 2004, 2007).

Good dating evidence is an issue across the board. Recent 'key-hole' work eg in Strathdon (Cook 2010) offers the prospect of obtaining at least an outline chronology in an area relatively quickly, if stratigraphically-secure material can be identified. Such approaches will inevitably simplify each site sequence, being focussed only on enclosure phases, and need to be followed by more extensive excavations on key sites to develop the picture.

6.6 Enclosing works

Occurrence

Palisades, walls, wall-and-fill ramparts, dump ramparts and ditches (each displaying a variety of forms and scales - e.g. with and without timber lacing) were all widely used in varying combinations or singly to enclose places in Scotland. They are constructional devices that appear to have no absolute chronological, regional, typological or functional significance; all have been identified in Late Bronze Age to Early Medieval contexts. They are not mutually exclusive; for example, palisades are recorded within dump ramparts (e.g. Harehope, Peebles, Feachem 1962) and in association with walls in contemporary enclosure units (e.g. Brown Caterthun, Angus, Dunwell and Strachan 2007). Enclosing works are generally small in scale compared to those of other areas, such as the Wessex hillforts, but some of the largest form very imposing barriers. Variations in the character and scale of earthworks around their circuits are not uncommon. Natural topographic features (e.g. cliff edges, breaks of slope) were also commonly utilised as enclosing features, or to enhance built features.



Figure 31: Excavation of rampart at Brown Caterthun fort, Angus, © RCAHMS

Sequence

The Hownam sequence of palisade, univallate, multivallate, first mooted by C.M.Piggott on the basis of observations during her excavations at the eponymous site in Roxburghshire is now regarded, at most, as applicable to individual sites within the eastern Cheviot valleys south and north of the Border. Survey and excavation data indicate its non-applicability to neighbouring regions such as the Lothians (Armit 1999) and south-west Scotland (RCAHMS 1997, 154-5; Banks 2000, 273-5). What seems to be becoming apparent is the sheer variety of individual site histories that do not reflect simple overarching linear models of evolution. Excavations have demonstrated that some settlements alternated between being enclosed and unenclosed (e.g. Braehead, Ellis 2007), or were enclosed only relatively late or briefly in a longer history of occupation. Evidence of multivallation is now to be generally regarded as evidence of multi-phase construction until proven otherwise (e.g. RCAHMS 1994).

However, some local trends in the sequence and manner of enclosing works have been suggested, however unclear, such as the extended use of timber for houses and enclosing works in the Eastern Dumfriesshire survey area (RCAHMS 1997). Certain forms of enclosing work seem to have recurred at certain times and/or in certain places, and might be local chronological markers (such as Early Iron Age palisaded enclosures, and

rectilinear enclosures in parts of southern Scotland) or even event horizons (as has been suggested for oblong forts, RCAHMS 2007, 103). How to progress in terms of understanding sequences and their chronology is a challenging question, but identifying local and regional trends and endeavouring to establish links between them seems most feasible.

Occasionally encountered features

In terms of occasionally encountered features, how rare they are, and why they are rare are important questions. Do survival biases account for the rarity of detection?

Breastworks have been identified in a small number of excavations e.g. Brown Caterthun (Dunwell and Strachan 2007), Balloch Hill Hill (Peltenburg 1982), and The Dod (Smith 1982). A small number of the identified Early Iron Age twin or double palisades that define enclosures may be the remains of box ramparts (Burnswark being most frequently cited; Jobey 1978). Such structures are recorded more commonly in southern England, and may have appeared in Scotland as a result of an exchange of ideas (Armit 1997, 58-9). However, it is unclear how to identify with confidence box ramparts as opposed to freestanding twin palisades, even with the benefit of excavation. The width of the spacing between the palisades has been proposed as a guide to identifying box ramparts, but with no consensus emerging consistently (RCAHMS 1997, 126 suggested 2-4m spacing was probably too wide, whereas Ralston 2006, 46-8 suggested a minimum 2m spacing was necessary). How can box ramparts be identified with any confidence? Evidence of vertical timbering within walls is uncommon, a rare example being within the entrance passage at Cullykhan.

Hedges are referred to by some commentators (e.g. Ralston 2006, 44) as a potential method of enclosure that will be difficult to detect in the archaeological record. Such suggestions sometimes arise in the

context of explaining incomplete or 'unfinished' enclosure circuits. It is possible that hedges were used a means of dividing and enclosing land on a much larger scale, in a way that leaves no coherent, archaeological trace (based upon comment provided by D W Harding in response to ScARF workshop). Is there any way of meaningfully addressing this issue? Might pollen or palaeobotany or molluscan analysis help?

The six *chevaux-de-frises* are recorded in Scotland (RCAHMS 1994, 74), do not appear functional as a barrier to mounted or foot assailants being limited in extent and, today at any rate, avoidable. They may have been more about display than defence (Harding 2004, 59). Other examples could, of course, have been removed, or buried in later defences, as at Castell Henllys, Wales (Cunliffe 2005, 358). Evidence for timber examples suggested by Harbison (1971) and Cunliffe (2004, 358), and claimed continental examples, for example in Burgundy (I Ralston pers comm.), has yet to be found in Scotland.



Figure 32: *Chevaux-de-frises* at Cademuir Hill, Scottish Borders © RCAHMS

Vitrified walls

The interpretation of vitrification has long been controversial, but there is now a wide consensus that vitrified walls result from the deliberate, pre-meditated destruction of timber-framed walls (Mackie 1976; Ralston 2006, 143; Cook 2010, 81-2. An understanding of the mechanics of the process is not complete, but it now seems extremely unlikely to represent a constructional device

and widespread vitrification, which is regularly found, is unlikely to be an outcome of accidental firing. Stratigraphic evidence has yet to be found that demonstrates the wall vitrification was a constructional device. Vitrification is evidenced in a wide range of enclosure walls of Early Iron Age to Early Medieval date (although the direct dating of vitrification by archaeomagnetism and thermoluminescence has provided controversial and contradictory results; Alexander 2002). A few forts have more than one enclosing work demonstrating vitrification or burnt walls (e.g. Clatchard Craig, Fife, Close-Brooks 1986). In most cases evidence of vitrification of walls is partial, which chimes with the very mixed results achieved by those attempting to replicate vitrification by experimental methods where conditions, materials and time available may have been insufficient to produce the hoped-for results (e.g. Ralston 1986).

'Unfinished' enclosing works

Current research is less certain than in the past about the frequency of 'unfinished forts' (c.f. Feachem 1966, 68-70; 1971) – in the sense of an initial intended design being aborted and the location abandoned. There is now recognition of the possibility of palisade lines being present but invisible on the surface (e.g. Durn Hill, Aberdeen as suggested by RCAHMS 2007, 103), or apparently unfinished works as ritual tokens or deliberately segmented ramparts, or the emplacement of partial ramparts around main approaches for emphasis or display (e.g. Dunnideer, Aberdeen; Ralston 2007, 11). Many forts may have come down to us as fossilized work-in-progress, with aborted developments and modifications. For example, the outer segmented work at Brown Caterthun, Angus is probably a residue of an aborted redesign rather than an unfinished work per se. A review of the evidence with this in mind would prove valuable.

Entrances

Entrance arrangements are believed to encode considerable amounts of information about the intentions of those who built, used and modified forts and enclosed settlements. There is considerable diversity. The majority of enclosed sites have one or two entrances, but some of the larger forts have multiple entrances (well beyond what might be sensible in defensive terms); yet others have no demonstrable gate (e.g. oblong forts).

Entrances generally seem to have been provided with relatively simple gate arrangements with little evidence of towers or overhead walkways (possible exceptions include Broxmouth fort western entrance at Period 3, Phase 3, Hill 1982, 156-7; and Shetland blockhouses, Ralston 2006, 84-5), although in some cases no evidence of an actual gate structure has been identified. 'Guard chambers' and other traits of Atlantic roundhouse architecture are recorded in some Atlantic promontory forts and Shetland blockhouses (MacKie 1992; Carter *et al.* 1995). Examples are recorded of the aggrandizement of enclosing works around entrances, and the provision of additional outworks. From earthwork evidence alone the thickening of ramparts near entrances has occasionally been claimed as evidence for a gate structure. Some sites demonstrate considerable concern with the control of access along and between enclosure lines, but arguably to promote controlled (even hierarchical) access rather than to exclude. Specific questions could be addressed, e.g. are 'drop slots' really evidence of portcullis-style gates (i.e. vertically opening by use of pulleys), or do they mark the foundations of sills against which gates would stop thus rendering more secure as well as impeding uncontrolled access by wheeled vehicles?

There has been no national study of the cosmological / phenomenological aspects of entrances to enclosed sites in Scotland, although there are a few accounts of fort entrances being aligned on prominent

features in the surrounding landscape. However, at face value there does not appear to be a pattern of predetermined entrance orientations for Scottish forts; a review of entrances from Peeblesshire (Kokeza 2008) found most orientations followed the line of natural access routes and/or water sources. How commonly entrances were aligned on landscape features and to what end would be topics to pursue further.

Building enclosures

It is widely believed that enclosing works were locally inspired and constructed, using mobilised labour (however that was achieved – co-operation, reciprocity, social obligation, work feasts, coercion or slavery) under the direction of, or in partnership with, the occupants (in the case of settlements). Some of the larger circuits required enormous commitments of time and labour, for example to transport 2500m³ (over 4000 tons) of stone uphill to build the Brown Caterthun wall B, and even the construction of smaller enclosures required considerable resource input.

Acts of construction, maintenance and modification could have been variously episodic, seasonal, or depending upon circumstances, but assessing specific cases from archaeological evidence is not straightforward. For example at Brown Caterthun (Dunwell & Strachan 2007), there was evidence for considerable modification of ramparts, entrances, and access routes between enclosures, but given the vagaries of dating and the sample nature of investigation, it is difficult to be sure what is represented: frequent modification or a few discrete, change horizons? What can be inferred from activities described variously as ‘re-cutting’ or ‘cleaning’ enclosure ditches? To what extent can re-cutting/ cleaning episodes be disentangled before the very process becomes self-eliminative? The final Broxmouth report may be instructive in this regard.

Methods of enclosure have so far refused to show widespread sequences; identification of local and regional trends seems the best way forward.

What processes and ideas lie behind these widespread phenomena that occur sporadically but widely, such as vitrification or chevaux-de-fries? How rare are they and why? Do survival biases account for their rarity?

The logistics of, and motives behind, vitrification still offer scope for further consideration.

An audit of entrance excavation results would be beneficial.

6.7 The ‘functions’ of enclosed places

Diversity in time and space

It is now generally accepted that there is no definitive interpretation of the function of hillforts and enclosures, which probably conveyed a variety of ideological statements at different times and places to different people. There are a range of potential functions, attested or implied, for forts and other enclosed places (e.g. Ralston 2006, 19-24), but it is simplistic to use lists of possibilities to work out specific functions for enclosures from archaeological evidence (as discussed by Haselgrove & McCullagh 2000, 77). It is generally understood now that proposing a single purpose for a ‘fort’ is illusory and probably not demonstrable through excavation. In addition, there are widely acknowledged difficulties of relating interior features to enclosure circuit sequences.

It would be unwise to attempt to classify function from visible morphology alone; for example the Wessex Hillfort Geophysical Project (Cunliffe 2006) found no correlation between the morphology or setting of a hillfort and the nature of activity patterns within as evidenced by archaeological

remains. But for many parts of Scotland there has been relatively little excavation or geophysical survey of enclosure interiors, and opportunities for both should be taken.

Patterns of interpretation of the context and role of forts of Scotland have largely reflected the paradigm shifts developed largely out of Wessex hillfort models. There have been some attempts to consider local and regional datasets on their own merits (e.g. TLEP; Frodsham *et al.* (2007) in the Cheviots), but in other areas without recent investigations new interpretations are placed upon an unchanging dataset (e.g. Nieke 1990 versus Harding 1997 on the character and permanence of occupation of Argyll forts and duns).

Enclosures as places of habitation

Archaeological evidence suggests that the majority of enclosures were occupied on some basis, but there is considerable debate as to the character of that occupation – whether year-round, seasonal, intermittent or episodic / or celebratory and whether settlement was long-term and permanent or short-term and shifting. These issues transcend the interpretation of enclosed sites, and are fundamental to a modelling of the character of later prehistoric societies and landscapes. Topographic and locational considerations such as the high altitude and exposed location of many sites have been taken as evidence of at most seasonal occupation of forts and enclosed settlements (e.g. Bradley 2007, 254-6), and other exposed (e.g. stack) locations have similarly been interpreted as unlikely to have supported long-term occupation.

Recent excavations have begun to reveal evidence that supports the long-term but seasonal or episodic nature of activities at certain sites (e.g. Braehead, Port Seton West), and short-term use of others (e.g. TLEP³;

³ See especially Cowley (2009, 221) on the dynamic later prehistoric landscape of East Lothian characterised by relatively mobile settlement,

Carghidown promontory fort, Toolis 2007). Excavation evidence is not always clear-cut – for example there seems little real difference in the character of the excavated remains and materials from Port Seton East and West that justify interpreting the former as a permanent farmstead and the latter as a communal seasonal market or fair (Haselgrove & McCullagh 2000).

Understanding activities within fort interiors represents an important research theme, and consideration is required as to the best ways to do this, whether through excavation or remote-sensing techniques, or combinations thereof. General rules are most unlikely to apply, and more contextual local studies are needed. It is also important to consider what can be expected to survive within the archaeological record, particularly if plough truncated.

Forts as nucleated settlements / oppida / tribal capitals

There is no good archaeological evidence for large pre-Roman Iron Age nucleated settlements in the same terms as European or Southern English oppida or minor oppida (cf Feachem 1966). Nor can tribes alluded to on Ptolemy's map of Britain (probably illustrating the political situation in the 2nd century AD) be 'matched' to larger forts as a means of identifying 'tribal capitals' (e.g. Rideout 1992, 142-3 who regards this as a futile pursuit), even if on the Continent some 'oppida' are 'contact phase' phenomena. Significant Late Bronze Age and Roman Iron Age settlement is apparent on Traprain Law, but even there the character and permanence of occupation is uncertain. Some of the larger sites contain large numbers of house platforms within their outer circuits (e.g. Eildon Hill North, Tap o'Noth), but little idea exists of the full date range, permanence and extent at any one time of the implied occupation (for example as discussed by RCAHMS (1997) in relation to

intermittent occupation and periodic abandonment.

the Boonies house sequence as demonstrated by excavation). Eildon Hill was interpreted by its excavators as a 'market' or 'fair' location primarily populated with flimsy, temporary structures (Rideout *et al.* 1992); conversely others still wish to regard it as an urban centre (e.g. Wilson 2010, 46). However, many still consider the larger forts as centres of power and authority. More evidence for the nature and chronology of activity at 'big forts' is required.

