

Resource assessment

History of prehistoric research

Nick Card

Ever since Jo Ben's (1529) account of some of the antiquities of Orkney and their 'excavation', the dramatic nature of the Stones of Stenness and the Ring of Brodgar, together with associated standing stones and mounds, have attracted the attention of visitors who portrayed and investigated them in various ways.

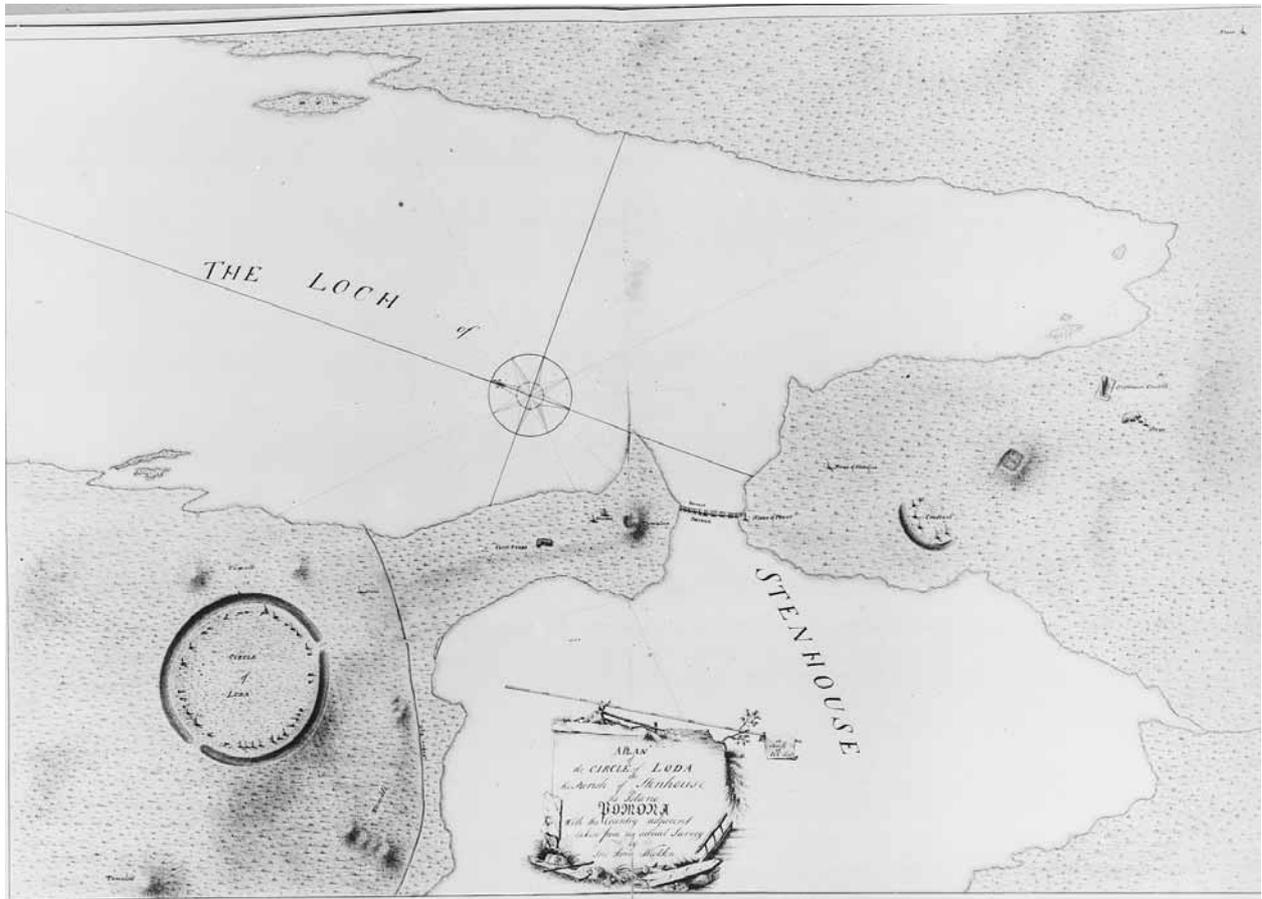
Antiquarian and archaeological investigations were undertaken to varying standards, as described below (Fig 23). This work both informed and was informed by investigations that were undertaken elsewhere in Orkney. The history of research in the WHS and the wider Orkney context traces the

development of thought and interpretation related to the WHS, and demonstrates the pivotal rôle that Orkney sites have played, and continue to play, in wider archaeological theory.

Until the mid-19th century most of this work amounted to little more than rather fanciful descriptions, interpretations and accounts of unscientific investigations (Wallace 1700; Pococke 1760; Low 1879; Gordon 1792; Barry 1805; Neill 1805; Hibbert 1823; Wood, W 1826). Within this period, however, two important studies should be noted. In 1772 Sir Joseph Banks, on his way to Iceland, stopped off in Orkney. Although his investigations of mounds at Skail Bay (Lysaght 1974) were little better than the average antiquarian, his surveys of both the Skail Bay area, and the Rings of Brodgar ('Circle of Loda') and Stenness, exhibit an eye for detail (Fig 24). This was mainly due to the work of Frederick Herm Walden, a naval architect and surveyor who accompanied Banks. Shortly after Banks in 1789, the expedition of Sir John

23. A romantic, early 19th-century view of the Watch Stone and the Odin Stone by Elizabeth, Marchioness of Stafford. Many antiquarian views of the World Heritage Site exist and they can be an important source of information about the monuments
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24. A Plan of the Circle of Loda in the Parish of Stenhouse Add.15511 f.10 Clevely 1772, by permission of the British Library.

Thomas Stanley visited Orkney and surveyed and recorded many of the sites (West 1970-76). Both Banks' and Stanley's work mark a trend towards more scientific and systematic investigations in the islands.

It was not until the mid-19th century, however, that archaeology entered its 'Golden Age' of antiquarian investigations. The translation of Thomsen's 'Three Age System' by Ellesmere (1848) allowed Daniel Wilson in his *Archaeology and Prehistoric Annals of Scotland* (1851) to give a clearer chronological perspective to many of the type sites and move away from the ubiquitous category of 'Picts' houses'.

The impetus for this period of archaeological investigation in Orkney was also due to agricultural improvements following the collapse of the kelp industry in Orkney in the late 1830s (Thomson 1983). Vast new areas were brought under cultivation and, as George Petrie noted in a letter to Daniel Wilson in 1849, perhaps hundreds of sites were disappearing 'without any attention being given to

preserve a record of their construction and contents' (Wilson Collection MS).

One of the important documents to arise from this era was not an excavation report but another survey. In 1852 Captain F W L Thomas, the commander of the Royal Navy survey ship *Woodlark*, produced the topographic survey of the Brodgar/ Stenness peninsulas he had undertaken in 1849 (cover and Fig 42; Thomas 1852).

In his account he not only produced the most accurate and detailed map to date, including many of the 'minor' monuments in the area, but also chronologically correct, detailed descriptions. His work is even more visionary when one takes into account his proposals for preservation of the monuments and treasure trove.

Thomas was also involved in the excavation of the large Bronze Age burial mound at Skae Frue and the emptying of a chambered tomb, the Holm of Papa Westray South. Unfortunately his excavation techniques were more in line with fellow antiquarians than with the standards of his other work.

The heyday of antiquarian investigations in Orkney, from the mid- to late 19th

century, is dominated by three main characters: George Petrie (1818-1875), factor of the Graemeshall Estate; James Farrer, the MP for Durham and friend of the Earl of Zetland (a major landowner in Orkney); and Sir Henry Dryden (1818-1899), the famous architectural illustrator. Between them they were responsible for opening up numerous sites, most famously Maeshowe in 1861 (Petrie 1861a). Although Farrer was the instigator of many of the excavations, his archaeological talent was limited and many of his discoveries would have disappeared without any record had it not been for the annotated sketches of Petrie (Petrie nd). Dryden was also responsible for recording many of the sites they investigated, but in most cases he based his drawings on Petrie's sketches. Petrie was also partly responsible for publishing the results of the early excavations at Skara Brae, following its exposure in a storm in 1850 (Petrie 1867). Perhaps Petrie's greatest contribution, however, was his reappraisal of various types of monument. In a quite radical article in 1863 he questioned the all-consuming 'Picts' houses' category of site, stating that they were 'simply chambered tombs which have been despoiled of their original contents at an early date' (1863a).

Despite being involved in over 30 excavations from 1847 till his death in 1875, Petrie failed to develop his excavation techniques. It was left to his contemporaries to develop excavation methods. William Traill, the owner of North Ronaldsay, not only differentiated between two clear periods of occupation in the excavations at the Broch of Burrian (Traill 1890), but also made the first inroads into palaeobotany with his records of tree remains in island peats (Traill 1868b). R S Clouston, a local landowner, showed a relatively systematic approach to his excavations at Unstan in 1884 (Clouston 1885) and rightly assigned the tomb to the Neolithic.

For almost half a century after Petrie's death the impetus created by him seems to have been lost, with few excavations being recorded. Mr Balfour Stewart, the tenant

of Skail House, briefly revisited Skara Brae in 1913 and revealed parts of House 2 (Stewart and Dawkins 1914). James Cursiter (1898b; 1923) cleared several brochs. His conclusions, that they were the work of Phoenician builders from Atlantis, were a definite step backwards. A major advance, however, was the founding of the Orkney Antiquarian Society in 1922. Under the auspices of such local luminaries as Hugh Marwick (Dickens 1966), its first secretary, and J Storer Clouston, the society flourished until the outbreak of war in 1939. The *Proceedings* of the Society provided a vital outlet for discoveries and research in Orkney.

A new period of archaeological research was stimulated by the work of the Royal Commission on Ancient Monuments in Orkney from 1928 to 1937 and the arrival of the distinguished prehistorian Professor V Gordon Childe. Soon after Skara Brae was placed under the guardianship of HM Office of Works in 1924, consolidation work was started to stabilise the structures. It soon became clear that further, undisturbed structures existed. Childe, as a representative of the Society of Antiquaries of Scotland, was invited by the Ministry of Works to oversee the clearing of these buildings by a local Kirkwall contractor, James Firth (Fig 25; Childe 1930, 1931a; 1931b). Although Childe recognised the site as being Neolithic in character, he initially assigned a 'Pictish' date to the village, partly based on the correlation in the distribution of Pictish symbol stones and stone balls (eg Childe and Paterson 1929, 277-9). This view was supported by J G Callander (1931a), the Director of the National Museum of Antiquities, but challenged by the local historian Hugh Marwick (1929c, 26), who correctly attributed the site to a 'pre-broch period', and Stuart Piggott (1936, 201), who ascribed a Neolithic date to Skara Brae on the basis of the pottery.

The presence of Childe in Orkney and the work of the Royal Commission on Rousay in 1928 provided the catalyst for Walter G Grant (1886-1947), the whisky magnate, to embark on a series of excavations on

25. Work at Skara Brae under the direction of Gordon Childe (bottom left)
Thomas Kent, © Orkney Archives.



Rousay, his home island (Reynolds and Ritchie 1985). Initially this was in collaboration with J G Callander. Together they excavated ten chambered tombs and the broch of Midhowe on Rousay (Callander and Grant 1934a; 1934b; 1935; 1936; 1937). Although their techniques were still quite basic they did record the position of artefacts and human bone. After Callander's death in 1937, Walter G Grant continued his work. In general these latter excavations were never published and records for these sites relied on the drawings of Grant's draughtsman, David Wilson. The exception to this was Grant's collaboration with Childe in the supervision of the excavation of the Neolithic settlement at Rinyo in 1938 (Childe and Grant 1939). The excavation was interrupted by the war, but the discovery of Beaker pottery stratigraphically later than Grooved Ware, similar to that found by Childe at Skara Brae, helped Childe review his chronology for Skara Brae.

Childe's investigations at Skara Brae also provided the impetus for the excavation of the Knap of Howar on Papa Westray. In 1929 the landowner, William Traill of Holland, aided by his friend William Kirkness (Traill and Kirkness 1937), revealed the nature and extent of the site.

Initially it was attributed to the Iron Age and it would be another 40 years before it was correctly assigned to the Neolithic (Ritchie, A 1983a).

C S T Calder, an architect with the Royal Commission, was also active during this period, excavating several chambered tombs and other sites on Eday and the Calf of Eday (Calder 1937; 1938; 1939). Calder also produced the first comprehensive account of the Dwarfie Stane on Hoy (Calder and McDonald 1936).

Many of these inter-war excavations were published and a move to a more systematic approach to excavation was being made by refined techniques and the addition of photographs, scale plans and section drawings. But the overriding objective at many sites was to provide a monument for public display; archaeological research was still of secondary interest. At the brochs of Midhowe and Gurness, their centres were still just basically cleared, although outbuildings and ditches were also investigated. At Skara Brae much of the 'mundane' material from Childe's excavations, such as undecorated pottery and animal bone (now regarded as of interest), was dumped without proper examination. Other excavations were never

published. The Brough of Birsay was prepared for public display throughout the 1930s, mainly under the supervision of Dr J S Richardson. The only surviving record of this work is the diary of the site foreman, Mr J Henderson.

Despite such shortcomings, the results of these excavations provided crucial elements of forthcoming syntheses of Scottish and European archaeology. The Orkney material was incorporated by Childe into his pioneering works, *The Prehistory of Scotland* (1935) and *Scotland before the Scots* (1946), and latterly Stuart Piggott's *Neolithic Cultures of the British Isles* (1954).

The immediate post-war years started well for archaeology with the publication of the Inventory volume for Orkney by the Royal Commission on Ancient Monuments (RCAHMS 1946), the first systematic record of Orcadian archaeology. However, apart from Childe's work at the chambered tombs of Maeshowe (1956) and Quoyness (1952), and the publication of Henshall's definitive work *The Chambered Tombs of Scotland* (1963), archaeological investigations were very limited. Childe's excavations at Maeshowe are notable as a landmark in Orcadian palaeoenvironmental studies. For the first time, samples were recovered from a site and studied for pollen and microfossil evidence. The results were used to recreate the Neolithic landscape. This work was a forerunner for future environmental studies in the islands (eg Moar 1969; Davidson *et al* 1976; Keatinge and Dickson 1979).

The present era of archaeological work in Orkney can be seen to start in the early 1970s. Initially this was intrinsically linked to the development of the 'New Archaeology'. The catalyst for the 'New Archaeology' was radiocarbon (¹⁴C) dating. In conjunction with tree-ring calibration this allowed absolute dates to be obtained for sites. Many basic assumptions that had dominated the study of prehistory, in particular diffusionist concepts, were finally laid to rest. Dating, in conjunction with a new battery of

analytical and statistical techniques, allowed new questions to be asked of the material remains concerning the economy, environment and society that produced these monuments. This approach was epitomised by the work of Professor Colin Renfrew. Throughout the early 1970s Renfrew brought this new battery of techniques to bear on Orcadian archaeology with his excavations at Quanterness, Ring of Brodgar and Maeshowe (Renfrew 1979). His results paved the way for many new ideas and theories relating to Orcadian prehistory and beyond. An aspect of this project was the pioneering work on burnt mounds by John Hedges with his excavations at Liddle and Beaquoy (Hedges, J W 1975).

In 1972-3 Skara Brae was revisited by Dr D V Clarke (Clarke 1976a; 1976b). His main objectives were to obtain environmental and dating material. Samples obtained allowed an absolute date to be gained. As a result of coastal erosion, Clarke, D V (1977b) carried out further work at Skara Brae in 1977 which allowed the settlement to be placed in its landscape context. In 1978 Clarke went on to investigate the Links of Noltdland on Westray, another Neolithic settlement site, originally discovered by Petrie. These excavations are as yet unpublished.

Neolithic studies were further advanced by excavations conducted by Drs Graham and Anna Ritchie in the early 1970s. Excavations at the Knap of Howar by Anna Ritchie in 1973-74 (1983a) showed that the structures were early Neolithic not Iron Age. Meanwhile Graham Ritchie's excavations in 1973-74 at the Stones of Stenness (1976) finally provided important evidence for its date and its relationship to Grooved Ware.