Defensive properties of enclosures

A range of opinions have been expressed as to the extent to which defensive considerations influenced the choice of site location (e.g. 'prominent landmarks' and 'naturally defensible' locations) and the nature and strength of enclosing works, although most commentators agree that some influence is evident in many of the forts at least. But there are many examples where defensive considerations appear not to have been primary factors in the siting and/or form of enclosure – for example enclosures located on overlooked sites (Chesters, Drem is most frequently quoted), overprovided with enclosing works in relation to area enclosed, overprovided with entrances, or simply too diminutive to have had a defensive function (e.g. Woodend; Banks 2000). On the other hand, oblong forts have massive, apparently gateless walls and interiors that were invisible from the outside, but even these have been recently suggested as ceremonial enclosures (Harding 2004, 87).

The archaeological evidence for warfare, conflict and violence at Scottish forts and enclosures is rather limited (Toolis 2007, 308-10) and equivocal (c.f. Bowden & McComish 1987 on Wessex hillforts). Because a linear evolution of fence-wall-dump is no longer universally applicable, it is probable that changing enclosure forms do not reflect developments in methods of warfare, at least not in an easily legible or direct manner (cf. Avery 1993).

Have assessments of defensive strength and capability been clouded by the tactics of modern military warfare as opposed to pre-state ritualised, embedded warfare and raiding (Sharples 1991; Armit 2007b, James 2007)? If it is accepted that vitrification might have occurred as a result of careful, possibly symbolic destruction of timber-laced walls, how is evidence of the specific circumstance of destruction found? Retribution or reprisal by 'conquerors' and a sign of political instability is a generally preferred explanation, but it could be a peaceful 'killing' by the occupants to put the site beyond use, as argued for the deliberate infilling of souterrains (Armit 1999). What evidence can be marshalled in support of either explanation?

Symbolic aspects of enclosures

Various examples of work exploring symbolic aspects of enclosures have been undertaken. This work includes the exploration of the nature of the aggrandisement of entrances (e.g. at Dunnideer, Aberdeen RCAHMS 2007, 103) as well as miniature earthworks, and token or diminutive ramparts such as exist at the White Meldon (Ralston 2006, 126-8; who notes the possibility of erosion and invisible timber elements, but even so still finds them diminutive). Other aspects that could be considered within a symbolic context include:

1. the scale of enclosing works which are out of proportion to the internal space;
2. the overprovision of entrances;
3. phenomenological and landscape entrance alignment references;
4. the reuse of earlier material (e.g. imported Roman stone fragments at Rubers Law, Roxburghs and Clatchard Craig, Fife); and
5. associations with earlier monuments, whether Iron Age or earlier at site locations (currently in need of synthesis).

Special or structured deposits occur at boundaries, including people (e.g. Knowes cist

burial) animals (Eildon Hill), metalwork (Burnswark; Buchsenshutz & Ralston 2007) and domestic debris incorporated in ramparts (Kaimes fort, Midlothian, Simpson *et al.* 2004). However, there is a rarity of rich votive deposits compared to e.g. Wessex (Rideout *et al.* 1992, 142).

Enclosures as communal places

A number of examples of recently excavated forts or settlements have been proposed as 'not farmsteads' – Brown Caterthun, Port Seton West, Over Rig, East Lothian Late Bronze Age enclosures (all based primarily on lack of evidence for occupation) and Eildon Hill North. Oblong forts have been proposed as having a ceremonial function by Harding (2004, 87). Promontory, stack and headland forts are all posited by Harding (2004, 94, 145, 298) as not for 'regular occupation' and by Henderson (2007b, 308-9) as for a range of settlement and non-settlement functions.

Early Medieval forts

Early Medieval forts have been examined and interpreted within a different explanatory 'documentarily-enhanced' and historically specific framework, and generally by different researchers, sometimes with different preoccupations, from those interested in Iron Age constructions. The defensive properties of the 'nuclear' forts are seldom questioned, since there are documentary records of burning/attempted burning, capture, destruction, and sieges (Alcock 2003, 180). They are generally regarded as 'royal' strongholds between which kings progressed to secure territory and exact dues from subordinate aristocracy; some e.g. Dunadd, Argyll are seen as paramount capitals. Harding (2004, 235-6) has questioned that type of occupation, highlighting the apparent lack of grand buildings, and alternatively suggested that they were perhaps seasonal, special sites with few permanent buildings, as argued for Iron Age forts. On the other hand it may be that even grand buildings did not have earthfast foundations, through e.g. use of

post-pads, and therefore would be difficult to detect archaeologically.

Understanding activities within forts represents an important research theme; geophysical survey has proven a useful tool in other areas.

The nature of the largest forts (e.g. Traprain Law, Eildon Hill North, Burnswark) in relation to the wider settlement sequence remains an area requiring further work.

What can researchers of Iron Age and Early Historic fortifications learn from each other, to allow the gap to be bridged? Does it need bridging?

6.8 Regionality

There are regional variations in the nature and development of forts and enclosed settlements, but not sharply defined regional boundaries in space or time. Macinnes (1982) argued that the character of the Late Bronze Age/Early Iron Age settlement record in Fife bears more resemblance to that North of the Tay, whereas the later first millennium BC pattern has more in common with South of the Forth (although forts were hardly plentiful in Fife at any stage). Piggott's (1966) regional subdivision of the country is no longer to be regarded as satisfactory; Harding's (2004) tripartite division between the Borders and Southern Scotland / Central and Eastern Scotland / Argyll and Atlantic Scotland has yet to be tested in detail (theme 3.3). Southern Scotland has seen the most research into enclosed places and Atlantic Scotland the least (except where enclosures are associated with Atlantic roundhouses), but even in southern Scotland there is a marked distinction between the amount of investigation in the South-east and the South-west.

Southern Scotland

Haselgrove *et al.* (2001, 25) characterised existing knowledge of the Iron Age of the sub-

regions of this area as variously 'unsorted' (East Lothian, Scottish Borders, Dumfries) and 'black holes' (West / Mid Lothian, Strathclyde, Galloway). This is still a cogent assessment as regards enclosed places more specifically, although one could argue East Lothian is now 'partly sorted'.

The south-east has been reasonably well served by the results of research in recent years (Lelong & MacGregor 2008; Haselgrove 2009), and as yet unfinished projects will provide opportunities for further review (e.g. TLEP; Broxmouth; Newstead Research Project). The south-west beyond the Clyde-Annan watershed has seen comparatively little recent work (Banks 2000, Cowley 2000, Cavers 2008), although this is being addressed by some researchers – e.g. Toolis (2007). Focus is needed on south-west Scotland in order to develop a more rounded picture of Southern Scotland in the Iron Age.

Forts and enclosed settlements are extensive across much of the region, although there is a lack of coherent information on the frequency and extent of unenclosed settlement. This is perhaps an issue pertaining to archaeological, except where the unenclosed sites overlie enclosed sites (Cowley 2009, 218-20). In East Lothian, enclosures do appear to be more frequent in some parts of the landscape than others and do not just reflect a discovery bias (Haselgrove 2009, 3). Clusters (communities?) of enclosures have also been noted in the Tweed valley (Wise 2000).

There is a significant overlap or continuum between sites conventionally termed forts and enclosed settlements, and between different sizes of enclosed settlements. There is an appreciable variety of form and scale of curvilinear enclosures across East Lothian, while rectilinear enclosures tend to be smaller and simpler.

East Lothian is arguably the only part of Scotland with a well documented if skeletal chronology of enclosed places. Some of the

larger forts (Traprain Law, Eildon Hill North) presumably have Late Bronze Age origins, and TLEP has identified the Late Bronze Age origins of some of the East Lothian curvilinear enclosures (though cf. Sharples 2011).. A wide range of first millennium BC enclosure forms is present, although rectilinear enclosures appear to have their origins in the last quarter of the millennium. The number of enclosed settlements may have increased during the millennium as a result of population increase and settlement expansion consequent upon agricultural expansion (Haselgrove & McCullagh 2000, Tipping 1994); this equation merits more work. 'Unenclosed settlements' were built over enclosing works from the last quarter of the millennium (e.g. at Broxmouth and Eweford), although enclosed places continued to be used into at least the first quarter of the first millennium AD (at e.g. Port Seton etc). There seems to be a dearth of Early Historic fortification and more dating evidence is required.

With the Hownam sequence no longer a universal model, a complex array of individual site histories remains which it is now urgent that research addresses in order to however vulnerable a model against which to test accruing evidence as the results of research introduce further complexities. Can a 'trend towards enclosure' in the first millennium BC in the south-east really be identified? Other sorts of enclosures that have associations, attested or implied, with enclosed places include variously: linear boundaries (Halliday 1982, 76-8; eg Woden Law); banked / timber revetted enclosures (the Castle O'er cattle ranch, RCAHMS 1997, 79-84; Tamshiel Rig); pit alignments associated with major hillforts (Cowley 2009, 222-3); and cord rig associated with earthwork and palisaded enclosures in the Borders (Halliday 1982). Improving understanding will require more excavation, and developer-funded work is contributing in this region.

Central and Eastern Scotland

Haselgrove *et al.* (2001, 25) characterised existing knowledge of the sub-regions of this area as either 'unsorted' (Perthshire, Angus) and 'black holes' (Grampian, Stirling, Fife). This is a reasonable assessment as regards enclosed places more specifically, although one could argue Stirling, and possibly Aberdeenshire as 'unsorted.'

Despite favourable topography, sites conventionally termed hillforts are few and far between in many parts of this area (e.g. NE Perth, RCAHMS 1990), except beside the Tay Estuary and in central Aberdeenshire (Ralston 2007, 9). There is wide diversity in terms of topographic setting, size, shape and nature / scale of enclosing works of forts (Ralston 2007; RCAHMS 1997, 97; Dunwell & Ralston 2008, 61). Forts are often located peripherally to areas of denser settlement and on prominent landmarks, some 'gateless' oblong forts arguably re-shaping the hills in cultural form (e.g. White Caterthun). A higher proportion of vitrified walls than other areas has been noted (Ralston 2007), and there are fewer palisaded sites compared to South-east Scotland. There are concentrations of coastal promontory forts along the Angus and Moray littorals. Lightly enclosed sites (e.g. defined by a single circuit), some or all of which are arguably enclosed settlements, are not uncommon (Macinnes 1982, Davies 2007), but numerically they are less frequent than unenclosed settlements. Armit (1997c) regarded the evidence of fewer forts and more unenclosed settlements as reflecting a more overtly ranked society than elsewhere in Scotland, though the opposite is arguable depending upon how the structure of society is modelled; this illustrates how fundamental an understanding of the role of hillforts is to an understanding of Iron Age society.

Until relatively recently, investigation of enclosed places had been scarce, although some important examinations of coastal and inland promontory forts had taken place

(along the Moray and Angus littorals). A considerable amount of research has been undertaken over the last 15 years. In Aberdeenshire, the Strathdon survey (RCAHMS 2007) was being followed up by the Hillforts of Strathdon sample excavation project (Cook 2010), which aimed to characterise and date one of each of the six types of forts classified by RCAHMS. The Angus Field School examined the Caterthun forts (Dunwell & Strachan 2007) and Mains of Edzell fort (Strachan *et al.* 2003), and the Ironhill East palisaded enclosure (McGill 2003), and began to provide some dating evidence for the mass of unsorted cropmark data in lowland Angus. In Perthshire, the SERF project is sampling the forts in the Forteviot area, although primarily in a search for Early Medieval fortifications that might be associated with the Forteviot royal complex (DES 2007, 155-6; 2008, 144).

Based upon the Strathdon survey, RCAHMS (2007, 100-1) noted that the forts of east and north-east Scotland fall within six morphological groups: oblong forts; multivallate forts with strength in depth; large forts with slight defences; extensive enclosures; small forts with ramparts and ditches; and small walled enclosures. Harding (2004) preferred terms such as 'causewayed forts', 'vitrified forts' and 'oblong enclosures', whereas Dunwell & Ralston (2008) identified 'hillforts', 'small forts' and 'promontory forts'. Underpinning these approaches is a lack of agreement on how, or even the ability, to explain the evident diversity of forms, which presumably conveyed a wide range of ideological messages.

Few forts have absolute dates, and the evidence is certainly insufficient to outline the origins and history of enclosed settlement in the region with any confidence (hence ongoing initiatives such as the Hillforts of Strathdon Project). A few reasonably coherent site sequences are available for forts of Iron Age date (e.g. Brown Caterthun; Cullykhan; Cairnton of Balbegno) and Early Medieval

date (e.g. Dundurn; Clatchard Craig; Craig Phadrig).

Oblong forts are long-recognised as a coherent group (Feachem 1966, 67-8), and possibly even an event horizon (RCAHMS 2007, 103), but dating issues have clouded matters. The dating of oblong forts has been dominated by the widely variable results of 1980s TL dating (Sanderson *et al.* 1988 – now generally no longer believed in light of new technical information, see Kresten *et al.* 2003). The variable radiocarbon, archaeomagnetic, and TL dating for Finavon exemplifies this (Alexander 2002), although Harding (2004, 88) has attempted to reconcile the dating by proposing two construction phases within the wall of the fort. More dating evidence is required (see now Cook 2010).

Many forts have complex sequences of development indicated by surface traces (e.g. Turin Hill Alexander and Ralston 1999, Dunwell and Ralston 2008, 70-2; Dunnideer, RCAHMS 2007, Cook 2010) and excavation (Brown Caterthun Dunwell and Strachan 2007), yet others appear relatively simple. Oblong forts appear not to be a primary enclosure in any instance where sequence can be determined. At several sites fort earthworks appear to be overlain by substantial houses or small walled enclosures (e.g. Turin Hill, Alexander and Ralston 1999; Hurly Hawkin, Taylor 1982; Laws of Monifieth). Associations with field systems and pit alignments seem very rare or absent and if this is accepted as evidence of absence it contrasts again with South-east Scotland.

Parts of the region has been reasonably well served in synthesis in recent years (RCAHMS 2007, Davies 2007, Ralston 2007, Dunwell & Ralston 2008), and ongoing projects will provide opportunities for further review, but areas such as Moray have seen little recent work except on promontory forts, and excavation has overwhelmingly considered

ramparts rather than interiors, so the functions of the sites remains opaque.

Argyll and Atlantic Scotland

Haselgrove *et al.* (2001, 25) characterised existing knowledge of the sub-regions of this area as variously with established frameworks (Northern Isles, Western Isles), 'unsorted' (Caithness) and 'black holes' (Sutherland, West Highlands, Argyll, Ross and Cromarty). However, as regards understanding the context of enclosed places, Argyll and Atlantic Scotland is almost entirely a 'black hole', so little is known that any work in this area would be beneficial.

Forts are more common occurrences in some areas (e.g. Argyll or Caithness) than others. Promontory locations are proportionately more common than in other parts of Scotland, and in some locations (e.g. Isle of Lewis; Islay) are frequent but very little understood (Harding 2004, 145; Henderson 2007b, 308-9). Extreme locations in some cases were utilised (e.g. narrow precipitous ridges, stacks).

Enclosed settlements are in the minority, but occur in some areas, for example Atlantic roundhouses (brochs and duns) within enclosures on Inner Hebrides and Skye (e.g. Dun Mor Vaul; MacKie 1974), and West Highlands (e.g. Dun Lagaidh, Loch Broom, MacKie 1976); brochs associated with 'villages' on the Orkney Islands (e.g. Gurness; Howe; see 6.2 for questions of contemporaneity), and cropmark enclosures emerging in Kintyre (Halliday & Ralston 2010). Some of the Western Isles promontory forts incorporate Atlantic roundhouse architectural traits (galleries, intra-mural cells), as do Shetland 'blockhouses'. Whether the apparent lack of evidence for palisaded enclosures or the use of palisades across the area is real or a visibility issue requires further exploration.

The emphasis of site investigation in this area has been firmly on settlements (including some enclosed examples), with comparatively

little examination of forts. A lack of excavation and dating was identified by Hingley (1992), and has not been seriously addressed since, although there has been limited examination of promontory forts as yet not fully published (Gob Eirer, Isle of Lewis; The Landberg, Fair Isle). There is an overlap between larger duns and smaller forts, although classifications based upon size based distinction (e.g. RCAHMS 1971) - are now recognised to be unhelpful (Halliday & Ralston 2010).



Figure 33: Gob Eirer promontory enclosure, Uig, Western Isles © Uig Landscape Project

There is little good dating of forts, as there has been little investigation. Ben Griam Beg has been assumed to be of early date (possibly Late Bronze Age/Early Iron Age), given its high altitude (Mercer 1991) but firm dating evidence is needed for this. It is such an exceptional site that it must have something important to say about the nature of society at the time it was created and in use.

The dating of enclosed brochs and duns is better (although incompletely) understood in most areas as part of the currently understood chronology of Atlantic roundhouses more generally, although this chronology is not without debate (Theme 5). In Argyll, significant issues remain as to the classification and dating of duns. Harding (1997, 2004) proposes circular roofable dun-

houses as part of the Atlantic roundhouse tradition with 1st millennium BC origins, and larger often non-round dun-enclosures that contain buildings as Early Medieval. Others (e.g. Alcock 2003, 186-8) dispute this, preferring to interpret nearly all Argyll duns as Early Medieval, citing Rahoy (Childe and Thorneycroft 1938) as the only certain Iron Age structure. The evidence from those excavated sites that drive these competing models (e.g. Ardifuir; Dun Kildalloig; Dun Fhinn; Kildonan) is variously unpublished, of poor quality or equivocal. More recent excavations at Loch Glashan dun, as yet unpublished, provide another securely Iron Age example of an Argyll dun (DES 2005, 166).

The complexity of relationships between forts and duns was discussed by Hingley (1992, 18). Nieke (1990) has argued that in Argyll forts predated duns, based on a few demonstrable examples (e.g. Dun Skeig; and note also Dun Lagaidh further afield, Mackie 1976) - but Harding (1997, 132-3) has warned against presuming a general rule based on importing models from other parts of Scotland. The classification and dating of Argyll duns remains an important research issue.

As a result of the lack of investigation and the focus on brochs and duns, there has been little recent attempt at regional synthesis of the context of enclosed places apart from Argyll (e.g. Nieke 1990 versus Harding 1997, 118 on the nature of 'occupation' of forts), Henderson's (2007a) consideration of promontory forts (also Lamb 1980 on Northern Isles promontory forts), and MacSween's (1985) study of the brochs, duns and enclosures of Skye.

Dating evidence remains a problem overall. What lies behind the diversity of enclosure forms in some areas?

Focus is needed on south-west Scotland in order to develop a more rounded picture of southern Scotland.

Is the rarer use of enclosure (e.g. in north-east Scotland) an indication of a more or less ranked society than elsewhere (Armit 1997, 61)?

The dating of and nature of activity in Ben Griam Beg is a specific issue of concern as it is of considerable significance.

Kintore, Aberdeenshire: shining light into a black hole

The later prehistoric and early medieval settlement record of Aberdeenshire has until recently been poorly understood. The Aberdeenshire Iron Age has been described as a black hole (Haselgrove et al 2001, 25) and portrayed as a blank (Cunliffe 2005, 599; Bradley 2007, 287); the Early Medieval Period dismissed as lacking in centralized authority (Alcock 2000, 8; RCAHMS 2007, 116; Fraser 2009, 66). In large this part is connected with an absence of any tradition of excavation (Ralston et al 1983, 149). The settlement record was usually characterized as unenclosed (Macinnes 1982), despite the presence of a discrete cluster of hillforts mapped since the late 19th century (Christison 1898, pull out map; Feachem 1966; Harding 1976, 361-2; Ralston et al 1983; Armit & Ralston (2003, 181. It was put into a six-fold classification by RCAHMS (2007, 100-1); none of the hillforts had been excavated, and they were routinely considered to be Iron Age (Armit & Ralston 2003, 172).

This situation dramatically changed between 1996 and 2006 when a series of mitigation excavations covering 50ha were undertaken around Kintore (Rees 1996; Glendinning 1998; Alexander 2000; Cook & Dunbar 2008; Cook *et al* forthcoming). These excavations identified an unenclosed settlement sequence running from 1800 BC to AD 1000, including 47 unenclosed roundhouses. Further rescue work in Kintore's immediate environs identified a further nineteen roundhouses (Johnson 2004; Murray & Murray 2006; Roy 2006; White & Richardson 2010; Cook et al 2011; Cook et al forthcoming), bringing the total to 64. This is the largest discrete assemblage of roundhouses ever excavated in Scotland (Pope 2003).

In order to integrate the unenclosed sequence with that of the hillforts the author proposed to excavate one example from each of the RCAHMS scheme; this took place between 2005 and 2010 (Cook 2010a; Cook 2010b; Cook 2011; Cook in press a; Cook in press b). This exercise indicated that of the roughly twenty hillforts in Donside, seven dated to the Middle Iron Age and nine to the early medieval period, with the balance dating to either the Late Bronze Age or the Early Iron Age. A summary of the integrated settlement sequence (Cook forthcoming) is as follows:

Middle Bronze Age (1800-1300 BC): No Hillforts, but isolated roundhouses with a variety of entrance orientations, all with pits and ring-ditches in their interiors. The ring-ditch was located within the post-ring in the northern half of the site. At the end of a structure's use, there is evidence for both ritual enrichment and destruction by fire.

Late Bronze Age (1300-800 BC): Large scale enclosures with slight defences (Hill of New Leslie, Tap o'Noth outer enclosure) and isolated unenclosed roundhouses with entrances tending to be focused on the south; more pits dug within the structure than in the MBA. Ring-ditches are still located within the ring-ditch in the northern half of the structure. There is still evidence for ritual enrichment and destruction by fire.

Early Iron Age (800-400 BC): Hillforts with multiple entrances (Hill of Barra and Barmekin of Echt outer enclosures) and roundhouses are still isolated; entrances tend to focus on the south. Fewer pits dug in the interior; ring-ditch now located outside the post-ring in the northern half. There is no evidence of ritual enrichment, although there is still destruction by fire.

Middle Iron Age (400-50 BC): A variety of hillforts and enclosures (Hill of Barra, Barmekin of Echt outer enclosures; Bruce's Camp, Tillymuick, Dunnideer outer enclosure; Dunnideer and Tap o'Noth inner enclosures, Wester Fintray and Suttie cropmark enclosures), some with multiple entrances, some with none; some appear to contain nucleated settlement. This suggests an active role in warfare, conspicuous consumption and social competition. No hillforts are constructed *de novo* after

c 250-200 BC. Roundhouses become clustered, with ring-ditches outside the post-ring; few pits dug within the interior and no ritual enrichment, although destruction by fire still occurs. There is also an increase in pits dug outside roundhouses, coinciding with a wider trend for the deposition of high status metalwork in pits (Hunter 1997; 2001; 2010)

Late Iron Age a (50 BC to AD 250): No hillforts or enclosures and roundhouses are isolated, and while souterrains are known none at present are associated with roundhouses in Donside. Few pits are dug in roundhouses; ring-ditches still in the north of houses, which are still destroyed by fire.

Late Iron Age b (AD 250 to AD 400): Potential evidence for hillforts (Hill of Barra reformation) from the end of this period but no evidence for unenclosed settlement, merely a series of pits and ovens. This break in settlement appears to coincide with a drop in Roman imports in the North-East (Hunter 2007, 49).

Early Medieval a (AD 400-650): No evidence for unenclosed structures in this period, but a series of forts suggest an active role in warfare, conspicuous consumption and social competition (Hill of Barra reformation, Maiden Castle and Cairnmore).

Early Medieval b (AD 650-1000): No *de novo* hillforts are constructed but unenclosed settlement returns and is associated with underground storage and corn-drying kilns.

6.9 Research recommendations

From the detailed research recommendations in the foregoing, the following can be drawn out as priorities:

- *Enquiry must move to a situation where regions can be compared on a more equal footing. Some key 'black holes' sitting between other better understood areas are immediate targets for research (e.g. Fife, between the Lothians and Angus; the western seaboard between Galloway and Argyll; the central and western Highlands).*
- *Programmes of sample excavation provide a valid and cost-effective approach to obtaining a first-stage model of settlement sequence in a region.*
- *A key question is the visibility and representativity of known settlement patterns.*
 - *Open settlements appear under-represented in many parts of lowland Scotland except in pockets where cropmark production is good) – this requires investigation, possibly by an alternative method of remote sensing.*
 - *Procedures for the detection of any 'invisible' component of the settlement pattern, such as simple houses with turf walls or otherwise lacking foundations, are needed, as this has a profound impact on how the demography as well as the spatial organisation of prehistoric societies are modelled.*
- *The nature of broch villages remains unclear, as the evidence for contemporaneity of broch and village is not always strong, although at some phases the two were in concurrent use – when did this happen, and what does it represent in terms of social forms?*
- *The relationship of settlements to the inherited landscape and the deliberate reuse of earlier sites are both key topics for further work.*

- *Why did people choose to inhabit places such as hilltops, promontories jutting into the ocean and artificial islands in lochs? There is a need not only to study the setting of sites but also to try to reach a better understanding of how landscapes were conceived.*
- *There is no overall picture regarding the role of 'hillforts', whether as tribal capitals, (seasonal) meeting places, elite residences, or other functions and it is likely that their role varied across time and space. This impacts directly on social models for the Iron Age; regionally-based diachronic models are key desiderata.*
- *What lies behind the diversity of enclosure forms in some areas? A regionally-structured review of the classification and social context of enclosed places is required.*
- *The lack of dating evidence for enclosed sites is an issue across the board, as it is a severe constraint in understanding them. 'Key-hole' work offers the prospect of obtaining at least an outline chronology in an area relatively quickly, but with the caveat that such approaches will inevitably simplify each site sequence and can only produce a first-stage model.*
- *The lack of evidence for activities within enclosed sites, due to limited work in enclosure interiors, is a severe constraint, as are the difficulties in connecting interior activity to enclosure sequences. Geophysical survey offers a cost-effective approach to assessing enclosure interiors in favourable circumstances.*
- *The nature of the largest forts (e.g. Traprain Law, Eildon Hill North, Burnswark) in relation to the wider settlement sequence remains an area requiring further work.*

7. Relations between people

7.1 Introduction

This theme can be seen as the goal to which research from the other themes contribute: understanding people and societies in the Iron Age. As such, there is considerable overlap between the topics discussed in this section and the rest of the document, and the section as a whole is more aspirational - there are many more questions than answers. As seen in the earlier sections, the basic information for constructing a picture of later prehistoric life is available, despite many gaps. A wealth of data has been accumulated over the last 150 years or so. Some of the 'black holes' highlighted in the British Iron Age research framework (Haselgrove *et al.* 2001) have been partly filled (e.g. Poller 2005; Davies 2006). Much more is known about the houses, enclosures and landscapes that people lived in, but these pieces of evidence need to be knitted together into a broader picture. How scholars go about this has always proved problematic and subject to the vagaries of contemporary fashion in interpreting the past, which can be traced through the historiography of the subject (see Theme 2). The current theme aims to consider broad questions of people and society, moving from consideration of individuals and group identities to models of social structure, as well as exploring how groups interact. Finally, it will consider beliefs, from attitudes to death, to broader cosmologies, and how to develop a broader understanding of these through archaeology.

7.2 Individuals and Groups

How were societies organised in Iron Age Scotland, and how did this change? How was an adult or a child defined, and what shaped their role in society – family, gender, skill? What constituted a family or a household? What can be said about people's identities and how people and groups related to one another?

The data can readily provide information on aspects of the daily experience of individuals' lives, though in a general rather than a specific way. The setting of lives (the house, the landscape) and many of the activities (farming, feeding, craft activities and so forth) are susceptible to analysis, although identifying what specific groups of individuals experienced (for instance, according to age or sex) is much more difficult. More attainable is a long view on how daily lives changed over time and space.

A fuller and fine-grained understanding of past lives requires more integration of information from different sources, including structural, artefactual, ecofactual and environmental evidence. (See discussion in theme 4, with the example of a 'field to feast' approach).

A key area for research is a better understanding of how major categories of material culture were used, as this is critical to understanding daily life. Notable examples of this are bone and coarse stone tools. There is a need for studies of these, using use-wear, analogy, experiment, and contextual evidence, allied to novel scientific techniques such as residue analysis of coarse stone tools. Pottery studies need to look more at culinary practice, and expand this beyond just ceramics to vessels in all materials.