1978 is marked in the history of Orcadian archaeology with the appointment of the first Orkney or County Archaeologist, Dr Raymond Lamb, by the Orkney Heritage Society. His most important contribution to the study of archaeology in the islands was the creation of the Sites and Monuments Record (SMR) for Orkney.

26. Excavation of Neolithic building at Pool, Sanday
© J R Hunter.



This was the first systematic update of the Royal Commission Inventory of 1946 and identified many previously unrecorded sites. His work continues to be built upon by his successor, Julie Gibson, appointed in 1996 by the newly formed Orkney Archaeological Trust.

During the late 1970s and early 1980s excavations took place at the Howe, Stromness (Ballin Smith (ed) 1994) and the Bu, Stromness (Hedges 1987) by John Hedges and the North of Scotland Archaeology Service (NoSAS). These excavations radically altered Iron Age studies of northern Scotland. Up until then Iron Age research had concentrated on the architectural typologies of brochs and associated structures. The Orkney excavations, not only provided evidence for an extended chronology, but also shifted the emphasis towards the social context of this style of architecture. The most important point to arise from these excavations was the contemporaneity of the brochs and their surrounding villages. These were previously regarded as chronologically separate.

Throughout the 1980s Bradford University was involved in a series of excavations in Sanday, Orkney. At Pool (Hunter *et al* forth) and Tofts Ness (Dockrill *et al* forth) important work was carried out, primarily in response to

threats from coastal and landscape erosion (Fig 26). Evidence from both sites has provided an opportunity to study in detail all aspects of the development of an island population over several millennia. The long-debated relationship between Neolithic Unstan Ware and Grooved Ware has also been clarified by the discovery of both styles at Pool.

Since the early 1980s the contribution of Dr Colin Richards to the study of Orcadian prehistory cannot be overlooked. Richards was the first to use fieldwalking systematically as a method of identifying sites in Orkney. Following his discovery and excavation of the Neolithic settlement of Barnhouse (Richards forth), his numerous papers have attempted to provide a theoretical framework in which to place his and others' fieldwork. Richards, more than anyone else, has realised the potential of the rich, almost unequalled, quality of the archaeological record in Neolithic Orkney. More recently in the late 1990s, in conjunction with Jane Downes and Richard Jones, Richards initiated a new project in the Cuween-Wideford area of Mainland. This proposed to address some of the many issues raised by the Barnhouse excavations. A programme of fieldwalking led to the discovery and excavation of two new, but very different, Neolithic settlements at Crossiecrown and Stonehall. In 2003, as

part of the same project, a settlement at the base of Wideford Hill (HY41 SW47), hinted at by antiquarian lithic collections (Rendall 1931; 1934b), was also located. For the first time in Orkney Neolithic timber structures were found. These underlie a ‘Knap of Howar-style’ stone structure. The results of these excavations may yet again transform our understanding of the Neolithic. Richards is presently investigating the prehistoric quarry at Vestrafield, one of the possible sources of the standing stones of the Brodgar area.

Since the extensive investigations of burial mounds and ‘tumuli’ in the 19th century, the study of Orcadian prehistory has concentrated on the Neolithic and Iron Age and tended to ignore both the preceding period and the intervening Bronze Age. This was partly due to an apparent lack of evidence. This imbalance was partly addressed, for the Bronze Age, by the work of John and Melia Hedges in the 1970s, with their investigations of the burnt mounds at Liddle and Buckquoy (Hedges, J W 1975) and the barrow cemetery at Quoyscottie (Hedges, M E 1977), and Bradford University’s work at Tofts Ness, Sanday (Dockrill *et al* forth). In the 1990s Bronze Age burial mounds again entered the research agenda. Jane Downes’ ‘Orkney Barrows Project’ surveyed all known burial mounds and excavated a sample of them (Downes 1995; 1997a; 1997c; 1999; forth). This project has not only led to a better understanding of the Bronze Age funerary landscape, but also the requirements for

the management and preservation of these monuments. This project is ongoing with the detailed survey and excavation of the Knowes of Trotty in Harray.

Despite the huge legacy of known archaeological sites, Orkney continues to surprise both academic and lay people with the plethora of new sites still being discovered in the islands. In 1998 the first undisturbed chambered tomb to be discovered in Orkney for many years came to light at Crantit (Ballin Smith 1998; 1999), while the ongoing excavations of the Iron Age ‘ritual complex’ at Mine Howe (Card *et al* 2000), and the mortuary structure and cemetery at the Knowe of Skea, Westray (Moore and Wilson 2003), have added other dimensions to life in the Iron Age. Furthermore, geophysical survey is proving immensely valuable in adding to the number of new sites and providing further information about known sites. This is best evidenced in the recent and ongoing geophysical survey of the Orkney WHS and surrounds (GSB 2002; 2003a and b).

Assessment of the prehistoric periods

Nick Card

Pre-Neolithic Orkney

Orkney, like the rest of Scotland, has presented no clear evidence to suggest human occupation before the end of the last glaciation, *c*10,000 BP. A single bifacial flaked implement from Upperborough, Harray (Anon 1914) does have certain typological affinities with Lower Palaeolithic handaxes. However, this is thought to be more likely of Neolithic/Bronze Age date (Saville 1997).

Mesolithic-type, flaked stone artefacts have been recovered from several locations in Orkney, mainly as a result of surface collection (Fig 27; Saville 2000; Wickham-Jones and Firth 2000). Many post-war studies of these microlithic forms, mostly informed by the work of Lacaille (eg 1935), viewed them as ‘the survival of a

27. Fieldwalking provides much useful archaeological evidence
© C R Wickham-Jones.



lingering, degenerate, Upper Palaeolithic tradition...' (Livens 1956, 443). This was contrary to Lacaille who saw no reason not to attribute these forms to Mesolithic activity in Orkney (1954, 169-70). Livens' view however is still current amongst some authors. Anna Ritchie stating, most recently, that '... flintwork that looks Mesolithic can turn up on Neolithic sites ... where it is more likely to indicate the survival of old-fashioned ideas in toolkits than pre-Neolithic activity' (Ritchie, A 1995, 20). Renfrew (2000, 5), although not denying the possibility of sporadic Mesolithic visits to Orkney, contests the idea of permanent Mesolithic settlement in Orkney.

Recent reviews of the material by Saville (1996; 2000), '... leaves no doubt of the existence of a fully Mesolithic presence on Orkney' (1996, 220). This view is shared by Wickham-Jones, on the basis of the lithic artefactual evidence (1994, 74) and fieldwork (Wickham-Jones and Firth 2000). Despite the lack of wholly diagnostic implements, the flint assemblage from below the chambered tomb at the Point of Cott, Westray has also recently been assigned to the Mesolithic (Findlay 1997), as have new finds from Long Howe, near Mine Howe.

Environmental evidence for Mesolithic activity is also scant. Bunting (1996a, 23) has interpreted an interruption of woodland in a pollen column from the West Mainland, as evidence for possible Mesolithic activity, c6,500 BC. On Hoy (Blackford *et al* 1996) a similar decline in woodland was also detected around 6,400 BC. As with the Mainland evidence this was associated with concentrations of charcoal, which have been interpreted as possible evidence for people in Orkney in the Mesolithic.

The pre-Neolithic World Heritage Site and Inner Buffer Zones

Although no Mesolithic sites have been detected within the IBZ, many of the flints cited by Saville (1996; 2000) as 'typical microliths', have been attributed to the

Stenness and Sandwick areas. Saville's (2000, 95) re-examination of the lithics from the 1970s excavations at Skara Brae (Clarke, D V 1976a; 1976b) also identified two pieces of 'Mesolithic character'. Saville considers that these may represent residual Mesolithic pieces and may 'hint of a pre-existing Mesolithic site being disturbed by the Neolithic village' (Saville 2000, 95).

Neolithic Orkney

Present ¹⁴C dating suggests that the Neolithic in Orkney spans about 1500 years from the mid-4th millennium to c2000 BC. This is usually divided into two general phases, an early and a late, each characterised by differing styles of decorated pottery and architecture. There is overlap between the two phases and the transition period is generally considered to have occurred around 3000 BC (Renfrew 1979, 199-212; Davidson and Henshall 1989, 85-98; Hunter 2000; Hunter and MacSween 1991; and see Ashmore 2000a). The earlier phase seems characterised by Unstan Ware, the later phase by Grooved Ware. This phasing is also generally reflected in the architecture of chambered tombs. In simplistic terms, Orkney-Cromarty cairns (both tripartite and stalled cairns) are assigned to the early phase, while Maeshowe-type tombs are later (Davidson and Henshall 1989, 19-51). Statistical analysis by David Fraser (1983) appeared to support a possible typological division between the Orkney-Cromarty cairns and the Maeshowe group. This simplistic scheme is, however, complicated by some tombs exhibiting features from both styles of architecture. Further doubts have been cast on this simple typological sequence by Ashmore (2000a) and the important results of excavations at the Point of Cott (Barber 1997).

The architectural division is also mirrored in the domestic sphere. The organisation of space within the early Neolithic houses of the Knap of Howar (Fig 28; Ritchie, A 1983a), Howe (Ballin Smith (ed) 1994, 10-13) and Stonehall is mirrored in



28. Neolithic settlement at Knap of Howar, Papa Westray
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Orkney-Cromarty tombs, with chambers being subdivided by upright slabs, while the layout of Maeshowe-type tombs finds parallels in Grooved Ware settlements such as Skara Brae (Richards 1991a).

Development within the later Neolithic period is evidenced by subtle changes in house design (Richards 1996a, 199), applied rather than incised decoration on Grooved Ware (Hunter and MacSween 1991) and the construction of large ceremonial sites, such as the Ring of Brodgar, Structure 8 at Barnhouse (Richards *forth*), Maeshowe and perhaps Structure 8 at Pool (Hunter 2000, 121-2).

For many years chambered tombs dominated the study of the Neolithic in Orkney. In many ways this is understandable since until the 1970s only three settlement sites (Skara Brae, Rinyo and the Knap of Howar) were known, compared to the plethora of chambered tombs. As early as the late 19th century chambered tombs were correctly assigned to the Neolithic (eg Clouston 1885), whereas, the recognition that Skara Brae was Neolithic only occurred almost 90 years after its discovery. Not until Bronze Age Beaker Pottery was found stratigraphically later than Grooved Ware, at Rinyo in 1938, did Childe accept that Skara Brae was Neolithic. The Iron Age date attributed to the Knap of Howar by

early investigations (Traill and Kirkness 1937) was finally dispelled by the excavations of the 1970s (Ritchie, A 1983a) which revealed its early Neolithic date. This imbalance between settlement and ritual evidence resulted in early studies failing to investigate or even consider the relationship between the two. Since the 1970s, however, this imbalance has been addressed with the excavation of the Neolithic settlement sites at Links of Noltland (Clarke, D V 1981), Howe (Ballin Smith (ed) 1994, 11-13), Barnhouse (Richards *forth*), Pool (Hunter *et al* *forth*), Tofts Ness (Dockrill *et al* *forth*), Crossiecrown (Richards *et al* *forth*), Stonehall (*ibid*) and, most recently, Wideford Hill (Richards *et al* *forth*). Numerous other potential settlement sites have also been identified by survey work, eg at Stove, Sanday (Bond, J M *et al* 1995; Morrison 1995).

In the past the evidence from these settlements has been seen as representing a straightforward development from single dispersed farmsteads in the early Neolithic towards nucleated villages in the late Neolithic. A reappraisal of past excavations and the results from Pool, Stonehall and Crossiecrown (eg Richards 1999) would suggest, however, that a wide variety of settlement forms characterised the entire Neolithic period in Orkney. The recent excavations at Wideford Hill (HY41 SW47) (Richards *et al* *forth*) have added another dimension to the repertoire of Neolithic settlement forms. Timber posthole structures, both linear and circular in plan, underlay a stone-built early Neolithic structure, similar in size and architecture to the Knap of Howar. Although awaiting the confirmation of an absolute date, these timber structures are potentially the earliest habitation site yet found in Orkney.

The study of chambered tombs has been augmented by Davidson and Henshall's revised survey (1989) and by modern excavations at Quanterness (Renfrew 1979), Pierowall Quarry (Sharples 1984), Howe (Ballin Smith (ed) 1994), Point of Cott (Barber 1997), Crantit (Ballin Smith



29. Example of Orcadian megalithic art: Neolithic incised stone found at Brodgar Farm
Thomas Kent, © Orkney Archive.

1998; 1999) and Bookan (Card forth). Results from these excavations have not only shed light on possible funerary practices, be that excarnation (Renfrew 1979; Hedges, J W 1983b) or inhumation (Barber 1997), but also on contemporary social organisation.

Cist burials are so characteristic of the Bronze Age in Orkney that in the past they have been automatically assigned to this period. The results of the excavation of the large, rock-cut chamber and cist at Sand Fiold (Dalland 1999) implies that this tradition in Orkney perhaps had its origins in the Neolithic.

Until recently, megalithic 'art' was recognised at only a handful of sites in Orkney (Fig 29). Apart from some incised motifs noted by Childe at Skara Brae (Childe 1931a, 150-52; Shepherd 2000), these appeared to be limited to mainly pecked motifs in a few chambered tombs (Davidson and Henshall 1989, 81-3). The finest example of this is the magnificent, spirally decorated, carved stone discovered during quarrying work at Pierowall, Westray in 1981 (Sharples 1984). Recent work has shown the wider use of megalithic art both in domestic and funerary contexts. Pecked motifs have now been noted at the settlement sites of Pool (Hunter 2000, 121) and Crossiecrown (Richards pers comm), while incised motifs have been found at both the settlement site of Barnhouse and several chambered tombs (Ashmore 1986; Bradley *et al* 2001; Ballin Smith pers comm). Pick dressing of stone has also been recently noted at several sites in Orkney (Phillips and Bradley 2000). The recognition that many aspects of Orcadian megalithic art are paralleled in the Boyne Valley in Ireland would seem to emphasise the possibility of direct contact between the two regions in the Neolithic.

The integration of all of this new material has revolutionised the study of the Neolithic (see Ritchie, A (ed) 2000). Many basic questions regarding the Neolithic of Orkney have been addressed and partially answered. For instance, stratigraphical evidence from Pool has suggested the relationship between Grooved Ware and Unstan Ware to be mainly chronological, rather than cultural (Hunter and MacSween 1991).

Environmental and economic evidence has also been greatly enhanced. A detailed picture of the Neolithic environment is being created and the impact of farming realised. The conventional picture of a landscape devoid of trees during the Neolithic and later prehistory (eg Tipping 1994, 24) is also being questioned (eg Limbrey, in Buteux 1997, 10-11). The diversity of the Neolithic economy is now clearer. In the past the Neolithic economy in Orkney was seen as being based on pastoralism. Modern excavations have emphasised the range of environments exploited in the Neolithic (Clarke, D V and Sharples 1985, 72-8). Recent excavations at the Links of Noltdland, Skara Brae, Tofts Ness, Pool and Knap of Howar have provided evidence for cereal production including wheat and barley. Evidence from Pool (Hunter 2000, 122-3) also hints at intensification in agricultural production in the later Neolithic. This may be related to evidence from Tofts Ness (Simpson and Dockrill 1996; Simpson *et al* forth) where, from the late Neolithic, manure and turf were added to the soils to maintain crop yield and minimise erosion. The exceptional quality and quantities of the bone assemblages from settlement sites in Orkney have not only demonstrated the wide diversity of both domestic and wild animals being exploited, but also the importance of this resource for the



30. The Bookan skyline from near the Ring of Brodgar (some of the mounds relate to quarrying)
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production of artefacts. The only comparable assemblages in size come from southern England, but almost exclusively from ritual sites like Durrington Walls and Mount Pleasant (Harcourt, in Wainwright 1979). The importance of the Orcadian bone assemblages has recently been addressed by Sharples (2000).