The construction and projection of individual and group identities through material culture can be explored archaeologically, through features such as pot and pin styles. Material indicators of identity can be recognised, but how can they be analysed in a sophisticated and meaningful way? What were the meaningful commonalities and differences for people living in Iron Age Scotland? Hunter's (2007b) work on the different metalwork styles of the late centuries BC and early centuries AD shows how material culture studies are of central importance to the interpretation of identity, but much more

could be done. For instance, in areas where there is no surviving decorative metalwork, is this absence a matter of depositional bias or a wider indication of different practices in different areas? What social segments had access to metalwork, or understood its decoration? What messages did a pin or a pot convey compared to an armlet or a sword? What patterns do other material categories indicate? There is much to be gained from interrogation and integration of the artefact data, seeking patterns in its occurrence and use. How did this change over time? A number of authors have identified increasing signs of individual adornment and expression (e.g. the increase in burial numbers; theme 7.6) towards the end of the Iron Age, and this has been correlated with changes in architectural styles (e.g. Sharples 2003) – but there is scope to consider this in more detail and subtlety, as well as seeking whether this is a general or regional phenomenon.

On a broader scale, can meaningful regional patterning be identified, and if so, what does this say about regional identities or the existence of links with other groups?

Broad-brush variations in housescapes (see Theme 5), from construction (including timber, turf and drystone), to nature (ephemeral, seasonal, or permanent) to ‘type’ (crannog, dun, broch, roundhouse), to architectural detail (enclosure, monumentalisation, vitrification) have been employed to construct Iron Age ‘regions’ (e.g. Piggott 1966). The robustness of these regional boundaries remains a point of debate, and the temptation to overlay territorial or tribal lines (from e.g. Ptolemy) on these ‘regions’ highlights a trend in using the regions as ‘actors’ or ‘politico-cultures’ in the wider Iron Age narrative (see Theme 3). How do regional patterns of houses and settlements help to understand group identities? Can new composite and flexible understandings of Iron Age Scotland be built that allow for regional groupings shifting through the period? What archaeological

evidence can be marshalled? Can the tendency to resort to simplified distribution maps (maps of recovery) with the best outcome being regionality be resisted?

Such studies need to look beyond site types and integrate information from assemblages or artefacts and ecofacts as well. The systematic comparison of assemblages between sites, or between regions, offers a valuable way forward here, especially if they can be compared by statistical means such as correspondence analysis rather than drawing on a few particular traits. Here the evidence from older and antiquarian excavations is a valuable resource, as it provides a spread of sites beyond what could be hoped to be excavated today.

There is a need for more integrated approaches to understanding daily lives in the past by drawing together different sources of evidence.

The function of key categories of evidence remains obscure.

The comparison of different categories of material culture should allow more insights into changing constructions of people’s identities and views of themselves over this period.

7.3 Art and decoration

A key area for research is the role of decoration in creating and conveying identities or other messages. This should cover topics such as colour (elusive, but not impossible to study) as well as more conventional concepts such as Celtic art. The decorative metalwork which carries Celtic art is too often studied in isolation, and needs to be integrated into broader models of society (Hunter 2006, 2007b, more generally Haselgrove *et al.* 2001, 17; , *et al.* Gosden and Hill 2008) to understand the motives behind its creation and use, and its potential impact (e.g. Giles 2008). Such metalwork could act to

signal both individual identities (status, connectedness etc) and group affiliations. Some styles show connections to broader British or Continental habits, such as the Torrs chamfrein (Atkinson & Piggott 1955). Others are much more concerned with regional identities, such as the ‘massive’ tradition of north-east Scotland, or the so-called ‘central British’ traditions (MacGregor 1976; Hunter 2006, 2007b). This latter one is particularly challenging, and interesting, as it developed around the Roman frontier and became entangled in the forging of new identities in this area (Hunter 2008).



Figure 34: Detail of the neck collar from Stichill, Scottish Borders, a classic piece of Celtic art, © NMS

But there is a need also to look at broader questions of decoration (including colour). Sharples (2008) comments on the need for a broad perspective on such topics. Evans (1989) has noted the rarity of decoration except on metalwork, even on sites with well-preserved organic material (such as wood) which might have been expected to carry decoration. It is noticeable that bone and antler, for instance, is also rarely decorated, and the rare decorated pieces tend to have

geometric rather than the typically ‘swirly’ decoration of Celtic metalwork. A start has been made in some areas, for instance on the possible significance of pottery decoration at Sollas (Campbell 1991,) and the occurrence and significance of decorated querns (McLaren & Hunter 2008), but there is much more to be done here.



Figure 35: There was more to decoration than Celtic art. More everyday objects were also sometimes decorated, but in different styles such as this quern from Broxmouth, © NMS

Research needs to integrate specialist topics such as Celtic art into broad social interpretations.

The wider role of decoration and colour in Iron Age societies remains to be investigated.

7.4 Social structure and models of society

Social modelling has been rather simplistic, traditionally, consisting of the imposition of “Celtic hierarchies” from Continental or literary evidence using Celtic philology, classical sources taken out of context, and later medieval insular sources to create a

world of chiefs, warriors and druids (cf. James 1993, 52-3). In studying settlement patterns, it has been commonplace to identify particular buildings or settlement types as the residences of an elite (e.g. hillforts and brochs). 'Elites' is a term used by researchers working in different areas and at different periods, construed variously to include perceived rulers and the associated aristocracy / oligarchy who rely on display and conspicuous consumption to maintain their status, or wealthy subordinates who accumulate enhanced wealth by controlling the wider population. The term is an imprecise one, too often used loosely or assumed rather than demonstrated from the data. Archaeologists need to be careful that they compare like with like, and should articulate clearly how they use such terms. What kinds of people are involved? What scales geographically did their influence operate over? Was it accepted or contested? Did it die with the person?

Yet social structure is a topic which can be approached archaeologically. Much evidence exists for studying the basic unit of the house and its occupants (see Theme 5) but integrating this within the organisation of the agricultural system (see Theme 4) is pivotal. Expanding this out to interpreting the settlement patterns requires the creating and testing of models and integration with theoretical perspectives. How did Iron Age societies work, how did this change, and how are these changes expressed archaeologically? It is assumed that societies were kinship-based, but this can easily become a meaningless generalisation – can it be suggested what is meant precisely by this?

Broad mechanisms of identity and political formation have been described for the Iron Age through a trajectory including: the increase in social differentiation between people, and development of hierarchies; 'big men', tribal leaders and kings; and the creation of larger group identities (tribal groups), culminating at the very end of the

long Iron Age with the emergence of 'peoples' e.g. the Picts. Current understandings are based upon a series of assumptions, often constructed from implicit analogy. The extent to which these assumptions are justified, and whether current models of society are suitably robust, requires critical attention. Consideration must also be given to how such mechanisms of social relations shifted and adapted through time. How a comprehensive picture is built up that moves seamlessly between scales of analysis, from the individual, to the household, to wider networks and regions is therefore a central challenge.

The impact of sedentism, transhumance, and changing patterns of tenure throughout the Iron Age would have had a massive impact of society. Approaches that explore this relationship and span the traditional chronological boundaries should be promoted. The diversity of evidence across Scotland in space and time represents more than regional variation, but significant differences in societies and social structures in different areas; for instance, the evidence of metalwork hoarding practices and differential adoption of Roman finds have been interpreted in terms of social variations across the country (Hunter 1997, 2001). Such attempts to write bigger pictures have seen considerable debate – for instance, in the interpretation of brochs as elite residences or typical farms, or the role of rare hillforts in the north-east as hierarchical centres or communal gathering points (see 6.4). Such work is challenging, and contentious, but it is in the building of such broad-scale pictures and their testing against the excavated evidence that archaeology can play to one of its strengths: its view of long-term change.

What is the relationship between periods of agricultural intensification and social relations e.g. in the 3rd to 1st centuries BC (Tipping 1997)?

What are the social mechanisms beyond the basics of gender, age and rank that differentiate and shape societies e.g. kinship, marriage, fosterage, inheritance, tenure, tradition, tribute, taxation, justice, and exchange?

Does archaeological evidence for any of these basics exist and if so which, and are the more ephemeral concepts (fosterage, justice) likely to be visible archaeologically? How might they be expected to manifest themselves?

Is literary evidence or other inter-disciplinary study the key to understanding these categories or does this use of analogy force things into a generic 'Celtic model'?

Can these synchronic social mechanisms be integrated through inter-disciplinary study?

Can archaeology contribute through evidence demonstrating how some of these social mechanisms might have appeared, disappeared and changed in use over time? Can the 'long view' of change be used more effectively? It is likely that a number of different social and political formations would have existed syn- and diachronically across Scotland throughout this huge swathe of time and indeed during particular sub-periods as Hunter (2001) has argued using access to Roman finds beyond the frontier as an indicator.

7.5 Interactions between groups

There was considerable interaction in various ways between groups of people in the Iron Age. It is increasingly clear that materials, goods, people and ideas were moving for a variety of motives, including warfare, violence and the exchange of resources, goods, people and animals. The evidence for this movement, as well as the means and motives behind it and the subsequent impacts, are important research themes.

The influence on people of Scotland's dramatic landscapes, shaped by mountains, geology and hydrography cannot be over-emphasised, from individual water catchments to the broadest maritime divisions. The seaways would have been vital in this rugged and deeply indented landscape to movement and interaction. Wider links to the South, Ireland and the Continent must be fully explored in assessing any apparently exotic influence detected in the Scottish record; though it is notable that the evidence is far less than in the preceding Bronze Age. In discussing interactions between groups, there is the underlying problem of what actually constitutes a group. In this section the focus will be on larger scale connections, i.e. not between communities but between larger-scale geographical groupings sharing particular social norms. The existence of regional patterning in different classes of evidence at various times and places (albeit with different categories rarely giving the same picture) indicates the existence of larger "communities of interest".



Figure 36: Pony cap and horns from Torrs, Kirkcudbrightshire. The decorative style shows strong links to Continental art styles, but

technical details indicate it was made in Britain or Ireland, © NMS

In simplistic terms, the main evidence of cultural interactions comes from: the spreading of material (settlement or artefact types) typical of one area into another, such as the lowland extension to the distribution of brochs or the southerly distribution of massive metal armlets; or technical traits, e.g. vitrification, *chevaux de frises*, technological innovations or ring-ditch house construction.

This was grist to the culture-history mill, with such evidence being used to construct narratives of diffusion and invasion (e.g. Childe 1946). As such views were, perhaps prematurely, discredited, alternative explanations such as prestige goods exchange came into vogue (e.g. Macinnes 1984). Consequently there has been a notable trend towards regional self-containment in recent scholarship, with a focus on the region (however defined) as a unit, and little attention to its external contacts. Isotopic evidence from other areas for at least some people being mobile (e.g. the Ferry Fryston chariot burial, where movement within Yorkshire is suggested; Boyle *et al.* 2007, 154) is beginning to change perceptions (though there remains no evidence for large-scale migrations), and to this may be added a range of evidence which indicates connectivity over a range of scales and levels.

What kinds of interaction should be imagined? Various forms of socially-embedded exchange have been mooted. Some involve minimal movement of people but potentially wide-ranging movement of objects, such as gift exchange, tribute or emulation. Others involve small numbers of moving people, in social ties such as marriage or fosterage. There is also the possibility of less socially-constrained movement, with potentially mobile people such as warriors, some craft-workers, musicians, or religious specialists. The evidence for choosing one mode over the other is rarely clear-cut, and is

often defined as much by current interpretative trends as clear patterns in the data. However, the nature of the material (e.g. everyday or prestige; personal / gender-specific; item or idea) can offer hints. Finds such as the Newbridge chariot burial exemplify some of the complexities: a form of burial typical of the Continent, and pointing to knowledge of rites there, but a vehicle judged to be clearly of insular origin on the basis of its technological details (Carter *et al.* 2010).

Contacts in various directions can be seen to take place over various scales of distance, from small (tens of kilometres) within a region, to hundreds of kilometres across seaways. Here the role of maritime connections is clearly critical, again at a range of scales, from inter-island communications to voyages to Ireland and the Continent. A number of broad trends may be noted. In general, the Scottish evidence fits the wider British picture of a relatively isolated early Iron Age, particularly in comparison to the LBA, with increasing evidence of contacts from as early as the 5th/4th century BC, and most such evidence being LIA (1st century BC – 1st century AD). These distant connections are of importance, whatever their nature, in showing that at least some people or groups in Iron Age Scotland had affinities to, and connections with, what was happening in the south of the island and the near Continent.

An under-studied aspect of interaction is warfare (c.f. Sharples 1991; Keeley 1996; James 2007; Armit 2007b). The evidence for this is notoriously difficult to interpret, especially in the absence of a substantial skeletal record, but a general case can be argued for inter-community warfare being a social factor throughout later prehistory. Its nature and extent must have changed over time, although the evidence is scarce to come by. Warfare is portrayed as a status pursuit in the LBA and arguably during the LIA, with the appearance of ornate personal weaponry (Hunter forthcoming c). For much of the rest of the Iron Age, the lack of such evidence

could be argued to reflect a situation where warfare was prevalent but not socially dominant, or not focussed on individual combats (although the poor preservational properties of iron *vis à vis* bronze may also have affected the faltering of the record of warfare in the early and middle Iron Age).

More studies of the evidence for movement of materials, objects, ideas, and people are required in order to understand more about the motives for, and impact of, movement. Boundaries should also be considered, including possible East-West divisions or potentially boundaries based on water courses, e.g. the Forth or the Tay, or other physical features e.g. The Mounth.

*What processes lie behind such evidence? Connections with Ireland merit more work, given its proximity to the west of Scotland and the surprisingly small amounts of evidence for links after the LBA until the early centuries AD (Raftery ***).*

7.6 Beliefs

For all its apparently domestic character, evidence for rituals and beliefs is a key feature of the Iron Age, both on and off-site. The on-site evidence is critical to understanding both the material record from sites and the societies involved; the off-site finds (especially hoards) provide a link into wider concepts of landscape, the understood world and cosmography. Evidence of how Iron Age societies dealt with death is at last beginning to accrue, revealing a bewildering complexity.

The popular and previously dominant academic paradigm of a widespread Celtic religion is questionable as it conflates sources distant in time and space from the Scottish Iron Age (Fitzpatrick 1991; Hingley 1992). Recognising ritual practice has always proved difficult and there has been a reliance on a classical model of gods, temples, iconography, mythology and formalised burial rites (Webster 1991). Inferring beliefs is the

hardest inference of all (Hawkes 1954). Analogy often relies on 'primitive' anthropological theory such as natural religion/animism (Tylor 1891), fertility (Frazer 1924) and more recently Shamanism (Aldhouse-Green 2004)

How then can correlations and similarities with wider British, Irish and European archaeological evidence for ritual and religion be explained? What are the mechanisms for the transmission and maintenance of common patterns of practice? How can this be addressed from archaeological evidence alone? What is the role of analogy and is an enhanced cooperation with philology/Celtic studies a necessary step towards a fuller understanding? A comprehensive survey based solely on Scottish archaeological evidence that synthesises recent data is needed to address these issues.