Despite the range and quality of evidence from Neolithic sites in Orkney, there has generally been reluctance by the 'Wessex school' of archaeological theory to address the Orkney material in its wider context (Renfrew 2000, 2; but see Sharples 1992 and Barclay, G J 2000). Meanwhile new theoretical frameworks and landscape studies have been developed by those working in Orkney. Colin Richards' work at Barnhouse (Richards forth) has been followed up by his landscape studies around the Finstown basin, the Cuween-Wideford Project and a series of wide-ranging papers concerning his findings. He has attempted to address issues such as the cosmological and ideological perceptions of Neolithic people. His excavations at Barnhouse also provided material for Dr Andrew Jones's far reaching analysis of the pottery and its implications for the elucidation of social identity in the Neolithic (Jones, A 2000; 2002). As Gordon Barclay, however, points out (2000), the regionality of the Orkney material should be recognised.

The Neolithic World Heritage Site and Inner Buffer Zones

There are at present no absolutely dated early Neolithic sites known in the IBZ. Recent excavations at Maeshowe, however, suggest that an earlier structure underlies the clay platform on which the tomb was built. This has tentatively been identified as part of an early Neolithic house (Richards 1996a, 195; forth).

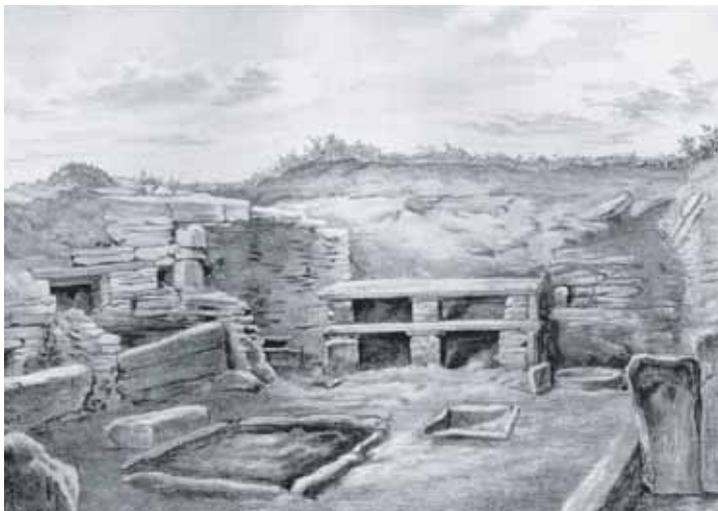
It has been suggested that the Ring of Bookan and the chambered tomb of Bookan form a sub-group of monuments within the larger Neolithic complex (Fig 30), as perhaps do the Ring of Brodgar and its surrounding large mounds, and Maeshowe and the Stones of Stenness (Historic Scotland 1998, 34). As the chambered tomb of Bookan has been assigned to the early Neolithic on typological grounds (Fig 31), the Bookan 'grouping' has been thought of as early Neolithic (*ibid*). However, the description of the pottery found by Petrie at Bookan tomb, with its 'rudely formed raised moulding in a waved form', implies Grooved Ware (Henshall 1985, 108; Davidson and Henshall 1989, 77-8) and perhaps suggests that the tomb at Bookan is late Neolithic. A possible example of an early Neolithic tomb is the elongated mound of Fresh Knowe (HY21 SE12), partially excavated in 1853 (Petrie 1857, 58; see below).

The rich variety of sites in the area relate to many aspects of the late Neolithic. Settlement is represented at Skara Brae, the initial phases of Barnhouse and probably the new complex on the Ness of Brodgar (see below); burial at Maeshowe and the chambered tomb of Bookan; and ritual at the henge complexes of the Ring of Brodgar and Stenness, and the later phases of Barnhouse. Each aspect is dealt with separately below but, as shown especially by excavations at Barnhouse, all sites are interrelated and share aspects of architecture, orientation, layout and material culture.

Since its discovery in 1850 (Fig 32), excavations at the Grooved Ware village of



31. Bookan chambered cairn under excavation in 2002
© Orkney Archaeological Trust.



32. An early painting of House I at Skara Brae (by John Cairns, Petrie 1867, pl xxix)
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33. Plan of Skara Brae
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Skara Brae (HY21 NW12) have revealed a complex history of settlement throughout which general continuity was maintained by the process of demolition, construction and reconstruction. Recent excavations (Clarke, D V 1976a) have suggested that the remains here fall into two broad phases, though their precise interpretations need clarification (Fig 33). The first phase, starting $c3000$ BC, was characterised by free-standing structures with 'beds' recessed into the walls. The later buildings, though retaining the basic layout of the earlier structures (a central hearth, beds on both sides and a dresser opposite the entrance), were larger with the beds not recessed into the walls. These later structures were not free-standing but set into midden deposits. Two of the structures stand apart from the rest, Houses 7 and 8. Due to abundant debitage from stone working, its separation from the rest of the houses and its lack of beds, House 8 (Fig 8) has often been interpreted as a workshop (Childe 1931a, 49; Clarke, D V and Sharples 1985, 67), though this has been questioned by Richards (1990b, 37-40). House 7 (Fig 34), although resembling the layout of other houses, also seems detached. This, in conjunction with several other idiosyncrasies, such as two female burials under the floor, suggests that this structure may have had a special, non-domestic function (Richards 1990b, 35-7).



34. House 7 at Skara Brae, from wallhead looking to entrance
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The discovery in 1984 of the settlement of Barnhouse (HY31 SW61), in a landscape that was often viewed as purely ritual, was surprising. Excavations between 1986 and 1991 (Richards (ed) forth) revealed a highly organised settlement with its origin *c*3000 BC. The houses were free-standing and similar in plan to those in the early phase of Skara Brae, with beds recessed into the walls, a dresser opposite the entrance and a central hearth. As at Skara Brae and Rinyo, all the hearths were orientated on a south-east/north-west axis. An exception to this general plan was House 2. This was a double-sized structure, with six 'bed' recesses and built to a higher standard than the rest. Unlike

other houses in the village that were replaced as often as five times, House 2 remained in use throughout the history of the settlement. Like House 7 at Skara Brae, this structure was probably not domestic in nature. Despite the replacement of many of the houses, the basic plan of the village remained the same, with the houses arranged around a central open area. This area was divided into specific places for the manufacture of pottery and the working of bone, hides and flint.

The settlement at Barnhouse appears to have had a shorter life than that at Skara Brae and the evidence suggests that it was abandoned *c*2600 BC. When habitation of the site ceased, however, a single monumental building was constructed to the south-west, partially overlying some earlier houses (Fig 35). This structure will be discussed below.

The existence of other settlements within the IBZ is implied by the recovery in the past of numerous, characteristically late Neolithic artefacts (eg HY21 SE44 and 52). Many of these are provenanced to the area around Bookan at the northern end of the IBZ. The collection comprises of many flint tools, including over 40 scrapers, arrowheads, maceheads, stone axes, hammers and a piece of haematite (Callander 1931a).

35. Aerial view of Barnhouse under excavation
 © Colin Richards.



The incised stone (HY31 SW25) found near Brodgar Farm in 1925, with its affiliations to similar stones from Skara Brae and Barnhouse, was considered to be perhaps indicative of another late Neolithic settlement. This appears to have been confirmed by the partial uncovering in the spring of 2003 of a structure very similar to Barnhouse's Structure 2 (Ballin Smith 2003). The ongoing geophysics programme being conducted by the Orkney Archaeology Trust within the WHA (WHAGP) (GSB 2002; 2003a and b; Mackintosh and Damianoff 2003) has shown that this structure appears to be part of an extensive complex of structures covering the Ness of Brodgar to the south of Brodgar Farm. The importance of this discovery, due to its location within the WHA and its proximity to the Barnhouse Neolithic settlement, cannot be overstressed.

Maeshowe (HY31 SW1) (Davidson and Henshall 1989, 142-6) is perhaps the finest piece of Neolithic architecture in western Europe. The tomb sits on a clay platform surrounded by a broad circular ditch (Fig 18). The bank outside of the ditch appears to be mainly a later addition, though in places excavation has shown it overlies a substantial prehistoric wall (Richards (ed), forth). Both Childe (1956) and Renfrew (1979) excavated trenches across the ditch

(Fig 36). Renfrew's results suggest that sometime before c2500 BC (though as noted by Barber (1997, 7) there was no demonstrated relationship between the ditch and the burial mound) a natural knoll was partially levelled for construction. The tomb, however, was not the primary structure to be built. Recent excavations revealed the remnants of an earlier structure underlying the clay platform on which the tomb was built. A socket for a standing stone was also discovered on the platform at the rear of the tomb (Richards (ed) forth). This may have been part of a stone circle situated on the mound, prior to construction of the tomb (Richards 1996a, 197). The mound that contains the tomb consists of a stone core covered with clay and stones with stabilising, internal walls (Childe 1956). The central chamber is accessed through an entrance passage, presently over 15m long, and aligned with the midwinter sunset. Four large slabs, one on each side, form the main length of the passage. It has been suggested that these may have come from a stone circle built on the site prior to the tomb (Richards 1996a, 197). An alcove in the passage houses a blocking stone, which when in place does not fully fill the passage. A small horizontal slit is left which, like the 'light-box' at Newgrange, Ireland, would allow light to penetrate the inner chamber at midwinter. The large, central chamber measures c4.7m square and its corbelled roof was originally c4.5m high. At each corner is a buttress flanked by a large standing stone. Three side cells are present in the sidewalls. When excavated in 1861 only a single fragment of human bone was found.

The only definite chambered tomb in the IBZ is the chambered tomb of Bookan (HY21 SE10) (Davidson and Henshall 1989, 103-4). This site was excavated by Petrie in 1861 (Petrie 1861a). Petrie discovered a rectangular central chamber surrounded by probably five smaller chambers. Orthostats were used to subdivide the interior. Human skeletal material was found in three of the side chambers, along with some pottery and a flint 'lance-head'. This site was used by

36. 1970s excavation of the ditch at Maeshowe by Professor Renfrew
© Colin Renfrew.



Henshall (1963) as the type site for one of her categories of chambered tomb. As noted above, this site is often quoted as being early in date (eg Ritchie, A 1995, 73), although the description of the pottery found by Petrie would seem more reminiscent of Grooved Ware than Unstan Ware. The site also shows similarities in layout and architecture with Structure 2 at the late Neolithic settlement of Barnhouse. Today the site survives as a dilapidated oval mound, c16m in diameter, within which some of the orthostatic chamber divisions are still visible. Excavation at Bookan in 2002 (Fig 31) showed that the tomb excavated by Farrer and Petrie was only the primary phase in the history of the site. After the tomb had fallen into disrepair or been deliberately slighted, the original cairn, c7m in diameter, was incorporated in a larger cairn, c16m in diameter and bounded by three concentric revetments (Card forth). The 2002 excavations also emphasised the apparent idiosyncrasies of this site. The size and aspects of the architecture would seem to be noticeably different from other chambered cairns.

The Ring of Bookan (HY21 SE7) has in the past been categorised as a chambered tomb (Henshall 1963). This suggestion has latterly lost favour and it was omitted from Henshall's revised work (Davidson and Henshall 1989, 4). This was due to a reconsideration of the site by Graham Ritchie (1985, J N G, 126) who thought that the site had more in common with the Stones of Stenness than the Maeshowe-type tombs. This was based on the scale of the encircling ditch (c13m wide by at least 2m deep) and the size of the enclosed area (45m by 38m). This is closer in size to the area enclosed at the Stones of Stenness (44m in diameter) than that of Maeshowe (76m by 60m). Local tradition (W Firth, Bockan Cottage, pers comm), however, recalls a 'chamber' still being accessible in the early 19th century. Clearly excavation is required to clarify the status of this site.

Although the remains of a cist can still be seen in the top of Salt Knowe (HY21 SE14), to the west of the Ring of Brodgar,

the scale of this mound (40m by 33m by 6m high) suggests that it may be a chambered tomb.

A cist burial (HY31 SW26), discovered in 1915 at Tormiston Farm close to Maeshowe, exhibits similarities to the large cist excavated at Sand Fiold, Sandwick (Dalland 1999). Both were rock-cut and their construction allowed access to be maintained. Radiocarbon dates and 'megalithic' architectural features suggest the Sand Fiold cist may have been built and used initially in the Neolithic. A similar date has tentatively been suggested for the Tormiston Farm cist (Dalland 1999, 408).

It is also worth noting the substantial mound opposite the Standing Stones Hotel (HY31 SW24), which is situated just outside the IBZ. Until recently this was considered natural, but a reference from the late 19th century (Cochrane 1899, 88), supported by results from a geophysical survey (Challands 2001), would imply that this is a chambered tomb.

Until the mid-19th century the Stones of Stenness (HY31 SW2) were considered to be part of a semi-circular structure. The crescent form of the surviving stones was probably the basis for the site being called the 'Temple of the Moon'. Thomas (1852) was the first to realise that they had perhaps originally formed part of a complete circle of an estimated 12 stones, although the semi-circular myth was still prevalent in the 1950s (Marwick, H 1952b, 20). Final confirmation of the circular form of the monument awaited the investigations of the 1970s by Graham Ritchie (Ritchie, J N G 1976). Ritchie's investigations showed clearly that the four surviving stones had been part of a circle of 11 or 12 stones (there is some doubt about the 12th stone, though it is possible that the socket for this stone remained undetected). Round the ring of stones was a ditch, 6m wide by c2.3m deep, with a single causeway, 8m wide, on the north side of the ring. Outside the ditch traces of a bank were revealed. Within the circle a large square hearth was found at the

centre, which overlay the setting for a timber post. Between the hearth and causeway across the ditch, various features were uncovered including the settings for some upright stones and a timber structure. Bones of cattle and sheep recovered from the ditch and charcoal from the central 'hearth' provided ¹⁴C dates of around 3000 BC for the initial use of the site. These dates are in agreement with the incised Grooved Ware found there. A date of c2150 BC from the bedding trench of the timber structure implies continued use of the site throughout most of the 3rd millennium. Several new dates from the basal ditch fill have recently become available (Ashmore 2000b, 125; Ashmore 2001, 125).

At the Ring of Brodgar (HY21 SE1) 60 stones were originally erected to form a near perfect circle, c104m in diameter (Fig 37). The stones were encircled by a ditch crossed by two opposing causeways on the north-west and south-east sides. Recorded excavation of the site is limited to the three trenches excavated by Renfrew (1979) in the early 1970s, two across the ditch and one outside the ditch. Although geophysical survey (Bartlett and Clark 1973b) located several anomalies within the central area of the circle none have been investigated. Renfrew's excavations revealed that the ditch was originally some 10m wide and up to 3.4m deep. Unlike the Stones of Stenness, excavation revealed no

evidence of an external bank, however, traces of a possible bank are visible in one area outside of the ditch. No samples suitable for dating were obtained. Estimates for the date of its construction vary from first half of the 3rd millennium (Ritchie, A 1995, 79) to the latter half of that millennium (Historic Scotland 1998, 22).

Several standing stones are located, or recorded in the area. The Barnhouse Stone (HY31 SW12) lies on a direct line with the passage of Maeshowe, some 800m south-west of the tomb.

It has been argued that the Watch Stone (HY31 SW11), along with the pair of standing stones at Lochview (Fig 38, HY31 SW10), the Stone of Odin (removed in 1814, Marwick, E W 1976) and the Comet Stone (HY21 SE13), formed part of an avenue between the Ring of Brodgar and the Stones of

38. The standing stones at Lochview

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37. Aerial view of the Ring of Brodgar
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Stenness (eg Ritchie, A 1995, 82). Alternatively, the discovery of sockets for twin stones at the Watch Stone (discovered during roadworks in 1929) and the Stone of Odin (Richards (ed) forth), suggests that the pairing of stones might indicate a series of portals or 'symbolic doorways' linking the two henges (Richards 1996a, 199). This apparent physical link between the two stone circles, paralleled at Stonehenge and Avebury, may help to explain the functioning of the Brodgar ceremonial complex (Parker Pearson 2000, 212-13).

As noted above, when habitation ceased at Barnhouse, a single large structure, Structure 8, was built (Fig 35; Richards (ed) forth). Although reflecting some features of late Neolithic houses, like a central hearth and a dresser opposite the door, the scale of the structure was monumental. The internal floor area measured *c*7m by 8m. It was surrounded by a clay platform bounded by an outer wall, elements paralleled at Maeshowe, while the elaborate entrance arrangement, including a passage some 3m long and flanked by upright stones with a hearth at its threshold, mirrors aspects of the Stones of Stenness. The interconnection between these monumental sites is further emphasised by the alignment of the two entrances to the Barnhouse 'hall'. The outer entrance, through the surrounding outer wall, faces Maeshowe. The inner doorway was aligned on the midsummer sunset, the opposite to that of Maeshowe, which points towards the midwinter sunset.

Bronze Age Orkney

The Bronze Age in Orkney has been characterised as an impoverished period sandwiched between the apparent splendour of the Neolithic and Iron Ages. Despite the plethora of burial evidence in cists and round barrows, the lack of settlement evidence and 'exotic' items has led to the view that this was 'a dull time' (Ritchie, A 1995, 95) in the prehistory of Orkney. The apparent demise of Orkney has been linked to climatic deterioration,

overuse of soils in the late Neolithic and an inability to compete in a changing society where access to resources was paramount, all leading to a growing isolation. Alternatively Clarke, D V *et al* (1985, 92) have suggested that the existing power base in late Neolithic Orkney prevented the adoption of new ideas, such as Beakers and metalwork, in order to maintain their authority. This led to a growing atrophy in Orcadian society. Recent research is addressing this imbalance and leading to a greater understanding of Orkney in the Bronze Age.

The early Bronze Age is traditionally linked to the introduction of Beaker pottery. Although sherds of Beakers have been found at the settlement sites of Rinyo (Childe and Grant, W G 1939; 1947) and Links of Noltland (Clarke, D V and Sharples 1985), and inside the chambers of Calf of Eday Long (Calder 1937) and Knowe of Yarso (Callander and Grant, W G 1935), these limited discoveries were viewed as epitomizing the growing isolation of Orkney in the early Bronze Age. (There is some doubt over the Beaker from a cist in Birsay (HY22 NE1) (Clarke, D V *et al* 1985, 92).) Recent discoveries, however, have produced Beaker pottery from around the tombs at Howe (Ballin Smith (ed) 1994, 24), Holm of Papa Westray North (Ritchie, A forth), at the settlement site of Crossiecrown and possibly Tofts Ness (Dockrill *et al* forth). Traditional views of the transition from late Neolithic to Early Bronze Age may also need to be reappraised once the evidence from Crossiecrown (Downes and Richards 2000, 165-7) and Links of Noltland (Clarke and Sharples 1985) is fully evaluated.

Burnt mounds, defined here as those frequently crescentic-shaped deposits of burnt stone and fuel ash, are found commonly throughout Orkney. A rapidly disappearing feature of the Orkney landscape, they have (following Hedges, J W 1975) been widely accepted as 'middens associated with dwelling and cooking facilities' (Hedges, J W 1975, 82) and dated to the middle and late Bronze

Age and early Iron Age. Due to a lack of other settlement types, burnt mounds have often been viewed as filling the gap in the settlement record (eg Cowie and Shepherd 1997, 159). However, the lack of conventional occupation material and their location in areas of wet ground hint at specialised functions that have yet to be established (eg Buckley (ed) 1990; Moore and Wilson 1999b). Recent research by Iona Anthony in Orkney (Robertson *et al* 2000) has highlighted the possible extended date range of many burnt mounds, from the late Neolithic to the medieval period.

Recent excavations at Tofts Ness (Dockrill *et al* forth), Spurdagrove (Hedges, J W 1980), Skaill (Buteux 1997) and St Boniface (Lowe 1998) have provided insight into the (as yet limited) evidence relating to settlement and economy from the Bronze Age in Orkney (Figs 39 and 40). Survey has also augmented this list with numerous potentially Bronze Age settlement sites being identified by Raymond Lamb (RCAHMS 1980; 1982;

39. House structure within the Bronze Age complex at Tofts Ness, Sanday
© S J Dockrill.

40. Recovery of animal bone at Tofts Ness, Orkney
© S J Dockrill.



1983; 1984; 1987; 1989). On Hoy the complex of structures along the Whaness Burn (RCAHMS 1989, 8), including two enclosed settlements and sub-peat dykes, seem likely to be Bronze Age in date.

As in the rest of Scotland, there would appear to be a movement towards the enclosure of land during the Bronze Age in Orkney. Survey work (eg Nayling 1983) has discovered sub-peat dykes in many locations and field systems were found in association with the settlement of Spurdagrove (Hedges, J W 1980). On a larger scale, the massive linear earthworks known as 'treb dykes' (Lamb, R G 1983; RCAHMS 1980, 9) may also date to this period.

As with the Neolithic, the traditional view of the Bronze Age economy being dominated by pastoralism is no longer tenable. A mixed subsistence economy appears to have been the norm. Evidence for cultivation in Bronze Age Orkney comes in the form of ard marks (eg Tofts Ness, (Fig 67); Dockrill *et al* forth; Simpson *et al* 1998a), pollen (eg Liddle, Hedges, R E M 1975) and the wooden yoke from White Moss, Shapinsay (Hedges, J W *et al* 1993). The importance of cultivation in Bronze Age Orkney is also implied by the common occurrence of ard points both in domestic and funerary contexts (Downes pers comm).

Funerary evidence has tended to dominate the study of the Bronze Age since burial mounds are the most numerous prehistoric monument in Orkney. In a survey of all Bronze Age burial sites listed in the Orkney Records undertaken by Jane Downes in 1993-4 (Downes 1997a), 229 burial mound sites were found to survive. That is a total of 550 burial mounds spread amongst sites which range from single mounds to cemeteries of several mounds. This total does not include flat cemeteries or unmarked graves. Although many Bronze Age burials were excavated in the 19th century, there is a growing body of evidence from more recent work that allows a better understanding of these monuments (eg Hedges, M E 1977;



41. Varme Dale, Rendall. The Orkney Barrows Project is looking at Bronze Age burial in Orkney through a combination of excavation and survey
© J Downes.

Hedges, J W 1981; Neil 1981b; Downes 1994; 1995; 1997c; 1999; forth; Barber *et al* 1996; Dalland 1999). Recent studies, especially Jane Downes' 'Orkney Barrows Project', have emphasised the variety and complexity of burial rites (Fig 41). Cremation and inhumation were both employed throughout the period, with burials being placed in cists, pits and even clefts in rocks. Excavations have also highlighted the amount of information that can be retrieved from sites that have already been 'investigated' or that have suffered from recent farming practices. Excavation at the barrow cemetery of Linga Fiold (Downes 1995) revealed that primary burials often survive previous investigations. Area excavation between the mounds also exposed secondary burials, pyre sites and a mortuary structure where there were no surface traces.

The 'Barrows Project' is ongoing with investigations at the Knowes of Trotty, Harray, a large linear cemetery. In 1858 amber and gold artefacts were recovered from a cist in the largest mound (Petrie 1860). These grave goods are unusual for Orkney but they find parallels in the rich Wessex graves of the early Bronze Age. It may be argued that these items were heirlooms and cannot be used to date the cemetery. However, the location and layout of the cemetery would imply an early Bronze Age date (Downes pers comm). The exceptional quality of these finds in a Scottish context implies that Orkney in the Bronze Age was not as isolated as previously thought.

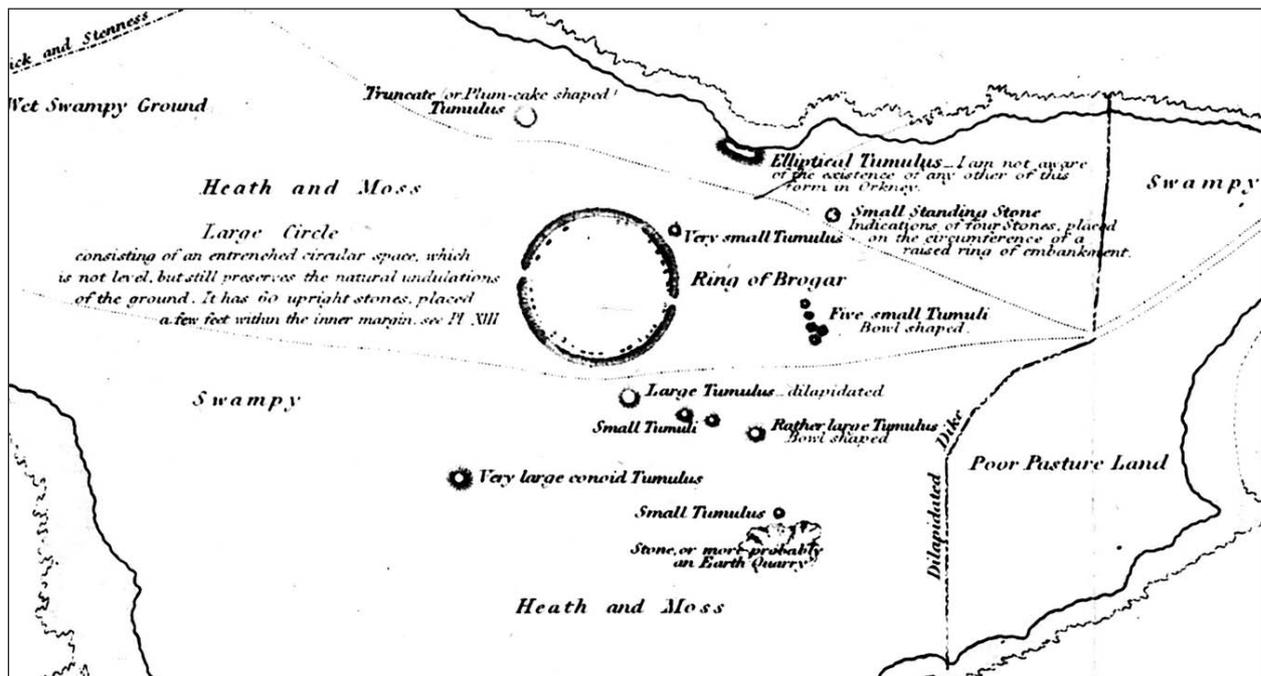
The Bronze Age World Heritage Site and Inner Buffer Zones

The Bronze Age archaeology of this area is dominated by funerary evidence. The late Neolithic ceremonial sites of the Ring of Brodgar, the Stones of Stenness, Maeshowe and the Ring of Bookan appear to have acted as a focus for Bronze Age burial, whilst respecting the earlier monuments. The importance of this area is emphasised not only by the number of satellite burial mounds, but also by the range of different types of mound, and the scale of some of the mounds. This variety of Bronze Age burial mound is best paralleled in Wessex at Stonehenge and Avebury.

When the Royal Commission surveyed Maeshowe in 1934, nine mounds were recorded in the 'immediate vicinity' of Maeshowe (HY31 SW21). Today only one visible mound survives, the others having been removed by ploughing or destroyed by the construction of a military camp to the north of Maeshowe during the Second World War (WWII).

Thomas's (1852) survey of the Brodgar area noted two mounds close to the Stones of Stenness, on the shore of the Loch of Harray (HY31 SW35) (cover). A copy of a presumed earlier map of the area, showing the sixpenny land of Stenness (Orkney Archives D23/10), shows six mounds in this vicinity and refers to them as 'Clovly Knowes'. Since Thomas's survey the land has been taken into cultivation and today no surface traces of these mounds survive.

The splendour and continued importance of the Ring of Brodgar is emphasised by the number and scale of the burial mounds erected in its vicinity (Fig 42). Salt Knowe (HY21 SE14) (Fig 43), to the west of the henge, is only paralleled in scale (*c*40m in diameter by 6m high) by Maeshowe and the largest mound at the Knowes of Trotty. Whether Salt Knowe was built to contain a Bronze Age burial or a chambered tomb awaits investigation. According to Thomas (1852, 110), this mound was investigated prior to 1700 and



42. Detail of Brodgar area in 1849 (see also cover; Thomas 1852)

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43. Salt Knowe

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nine silver fibulae were found. S Grieg (1940) speculates that this was Viking ring-money. It seems possible that these 'fibulae' came from the cist-like structure still visible on the top of the mound.

The two large mounds to the east of the circle, Fresh Knowe (38m by 26m by 5.7m high) and Plumcake Knowe (22m in diameter by 3m high), were both investigated by Farrer and Petrie (Petrie 1857). Two short cists were found in Plumcake Knowe, one containing a steatite urn 'one-third part filled with pieces of calcined bones', the other 'an urn of baked clay ... five inches in diameter and five inches deep' (Petrie 1857, 60). The excavations at Fresh Knowe by Farrer and Petrie concentrated on the north end of this 'elliptical' mound. Despite 'a very considerable cut or trench made across it ... it did not lead to any discovery' (Petrie 1857, 58). Petrie notes only that it was carefully constructed. The unusual

elongated form of this mound suggests that it covers a chambered tomb rather than a Bronze Age burial.

The hollow centre of the South Mound (18m in diameter by 1.8m high) (HY21 SE15), close to the southern lip of the ditch at the Ring of Brodgar, bears witness to investigations in the past. No records of these excavations survive. To the south of the henge at least nine smaller barrows survive (HY21 SE16), ranging from 4.5m to 12.8m in diameter and up to 1.1m high. Some have obviously been investigated but no finds have been reported. The recent geophysical survey (GSB 2002) of the area has clarified the extent of these mounds and located a series of associated features.

To the north of the Ring of Brodgar, close to the present shore of the Loch of Stenness, is the best preserved of only four recorded disc-barrows in Orkney (HY21 SE3). Although the outer bank on the south-west side has been cut through by a cart track in the past, the central barrow (15m in diameter by 0.8m high) and its encircling ditch and bank (overall diameter c30m) are still well defined. There are no records of any excavations at this site. Recent geophysical survey (GSB 2003b) of this site suggests that the central mound is revetted. Two hundred metres to the north of the disc-barrow lies a small



44. Skae Frue from Bookan
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mound (HY21 SE19). When recorded by the Royal Commission (RCAHMS 1946, 264) it was ‘outlined at the base by a setting of stones’. Today there is no evidence of this setting and the mound survives only as a low mound, c8m in diameter by 0.3m high.

The remaining burial mounds in the Brodgar area may be seen to cluster around the Ring of Bookan. There are presently three mounds (HY21 SE9) appearing to form a grouping at the top of the hill at Wasbister, south of the Ring of Bookan. The mound closest to the quarry is probably the result of quarrying activity. Both of the other mounds exhibit evidence of being investigated in the past. No reports survive of these excavations. Skae Frue (HY21 SE8) is a large mound (24m in diameter by 2.4m high) that lies c100m downslope to the south-west of the Ring of Bookan (Fig 44). Excavations in the mid-19th century (Thomas 1852, 22-5) revealed three cists ‘placed at the

cardinal points of the compass’, containing the inhumations of two adults and a child. Until 30 years ago a group of seven barrows (HY21 SE4) existed about 250m to the west of the Ring of Bookan. The mounds varied from 4m to 10m in diameter. A cremation in a cist was recorded from one of them (Callander 1936). Since the Ordnance Survey visit in 1966 ploughing has levelled the mounds.

Within the IBZ around Skara Brae a tumulus (HY21 NW16) was documented on the 2nd edition Ordnance Survey map of 1903, about 100m in front of Skail House. The Royal Commission in 1928 recorded this as being a mound 23ft in diameter, dug into on the west side for a considerable depth (RCAHMS 1946, 268, no. 719). Today this possible burial mound only survives as a slight mound on top of a probable natural knoll close to the Skara Brae Visitor Centre. This mound is possibly an outlier of the extensive barrow cemetery surveyed by Low, Banks and Walden in the late 18th century in the Links of Skail (HY21 NW15) (Lysaght 1972).