On-site ritual practice

The focus of Iron Age studies has often been on the apparent domestic nature of the evidence. The quest for an archaeology of everyday practice hoped to find patterns of structured behaviour behind the deposition of artefacts on site (Fitzpatrick 1997; Parker Pearson 1996; Parker Pearson & Sharples 1999). Scepticism of cosmological interpretations can still allow the production of interpretations directed at ceremony and ritual (Pope 2007). The work of Hill (1995) in particular highlighted the existence of patterns behind the deposition of objects, human and animal remains in pits in Wessex which had previously been seen as rubbish, and the existence of certain features, such as pits, ditches and post-occupation deposits rich in cultural material is increasingly identified as the result of complex but poorly understood episodes of deposition. These may be linked to specific important events in a community's life, and careful consideration of patterns and associations could provide models for testing (e.g. Campbell 2001). The deposition of material such as smashed or intact querns is

often linked to concepts of ensuring fertility, at moments connected with the life-cycles of houses, as they often occur in foundation or abandonment deposits (e.g. Barratt 1989; Hingley 1992; Brück 1999). However, this does require demonstration (in the form of recurring patterns of deposition) rather than assumption because it happens to be a current theory. This impacts directly on field practice, in the detailed recording of object location and position. Formation processes on site need to be carefully considered for the recognition of ritualised practice.



Figure 37: Deliberately-smashed saddle querns buried in a pit on the settlement site of Birnie, Moray, © F. Hunter

Off-site deposition and hoarding

Spectacular artefacts that are rarely found on inhabited sites were recovered during early modern agricultural improvements – this includes most of the pieces of ‘Celtic art’ in Scotland. They have often been treated as

stray finds as they frequently lack contextual information but collection and synthesis of data allow meaningful patterns to be explored in terms of objects, associations and location (e.g. Hunter 1997). This could be supplemented by modern study of the environment and setting of these finds: landscape and peoples’ perception of place is one gateway to understanding these practices. The lack of structures and perception of a use of natural places may be more apparent than real as few have been investigated (e.g. excavation of the findspot of the gold torcs at Blair Drummond in 2009 revealed a timber circular structure (house? shrine?) at the site of the hoard).

Wet places, springs, wells (which Minehowe would appear to be), rivers, mires and lakes all appear to have liminal associations at this time. There is also an emerging trend in the Iron Age for subterranean sites and features as ritual foci (e.g. High Pasture Cave, Minehowe) and it is tempting to view this as an ‘underworld’ component of the Iron Age cosmological landscape.

It is important to bear in mind that assemblages of a ceremonial character may have been deposited instantaneously, but may equally have accrued over a very long period of time. Excavation at recent findspots such as Fiskerton (Lincs) and Snettisham (E Anglia) has shown how complex the practices could be (Field & Parker Pearson 2003; Stead 1991), while other classic ritual sites have seen increasingly complex reinterpretations (e.g. Llyn Cerrig Bach, Macdonald 2007; La Tène, Müller 1992, 2007). Excavation of future and past findspots is a priority to understand the processes taking place at them.



Figure 38: Excavations in the bog where the Deskford carnyx was found, © NMS

Death

The last synthesis of Iron Age burial in Britain had a very sparse Scottish section (Whimster 1981). This could now be expanded considerably, thanks in large measure to the more routine dating of unaccompanied inhumation burials, and technical developments allowing the direct dating of cremations; this has revealed a considerable number of Iron Age burials (e.g. DES 2005, 148 (Pollochar); 2003, 169). Exceptional discoveries have also changed the picture: the site of the Knowe of Skea on Westray has revealed over 200 burials, the vast majority of infants. This itself poses severe problems of interpretation – is this number more typical of what would be expected from a long-lived community, and if so why have more such sites not been found? And is such high infant mortality typical? Ongoing PhD research on these remains should help to answer this.



Figure 39: Remains of a youth whose body was divided between four pits under a house at Hornish Point, S Uist, © NMS

Yet overall the number of burials remains very small, given the time span and population involved, and especially in contrast to large parts of the Continent at this time or to the Scottish early Bronze Age record. Iron Age Scotland fits the general pattern for Britain, which has only sporadic formalisation of burial rites at certain times and in certain places; formal burial was the exception, and there is increasing evidence for a variety of non-normative burial rites and manipulation of human remains (Armit & Ginn 2007; Shapland and Armit 2011). This included (but was not limited to) fragmentation of individuals, partial burial, and the retention of certain skeletal elements (often skull parts) on domestic sites; it is not at all clear what led to the treatment of individuals in specific ways, although careful osteological study (for evidence of trauma) allied with scientific evidence (isotopic study to ascertain whether they are local or not, and perhaps ultimately DNA work when it is more reliable) offer ways forward. The recognition of cremated human bone within midden material at Phantassie, East Lothian (Lelong 2008, 195), offers a possible reason why routine disposal of the dead is all but invisible, although the results have yet to be replicated on other sites. Whether it is possible to know what happened to the majority of bodies of Iron Age people remains a question that innovative techniques or methodologies might help answer. Why burial is apparently more common in some areas (e.g. East

Lothian) than others is another interesting question. Is this primarily conditioned by areas where bone survives, or are there wider patterns at work?

Inter-connections

Belief impacts on all the other aspects of *Relations between people*, and can be used as a lens through which to explore them. For example, in terms of individual and group identities, can hoarding at natural boundaries be used as evidence for regional identities or territory? Prestige metalwork has been used as indicators of status, with objects interpreted as symbols of individual authority (high status ornaments) or symbols of community (vessels). Does deposition therefore indicate a rejection of the authority represented by the objects? More sophisticated anthropological theory could provide a number of analogies against which the Scottish data could be tested. This stands more chance of success as long as ritual evidence is integrated with other more substantial bodies of evidence for Iron Age societies.

For social structure, the increase in deposition in the Later Iron Age could be used to theorise increasingly hierarchical changing societies who could afford to participate in the conspicuous consumption of deposition or in the need for its demonstrative nature to emphasise rank. How can this be tested? The apparent rarity of burial in the earlier Iron Age and increase in Later and Roman Iron Age may indicate steeper social stratification but can this correlation be supported by other evidence? A focus on settlement and on-site ritual practice is one of the recurring features of Iron Age society, with the demise of circular architecture at the end of the Iron Age fitting theories of major social change at the end of this period – how does evidence for Iron Age belief correlate with this?

In terms of the interaction between groups, prestige metalwork is often exotic and therefore demonstrates evidence for the

movement of materials objects, ideas and people. Again, does deposition of these exotic objects imply the rejection of alien and ritually polluting material/symbols of distant authority or a reinforcement of existing authority through demonstration of access to these materials, and can this be explored through case studies of e.g. Roman material on indigenous sites?

Wider issues include environmental change and how the ‘nature’ of the landscape features chosen for ritual practices can be understood. For example, how did ritual activity fit into the inhabited, agricultural landscape of Iron Age Scotland? Visibility is a problem for hoarding and ritual sites, as the most spectacular finds were chance finds and fieldwork is needed to contextualise these.

How are patterns of practice recognised and at what scale: locally, regionally, Scottish or British?

Can other ritual sites be located or recognised?

Are there pan-European or at least international trends in ritual that can be legitimately recognised?

How much is Iron Age domesticity a product of modern rationalisation of the evidence?

The occurrence of structured deposits is relatively well researched in Atlantic Scotland, but less so elsewhere (Haselgrove et al. 2001, 8-9). The evidence would benefit from a national and regional review and synthesis. Are there regional differences to ritual practice?

Excavation of any fresh hoard finds is critical – but is excavation the only way to reveal ephemeral structures, pits, platforms, walkways, logboats and organic deposits? What potential is there for remote sensing? Background research into find spots and understanding the processes of recovery

through agricultural improvement may provide further information on context.

Why were certain sites chosen for hoards? There is potential to characterise these sites that suffer from a distinct lack of contextual information. Environmental deposits and ecofactual information may be locked in the waterlogged contexts that produced prestige metalwork or other ceremonial deposits.

Renewed synthesis of the expanded range of burial evidence is a desideratum

The human remains, both from burials and non-burial contexts, merit detailed osteological and scientific study to extract the maximum of information on their date, origins and fate.

7.7 Research recommendations

- *There is a need for more integrated approaches to understanding daily lives in the past by drawing together different sources of evidence.*
- *The function of key categories of evidence remains obscure.*
- *The role of decoration and colour in Iron Age societies remains to be investigated.*
- *There is great potential for more modelling of social structures. Can archaeology provide evidence to suggest what social mechanisms might have appeared, disappeared and changed over time? Can the 'long view' of change be used more effectively? It is likely that a number of different social and political formations would have existed syn- and diachronically across Scotland.*
- *More studies of the evidence for movement of materials, objects, ideas, and people are required in order to understand more about the motives for, and impact of, movement.*
- *Are there regional differences to ritual practice?*
- *The occurrence of structured deposits is relatively well researched in Atlantic Scotland, but less so elsewhere (Haselgrove et al. 2001, 8-9). The Scottish evidence would benefit from a national and regional review and synthesis.*
- *Why were certain sites chosen for hoards? There is potential to characterise these sites that suffer from a distinct lack of contextual information. Environmental deposits and ecofactual information may be locked in the waterlogged contexts that produced prestige metalwork or other ceremonial deposits. Fresh hoard finds should be excavated to gain an understanding of their context.*
- *Renewed synthesis of the expanded range of burial evidence is a desideratum.*

8. Scotland in a wider world

8.1 Scotland in north-western Europe

As observed for Iron Age studies in Britain as a whole (Haselgrove 2001, 61; 2007a), recent research into the Iron Age in Scotland has tended to focus on the local level, highlighting differences between sites, regions and landscapes. This approach has been fruitful, but Haselgrove (*ibid*) suggests that the grand narrative has been lost sight of, particularly how these small-scale analyses relate to the larger picture. For instance, how does the evidence from Scotland take its place among that for the Iron Age of north-west Europe as a whole?

Reasons for the general lack of grand narratives in relation to the Scottish Iron Age in recent years are threefold:

1. A reaction against now out-dated and well-worn diffusionist interpretations of the spread of the 'Celtic' Iron Age, emanating from the Continent to the fringes such as Scotland. In Scotland, studies have increasingly emphasised local developments and innovations.
2. The perceived lack of fundamental similarities in the archaeological evidence between Scotland and other areas, particularly mainland Europe, where traditionally the Iron Age has been characterised by a dominant burial record and lack of settlement evidence; opposite to the situation found in Scotland.
3. The limitations of communication between and across modern political (and linguistic) boundaries. Although there has been an increased level of fieldwork across Europe, particularly through commercially funded operations, access to this information can be difficult; and in some cases language barriers for predominantly monoglot UK scholars further complicate this situation. Additional communication issues arise from differing approaches to the

archaeological record. Each country or region has developed their own traditions in practice, recording and interpretation. For instance, chronologies for the Iron Age based on typologies, even if tempered by scientific dating can be very difficult to compare with those based upon radiocarbon dating alone as largely used in Scotland.

Despite these perceived obstacles there are studies which demonstrate the potential in exploring the Scottish Iron Age evidence from a wider perspective. In 2001 Barry Cunliffe presented a broad narrative, geographically and chronologically which emphasised the importance of the Atlantic Ocean as a routeway, connecting people and societies along this coast for millennia. For the Iron Age, results from an increase of fieldwork in areas such as northern France and northwest Iberia have revealed more examples of morphologically comparable structures to those found in Scotland, such as unenclosed roundhouses as well as roundhouses within fortifications (Ayán Vila 2008, González-Ruibal 2006). Focusing on the development of stone monumental architecture, identified in Scotland, south-west England and Brittany, scholars have proposed important social ties across this zone (Gilmour 2000; MacKie 2000; Henderson 2007a). Examining the evidence from the Iron Age across the whole Atlantic-facing coast of Europe, from Scotland to southern Spain, Henderson (2007a) proposed a distinct homogenous culture developed from a maritime network of trade and movement. Henderson's work has been criticised for its over-simplification of the data, being selective and potentially ignoring elements which did not fit into his general pattern (Ralston 2008, Sharples 2010b). In particular Sharples (2010b) noted the lack of discussion of the disparate assemblages of material culture in this zone and the failure to acknowledge similarities beyond the coastal areas – thus ignoring the evidence for a more complex network of interaction.

The interpretation of Scotland within a wider context requires an appreciation of the complex and nuanced relationships between societies and groups. It is worth considering the results of various perspective-scales of research.

At one scale, areas geographically close to Scotland, such as Ireland, England, Wales and Isle of Man also offer future directions for research. Evidence from northern England has in some instances been drawn upon for similarities with southern Scotland, and Haselgrove's (1999) concept of 'central Britain', from Humber to Forth, is a useful one, although there is obvious variation within this. However, it does reinforce the need to look across modern national boundaries: the Iron Age of southern Scotland shares many aspects with northern England, although markedly less so with the south. But on the whole it appears that there is a real separation at this period across this boundary. There are many possibilities of integrated research across Britain and Ireland in order to tease out the nuances of social, political and economic organisation found in Scotland. Armit's (2007) reappraisal of Irish material highlights the need to revisit this area, which had often been proposed as an important link to Iron Age Scotland (e.g. Hamilton 1968, 68-75). Even with the recent proliferation of fieldwork in Ireland the Iron Age still appears to have an under-represented settlement record (contrasting to Scotland), but a full collation of this data still needs to be done in order to draw comparisons (Becker 2009). If there are real differences between the evidence in Scotland and Ireland, what impact this has on perceptions of the comparable social models for each of these areas needs to be evaluated.

In comparison to many areas of Continental Europe, the evidence of the Scottish Iron Age, particularly the settlement and burial evidence, may appear too different to allow meaningful direct comparison. However wider

thematic approaches to analysis are useful. In a study comparing the Iron Ages of England and Denmark, where there are few direct parallels, Sørensen (2007) outlines more subtle comparisons which produced an enhanced appreciation of the evidence at various levels. She summarises that on a general level, in contrast to other areas on the Continent, societies in England and Denmark (and the Low Countries) were similarly composed of 'small-scale, dispersed farming communities, living in houses, which were replaced within a few generations. They lived in close contact with animals and while some of them were specialists, they were probably self-sufficient, mainly dependent on their immediate community'. On one level these communities shared a common economic situation, but they developed different practices, living in different types of houses and practising varied burial rites. For instance, as Sørensen points out, the longhouses found in Denmark reflect a very different social organisation and symbolic world on a daily level when compared to the roundhouse.. The comparative approach opens the possibility of considering the emergence of such disparate practices together, rather than in isolation, and offers a refreshing contrast to studying Scotland in comparison to 'Celtic' Europe..

Roundhouse archaeology is an area where the remarkable Scottish record has much to offer wider scholarship, both in terms of the architecture and the way it was employed in the daily lives of the people who occupied them. The recoverable evidence is by no means uniform across every roundhouse, but examples at Birnie (Moray) and Culduthel (Inverness), for example, have preserved architectural details of superstructures that can only be described as monumental, and as analyses proceed these will reveal relationships between the physical components of the architecture and the resource base represented by the settlement's hinterland. Burnt down, one structure at Birnie has also retained detail of its floor plan and the various practices played

out there at the point of its abandonment. Likewise the buildings excavated in a machair environment in South Uist at Cladh Hallan contain successive floor levels revealing details of life and death, intertwining the prosaic and extraordinary in everyday activities and rituals that span from individual buildings to the surrounding landscape. Other preservation niches offer similar possibilities. Crannogs and waterlogged structures, for example at Cults Loch (Wigtownshire) and Buiston (Ayrshire) give glimpses of the relationship of people with organic materials, both in the construction of buildings but also for all manner of artefacts in everyday use that are otherwise unknown to us.

Such a comparative approach to broad similarities and differences has much to offer, not only to Scotland but to students of the European Iron Age.. Compared to the Bronze Age there appears to have been a European-wide trend of greater isolationism and regionalism, especially in the early Iron Age, but how and why do these different region developments take place? Towards the end of the Iron Age, Haselgrove (2001, 61) suggested that some areas become more centralised and enclosures are increasingly created. He further proposed that these broader themes of enclosure, introspection and regionalisation may be part of a wider European phenomenon to be explored. Research by Gerritsen (1999) on the biographies of longhouses in the Netherlands over centuries has highlighted cycles of movement, which can be evaluated and contrasted with Scottish settlement sites showing a long time depth (see Sharples 2005).

Forts, in their various forms, have traditionally been seen as a typical element of the 'Celtic' Iron Age, but there are marked variations. Relatively few forts occur in Ireland that are greater than the scale of a 'rath' (homestead or small community). England, Wales and Scotland have a great many although their distribution is uneven – a topic that has

received relatively sparse discussion. The main focus of studies of forts over the last twenty years, in both Scotland and Britain as whole, has been to explore the distinct character of each site, highlighting the potential variable meanings of these places across time and space (e.g. Bowden & McOmish 1987, Gosden & Lock 1999, Hamilton & Manley 2001; Sharples 2010a;). These approaches have been valuable in reconsidering the role of these places, but how do the results of these small-scale studies relate to fortification as a phenomenon across Iron Age Europe? Different themes and patterns can be explored in light of these new themes that have emerged, and needs revisiting. In *Celtic Fortifications*, Ralston (2006) is conscious about the variability with the site type of hillforts. While he presents examples from Scotland alongside those from, Ireland, England and the Continent – suggesting in some cases the physical characteristics perhaps reflect cultural linkages (2006, 11) - these influences and relationships are still vague and unclear, needing further explanation.

When exploring Iron Age material culture there are observable regional differences across Scotland (e.g. Stevenson 1966; Mackie 2000), but these have seen relatively little study (Theme 3). Wider themes such as the patterns of deposition of everyday objects on settlement sites may provide a basis for comparison in a wider context (e.g. compared to the work of Hill (1995) for Wessex; see theme 7.6).

Direct comparisons of material culture, linking Scotland to grand narratives of the 'Celtic' Iron Age have traditionally focused on metalwork - particularly those with La Tène-style decoration (e.g. Stevenson 1966, Piggott 1959. Although only recovered in restricted areas, the existence of such material reveals a connection to wider systems of interaction, which changed from the Bronze Age into the Iron Age (O'Connor 2007). In the Iron Age

there appears to be a decrease in objects, whether made locally or imported, that were directly influenced by the Continent. Nonetheless a few examples, which emphasise that there were still high-level connections across wide areas (e.g. Atkinson & Piggott 1955, Carter *et al.* 2010) – bearing witness to social, political and economic mechanisms which enabled production, consumption and exchange. Such processes are quite variable and complex. Studies elsewhere in Iron Age Europe have demonstrated how the same objects can be utilised very differently, being incorporated and adapted into local systems (e.g. Gaul – Dietler 1990, 1995). A study of Roman metal goods found beyond the frontier of the Roman Empire in Scotland, northern Germany, and Scandinavia, identified a pattern in Scotland of incorporating the Roman material into their own traditions rather than emulating the Roman practices (Jensen 2009) – perhaps highlighting established patterns of reaction to perceived ‘outside’ influence.

There is a value to broad-scale comparisons with other areas of the Britain, the broader Atlantic zone and the Continent for both specific similarities and differences, and more general analogies over issues such as contacts and connections; social trends such as isolation in the Early Iron Age or increased centralisation of settlement in the later Iron Age; the use of decorative metalwork; nature of hillforts.

The high quality of aspects of the Scottish material (e.g. well-preserved stone and burnt-down timber roundhouses) has information to offer the wider scholarly community, and should be presented on an international stage.

Conclusions

There is no doubt that there was important inter-regional trade and contact throughout Europe, which Scotland was a part of, but the impetus and direction of this contact can no longer be depicted as one-way and multi-

staged, from the Continent through Southern England and eventually reaching Scotland. Rather than ‘Celtic’ invasions (or top down ‘Romanisation’ during the later Iron Age), a combination of emulation, small-scale movement of peoples and ideas to and from Scotland as well as internal processes are now preferred in the discussion of changes in patterns. Identity involves complex processes and there is increased appreciation of the difference between deciphering people’s own perspectives and the perspectives of others.

The evidence from the Iron Age across north-west Europe points to increased regionalism, compared to the preceding time periods, – which it will be important to analyse and explain. However, there is also value in re-exploring the variation in the data from a larger-scale perspective, perhaps identifying themes or other comparisons that cut across traditional typologies and areas of study. The years of research focusing on regional and site-based evidence in Scotland can be integrated into approaches exploring wider trends. Different scales of analysis –ranging from the ‘grand narrative’ to the world as ‘lived’ by small groups and communities- can work in tandem with one another to enrich a holistic, encompassing view of Iron Age society in the North.

8.2 The Celts debate

Iron Age Scotland is traditionally seen as part of the Celtic world. The area identifies itself today as Celtic, with features such as Celtic languages and place-names, the presence of what is termed Celtic art in the pre- and post-Roman periods. The Celts debate has a long pedigree in the country (Collis 2003). Earlier twentieth-century scholarship operated within a diffusionist paradigm, with a series of Celtic invasions from the Continent (see theme 2) Within this paradigm, later Celtic-language sources were readily treated as a ‘window on the Iron Age’ (Jackson 1964; c.f. Graham 1951; Hamilton 1968, 68-75). This pan-Celtic approach persists today, with

Scottish material featuring in standard textbooks on Celtic religion and Celtic art (e.g. Green 1986; Megaw & Megaw 2001), and regularly displayed in exhibitions on the Celts (e.g. Moscati *et al.* 1991; Müller 2009).

The diffusionist / invasionist models came under heavy fire in the 1970s (e.g. Hodson 1960, 1964), while the 1990s saw a strong reaction against such pan-Celtic views among some British scholars (e.g. Chapman 1992; Merriman 1987; James 1999; Collis 2003). This was partly a general reaction against the conflation of sources from a wide range of places and dates to create a single, generic picture, and partly from differences between the people of the British Iron Age (never directly called Celtic in ancient sources) and their Continental neighbours. The attack on the Celtic model has led to much more focus on the detailed regional archaeologies of the British Iron Age in their own terms, a valuable development but one which has perhaps led to the underplaying of clear links which do exist to the Continent.

The debate has also impacted across disciplines. The current generation of archaeologists are much more wary of using linguistic or literary references to sustain their arguments, but there are signs of a more careful and critical approach to such data, which are valuable if treated on their own merits. The 'Celtic' adjective in languages, history and archaeology refers to entirely different sets of evidence which only partially overlap – speakers of what are now called Celtic languages did not necessarily all use what is now referred to as Celtic art or live in areas identified by the classical writers as Celtic. Yet this new, critical engagement between disciplines is starting to raise some interesting theories, such as recent work suggesting that the origins of what are called Celtic languages lie not in central or eastern Europe but in western Europe, with their spread linked to archaeologically-attested Bronze Age phenomena such as Beakers and the Atlantic late Bronze Age (see papers in

Cunliffe & Koch 2010). This debate has a long way to run, but it suggests that now the worst excesses of the pan-Celtic gloss can be recognised and avoided, a more useful engagement between disciplines can begin.

- *Conditions are emerging for a more informed and critical dialogue between the different disciplines which are interested in Celtic studies; such interdisciplinary work has considerable potential, but requires a good appreciation of the limitations of the various sources of evidence.*

8.3 Impact of Empire

Research into the Roman period has worked in a different research environment and within different intellectual frameworks (for instance, in the wider world of Roman frontier and Roman military research), and represents a considerable wealth of data. However, it is vital that it should not be seen as a separate element from the Iron Age, as the interrelation, indeed interdigitation, of the two is intellectually critical. Thus, the period of engagement with the Roman world is considered in detail elsewhere,⁴ with the main perspectives relevant to indigenous society being highlighted here.



Figure 40: Roman finds from Keiss broch, Caithness, © NMS

The last couple of decades have been an exciting time for Roman studies, particularly in Britain and especially on the frontier. The

⁴ See ScARF Roman report

normal approach to the period, focused very much on aspects of military history and politics, remains relevant, and has been enlivened by various studies questioning long-held views on frontier history. To this has been added a much broader appreciation of other aspects, looking at topics such as supply, the diversity of peoples and identities in the frontier zone, and more subtle understandings of interactions with the indigenous population. Much of this has drawn very visibly on developing theoretical trends such as the archaeology of identity and the interplay of structure and agency. The wealth of complex data from the Roman period and the time-limited horizons of Roman contact provide valuable case studies of relevance far beyond the country's current borders. The military remain fundamental to this study – not just in the disposition and chronology of their installations, which has been the focus of much work (and still presents problems), but in the lifestyles and identities of the soldiers and their followers and the homogeneities and varieties within this; in the impact of forts on the landscape, as settlement nodes which both created and drew activity to them; in the impact on the local populations; and in moving beyond simplistic oppositions ('Roman' and 'native'; 'Romanisation' and 'resistance') to a more complex, more realistic picture of life in the environs of the frontier.

These issues are reflected in the key themes used to structure the Roman report:

- *The time and place of Roman Scotland*, considering issues of the disposition and chronology of forts and forces.
- *Forts in their landscapes*, which attempts to foster a view of the fort as a node in a wider, interlocking set of landscapes, rather than focusing on the fort alone.
- *Supplying the army*, considering the vital issue of logistics in sustaining the army of conquest and occupation.

- *Changing worlds*, which examines the experiences of daily life for the various peoples of the frontier and how they influenced and were affected by this (a deliberately broader view than more traditional "Roman and native" perspectives).
- *Roman Scotland in the Roman world*, which stresses those angles where a wider frontier or Empire perspective benefits Scottish research, and where Scottish material can have a wider impact internationally.



Figure 41: Roman brooches from the Iron Age hillfort of Traprain Law, © NMS

Exploring the impact of the Roman presence through archaeology is a complex area of research, though one in which parallels can be invoked from other frontier regions. The complexity of the situation overrides a simple Roman/native dichotomy, and there were regionally varied responses to the Romans that also developed over time (e.g. Macinnes 1984; Hunter 2001, 2007a, 2010).. In the south of Scotland in particular the development of 'hybrid' styles of material culture (e.g. Hunter 2007, 2008) begs the question of who exactly was making, using and depositing what. Iron Age societies therefore need to be understood in order to understand responses to Rome, but Roman material can act as a valuable indicator of relationships between people. As well as artefacts, other sources of information have been employed to trace the relationships with

Rome, including palynology to infer settlement, though close independent dating is essential to take research forward. The data-set as a whole, with its taphonomic issues and fragmentary material, and the difficulties of dealing with the biographies of Roman artefacts (and differing views on these) poses plentiful challenges for the future.

The topic is discussed more fully in the ScARF Roman report, but the following are the key recommendations from that work:

It is vital that the Roman material is considered in context, not in isolation – Roman material forms only one part of indigenous material culture and needs to be considered alongside this.

Integrating the study of Roman and Iron Age societies requires tight radiocarbon chronologies to be obtained from Iron Age sites.

The life-cycle of Roman material (arrival, reception, modification, reuse, emulation and deposition) needs closer attention than it has traditionally received. There is a need for close study of taphonomy, from both object condition and site context, to understand life cycles of the artefacts.

Traprain is a pivotal site for understanding interactions with the Roman world. Full publication to modern standards of the existing assemblage, and further fieldwork to clarify the sequence and expand knowledge of the site, are long overdue. Why did Traprain become so prominent in the Roman period?

An updated and discursive corpus of Roman material from non-Roman sites is a key desiderata; such a volume has been commissioned for the Römisch-Germanisch Kommission's "Corpus der Römischen Funde im europäischen Barbaricum", though funding is still required.

Detailed study of specific artefact classes by specialists can cast important fresh light on apparently intractable or supposedly well-known material (e.g. Erdreich et al. 2000; Ingemark in press).

Hybrid forms of material culture, such as glass bangles and Roman Iron Age / Romano-British metalwork, merit more research.

Investigation of the impact of different frontiers (e.g. Hadrian's Wall cf Antonine Wall), the differential and long-term impact either side of a frontier (e.g. Hadrian's Wall), and broad comparative perspective to other frontier areas would make an important research project.

The positioning of Roman fort sites in relation to the Iron Age landscape merits further consideration.

There is much scope for further research into the longer-term impact of Rome, for instance in the effects on the emergence on larger political units, or its role as a culture and political model. It forms an overarching area of research at what is too often regarded as a disciplinary boundary.

Scientific analysis should consider the impact of Roman raw materials, especially in the transfer of copper alloy, silver and glass.

8.4 Significant social changes

The Scottish Iron Age saw a number of important social changes, some unfolding gradually, while others appear more abruptly. Most are paralleled in neighbouring areas and would benefit from synthetic study.