Apart from the upstanding barrows, numerous unmarked cists and burials have been recovered from the IBZ.

Unfortunately only a few have been recorded. Of most note was the presumed Bronze Age cist cemetery discovered close to Brodgar Farm in 1925 (Marwick, H 1925b). Six cists were uncovered in association with a slab bearing eight bands of incised decoration (Fig 29). Three of the cists held uncremated bone. This site, however, may need to be reassessed in light of the recent discovery of a presumed Neolithic complex in the vicinity. During recent building work at the house of Lochview a deposit of undisturbed cremated bone was found adjacent to a sherd of Bronze Age pottery (HY31 SW72). There were no surface features to indicate the presence of a grave (Card 1998a, 71). Local knowledge would also seem to indicate the past presence of numerous flat cist burials around the Bookan area. While breaking in the land for cultivation in the late 1960s and early

45. The results of geophysical survey at Wasbister (the circular house in the centre is about 19m in diameter)
© GSB Prospection.



1970s the farmer at Bockan Farm is reputed to have ploughed up 'several' cists (Harrold pers comm).

Until recently other possible evidence for Bronze Age activity in the area was limited to two possible burnt mounds at Kokna-Cumming (HY31 SW28) and Wasbister (HY21 SE20). No evidence for the existence of Kokna-Cumming now remains, but it was reported as standing close to the pair of standing stones of Lochview (HY31 SW10), by the shore of the Loch of Harray (RCAHMS 1946, 319, No. 899). A low, grass-covered mound at Wasbister, c6m in diameter by 0.3m high, next to the seasonal lochan north of the Ring of Brodgar, is now indicated by geophysical survey not to be a burnt mound, as had previously been thought (GSB 2003b).

As early as 1928 the Royal Commission (1946, 263) briefly considered the two 'contiguous' cairns at Wasbister (HY21 SE18) to be hut-circles. Due to their size, however, this idea was shelved and until recently the site was described as a pair of denuded cairns. Comparisons with some recently excavated sites in Shetland (Downes and Lamb, R G 2000) and the Western Isles indicate that this site is probably a Bronze Age double house. The larger northern house is 19m in overall diameter, the smaller southern structure

11.5m in diameter. In the autumn of 2003 the geophysical programme in the WHA revealed that this structure lay in the middle of a 'major settlement site of around four hectares in extent' (Fig 45, GSB 2003b).

In comparing the Wasbister house to the various Bronze Age houses of Shetland, it is interesting to note the apparent similarities between some of these structures and House 8 at Skara Brae. The differences between House 8 and most of the rest of the houses at Skara Brae are usually interpreted in terms of function, with House 8 being seen as a workshop. However, as Richards (1990b, 40) notes, there is no evidence to suggest this structure was not a dwelling.

The Dyke of Sean (HY21 SE68) that crosses the Brodgar peninsula, although marking the medieval parish boundary, may have its origins in this period.

Iron Age Orkney

The Iron Age in the north of Scotland has its origins in the first half of the 1st millennium BC. Despite possible Roman influence or contact (Fitzpatrick 1989) and the presence of Roman imports, the lack of Roman occupation means that the Iron Age continues uninterrupted through into the latter half of the 1st millennium AD. In northern Scotland the Iron Age is generally subdivided into early (up to c200 BC), middle (c200 BC- AD c300) and late (AD c300-c800) (Foster 1990; Barrett and Foster 1991). The later Iron Age is often also referred to, here and elsewhere in Scotland, as early historic, early medieval, Dark Age or Pictish. The term Pictish is most usually applied in Orkney to material dating from around AD 600. Christianity was introduced to Orkney during the Late Iron Age. Although the study of this later period still relies primarily on the archaeological record, historical references also start in this period.

The study of the northern Iron Age has until recently been dominated by 'That tower of Scottish prehistory - the broch'



46. Part of the Iron Age complex at Pool, Sanday
© J R Hunter.



47. 1920s excavations at Dale earth house, Harray, as photographed by Thomas Kent
© Orkney Archives.

(Hedges, J W and Bell 1980). Early studies of brochs were concentrated on typological and evolutionary classifications and the analysis of attributes of broch towers by simple statistics. This approach was determined by the lack of stratigraphic excavation and reliable dating evidence and gave rise to many theories explaining their origins by migration or invasion (Childe 1935; Mackie 1965; 1983), and their function in terms of comparisons with medieval castles (Curle, A O 1927). However, excavations at Bu (Hedges, J W

1987), Howe (Ballin Smith (ed) 1994), Pierowall (Sharples 1984), Quanterness (Renfrew 1979) and Tofts Ness (Dockrill *et al*, forth) have provided a 'native pedigree for the northern brochs' (Hingley 1992, 13) and dispelled the need for brochs being introduced by outsiders. The emphasis has shifted towards understanding the social context of Iron Age architecture (eg Barrett and Foster 1991; Parker Pearson *et al* 1996; Sharples and Parker Pearson 1997; Armit 2003).

A distinctive feature of the Orcadian and Caithness Iron Age is the occurrence of contemporary villages around brochs. This has been seen as suggesting a more centralised hierarchical or politically sophisticated culture than other areas of Atlantic Europe. However, it seems more likely that it reflects densities of population and the inherent fertility of the land forcing people into more compact settlement patterns (Sharples pers comm).

Recent excavations and surveys have also emphasised the possible range of non-broch-type settlement in the Orcadian Iron Age. The results from Pool, Sanday (Hunter *et al* forth) have not only provided one of the most important site sequences for the region (Fig 46) but have also

helped to bridge the gap between earlier roundhouse type structures and late Iron Age cellular structures, as found for instance at Buckquoy, Birsay (Ritchie, A 1977), while shedding new light on other previously excavated non-broch structures like Howmae, North Ronaldsay (Traill 1890). Evidence from Pool is also suggesting a revised chronology for the 'farm-mounds' (Davidson *et al* 1983; 1984; 1986) of Sanday and North Ronaldsay. Traditionally dated to later than AD c800 it now seems likely that many may have their origins in the Iron Age (Hunter 1990, 191-2).

The ubiquitous earth-houses or souterrains (assumed to be Iron Age although none are scientifically dated) are no longer seen as isolated features in the Iron Age landscape (Fig 47). Excavations at Howe (Ballin Smith (ed) 1994, 33) and Grain (Haigh 1983) have proved their association with ground-level structures. Their interpretation as storage for grain (Foster 1989a, 35) seems unlikely in an Orcadian context (Ballin Smith (ed) 1994, 273). The contents of some of these structures (eg at Rennibister (HY31 SE3) where many human remains were found), and the growing evidence for the importance of underground structures in the Iron Age (eg Mine Howe, Card and Downes 2003), suggests that interpretation of their use as ritual structures is worthy of further consideration.

Since Raymond Lamb's survey of promontory sites in the northern isles (Lamb, R G 1980b) little consideration has been given to these sites in the context of Iron Age settlement in Orkney. The dating of the promontory fort at Crosskirk, Caithness (Fairhurst 1984) to the pre-broch period may have important implications for similar sites in Orkney.

Crannogs are an aspect of settlement absent from the record in Orkney (eg Ritchie, A 1995) but they are present in the landscape. At present only two are listed in the NMRS database. Recent studies of aerial photographs imply that this is a much-underestimated resource in Orkney

(J Gibson pers comm). Underwater survey by Bobby Forbes in the Stenness Loch area has recently led to the discovery of two small islands with causeways. Excavations at Brettaness, Rousay (HY33 SE12; Marwick, J 1984, 20) have shown that some date to the late Iron Age period in Orkney. A wider date range is evident from elsewhere in Scotland.

Recent excavations have also provided new insights into the environment and economy, and the inter-relationships between the two. By 1300 BC the climate, soil types and vegetation were very much like the present day (Davidson and Jones 1985, 35). Childe, as early as 1946, suggested an expansion of agriculture in the Iron Age (Childe 1946). Recent research in the Northern Isles strongly suggests that the Iron Age was a period of agricultural development and intensification with an expansion in arable cultivation and, particularly in the later Iron Age, the introduction of new crop species (Simpson *et al* 1998b; Ballin Smith (ed) 1994; Bond, J M 1998; 2002; 2003). A change from the use of domestic midden material as fertiliser to the use of animal manure occurs as part of the expansion in arable agricultural (Simpson *et al* 1998b). The use of animal manure as fertilisers would require that the animals be stabled or corralled, with a concomitant intensification of stock keeping at this time. At the same time, a greater emphasis was placed on domesticated animals with a decline in the reliance on wild fauna, specifically red deer (Ballin Smith (ed) 1994; Gilmour and Cook 1998). This development of agriculture may be related to the apparent centralisation of settlement in the middle Iron Age, the development of broch-type structures and the emergence of an Iron Age elite basing its power on the redistribution of agricultural surpluses (Dockrill 2002). However the apparent focus of most of this intensification appears to relate to the post-broch settlements (Bond J M 2002) which may necessitate a rethink of present site hierarchy models.

The Iron Age, before the introduction of

Christianity, has often been viewed as a period within which society was more concerned with the 'mundane' aspects of life. This is largely due to a lack of evidence across Scotland for burial in the earlier Iron Age, or other structures to which a ritual purpose can be attributed. This imbalance in the evidence has partly been redressed by research showing that belief systems can manifest themselves in a variety of ways, for instance in the orientation of buildings, the use of architectural spaces and structured deposits within pits (eg Hill 1995). The discovery and ongoing excavation of the 'ritual' complex at Mine Howe (Card and Downes 2003) has shown that overtly ritual sites do exist. The similarity of the well-like structure at Mine Howe to so-called wells often found within brochs in Orkney and Caithness emphasises the potential of the 'religious' as part of many domestic structures. Anna Ritchie (2003) has also suggested a ritual function for several small alcove structures previously thought of as domestic.

A total of 12 Pictish symbol stones have been found in Orkney (RCAHMS 1999). Until recently few of the Orcadian stones were securely provenanced. The discovery of the symbol stone at Pool (Hunter 1990, 185-7; Hunter *at al* forth) in a secure stratigraphical context has not only allowed confirmation for the stylistic dating of some stones, but also shed new light on their possible function and meaning. Ogham script has been found on various objects in Orkney. Difficulties in both reading and interpreting ogham have recently been addressed by Forsyth (1995; 1997).

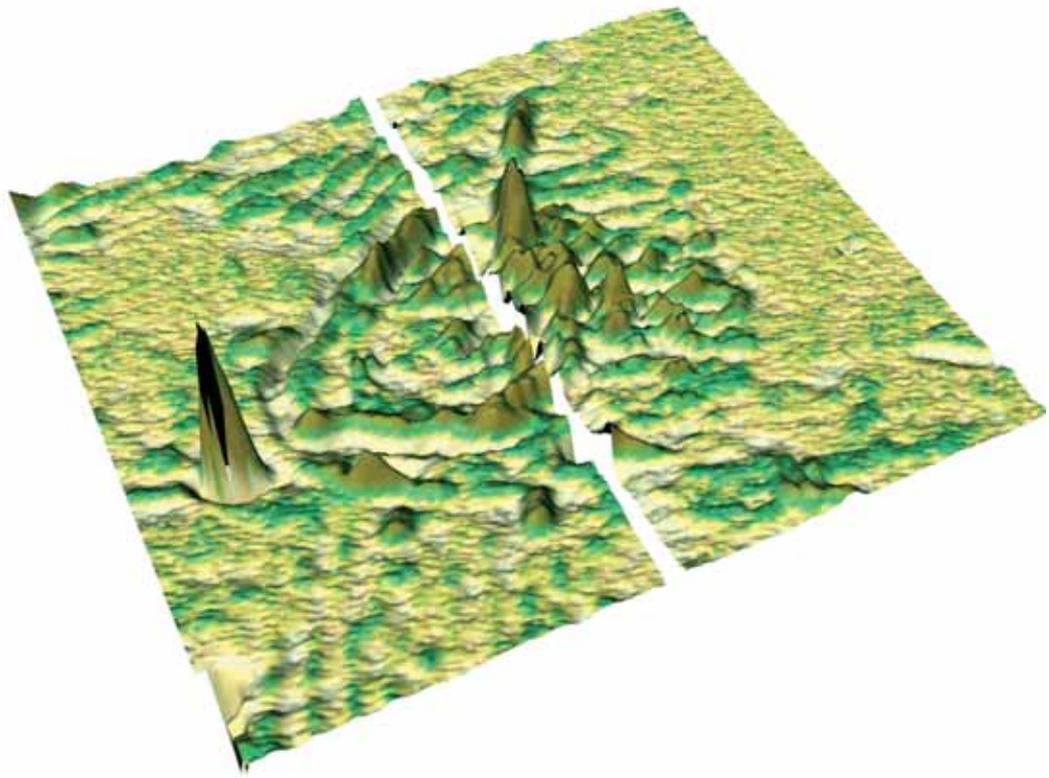
Evidence for burial in the Iron Age of northern Scotland as a whole has been lacking (Hingley 1992, 16). Where found, the disposal of bodies seems almost casual and *ad hoc* as at Howe, Stromness (Ballin Smith (ed) 1994, 281). The introduction of extended inhumation in long cists was thought only to arrive with the adoption of Christianity (Close-Brooks 1984, 96). Until recently there was a dearth of formal burials attributable to the earlier Iron Age. However, ongoing excavations at the

Knowe of Skea, Westray may be addressing this imbalance with the remains of over 60 individuals being recovered, some dating to the early 1st millennium AD and providing exciting new evidence for Iron Age burial practices (Wilson pers comm). Formal burials attributable to the later Iron Age are more widely recognised (Ashmore 2003). Excavations at Hermisgarth on Sanday (Downes 1997b) have shown that inhumation in cists and cremation were both practised in the late Iron Age and that burial in long cists does not necessarily imply the adoption of Christianity. The burials of this period can occur in low, kerbed cairns (eg Morris, C D 1996, 50-53) or flat cist cemeteries (Kaland 1993, 312-14). The cemetery of long-cist burials from Moaness, Rousay are dated to the Pictish period (*ibid*). These were part of the same cemetery in which several pagan Viking burials were discovered. Because none of the Pictish burials were conspicuously marked and they had not been disturbed by the burials of the Viking period, it has been interpreted as evidence for the continuity of the Pictish population into the Viking period.

The introduction of Christianity to Orkney, probably sometime between the late 6th century (Ritchie, A 1995, 117-18) and the early 8th century (Thomson 2001, 13-22), is perhaps the most influential event in the Pictish period. The strength of Christian organisation and its integration within secular power structures in Orkney at an early stage has been argued for on the basis of the evidence for a 'Peterkirk system' (Lamb, R G 1995, 22; but see Thomson 2001, 19-20) with the postulated presence of a resident bishop, perhaps on Papa Westray, sometime in the 8th century.

The Iron Age World Heritage Site and Inner Buffer Zones

The evidence for Iron Age activity within the IBZ is limited. Perhaps the most important site is the remains of a probable broch, Big Howe (HY31 SW31). This was partially leveled around 1900 when 'it was found to be a broch' (Cursiter 1923, 52). When Thomas (1852) surveyed the site he



48. Geophysical survey results showing banks and ditches at Big Howe (survey covers area of 100m²)
© GSB Prospection.

described it as being ‘very large’ and ‘requiring considerable excavations to make out its detail’. Although the site appears to survive as only a low but extensive mound, just south of the Stones of Stenness, the recent geophysical survey of the area (GSB 2002) has shown that considerable detail of the site still survives (Fig 48). What appears to be an outer ‘light bulb – shaped’ enclosure surrounds an inner circular enclosure *c*40m in diameter which is thought to contain the broch structure. The magnetic responses from the intervening area between the two enclosures, are ‘consistent with midden heaps, hearths and structures’.