The period is bracketed by the transition from the Bronze Age and the emergence of the early Medieval kingdoms and Christianity, and the nature of these shifts merits further attention. With the Bronze Age comes the question of the introduction and spread of iron and iron-working technology, which

remains very unclear in Scotland, and the question of what was the social impact of the apparently great decline in Continental contacts in the early Iron Age.

The transition to what is seen as the medieval period, and the gradual advent of Christianity, are other key research topics. Central to this is the question of the nature of this transition. In Atlantic Scotland, the tendency has been to argue for a long Iron Age in recent years, spanning the first millennium AD (e.g. Armit 1990b; Harding 2004, 3), while scholars working in lowland Scotland still tend to split the period around AD400 (see Theme 2). Is this regional difference valid, and what changes are represented at this time?

Between these transitions, a number of changes can be traced. One appears to be a rise in sedentism (or reduction in mobility) compared to the Bronze Age, represented in more evidence of houses being occupied for longer (see Themes 3 and 9). What implications does this have for agricultural and social systems?

Another is evidence for increasing social complexity, or the marking of differences between individuals and groups in many aspects of life towards the end of the pre-Roman Iron Age. This is seen in the rise of personal material culture, the increasing incidence of individual burial, and phenomena such as the Lowland brochs. This seems to be true in other parts of Britain as well (e.g. Hill 1997); does the evidence support it as a

phenomenon across Scotland, and how should it be interpreted? Studies so far have been very generalised.

The phenomenon of the substantial house, in both timber and stone, and its persistence in some areas into the Roman Iron Age (in contrast to other areas of Iron Age Britain) is a notable feature of the Scottish record.

The thorny question of the reasons for the use and abandonment of hillforts, and the variations in their size, scale and apparent functions, must represent some significant social trends, but details remain opaque. One specific issue which might be noted is the unusually big hillforts of southern Scotland (Traprain, Eildon and Burnswark; and Yeaveering Bell in Northumberland). Do they share similar histories, as some hints suggest? Do they represent the development of larger polities in these zones, in the late Bronze Age and/or the Roman Iron Age?

The proximity and presence Rome brought a range of marked changes in local societies, and it is often argued that the longer term legacy of this shaped the subsequent development of society from the late 2nd century AD onwards (see above and ScARF Roman report).

These topics all represent key future areas for sustained research; each could support a major research programme.

8.5 Research recommendations

From the detailed recommendations above, the following have been identified as key future research areas and issues:

- *There is considerable value to broad-scale comparisons with other areas of the Britain, the broader Atlantic zone and the Continent for both specific similarities and differences, and more general analogies.*
- *The high quality of aspects of the Scottish material (e.g. well-preserved stone and burnt-down timber roundhouses) has information to offer the wider scholarly community, and should be presented more on an international stage.*
- *Roman studies need to be integrated within the wider research environment of Iron Age enquiry, highlighting questions of the impact of the juxtaposition, and its legacy on subsequent developments in Scotland. Roman Scotland and its rich data could be engaged within wider theoretical perspectives (e.g. current concerns with issues of ethnicity and identity) and contribute to wider Iron Age studies on those topics.*
 - *In order for the relationships between local communities and Rome to be fully explored, Roman finds need to be integrated with other sources of evidence (including Iron Age material culture), regional analysis and synthesis needs to be undertaken, and artefact datasets published.*
 - *The life-cycle of Roman material on Iron Age sites needs closer attention than it has traditionally received.*
 - *Traprain is a pivotal site for understanding interactions with the Roman world. Full publication of existing data and further fieldwork are required.*
 - *Hybrid forms of material culture, such as glass bangles and Roman Iron Age/Romano-British metalwork, merit more research.*
- *Investigation of the impact of different frontiers (e.g. Hadrian's Wall cf. Antonine Wall), the differential and long-term impact either side of a frontier (e.g. Hadrian's Wall), and broad comparative perspective to other frontier areas would make an important research project.*
- *There is much scope for further research into the longer-term impact of Rome, especially in relation to major social changes:*
 - *The introduction and spread of Christianity*
 - *Emergence of larger polities which formed the core of the early Medieval kingdoms.*
- *A series of other significant social changes which are of relevance far beyond Scotland merit sustained research effort. Key among these are:*
 - *The introduction of iron: causes, effects, and uptake*
 - *Major changes in the earlier Iron Age, with evidence of increasing stability of settlements and changes in agricultural practice.*
 - *Developing changes in the later Iron Age, with signs of increasing complexity*

9. Research and methodological issues

9.1 Introduction: the challenge of working with the Iron Age

The volume of work that has been undertaken on Iron Age Scotland since the late 19th century has built up a substantial corpus of information about individual sites and artefacts. The Iron Age is data-rich and the increasing availability of such data means that it has the potential to offer exciting and challenging future research opportunities, but at the same time poses a range of practical issues. These include excavation, survey and recovery methods, as well as publication strategies and archiving. Advances have been made in the accessibility and integration of data, though further work is required to fully enable researchers to explore the wealth of Iron Age material.

9.2 Survey and the Iron Age record

Knowledge of the distribution of Iron Age settlement in Scotland is intrinsically bound up with the Ordnance Survey and the completion of the 6-inch survey in the second half of the 19th century. These provided the foundation for David Christison's surveys of the last decades of the century (see Christison 1898); in studying earthworks, this was intrinsically focused upon the Iron Age settlement record. By then, however, it had already been severely damaged by the impact of agricultural improvements from the mid 18th century onwards. The pattern that can be elicited from OS maps is thus already a survival pattern. To take the Lothian Plain for example, little more than thirty earthworks survived, whereas aerial reconnaissance has now recorded over 200 settlement enclosures bounded by ditches or palisades.

To varying extents this differential survival of visible remains affects every dimension of the data. While individual valleys in the Border uplands or individual islands along the Atlantic

façade may appear to present a relatively full settlement record, other areas may appear as completely deserted. Some may respond to traditional survey, but in the majority of these cases survey by simple observation of earthwork remains has been compromised by the history of land-use, both ancient and modern. For some areas, as noted for the Lothian Plain, aerial survey of cropmarkings may provide a tool to discover Iron Age settlements, but in its own way this is a technique that is as limited in its application as ground survey, constrained by such factors as the extent of freely draining soils, shifting weather patterns and the cultivation of cereals, to say nothing of any methodological issues (Cowley 2009). These factors play out at national, regional and local scales, affecting the survey record at every stage. Thus cropmarks form mainly in the east of the country, they are three or four times more frequent in Angus than in Aberdeenshire, and while they may be ubiquitous in gravel soils under cereals, less-freely-draining soils immediately adjoining may remain stubbornly blank. As a research tool, therefore, survey must be multi-faceted, fitting appropriate techniques to local circumstance. In this context Historic Land-use Assessment has some utility, for some aspects of the mosaic of land-use patterns that it records can be construed as a mosaic of potentials for different techniques, thus integrating the opportunities afforded by:

- ground observation, shadow photography and Lidar in rough hill pastures or some woodlands,
- aerial photography on gravel soils under cereals, and
- arable field-walking for artefact scatters, coupled with geophysics.
- emparkments under permanent pasture, areas of preserved rig-and-furrow cultivation, and many parts of improved ground in the uplands and the length of the west coast, may only respond to geophysical or multispectral scanning techniques.

It is clear that there is 'no one size fits all' survey technique with a universal application in the Scottish landscape. Not only has the land-use mosaic created a series of different survey potentials, but the regional characters of the settlement record dictate a series of local and regional potentials for the application of the different techniques. At its crudest, the remains of a ploughed down broch mound have a different potential to a large fort with multiple ditches. A much slighter round-house might at best be fleetingly visible as a cropmark, but lost in the sampling resolution of a geophysical survey, and contain no artefacts to give its position away to surface collection.

These problems are no less a factor for wider artefact studies drawing upon both stray finds and stratified deposits. The stray finds are mainly the product of the very agricultural processes that are responsible for levelling so many Iron Age settlement earthworks. As a result distributions tend to be heavily skewed towards land that was improved during the 18th and 19th centuries. Metal-detecting, less skewed by agriculture, may serve over time to rebalance this inequality. Collection patterns also come into play, driven by the presence or absence of local collectors as the process of improvement progressed, and by the existence of a local museum playing a part in the preservation of discoveries and the record of their provenance. A further factor is that the soils across the greater part of Scotland are acidic, leading to the near absence of bone artefacts and faunal assemblages of any extent. Furthermore, in many areas, particularly in the arable lands of the south and east, there is a net loss of sediment, year on year, whereas in machair deposits in the Northern Isles, the Western Isles and the Inner Hebrides the sediments may be accruing in calcareous sands. The creation of artificially deepened agricultural soils in the Northern Isles is also creating environments where there are not only remarkable levels of preservation of cultural material, but these are interleaved with stratified plant macro-

fossils and faunal assemblages that have the potential to provide unparalleled insights into the exploitation of these sites or hinterlands and the agricultural methods deployed there.

Iron Age settlement patterns - understanding the evidence base

Maps of monument distributions are a common way in which spatial archaeological information is presented, and while these are rarely simple or necessarily well understood, they are often seen as true representations of past activity (see Halliday 2011 for discussion of these issues). Frequently, however, these distributions (or maps of recovery as they are now sometimes known) really represent biases inherent in archaeological information-gathering (see Cowley 2011, 45-7 for the example of burnt mounds). The results of aerial reconnaissance for archaeology are a good instance where the relationship between data and how it may reflect the past is not direct. Over the last 50 years this survey method has revolutionised understanding of much of lowland Scotland, recording many thousands of otherwise unknown levelled monuments revealed through differential cropmarking and vegetation. In some areas of southern and eastern Scotland the *majority* of known sites and monuments have been recorded in this way.

Generally, the effectiveness of aerial reconnaissance is conditioned by rainfall patterns, crop phenology, soil types and land use, producing best results over well-drained soils set to cereal crops in drier parts of the country. Beyond these physical factors, biases introduced by the interests and methodology of the airborne observer can pattern data strongly (papers in Brophy & Cowley 2005; Cowley 2002; Cowley & Dickson 2007). Detailed examination of the structure of the data highlights patterns that are difficult to explain. For example, comparison of cropmarked sites recorded in East Lothian during 1977 and 1992 shows markedly different returns between the two years, with only about a 30% overlap of sites recorded in

both years. Thus, while the record compiled over many decades of intensive aerial reconnaissance is remarkable (Cowley 2008), it remains patchy – marked by dense clusters on well-drained soils set to cereals, thin scatters and complete blanks on heavier soils and pasture landcover. While the general processes of cropmark formation are understood (e.g. Wilson 2000), a close examination of the cropmarked information invariably raises questions about how representative it is.

The importance of these factors can be seen in the way in which the apparent clustering of rectilinear settlements in the vicinity of Traprain Law has become established in the literature (Armit 1997c; Armit and Ralston 1997, 218; Macinnes 1984b, 183–6). This ‘fact’ originates in a distribution map published by Maxwell (1970) based on the limited suite of photographs available at the time. The rationalisation of the cropmarked site record at a regional level drawing together the results of subsequent decades of reconnaissance demonstrates that their distribution is much wider (Cowley 2009; Cowley *et al.* 2009). Moreover, the localized clusters, including the group near Traprain Law, may reflect little more than the general bunching of cropmarked sites on particular soils. Thus, the Traprain Law group is more likely to reflect the responsiveness of the soils to cropmark formation and to some degree at least the concentration of aerial survey in an area with guaranteed returns (see Cowley 2002 for a commentary on survey bias), than any real concentration of these farmsteads in the Iron Age.

This example illustrates the often selective use of the cropmark settlement record and the lack of contextualization. Later prehistory has suffered from a tendency to be a dustbin for all sorts of sites, generally enclosures, the contexts of which are not known on the basis of analogy with the few excavated sites. This was commented on over 30 years ago by Humphrey Welfare, writing after the first two

seasons of aerial survey by RCAHMS (Welfare 1978), and his observations are still pertinent.

On the one hand, Welfare pointed out the enormous potential of aerial survey, but identified that the use of frequently highly subjective typologies has only served to leave the interpreted picture fuzzy and confused. He also noted the requirement for research excavations to refine both chronology and cultural assignation in particular. The sheer mass of data that has been collected since Welfare’s observations has further exacerbated the issues, as little has been marshalled in an interpretative framework. Indeed, in the past material has often been added to the RCAHMS database with imprecise, ‘cover-all’ classifications, such as ‘enclosure’ or ‘cropmark’, in order to avoid imposing incorrect interpretations on sites. Moreover, even though knowledge has increased with new discoveries and excavations, it is only in the last few years that known material has been systematically revisited to review classifications. Thus, the sites recorded in the NMRS carried imprecise classifications that had limited utility for rationalising sites into morphological groups or robust regional settlement frameworks.

The foregoing discussion applies in equal measure to all archaeological data-sources, and illustrates the importance of understanding how data and knowledge are constructed. This understanding is dependent on thorough analysis of data structure, the rigorous critique of methodologies and insights that historiography alone can bring.

Robust understanding of the nature of survey datasets and their biases is critical

Survey methodologies need to integrate different techniques more effectively, tailored to a knowledge of local conditions.

Geophysical and multispectral scanning techniques offer ways into areas unresponsive to conventional aerial photography, as does

fieldwalking and monitoring of metal-detecting finds.

Classification systems for sites (especially cropmarks) require regular critical review in the light of emerging knowledge.

9.3 Chronology

Scientific dating

The domestic character of the Iron Age generates considerable quantities of good dating material, even from antiquarian excavations. Taken with Bayesian modelling, this has the potential to revolutionise the understanding of both important sites and wider sequences, and how to take advantage of this deserves further consideration.

Radiocarbon dating hinges on adequate sampling strategies and the need for long sequences of single-entity dates (Haselgrove et al. 2001, 5) where possible. There are several exemplars of good practice (e.g. Lelong & MacGregor 2008; Hamilton and Haselgrove 2009). Problems with the calibration curve for periods of the Iron Age can be offset through good sampling strategies and the application of statistical techniques. There would be great value in obtaining dates from securely-stratified material from both old and more recent excavations; the stratigraphic control from post-War but pre-AMS days should allow classic sequences to be tightened up considerably by obtaining fresh series of dates. This is a cost-effective approach to maximising value from existing archives, and would be best targeted to regional sequences. Notable possibilities (and outstanding problems identified in other sections) are the Western Isles drystone architecture sequence (where the Rocket Range wheelhouse site, Dun Mor Vault, and sites such as Berie and Bharabhat on Lewis have the combination of good excavations, good organic survival and a limited or uncertain range of dates at present), Howe on Orkney, and perhaps the

Border hillforts sampled in the 1940s and 1950s (see theme 2.).