Another possible contender for broch status is the large mound at the north end of the Bridge of Brodgar (HY31 SW20). This has been interpreted as a possible Neolithic/Bronze Age burial mound and a Neolithic carved stone ball has been provenanced to the site (Anon 1885, 139, no. 18). However, other finds from the site include a ‘grooved stone, possibly a sinker, with figures of fishes, a seal etc. scratched upon it’ (Noble 1888) which may suggest a late Iron Age date. The results of the recent geophysical survey around this mound (GSB 2002) would appear to support its interpretation as a broch.

During the excavations at the Stones of Stenness (HY31 SW2) (Ritchie, J N G 1976) sherds of Iron Age pottery were recovered from two pits near the centre of the henge. A third pit provided wood charcoal dated to AD *c*560. Fifty-one Iron Age sherds were also recovered during the re-erection of Stone 5, in 1906 (MacKie 1976b). Hingley (1996; 1999) has recently discussed the significance of the reuse of Neolithic monuments in the Iron Age.

The Ring of Bookan (HY21 SE7) has always been dated to the Neolithic (see above). However, recent excavations of the ritual complex at Mine Howe have shown that such earthworks can also date to the Iron Age. Investigation at the Ring of Bookan is required to clarify the nature of this monument.

A long-cist burial below a stone cairn (HY31 NW30.02) was excavated due to coastal erosion at the Bay of Skail. This has been ¹⁴C-dated from AD 540 to AD 710 (James H F 1999, 771-5). Continuing erosion exposes additional stonework at stratigraphically the same layer. At Skara Brae, the ‘intrusive burials south of Hut 7’ Childe (1931b, 58-60) excavated may also be of Iron Age date.

Assessment of the historic period

Sarah Jane Grieve with Julie Gibson

Orkney Viking period (c800-1065)

The Viking period in Orkney is generally accepted to have begun at the close of the 8th century when records show that the Vikings turned their attention to the British Isles; those who raided the north of Scotland came mainly from the west of Norway. In time these Norse men settled the coastal fringes of the north and west of Scotland. By 900 the earls of Møre in western Norway had established an earldom, based in Orkney, which later included Shetland and Caithness and at times areas within mainland Scotland, the Hebrides and Ireland (Taylor 1938, 138-9, 189). The death of Earl Thorfinn the

49. Remains of a Viking building with central hearth at Pool, Sanday
© J R Hunter.



Mighty in 1065 is generally regarded as signifying the end of the Viking period in Orkney (Crawford 1987, 219).

One of the main debates surrounding the Viking period concerns the relationship between the incoming Vikings and the native Picts. There are two opposing views which illustrate the wide range of current opinion. There is no doubt that (with the exception of modern ones) place-names in Orkney stem almost completely from the Norse. An argument based on this proposes that the Vikings exterminated all the Picts. At the opposite extreme an alternative view suggests that Vikings and Picts integrated with little violence (based mainly on archaeological evidence from the site of Buckquoy) (see Smith, B 2001, 7-32 and Bäcklund 2001, 33-48 for details of the opposing views). The truth may be somewhere in between.

The Orkney Viking period is considered proto-historic as there are some documentary sources pertaining to the period but none of any detail and none from Orkney itself. Most of our knowledge of the Viking period in Orkney comes from: archaeological investigations; later documentary sources, namely the *Orkneyinga Saga*, written in Iceland c1200 and detailing the history of the earls of Orkney; and place-name evidence. This period in Orkney has been studied in detail and a general picture can be formed of Viking period Orkney from these studies.

The main Viking period settlements excavated in Orkney are: in the Birsay Bay area; the Brough of Birsay (HY22 NW1; Morris, C D 1989), Buckquoy (HY22 NW11; Ritchie, A 1977), Brough Road (HY22 NW14; Morris, C D 1989) and Saevar Howe (HY22 NW5; Hedges, J W 1983a); Skaill in Deerness (HY50 NE19; Buteux 1997) and Pool in Sanday (HY63 NW17; Hunter *et al* forth). Excavations show that the Viking settlers frequently built their homesteads on or near to Pictish settlement sites (as seen at Skaill, Pool and Brough of Birsay). These dwellings were longhouses in which accommodation for people and a byre for the animals were

integrated under one roof (Fig 49). The early houses were built in the main of stone and turf, roughly rectangular with the longer walls bowed. The living accommodation surrounded a long central hearth with the byre at the lower end of the building. At each of the sites there were also other smaller buildings associated with the dwelling house. It is likely that the house would have accommodated a single-family unit. The earliest Viking houses have been dated to the 9th century. The majority of Viking settlements have been recognised on sites close to the shore and as a result many sites, such as those in the Bay at Birsay, have been subject to coastal erosion and are thus incomplete. These coastal farmsteads were ideally situated to exploit the maximum number of resources while not encroaching on the best farmland, and are often to be found near good bays allowing ease of access and communication.

Birsay Bay is the main area of Viking settlement investigated in Orkney (Morris, C D 1989; 1996). It is probably not a coincidence that a large amount of archaeological material has been discovered in this area for it was the largest earldom estate and the seat of the first Norse bishopric in Orkney. The bay at Birsay was a Pictish settlement focus prior to the arrival of the Vikings (Ritchie, A 1977, 192; 1988, 5) and it was located on the route from Norway to the Irish Sea. The first documented reference to Birsay is in the *Orkneyinga Saga* where it states that Thorfinn 'lived usually in Birsay, and had Christ's Kirk built there' (Taylor 1938, 189). At the end of the Viking period the earldom of Orkney was a well-established power (Crawford 1987, 63). The achievements of Thorfinn the Mighty reveal the developments which had taken place within Orkney society in the 250 years since the first Vikings settled. His tour of Scandinavia, Germany and Rome and the papal approval of a bishop for Orkney, provide indications of the wealth and power he had created. That he 'turned his mind to the government of his land and people, and to the making of laws' (Taylor

1938, 189), further suggests he was attempting to develop governmental structures and, if correct, places him 'well in the forefront of 11th-century political development' (Crawford 1987, 80).

Skaill Bay in Sandwick, the location of part of the WHS, was evidently a focus of Viking activity and settlement. The place-name 'Skaill' comes from the Norse name *skali* which refers to a feasting hall for a military retinue (Thomson 2001).

Furthermore, reference to the subdivision of Svein Asleifarson's great drinking hall by his sons in *Orkneyinga Saga*, chapter 108, is made by the 13th-century writers to symbolise the end of the period of Vikings in Orkney (Pálsson and Edwards 1981, 15). The name is thus likely to be a signifier of Viking activity. The original skali settlement in the bay at Skaill has not been identified, but there are other indications of a Viking presence here. One ubiquitous aspect of Viking society is the hoarding of precious metals in the ground, sometimes beneath settlements or perhaps related to prominent landscape features. There have been six hoards found in Orkney and three single finds. The hoards may have been deliberately placed in the ground to be recovered later and they could indicate a period of unrest or warfare when it was thought safer to hide portable wealth. From Skaill came a hoard (HY21 NW14) that is the largest Viking hoard yet to be discovered in Scotland. It was found in the 19th century in a rabbit burrow at the Castle of Snusgar (HY21 NW21), a large mound at the north end of the Bay of Skaill. It has been suggested that this hoard may represent 'the capital of the local chieftain who lived in this prime settlement location, buried by him ... before setting out to increase his wealth on an expedition from which he never returned' (Graham-Campbell and Batey 1998, 246). Ongoing work by David Griffith of Oxford University at the Castle of Snusgar may shed light on this (Griffith 2003).

In recent years the increase in environmental analysis has allowed many new discoveries to be made concerning the

economy and environment of the Scandinavian people living in Orkney. From samples taken from the Birsay (Morris, C D 1989; 1996) and Pool (Hunter *et al* forth) excavations it has been possible to gain a better understanding of the resources exploited by these first Scandinavian settlers. It appears that these settlers had a mixed economy combining pastoral and arable farming, while also exploiting the seasonal wild resources of a variety of fish, shellfish and birds (Morris, C D 1989, 271). The livestock remains from the sites in Birsay reveal that cattle were predominant but there were also sheep, goat, pig, horse, fowl and domestic dog and cat present (Morris, C D 1989, 10). The animals were being slaughtered on site and at a young age that suggests that the majority of the animals were used for meat rather than for dairying or as a wool resource. At Saevar Howe and Pool cereals have also been found, the most predominant being six-row barley and cultivated oats. The discovery of small querns suggests that there was flour production on site while the Viking Age horizontal mill at the Earls Bu, Orphir suggests larger scale milling (Graham-Campbell and Batey 1998, 192-4). The introduction of flax in this period at most of the sites suggests that it was a crop brought in by the Scandinavians (Bond and Hunter 1987). Fish and marine resources were important in this period and the evidence from Birsay shows that gadids were the predominant fish species and limpets the most common shellfish (Morris, C D 1989, 8-9). Many varying species of wild bird were also being exploited.

Orkney has the largest number of pagan graves from any region within Scandinavian Scotland. There are a variety of forms of burial, including boat burials, such as Scar (HY64 NE7; Owen and Dalland 1999), large numbers of inhumations within cemeteries, eg Westness (HY32 NE7; Kaland 1993) and, more unusually, cremations. The most common form of pagan burial in Orkney was inhumation. Analysis of the many varied grave-goods found associated

with the burials has provided an estimated date range from the middle of the 9th to the middle of the 10th century, with most burials centring around late 9th to early 10th (Graham-Campbell and Batey 1998, 154). The largest group of Viking graves yet discovered in Britain lay behind Pierowall, in Westray (HY44 NW13 and HY45 SW5). Raymond Lamb argues that their presence, read together with the *Orkneyinga Saga* designation of Pierowall as 'thorp', suggests the presence of a mercantile settlement (Lamb, R G 1993a, 82).

There is some archaeological evidence for two small chapels in use in Orkney by the mid-10th century, at Newark in Deerness (HY50 SE3) and at the Brough of Deerness (HY50 NE14; Barrett *et al* 2000b, 13-14). In addition to the archaeological evidence there is one documentary source which, if believed, is evidence for a Christian community within Orkney in the mid-9th century. The source is the *Vita Findani*, which describes St Findan being captured by Vikings in Ireland, escaping his captors in Orkney and being taken to a bishop who spoke his language (Thomson 1986, 279-80). This reference has been thought to relate to a monastic establishment in Papa Westray but the identification is by no means conclusive (Lowe 1998, 8-9). The most explicit piece of documentary evidence for Christianity in Orkney in this period comes again from the *Orkneyinga Saga*. In 995 Olaf Tryggvesson met with Earl Sigurd and said 'It is my will that thou have thyself baptized and all those under thee, else thou shalt die on the spot and I shall bear fire and flame through all the Isles' (Taylor 1938, 149). This date is taken to be the official conversion of the Norse in Orkney to Christianity and, along with the evidence outlined above, it seems likely that by the close of the 10th century there were several Christian foundations within the Islands.

It is important to realise the position of Orkney as a real power within the north of Scotland in the Viking Age and to be aware of the profound effect the Norse

settlement had on the Islands. This power can be illustrated in the far-reaching international connections between Orkney, Scandinavia and western Europe. This power would fade by the 13th century but the legacy of the Vikings continues even today.

The Viking period World Heritage Site and Inner Buffer Zones

There are at present no known Viking settlement sites in the IBZs, yet evidence is there for Viking period activity, represented by three burials and one deposit of silver rings. The silver rings were found 'in one of these hillocks near the circle of high stones' (Wallace 1700, 58) at some time earlier than 1700 (Graham-Campbell 1995, 95-6). Thomas (1852, 110) suggests they may have been found in Salt Knowe (HY21 SE14). The find consisted of nine silver plain penannular arm-rings, of the ring-money type, which have been dated within the 9th and 10th centuries (Graham-Campbell 1995, 95-6). Two burials discovered in 1930 during excavations at Skara Brae (HY21 NW12) were proposed by Childe (1931a, 58-9) as pre-Christian, possibly Viking, although they could equally be Iron Age in date (p 65). From the mound eroding to the west of Skara Brae, a 19th-century discovery of a burial (HY21 NW13) accompanied by a bone comb, comb case and other goods, has been dated typologically to the 9th century or later (Morris, C D *et al* 1985).

50. The Round Church, Orphir, part of a lordly estate complex
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Orkney late Norse Period (1065-1231)

This period sees the further growth of the earldom as a power in the north. This power was at its peak during the rule of Earl Rognvald Kolsson, when the development of the medieval institutions of urbanisation and centralisation began to take place. The 12th century has been regarded as Orkney's Renaissance period and this is reflected in the quality of the buildings erected, as best exemplified by St Magnus Cathedral (HY41 SW10) in Kirkwall (Crawford (ed) 1988, 11). However, the period also saw the decline of the earldom and the end of the line of Norse earls. By 1240 the earldom had been much reduced and had lost its position of power in the north. The last earl of Orkney was murdered, his son drowned, and many of his relatives (consisting of many of the powerful chiefs in Orkney) drowned in a boat accident (Thomson 2001, 132-3). These events left a convenient blank in the power-base of Orkney and as a result the kings of Scotland and Norway were able to assert more influence upon the islands.

The *Orkneyinga Saga* portrays a hierarchical society in Orkney with the earl in control but reliant on a group of good-men for support. These men were often given earldom estates and in return supported the earl and possibly performed administrative functions within the earldom. There is no mention in the *Orkneyinga Saga* of farmers or tenants and only in 1492, the date of the earliest extant rental for Orkney, is it possible to get a clear understanding of the layout of the land in Orkney.

Archaeological evidence has much improved knowledge of the types of settlement within Orkney in the Late Norse period. The excavations at Skaill in Deerness (HY50 NE19; Buteux 1997) and at Tuquoy in Westray (HY44 SE5; Owen 1993) have both revealed relatively high status sites with large dwellings, most likely of a hall-house type construction, dating to the 12th century. Owen (*ibid*) suggests

that Tuquoy may also be compared with the more grandiose 12th-century Bishops' Palace in Kirkwall (HY41 SW12) and possibly the Wirk, Rousay (HY33 SE17). Tuquoy, Westray and Skail, Deerness, both provide evidence of rich farm estates with large houses, outbuildings and associated churches, as does the Earls Bu in Orphir (Fig 50). The combination of residence, farm and church can also be seen in Wyre, in an agglomeration of fortified residence - Cobbie Roo's Castle, farm and church (HY42 NW4, 5). The excavations of a late Norse settlement at Westness in Rousay (HY32 NE17) revealed a pair of rectangular stone buildings which were built close together, gable end on to the sea and linked by a paved area or kloss. It seems that the one building was a dwelling and the second divided into two byres (Kaland 1993, 308-12). Nearby, and apparently of a similar date, was a naust (HY32 NE32) consisting of a large stone boathouse with a cleared landing area running ashore from a sheltered bay. This settlement may have been the predecessor to the Wirk, mentioned above. The farm mound situated at Beach View in Birsay (HY22 NW19) revealed a late Norse structure which had been modified and in-filled with midden, along with a possible separate byre and a building with a corn drying kiln dating to the 12th or 13th century. This is extremely important in that it is the earliest corn kiln in Orkney (Graham-Campbell and Batey 1998, 190-91). The buildings outlined above exemplify the increasing wealth of the local chiefs and the range of functions performed at their homesteads.

The growth and development of the town of Kirkwall is also evident during this period. Kirkwall held one of the earls' residences as early as 1046 (Taylor 1938, 183). In c1136 St Magnus's relics were translated from Birsay to the market town of Kirkwall (Taylor 1938, 221), followed in 1137 by the foundation of St Magnus Cathedral. Consequently the bishop's seat moved from the rural centre of Birsay to the developing town. The deliberate move to Kirkwall by Earl Rognvald established

the town as the secular and ecclesiastical centre of Orkney, and it is from this period onwards that Kirkwall becomes the focus of activity. Both the earls and the bishops (Lamb, R G 1993a, 46) would have encouraged the development of the market. The refinement and collection of taxes based on the land may also have been started soon after the move to Kirkwall (Thomson 2001, 219), in conjunction with the re-organisation of the church. Saint Magnus and the cathedral indicate the status of Orkney in the 12th century and suggest a sentiment of national identity. The fact that the earl and the bishop both went on crusade in c1150 also indicates the power of both secular and ecclesiastical government (Taylor 1938, 281).

The position and the influence of the church changed significantly within this period. In 1065 the first bishop's seat was erected in Birsay and the 'magnificent church' (Taylor, 1938, 189) was either located on the Brough of Birsay or under the present parish church in Birsay (HY22 NW8). There were already small private chapels in use in the islands and throughout the 11th and 12th centuries these chapels appear to have increased greatly in number. It is possible that there was some form of pre-parochial system in place, although there has been little research into this area (Lamb, R G 1997, 16). It is probable that, after the cathedral had been consecrated, the church was reorganised and centralised and the parochial system put in place. The church lands increased greatly in this period, through endowments and also probably through the establishment of tithe payments (Thomson 2001, 252).

Defining the exact location and status and date of churches and of the very many chapels is not easy and will rely largely on archaeological evidence. For instance, recent accidental discovery of a medieval cemetery at and below parts of Skail House, Sandwick, with burials ¹⁴C-dated to between the 11th and 14th centuries (HY21 NW40; James 1999), reinforces Clouston's suggestion (Clouston 1918a) of

a chapel at this location. This may indicate an earlier focus of settlement at this end of the bay, the opposite end of the bay from the present day church of St Peter (HY21 NW26).

The economy in this period was similar to that of the Viking period, with samples again showing evidence of a mixed pastoral and arable economy and a continued exploitation of wild resources. However, a new development in the Late Norse period was the intensification of fish processing. Excavations at St Boniface in Papa Westray (HY45 SE26; Lowe 1998, 152-5), and Quooygrew in Westray (HY45 SW7), provide evidence of this intensification of fish production, but the increase is not matched by an apparent increased intake of fish in the diet of the locals thus suggesting that these fish were being exported (Barrett *et al* 2000b, 17, 19). These fish processing sites are related to a particular type of Iron Age/medieval settlement focus known as a farm mound. This type of site is also found in Scandinavia and is formed of an accumulation of organic settlement

material (Lowe 1998, 9-10). Evidence for the import of wood was discovered in a waterlogged deposit at Tuquoy that contained pine, maple, larch and spruce. There is also evidence for the import of antler combs from Norway as found at Brough of Birsay, Beachview and Orphir (Graham-Campbell and Batey 1998, 223).

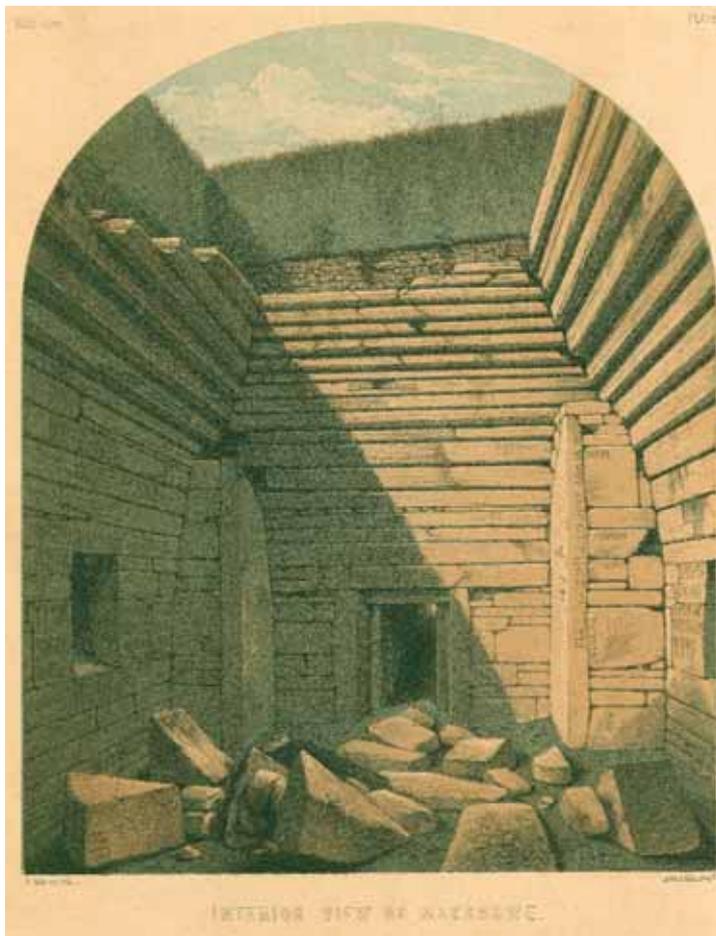
The late Norse period World Heritage Site and Inner Buffer Zones

The Late Norse period in the IBZs is represented entirely by runic inscriptions, which include four inscribed stones in addition to the magnificent collection in the Neolithic chambered tomb of Maeshowe (HY31 SW1) (Fig 51). This is the greatest collection of runic inscriptions outside Scandinavia: approximately 33 inscriptions and eight carvings which date from the 12th century (1125-75). For a detailed analysis and bibliography of these runes see Barnes 1994. The Brodgar rune stone (HY31 SW3) was found in a field-dyke on the farm and is now held by the National Museums of Scotland (RCAHMS 1946, 319). A stone found on the south side of the Stenness Loch with two twig runes inscribed is also now held in the National Museums of Scotland (RCAHMS 1946, 319). A twig rune and a small incised cross were discovered on an extant stump of one of the stones in the Ring of Brodgar (HY21 SE1) during restoration work (Ritchie, A 1996, 136-7). However, Barnes and Page (forth) have expressed some doubt as to the authenticity of these. The final runic inscribed stone was found at Skara Brae in 1982 and had been used face down as a paving slab for 19 years (HY21 NW12.01). This stone now resides in the Orkney Museum. It is thought that the stone weathered out of the site in 1963. It bears three twig runes and three poorly formed futhark (Ashmore and Johnsen 1984).

Late medieval Orkney (1231-1615)

There is a wealth of source material for this period and the Stewart earls especially have been well researched. The increase in

51. Early view of the interior of Maeshowe showing the Norse runes (Farrer 1862, Pl II) Crown Copyright: RCAHMS.



evidence from historical documentation is matched by a reduction in that from archaeological investigation. For this reason the majority of the evidence presented in this section comes from historical sources.

The political scene at the start of this period is confused and poorly documented due to the problems of various parties competing for the earldom of Orkney. After a period of disruption, the Angus earls were given the earldom, followed by the Strathearns and the Sinclairs. Several of the Sinclair family moved to Orkney and granted land to their kin, thus there was a modest influx of Scottish gentry. This was the first major stage of Scottish movement into Orkney after the end of the Norse line of earls. In 1468 the islands of Orkney were passed to the Scottish crown as a mortgage for the dowry of Margaret of Denmark. This was not an unexpected occurrence, since changes in the internal politics of Scandinavia meant that Orkney was politically and economically closer to Scotland. The transfer of ownership probably had little effect on those residing in Orkney as Scottish influence was already growing and few changes were made initially to the way in which the islands were governed. In 1470 the King of Scotland bought the earldom of Orkney from William Sinclair and annexed it to the crown, leasing it as tacks (short-term leases) until it was granted to Robert Stewart in 1565.

The Sinclairs remained in Orkney after 1468 and, although they no longer held the title of earl, they retained a large amount of land. There were several branches of the Sinclair family in the north of Scotland and much internal feuding occurred. This feuding culminated in the Battle of Summerdale (HY31 SW14), in 1529, when the Orkney Sinclair family met Earl Sinclair of Caithness at Summerdale in Stenness and where the Orkney branch was victorious (Thomson 2001, 233-46). After the battle there was continued unrest which led to James V travelling to Orkney in 1540. His return to Scotland was followed by an act of Parliament uniting

Orkney permanently to the Crown and installing a new tacksman. The Sinclairs remained a powerful family in Orkney until the Reformation.

Robert Stewart was granted the earldom, the castle of Kirkwall and the position of Sheriff by the King in 1565. The Stewart rule has been widely documented and is generally regarded as corrupt and aggressive in the extreme (Anderson 1982; 1992). Robert ensured his position by obtaining the bishopric lands of Orkney from Bishop Adam Bothwell and by the ruthless taking of all common land and all newly settled land. When Patrick, Robert's son, became earl he immediately demonstrated his violent and aggressive character (Thomson 2001, 277-8). His extravagant lifestyle was paid for by the rents collected from the islands but this could not meet the cost of his lavish building programme. In 1606 James VI restored the episcopate in Scotland and as a result Bishop Law was appointed to Orkney and given the bishopric lands. Patrick did not want to share power within the islands and eventually this led to his downfall when, in 1615, he was beheaded and his son Robert was hanged for treason.

From the 13th century Scotland had had an increasing influence on the Orkney bishopric and, despite Norwegian attempts to counteract Scottish infiltration in the 1300s, by the 15th century all the clergy in Orkney were Scottish and the Scottish calendar was in use (Thomson 2001, 153-4). In 1472, as a result of the impignoration (pledging of Orkney to Scotland), the bishopric of Orkney was placed under the jurisdiction of St Andrews (*ibid*, 220). The main change in the church, however, took place as a result of the Reformation. Unlike many parts of Scotland, the transition within Orkney was quite smooth, mainly due to the actions of Bishop Adam Bothwell (*ibid*, 247). A most important change for Orkney resulting from the Reformation was not religious; rather it was a change in land ownership. Bothwell created large feudal estates out of the bishopric lands and feued them to his

family, which was the first instance of large-scale feuing in Orkney. This resulted in the introduction of alien gentry who overshadowed the local gentry in terms of estate size and, as a result, the power base changed dramatically. In the years 1614 and 1615 Bishop Law created a further fourteen feus from the bishopric lands and these were also given to Lowland Scottish gentry (*ibid*, 304). It was Bishop Law who helped to bring about the downfall of Patrick Stewart, and a part of this action resulted in the abolition of Norse law in Orkney. Bishop Law also reorganised the earldom and bishopric land in Orkney, reassigning and consolidating hitherto interspersed strips of earldom and bishopric land into more coherent blocks within the parish system. One parish that was changed to hold only bishopric land and udal land was Sandwick (*ibid*, 298). This made the collection of taxes much easier for the king and for the bishop.

There was a Europe-wide deterioration in climatic conditions after 1300, resulting in a decline in farming and a decrease in population (Thomson 2001, 169). The situation in Orkney was worsened by plague in 1349. In the 1492 Rental much of Orkney's land was tenantless and uncultivated, reflecting the seriousness of the decline. After the low point of the 1460s the economy slowly began to recover, although any profits from the land were exacted in taxes. The trading connections with the north had been depleted considerably, due to the growth of power of the Hanseatic League in Norway and the movement of the Crown to Denmark (*ibid*, 190-91). However, grain was still exported and timber imported. The Stewart earls, in their turn, placed severe restriction on trade and ferry traffic (Anderson 1982, 142), ensuring any dues or fines went to the earldom, including the right to shipwrecked cargo.

This period saw the reduction in political power of the earldom of Orkney from that of a semi-independent and highly influential part of the Scandinavian kingdom to that of the administration of a peripheral and poverty-stricken Scottish

island group. While a degree of island identity was maintained, as can be seen with the Sinclairs' swift adoption into Orkney society, the increasing political and trade connections with Scotland eventually affected all aspects of Orkney life. The change of language from Norn - a form of Scandinavian language spoken in Orkney at the start of this period - to the stable and complete adoption of Scots by end of the 18th century (see Barnes 1998) marks the progress of Scottification which had started with the Sinclairs. The economic deterioration was in part due to misrule but also to climatic deterioration and changing external political circumstances. The population was able to continue to pay their rents and skat (land tax) even through the rule of the Stewart earls, but even this was to change in the following decade.

The late medieval World Heritage Site and Inner Buffer Zones

Three sites which may belong to this period are to be found within the Stenness IBZ: an earthwork which may be a parish boundary marker; the church; and a high status dwelling.

The Dyke of Sean (HY21 SE68), an earthwork which may be medieval (Lamb R G pers comm) extends from the shore of the Loch of Stenness to near the modern shoreline of the Loch of Harray. It almost coincides with the modern parish boundary between Stenness and Sandwick. The location of the parish boundary is surprising in that the natural boundary at the Bridge of Brodgar would seem a more natural division. There is no information concerning the Dyke of Sean itself, although there is an interesting tradition that may be connected to it. The tradition concerns a 'Lady of Brodgar' who (in addition to moving into the church just before her death, presumably to establish her right to burial there) donated lands, including the lands of Brodgar, to the church of Stenness on the condition that she be buried in the Stenness church. Peter Leith (1937) discusses the correlation between the tradition and historical documentation and suggests that

the boundary of the Dyke of Sean might have been built to mark the establishment of the parish boundary incorporating the lands of the donation. As noted above, however, the origins of this earthwork may date back to the prehistoric period.

The present parish church of Stenness (HY31 SW19), which is still in use, has been rebuilt on the same site on at least three occasions. A sketch of the church is recorded in Aberdeen's drawing of 1784, published in Low (1879). The church was originally dedicated to the Holy Cross, and is not reliably dated, but it may have a Late Norse foundation. The arguments for this are based on descriptions of the foundations being clay-bonded (evidenced by Pococke 1887, 144) and on its tower or

steeple, which was built on the west end and is comparable to two other towered churches in Orkney thought to be of this date. Limited excavations made by Clouston in 1928 confirmed the existence of the semi-circular tower or steeple (which demonstrated deficiencies in some respects in Aberdeen's sketch) and which was based upon rectangular foundations. Clouston also identified two subsequent re-builds which widened the original church, which he estimates as being 'approximately 23ft wide, with the tower on the middle of the gable of the church' (Clouston 1929, 69). Whatever the many uncertainties relating to the precise dating of the phases of the church on this site, the existence for a pre-Reformation church here seems certain. Weight is added to this by the evidence of a 'Roman Catholic priest's gravestone' which once existed in the graveyard and bronze buckles, thought to be 14th-century, that were found in a grave within the church (Fraser, J 1926, 22).

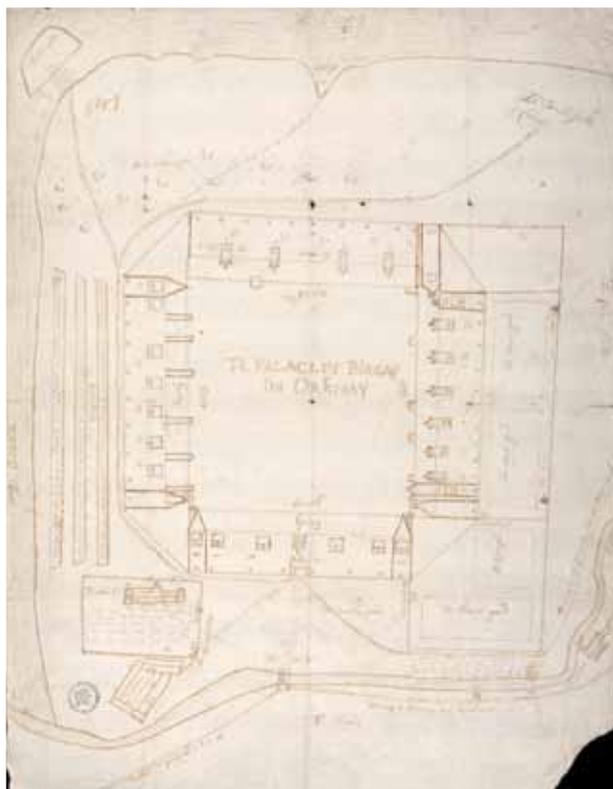
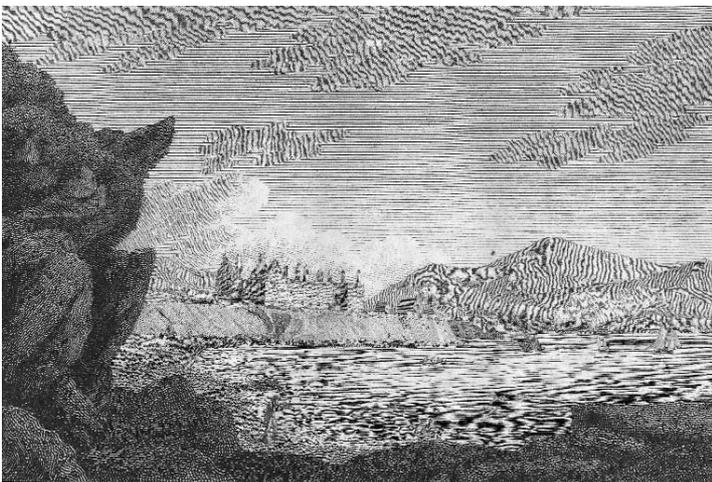
There is a tradition of a large mansion house called the Palace of Stenness which had its own water source piped up from the loch and was so tall that the ships coming into Stromness could be seen from the top storey. Leith adduces arguments that this was the high status building sold in 1563 to the Bellendens, along with the land which was later referred to as 'the manse' (Leith, P 1937, 41-4). An annotation on Thomas's map of 1849 locates this building to the south-east of the kirkyard and states that the foundations are still perceptible. There is no longer any sign of the building.