The potential of other techniques must also be remembered. Recent work sampling wood from unexcavated crannogs on Loch Tay and Wigtownshire highlights the potential of using dendrochronology to get outline dates for a large number of sites to obtain broad patterns. A range of other techniques have potential for the Scottish Iron Age, such as archaeomagnetism, thermoluminescence (TL) and optically-stimulated luminescence (OSL) (see Dockrill *et al.* 2006 for an integrated approach to dating with a range of techniques at Old Scatness) offer a suite of approaches to deal with Iron Age material. Their application requires consideration of the type of material available and the levels of precision required. Pottery, for example, is present but not abundant in many parts of Scotland, so there is less potential than other parts of UK for getting multiple determinations through TL from single sites to refine. Scottish Iron Age archaeologists are also perhaps less trusting of alternative radiometric dating techniques because of the conflicting results produced by studies in the 1980s on vitrified forts (e.g. Sanderson *et al.* 1988 ; Strickertsson *et al.* 1988 etc), though more recent successes may be changing attitudes (e.g. Anthony 1999).

A problem for the detailed reconstructions of Iron Age life advocated in this report is that it is difficult to narrow down the occupation of sites to the extent that contemporaneity can be confirmed. While many sites may have been occupied over a period of decades, if not hundreds of years, Halliday (2007) has suggested that the Butser experiments - showing that a large wooden roundhouse can be maintained successfully for several decades - have misled archaeologists into expectations of longevity for later prehistoric sites in general. On the basis of evidence such as a lack of multi-phase hearths, he suggests that the upland hut-circle 'settlements' of Scotland actually represent the remains of far fewer families than is normally supposed,

with families abandoning each house after a period of occupation of five years or so and building (or re-inhabiting) another house nearby (Halliday forthcoming; cf. Roymans and Gerritsen 2002) (see Theme 5 where evidence of longer-duration sites is also discussed). A close chronology allowing assessments of contemporaneity, is key to reconstructions of society and landscape use, and Bayesian analysis of securely stratified, short-lived radiocarbon dates now offers a way forward, with probabilistic assessment of competing models (see Whittle *et al.* 2011 for a Neolithic case study). This Neolithic example has shown that phenomena previously thought to have been spread over several years were actually restricted to a handful of generations, essentially pulses of activity, which has major impacts on any understanding of the period. Exploring this requires more and better dates, but would be a key aspiration of any redating programme.

Targeted sampling of monument types has produced valuable results in the case of Strathdon hillforts (Cook 2010) and hut circles in Skye (Wildgoose, pers comm.). As discussed in theme 6.3, it provides a means for rapid and cost-effective provision of a basic dating sequence, although caveats over its small-scale nature must always be remembered. Such programmes could provide valuable first-stage chronologies in many areas; their value is in the broad picture, not the detail of individual sites.

Robust systems of systematic environmental sampling should provide the material for a C14-defined chronology of most excavated sites. These should be analysed within a Bayesian framework, and compared to other sites to build local and regional models for further testing.

Whenever samples suitable for dendrochronology are encountered, the opportunity should be seized.

There is tremendous potential in exploiting existing excavated archives for redating programmes, analysed with Bayesian methods. Carefully-constructed research programmes should allow generation-scale study of Iron Age societies in selected sites and regions.

Keyhole excavation provides a more partial view of site chronology, but has value to obtain a first-stage pass at settlement sequences in an area.

Artefactual dating

Chronological patterns in later prehistoric material culture are poorly understood. Lowland pottery has remained stubbornly resistant to the diagnosis of chronological and cultural distinction. Atlantic Scotland shows more ceramic variation, with a pottery sequence proposed for the Western Isles (Campbell 2002), and progress with the analysis of Northern Scottish and Northern Isles material, though much work remains, and there are signs of significant local variability (MacKie, pers comm). With other artefact types, knowledge of chronological change is still poorly developed – well-dated contexts are needed to help the dating of finds rather than vice versa. The problem is well-exemplified by the dating of long-handled bone and antler combs, an outwardly diagnostic type, but one which remains in production and use in Atlantic Scotland much later than elsewhere, and ‘Pictish’ painted pebbles, now shown to be an Atlantic Middle Iron Age type (Sharples 2003, 154; Dockrill, pers comm; Goldberg & Hunter forthcoming). Needham *et al.* 1997 provide a good example of how such an approach radically improved the dating of an artefact group (in this case Bronze Age metalwork).

The dating of Caulfield’s (1978) “quern replacement horizon” from saddle to rotary querns in the Western and Northern Isles is contentious, though it appears to be a phenomenon observable across the country (MacKie 1987, 7). Caulfield himself did not

suggest a date (although he argued that it was a more or less immediate changeover) but Mackie (1987, 7-9) posited a date in the first or second century BC. This was subsequently taken up by Armit (1991, 192), who argued for a date of c. 200BC. Yet in Southern Britain rotary querns were in use by the 5th century BC, and there are hints of similar early examples in Scotland, though the evidence is not watertight (see theme 4.5). The direct replacement of saddle querns by rotary querns is harder to prove as the former remained useful for processing materials other than grain long after the introduction of the rotary quern (Armit 1991, 192). Advances in considering the date of introduction of the rotary quern are complicated because almost all querns come from secondary contexts, and often after long lives, giving only a *terminus ante quem*, but a review of evidence emerging from recent excavations would be well worthwhile.

Although earlier scholars considered indigenous and imported metalwork as a potentially valuable dating mechanism, there have simply not been enough finds from secure, radiometrically dated contexts in Scotland to confirm the authenticity of the suggested date-ranges. However, there is no good reason to think that extended, 'south-north' time-lags occurred. Modern analyses have tended to err on the side of caution in consideration of such goods (e.g. Hunter 1998a, 346; 1998b, 393); direct dating of objects and contexts associated with them is helpful, but more data are needed as the sequence is not yet clarified (Garrow *et al.* 2009). More helpful are metal alloys, and especially the presence of zinc; this seems to be a reliable indicator of re-melted Roman alloys, thus providing a *terminus post quem* (Dungworth 1996).

Traditionally, Roman finds were used for dating Iron Age sites, though obviously they can only provide dating evidence for the period of Roman contact and later, or more often act only as *termini ante or post quos*.

This has sometimes been undertaken assuming a simple model of the use of Roman material culture, with rapid intake and rapid discard. It is now clear that this needs to be assessed by independent dating, not assumed and that the possibility that Roman artefacts continued in use long after being acquired very often needs to be borne in mind when considering their chronological implications (e.g. Alcock 1963; Alcock & Alcock 1990, 115-6; Warner 1976, 285-8; cf. Hunter 2007a, 11, 91).

The typologies and dating structures of glass jewellery both predate radiocarbon, and as a result are heavily tied to the occurrence of Roman finds – the danger is that this creates a misleadingly short and late chronology. Although there is a basic typology for the region, the conventional typological dating of native glass beads by Guido (1978) was based on a diffusionist model. Blue glass beads, in particular, seem to have had a long currency, stretching from the Iron Age to the early Historic period. Glass bangles (Kilbride-Jones 1938; Stevenson 1956, 1976) have potential as a dating tool, though the extent to which Roman vessels were reworked as raw material is unclear, and obviously has implications for dating, with earlier dates possible if indigenous manufacture (perhaps from imported ingots) is accepted.

Revisiting typological schemes offers considerable potential – there are changes in material culture through time, but current understanding is very poor, as radiocarbon is rarely targeted to this question. Yet direct dating of objects (e.g. organic objects and residues on diagnostic pot) has the potential to revolutionise this situation, and in the process greatly enhance the dating potential of artefacts. The targeting of deposits producing interesting finds for dating should be an important aspect of post-excavation work.

9.4 Access to information

9.4.1 Databases and collections

A wealth of information is available in museums and archives around Scotland. Some of these have made their information available through their own on-line databases, and many more have contributed to Scran⁵. The national database for Scotland, Canmore⁶, is available on-line, and contains a wealth of information and an index to the collections held by RCAHMS. Other information is also available in local sites and monuments records, many of which are on-line and/or have contributed their site-based information to PASTMAP⁷. Whilst several museums have on-line databases, these are not always comprehensive or easily searchable (the Hunterian Museum's web catalogue being a notable exception). Not all collections index their material by place and there is no Canmore or PASTMAP equivalent for artefactual data. A pilot project looking at linking artefact and site records was undertaken by the NMS and RCAHMS in 2007 (Cowie & McKeague 2010), and showed the value of linking these data sets. The Canmore (Coflein) database has been successfully linked with the National Museum catalogue in Wales

To do justice to the questions that can be asked of the nested and interlocking landscapes of Iron Age Scotland requires integrated approaches, bringing in topographical and aerial survey, LIDAR, geophysics, and the use of stray and metal-detected finds, as well as field-walking and, ultimately, excavation. There is a wealth of information available, and much can be gained from restructuring and bringing together the existing data. The Antonine Wall event mapping programme and Inveresk event mapping have highlighted the benefits of such an approach for Roman sites, yet these databases need to be constantly updated

⁵ www.scran.ac.uk/

⁶ <http://canmore.rcahms.gov.uk/>

⁷ www.PASTMAP.org.uk

rather than become relics of when they were created. Furthermore they need to be extended to other areas of complex information retrieval and co-existence.

9.4.2 Publications and backlogs publication

Iron Age Scotland has a wealth of information gleaned from excavations and survey over the years. To attract a wider audience there is a continuing need for synthetic works which draw together such material for a wider audience into broad narratives (e.g. Armit 1997c; Hingley 2005).

A number of key Iron Age sites excavated since the 1950s have never seen full publication. Some (such as Broxmouth) are nearing publication, while steps are in hand to deal with the Udal (North Uist), but there are many others whose delayed publication has a detrimental impact on the subject's development.

Modern excavations usually produce data structure reports (often referred to as 'grey literature'), digital versions of which are becoming more and more accessible thanks to on-line data sources such as the Archaeology Data Service's Grey Literature Library, and RCAHMS' Canmore database. However, a cataloguing backlog for many reports results in their invisibility to researchers, who can often only identify these works thanks to summary reports in Archaeology Scotland's invaluable annual publication *Discovery and Excavation in Scotland*. In addition, these reports are often barely-digested field data, with specialist work either not carried out or not integrated. Furthermore, not all excavators submit their work to this publication and they should be encouraged to do so, and to use the OASIS transfer mechanism to enable their grey literature reports to receive a wider audience. There is also a cataloguing backlog in museums relating to the artefacts recovered through such projects which requires attention, while the artefacts themselves often reach

museums in the state they left the ground, with no conservation to stabilise them and ensure their long-term preservation.

Programmes to publish backlogged sites should be developed and funded. This covers not only state-funded work, but also putting pressure on ensuring important commercially-funded excavations are brought to publication.

Grey literature reports need to be made more fully available; but for many sites, the level of detail in a grey literature report is inadequate, and specialist work should be conducted and reported on.

Resources should be targeted to ensuring that the finds from excavations are adequately conserved when they reach a museum, and catalogued to make the accessible once they enter the institution.

9.5 Approaches to artefacts

There is a Britain-wide problem in developing artefact specialists, with many specialisms dependent on very few specialists. This is not a problem which can be resolved on a Scottish basis alone. In recent years, AHRC collaborative doctoral awards and IfA workplace bursaries have proved valuable initiatives nationally to develop material culture analytical skills. The continued application and publication of interesting approaches to material culture is perhaps the best advert for specialist work.

Current trends to synthetic or summary reporting, with data relegated to archive, make the detailed study of finds increasingly difficult – ironically, just at the moment when techniques such as correspondence analysis (Cool & Baxter 2002) are becoming more

widely used to analyse them, and web-based databases offer a means for wide access to data. New work does not need to wait for new excavations; there are assemblages excavated to a good standard which have never been analysed in detail. It is important to revisit older and antiquarian assemblages in the light of new data; there is a tendency to think that old finds are too imprecisely dated to be useful (e.g. Smith 2002), but antiquarian excavations make up in breadth of coverage what they lack in chronological detail, providing a sense of distribution and associations which the detailed site-specific data of modern, resource-intensive work cannot match. The two sources, modern and antiquarian, need to be combined for best results (e.g. Hunter *et al.* 2009).

The Scottish Treasure Trove system does not have the provision for a regional network of liaison officers such as in England and Wales in the Portable Antiquities Scheme. Informal conversations with metal-detectorists make it clear that much material is not being reported. Further work is needed to understand and deal with this issue. This is an issue which goes beyond the Iron Age, and is not considered in detail here.

Artefact assemblages need detailed treatment in post-excavation, and need to be reported on in ways which make the data readily accessible.

There is tremendous scope for applying innovative techniques in comparing and contrasting excavated assemblages, drawing in both recent and older excavations.

9.6 Future Recommendations

From the detailed recommendations above, the key future recommendations are:

- *More work is needed on integrated survey methodologies to get a more representative picture of the Iron Age landscape in an area, beyond the limits of existing techniques.*
- *Robust dating information is key to understanding the Iron Age.*
 - *Sampling and dating strategies should be designed to maximise the amount of chronological information a site can provide, involving the selection of appropriate technique (or combination of techniques), and prioritising the dating of particular types of site.*
 - *Results of dating by all techniques should be made available in accessible format, ideally from the same location.*
 - *Existing archive material from old excavations should be dated to clarify regional sequences: key targets are the Western Isles Atlantic roundhouse sequence, the Howe, and the hillforts of south-east Scotland.*
 - *Key groups of artefacts or ecofacts should be dated (either directly or from associated contexts) to understand their chronology and development (as done successfully for Iron Age human remains; e.g. Tucker & Armit 2009, Shapland & Armit 2011).*
 - *Sample excavation of regional groups of sites has its drawbacks but would provide a valid approach to get a basic sequence for modelling and further testing.*
- *More integrated approaches are needed to providing data-sets linking site-based, artefactual, environmental and documentary information through CANMORE (e.g. further work in geo-referencing museum collections (especially findspot information) to RCAHMS Canmore data would be of great value).*
- *Older museum collections are often inadequately catalogued, while the scale of more recent excavation assemblages means they are often slow to be integrated into museum databases - targeted programmes of (re)cataloguing and archiving important assemblages would be of value.*
- *More ambitious finds analysis is required, following and developing best practice elsewhere (e.g. Cool & Baxter 2002), to help make such studies more attractive. Material culture training should be more of a focus within University education. Further synthetic work on groups of finds is required. 'Stray find' data should be integrated within the NMRS, and contextual data for stray finds (including hoards) should be pursued where possible.*

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