Post-medieval Orkney (1615–1840)

There were many changes within the islands in the period from the end of the Stewarts to the 1840s. The start of the period is marked by famine and severe poverty, which is followed by a slow improvement in conditions in the 18th century. This improvement accelerated with the growth in kelp and linen manufacture and the fishing industry. As a

52. The Earl's Palace at Birsay, built c1574 (Barry 1805)
© Orkney Archives.

53. Detailed 17th-century plan of the Earl's Palace at Birsay
National Archives of Scotland, RHP35836.





54. Kelp making near Stromness
Thomas Kent, © Orkney Archives.

result of this growth the lairds and the tenants became wealthier. During the 18th century there were a few attempts at agricultural improvement, although the majority of investment was made in kelp and linen production. This period of economic success dwindled in the 1830s with the kelp and linen industries in decline and as a result many landowners were faced with large debts.

The Stewart earls were the last earls to try to create a power base from their lands in Orkney (Figs 52 and 53; Thomson 2001, 395). All earls and tacksmen after the Stewarts held substantial estates elsewhere and were thus less interested in improving Orkney's condition; their main concern was to collect rent. This created resentment within the islands as well as poverty; there was little connection between those exacting the taxes and those paying them (Thomson 2001, 395).

The first decades of the 17th century were particularly difficult for the working population of Orkney. Extremely poor weather conditions, combined with high taxation, led to the exhaustion of both the land and the people. The situation was further compounded by the continued use of the medieval agricultural system of runrig. This system involved the division of each township into equal rigs (strips) of land that limited the crops that could be grown and the yields obtained. Between 3,000 and 4,000 people are estimated to have died in the islands as a result of the climatic deterioration in the 1620s and 1630s, with land also going out of

cultivation and the number of beggars increasing dramatically. In 1629, after a decade of famine, plague came to Orkney and, as a precautionary measure to prevent the spread of the disease, all trade was stopped. Further famine in the early 1630s brought the islands to a standstill and yet taxes were still demanded, and sent, to the Crown. Famine returned at the close of the century when again many people died and land again ceased to be cultivated (Thomson 2001, 307-9). Due to these circumstances, the land systems in Orkney changed very little, with land going out of use rather than being brought into use.

Conditions improved dramatically for the population from the 1720s with the development of the kelp (Thomson 1983) and linen industries, which provided extra income for the tenants. The deep-sea fishing industry also developed in the 1700s, along with the Hudson's Bay Company and the whaling ships, both of which required labourers to work in northern climes. New technological advances enabled longer trips at sea and thus increased the demand for labour abroad, so there was a shortage of male labour in the islands during parts of the year. The linen and kelp industries provided work for the women of the islands, and so both men and women became slightly more prosperous. Extensive archaeological evidence for the kelp industry remains in the form of shallow, stone-lined pits along the coast of Orkney (Fig 54) while, in contrast, the linen industry is archaeologically almost invisible.

However, the 1830s saw the collapse of the linen and kelp industries in Orkney as both products could be obtained more cheaply elsewhere. Kelp continued to be produced but never reached the same prices again. Straw plaiting was begun in Orkney in the early 1800s but it too was in decline by the 1830s. The Hudson's Bay Company merged with the North West Company in 1821 and no longer employed as many Orcadians. There were several bad fishing years in the 1830s as well, which affected the cod fishing and lobster exports. Orkney



55. Skail House, Sandwich
© Crown copyright, Historic Scotland.

was again in a low economic period and many of the lairds who had invested heavily in kelp and linen were faced with large debts. As a result of the end of the 18th-century boom there was a large unemployed labour force in the islands. The lairds needed money and this combined with a large available labour force and the growth of communications to bring about the start of the farming revolution of the 19th century.

From the 17th century the lairds had increasing power and wealth which they expressed in the erection of small mansion houses. These were either newly built or renovated older properties; examples include Breckness House, Stromness (HY20 NW5); the Hall of Tankerness (HY50 NW81); Langskaill in Gairsay (HY42 SW8); and Skail House in Sandwich (HY21 NW17). Skail House provides a good example of the way in which a small mansion house and estate grew and developed in this period (Fig 55). The oldest surviving part of Skail House was built by 1628; the central wing was then built by George Graham who enlarged the mansion house at Skail between 1615 and 1643. In 1670 the house was modernised and a walled garden was constructed in the 18th century. William Watt (1787-1810) of Skail House extended the estate and modernised the home farm, as well as experimenting with kelp production, sea fishing and quarrying. William Graham Watt (1810-1866) abolished run-rig on the estate and enclosed the commons. There was a flax mill and a dovecote on the estate (Irving 1997). Several of these lairds' properties were laid waste when they were burned as

a punishment for Jacobean sympathies after the 1745 uprising, including Trenaby in Westray and Sound in Shapinsay; others survived, and those lairds who came through the Jacobite repercussions saw an increase in wealth due to the increase in local industry. They thrived from kelp and linen profits in the early 19th century.

The small lairds and the ministers were bent on improving physical and moral conditions within the islands. As a result some attempts were made at agricultural improvements by the lairds, such as the introduction of new crops (potatoes), the enclosure of some areas and some expansion into the commons. In Birsay there was an early attempt at 'planking' c1748, a system where the land was divided into equal value units. By the late 1700s much of Orkney's farmland had been divided into 'planks' of approximately one Scots acre. However, several farmers often shared these planks and they were further divided up into rigs, so the run-rig system continued to be used, although to a lesser extent (Thomson 2001, 333-5). Many of the ministers encouraged education and were often found teaching and helping the poor. During the 18th century many churches were rebuilt, some with laird's aisles, reflecting the close relationship between church and secular authority. As mentioned above, the decline in the local industries in the later 19th century affected the lairds badly and put many into major debt and, as a result, the estate land became the focus of attention.

The post-medieval World Heritage Site and Inner Buffer Zones

The Stenness area was not one of the parts of Orkney where early improvements were attempted and so would have been tenanted out and farmed using the run-rig system. Captain Thomas's map of 1849 (cover; Thomas 1852) gives an overview of farms, field systems and types of land cover in relationship to the major monuments of the Brodgar area. This cartographic evidence has recently been augmented by the results of the WHAGP. This survey has revealed surviving

evidence for post-medieval field systems between the Stones of Stenness and the Barnhouse Stone (GSB 2002; 2003b).

Modern Orkney (1840-1945)

There were a number of events which led to the introduction of widespread large-scale agricultural improvements in Orkney around 1840. The main occurrences were the collapse of the boom economy of 1770-1830, the steady population increase and the increase in communications. The landlords of this time have had a major influence on the development of today's landscape. Agricultural improvement methods were widely known and, because of the increased number of available labourers, it was possible to concentrate on the improvement of the land. The first action taken was the division of the commons; this took place from the early 1800s and was complete by 1860 (Bailey 1971, 120). Labourers were employed to drain and enclose the land and slowly a new landscape of large square fields was created. As noted by George Petrie in a letter to Daniel Wilson in 1849, these improvements had a drastic effect on many archaeological sites. Probably hundreds of sites were removed 'without any attention being given to preserve a record of their construction and contents' (Wilson Collection MS). As part of this squaring system the cottars were relocated by their landlords; an early example resulted in the building of the estate village at Shoreside in Shapinsay c1780 to house the cottars and tenants of Thomas Balfour's estate (Thomson 2001, 339, 386). This estate was later completely

squared under David Balfour, who imposed a grid of 10-acre fields across almost the whole island. This system replaced Thomas's earlier attempts at squaring and the acreage of arable land in Shapinsay increased from 748 acres to 2248 (Thomson 2001, 386). In Eday, by contrast, the laird's primary interest in the land was as a shooting estate, which led to much of the land being left under heather. The marked contrast between Shapinsay and Eday today exemplifies the landscape legacy left by the 19th-century lairds. Clearances did not occur to any great extent in Orkney, with the notable exception of Rousay, where the entire township of Quandale has been left as a fossilised pre-Improvement landscape under a sheep-run. Although the improvements must have been difficult for many of the tenants and cottars, and in many areas the numbers of tiny and ultimately unsustainable settlements of the poor now mark the landscape with their ruins, the long-term effects were fundamental to Orkney's establishment as a leading agricultural area.

The agricultural expansion was contemporary with the significant development of the herring industry, which not only employed many locals for the short 12-week fishing season but also dramatically increased the population of Orkney during those weeks. Stronsay, Stromness (Fig 56) and St Margaret's Hope were the main settlements to benefit directly from the herring industry, and the villages of St Mary's, St Margaret's Hope, Burray and Herston were all created as a result of the herring industry. Even after 1918 there were 300 drifters and a population increase of 4,000 in Stronsay during the fishing season (Thomson 2001, 369).

The mid-19th century was a time of development and widening horizons. The newly created land system produced better yields and allowed a larger variety of crops to be grown. Cattle exports from Orkney increased greatly in the period 1846-75 and the egg industry also developed and expanded vastly, in part due to the

56. Fishing station, Stromness
Thomas Kent, © Orkney Archives.





57. Scapa seaplane station
Thomas Kent, © Orkney Archives.

establishment of a regular steamboat service to the islands which allowed for easy export. The greater yields resulted in the investment in new machinery and larger farm buildings, not to mention larger profits. The infrastructure on Mainland Orkney was also improved with the building of roads and the establishment of a regular post coach and travelling shops (Bailey 1971, 123). Tourists came to Orkney attracted by the idea of a remote retreat (as described by Sir Walter Scott) although, ironically, it was the development of transport which both allowed them to arrive in relative ease and, at the same time, diminished the very isolation which they came to seek. This was also the period when antiquarianism began (pp 40-46; Wickham-Jones 1998, 181) as landlords investigated the archaeological remains on their land. These explorations were often destructive, although it was during this period that Watt of Skail discovered Skara Brae and Farrer opened Maeshowe.

By the 1880s the agricultural and fishing boom had ended and, as a result, many landowners were again left in debt. A decrease in population after 1861 meant there was a labour shortage and servants could therefore demand better conditions. As a result of this the social balance was greatly altered and the days of the dominance of the laird and minister were coming to an end. The economy did not deteriorate to any great extent but remained static until 1919 when the

knock-on effects were felt after the First World War (WWI). The Orkney lairds had been affected by the Crofters' Commission and the rights to compensation that had resulted in the fossilisation of rents at low rates. This, combined with the increases in taxes in the early 1900s, led to the majority of the large estates being divided and sold after 1919 (Thomson 2001, 416-20). The sitting tenants, who had benefited both from the low rents and the increased sales of produce due to war shortages, were now able to buy the land from the lairds. This created a new class of owner-occupiers in Orkney and, while the rest of the country was in economic decline, the farming population of Orkney maintained itself through the export of eggs and beef, and improved rotation of crops.

War, itself, had a marked effect on the islands (Fig 57). In WWI the importance of Scapa Flow as a naval defence was second to none. As a result there was a great increase in the population with the arrival of large numbers of troops. However, the majority of the armed forces was based on ships and seldom came ashore (Brown and Meehan 1968, 58-68). Nonetheless, there were several bases located in the islands, including two in Stenness: the Standing Stones Hotel (HY31 SW107) was commandeered for the headquarters of the Houton Bay Air Station, while the Loch of Stenness was used as a seaplane base (HY31 SW71) with a subsidiary airstation located at Gernaness, a peninsula on the west side of the loch (Hewison 1995, 28; 2000, 113). The main effect of the rise in population was the increased demand for food which led to increased profits for the local farmers. In WWII there was a land-based garrison of c60,000 stationed in Orkney and this had a dramatic effect on the landscape and the people (Bailey 1971, 134). There were many camps and bases built in the islands and soldiers were to be seen everywhere. The Churchill Barriers, built by prisoners of war, permanently linked the islands of Burray and South Ronaldsay to the Mainland. The effect of such a great increase of population led to



58. Aerial photograph of Maeshowe in 1965 showing the remains of some WWII buildings in the immediate vicinity
 Crown Copyright: RCAHMS: John Dewar Collection.



59. Military training at the Ring of Brodgar during WWII
 By permission Imperial War Museum.

the improvement of the infrastructure in the islands which had remained unaltered from the agricultural expansion period of the previous century. By the 1940s most of the owner-occupiers had paid off their loans and were secure in their own farms due to the profits made supplying food to the increased population from 1914-18 and 1939-45. In addition, the scuttling of the German High Seas Fleet in Scapa Flow in 1919 has left Orkney with an unparalleled underwater archaeological heritage resource; recreational diving is currently a mainstay of the Stromness economy (Oxley 2002, 865).

The period of agricultural improvement from 1840 to 1880 completely recreated the landscape of Orkney and, by introducing a better system of agriculture, enabled the islanders to increase their wealth and to eventually buy their own

farms. It is perhaps ironic that the landowners who advanced the farming system were those who benefited the least. The World Wars, although resulting in many losses and tragedies, brought the outside world into closer contact with Orkney and, both at the time and subsequently, greatly increased the wealth of the farmers. As a result of the significance of Scapa Flow, the population who remained in the islands benefited when they might otherwise have experienced economic decline.

The modern period World Heritage Site and Inner Buffer Zones

The perspective of the landscape of today is dominated by the changes that took place over this period. The dividing of the commons and the squaring of land affected the Stenness area, especially at the south end of the Loch of Harray where the better farming land is located. The beginnings of antiquarianism in the mid to late 1800s resulted in the investigation of Skara Brae by the laird of the Skaill estate, and the opening of Maeshowe. The 19th-century meal mill at Tormiston (HY31 SW60), which is now used as a visitor centre for Maeshowe, is an excellent example of a prosperous three-storey mill with overshot wheel, examples of which can be found widely in Orkney. WWII had an effect on the IBZ in Stenness. There was an army camp at Tormiston which was sited adjacent to Maeshowe (Fig 58), destroying several prehistoric burial mounds in the process (HY31 SW21), and which used the Brodgar peninsula as a training area (Fig 59), along with the small holms in the loch of Harray and much of the non-arable land in the surrounding area (Hewison 2000, Appendix II; Leith, P K I 1997, 42-3). There was also a searchlight station, forming part of the defences of Scapa Flow during WWII, located next to the present Buckan Cottage (HY 285 144) and a seaplane base at Gernaness (HY31 SW71) in the Stenness Loch. It was during this period that the monuments of the WHS came into State care (Stones of Stenness and Ring of Brodgar in 1906; Maeshowe in 1910 and Skara Brae in 1924).